2022-1957

United States Court of Appeals for the Federal Circuit

Q3 NETWORKING LLC,

Appellant,

– v. –

INTERNATIONAL TRADE COMMISSION,

Appellee,

COMMSCOPE HOLDING COMPANY, INC., COMMSCOPE, INC., ARRIS U.S. HOLDINGS, INC., RUCKUS WIRELESS, INC., HEWLETT PACKARD ENTERPRISE CO., ARUBA NETWORKS LLC, NETGEAR, INC.,

Intervenors.

On Appeal from the United States International Trade Commission in No. 337-TA-1227

NON-CONFIDENTIAL BRIEF FOR APPELLANT

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DECEMBER 6, 2022

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UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

CERTIFICATE OF INTEREST

Case Number 2022-1957

Short Case Caption Q3 Networking LLC v. ITC

Filing Party/Entity Q3 Networking LLC

Instructions: Complete each section of the form. In answering items 2 and 3, be specific as to which represented entities the answers apply; lack of specificity may result in non-compliance. **Please enter only one item per box; attach additional pages as needed and check the relevant box**. Counsel must immediately file an amended Certificate of Interest if information changes. Fed. Cir. R. 47.4(b).

I certify the following information and any attached sheets are accurate and complete to the best of my knowledge.

Date: 12/06/2022

Signature: /s/ Patrick J. Conroy

Name: Patrick J. Conroy

1. Represented Entities. Fed. Cir. R. 47.4(a)(1).	**2. Real Party in Interest.** Fed. Cir. R. 47.4(a)(2).	**3. Parent Corporations and Stockholders.** Fed. Cir. R. 47.4(a)(3).
Provide the full names of all entities represented by undersigned counsel in this case.	Provide the full names of all real parties in interest for the entities. Do not list the real parties if they are the same as the entities. ☑ None/Not Applicable	Provide the full names of all parent corporations for the entities and all publicly held companies that own 10% or more stock in the entities. ☑ None/Not Applicable
Q3 Networking LLC		

☐ Additional pages attached

4. Legal Representatives. List all law firms, partners, and associates that (a) appeared for the entities in the originating court or agency or (b) are expected to appear in this court for the entities. Do not include those who have already entered an appearance in this court. Fed. Cir. R. 47.4(a)(4).

☐ None/Not Applicable ☐ Additional pages attached

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5. Related Cases. Provide the case titles and numbers of any case known to be pending in this court or any other court or agency that will directly affect or be directly affected by this court's decision in the pending appeal. Do not include the originating case number(s) for this case. Fed. Cir. R. 47.4(a)(5). See also Fed. Cir. R. 47.5(b).

☐ None/Not Applicable ☐ Additional pages attached

Q3 Networking LLC v. CommScope Holding Co. Inc., et al., C.A. No. 1:20-cv-01263 (D. Del.)	Q3 Networking LLC v. Netgear, Inc., C.A. No. 1:20-cv-01264 (D. Del.)	Q3 Networking LLC v. Hewlett Packard Enterprise Co., et al., C.A. No. 1:20-cv-01265 (D. Del.)
Hewlett Packard Enterprise Co., et al. v. Q3 Networking LLC, IPR2021-00754 (PTAB)	Hewlett Packard Enterprise Co., et al. v. Q3 Networking LLC, IPR2021-00753 (PTAB)	

6. Organizational Victims and Bankruptcy Cases. Provide any information required under Fed. R. App. P. 26.1(b) (organizational victims in criminal cases) and 26.1(c) (bankruptcy case debtors and trustees). Fed. Cir. R. 47.4(a)(6).

☑ None/Not Applicable ☐ Additional pages attached

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STATEMENT REGARDING CONFIDENTIAL MATERIAL

Pursuant to the Federal Circuit Rule 28(d)(1)(B), material subject to a protective order entered by the United States International Trade Commission has been redacted. Pages 16-18, 20-22, 24, 27-29, 32, 33, 35, 36, 38, 47, 48, 50, and 51 contain confidential business information designated as confidential in the U.S. International Trade Commission Final Determination and party pleadings at issue in this appeal.

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STATEMENT OF RELATED CASES

No other appeal in or from the proceeding below was previously before this or any other appellate court.

STATEMENT OF JURISDICTION

This Court has jurisdiction over this appeal under 28 U.S.C. § 1295(a)(6) and 19 U.S.C. § 1337(c). The United States International Trade Commission issued its final determination in Investigation No. 337-TA-1227, styled *Certain Routers, Access Points, Controllers, Network Management Devices, Other Networking Products, and Hardware and Software Components Thereof (Inv. No. 337-TA-1227)* (the "1227 Investigation") *See* Appx660 at EDIS Doc. No. 758104. The Commission conducted its investigation pursuant to section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337. Q3 Networking LLC ("Q3") timely noticed its appeal on June 28, 2022. Dkt. No. 1.

INTRODUCTION

The Commission's core infringement and technical domestic industry "findings" of law and fact, with respect to each of the three patents at issue in the 1227 Investigation, were copied almost *verbatim* from the Respondents' briefs in all material respects. Those findings formed the basis for the Commission's Final Determination of no violation. The Commission's copied findings, however, do not show independent analysis by the agency, because they largely duplicate – almost

word for word – the Respondents' briefs. The Commission's Final Determination of no violation was therefore arbitrary and capricious because the agency failed to "provide a reasoned explanation for its action." *Dep't of Homeland Sec. v. Regents of the Univ. of California*, 140 S. Ct. 1891, 1913 (2020). The Commission's Final Determination of no violation should therefore be vacated and remanded.

STATEMENT OF THE ISSUES ON APPEAL

1. Whether the Commission's Final Determination of no violation was arbitrary and capricious and not in accordance with law when, in relevant part, it copied nearly verbatim the findings of fact and law proposed by the Respondents in their post-hearing briefing before the Administrative Law Judge ("ALJ"), without offering independent agency analysis or reasoning.

2. Whether the Commission failed to consider key aspects of the problem in its Final Determination when it failed to recognize or discuss contrary facts and arguments adduced at the evidentiary hearing and offered by Q3 with respect to infringement and technical domestic industry as to the '853, '305 and '677 patents.

STATEMENT OF THE CASE AND FACTS

On October 28, 2020, the Commission instituted the 1227 Investigation under Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. 1337, based on a complaint filed by Q3 Networking LLC of Frisco, Texas ("Complainant" or "Q3"). Appx12544-12545. The complaint alleged a violation of Section 337 in the

importation into the United States, the sale for importation, or the sale within the United States after importation of certain routers, access points, controllers, network management devices, other networking products, and hardware and software components thereof by reason of infringement of certain claims of U.S. Patent Nos. 7,609,677 ("the '677 patent") Appx609-617; 7,895,305 ("the '305 patent") Appx601-608; 8,797,853 ("the '853 patent") Appx592-600; and 7,457,627 ("the '627 patent") Appx1761-1774. The complaint also alleged the existence of a domestic industry. The notice of investigation named as respondents: CommScope Holding Company, Inc. of Hickory, North Carolina; CommScope, Inc. of Hickory, North Carolina; Arris US Holdings, Inc. of Suwanee, Georgia; Ruckus Wireless, Inc. of Sunnyvale, California; Hewlett Packard Enterprise Co. of Palo Alto, California; Aruba Networks, Inc. of Santa Clara, California; and NETGEAR, Inc. of San Jose, California (collectively, "Respondents"). Appx12545. The Commission subsequently permitted Q3 to amend the complaint and notice of investigation to correct the corporate name of respondent Aruba Networks, Inc. to respondent Aruba Networks, LLC. Appx19142-19145 (Order 15); unreviewed by Notice, Appx19216-19218.

On December 7, 2021, the ALJ issued the final Initial Determination ("ID") in this investigation, holding that no violation of section 337 had occurred. Appx269-591. The ID found that the accused products do not infringe the asserted

claims of any of the asserted patents. The ID also found that the technical prong of the domestic industry requirement had not been satisfied with respect to the '853, '305, and '677 patents. The ID further found that it had not been shown that the asserted claims of the '853, '305, and '677 patents were invalid. The ID also found that the domestic industry requirement (both technical and economic prongs) had not been satisfied with respect to the '853, '305, and '677 patents.

Q3 petitioned for review of the ID. Appx40139-40247. Q3 in its Petition for Review repeatedly warned the Commission that the ID had improperly copied the Respondents' briefs. *See* Appx40189; Appx40220; Appx40231. The Commission disregarded Complainant's argument in its Final Determination.

The Commission on May 3, 2022, determined to review the ID in order to take no position with respect to the ID's findings with respect to Q3's satisfaction of the economic prong of the domestic industry requirement, and to correct certain non-substantive citation errors in the final ID. Appx41140-41142; Appx41144. The Commission adopted the remainder of the final ID as its own without further modification whereupon it became the Final Determination of the Commission (the "Final Determination"). *Id*.

SUMMARY OF THE ARGUMENT

The Commission, in relevant part, adopted the Initial Determination ("ID") of the Administrative Law Judge ("ALJ") without modification, whereupon the ID

became the Final Determination of the Commission. The Commission's "findings" of law and fact with respect to infringement and the technical domestic industry requirement, for each of the three patents at issue, were copied largely verbatim from the Respondents' post-trial briefs. The Commission's copied findings do not reflect independent analysis by the agency and are therefore arbitrary and capricious because the agency failed to "provide a reasoned explanation for its action." *Dep't of Homeland Sec. v. Regents of the Univ. of California*, 140 S. Ct. 1891, 1913 (2020). The Commission's Final Determination should therefore be vacated and remanded to the Commission for independent analysis.

ARGUMENT

I. Standard of Review

Pursuant to the Administrative Procedure Act, the Federal Circuit "shall . . . hold unlawful and set aside agency action, findings, and conclusions found to be . . . arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A). The Court, in determining whether the Commission's determination was arbitrary and capricious, must "address only whether the agency complied with the procedural requirement that it provide a reasoned explanation for its action." *Dep't of Homeland Sec. v. Regents of the Univ. of California*, 140 S. Ct. 1891, 1913 (2020). An agency's determination is also arbitrary and capricious if it "failed to consider an important aspect of the problem" and offers "an explanation

for its decision that runs counter to the evidence before the agency." *George v. Bay Area Rapid Transit*, 577 F.3d 1005, 1010 (9th Cir. 2009).

The Court reviews the Commission's legal determinations de novo and its factual findings for substantial evidence. *Crocs, Inc. v. Int'l Trade Comm'n*, 598 F.3d 1294, 1302 (Fed. Cir. 2010).

II. The Commission's Determination, Copied In Relevant Part from The Respondents' Post-Trial Briefing, Breached the APA Requirement that the Agency Provide a Reasoned Explanation for its Action

The Commission's Final Determination did not satisfy the agency's obligation under the Administrative Procedure Act that the agency provide a "reasoned explanation for its action" when that determination, in relevant part, was copied nearly verbatim from the post-trial briefs of the Respondents. As the Supreme Court has explained, "[t]he reasoned explanation requirement of administrative law is meant to ensure that agencies offer genuine justifications for important decisions, reasons that can be scrutinized by courts and the interested public." *Department of Commerce v. New York*, 139 S. Ct. 2551, 2576 (2019). The APA requires that "a finding that the actual choice made was not 'arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.' To make this finding the court must consider whether the decision was based on a consideration of the relevant factors . . . . " (emphasis added)). *Citizens to Pres. Overton Park*, 401 U.S. 402, 416 (1971).

Courts of Appeal in similar circumstances have found that such *verbatim* copying by a district court can constitute clear error, justifying remand and further proceedings. That precedent is particularly relevant here, where the Commission is acting as a court, rendering findings of fact and law. As the Third Circuit has explained, "[j]udicial opinions are the core work-product of judges. They are much more than findings of fact and conclusions of law; they constitute the logical and analytical explanations of why a judge arrived at a specific decision. They are tangible proof to the litigants that the judge actively wrestled with their claims and arguments and made a scholarly decision based on his or her own reason and logic. When a court adopts a party's proposed opinion as its own, the court vitiates the vital purposes served by judicial opinions." *Bright v. Westmoreland Cnty.*, 380 F.3d 729, 732 (3d Cir. 2004). Where, as here, the Commission simply copies one side's briefs and adopts its arguments as the agency's findings, it risks creating the appearance that the Commission is a fair and impartial arbiter.

At a minimum, courts of appeal have applied heighted scrutiny to opinions that copy the findings of law and fact offered by one of the litigants. *See Silver v. Exec. Car Leasing Long-Term Disability Plan*, 466 F.3d 727, 733 (9th Cir. 2006) (applying the clearly erroneous standard while noting that "the wholesale and verbatim adoption of one party's findings requires us to review the record and the district court's opinion more thoroughly").

The Commission's copying of the Respondents' opening brief is inconsistent with agency's obligation to provide a reasoned explanation for its conclusions. It cannot be that a federal investigative agency can discharge its obligations under the Administrative Procedure Act by replicating, almost word for word, without more, the written arguments submitted by an interested party as the final determination of the agency. As the Supreme Court has explained, "[t]he reasoned explanation requirement of administrative law is meant to ensure that agencies offer genuine justifications for important decisions, reasons that can be scrutinized by courts and the interested public." *Department of Commerce v. New York*, 139 S. Ct. 2551, 2576 (2019).

Public trust in the government's impartiality will be undermined if its administrative agencies are permitted to copy almost *verbatim* an advocate's arguments as the opinion of the agency. A Commission Final Determination serves a very different function from the brief of an advocate. As Judge Easterbrook, writing for the Seventh Circuit, explained: "[a] district judge could not photocopy a lawyer's brief and issue it as an opinion. Briefs are argumentative, partisan submissions. Judges should evaluate briefs and produce a neutral conclusion, not repeat an advocate's oratory." *DiLeo v. Ernst & Young*, 901 F.2d 624 (7th Cir. 1990). Yet that is precisely what the Commission did here. Such copying undermines the credibility of the agency as a neutral and impartial arbiter. The need for the public

to have "confidence in the process as well as the judgments of its decision-makers" is not less significant because the decision-maker is an administrative agency not a district court. *Greater Bos. Television Corp. v. FCC,* 444 F.2d 841, 852 (D.C. Cir. 1970).

The Commission, after copying almost *verbatim* the Respondents' post-hearing briefing, also failed to discuss the arguments and evidence adduced at the evidentiary hearing by Q3 in response to the Respondents' "Common/Fundamental Issues." therefore failed to "examine[s] the relevant data and articulate[s] a satisfactory explanation for its action including a rational connection between the facts found and the choice made." *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co*., 463 U.S. 29, 43 (1983) (quotation omitted).

The Court has a clear obligation, under these extraordinary circumstances, to intervene, in the interest of fundamental fairness, to vacate the Final Determination and remand to the Commission to conduct an independent analysis of the law and facts of the 1227 Investigation. Where the Court "becomes aware, especially from a combination of danger signals, that the agency has not really taken a "hard look" at the salient problems, and has not genuinely engaged in reasoned decision-making," it must exercise judicial supervision. *Greater Bos. Television Corp*., 444 F.2d at 851.

III. The Commission Failed In Its Obligation to Offer A Reasoned Explanation for Its Final Determination and to Consider All the Evidence and Arguments

A. The Pervasive Nature of the Commission's Copying of the Respondents' Trial Briefs Precludes Review on the Merits

The scale and scope of the Commission's near-verbatim copying of the Respondents' trial briefing into the agency's Final Determination was so pervasive as to effectively preclude review by this Court on the merits. There is little text in the Final Determination's findings of law or fact that originated with the Commission – the relevant "analysis" was mostly cut and pasted from the Respondents' briefing. The discussion below provides representative examples of the Commission's copying with respect to one accused product with respect to the '853 patent and one accused product with respect to the '677 accused product. A more comprehensive tabular key to the Commission's copying of the Respondents' briefing as it relates to infringement follows the examples.

B. The Commission, In Relevant Part, Improperly Copied the Respondents' Brief in its Findings with Respect to the '677 Patent and Failed to Consider Contrary Evidence.

The discussion below demonstrates both the materiality and pervasiveness of the Commission's improper copying through an exemplary claim, Claim 1 of the '677 patent. The Commission's Opinion on infringement for the '677 patent is largely copied directly from Respondents' briefing with only minor stylistic changes. Appx478-538 (ID); *see also* Table at Section D below. By copying the

Respondents' briefing, the Commission ignored the Complainant's reply briefing and all the points made therein – echoing the Respondents, who could not address Complainant's points because of the simultaneous exchange of reply briefs. The Commission Opinion so closely duplicated the Respondents' briefing that it includes their footnotes and figures.

1. '677 Patent – Claim 1[pre]: "A method for transmitting information …"

The Respondents never argued that the preamble limits claim 1 of the '677 patent. Consequently, the Commission also did not analyze whether this preamble limits the claim. Instead, the Commission – replicating the Respondents -- skipped this necessary step and copied largely verbatim the Respondents' arguments that Complainant had not shown certain aspects of the preamble in the accused products. The Commission, for example, copied nearly verbatim the Respondents' claim that Complainant's "allegations require unaccused third-party devices to perform one or more steps of the '677 patent's asserted claim 1. Those products are outside the notice of investigation, and the accused products themselves therefore cannot infringe." Appx481-482 (ID); see table below comparing Resp. Post-Hr'g Br. at Appx39200. The problem with both this "analysis" is that this Court "has recognized that as a general rule preamble language is not treated as limiting." *Arctic Cat Inc. v. GEP Power Prods.* 919 F.3d 1320, 1327 (Fed. Cir. 2019). Complainant's briefing pointed out that the parties did not seek to construe the preamble.

Appx39366 (Q3 Post-Hr'g Br.). The Commission, however, uncritically replicated the Respondents' error and ignored Complainant's legal argument.

In the following excerpt from the preamble section, the few differences between the Respondents' briefing and the Commission's Final Determination are underlined and bolded in the table below:

RESPONDENTS' POST-HEARING BRIEF, APPX39200	FINAL DETERMINATION, APPX481-482
First, **Q3's** allegations require unaccused third party devices to perform one or more steps of the '677 Patent's asserted claim 1. **JX-0001.** Those products are outside the notice of investigation, and the accused products themselves therefore cannot infringe. Dr. Madisetti **responds by opining** that "HPE's corporate witnesses also supplied testimony supporting my position that the Aruba access points themselves perform the method of claim 1 without relying on the clients, *i.e.*, the communicating devices." Q/A 319. This is **incorrect**—the cited testimony just states that Client Match runs on certain HPE accused products and not on third-party client devices. That does not mean that those third-party client devices are not necessary to perform the claimed limitation—to the contrary, the third-party devices ("communicating devices") are expressly recited in the claim.	First, **complainant's** allegations require unaccused third-party devices to perform one or more steps of the '677 patent's asserted claim 1. ***Those*** products are outside the notice of investigation, and the accused products themselves therefore cannot infringe. Dr. Madisetti **opines** that "HPE's corporate witnesses also supplied testimony supporting my position that the Aruba access points themselves perform the method of claim 1 without relying on the clients, *i.e.*, the communicating devices." ***See* CX-3846C (Madisetti WS) at** Q/A 319. This is **wrong**. **T**he cited testimony just states that Client Match runs on certain HPE accused products and not on third-party client devices. That does not mean that those third-party client devices are not necessary to perform the claimed limitation. **T**o the contrary, the third-party devices ("communicating devices") are expressly recited in the claim.

This excerpt is merely exemplary. The entirety of the infringement section in the Final Determination with respect to the '677 patent was similarly copied almost *verbatim* from Respondents' briefing with no substantive changes. The table shown below in Section D correlates the Final Determination with the Respondents' post-trial briefing to show the copying in the infringement sections. The Commission – like the Respondents – ignored the Complainant's showing that "HPE access points and/or controllers themselves perform the method of claim 1" in favor of a conclusory reading of third-party devices into the claim. Appx39367. Complainant demonstrated that the access points themselves met each limitation, never relying on any third-party devices such as a laptop or phone as performing any of the claimed steps. *See, e.g.*, Appx39765 (Q3 Reply Post-Hr'g Br.) ("Claim 1 recites 'linking … at least two communicating devices.' For HPE and NETGEAR, the accused products (e.g., the access points) perform that linking step, not the communicating devices, such as laptops and phones."). None of this is discussed in the Respondents' briefing (or the Final Determination). The Commission also ignored Complainant's showing that, even if the claims were incorrectly read to require "communicating devices," those communicating devices are used by HPE when HPE tests the accused products, thereby directly infringing the claims. Appx39393-39394.

The Commission's copying of Respondents briefing with respect to this claim term – and failure to acknowledge let alone discuss Complainant's factual showings

that contradicted the Respondents' mischaracterization of the facts—was highly material because it was a basis for the agency's finding of non-infringement with respect to this claim term.

2. HPE - Claim 1[a]: "Linking" Step

The Commission also largely copied Respondents' briefing for its entire discussion of the claimed "linking" step of limitation 1[a] of the '677 patent. Exemplary copied language from the Commission's Final Determination is shown in the table below. Again, the *de minimis* differences have been underlined and bolded:

RESPONDENTS' POST-HEARING BRIEF, APPX39201	FINAL DETERMINATION, APPX483
Q3 claims that the step of linking two communicating ***devices*** (e.g., a phone and laptop) for transmission of information is met by merely providing the connections via the interlinking of the base stations in a base station network. In support, **Q3** relies on one high-level figure in an HPE manual showing a phone and a laptop individually connected to a network. While the HPE products can be used to allow third-party devices to connect to a network, that does not necessarily mean there is any overall link between the identified phone and the laptop for "transmission of information." Dr. Madisetti has not shown an overall link between two third-party devices and, as Dr. Lin testified, the figure alone does not show infringement of this method	**Complainant argues** that the step of linking two communicating devices (*e.g.*, a phone and laptop) for transmission of information is met by merely providing the connections via the interlinking of the base stations in a base station network. In support, **complainant** relies on one high-level figure in an HPE manual showing a phone and a laptop individually connected to a network. While the HPE products can be used to allow third-party devices to connect to a network, that does not necessarily mean there is any overall link between the identified phone and the laptop for "transmission of information." Dr. Madisetti has not shown an overall link between two third-party devices and, as Dr. Lin testified, the figure alone does not

claim limitation. JX-0001 ('677 Patent) at claim 1 ("CSI is supplied for an overall link between the at least two communicating devices."); **Tr. (B.** Lin) 571**:5-14**; RX-1196C at Q/A 68-70.	show infringement of this method claim limitation. ***See*** JX-0001 ('677 Patent) at claim 1 ("CSI[26] is supplied for an overall link between the at least two communicating devices."); **Lin Tr.** 571; RX- 1196C **(Lin RWS)** at Q/A 68-70.

As with its analysis of the preamble, the Commission's Final Determination with respect to the "linking" term is arbitrary and capricious because it failed to consider important aspects of the problem and offer an explanation for its decision that runs counter to the evidence before the agency. As argued in Complainant's briefing, the evidence before the Commission should have ended any inquiry into the common-sense answer of whether the Accused Products operate to link communicating devices. Appx39370-39371; Appx39765. As Complainant explained and the evidence showed, the purpose of the access points is to provide internet connections to end-user devices such as laptops and smartphones; accordingly, the access point must provide a link between those communicating devices. Appx39370-39371.

The Commission ignored this evidence and argument. The Commission's Final Determination – replicating the Respondents — instead focused on copying Respondents' (incorrect) argument that this term requires an "overall link." Appx483 (ID). The Commission ignored Q3's explanation that limitation 1[a] only requires "linking the at least two communicating devices …", it does not recite that

the linking of the devices must create an "overall link." Appx39777. The Commission did not address that point; instead, it copied Respondents' inapposite reference to claim 1[b]. *See* Appx483 (ID) (citing limitation 1[b] (instead of 1[a]) as follows: "CSI is supplied for an overall link between the at least two communicating devices") (footnote omitted).

3. HPE - Claim 1[b]: "Supplying" Step

The Commission also improperly copied Respondents' briefing almost *verbatim* for its entire discussion of the claimed "supplying" step of limitation 1[b] of the '677 patent. Exemplary copied language from the Commission's Final Determination is shown in the table below. There are no differences other than a citation format change and an updating of the numbers for the footnotes.

RESPONDENTS' POST-HEARING BRIEF, APPX39202-39203	ALJ'S ID, APPX485
Rather than use the originally-accused Subject to ITC PO transmitted *by a client device*, the accused APs measure Subject to ITC PO [redacted].[17] *See, e.g.*, CX-0473C.0259-0261 (Interrogatory No. 68); RX-1198C.0012 (Dr. Balay) at Q/A 67-69. For Campus APs, the AP then Subject to ITC PO Subject to ITC PO [redacted] The controller Subject to ITC PO [redacted]	Rather than use the originally-accused Subject to ITC PO transmitted by a client device, the accused APs measure Subject to ITC PO [redacted].[28] *See, e.g.*, CX-0473C.0259-0261 (Interrogatory No. 68); RX-1198C.0012 (Dr. Balay) at Q/A 67-69. For Campus APs, the AP then Subject to ITC PO Subject to ITC PO [redacted] The controller Subject to ITC PO [redacted]

Subject to ITC PO [redacted] RX-1196C at Q/A 33. In no instance is the accused channel-specific information supplied from the claimed radio link.[18] *Id.*	Subject to ITC PO [redacted] ***See*** RX-1196C **(Lin RWS)** at Q/A 33. In no instance is the accused channel-specific information supplied from the claimed radio link.[29] *Id*. ***Note: while the footnote numbers are different, the ID also copies the footnotes themselves from Respondents' briefing.

The Commission simply ignored, without any discussion, Q3's showing that the [redacted] is "channel specific information, at least from one channel for a radio link between one of the communicating devices and at least one base station." For example, Complainant explained that Subject to ITC PO [redacted]. Appx39772. As the name shows, that information cannot originate at the access point, instead it is the information relating to the Subject to ITC PO [redacted] the access point (the claimed base station) from the client device (the claimed communicating device). *Id*; *see also* Appx39374; Appx39378-39388. Accordingly, that information is necessarily from the claimed radio link. *See, e.g.*, Appx39772. The Commission did not acknowledge, let alone discuss, this evidence.

4. HPE - Claim 1[c]: "Initiating" Step

The Commission also improperly copied Respondents' briefing largely *verbatim* for its entire discussion of the claimed "initiating" step of limitation 1[c] of the '677 patent. Exemplary copied language from the Commission's Final Determination is

shown in the table below, with the minor differences underlined and in bold. There are only *de minimis* differences between the ID and the Respondents' briefing:

RESPONDENTS' POST-HEARING BRIEF, APPX39214	ALJ's ID, Appx498
Second, **and critically,** the HPE accused products do not initiate a changeover or handover because Subject to ITC PO [redacted]. When Client Match sends Subject to ITC PO [redacted] it is always the client that decides whether to take any action based on the received recommendation. RX-1196C (Lin WS) at Q/A 22-23, 30, 148, 153, 155, 170; RX-1198C (Balay WS) at Q/A 59-62; RX-1199C (Gielty WS) at Q/A 28-30; **Tr. (**Gielty**)** at 322**:25**-323**:7**. **As such**, at the time a HPE accused AP sends Subject to ITC PO [redacted] This is because Subject to ITC PO [redacted] In fact, the 802.11v standard expressly states that the client must be able to reject any 802.11v request.[26]	Second, the HPE accused products do not initiate a changeover or handover because Subject to ITC PO [redacted] When Client Match Subject to ITC PO [redacted] ***See*** RX-1196C (Lin **R**WS) at Q/A 22-23, 30, 148, 153, 155, 170; RX-1198C (Balay WS) at Q/A 59-62; RX-1199C (Gielty WS) at Q/A 28-30; Gielty **Tr.** 322-323. **Thus**, at the time a HPE accused AP sends Subject to ITC PO [redacted] This is because Subject to ITC PO [redacted] In fact, the 802.11v standard expressly states that the client must be able to reject any 802.11v request.[36] ***Note: while the footnote number is different, the ID also copies the footnote itself from Respondents' briefing.

The copied briefing in the table above relates to the parties' dispute as to what the term "initiating at least one of a changeover…and a handover" means. Appx39388 (citing CX-3846C (Madisetti WS) at Q/A 368). The dispute concerns whether to explain the meaning of the word "initiating." *Id*. Complainant explains "initiating" by contending that this term means "causing, or facilitating, the beginning of at least a changeover or a handover" in accordance with its plain dictionary definition. *Id*. Respondents proposed a construction that did not define "initiating." Appx470 (ID).

While Respondents did not offer their own definition of initiating, Respondents somehow interpreted "initiating" to not be satisfied if the client device, instead of the accused products, is the ultimate decision maker of whether a handover to new access point occurs. Appx39388. This conflates initiating with approving or authorizing. *Id*.

Ignoring the pages of source code and documentary evidence offered by Q3 that show otherwise, the Commission's Final Determination parroted Respondents' argument, holding that "the client ('communicating device') controls whether to initiate a handover or changeover, not the accused HPE products." Appx498 (ID) (copying Resp. Post-Hr'g Br. at Appx39214). This holding confuses the fact that the client may ultimately approve a handover with the fact that the access point initiates the handover. *See, e.g.*, Appx39780. To reach that finding, the Commission ignored

the documents, testimony, and source code in evidence. For example, the Commission ignored CX-0104.0565, which states that the ClientMatch software running on the accused access points "moves the client to an AP when a better radio match is found." *see also* Appx39390 (citing CX-3846C (Madisetti WS) at Q/A 340). As an example of the code that the Commission ignored, the infringing code used by Subject to ITC PO [redacted]. *See, e.g.*, Appx39781. Thus, the client (e.g., a mobile phone) does not "control whether to initiate a handover" as the Commission held; the code instead shows the access point initiating handovers.

C. The Commission, In Relevant Part, Copied Almost *Verbatim* the Respondents' Brief in its Findings of Law and Fact with Respect to the '853 Patent and Failed to Consider Contrary Evidence.

1. Application of the Evidence to CommScope Accused Products

In its analysis of the '853 patent regarding the application of Q3's testing evidence to CommScope's Accused Products, the Commission copied nearly *verbatim* Respondents' opening brief. The minor, immaterial differences between the Respondents' briefing and the Commission's Final Determination are presented in bold underline in the tables that follow. The remainder of the text is identical:

RESPONDENTS' POST-HEARING BRIEF, APPX39062	FINAL DETERMINATION, APPX349
Q3's analysis collectively refers to the accused CommScope devices (which includes 30 APs **and** a	**Complainant's** analysis collectively refers to the accused CommScope devices (which includes

controller) as "Ruckus APs." CX-3846C (Madisetti WS) at Q/A 52. **Q3's purported** evidence may not be representative of the range of accused Ruckus products at least because much of the accused functionality in the accused CommScope products Subject to ITC PO [redacted]. RDX-0001C.0136 (JX-0175C (Jou Tr.) at 80:1-9). The way in which Subject to ITC PO Subject to ITC PO [redacted] may vary substantially across the accused products. **As such, Q3 has not met its burden to show** that the cited evidence is representative of the range of accused Ruckus APs. RX-1195C (Acampora WS) at Q/A 92-94. **Q3** references Subject to ITC PO [redacted] as **purported** evidence of infringement of the asserted '853 Patent claims. CX-3846C at Q/A 60 (citing CX-0684C), 68, 70, 73, 84, 86. However, there is no evidence presented from which a POSITA can determine whether the purported Subject to ITC PO fairly represents the other accused Ruckus APs that are **purportedly** represented. RX-1195C at Q/A 96.	30 APs and a controller) as "Ruckus APs." *See* CX-3846C (Madisetti WS) at Q/A 52. **Complainant's alleged** evidence may not be representative of the range of accused Ruckus products at least because much of the accused functionality in the accused CommScope products Subject to ITC PO [redacted]. *See* RDX-0001C.0136 (JX-0175C (Jou Dep. Tr.) at 80). The way in which Subject to ITC PO [redacted] may vary substantially across the accused products. **Consequently, complainant has not shown** that the cited evidence is representative of the range of accused Ruckus APs. ***See*** RX-1195C (Acampora WS) at Q/A 92-94. **Complainant** references Subject to ITC PO Subject to ITC PO [redacted] as **alleged** evidence of infringement of the asserted '853 patent claims. *See* CX-3846C (Madisetti WS) at Q/A 60 (citing CX-0684C), 68, 70, 73, 84, 86. However, there is no evidence presented from which a person of ordinary skill can determine whether the Subject to ITC PO fairly represents the other accused Ruckus APs that are **allegedly** represented. *See* RX-1195C (Acampora WS) at Q/A 96.

In copying nearly *verbatim* the Respondents' opening *post-trial* briefs, the Commission ignored the evidence subsequently developed at the hearing, even

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copying Respondents' assertion that "there is no evidence presented from which a person of ordinary skill can determine whether the Subject to ITC PO [of one particular Ruckus Access Point] fairly represents the other accused Ruckus APs." Appx349 (ID); Appx39062 (Resp. Post-Hr'g Br.). This conclusion is premised on Respondents' assertion that "[t]he way in which Subject to ITC PO *may* vary substantially across the accused products." *Id*. (emphasis added). At the hearing, Respondents' expert admitted that this statement "implies that CommScope uses Subject to ITC PO identified by CommScope's corporate representative for the Ruckus APs. Appx37544-37545 at 490:20-492:22. Q3 pointed to this evidence in its rebuttal brief. Appx39836. None of this is mentioned in the Final Determination/ID. Because the Commission simply copied Respondents' *post-trial* opening brief into its Final Determination, without further analysis, the Commission – like the Respondents – ignored the arguments and evidence adduced at the evidentiary hearing and argued by Q3 in the *post-hearing* briefing.

2. Infringement Analysis of '853 Patent, Claim 1

The Commission's almost *verbatim* copying of Respondent's post hearing brief continued throughout its infringement analysis for the '853 patent. The Commission copied respondents' post hearing briefing almost verbatim, including

each section heading used by the Respondents, including "Fundamental Issue 1," "2" and "3," which the Commission recast as "Common Issue 1," "2," and "3," respectively. Representative examples of the Commission's copying of Respondents' infringement analysis with respect to the'853 patent are shown below, with the few differences in bold.

Common/Fundamental Issue 1 excerpt:

RESPONDENTS' POST-HEARING BRIEF, APPX39032	FINAL DETERMINATION, APPX322
It is **simply** incorrect to draw the boundaries of the alleged communication network around ***only***[1] the WLAN, as **Q3** has done. That is because the accused access points are connected to a broader communication network of internal transmission nodes, as required by the '853 Patent and claims. This would be the communication network shown in **blue** in RDX- 0001C.0100. **But Q3 ignores** this true "communication network"— the one existing *beyond* the access node and to which the access node provides access. **But, critically, Q3 is forced to excise those nodes from its infringement theory because there is no dispute that the accused products do *not* consider the transmission capacity of those other nodes.** Instead, **Q3** calls the WLAN of the AP the alleged "communication network."	It is incorrect to draw the boundaries of the alleged communication network around only the WLAN, as **complainant** has done. That is because the accused access points are connected to a broader communication network of internal transmission nodes, as required by the '853 patent and claims. This would be the communication network shown in ***blue*** in RDX-0001C.0100. **Complainant disregards** this true "communication network**,**" the one existing beyond the access node and to which the access node provides access. Instead, **complainant** calls the WLAN of the AP the alleged "communication network." This is not correct. *Id.* at Q/A 27.

[1] The emphasis of "only" appears in the original of Respondents' brief and was reproduced as plain text in the Commission's Final Determination.

This is **simply** not correct. *Id.* at Q/A 27.	

Common/Fundamental Issue 2 excerpt:

RESPONDENTS' POST-HEARING BRIEF, APPX39039	FINAL DETERMINATION, APPX326-327
The accused APs do not make any alleged determination based on the ***overall***[2] transmission capacity of the entire communications network to which they attach. RX-1195C (Acampora WS) at Q/A 43; JX-0175C.0023 (Jou Tr.) at 85:10-17, RX-0935C (Overby WS) at Q/A 58-65 (CommScope), 27-36 (HPE), 40-54 (NETGEAR). Instead, **Q3 opines** that certain products will evaluate their own alleged capacity via Subject to ITC PO [redacted] CX-3846C (Madisetti WS) at Q/A 75 (Ruckus), 131 (NETGEAR), 202 (Aruba). **But** if a product could satisfy the claim limitation above by checking only its own node-specific constraints (which was well known in the prior art), it would render the later claim limitation "without further interrogations at internal transmission nodes of the communications network" entirely superfluous. The point of this limitation is that the access control function of claim 1 is able to check the permissibility of a requested use only by taking into account the ***overall*** transmission capacity of an entire communication network and yet do so "without further interrogations at	The accused APs do not make any alleged determination based on the overall transmission capacity of the entire communications network to which they attach. RX-1195C (Acampora WS) at Q/A 43; JX-0175C.0023 (Jou Dep. Tr.) at 85, RX-0935C (Overby WS) at Q/A 58-65 (CommScope), 27-36 (HPE), 40-54 (NETGEAR). Instead, **complainant argues** that certain products will evaluate their own alleged capacity via Subject to ITC PO [redacted]. See CX-3846C (Madisetti WS) at Q/A 75 (Ruckus), 131 (NETGEAR), 202 (Aruba). **However,** if a product could satisfy the claim limitation above by checking only its own node-specific constraints (which was well known in the prior art), it would render the later claim limitation "without further interrogations at internal transmission nodes of the communications network" superfluous. The point of this limitation is that the access control function of claim 1 is able to check the permissibility of a requested use only by taking into account the overall transmission capacity of an entire communication network and yet do so

[2] The emphasis on "overall" appears in the original of Respondents' brief and was reproduced as plain text in the Commission's Final Determination.

internal transmission nodes of the communication network." RX-1195C at Q/A 113.	"without further interrogations at internal transmission nodes of the communication network." See RX-1195C (Acampora WS) at Q/A 113.

Common/Fundamental Issue 3 excerpt:

RESPONDENTS' POST-HEARING BRIEF, APPX39041	FINAL DETERMINATION, APPX329
The actual data rate that is provided by an access point is considerably lower than the IEEE 802.11 standards' maximum data rate. *Id.* at Q/A 48-53. Due to a variety of radio-related propagation impairments (for example proximity to the AP and other environmental factors), the data rate of the wireless link between an AP and its clients will generally be different for different clients. **Because** of these propagation impairments, the transmission capacity between an AP and client device can vary significantly at different times. Therefore, a single time-shared communication channel between an AP and its associated clients may deliver different data rates to each of its associated clients, and each of these different rates may also change with time. Accordingly, none of these time-varying data rates is the network capacity, nor could any weighted average of these data rates be the network capacity. *Id.* **Notably,** this data rate or capacity is ***not***[3] the basis of **Q3's** infringement theory.	The actual data rate that is provided by an access point is considerably lower than the IEEE 802.11 standards' maximum data rate. *Id.* at Q/A 48-53. Due to a variety of radio-related propagation impairments (for example proximity to the AP and other environmental factors), the data rate of the wireless link between an AP and its clients will generally be different for different clients. **Due to** these propagation impairments, the transmission capacity between an AP and client device can vary significantly at different times. Therefore, a single time-shared communication channel between an AP and its associated clients may deliver different data rates to each of its associated clients, and each of these different rates may also change with time. Accordingly, none of these time-varying data rates is the network capacity, nor could any weighted average of these data rates be the network capacity. *Id.* **T**his data rate or capacity is not the basis of **complainant's** infringement theory.

[3] This emphasis appears in the original of Respondents' brief and was reproduced as plain text in the Commission's Final Determination.

In the excerpt from Common/Fundamental Issue 1, the Commission's copying ignores Q3's arguments and the language of Claim 1 in finding that an AP's WLAN is not a "communications network" because the WLAN is connected to a broader network. Appx322 (ID). As explained in Q3's briefing, Claim 1 requires "the service being implemented in at least one communications network." JX-0003 ('853 Pat.) at claim 1. The phrase "at least one communications network" recognizes that devices, such as access points, can provide a LAN and yet be connected to other networks. Figure 1 of the '853 patent shows examples of a LAN (e.g., LAN_1 or LAN_2) that constitutes a communications network while also being connected to a broader network. *Id.* at Fig. 1. Q3 pointed to this claim language and explained this issue in its rebuttal brief. Appx39824-39825. But because the Commission copied Respondents' opening brief, it failed to address Q3's arguments or the clear implications of the claim language.

a. CommScope - '853 Patent, Claim 1 Element-By-Element Analysis

The Commission's almost *verbatim* copying in its Final Determination of Respondent's post hearing brief then continued nearly word-for-word in its element-by-element findings as to CommScope's infringement:

RESPONDENTS' POST-HEARING BRIEF, APPX39062-39064	FINAL DETERMINATION, APPX340-352
Claim 1. [Element 1.0] A method for checking permissibility to use a service, the service being implemented	***Claim 1. [Element 1.0] A method for checking permissibility to use a service, the service being implemented***

RESPONDENTS' POST-HEARING BRIEF, APPX39062-39064	FINAL DETERMINATION, APPX340-352
in at least one communications network. **Q3's** accused "communication network" (WLAN for an AP) is incompatible with the claimed communications network (***Fundamental*** *Issue #1*). Moreover, the accused priority tags cannot satisfy the "service" recited in the claims, which refers to a traffic stream (stream of data packets), *i.e.*, the "checking permissibility to use a service" in the claim is the checking of whether to permit or deny a requested stream. RX-1195C (Acampora WS) at Q/A 98, 107.	***in at least one communications network.*** **Complainant's** accused "communication network" (WLAN for an AP) is incompatible with the claimed communications network (**Common** Issue #1). Moreover, the accused priority tags cannot satisfy the "service" recited in the claims, which refers to a traffic stream (stream of data packets), *i.e.*, the "checking permissibility to use a service" in the claim is the checking of whether to permit or deny a requested stream. ***See*** RX-1195C (Acampora WS) at Q/A 98, 107.
[Element 1.1] the communication network having an overall transmission capacity, As set forth in ***Fundamental*** *Issues #1 and 2*, none of the accused APs have any cognizance of a broader "communication network" with an "overall transmission capacity." Moreover, as explained in ***Fundamental*** *Issue #3*, the accused Subject to ITC PO is not an amount of data that the wireless channel can transmit. RX-1195C (Acampora WS) at Q/A 110-114. For example, **Q3's** allegations are Subject to ITC PO Subject to ITC PO is not the claimed overall transmission capacity of even the AP (let alone of a broader network). Therefore, Dr. Madisetti's identified Subject to ITC PO Subject to ITC PO does not represent the	***[Element 1.1] the communication network having an overall transmission capacity,*** As set forth in **Common** Issues #1 and 2, none of the accused APs have any cognizance of a broader "communication network" with an "overall transmission capacity." Moreover, as explained in **Common** Issue #3, the accused Subject to ITC PO Subject to ITC PO is not an amount of data that the wireless channel can transmit. *See* RX-1195C (Acampora WS) at Q/A 110-14. For example, **complainant's** allegations are Subject to ITC PO is not the claimed overall transmission capacity of even the AP (let alone of a broader network). Therefore, Dr. Madisetti's identified Subject to ITC PO does not represent the

RESPONDENTS' POST-HEARING BRIEF, APPX39062-39064	FINAL DETERMINATION, APPX340-352
claimed "overall transmission capacity." *Id.*; *id.* at 118, 120.	claimed "overall transmission capacity." *Id.*; *id.* at 118, 120.
[Element 1.2] the use of the service comprising transmission of at least one service-specific traffic stream which is assigned to the service by an access node which is assigned to the service to the communication network, comprising: First, the accused products do not practice this limitation for the reasons discussed above with respect to **Fundamental** Issue #1 ("communications network"). RX-1195C at Q/A 122.	***[Element 1.2] the use of the service comprising transmission of at least one service-specific traffic stream which is assigned to the service by an access node which is assigned to the service to the communication network, comprising:*** First, the accused products do not practice this limitation for the reasons discussed above with respect to **Common** Issue #1 ("communications network"). ***See*** RX-1195C (Acampora WS) at Q/A 122.
[Element 1.3] analyzing the use of the service with an access control function which is assigned to the access node; and As discussed above, the alleged "service" identified by Dr. Madisetti ([redacted]) is not the claimed "service comprising transmission of at least one service-specific traffic stream." RX-1195C (Acampora WS) at Q/A 136	***[Element 1.3] analyzing the use of the service with an access control function which is assigned to the access node; and*** As discussed above, the alleged "service" identified by Dr. Madisetti ([redacted]) is not the claimed "service comprising transmission of at least one service-specific traffic stream." ***See*** RX-1195C (Acampora WS) at Q/A 136
[Element 1.4] checking, via the access control function, without further interrogations at internal transmission nodes of the communications network, whether the use of the service is permitted, the checking performed taking into account an available capacity, which is As explained in ***Fundamental*** *Issue #1*, **Q3's** alleged "communication network" is **flawed**, for example because the identified communication	***[Element 1.4] checking, via the access control function, without further interrogations at internal transmission nodes of the communications network, whether the use of the service is permitted, the checking performed taking into account an available capacity, which is*** As explained in **Common** Issue #1, **complainant's** alleged "communication network" is **wrong**, for example because the identified

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RESPONDENTS' POST-HEARING BRIEF, APPX39062-39064	FINAL DETERMINATION, APPX340-352
network does not include internal transmission nodes, as required by this limitation. RX-1195C at Q/A 148-51.	communication network does not include internal transmission nodes, as required by this limitation. ***See*** RX-1195C (Acampora WS) at Q/A 148-51.
[Element 1.5] determined taking into account the overall transmission capacity [of the communications network], and As explained in ***Fundamental*** *Issue # 2*, the accused products do not determine permissibility by "taking into account the ***overall***[4] transmission capacity" of the communications network. Moreover, as explained in ***Fundamental*** *Issue #3*, Subject to ITC PO [redacted] is not an amount of data that the wireless channel can transmit. RX-1195C at Q/A 161-62, 168, 170.	***[Element 1.5] determined taking into account the overall transmission capacity [of the communications network], and*** As explained in **Common** Issue # 2, the accused products do not determine permissibility by "taking into account the overall transmission capacity" of the communications network. Moreover, as explained in **Common** Issue #3, Subject to ITC PO is not an amount of data that the wireless channel can transmit. ***See*** RX-1195C (Acampora WS) at Q/A 161-62, 168, 170.
[Element 1.6] [an available capacity, which is] available to the access node for transmitting traffic streams to the communications network. The accused APs do not practice this limitation for the reasons discussed in ***Fundamental*** *Issue #1* ("communications network"), for example because the alleged communication network does not include any internal transmission nodes that provide capacity "available to the access node for transmitting traffic	***[Element 1.6] [an available capacity, which is] available to the access node for transmitting traffic streams to the communications network.*** The accused APs do not practice this limitation for the reasons discussed in **Common** Issue #1 ("communications network"), for example because the alleged communication network does not include any internal transmission nodes that provide capacity "available to the access node for transmitting traffic streams to the communications

[4] This emphasis appears in the original of Respondents' brief and was reproduced as plain text in the Commission's Final Determination.

RESPONDENTS' POST-HEARING BRIEF, APPX39062-39064	FINAL DETERMINATION, APPX340-352
streams *to the communications network*."[5] RX-1195C at Q/A 172.	network." ***See*** RX-1195C (Acampora WS) at Q/A 172.

As shown, the Commission reproduced Respondents' element-by-element analysis nearly word-for-word, only changing "Q3" to "Complainant," "Fundamental" to "Common," "flawed" to "wrong," and adding a "See" signal to the copied citations. The Commission even copied typographical errors from the Respondents, including the missing period at the end of the section for Element 1.3 and the "First," at the beginning of the single-sentence paragraph for Element 1.2 where there is no "Second" or further point.

D. The Commission's Infringement Analysis for the '677 Patent Was Copied Wholesale from the Respondents' Briefs.

The tables below show the copying performed by the Commission in its infringement analysis with respect to the '677 patent. The left-hand column shows the beginning and end lines of the Final Determination/ID. The right-hand column correlates those beginning and end lines to the Respondents' briefing that the Commission largely copied. The Commission made only minor changes to the text from the Respondents' briefs. For instance, the Commission often changes "Q3" to "complainant", changes "alleges" to "argues", and makes minor changes to citation

[5] This emphasis appears in the original of Respondents' brief and was reproduced as plain text in the Commission's Final Determination.

format and introductions (e.g., changing "that is to say" to "in other words"). In some instances, the Commission divides a single long paragraph from Respondents' briefing into two paragraphs or skips a minor portion of Respondents' briefing. But, as can be seen in the table below, the infringement opinion offered in the Final Determination/ID for the '677 patent, with minor changes, is copied from Respondents' briefing:

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
HPE '677 Patent Infringement Introduction	***Section VI.B.2.a.i-ii ("Claim 1: HPE Accused Products")*** **Begin:** Appx478 (ID) at line 16[6] ("Complainant's infringement case is based on HPE's patented Client Match technology.") **End:** Appx481 (ID) at line 16[7]. *See* RX-1198C (Balay WS) at Q/A 57.")	***Section VII.B.2.a.i-ii ("HPE's Products Do Not Infringe Claim 1")*** **Begin:** Appx39196 (PHB) at line 24 ("Q3's infringement case is based on HPE's patented Client Match technology.") **End:** Appx39200 (PHB) at line 1 (RX-1198C (Balay WS) at Q/A 57.")
HPE '677 Patent Claim 1 Preamble	***Claim 1 [preamble] …*** **Begin:** Appx481 (ID) at line 22 ("There are	***Claim 1 [preamble]*** **Begin:** Appx39200 (PHB) at line 5 ("There are

[6] The line count includes each text line on the page including header lines and block quotes. The "Begin" line noted is the first line in the quoted sentence.
[7] The "End" line noted is the last line in the quoted sentence.

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SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
	several issues with complainant's theory of infringement for the preamble of claim 1 of the '677 patent.") **End:** Appx482 (ID) at line 22 ("Dr. Madisetti overlooks the fact that Subject to ITC PO [redacted]. *See* RX-1196C (Lin RWS) at Q/A 58.")	several issues with Q3's theory of infringement for the preamble limitation of the '677 Patent.") **End:** Appx39201 (PHB) at line 3 ("Dr. Madisetti also ignores the fact that Subject to ITC PO [redacted]. RX-1196C at Q/A 58.")
HPE '677 Patent Limitation 1[a]	***Claim 1[a] …*** **Begin:** Appx483 (ID) at line 6 ("Complainant's arguments regarding the 'linking…' step are both conclusory and not supported by evidence.") **End:** Appx483 (ID) at line 19 ("at claim 1 ('CSI[26] is supplied for an overall link between the at least two communicating devices.'); Lin Tr. 571; RX- 1196C (Lin	***Claim 1[a]: Linking Step*** **Begin:** Appx39201 (PHB) at line 5 ("Q3's accusations regarding the "linking…" step are both conclusory and without competent evidence.") **End:** Appx39201 (PHB) at line 16 ("at claim 1('CSI is supplied for an **overall link between the at least two communicating devices**.'); Tr. (B. Lin) 571:5-14; RX-

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
	RWS) at Q/A 68-70.")	1196C at Q/A 68-70.")
HPE '677 Patent Limitation 1[b]	***Claim 1[b] …*** **Begin:** Appx483 (ID) at line 25 ("The accused HPE products do not satisfy limitation 1[b].") **End:** Appx492 (ID) at line 9 ("because [redacted] communications are separate from the overall link between the devices.") **<u>Complainant's Proposed Claim Construction</u>** **Begin:** Appx492 (ID) at line 11 ("Dr. Madisetti seeks to split in half the clause") **End:** Appx497 (ID) at line 5 ("This movement of data within the AP is not related to the claimed 'overall link' between the communicating	***<u>Claim 1[b]: Supplying Step</u>*** **Begin:** Appx39201 (PHB) at line 18 ("The accused HPE products do not satisfy limitation 1[b].") **End:** Appx39209 (PHB) at line 7 ("because [redacted] communications are separate from the overall link between the devices.") **Q3's Strained Claim Interpretation**. **Begin:** Appx39209 (PHB) at line 11 ("Specifically, Dr. Madisetti seeks to split in half the clause") **End:** Appx39213 (PHB) at line 9 ("this movement of data *within the AP* has nothing to do with the claimed 'overall link' between the *communicating*

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
	devices. Id. at Q/A 123.")	*devices*. *Id.* at Q/A 123.")
HPE '677 Patent Limitation 1[c]	***Claim 1[c] …*** **Begin:** Appx497 (ID) at line 11 ("The accused HPE products do not infringe this limitation for several reasons. First, there can be no initiating") **End:** Appx505 (ID) at line 2 ("and thus do not form the basis of a handover. *See* CX-3846C (Madisetti WS) at Q/A 371; *id.* at Q/A 358; RX-1196C (Lin RWS) at Q/A 98, 99.")	***Claim 1[c]: Initiating Step*** **Begin:** Appx39213 (PHB) at line 11 ("The accused HPE products do not infringe this limitation for several reasons. ***First***, there can be no initiating") **End:** Appx39220 (PHB) at line 4 ("and thus do not form the basis of a handover. CX-3846C (Madisetti WS) at Q/A 371; *id.* at Q/A 358; RX-1196C (Lin WS) at Q/A 98, 99.")
NETGEAR '677 Patent Infringement Introduction	***Section VI.B.2.b.i-ii ("Claim 1: NETGEAR Accused Products")*** **Begin:** Appx505 (ID) at line 4 ("There are at least three distinct reasons why the accused NETGEAR products do not infringe the '677 patent.")	***Section VII.B.2.b.i-ii ("NETGEAR's Products Do Not Infringe Claim 1")*** **Begin:** Appx39220 (PHB) at line 6 ("There are at least three distinct reasons why the accused NETGEAR products do not infringe the '677 Patent.")

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SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
	End: Appx507 (ID) at line 21 ("Thus, only the products including Subject to ITC PO that provide Subject to ITC PO functionality were analyzed.")	**End:** Appx39222 (PHB) at line 15 ("Thus, only the products including Subject to ITC PO that provide Subject to ITC PO functionality were analyzed.")
NETGEAR '677 Patent Claim 1 Preamble	***Claim 1 [preamble] …*** **Begin:** Appx508 (ID) at line 4 ("NETGEAR does not directly or indirectly infringe the method claim 1 as it relates to the 'at least two communicating devices' portion of the claim.") **End:** Appx508 (ID) at line 9 ("Inasmuch as no single entity performs all the steps of claim 1 of the '677 patent, NETGEAR cannot infringe.")	***Claim 1 [preamble]*** **Begin:** Appx39222 (PHB) at line 17 ("NETGEAR does not directly or indirectly infringe the method claim 1 as it relates to the 'at least two communicating devices' portion of the claim.") **End:** Appx39222 (PHB) at line 22 ("Because no single entity performs all the steps of claim 1 of the '677 Patent, NETGEAR cannot infringe.")
NETGEAR '677 Patent Limitation 1[a]	***Claim 1[a] …*** **Begin:** Appx508 (ID) at line 15 ("The accused NETGEAR products do not link two communicating devices, *e.g.*, laptop, tablet, or mobile	***Claim 1[a]: Linking Step*** **Begin:** Appx39223 (PHB) at line 2 ("The accused NETGEAR products do not link two communicating devices, *e.g.*, laptop, tablet, or mobile

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SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
	phone (or 'meters' shown in demonstratives) for transmission of information.") **End:** Appx510 (ID) at line 16 ("As discussed above, NETGEAR's [redacted] products use [redacted].")	phone (or 'meters' shown in demonstratives) for transmission of information.") **End:** Appx39224 (PHB) at line 15 ("As discussed above, NETGEAR's [redacted] products use [redacted].
NETGEAR '677 Patent Limitation 1[b]	***Claim 1[b] …*** **Begin:** Appx510 (ID) at line 22 ("The NETGEAR accused products do not meet this limitation for several reasons. First and foremost, in the link between the APs and the AP acting as a controller,") **End:** Appx513 (ID) at line 15 ("what is done at various layers, nor does it explain which layers are used.")	***Claim 1[b]: Supplying Step*** **Begin:** Appx39224 (PHB) at line 17 ("The NETGEAR accused products do not meet this limitation for several reasons. First and foremost, in the link between the APs and the AP acting as a controller,") **End:** Appx39227 (PHB) at line 1 ("*what* is done at various layers, nor does it explain *which* layers are used.")
NETGEAR '677 Patent	***Claim 1[c] …***	***Claim 1[c]: Initiating Step***

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
Limitation 1[c]	**Begin:** Appx513 (ID) at line 21 ("The NETGEAR accused products do not meet the 'initiating' limitation as complainant argues.") **End:** Appx515 (ID) at line 19 ("Finally, complainant's citations to NETGEAR corporate deposition testimony have not shown that the NETGEAR products practice the initiating limitation.").	**Begin:** Appx39227 (PHB) at line 3 ("The NETGEAR accused products do not meet the 'initiating' limitation as Q3 alleges.") **End:** Appx39228 (PHB) at line 19 ("*Finally*, Q3's citations to NETGEAR corporate deposition testimony fail to show that the NETGEAR products practice the initiating limitation.")
CommScope '677 Patent Infringement Introduction	***Section VI.B.2.c.i-ii ("Claim 1: CommScope Accused Products")*** **Begin:** Appx516 (ID) at line 1 ("There are at least three distinct reasons why the accused CommScope products do not infringe the '677 patent.") **End:** Appx518 (ID) at line 6 ("complainant has not shown the accused products (or	***Section VII.B.2.c.i-ii ("CommScope's Products Do Not Infringe Claim 1")*** **Begin:** Appx39228 (PHB) at line 21 ("There are at least three distinct reasons why the accused CommScope products do not infringe the '677 Patent.") **End:** Appx39230 (PHB) at line 22 ("Q3 fails to show the accused products (or a user of

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
	a user of the accused products) are transmitting information in a communication system with at least two communicating devices.")	the accused products) are transmitting information in a communication system with at least two communicating devices.")
CommScope '677 Patent Claim 1 Preamble	***Claim 1 [preamble] …*** **Begin:** Appx518 (ID) at line 10 ("Complainant argues that 'Subject to ITC PO Access Points perform a method (or allow a user to perform a method) for transmitting information in a communication system with at least two communicating devices' where") **End:** Appx518 (ID) at line 17	***Claim 1 [preamble]*** **Begin:** Appx39230 (PHB) at line 24 ("Q3 contends that 'Subject to ITC PO Access Points perform a method (or allow a user to perform a method) for transmitting information in a communication system with at least two communicating devices' where") **End:** Appx39231 (PHB) at line 6
CommScope '677 Patent Limitation 1[a]	***Claim 1[a] …*** **Begin:** Appx518 (ID) at line 23 ("Complainant argues that the linking of at least two communicating devices (*e.g.*, the	***Claim 1[a]: Linking Step*** **Begin:** Appx39231 (PHB) at line 8 ("Q3 alleges that the linking of at least two communicating devices (*e.g.*, the mesh access points)'

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
	mesh access points) is 'done via the radio communication interface") **End:** Appx519 (ID) at line 17 ("Complainant does not identify or provide any evidence that shows which Mesh APs it considers to be linked, as required by the claim.")	is 'done via the radio communication interface") **End:** Appx39232 (PHB) at line 3 ("Nor does Q3 identify, or provide any evidence that shows, *which* Mesh APs it considers to be linked, as required by the claim.")
CommScope '677 Patent Limitation 1[b]	***Claim 1[b] …*** **Begin:** Appx519 (ID) at line 23 ("The CommScope accused products do not meet the "supplying" limitation for several reasons.") **End:** Appx522 (ID) at line 15 ("so that the application can talk to the device driver, but it does not go through the IP layer (or layer 3/4).")	***Claim 1[b]: Supplying Step*** **Begin:** Appx39232 (PHB) at line 5 ("The CommScope accused products do not meet the "supplying" limitation for several reasons.") **End:** Appx39234 (PHB) at line 13 ("so that the application can talk to the device driver, but it does not go through the IP layer (or layer 3/4).")
CommScope '677 Patent Limitation 1[c]	***Claim 1[c] …*** **Begin:** Appx522 (ID) at line 21 ("The accused CommScope	***Claim 1[c]: Initiating Step*** **Begin:** Appx39234 (PHB) at line 15 ("The accused CommScope

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
	products do not infringe this claim element for several reasons.") **End:** Appx523 (ID) at line 16 ("no channel-specific information is supplied to a hierarchically higher Internet protocol based channel for the overall link between two communicating devices.")	products do not infringe this claim element for several reasons.") **End:** Appx39235 (PHB) at line 7 ("no channel-specific information is supplied to a hierarchically higher Internet protocol based channel for the overall link between two communicating devices.")
'677 Patent Dependent Claims – All Respondents	***Dependent Claim [2-6]*** **Begin:** Appx524 (ID) at line 31 ("Complainant has not provided evidence that the accused products send channel-specific information to the hierarchically higher Internet protocol based channel 'via a bit transmission channel' as required by the claim.") **End:** Appx529 (ID) at line 1 ("Further, complainant has not established how	***<u>The Accused Products do not Infringe Claim [2-6]</u>*** **Begin:** Appx39235 (PHB) at line 9 ("Q3 has not provided evidence that the accused products send channel-specific information to the hierarchically higher Internet protocol based channel 'via a bit transmission channel' as required by the claim.") **End:** Appx39238 (PHB) at line 9 ("Further, Q3 provides no explanation of how

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
	NETGEAR and CommScope provide any of the purported 'channel-specific information' as 'control information' in the '677 patent. *Id*.")	NETGEAR and CommScope provide any of the purported 'channel-specific information' as 'control information' in the '677 Patent. *Id*.")
'677 Patent Direct Infringement – All Respondents	***Direct Infringement of the '677 Patent*** **Begin:** Appx532 (ID) at line 31 ("As discussed below, complainant has not shown direct infringement. *See* RX-1196C (Lin RWS) at Q/A 199-200. The '677 patent claims a method for transmitting information in a communications network, which") **End:** Appx534 (ID) at line 3 ("Thus, complainant has not shown direct infringement through testing (in the U.S.) of any device.")	***Q3 Cannot Prove Direct Infringement of the '677 Patent*** **Begin:** Appx39238 (PHB) at line 11 ("Q3 cannot prove direct infringement. RX-1196C (Lin WS) at Q/A 199-200. The '677 Patent claims a method for transmitting information in a communications network, which") **End:** Appx39239 (PHB) at line 11 ("Q3's conclusory assertions fail to show direct infringement through testing (in the U.S.) of any device")

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
'677 Patent Indirect Infringement – All Respondents	***Indirect Infringement of the '677 Patent*** **Begin:** Appx534 (ID) at line 5 ("complainant has not shown indirect infringement. *See* RX-1196C (Lin RWS) at Q/A 201. Complainant does not argue that respondents' customers directly infringe claims 1-6 of the '677 patent or that the accused products necessarily infringe claims 1-6.") **End:** Appx535 (ID) at line 3 ("provide technical support, etc. to respondents' customers plays no role in any specific intent to infringe the '677 patent. *Id*.")	***Q3 Cannot Prove Indirect Infringement of the '677 Patent*** **Begin:** Appx39239 (PHB) at line 13 ("Q3 cannot prove indirect infringement. RX-1196C (Lin WS) at Q/A 201. Q3 does not allege that Respondents' *customers* directly infringe claims 1-6 of the '677 Patent or that the accused products *necessarily* infringe claims 1-6") **End:** Appx39240 (PHB) at line 7 ("provide technical support, etc. to Respondents' customers plays no role in any specific intent to infringe the '677 Patent. *Id*.")
'677 Patent – Technical DI	***Section VI.C ("Domestic Industry (Technical Prong")*** **Begin:** Appx536 (ID) at line 9	**Q3 Does Not Satisfy the Technical Prong of the Domestic Industry Requirement for the '677 Patent** **Begin:** Appx39743 (Reply PHB) at line 21

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
	("Complainant's arguments as to why the 'SCALANCE W700' series products allegedly practice the '677 patent") **End:** Appx537 (ID) at line 9 ("and does not satisfy the technical prong. *See* RX-1196C (Lin RWS) at Q/A 7, 202-03, 216-20.") **Begin:** Appx537 (ID) at line 10 ("In summary, complainant's arguments regarding the Scalance W1750D are wrong, and the Scalance W1750D" **End:** Appx537 (ID) at line 23 ("and likewise no viable domestic industry evidence for the Scalance W1750D.") **Begin:** Appx538 (ID) at line 1 ("Complainant's arguments regarding Dr. Balay's 'self-	("Q3's arguments as to why the 'SCALANCE W700' series products allegedly practice the '677 Patent") **End:** Appx39744 (Reply PHB) at line 15 ("and does not satisfy the DI technical prong. RX-1196C at Q/A 7, 202-203, 216-220; *see* RPostHB at 58-59.") **Begin:** Appx39286 (PHB) at line 24 ("Q3's arguments regarding the Scalance W1750D are incorrect, and the Scalance W1750D" **End:** Appx39287 (PHB) at line 11 ("and likewise no viable domestic industry evidence for the Scalance W1750D.") **Begin:** Appx39744 (Reply PHB) at line 16 ("Q3's assertions regarding Dr. Balay's

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
	serving' testimony are not persuasive. *See* Compl. Br. at 105. Dr. Balay testified that a Siemens W1750D could be") **End:** Appx538 (ID) at line 19 ("that it has ever been done nor has complainant stated that it tested this functionality.")	'self-serving' testimony are another attempt to manufacture a dispute where none exists. CPostHB at 105. Dr. Balay testified that a Siemens W1750D *could* be" **End:** Appx39745 (Reply PHB) at line 12 ("that has ever been done nor has Q3 stated that it tested this functionality. RPostHB at 59.")

E. The Commission's Infringement Analysis for the '305 Patent Was Copied Wholesale from the Respondents' Briefs.

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
'305 Patent – Limitation 1[p], 8[p] – All Respondents	***Section V.B.2.a ("web-based management engine")*** **Begin:** Appx391 (ID) at line 26 ("The parties do not dispute that the preamble limits the asserted '305 patent claims to a 'web-based management engine	***Section VI.B.1 ("*****There Is No 'Web-Based Management Engine' In the Accused Products*****")*** **Begin:** Appx39109 (PHB) at line 13 ("The parties do not dispute that the preamble limits the asserted '305 Patent claims to a 'web-based management engine

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
	for a network entity,' not just anything capable of managing a network entity.") **End:** Appx396 (ID) at line 10 ("Regardless of whether the engine is within the network entity or remotely located from the network entity, every component of that engine must reside in the same device. *See* RX-0863C (Min RWS) at Q/A 20.").	for a network entity,' not just anything capable of managing a network entity.") **End:** Appx39113 (PHB) at line 9 ("Regardless of whether the engine is within the network entity or remotely located from the network entity, every component of that engine must reside in the same device. RX-0863C at Q/A 20.")
'305 Patent – Limitation 1[5], 8[5] – All Respondents	***Section V.B.2.b ("web page generator")*** **Begin:** Appx396 (ID) at line 18 ("The claims require an 'engine' with a 'web page generator that generates a set of linked web pages in response to a request to carry out a procedure.' It is undisputed,") **End:** Appx400 (ID) at line 8 ("'in response to a	***Section VI.B.2 ("*There Is No 'Web Page Generator' In the Accused Products*")*** **Begin:** Appx39114 (PHB) at line 12 ("The claims require an 'engine' with a 'web page generator that generates a set of linked web pages in response to a request to carry out a procedure.' It is undisputed,") **End:** Appx39117 (PHB) at line 7 ("'in response

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
	request to carry out a procedure' of a user opening the webUI. *See* RX-0863C (Min RWS) at Q/A 145-146, 154-155, 161-162, 168-169, 173-174, 180-181.")	to a request to carry out a procedure' of a user opening the webUI. RX-0863C at Q/As 145-146, 154-155, 161-162, 168-169, 173-174, 180-181.")
	JavaScript Executing on the Browser	**JavaScript Executing on the Browser Does Not—and Cannot—Constitute the Claimed Web Page Generator**
	Begin: Appx400 (ID) at line 10 ("Complainant argues that the alleged web page generator is 'the code that generates the WebUI,' which includes certain JavaScript")	**Begin:** Appx39117 (PHB) at line 14 ("Q3 contends that the alleged web page generator is 'the code that generates the WebUI,' which includes certain JavaScript")
	End: Appx412 (ID) at line 3 ("Nothing suggests that new web pages are 'generated' or even displayed when a user navigates to different tabs. *Id.* at Q/A 165.").	**End:** Appx39126 (PHB) at line 32 ("Nothing suggests that new web pages are 'generated' or even displayed when a user navigates to different tabs. *Id.* at Q/A 165.")

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SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
'305 Patent – Limitation 1[1], 8[1] – All Respondents	***Section V.B.2.c ("intelligent agent")*** **Begin:** Appx412 (ID) at line 9 ("Complainant argues that the intelligent agent is the software on the accused products responsible for sending and receiving messages.") **End:** Appx421 (ID) at line 14 ("shows that Subject to Subject to ITC PO [redacted] n. *See* RX-0863C (Min RWS) at Q/A 71.")	***Section VI.B.3 ("*There Is No 'Web Page Generator' In the Accused Products*")*** **Begin:** Appx39126 (PHB) at line 38 ("Q3 contends that the intelligent agent is the software on the accused products responsible for sending and receiving messages:") **End:** Appx39132 (PHB) at line 35 ("'shows that Subject to ITC PO [redacted] RX-0863C at Q/A 71.")
'305 Patent – Limitation 1[4], 8[4] – All Respondents	***Section V.B.2.d ("interface")*** **Begin:** Appx421 (ID) at line 19 ("Dr. Madisetti's opinions concerning this limitation are merely	***Section VI.B.4 ("*The Accused Products Do Not Include the Claimed Interface*")*** **Begin:** Appx39133 (PHB) at line 4 ("Dr. Madisetti's opinions recognizing this limitation are merely

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SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
	conclusory opinions that certain software on each accused product satisfies this limitation.") **End:** Appx427 (ID) at line 18 ("Subject to ITC PO [redacted]	conclusory assertions that that certain software on each accused product satisfies this limitation.") **End:** Appx39138 (PHB) at line 2 ("Subject to ITC PO [redacted]
'305 Patent – Limitation 1[4], 8[4] – All Respondents	***Section V.B.2.e ("data store")*** **Begin:** Appx428 (ID) at line 4 ("Complainant argues that the accused products infringe this limitation by storing information, values, and rules for verifying and/or modifying the operational parameters of the network entity.")	***Section VI.B.5 ("*****The Accused Products Do Not Include the Claimed Data Store*****")*** **Begin:** Appx39138 (PHB) at line 6 ("Q3 contends that the accused products infringe this limitation by storing information, values, and rules for verifying and/or modifying the operational parameters of the network entity.")

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
	End: Appx429 (ID) at line 23 ("Nor does complainant show that any of that data is actually used by the accused products to 'generate a set of linked web pages' or 'generate a determination result.'")	**End:** Appx39139 (PHB) at line 18 ("Nor does Q3 show that any of that data is ***actually*** used by the accused products to 'generate a set of linked web pages' or 'generate a determination result.'")
'305 Patent – Limitation 1[3], 8[3] – All Respondents	***Section V.B.2.f ("web server")***	***Section VI.B.6 ("*****The Accused Products Do Not Include the Claimed Web Server*****")***
	Begin: Appx430 (ID) at line 4 ("The accused products do not include the claimed web server that 'provides the interactive environment using the web pages generated by a web page generator.'")	**Begin:** Appx39139 (PHB) at line 22 ("The accused products do not include the claimed web server that 'provides the interactive environment using the web pages generated by a web page generator.'")
	End: Appx430 (ID) at line 21 ("let alone the specific WebUI identified by Dr. Madisetti. *See* Compl. Br. at 157; RX-0863C (Min RWS) at Q/A 110.")	**End:** Appx39140 (PHB) at line 16 ("let alone the specific WebUI identified by Dr. Madisetti. RX-0863C at Q/A 110.")

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
'305 Patent – Limitation 1[6], 8[6] – All Respondents	***Section V.B.2.g ("generate a determination result")***	***Section VI.B.7 ("*Nothing in the Accused Products 'Generates a Determination Result'*")***
	Begin: Appx431 (ID) at line 8 ("Complainant claims that the accused products infringe this limitation by comparing the 'stored data relating a procedure' against information retrieved")	**Begin:** Appx39140 (PHB) at line 23 ("Q3 claims that the accused products infringe this limitation by comparing the 'stored data relating a procedure' against information retrieved")
	End: Appx434 (ID) at line 16 ("Nor does he show that the validation in CX-1313C.0297 is performed by Subject to ITC PO")	**End:** Appx39143 (PHB) at line 15 ("Nor does he show that the validation in CX-1313C.0297 is performed by Subject to ITC PO.")
'305 Patent – Limitation 1[7], 8[7] – All Respondents	**Begin:** Appx434 (ID) at line 20 ("Complainant argues that the alleged interface on the accused controller satisfies this limitation by sending the retrieved information to the alleged intelligent agent")	**Begin:** Appx39143 (PHB) at line 19 ("Q3 also contends that the alleged interface on the accused controller satisfies this limitation by sending the retrieved information to the alleged intelligent agent")

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
	End: Appx436 (ID) at line 22 ("The same is true for the alleged interfaces for the accused NETGEAR and CommScope controllers. *See* RX-0863C (Min RWS) at Q/A 218 (NETGEAR), 221 (CommScope).")	**End:** Appx39145 (PHB) at line 5 ("The same is true for the alleged interfaces for the accused NETGEAR and CommScope controllers. RX-0863C at Q/A 218 (NETGEAR), 221 (CommScope)..").
'305 Patent – Technical DI	***Section V.C ("Domestic Industry (Technical Prong")***	***Section VI.D ("*Q3 Does Not Satisfy the Technical Prong of the Domestic Industry Requirement for the '305 Patent")**
	Begin: Appx437 (ID) at line 21 ("As an initial matter, Dr. Madisetti only maps the frontend code to the '305 patent claims.")	**Begin:** Appx39185 (PHB) at line 18 ("Dr. Madisetti only maps the frontend code to the '305 Patent claims")
	End: Appx446 (ID) at line 2 ("that RSG900 does not even Subject to ITC PO [redacted]," which complainant argues is the process for generating a determination result")	**End:** Appx39192 (PHB) at line 1 ("that RSG900 does not even "Subject to ITC PO [redacted]," which Q3 contends is the process for generating a determination result.")

F. The Commission's Infringement Analysis for the '853 Patent Was Copied Wholesale from the Respondents' Briefs.

SECTION DESCRIPTION	ID	RESPONDENTS' BRIEFING
'853 Direct Infringement Common Issue 1	**Section IV.B.2.a.i ("Common Issue 1 – "communications network"")** **"Internal Transmission Nodes"** **Begin:** Appx317 (ID) at line 14 ("Complainant's alleged "communication's network' does not read on the claims …") **End:** Appx323 at line 13 ("Client devices cannot be internal transmission nodes of the communication network. *Id.*") **"Internal Transmission Paths"** **Begin:** Appx323 (ID) at line 16 ("Complainant argues that the connections between the AP's WLAN and its clients constitute multiple transmission paths …")	**Section V.B.1.a ("Fundamental Issue 1 – 'Communications Network'")** **Begin:** Appx39028 (PHB) at line 12 ("Q3's alleged "communications network" does not read on the claims …")\ **End:** Appx39033 (PHB) at line 24 ("Client devices cannot be internal transmission nodes of the communication network") **Begin:** Appx39035 (PHB) at line 15 ("Q3 alleges that the connections between the AP's WLAN and its clients constitute multiple transmission paths …")

	End: Appx325 (ID) at line 24 ("and therefore do not infringe asserted claims 1-9.")	**End:** Appx39037 (PHB) at line 24 ("and therefore do not infringe claims 1-9.)"
'853 Direct Infringement Common Issue 2	**Section IV.B.2.a.ii (Common Issue 2 – "taking into account the overall transmission capacity [of the communication network]"** **Begin:** Appx326 (ID) at line 7 ("the claims require taking into account the capacities of the transmission paths and/or nodes of the entire communications network, not just the capacity of a single node … ") **End:** Appx327 (ID) at line 18 (". . . and thus, no accused products infringe any of the asserted claims.")	**Section V.B.1.b ("Fundamental Issue 2 – The Accused Products do not Determine Permissibility by "Taking Into Account the Overall Transmission Capacity [of the Communication Network]")** **Begin:** Appx39038 (PHB) at line 18 ("the claims require taking into account the capacities of the transmission paths and/or nodes of the ***entire*** communications network, not just the capacity of a single node …") **End:** Appx39040 (PHB) at PHB at line 2 ("As such, no accused products infringe any of the asserted claims.")
'853 Direct Infringement Common Issue 3	**Section IV.B.2.a.iii (Common Issue 3 – "overall transmission capacity [of the**	**Section V.B.1.c ("Fundamental Issue 3 – Airtime or Channel Utilization cannot**

	communications network]" **Begin:** Appx327 (ID) at line 22 ("Even if an AP's WLAN could be considered the "communication network" in the '853 patent claims, …") **End:** Appx330 (ID) at line 6 ("…and therefore do not infringe asserted claims 1-9 of the '853 patent.")	**satisfy the claimed "overall transmission capacity [of the communications network]")** **Begin:** Appx39040 (PHB) at line 6 ("Even if an AP's WLAN could be considered the "communication network" in the '853 Patent claims (it cannot),…") **End:** Appx39043 (PHB) at line 19 ("…and therefore do not infringe asserted claims 1-9 of the '853 patent.")
HPE '853 Patent Infringement Introduction and Claim 1	**Section IV.B.2.b ("Claim 1: HPE Accused Products")** **Begin:** Appx330 (ID) at line 10 ("There are four primary reasons that the accused Aruba (HPE) APs do not infringe … ") **End:** Appx344 (ID) at line 15 ("… for example because the alleged communication network does not include any internal transmission nodes that provide capacity	**Section V.B.2.a ("HPE-Specific Reasons for Non Infringement")** **Begin:** Appx39043 (PHB) at line 24 ("There are four primary reasons that the accused Aruba APs do not infringe … ") **End:** Appx39058 (PHB) at line 11 ("…for example because the alleged communication network does not include any internal transmission nodes

	"available to the access node for transmitting traffic streams to the communications network." See RX-1195C (Acampora WS) at Q/A 172.")	that provide capacity "available to the access node for transmitting traffic streams *to the communications network*." (emphasis added). RX-1195C (Acampora WS) at Q/A 172.")
HPE '853 Patent, Dependent Claims	Section IV.B.2.c ("Dependent Claims 2-9: HPE Accused Products") **Begin:** Appx344 (ID) at line 17 ("Inasmuch as the accused Aruba products do not infringe independent claim 1, … ") **End:** Appx346 (ID) at line 14 ("*See* claim element 1.3, discussing lack of an "access control function" in the APs.")	"Dependent Claims 2-9." **Begin:** Appx39058 (PHB) at line 12 ("Because the accused Aruba products do not infringe independent claim 1, … ") **End:** Appx39059 (PHB) at line 19 ("*See* Element 1.3, discussing lack of an "access control function" in the APs.")
NETGEAR/ CommScope '853 Patent Introduction and Claim 1	**Section IV.B.2.d ("Claim 1: NETGEAR and CommScope Accused Products")** **Begin:** Appx346 (ID) at line 17 ("Complainant's infringement	**Section V.B.2.b ("NETGEAR & CommScope-Specific Reasons for Non-Infringement")** **Begin:** Appx39059 (PHB) at line 22 ("Q3's infringement contentions for the

	contentions for the accused NETGEAR and CommScope products are substantially the same, and are discussed together.") **End:** Appx352 (ID) at line 3 ("… capacity 'available to the access node for transmitting traffic streams to the communications network.' See RX-1195C (Acampora WS) at Q/A 172.")	accused NETGEAR and CommScope products are substantially the same, and will therefore be addressed together.") **End:** Appx39064 (PHB) at line 16 ("…capacity 'available to the access node for transmitting traffic streams *to the communications network*.' RX-1195C at Q/A 172.")
NETGEAR/ CommScope '853 Patent Dependent Claims	**Section IV.B.2.e ("Dependent Claims 2-9: NETGEAR and CommScope Accused Products")** **Begin:** Appx352 (ID) at line 6 ("Inasmuch as the accused NETGEAR and Ruckus APs do not infringe independent claim 1, …") **End:** Appx353 (ID) at line 6 ("*See* claim element 1.3, explaining lack of an 'access control function' in the APs.")	**"Dependent Claims 2-9."** **Begin:** Appx39064 (PHB) at line 17 ("Because the accused NETGEAR and Ruckus APs do not infringe independent claim 1, …") **End:** Appx39065 (PHB) at line 6 ("*See* Element 1.3, explaining lack of an 'access control function' in the APs.")

’853 Patent Direct Infringement, generally	**Section IV.B.3 (“Direct Infringement of the ‘853 Patent” and “Indirect Infringement of the ‘853 Patent”)** **Begin:** Appx356 (ID) at line 23 (“Complainant’s infringement theory requires that another device, *e.g.*, a client device manufacturer such as a cell phone, tablet, or computer manufacturer, provide …”) **End:** Appx358 (ID) at line 3 (“Complainant’s arguments have not shown alleged direct infringement. See RX-1195C (Acampora WS) at Q/A 201-05; RDX-0001C.0101, .0122, .0138, .0143.”)	**Section V.B.3 (“Q3 Cannot Prove Direct Infringement of the ’853 Patent”)** **Begin:** Appx39065 (PHB) at line 8 (“Q3’s infringement theory requires that another device—*e.g.*, a client device manufacturer such as a cell phone, tablet, or computer manufacturer—provide …”) **End:** Appx39066 (PHB) at line 14 (“Q3’s conclusory assertions fail to show alleged direct infringement. RX-1195C (Acampora WS) at Q/A 201-205; RDX-0001C.0101, .0122, .0138, .0143.”)
’853 Patent Indirect Infringement, generally	**“<u>Indirect Infringement of the ‘853 patent</u>”** **Begin:** Appx358 (ID) at line 5 (“Complainant argues that respondents’ customers indirectly infringe claims 1-9 of the ‘853 patent.”)	**Section V.B.4 (“Q3 Cannot Prove Indirect Infringement of the ’853 Patent”)** **Begin:** Appx39066 (PHB) at line (“Q3 alleges that Respondents’ customers indirectly infringe claims 1-9 of the ’853 Patent.”)

	End: Appx358 (ID) at line 23 ("…there is no evidence that the '853 patent's method claims have been performed because there is no evidence of an end-user or customer performing the accused functionality. *See* RX-1195C (Acampora WS) at Q/A 208-10; RDX-0001C.0101, .0122, .0138, .0143.")	**End:** Appx39067 (PHB) at line 7 ("… there is no evidence that the '853 Patent's method claims have been performed because there is no evidence of an end-user or customer performing the accused functionality. RX-1195C (Acampora WS) at Q/A 208-210; RDX-0001C.0101, .0122, .0138, .0143.")
'853 Patent - Domestic Industry (Technical Prong)	**Domestic Industry (Technical Prong)** **Begin:** Appx359 (ID) at line 15 ("As discussed below, complainant does not satisfy the requirements of the technical prong of domestic industry...") **End:** Appx359 (ID) at line 20 ("The second is a line of Siemens products referred to as the Scalance W*7** APs. *See* RX-1195C (Acampora WS) at Q/A 211.")	**Q3 Does Not Satisfy the Technical Prong of the Domestic Industry Requirement for the '853 Patent** **Begin:** Appx39067 (PHB) at line 10 ("Q3 does not satisfy the requirements of the technical prong of domestic industry...") **End:** Appx39067 (PHB) at line 14 ("The second is a line of Siemens products referred to as the Scalance W*7** APs. RX-1195C (Acampora WS) at Q/A 211..")

’853 Patent - Domestic Industry (Technical Prong)	**Domestic Industry (Technical Prong)** **Begin:** Appx359 (ID) at line 15 (“As discussed below, complainant does not **End:** Appx359 (ID) at line 20 (“The second is a line of Siemens products referred to as the Scalance W*7** APs. …”)	**Q3 Does Not Satisfy the Technical Prong of the Domestic Industry Requirement for the ’853 Patent** **Begin:** Appx39067 (PHB) at line 10 (“Q3 does not satisfy the requirements of the technical prong of domestic industry...”) **End:** Appx39067 (PHB) at line 14 (“The second is a line of Siemens products referred to as the Scalance W*7** APs. ...”)
’853 Patent - Domestic Industry – First Category	**1. Scalance W1750D** **Begin:** Appx359 (ID) at line 22 (“Complainant argues that the Siemens W1750D”) **End:** Appx360 (ID) at line 13 (“does not satisfy the DI technical prong. See RX-1195C (Acampora WS) at Q/A 212-13, 218, 221, 223.”)	**1. Category 1: The Scalance W1750D Does Not Practice Claims 1-9** **Begin:** Appx39067 (PHB) at line 16 (“Q3 asserts that the Siemens W1750D”) **End:** Appx39068 (PHB) at line 11 (“does not satisfy the DI technical prong. RX-1195C at Q/A 212-13, 218, 221, 223.”)

'853 Patent - Domestic Industry – First Category	**Begin:** Appx360 (ID) at line 14 ("Complainant's arguments regarding Dr. Balay's") **End:** Appx361 (ID) at line 13 ("Complainant's only allegation as to the Aruba APs")	**Begin:** Appx39674 (Reply PHB at line 11 ("Q3's assertions regarding Dr. Balay's") **End:** Appx39675 (Reply PHB at line 9 ("Q3's only allegation as to the Aruba APs")
'853 Patent - Domestic Industry – Second Category	**2. Scalance W*7** APs** **Begin:** Appx361 (ID) at line 15 ("Complainant's arguments as to why the "Scalance W7xx"") **End:** Appx362 (ID) at line 6 ("for the same reasons provided above with respect to respondents' products. See RX-1195C (Acampora WS) at Q/A 219-21, 223.")	**1. Scalance W7xx APs Do Not Practice Claims 1-9 of the '853 Patent** **Begin:** Appx39673 (Reply PHB at line 20 ("Q3's arguments as to why the "Scalance W7xx"") **End:** Appx39674 (Reply PHB at line 3 ("for the same reasons provided above with respect to Respondents' products. RPostHB at 59 (citing RX-1195C at Q/A 219-21, 223).")

CONCLUSION

The Commission's Final Determination, by copying almost verbatim the Respondents' briefing, failed to satisfy its obligation under the APA to offer a reasoned explanation for its conclusions. It also entirely ignored contrary evidence and argument offered by Q3. Accordingly, Q3 Networking respectfully requests that this Court vacate the Commission's Final Determination and remand to the Commission to conduct its own independent analysis of the law and the facts presented by the parties in the 1227 Investigation.

Dated: December 6, 2022

Respectfully submitted,

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ADDENDUM

ADDENDUM TABLE OF CONTENTS

Doc. No. and Designation	Description	Dated	Page
769711 - Public	Notice of Commission Determination	5/3/2022	Appx266
758104 – Confidential	Final Initial Determination	12/7/2021	Appx269
Public	U.S. Patent No. 8,797,853		Appx592
Public	U.S. Patent No. 7,895,305		Appx601
Public	U.S. Patent No. 7,609,677		Appx609

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

In the Matter of **CERTAIN ROUTERS, ACCESS POINTS, CONTROLLERS, NETWORK MANAGEMENT DEVICES, OTHER NETWORKING PRODUCTS, AND HARDWARE AND SOFTWARE COMPONENTS THEREOF**	**Investigation No. 337-TA-1227**

NOTICE OF A COMMISSION DETERMINATION TO REVIEW IN PART A FINAL INITIAL DETERMINATION FINDING NO VIOLATION OF SECTION 337 AND, ON REVIEW, TO AFFIRM THE FINDING OF NO VIOLATION; TERMINATION OF THE INVESTIGATION

AGENCY: U.S. International Trade Commission.

ACTION: Notice.

SUMMARY: Notice is hereby given that the U.S. International Trade Commission has determined to review in part a final initial determination ("ID") issued by the presiding administrative law judge ("ALJ") on December 7, 2021, finding no violation of section 337 in the above-referenced investigation and, on review, to affirm the finding of no violation. The investigation is terminated.

FOR FURTHER INFORMATION CONTACT: Michael Liberman, Esq., Office of the General Counsel, U.S. International Trade Commission, 500 E Street, SW, Washington, D.C. 20436, telephone (202) 205-2392. Copies of non-confidential documents filed in connection with this investigation may be viewed on the Commission's electronic docket (EDIS) at *https://edis.usitc.gov*. For help accessing EDIS, please email EDIS3Help@usitc.gov. General information concerning the Commission may also be obtained by accessing its Internet server at *https://www.usitc.gov*. Hearing-impaired persons are advised that information on this matter can be obtained by contacting the Commission's TDD terminal on (202) 205-1810.

SUPPLEMENTARY INFORMATION: On October 28, 2020, the Commission instituted this investigation under section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. 1337, based on a complaint filed by Q3 Networking LLC of Frisco, Texas ("Q3"). 85 FR 68367-68 (Oct. 28, 2020). The complaint alleged a violation of section 337 in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain routers, access points, controllers, network management devices, other networking products, and

hardware and software components thereof by reason of infringement of certain claims of U.S. Patent Nos. 7,609,677 ("the '677 patent"); 7,895,305 ("the '305 patent"); 8,797,853 ("the '853 patent"); and 7,457,627 ("the '627 patent"). The complaint also alleged the existence of a domestic industry. The notice of investigation named as respondents: CommScope Holding Company, Inc. of Hickory, North Carolina; CommScope, Inc. of Hickory, North Carolina; Arris US Holdings, Inc. of Suwanee, Georgia; Ruckus Wireless, Inc. of Sunnyvale, California; Hewlett Packard Enterprise Co. of Palo Alto, California; Aruba Networks, Inc. of Santa Clara, California; and Netgear, Inc. of San Jose, California (collectively, "Respondents"). *Id*. at 68368. The Commission's Office of Unfair Import Investigations was not named as a party in this investigation. *Id*.

Subsequently, the Commission permitted complainant to amend the complaint and notice of investigation to correct the corporate name of respondent Aruba Networks, Inc. to respondent Aruba Networks, LLC. Order 15 (Mar. 5, 2021), *unreviewed by* Notice (Mar. 22, 2021). The Commission also partially terminated the investigation by withdrawal of the '627 patent. Order No. 26 (July 1, 2021), *unreviewed by* Notice (Jul. 26, 2021).

On December 7, 2021, the ALJ issued the final ID in this investigation, holding that no violation of section 337 has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation, of certain routers, access points, controllers, network management devices, other networking products, and hardware and software components thereof by reason of infringement of claims 1–6 of the '677 patent; claims 1 and 8 of the '305 patent; and claims 1–9 of the '853 patent.[1]

The ID found that the accused products do not infringe the asserted claims of any of the asserted patents. The ID also found that the domestic industry requirement (both technical and economic prongs) has not been satisfied with respect to the '853, '305, and '677 patents. The ID further found that it has not been shown by clear and convincing evidence that the asserted claims of the '853, '305, and '677 patents are invalid.

On December 20, 2021, Complainant Q3 filed a petition for review of various portions of the ID. Also, on December 20, 2021, Respondents filed a contingent petition for review of various portions of the ID. On December 28, 2021, both Respondents and Complainant filed replies in response to the petition for review and the contingent petition for review, respectively.

Having examined the record in this investigation, including the final ID, the petitions for review, and the responses thereto, the Commission has determined to review in part the ID (1) with respect to the economic prong of the domestic industry requirement, and on review, to take no position, and (2) in order to correct certain non-substantive citation errors pertaining to the ID's technical prong findings regarding the '305 patent, and on review, to correct those errors.

[1] By failing to assert that Respondents infringe claims 2–3, 5, 6, 9, and 11–14 of the '305 patent and claim 8 of the '677 patent in its prehearing and posthearing briefs Complainant abandoned the above-referenced claims under Ground Rule 7(c).

Specifically, the Commission cites to the following questions and answers from RX-1210C on pages 166-73 of the ID: (i) Q/A 17 instead of Q/A 16 in the first full paragraph on page 166; (ii) Q/A 32 instead of Q/A 28 on lines 3 and 10 in the first full paragraph on page 167; (iii) Q/A 24 instead of Q/A 22 in the first paragraph on page 168; (iv) Q/A 25 instead of Q/A 23 in the second paragraph on page 168; (v) Q/A 26 instead of Q/A 24 in the first paragraph on page 169; (vi) Q/A 29 instead of Q/A 28 in the second paragraph on page 169; (vii) Q/A 21-27 & 29 instead of Q/A 19-25 on page 169; (viii) Q/A 33-35 instead of Q/A 29-32 and Q/A 35 instead of Q/A 31 in the first paragraph on page 170 of the ID; (ix) Q/A 35 instead of Q/A 29-32 in the second paragraph on page 170 of the ID; (x) Q/A 35-36 instead of Q/A 32 in the first paragraph on page 171 of the ID; (xi) Q/A 37 instead of Q/A 33 in the second paragraph on page 171 of the ID, in the first full paragraph on page 172 of the ID, and in the first paragraph of page 173; and (xii) Q/A 38-41 instead of Q/A 34-37 and Q/A 39 instead of Q/A 35 in the last paragraph on page 173. The Commission has determined not to review the remainder of the ID, including the ID's finding of no violation of section 337 in this investigation.[2, 3]

The investigation is hereby terminated.

The Commission vote for this determination took place on May 3, 2022.

The authority for the Commission's determination is contained in section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. 1337, and in Part 210 of the Commission's Rules of Practice and Procedure, 19 CFR part 210.

By order of the Commission.



Lisa R. Barton
Secretary to the Commission

Issued: May 3, 2022

[2] With respect to the '853 patent, Vice Chair Stayin would review the ID's claim construction of the term "overall transmission capacity," and find the term should be given its plain and ordinary meaning. Nonetheless, Vice Chair Stayin agrees that even under this revised construction the accused products do not infringe the asserted claims of the '853 patent, and the domestic industry products do not practice the claims of the '853 patent, for many of the reasons articulated in the ID. Accordingly, he joins the Commission's decision to affirm the ID's findings of no violation as to the '853 patent.

[3] Chair Kearns and Vice Chair Stayin note that they do not read anything in the ID (*see*, *e.g.*, ID at 207 and 260-61) as foreclosing a finding of a violation of section 337, under appropriate facts, based on direct infringement by a respondent where the accused article is combined post-importation with other articles to infringe an asserted patent claim.

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UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C. 20436

In the Matter of

CERTAIN ROUTERS, ACCESS POINTS, CONTROLLERS, NETWORK MANAGEMENT DEVICES, OTHER NETWORKING PRODUCTS, AND HARDWARE AND SOFTWARE COMPONENTS THEREOF

Inv. No. 337-TA-1227

FINAL INITIAL DETERMINATION

Administrative Law Judge David P. Shaw

Pursuant to the notice of investigation, 85 Fed. Reg. 68367 (Oct. 28, 2020), this is the Initial Determination in *Certain Routers, Access Points, Controllers, Network Management Devices, Other Networking Products, and Hardware and Software Components Thereof*, United States International Trade Commission Investigation No. 337-TA-1227.

It is held that a violation of section 337 (19 U.S.C. § 1337) has not occurred with respect to U.S. Patent No. 8,797,853; U.S. Patent No. 7,895,305; and U.S. Patent No. 7,609,677.

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The following abbreviations may be used in this Initial Determination:

ALJ	-	Administrative Law Judge
CDX	-	Complainant's Demonstrative Exhibit
CPX	-	Complainant's Physical Exhibit
CX	-	Complainant's Exhibit
Dep.	-	Deposition
EDIS	-	Electronic Document Imaging System
JPX	-	Joint Physical Exhibit
JX	-	Joint Exhibit
P.H.	-	Prehearing
RDX	-	Respondents' Demonstrative Exhibit
RPX	-	Respondents' Physical Exhibit
RWS	-	Rebuttal Witness Statement
RX	-	Respondents' Exhibit
SRWS	-	Supplemental Rebuttal Witness Statement
SWS	-	Supplemental Witness Statement
Tr.	-	Transcript
WS	-	Witness Statement

I. Background

A. Institution of the Investigation; Procedural History

By publication of a notice in the *Federal Register* on October 28, 2020, pursuant to subsection (b) of section 337 of the Tariff Act of 1930, as amended, the Commission instituted this investigation to determine:

> [W]hether there is a violation of subsection (a)(1)(B) of section 337 in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain products identified in paragraph (2) by reason of infringement of one or more of claims 1–3 and 8 of the '627 patent [U.S. Patent No. 7,457,627]; claims 1–6 and 8 of the '677 patent [U.S. Patent No. 7,609,677]; claims 1–3, 5, 6, 8, 9, and 11–14 of the '305 patent [U.S. Patent No. 7,895,305]; and claims 1–9 of the '853 patent [U.S. Patent No. 8,797,853], and whether an industry in the United States exists as required by subsection (a)(2) of section 337.

85 Fed. Reg. 68367 (Oct. 28, 2020).

Pursuant to section 210.10(b)(1) of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.10(b)(1):

> [T]he plain language description of the accused products or category of accused products, which defines the scope of the investigation, is "Wi-Fi networking products, routers, satellites, extenders, Wi-Fi systems, mesh networks, mesh systems, gateways, modems, access points, controllers, network management devices, storage systems, switches, bridges, wireless services modules, wireless subscriber units, base stations, adapters, other networking products, and their related software/applications."

Id.

The complainant is Q3 Networking LLC of Frisco, Texas. The respondents are:

1. CommScope Holding Company, Inc. of Hickory, North Carolina;
2. CommScope, Inc. of Hickory, North Carolina;

3. Arris US Holdings, Inc. of Suwanee, Georgia;
4. Ruckus Wireless, Inc. of Sunnyvale, California;
5. Hewlett Packard Enterprise Co. of Palo Alto, California;
6. Aruba Networks, Inc. of Santa Clara, California; and
7. Netgear, Inc. of San Jose, California.

The Office of Unfair Import Investigations is not a party to this investigation. *Id.*

The target date for completion of this investigation was originally set at 16 months, *i.e.*, February 28, 2022, with an evidentiary hearing scheduled to commence on June 23, 2021. *See* Order No. 3 (Nov. 6, 2020); Order No. 5 (Nov. 18, 2021).

The Commission affirmed the following initial determinations:

- Order No. 15 (Initial Determination Granting Motion to Amend the Complaint and Notice of Investigation) (Mar. 5, 2021), *aff'd*, Commission Determination Not to Review an Initial Determination Granting Complainant's Motion to Amend the Complaint and the Notice of Investigation (Mar. 22, 2021).

- Order No. 18 (Initial Determination Granting Joint Motion to Extend the Target Date and Amend the Procedural Schedule) (Mar. 30, 2021), *aff'd*, Commission Determination Not to Review an Initial Determination Extending the Target Date for Completion of the Investigation (Apr. 15, 2021).

- Order No. 26 (Initial Determination Granting Motion for Partial Termination by Withdrawal of U.S. Patent No. 7,457,627) (July 1, 2021), *aff'd*, Commission Determination Not to Review an Initial Determination Terminating the Investigation as to U.S. Patent No. 7,457,627 (July 26, 2021).

As noted above, on March 30, 2021, the undersigned issued Order No. 18 (initial determination) granting a motion to extend the target date. Order No. 18 set the target date at approximately seventeen months and one week, *i.e.*, April 7, 2022, which made the deadline for this initial determination December 7, 2021. Additionally, the undersigned issued Order No. 19 (Amended Procedural Schedule) which scheduled the evidentiary hearing to commence on July 28, 2021. *See* Order No. 19 (Mar. 30, 2021).

A prehearing conference was held on July 28, 2021, with the evidentiary hearing in this investigation commencing immediately thereafter. The hearing concluded on July 30, 2021. *See* P.H. Tr. 1-20; Tr. 1-753. The parties were requested to file post-hearing briefs not to exceed 300 pages in length, and to file reply briefs not to exceed 100 pages in length. *See* Order No. 29 (July 21, 2021). On August 17, 2021, the parties filed a joint outline of the issues to be decided in the Final Initial Determination. *See* Joint Outline of the Issues to Be Decided ("Joint Outline") (EDIS Doc. ID No. 749840). On August 27, 2021, the parties filed a joint outline for the reply briefs. *See* Joint Outline of Issues to Be Decided in the Final Initial Determination ("Joint Reply Outline") (EDIS Doc. ID No. 750442).

B. The Parties

1. Complainant

The complainant is Q3 Networking LLC ("Q3" or "Q3Net") of Frisco, Texas. 85 Fed. Reg. 68367 (Oct. 28, 2020). Q3 obtained ownership of the asserted patents from Siemens Aktiengesellschaft ("Siemens AG"), a corporation under the Federal laws of Germany, through a patent assignment on May 7, 2020. *See* CX-0002 (Patent Assignment); CX-0003 (Recorded Patent Assignment); CX-0011C (Patent Assignment Agreement). By virtue of a license back by complainant's predecessor-in-interest, Siemens AG and its licensees, including Siemens Industry, Inc. ("SII") are licensed to practice each of the asserted patents. *See* Compl. Br. at 2 (citing CX-0011C.0003).

2. Respondents

As noted above, the named respondents are:

1. CommScope Holding Company, Inc. of Hickory, North Carolina;

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2. CommScope, Inc. of Hickory, North Carolina;
3. Arris US Holdings, Inc. of Suwanee, Georgia;
4. Ruckus Wireless, Inc. of Sunnyvale, California;
5. Hewlett Packard Enterprise Co. of Palo Alto, California;
6. Aruba Networks, Inc. of Santa Clara, California; and
7. Netgear, Inc. of San Jose, California.

85 Fed. Reg. 68367 (Oct. 28, 2020).

"HPE"

Respondent Hewlett Packard Enterprise Company is an information technology company founded in 2015 as part of the reorganization of the Hewlett-Packard Company, a company formed in a Palo Alto, California in the 1930s. *See* Resps. Br. at 6. Respondent Aruba Networks, LLC, is a California-based corporation founded in 2002, and operates as a subsidiary of Hewlett Packard Enterprise Company. *Id.* Collectively, these two respondents are referred to as "HPE" or the "HPE respondents." HPE's business includes enterprise mobility solutions across the globe, including Wi-Fi access points, switches, routers, and cloud-based management solutions. HPE's U.S. business includes over [redacted] employees and accounts for approximately [redacted] of its annual revenue. *Id.* at 7.

"CommScope"

Respondent CommScope Holding Company, Inc. was founded in 1976 and is headquartered in Hickory, North Carolina. Three of its subsidiaries (CommScope, Inc., ARRIS US Holdings, Inc., and Ruckus Wireless, Inc.) are also respondents in this investigation. Collectively, these respondents are referred to as "CommScope" or the "CommScope respondents." CommScope offers communications and entertainment

network infrastructure solutions, through specialized resellers and distributors, and directly to customers. *See* Resps. Br. at 7. CommScope employs nearly [redacted] people worldwide, with approximately [redacted] of them working in the U.S. Approximately [redacted] of CommScope's total net sales are generated in the United States. *Id.*

"NETGEAR"

Respondent NETGEAR, Inc. (or Netgear, Inc. or "NETGEAR") is a Delaware corporation founded in 1996 and headquartered in San Jose. *See* Resps. Br. at 7. NETGEAR designs, develops, and markets networking and Internet products for consumers, businesses, and service providers. *Id.* NETGEAR offers smart home and broadband access products that create and extend wired and wireless networks in homes, enable connection to broadband networks; it also provides a suite of value-added services that enhance such networks. NETGEAR generates approximately [redacted] of its revenue in the United States. *Id.*

C. Asserted Patents and Technological Background

United States Patent No. 8,797,853 ("the '853 patent"), entitled "System and method for checking the permissibility of a use of a service," issued on August 5, 2014, to named inventors Rudolf Bitzinger, Christian Prehofer and Viktor Ransmayr. JX-0003 ('853 Patent). The '853 patent issued from Application No. 10/239,525, filed on March 27, 2003. *Id.* This application claims priority to International Application No. PCT/DE01/00863 which was published in German, on September 27, 2001. *Id.* at 1:7-9. The '853 patent relates to "a system and method for checking the permissibility of a use of a service" (JX-0003 at 1:14-15), and "[t]he invention discloses a method for checking the permissibility of the transmission of a packet stream in a communications network"

(*id.* at 3:28-30). The '853 patent has a total of 13 claims. Complainant asserts method claims 1-9 of the '853 patent.

United States Patent No. 7,895,305 ("the '305 patent"), entitled "Web-based management engine and system," issued on February 22, 2011, to named inventors Richard Beton, and Robert Hancock. JX-0002 ('305 Patent). The '305 patent issued from Application No. 10/416,006, filed on October 27, 2003. *Id.* The '305 patent relates to "a Web-based management engine and system of the type used to monitor and/or control the operation of a network entity, for example, a server or a network router." JX-0002 at 1:4-7. The '305 patent has a total of 17 claims. Complainant asserts apparatus claims 1 and 8 of the '305 patent.

United States Patent No. 7,609,677 ("the '677 patent"), entitled "Internet protocol based information transmission in a radio communication system," issued on October 27, 2009, to named inventors Enric Mitjana, and Maximilian Riegel. JX-0001 ('677 Patent). The '677 patent issued from Application No. 10/507,850, filed on April 25, 2005. *Id.* This application claims priority to European Application No. 020 06 022.4 filed on March 15, 2002. *Id.* at 1:8-10. The '677 patent relates to "a method for transmitting information in a communication system with at least two communicating devices." JX-0001 at 1:16-18. The '677 patent has a total of 16 claims. Complainant asserts method claims 1-6 of the '677 patent.

D. The Accused Products

Complainant argues, "the Accused Products include routers, access points, controllers, network management devices, other networking products, and hardware and software components thereof." Compl. Br. at 7. Complainant argues that the following

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products are accused of infringement:

1. Accused Products that Infringe the '677 Patent

The HPE products that infringe the '677 Patent include HPE's: AP-303, AP-303P, AP-304, AP-305, AP-314, AP-315, AP-320, AP-324, AP-325, AP-334, AP-335, AP-344, AP-345, AP-504, AP-505, AP-514, AP-515, AP-534, AP-535,AP-555, AP-318, AP-518, AP-203H, AP-303H, AP-505H, AP-365, AP-367, AP-374,AP-375, AP-377, AP-387, AP-565, AP-567, AP-574, AP-575, AP-577, AP-203R, AP-203RP, AP-303HR, and any substantially similar models; and the 7200 series (e.g., 7205, 7210, 7220, 7280, 7240XM), 7000 series (e.g., 7005, 7008,7010, 7024, 7030), and 9000 series (e.g., 9004 and 9000) and any substantially similar models.

The CommScope products that infringe the '677 Patent include CommScope's: C110; E510; H320; H510; M510; R310; R320; R510; R550; R610; R650; R710; R720; R730; R750; R850; T305; T310c; T310d; T310n; T310s; T300e; T610; T610s; T710; T710s; T750; T811; 7781-CM; P300 and any substantially similar models.

The NETGEAR products that infringe the '677 Patent include NETGEAR's: EX6100; WAC510; RBR750; RBS750; BR500-100NAS; EAX20-100NAS; EAX80-100NAS; EX6100-100NAS; EX6150-100NAS; EX6250-100NAS; EX6400-100NAS;EX7000-100NAS; EX7300-100NAS; EX7500-100NAS; EX8000-100NAS; LBR20-100NAS; MK62-100CNS; MK63-100CNS; MS60-100NAS; R6220-100NAS; R6230-100NAS; R6260-100NAS; R6350-100NAS; R6400-100NAS; R6700-100NAS; R6850-100NAS; R6900-200NAS; R7000-100CNS; R7200-100CNS; R7350-100NAS; R7400-100NAS; R7450-100NAS; R7800-100NAS; R7850-100NAS; R7900P-100NAS;R7960P-100NAS; R8000-100NAS; R9000-100NAS; RAX120-100NAS; RAX200-100CNS; RAX20-100NAS; RAX35-100NAS; RAX38-100NAS; RAX40-100NAS;RAX45-100NAS; RAX50-100NAS; RAX75-100NAS; RAX80-100NAS; RBK12-100NAS; RBK13-100NAS; RBK14-100NAS; RBK20W-100NAS; RBK22-100MXS;RBK23-100NAS; RBK43S-100NAS; RBK44-100NAS; RBK50-100NAS; RBK53S-100NAS; RBK752-100NAS; RBK753-100NAS; RBK842-1CCNAS; RBK852-100NAS; RBK853-100NAS; RBR20-100NAS; RBS10-100NAS; RBS20-100NAS;RBS50-100NAS; RBS750-100NAS; RBS850-100NAS; RBW30-100NAS; SRC60-100NAS; SRK60-100NAS; SRR60-100NAS; WAC104-100NAS; WAC124-100NAS;WAC510-100NAS; WAC540-100NAS; WAC564-100NAS; WAC720-100NAS;WAC730-100NAS; XR300-100NAS; XR500-100NAS; XRM570-100NAS; EAX11-100NAS; EAX12-100NAS; EAX14-100NAS; EAX15-100NAS; EAX18-

Public Version

100NAS;EX2700-100PAS; EX2800-1AZNAS; EX3110-100NAS; EX3700-100NAS; EX5000-1AZNAS; EX6110-100NAS; EX6120-100NAS; EX7700-100NAS; R6020-100NAS;R6080-100NAS; R6120-100NAS; R6330-1AZNAS; R6700AX-1AZNAS; R7000P-100AUS; R8000P-1AZNAS; RAX10-100NAS; RAX30-100NAS; RAX42-100NAS;RAX43-100NAS; RAX48-100NAS; RAX70-100NAS; RAX78-100NAS; RAXE500-100NAS; RBK53-100NAS; RBK962-100NAS; RBK963-100NAS; RBS960-100NAS; SRK60B03-100NAS; SRK60B04-100NAS; SRK60B05-100NAS; SRK60B06-100NAS; SRS60-100NAS; SXK30-100NAS; SXK30B3-100NAS; SXK30B4-100NAS;SXK80-100NAS; SXK80B3-100NAS; SXK80B4-100NAS; SXR30-100NAS; SXS30-100NAS; SXS80-100NAS; WAC510B03-100NAS; WAC510PA-100NAS;WAC540PA-100NAS; WAX202-100NAS; WAX204-100NAS; WAX206-100NAS; WAX214-100NAS; WAX214PA-100NAS; WAX218-100NAS; WAX218PA-100NAS;WAX610-100NAS; WAX610PA-100NAS; WAX610Y-100NAS; WAX620-100NAS;WAX620PA-100NAS; WAX630-100NAS; WAX630PA-100NAS; XR1000-100CNS and any substantially similar models.

2. Accused Products that Infringe the ‘853 Patent

The HPE products that infringe the ‘853 Patent include HPE’s: AP11, AP11D, AP12, AP15 AP17, AP22, AP-303, AP-303P, AP-304, AP-305, AP-314, AP-315, AP-320, AP-324, AP-325, AP-334, AP-335, AP-344, AP-345, AP-504, AP-505, AP-514, AP-515, AP-534, AP-535, AP-555, AP-318, AP-518, AP-203H, AP-303H, AP-505H,AP-365, AP-367, AP-374, AP-375, AP-377, AP-387, AP-565, AP-567, AP-574, AP-575, AP-577, AP-203R, AP-203RP, AP-303HR, and substantially similar models7200 series (*e.g.*, 7205, 7210, 7220, 7280, 7240XM), 7000 series (*e.g.*, 7005, 7008,7010, 7024, 7030), and 9000 series (*e.g.*, 9004 and 9000) and substantially similar models.

The CommScope products that infringe the ‘853 Patent include CommScope’s: C110; E510; H320; H510; M510; R310; R320; R510; R550; R610; R650; R710; R720; R730; R750; R850; T305; T310c; T310d; T310n; T310s; T300e; T610; T610s; T710; T710s; T750; T811; 7781-CM; P300, and substantially similar models.

The NETGEAR products that infringe the ‘853 Patent include NETGEAR’s: WAC510; WAC540; WAC564 and substantially similar models.

3. Accused Products that Infringe the ‘305 Patent

The HPE Products that infringe the ‘305 Patent are the same HPE products that infringe the ‘677 Patent, as listed above, in Section I.E.1.

Public Version

> Likewise, the CommScope Products that infringe the '305 Patent are the same as those listed in Section I.E.1, in addition to the following CommScope controllers: ZoneDirector 1200, vSZ-E, vSZ-H, vSZ-D, SZ100, SZ300, and substantially similar products. The NETGEAR products that infringe the '305 Patent include NETGEAR's: WAC720-100NAS and WAC730-100NAS and substantially similar products; and WC9500, WC7600, WC7500 and substantially similar products.

Compl. Br. at 7-10.

Respondents argue:

> Respondents' accused products are different kinds of Wi-Fi networking products, including access points, controllers, and routers. Respondents' accused products are generally sold to businesses, but not specifically marketed to industrial customers. The specific products Q3 alleges of infringing the Asserted Patents are listed in Appendix A.

Resps. Br. at 7-8.

Respondents argue that the following products are accused of infringement:

HPE

> Q3 alleges that the Aruba APs (AP11, AP11D, AP12, AP15 AP17, AP22, AP-303, AP-303P, AP-304, AP-305, AP-314, AP-315, AP-320, AP-324, AP-325, AP-334, AP-335, AP-344, AP-345, AP-504, AP-505, AP-514, AP-515, AP-534, AP-535, AP-555, AP-318, AP-518, AP-203H, AP-303H, AP-505H, AP-365, AP-367, AP-374, AP-375, AP-377, AP-387, AP-565, AP-567, AP-574, AP-575, AP-577, AP-203R, AP-203RP, AP-303HR) infringe the '853 Patent. CX-3846C (Madisetti WS) at Q/A 171. Q3 alleges that the Aruba APs and controllers (7205, 7210, 7220, 7280, 7240XM, 7005, 7008, 7010, 7024, 7030, 9004, and 9000) infringe the '677 and '305 Patents. *Id.* at Q/As 291, 542.

NETGEAR

> Q3 alleges that the NETGEAR APs (WAC510; WAC540; WAC564) infringe the '853 Patent. CX-3846C (Madisetti WS) at Q/A 109. Q3 alleges that the NETGEAR products that provide Wi-Fi connectivity (EX6100; WAC510; RBR750; RBS750; BR500-100NAS; EAX20-100NAS; EAX80-100NAS; EX6100-100NAS; EX6150-100NAS; EX6250-100NAS; EX6400-100NAS; EX7000-100NAS; EX7300-100NAS; EX7500-100NAS; EX8000-100NAS; LBR20-100NAS; MK62-100CNS; MK63-100CNS; MS60-100NAS; R6220-100NAS; R6230-100NAS; R6260-100NAS; R6350-100NAS; R6400-100NAS; R6700-

100NAS; R6850-100NAS; R6900-200NAS; R7000-100CNS; R7200-100CNS; R7350-100NAS; R7400-100NAS; R7450-100NAS; R7800-100NAS; R7850-100NAS; R7900P-100NAS; R7960P-100NAS; R8000-100NAS; R9000-100NAS; RAX120-100NAS; RAX200-100CNS; RAX20-100NAS; RAX35-100NAS; RAX38-100NAS; RAX40-100NAS; RAX45-100NAS; RAX50-100NAS; RAX75-100NAS; RAX80-100NAS; RBK12-100NAS; RBK13-100NAS; RBK14-100NAS; RBK20W-100NAS; RBK22-100MXS; RBK23-100NAS; RBK43S-100NAS; RBK44-100NAS; RBK50-100NAS; RBK53S-100NAS; RBK752-100NAS; RBK753-100NAS; RBK842-1CCNAS; RBK852-100NAS; RBK853-100NAS; RBR20-100NAS; RBS10-100NAS; RBS20-100NAS; RBS50-100NAS; RBS750-100NAS; RBS850-100NAS; RBW30-100NAS; SRC60-100NAS; SRK60-100NAS; SRR60-100NAS; WAC104-100NAS; WAC124-100NAS; WAC510-100NAS; WAC540-100NAS; WAC564-100NAS; WAC720-100NAS; WAC730-100NAS; XR300-100NAS; XR500-100NAS; XRM570-100NAS; EAX11-100NAS; EAX12-100NAS; EAX14-100NAS; EAX15-100NAS; EAX18-100NAS; EX2700-100PAS; EX2800-1AZNAS; EX3110-100NAS; EX3700-100NAS; EX5000-1AZNAS; EX6110-100NAS; EX6120-100NAS; EX7700-100NAS; R6020-100NAS; R6080-100NAS; R6120-100NAS; R6330-1AZNAS; R6700AX-1AZNAS; R7000P-100AUS; R8000P-1AZNAS; RAX10-100NAS; RAX30-100NAS; RAX42-100NAS; RAX43-100NAS; RAX48-100NAS; RAX70-100NAS; RAX78-100NAS; RAXE500-100NAS; RBK53-100NAS; RBK962-100NAS; RBK963-100NAS; RBS960-100NAS; SRK60B03-100NAS; SRK60B04-100NAS; SRK60B05-100NAS; SRK60B06-100NAS; SRS60-100NAS; SXK30-100NAS; SXK30B3-100NAS; SXK30B4-100NAS; SXK80-100NAS; SXK80B3-100NAS; SXK80B4-100NAS; SXR30-100NAS; SXS30-100NAS; SXS80-100NAS; WAC510B03-100NAS; WAC510PA-100NAS; WAC540PA-100NAS; WAX202-100NAS; WAX204-100NAS; WAX206-100NAS; WAX214-100NAS; WAX214PA-100NAS; WAX218-100NAS; WAX218PA-100NAS; WAX610-100NAS; WAX610PA-100NAS; WAX610Y-100NAS; WAX620-100NAS; WAX620PA-100NAS; WAX630-100NAS; WAX630PA-100NAS; XR1000-100CNS) infringe the ’677 Patent. *Id.* at Q/A 429. Q3 alleges the NETGEAR APs (WAC720-100NAS and WAC730-100NAS) and controllers (WC9500, WC7600, WC7500) infringe the ’305 Patent. *Id.* at Q/A 618.

COMMSCOPE

Q3 alleges that the Ruckus APs (C110; E510; H320; H510; M510; R310; R320; R510; R550; R610; R650; R710; R720; R730; R750; R850; T305; T310c; T310d; T310n; T310s; T300e; T610; T610s; T710; T710s; T750; T811; 7781-CM; P300) alone, or with the ZoneDirector 1220

> controller infringe the '853 Patent. CX-3846C (Madisetti WS) at Q/A 52. Q3 alleges the Ruckus APs infringe the '677 Patent. *Id.* at Q/A 391. Q3 alleges that the Ruckus APs and CommScope controllers (ZoneDirector 1200, vSZE, vSZ-H, vSZ-D, SZ100, SZ300) infringe the '305 Patent. *Id.* at Q/A 595.
>
> **SIEMENS**
>
> Q3 alleges the Scalance W1750D, the Scalance W7xx series (consisting of the WLC71x, W72x, W73x, W73fx, W74x, W76x, W77x, and W78x) practice the '853 Patent. CX-3846C (Madisetti WS) at Q/A 242. Q3 alleges that the Scalance W7xx series (consisting of the W72x, W73x, W73fx, W74x, W76x, W77x, and W78x) and the W1750D practice the '677 Patent. *Id.* at Q/As 501, 525. Q3 alleges that the RuggedCom RX1400 switch, the RX1500 switch and router, and the RSG900 practice the '305 Patent. *Id.* at Q/A 643.

Resps. Br. at Appendix A.

Thus, as shown in the parties' arguments above, for the '853 patent, (1) HPE accused products are Aruba APs (AP11, AP11D, AP12, AP15 AP17, AP22, AP-303, AP-303P, AP-304, AP-305, AP-314, AP-315, AP-320, AP-324, AP-325, AP-334, AP-335, AP-344, AP-345, AP-504, AP-505, AP-514, AP-515, AP-534, AP-535, AP-555, AP-318, AP-518, AP-203H, AP-303H, AP-505H, AP-365, AP-367, AP-374, AP-375, AP-377, AP-387, AP-565, AP-567, AP-574, AP-575, AP-577, AP-203R, AP-203RP, AP-303HR); (2) NETGEAR accused products are NETGEAR APs (WAC510; WAC540; WAC564); and (3) CommScope accused products are Ruckus APs (C110; E510; H320; H510; M510; R310; R320; R510; R550; R610; R650; R710; R720; R730; R750; R850; T305; T310c; T310d; T310n; T310s; T300e; T610; T610s; T710; T710s; T750; T811; 7781-CM; P300) alone, or with the ZoneDirector 1220 controller. *See* Compl. Br. at 7-10; Resps. Br. at Appendix A.

With respect to the '305 patent, (1) HPE accused products are Aruba APs (AP11,

AP11D, AP12, AP15 AP17, AP22, AP-303, AP-303P, AP-304, AP-305, AP-314, AP-315, AP-320, AP-324, AP-325, AP-334, AP-335, AP-344, AP-345, AP-504, AP-505, AP-514, AP-515, AP-534, AP-535, AP-555, AP-318, AP-518, AP-203H, AP-303H, AP-505H, AP-365, AP-367, AP-374, AP-375, AP-377, AP-387, AP-565, AP-567, AP-574, AP-575, AP-577, AP-203R, AP-203RP, AP-303HR) and controllers (7205, 7210, 7220, 7280, 7240XM, 7005, 7008, 7010, 7024, 7030, 9004, and 9000); (2) NETGEAR accused products are NETGEAR APs (WAC720-100NAS and WAC730-100NAS) and controllers (WC9500, WC7600, WC7500); and (3) CommScope accused products are Ruckus APs (C110; E510; H320; H510; M510; R310; R320; R510; R550; R610; R650; R710; R720; R730; R750; R850; T305; T310c; T310d; T310n; T310s; T300e; T610; T610s; T710; T710s; T750; T811; 7781-CM; P300) and CommScope controllers (ZoneDirector 1200, vSZE, vSZ-H, vSZ-D, SZ100, SZ300). *See* Compl. Br. at 7-10; Resps. Br. at Appendix A.

As for the '677 patent, (1) HPE accused products are Aruba APs (AP11, AP11D, AP12, AP15 AP17, AP22, AP-303, AP-303P, AP-304, AP-305, AP-314, AP-315, AP-320, AP-324, AP-325, AP-334, AP-335, AP-344, AP-345, AP-504, AP-505, AP-514, AP-515, AP-534, AP-535, AP-555, AP-318, AP-518, AP-203H, AP-303H, AP-505H, AP-365, AP-367, AP-374, AP-375, AP-377, AP-387, AP-565, AP-567, AP-574, AP-575, AP-577, AP-203R, AP-203RP, AP-303HR) and controllers (7205, 7210, 7220, 7280, 7240XM, 7005, 7008, 7010, 7024, 7030, 9004, and 9000); (2) NETGEAR accused products are NETGEAR products that provide Wi-Fi connectivity (EX6100; WAC510; RBR750; RBS750; BR500-100NAS; EAX20-100NAS; EAX80-100NAS; EX6100-100NAS; EX6150-100NAS; EX6250-100NAS; EX6400-100NAS; EX7000-100NAS;

EX7300-100NAS; EX7500-100NAS; EX8000-100NAS; LBR20-100NAS; MK62-100CNS; MK63-100CNS; MS60-100NAS; R6220-100NAS; R6230-100NAS; R6260-100NAS; R6350-100NAS; R6400-100NAS; R6700-100NAS; R6850-100NAS; R6900-200NAS; R7000-100CNS; R7200-100CNS; R7350-100NAS; R7400-100NAS; R7450-100NAS; R7800-100NAS; R7850-100NAS; R7900P-100NAS; R7960P-100NAS; R8000-100NAS; R9000-100NAS; RAX120-100NAS; RAX200-100CNS; RAX20-100NAS; RAX35-100NAS; RAX38-100NAS; RAX40-100NAS; RAX45-100NAS; RAX50-100NAS; RAX75-100NAS; RAX80-100NAS; RBK12-100NAS; RBK13-100NAS; RBK14-100NAS; RBK20W-100NAS; RBK22-100MXS; RBK23-100NAS; RBK43S-100NAS; RBK44-100NAS; RBK50-100NAS; RBK53S-100NAS; RBK752-100NAS; RBK753-100NAS; RBK842-1CCNAS; RBK852-100NAS; RBK853-100NAS; RBR20-100NAS; RBS10-100NAS; RBS20-100NAS; RBS50-100NAS; RBS750-100NAS; RBS850-100NAS; RBW30-100NAS; SRC60-100NAS; SRK60-100NAS; SRR60-100NAS; WAC104-100NAS; WAC124-100NAS; WAC510-100NAS; WAC540-100NAS; WAC564-100NAS; WAC720-100NAS; WAC730-100NAS; XR300-100NAS; XR500-100NAS; XRM570-100NAS; EAX11-100NAS; EAX12-100NAS; EAX14-100NAS; EAX15-100NAS; EAX18-100NAS; EX2700-100PAS; EX2800-1AZNAS; EX3110-100NAS; EX3700-100NAS; EX5000-1AZNAS; EX6110-100NAS; EX6120-100NAS; EX7700-100NAS; R6020-100NAS; R6080-100NAS; R6120-100NAS; R6330-1AZNAS; R6700AX-1AZNAS; R7000P-100AUS; R8000P-1AZNAS; RAX10-100NAS; RAX30-100NAS; RAX42-100NAS; RAX43-100NAS; RAX48-100NAS; RAX70-100NAS; RAX78-100NAS; RAXE500-100NAS; RBK53-100NAS; RBK962-100NAS; RBK963-100NAS; RBS960-100NAS; SRK60B03-100NAS;

SRK60B04-100NAS; SRK60B05-100NAS; SRK60B06-100NAS; SRS60-100NAS; SXK30-100NAS; SXK30B3-100NAS; SXK30B4-100NAS; SXK80-100NAS; SXK80B3-100NAS; SXK80B4-100NAS; SXR30-100NAS; SXS30-100NAS; SXS80-100NAS; WAC510B03-100NAS; WAC510PA-100NAS; WAC540PA-100NAS; WAX202-100NAS; WAX204-100NAS; WAX206-100NAS; WAX214-100NAS; WAX214PA-100NAS; WAX218-100NAS; WAX218PA-100NAS; WAX610-100NAS; WAX610PA-100NAS; WAX610Y-100NAS; WAX620-100NAS; WAX620PA-100NAS; WAX630-100NAS; WAX630PA-100NAS; XR1000-100CNS); and (3) CommScope accused products are Ruckus APs (C110; E510; H320; H510; M510; R310; R320; R510; R550; R610; R650; R710; R720; R730; R750; R850; T305; T310c; T310d; T310n; T310s; T300e; T610; T610s; T710; T710s; T750; T811; 7781-CM; P300). *See* Compl. Br. at 7-10; Resps. Br. at Appendix A.

E. The Domestic Industry Products

Complainant argues:

> Licensee SII's products that practice the '677 and '853 Patents include: Siemens' SCALANCE W7xx products such as W72x, W73x, W73fx, W74x, W76x, W77x, W78x, W1750D, and substantially similar products. Licensee SII's products that practice the '305 Patent include: Siemens' RUGGEDCOM RX1400 switch, the RX1500 switch and router, and substantially similar products.

Compl. Br. at 10.

Respondents argue:

> The DI Products are enterprise products intended for "industrial and utility style networking," representing the "connectivity" in "Digital Connectivity and Power." JX-0180C (Richards Dep. Tr.) at 16:3-5. The Scalance Products include "industrial wireless LAN" products, such as access points and client modules, which are typically used in "industrial vertical" industries, including aerospace and automotive manufacturing.

> RX-0342; JX-0180C (Richards Dep. Tr.) at 28:6-11; RX-1208C (Bazelon WS) at Q/A 22. The Ruggedcom Products, which are typically used in "industrial vertical" industries, are purchased by customers in the "utilities vertical" industries, such as power companies seeking to share data across a digitalized electric grid, as well as for rail networks and camera systems at stoplights. JX-0180C (Richards Dep. Tr.) at 28:3-29:8; RX-1208C (Bazelon WS) at Q/A 22. Q3 alleges that the RuggedCom Products practice the '305 Patent and the Scalance Products practice the '853 and '677 Patents. CX-3846C (Madisetti WS) at Q/A 242, 501, 525, 643; CDX-0007C.0002. *See* Appendix A.

Resps. Br. at 8. Respondents argue that the following products are domestic industry products ("DI products"):

> Q3 alleges the Scalance W1750D, the Scalance W7xx series (consisting of the WLC71x, W72x, W73x, W73fx, W74x, W76x, W77x, and W78x) practice the '853 Patent. CX-3846C (Madisetti WS) at Q/A 242. Q3 alleges that the Scalance W7xx series (consisting of the W72x, W73x, W73fx, W74x, W76x, W77x, and W78x) and the W1750D practice the '677 Patent. *Id.* at Q/As 501, 525. Q3 alleges that the RuggedCom RX1400 switch, the RX1500 switch and router, and the RSG900 practice the '305 Patent. *Id.* at Q/A 643.

Resps. Br. at Appendix A.

Thus, the parties' arguments show that (1) for the '677 and '853 patents, the DI products include Siemens' SCALANCE W7xx products and W1750D products; and (2) for the '305 patent, the DI products include Siemens' RUGGEDCOM RX1400 switch, and the RX1500 switch and router.

II. Jurisdiction and Importation

Jurisdiction and importation are not disputed. Respodents argue:

> The Commission must have subject matter and personal jurisdiction over the parties, or *in rem* jurisdiction over the property. *See* 19 U.S.C. § 1337; *Certain Steel Rod Treating Apparatus & Components Thereof*, Inv. No. 337-TA-97, Comm'n Op., USITC Publ. No. 1210 at 4-5 (June 30, 1981). Respondents do not dispute that the Commission has subject matter jurisdiction over this Investigation, that Respondents submitted to the personal jurisdiction of the Commission, and that the

Commission has *in rem* jurisdiction over the accused products. Resps. Br. at 8; *see also* Compl. Br. at 10-13.

Section 337(a)(1)(B) declares unlawful, *inter alia*, "[t]he importation into the United States, the sale for importation, or the sale within the United States after importation by the owner, importer, or consignee, of articles that . . . infringe a valid and enforceable United States patent." 19 U.S.C. § 1337(a)(1)(B). Complainant had filed a complaint alleging a violation of this subsection, and the Commission therefore has subject matter jurisdiction. *See Amgen, Inc. v. United States Int'l Trade Comm'n*, 902 F.2d 1532, 1535-37 (Fed. Cir. 1990).

No respondent contested the Commission's personal jurisdiction. *See* Resps. Br. at 23. Indeed, all respondents have appeared and participated in the investigation. The Commission therefore has personal jurisdiction over those respondents. *See, e.g., Certain Liquid Crystal Display Modules, Products Containing Same, and Methods for Using the Same*, Inv. No. 337-TA-634, Final Initial and Recommended Determinations at 3 (June 12, 2009) (unreviewed).

As noted, importation is not disputed, and the Commission therefore has *in rem* jurisdiction over the accused products. *See, e.g., Sealed Air Corp. v. United States Int'l Trade Comm'n*, 645 F.2d 976, 985-86 (C.C.P.A. 1981).

III. General Principles of Applicable Law

A. Claim Construction

Claim construction begins with the plain language of the claim.[1] Claims should

[1] Only those claim terms that are in controversy need to be construed, and only to the

be given their ordinary and customary meaning as understood by a person of ordinary skill in the art, viewing the claim terms in the context of the entire patent.[2] *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005), *cert. denied*, 546 U.S. 1170 (2006).

In some instances, claim terms do not have particular meaning in a field of art, and claim construction involves little more than the application of the widely accepted meaning of commonly understood words. *Phillips*, 415 F.3d at 1314. "In such circumstances, general purpose dictionaries may be helpful." *Id.*

In many cases, claim terms have a specialized meaning, and it is necessary to determine what a person of skill in the art would have understood the disputed claim language to mean. "Because the meaning of a claim term as understood by persons of skill in the art is often not immediately apparent, and because patentees frequently use terms idiosyncratically, the court looks to 'those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean.'" *Phillips*, 415 F.3d at 1314 (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)). The public sources identified in *Phillips* include "the words of the claims themselves, the remainder of the

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extent necessary to resolve the controversy. *Vanderlande Indus. Nederland BV v. Int'l Trade Comm.*, 366 F.3d 1311, 1323 (Fed. Cir. 2004); *Vivid Tech., Inc. v. American Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

[2] Factors that may be considered when determining the level of ordinary skill in the art include: "(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field." *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 696 (Fed. Cir. 1983), *cert. denied*, 464 U.S. 1043 (1984).

specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art." *Id.* (quoting *Innova*, 381 F.3d at 1116).

In cases in which the meaning of a claim term is uncertain, the specification usually is the best guide to the meaning of the term. *Phillips*, 415 F.3d at 1315. As a general rule, the particular examples or embodiments discussed in the specification are not to be read into the claims as limitations. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (*en banc*), *aff'd*, 517 U.S. 370 (1996). The specification is, however, always highly relevant to the claim construction analysis, and is usually dispositive. *Phillips*, 415 F.3d at 1315 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). Moreover, "[t]he construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Id.* at 1316.

Claims are not necessarily, and are not usually, limited in scope to the preferred embodiment. *RF Delaware, Inc. v. Pacific Keystone Techs., Inc.*, 326 F.3d 1255, 1263 (Fed. Cir. 2003); *Decisioning.com, Inc. v. Federated Dep't Stores, Inc.*, 527 F.3d 1300, 1314 (Fed. Cir. 2008) ("[The] description of a preferred embodiment, in the absence of a clear intention to limit claim scope, is an insufficient basis on which to narrow the claims."). Nevertheless, claim constructions that exclude the preferred embodiment are "rarely, if ever, correct and require highly persuasive evidentiary support." *Vitronics*, 90 F.3d at 1583. Such a conclusion can be mandated in rare instances by clear intrinsic evidence, such as unambiguous claim language or a clear disclaimer by the patentees

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during patent prosecution. *Elekta Instrument S.A. v. O.U.R. Sci. Int'l, Inc.*, 214 F.3d 1302, 1308 (Fed. Cir. 2000); *Rheox, Inc. v. Entact, Inc.*, 276 F.3d 1319 (Fed. Cir. 2002).

If the intrinsic evidence does not establish the meaning of a claim, then extrinsic evidence may be considered. Extrinsic evidence consists of all evidence external to the patent and the prosecution history, and includes inventor testimony, expert testimony, and learned treatises. *Phillips*, 415 F.3d at 1317. Inventor testimony can be useful to shed light on the relevant art. In evaluating expert testimony, a court should discount any expert testimony that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent. *Id*. at 1318. Extrinsic evidence may be considered if a court deems it helpful in determining the true meaning of language used in the patent claims. *Id.*

B. Infringement

1. Direct Infringement

Under 35 U.S.C. §271(a), direct infringement consists of making, using, offering to sell, or selling a patented invention without consent of the patent owner. The complainant in a section 337 investigation bears the burden of proving infringement of the asserted patent claims by a "preponderance of the evidence." *Certain Flooring Products*, Inv. No. 337-TA-443, Comm'n Notice of Final Determination of No Violation of Section 337, 2002 WL 448690, at *59, (Mar. 22, 2002); *Enercon GmbH v. Int'l Trade Comm'n*, 151 F.3d 1376 (Fed. Cir. 1998).

Literal infringement of a claim occurs when every limitation recited in the claim appears in the accused device, *i.e.*, when the properly construed claim reads on the

accused device exactly.[3] *Amhil Enters., Ltd. v. Wawa, Inc.*, 81 F.3d 1554, 1562 (Fed. Cir. 1996); *Southwall Tech. v. Cardinal IG Co.*, 54 F.3d 1570, 1575 (Fed Cir. 1995).

If the accused product does not literally infringe the patent claim, infringement might be found under the doctrine of equivalents. "Under this doctrine, a product or process that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is 'equivalence' between the elements of the accused product or process and the claimed elements of the patented invention." *Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 21 (1997) (citing *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 609 (1950)). "The determination of equivalence should be applied as an objective inquiry on an element-by-element basis."[4] *Id*. at 40.

"An element in the accused product is equivalent to a claim limitation if the differences between the two are insubstantial. The analysis focuses on whether the element in the accused device 'performs substantially the same function in substantially the same way to obtain the same result' as the claim limitation." *AquaTex Indus. v. Techniche Solutions*, 419 F.3d 1374, 1382 (Fed. Cir. 2005) (quoting *Graver Tank*, 339 U.S. at 608); *accord Absolute Software*, 659 F.3d at 1139-40.[5]

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[3] Each patent claim element or limitation is considered material and essential. *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991). If an accused device lacks a limitation of an independent claim, the device cannot infringe a dependent claim. *See Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1552 n.9 (Fed. Cir. 1989).

[4] "Infringement, whether literal or under the doctrine of equivalents, is a question of fact." *Absolute Software, Inc. v. Stealth Signal, Inc.*, 659 F.3d 1121, 1130 (Fed. Cir. 2011).

[5] "The known interchangeability of substitutes for an element of a patent is one of the express objective factors noted by *Graver Tank* as bearing upon whether the accused

Prosecution history estoppel can prevent a patentee from relying on the doctrine of equivalents when the patentee relinquished subject matter during the prosecution of the patent, either by amendment or argument. *AquaTex*, 419 F.3d at 1382. In particular, "[t]he doctrine of prosecution history estoppel limits the doctrine of equivalents when an applicant makes a narrowing amendment for purposes of patentability, or clearly and unmistakably surrenders subject matter by arguments made to an examiner." *Id*. (quoting *Salazar v. Procter & Gamble Co.*, 414 F.3d 1342, 1344 (Fed. Cir. 2005)).

2. Indirect Infringement (Induced Infringement)

Section 271(b) of the Patent Act provides: "Whoever actively induces infringement of a patent shall be liable as an infringer." 35 U.S.C. § 271(b).

Under 35 U.S.C. § 271(b), whoever actively induces infringement of a patent shall be liable as an infringer. In contrast to direct infringement, liability for inducing infringement attaches only if the defendant knew of the patent and that the induced acts constituted patent infringement. *Commil USA, LLC v. Cisco Sys., Inc.*, 135 S. Ct. 1920, 1926 (2015); *see also Microsoft Corp. v. Datatern, Inc.*, 755 F.3d 899, 904 (Fed. Cir. 2014) (to prove induced infringement, patentee must show that accused inducer took an affirmative act to encourage infringement with knowledge that the induced acts constitute patent infringement). Induced infringement requires a finding that the infringer possessed a specific intent to encourage another's infringement. *i4i Ltd. Partnership v. Microsoft Corp.*, 598 F.3d 831, 851 (Fed. Cir. 2010), *aff'd*, 564 U.S. 91 (2011).

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device is substantially the same as the patented invention. Independent experimentation by the alleged infringer would not always reflect upon the objective question whether a person skilled in the art would have known of the interchangeability between two elements, but in many cases it would likely be probative of such knowledge." *Warner-Jenkinson*, 520 U.S. at 36.

C. Validity

One cannot be held liable for practicing an invalid patent claim. *See Pandrol USA, LP v. AirBoss Railway Prods., Inc.*, 320 F.3d 1354, 1365 (Fed. Cir. 2003). Nevertheless, each claim of a patent is presumed to be valid, even if it depends from a claim found to be invalid. 35 U.S.C. § 282; *DMI Inc. v. Deere & Co.*, 802 F.2d 421 (Fed. Cir. 1986).

A respondent that has raised patent invalidity as an affirmative defense must overcome the presumption by "clear and convincing" evidence of invalidity. *Checkpoint Systems, Inc. v. United States Int'l Trade Comm'n*, 54 F.3d 756, 761 (Fed. Cir. 1995).

1. Anticipation

Anticipation under 35 U.S.C. § 102 is a question of fact. *z4 Techs., Inc. v. Microsoft Corp.*, 507 F.3d 1340, 1347 (Fed. Cir. 2007). Section 102 provides that, depending on the circumstances, a claimed invention may be anticipated by variety of prior art, including publications, earlier-sold products, and patents. *See* 35 U.S.C. § 102 (*e.g.*, section 102(b) provides that one is not entitled to a patent if the claimed invention "was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States").

The general law of anticipation may be summarized, as follows:

> A reference is anticipatory under § 102(b) when it satisfies particular requirements. First, the reference must disclose each and every element of the claimed invention, whether it does so explicitly or inherently. *Eli Lilly & Co. v. Zenith Goldline Pharms., Inc.*, 471 F.3d 1369, 1375 (Fed.Cir.2006). While those elements must be "arranged or combined in the same way as in the claim," *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1370

> (Fed.Cir.2008), the reference need not satisfy an *ipsissimis verbis* test, *In re Bond*, 910 F.2d 831, 832-33 (Fed.Cir.1990). Second, the reference must "enable one of ordinary skill in the art to make the invention without undue experimentation." *Impax Labs., Inc. v. Aventis Pharms. Inc.*, 545 F.3d 1312, 1314 (Fed.Cir.2008); *see In re LeGrice*, 49 C.C.P.A. 1124, 301 F.2d 929, 940-44 (1962). As long as the reference discloses all of the claim limitations and enables the "subject matter that falls within the scope of the claims at issue," the reference anticipates -- no "actual creation or reduction to practice" is required. *Schering Corp. v. Geneva Pharms., Inc.*, 339 F.3d 1373, 1380-81 (Fed.Cir.2003); *see In re Donohue*, 766 F.2d 531, 533 (Fed.Cir.1985). This is so despite the fact that the description provided in the anticipating reference might not otherwise entitle its author to a patent. *See Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1562 (Fed.Cir.1991) (discussing the "distinction between a written description adequate to support a claim under § 112 and a written description sufficient to anticipate its subject matter under § 102(b)").

In re Gleave, 560 F.3d 1331, 1334 (Fed. Cir. 2009).

2. Obviousness

Under section 103 of the Patent Act, a patent claim is invalid "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."[6] 35 U.S.C. § 103. While the ultimate determination of whether an invention would have been obvious is a legal conclusion, it is based on "underlying factual inquiries including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of

[6] The standard for determining whether a patent or publication is prior art under section 103 is the same as under 35 U.S.C. § 102, which is a legal question. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1568 (Fed. Cir. 1987).

nonobviousness." *Eli Lilly and Co. v. Teva Pharmaceuticals USA, Inc.*, 619 F.3d 1329 (Fed. Cir. 2010).

The objective evidence, also known as "secondary considerations," includes commercial success, long felt need, and failure of others. *Graham v. John Deere Co.*, 383 U.S. 1, 13-17 (1966); *Dystar Textilfarben GmbH v. C.H. Patrick Co.*, 464 F.3d 1356, 1361 (Fed. Cir. 2006). "[E]vidence arising out of the so-called 'secondary considerations' must always when present be considered en route to a determination of obviousness." *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538 (Fed. Cir. 1983). Secondary considerations, such as commercial success, will not always dislodge a determination of obviousness based on analysis of the prior art. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 426 (2007) (commercial success did not alter conclusion of obviousness).

"One of the ways in which a patent's subject matter can be proved obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent's claims." *KSR*, 550 U.S. at 419-20. "[A]ny need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *Id*.

Specific teachings, suggestions, or motivations to combine prior art may provide helpful insights into the state of the art at the time of the alleged invention. *Id*. at 420. Nevertheless, "an obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents. The diversity of inventive pursuits and of modern technology counsels against limiting the analysis in this way." *Id*.

"Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed." *Id*. A "person of ordinary skill is also a person of ordinary creativity." *Id*. at 421.

Nevertheless, "the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make the composition or device, or carry out the claimed process, and would have had a reasonable expectation of success in doing so." *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1360 (Fed. Cir. 2007); *see KSR*, 550 U.S. at 416 (a combination of elements must do more than yield a predictable result; combining elements that work together in an unexpected and fruitful manner would not have been obvious).[7]

D. Domestic Industry

A violation of section 337(a)(1)(B), (C), (D), or (E) can be found "only if an industry in the United States, with respect to the articles protected by the patent, copyright, trademark, mask work, or design concerned, exists or is in the process of being established." 19 U.S.C. § 1337(a)(2). Section 337(a) further provides:

> (3) For purposes of paragraph (2), an industry in the United States shall be considered to exist if there is in the United States, with respect to the articles protected by the patent, copyright, trademark, mask work, or design concerned—
>
> (A) significant investment in plant and equipment;

[7] Further, "when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious." *KSR*, 550 U.S. at 416 (citing *United States v. Adams*, 383 U.S. 39, 52 (1966)).

> (B) significant employment of labor or capital; or
>
> (C) substantial investment in its exploitation, including engineering, research and development, or licensing.

19 U.S.C. § 1337(a)(3).

These statutory requirements consist of an economic prong (which requires certain activities) and a technical prong (which requires that these activities relate to the intellectual property being protected). *Certain Stringed Musical Instruments and Components Thereof*, Inv. No. 337-TA-586, Comm'n Op. at 13 (May 16, 2008) ("*Stringed Musical Instruments*"). The burden is on the complainant to show by a preponderance of the evidence that the domestic industry requirement is satisfied. *Certain Multimedia Display and Navigation Devices and Systems, Components Thereof, and Products Containing Same*, Inv. No. 337-TA-694, Comm'n Op. at 5 (July 22, 2011) ("*Navigation Devices*").

IV. U.S. Patent No. 8,797,853

United States Patent No. 8,797,853 ("the '853 patent"), entitled "System and method for checking the permissibility of a use of a service," issued on August 5, 2014, to named inventors Rudolf Bitzinger, Christian Prehofer and Viktor Ransmayr. JX-0003 ('853 Patent). The '853 patent issued from Application No. 10/239,525, filed on March 27, 2003. *Id.* This application claims priority to International Application No. PCT/DE01/00863 which was published in German, on September 27, 2001. *Id.* at 1:7-9. The '853 patent relates to "a system and method for checking the permissibility of a use of a service" (JX-0003 at 1:14-15), and "[t]he invention discloses a method for checking the permissibility of the transmission of a packet stream in a communications network"

(*id.* at 3:28-30). The '853 patent has a total of 13 claims. Complainant asserts method claims 1-9 of the '853 patent.

As discussed below, the evidence shows that (1) the asserted claims are not infringed by the accused products; (2) complainant has not satisfied the technical prong of the domestic industry requirement; and (3) the asserted claims are not invalid.

Asserted method claims 1-9 of the '853 patent read as follows:

> **1**. A method for checking permissibility to use a service, the service being implemented in at least one ***communications network***, ***the communication network having an overall transmission capacity***, the use of the service comprising transmission of at least one service-specific traffic stream which is assigned to the service by an access node which is assigned to the service to the communication network, comprising:
>
> analyzing the use of the service with an access control function which is assigned to the access node; and
>
> checking, via the access control function, without further interrogations at internal transmission nodes of the communications network, whether the use of the service is permitted, the checking performed taking into account an available capacity, which is
>
> ***determined taking into account the overall transmission capacity***, and
>
> available to the access node for transmitting traffic streams to the communications network.
>
> **2**. The method as claimed in claim **1**, wherein the service is embodied as a transmission of information which is brought about using traffic streams which are transmitted with priority.
>
> **3**. The method as claimed in claim **2**, wherein the access control function signals the permissibility of the traffic stream to be transmitted with priority during use of the service to the assigned access node, and the access node subsequently transmits the traffic stream with priority

to DiffServ network.

4. The method as claimed in claim **1**, wherein ***the overall transmission capacity*** depends at least partially on the transmission capacities of transmission paths of the communications network.

5. The method as claimed in claim **1**, wherein the checking of the permissibility is carried out taking into account a service quality level which is determined by the access control function.

6. The method as claimed in claim **4**, wherein a desired service quality level is specified when the use of the service is applied for, the service quality level is taken into account by the access control function in the determination of necessary service quality level.

7. The method as claimed in claim **1**, wherein the communications network is embodied as a DiffServ network which transmits traffic streams with an ensured service quality level in a packet-oriented fashion.

8. The method as claimed in claim **7**, wherein the access control function signals the permissibility of the traffic stream to be transmitted with priority during use of the service to the assigned access node, and the access node subsequently transmits the traffic stream with priority to DiffServ network.

9. The method as claimed in claim **1**, wherein the access control function is implemented within a gatekeeper.

JX-0003 ('853 Patent) at 8:2-50 (emphasis added).[8]

A. Claim Construction

1. A Person of Ordinary Skill in the Art

Respondents argue:

The relevant time period for the '853 Patent is March 2000 based

[8] In this Initial Determination, unless noted otherwise, when quoting, emphases are from the original source, and footnotes from the original source are omitted.

> on the Foreign Application DE10014522, filed March 23, 2000. JX-0003.0003. The relevant time period for the '305 Patent is November 7, 2000 based on the Foreign Application GB0027106.4, filed November 7, 2000. JX-0002.0003. The relevant time period for the '677 Patent is March 2002 based on the Foreign Application EP02006022, filed November March 15, 2002. JX-0004. As to all three patents, those of ordinary skill in the art during the relevant period would have had at least an undergraduate degree in Electrical Engineering or Computer Science and four or more years of experience in networking, or a Master's degree in Electrical Engineering or Computer Science and two or more years of experience in networking. RX-1195C.0005. Q3 proposes that a person of ordinary skill in the art "would have had an undergraduate degree in electrical or computer engineering (or a related field) and approximately two years of work experience in the field of networking." CX-3930C.0005-6 at Q/A 10. Under either proposed level of ordinary in the art for the Asserted Patents, the arguments and conclusions are the same.

Resps. Br. at 14.

Complainant does not provide a definition of a person of ordinary skill in the art in its brief. *See* Joint Outline at 4 (citing Compl. Br. at 189-90, 199). The cited pages merely discuss infringement of the claim elements. *See* Compl. Br. at 189-90, 199. However, as noted above in respondents' argument, "Q3 proposes that a person of ordinary skill in the art 'would have had an undergraduate degree in electrical or computer engineering (or a related field) and approximately two years of work experience in the field of networking'." Resps. Br. at 14 (citing CX-3930C (Martin RWS) at Q/A 10).

As seen above, the parties mostly agree on this issue. As proposed by the parties, the undersigned agrees that some combination of education and experience is the appropriate level of ordinary skill. The administrative law judge finds that a person of ordinary skill in the art with respect to the '853 patent is a person would have had at least an undergraduate degree in Electrical Engineering or Computer Science (or a related

field) and two to four years of experience in networking, or a Master's degree in Electrical Engineering or Computer Science (or a related field) and two or more years of experience in networking.

2. "communications network"

Below is a chart showing the parties' proposed claim constructions.

Claim Term	Complainant's Proposed Construction	Respondents' Proposed Construction
"communications network" (claim 1)	No construction necessary. To the extent construction is necessary, "a packet-oriented network"	"a plurality of transmission nodes interconnected by transmission paths"

See Compl. Br. at 188-90; Resps. Claim Constr. Br.[9] at 63-65.

For the reasons discussed below, the administrative law judge has determined that the claim term "communications network" should be construed to mean "a plurality of transmission nodes interconnected by transmission paths."

Respondents' proposed construction of "communications network" is supported by the surrounding claim language, is consistent with the ordinary meaning of the term and the specification,.

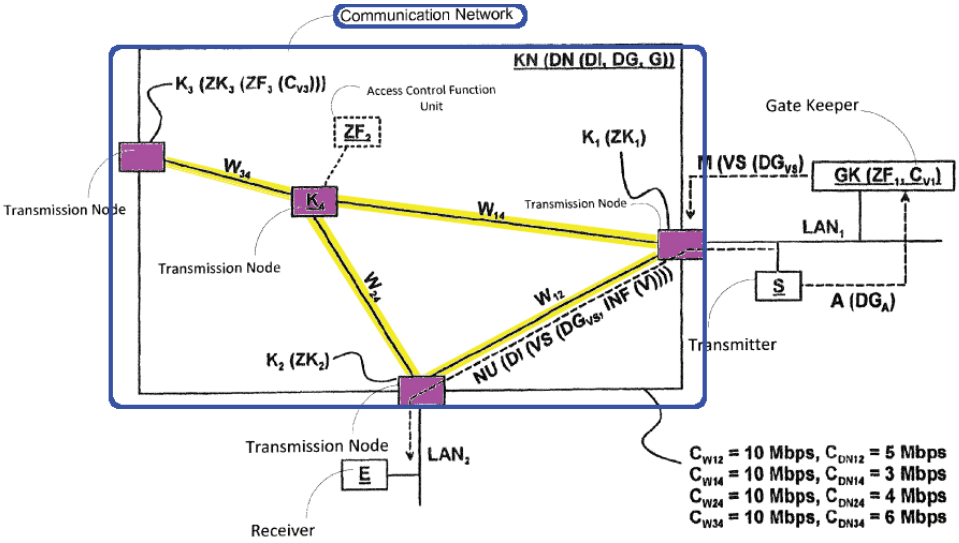
The context for the '853 patent and its claims is a communication network consisting of a plurality of transmission nodes interconnected by multiple transmission paths. Claim 1 expressly states that there are "internal transmission nodes of the communications network." The patentee's use of the plural ("nodes") indicates that the

[9] Respondents' Initial Claim Construction Brief (EDIS Doc. ID No. 730021) (Jan. 8, 2021).

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claimed communications network contains a plurality of the recited transmission nodes. *See, e.g., Leggett & Platt, Inc. v. Hickory Springs Mfg. Co.*, 285 F.3d 1353, 1357 (Fed. Cir. 2002) ("At the outset, the claim recites 'support wires' in the plural, thus requiring more than one welded 'support wire.'").

Further, the sole figure in the patent, Figure 1 below (annotated), is labeled "Communication Network" (blue) and shows a plurality of "Transmission Node[s]" (pink) interconnected by transmission paths (yellow).



"FIG. 1 shows an exemplary block circuit diagram of a communications network." JX-0003 ('853 Patent) at 5:9. The specification describes the communication network in Figure 1 as having four "transmission nodes [pink]" (*id.* at 5:23-29) and that the "transmission nodes are connected to one another by means of four transmission paths W_{12}, W_{14}, W_{24} and W_{34} [shown in yellow above]." *Id.* at 5:30-31. This description is consistent with the term's common usage in the communications field. *See, e.g.,* Resps. Claim Constr. Br. Ex. 33, The Illustrated Dictionary of Electronics (Seventh Edition), 1997, at page 130 ("communications network – An organization of transmitting

and receiving stations for the reliable exchange of intelligence"); Resps. Claim Constr. Br. Ex. 34, McGraw-Hill Dictionary of Science and Technical Terms (Fifth Edition), 1994, at page 417 ("communications network … Organization of stations capable of intercommunications but not necessarily on the same channel.").

Complainant argues that the term should not be construed, or that it should be construed as "a packet-oriented network." Complainant's construction is deficient and sidesteps an apparent dispute. Complainant's "communication network" would only include a single node with no interconnected paths. Not only would a single node fail to be a network of nodes as disclosed by the patent, but would be inconsistent with the central concept behind the '853 patent. As set forth in the background section, the point of novelty of the '853 patent, as recited in claim 1, is that the access control function of an access node can check the permissibility of a requested use by taking into account "the overall transmission capacity" of the communication network (*i.e.*, the capacities of the plurality of transmission paths between nodes of the communication network) and can do so "without further interrogations at internal transmission nodes of the communication network." JX-0003 ('853 Patent) at claim 1. For this to occur, the communication network must comprise a plurality of nodes interconnected by transmission paths. Otherwise, the claimed permissibility checking could not take place.

3. "the overall transmission capacity"

Below is a chart showing the parties' proposed claim constructions.

Claim Term	Complainant's Proposed Construction	Respondents' Proposed Construction
"the overall transmission capacity" [Containing phrases] "the communication network having an overall transmission capacity" "determined taking into account the overall transmission capacity"	No construction necessary. To the extent construction is necessary, "the amount of data the network can transmit"	"the overall transmission capacity" should be construed as: "the transmission capacities of the plurality of transmission paths between nodes of the communication network"

See Compl. Br. at 190-98; Resps. Claim Constr. Br. at 66-75.

For the reasons discussed below, the administrative law judge has determined that the claim term "the overall transmission capacity" should be construed to mean "the transmission capacities of the plurality of transmission paths between nodes of the communication network."

The claim term "overall transmission capacity" is a central limitation in the '853 patent claims that was addressed during prosecution and was critical to the claims' allowance over the prior art. Respondents' construction reflects the disclosures of the patent specification and file history, which provide that the overall transmission capacity of the communication network is the set of transmission capacities of that entire network (the plurality of transmission paths between nodes of the communication network).

All of the asserted '853 patent dependent claims depend from claim 1. Claim 1 introduces this term as follows: "the communication network having an overall transmission capacity." The limitation then appears in claim 1 in the following recitation: "checking… without further interrogations at internal transmission nodes of the

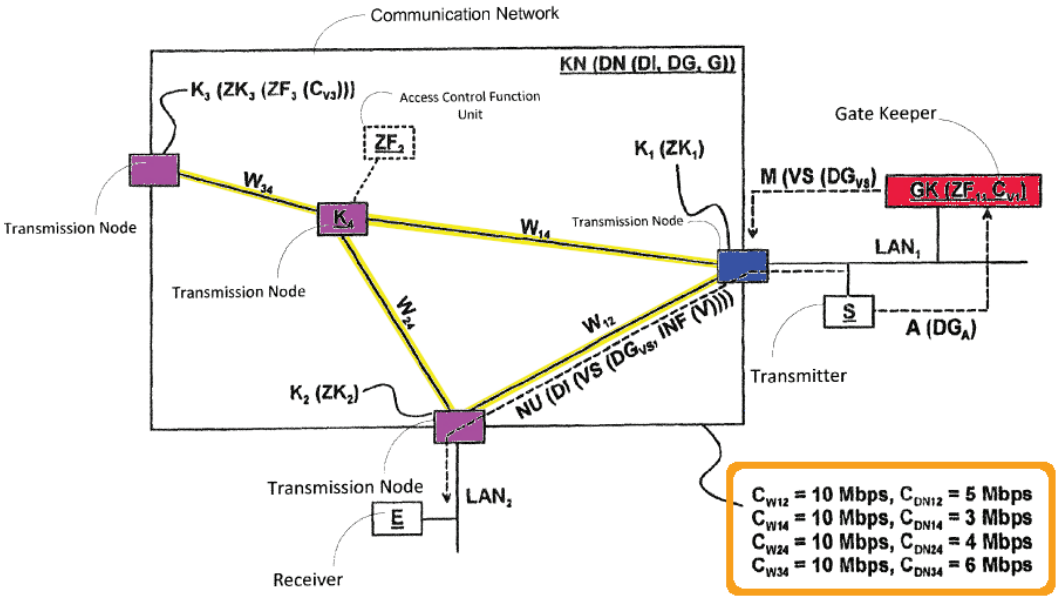
communications network…whether the use of the service is permitted… the checking performed taking into account an available capacity, which is determined taking into account the overall transmission capacity…." *Id*. at claim 1. This language expresses the inventive concept of the '853 patent, which is that an access node checks the permissibility of a requested use by taking into account "the overall transmission capacity" of the communication network (*i.e.*, the capacities of the plurality of transmission paths between nodes of the communication network), and does so "without further interrogations at internal transmission nodes of the communication network."

As discussed below, the intrinsic record confirms that "overall transmission capacity" of a "communications network" refers to the capacities of the paths that make up that network.

The Specification

The specification describes the term "overall transmission capacity" of the communication network in several places, with the sole figure in the patent (annotated Figure 1 below) providing an illustration: "FIG. 1 shows, by way of example, a block circuit diagram of a communications network KN with an overall transmission capacity G." JX-0003 ('853 Patent) at 5:15-17.

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The specification describes the "the overall transmission capacity" as consisting of the transmission capacities (orange) of the transmission paths (yellow) between the transmission nodes in the network:

> In this exemplary embodiment, ***the overall transmission capacity G depends essentially on the transmission capacity of the transmission paths W of the communications network*** KN which is embodied as a DiffServ network DN, but is not limited to it. It may also depend, for example, on the transmission capacities of the transmission nodes. With ***a definition of the available capacities Cv*** which is ***carried out in such a way according to the invention taking into account the overall transmission capacity G of the DiffServ network DN***, there is advantageously no need for permissibility checking in the internal transmission nodes K of the communications network KN.

Id. at. 6:64-7:10 (emphasis added). The specification further discloses exemplary tables reflecting the transmission capacities of the transmission paths and transmission nodes in this example:

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Transmission path W	Capacity C_W	Capacity C_{DN}
W_{12}	C_{W12} = 100 Mbps	C_{DN12} = 5 Mbps
W_{14}	C_{W14} = 10 Gbps	C_{DN14} = 3 Mbps
W_{24}	C_{W24} = 10 Gbps	C_{DN24} = 4 Mbps
W_{34}	C_{W34} = 10 Mbps	C_{DN34} = 6 Mbps

Access node	Available capacity C_V
ZK_1	C_{V1} = 2 Mbps
ZK_2	C_{V2} = 3 Mbps
ZK_3	C_{V3} = 1 Mbps

Id. at. 5:37-45 and 6:42-48. As shown above, the overall transmission capacity of the communication network is the set of transmission capacities of the plurality of transmission paths and nodes of the communication network.

The specification also describes the overall transmission capacity as follows: "that capacity which is necessary to transmit the traffic streams which are just still capable of being transmitted without loss of traffic is considered to be the overall transmission capacity of a communications network which is composed of transmission nodes and paths." *Id.* at 2:40-45. This description is consistent with the overall transmission capacity being the set of transmission capacities of the plurality of paths and nodes of the communication network. This set of transmission capacities would define the limits at which one could no longer transmit additional streams through the respective transmission paths of the network without a loss of traffic. As shown above, the specification further explains that the overall transmission capacity comprises this plurality of differing capacities between the various transmission paths, and therefore a construction reflecting these capacities is more appropriate.

In addition, the specification discloses an embodiment in which "the overall transmission capacity depends at least partially on the transmission capacities of the

transmission paths of the communications network." *Id*. at 3:66-4:2. As noted above, the specification discloses that the overall capacity depends "essentially" on these capacities of the transmission paths. *Id*. at 6:64-7:1. The only other capacities on which the overall transmission capacity could depend are the transmission capacities of the transmission nodes. *Id.* at 7:2-3 ("It [the overall transmission capacity] may also depend, for example, on the transmission capacities of the transmission nodes.").

The Prosecution History

The prosecution history of the '853 patent confirms that the phrase "overall transmission capacity" must refer to the capacities of the entire network, and not a subnetwork. The applicant's representations to the PTO to distinguish the prior art based on this term confirms the correctness of respondents' proposed construction and the deficiency in complainant's proposed construction.

During prosecution, the examiner repeatedly rejected the application based on U.S. Patent No. 5,740,075. *See* Resps. Claim Constr. Br. Ex. 35 (U.S. Patent No. 5,740,075 ("Bigham")). Bigham discloses an Access Subnetwork Controller whose "primary responsibility…is to control resources, provide requested resources and monitor the use of resources within the realm of the access subnetwork." *See id.* at Abstract. The examiner repeatedly found that Bigham disclosed access control checking based on "taking into account the overall transmission capacity." For example:

> ***the Examiner notes that Bigham discloses*** a controller that analyzes an access control function at an access node, without any mention of "further interrogations at internal transmission nodes of the communication network"; and ***the evaluation of available transport capacity, which inherently would involve determining overall transport capacity.*** Applicant's respectfully disagree.

Resps. Claim Constr. Br. Ex. 36, November 26, 2007 Appl. Resp. at 5 (emphasis added).[10]

> ***For claim 1, Bigham et al. disclose*** a method for checking the permissibility of use of a service (see col. 27, lines 10-13, wherein the service is video broadcast) which is implemented in ***at least one communications network (see fig. 1, communication network) having an overall transmission capacity (see fig. 1, wherein a communication network inherently comprises an overall transmission capacity)***. … ***which is determined taking into account the overall transmission capacity (see [Bigham] col. 32, lines 50-60, wherein determining the available bandwidth takes into account the overall bandwidth)*** ….

Resps. Claim Constr. Br. Ex. 37, December 24, 2008 Examiner Ans. Br. at 4-5 (emphasis added).

In response to the examiner's findings, the applicant repeatedly distinguished Bigham from the invention in claim 1 of the '853 patent on the basis that Bigham's capacity checking did not involve "taking into account the overall transmission capacity." For example:

> 3. ***Bigham does not disclose "taking into account the overall transmission capacity"***.
> … The Examiner identifies the following passage for support that Bigham discloses this feature:
>
> > The level 1 gateway 41 1 sends a request to the Access Subnetwork Controller 417 requesting a connection to the subscriber's DET 100a of the specified bandwidth. Based on its stored data tables as to resources which are currently available, the Access Subnetwork Controller identifies available bandwidth on one of the RF channels and a port through the ATM packet handler 319 for data going to the modulator 317 corresponding to the particular channel. The Access Subnetwork Controller internally reserves the bandwidth capacity on the particular channel and an available terminating VPI/VCI value.
>
> Bigham, col. 32, lines 50-60. ***However, this passage does not teach "taking into account the overall transmission capacity," a feature that does not appear in Bigham.*** Bigham is devoid of references to an "overall transmission capacity".

[10] The '853 patent prosecution history is also found in JX-0006 ('853 Patent File History).

> ***Specifically, Access Subnetwork Controller reserves available bandwidth on the subnetwork rather than taking into account . . . the overall transmission capacity of the network.***

Resps. Claim Constr. Br. Ex. 38, February 23, 2009 Reply Br. at 2-5; Ex. 39, August 11, 2010 Reply Br. at 4-8 (emphasis added). The applicant clarified that even taking into account the available capacities of a subnetwork (as disclosed by Bigham) was insufficient to satisfy the claim limitation of "taking into account … the overall transmission capacity of the network." Thus, the '853 patent requires taking into account the capacities of the transmission paths and/or nodes of the overall network, not just of a subnetwork encompassing only a portion of the overall network. This is consistent with the specification's disclosure that prior art systems already took into account the capacity of an individual path. *See* JX-0003 ('853 Patent) at 3:17-21.

The applicant's statement below shows that taking into account the transmission capacity at a single network location (or even a subnetwork of multiple paths), cannot satisfy "taking into account … the overall transmission capacity of the network":

> [Distinguishing Bigham] The Access Controller 417 [in Bigham] merely identifies an RF channel that satisfies the requirements for the requested connection. To this end, the Access Controller comprises stored data tables as to resources which are available. ***However, because these tables only refer to available resources, they cannot contain information of the overall transmission capacity as claimed***. ***The step of taking into account of the overall capacity of the communication network is advantageous for certain services in particular for service specific streams because the relation between the overall capacity of the communication network and the used transmission capacity for a service can be adapted to a provided quality level of a service***. This adaptation is particularly advantageous for services with real time transmission, e.g. for speech or multimedia. Bigham merely teaches to open a channel with a specific bandwidth.

Resps. Claim Constr. Br. Ex. 39, August 11, 2010 Reply Br. at 4-8 (emphasis added).

Likewise, the applicant distinguished the claimed "taking into account … the overall transmission capacity of the network" from Bigham's checking of only a portion of the network:

> No queries in internal transmission nodes are done. Instead, the access control function takes into account an available capacity which is available to the access node for transmitting flows of traffic to the communication network. ***It is important that the available capacity has been determined taking into account the overall transmission capacity of the communications network. In this way it is ensured that the communications network is not overloaded even though queries in the internal transmission node are omitted.***

Resps. Claim Constr. Br. Ex. 40, June 13, 2007 Appl. Resp. at 5-6 (emphasis added). This statement further confirms that the overall transmission capacity consists of the capacities of the paths between nodes of the overall communication network, and that the '853 patent does not involve querying the internal transmission nodes to determine this information.

While not needed to find disclaimer, the PTO relied on these representations regarding distinctions over the prior art when deciding to issue the '853 patent claims. "Appellants maintain independent claims 1 and 9 distinguish over the Bigham reference for five separate reasons set forth in the Reply Brief (Reply Br. 4-8). We agree with Appellants and adopt Appellants' line of reasoning as our own. Therefore, we do not sustain the rejection of independent claims 1 and 9 and their respective dependent claims 2, 3, and 10." Resps. Claim Constr. Br. Ex. 41, June 13, 2013 PTAB Decision on Appeal at 5-6. Therefore, the applicant's representations and disclaimers, including those regarding "the overall transmission capacity" and the distinctions over Bigham, were relied on by the examiner in distinguishing the prior art. The applicant's statements to the PTO bind the claims against interpretations inconsistent with those representations

and disclaimers. *See, e.g., Southwall Techs.*, 54 F.3d at 1576 ("Claims may not be construed one way in order to obtain their allowance and in a different way against accused infringers."); *Rheox, Inc. v. Entact, Inc.*, 276 F.3d 1319, 1325 (Fed. Cir. 2002) ("Explicit arguments made during prosecution to overcome prior art can lead to a narrow claim interpretation because '[t]he public has a right to rely on such definitive statements made during prosecution.'"); *Gillespie v. Dywidag Sys. Int'l, USA*, 501 F.3d 1285, 1291 (Fed. Cir. 2007) ("The patentee is held to what he declares during the prosecution of his patent.").

In summary, the file history expressly confirms that issuance of the '853 patent claims depended on the distinctions over the prior art based on the meaning of "the overall transmission capacity." Respondents' construction properly recognizes these distinctions. Complainant's proposed construction, "the amount of data the network can transmit," is insufficient to capture these distinctions.

B. Infringement Analysis of the '853 Patent

As discussed above, complainant asserts method claims 1-9 of the '853 patent.

Complainant argues that HPE, CommScope and NETGEAR accused products directly infringe the asserted method claims, and that HPE, CommScope and NETGEAR induce infringement. *See* Compl. Br. at 8-9, 11, 199-246; Compl. Reply Br. at 57-73. Respondents disagree. *See* Resps. Br. at 18-34, 34-50, 50-58; Resps. Reply Br. 10-21.

1. Accused Products

Complainant argues:

> The HPE products that infringe the '853 Patent include HPE's: AP11, AP11D, AP12, AP15 AP17, AP22, AP-303, AP-303P, AP-304,

AP-305, AP-314, AP-315, AP-320, AP-324, AP-325, AP-334, AP-335, AP-344, AP-345, AP-504, AP-505, AP-514, AP-515, AP-534, AP-535, AP-555, AP-318, AP-518, AP-203H, AP-303H, AP-505H,AP-365, AP-367, AP-374, AP-375, AP-377, AP-387, AP-565, AP-567, AP-574, AP-575, AP-577, AP-203R, AP-203RP, AP-303HR, and substantially similar models 7200 series (*e.g.*, 7205, 7210, 7220, 7280, 7240XM), 7000 series (*e.g.*, 7005, 7008,7010, 7024, 7030), and 9000 series (*e.g.*, 9004 and 9000) and substantially similar models.

The CommScope products that infringe the '853 Patent include CommScope's: C110; E510; H320; H510; M510; R310; R320; R510; R550; R610; R650; R710; R720; R730; R750; R850; T305; T310c; T310d; T310n; T310s; T300e; T610; T610s; T710; T710s; T750; T811; 7781-CM; P300, and substantially similar models.

The NETGEAR products that infringe the '853 Patent include NETGEAR's: WAC510; WAC540; WAC564 and substantially similar models.

Compl. Br. at 9.

Respondents argue:

HPE

Q3 alleges that the Aruba APs (AP11, AP11D, AP12, AP15 AP17, AP22, AP-303, AP-303P, AP-304, AP-305, AP-314, AP-315, AP-320, AP-324, AP-325, AP-334, AP-335, AP-344, AP-345, AP-504, AP-505, AP-514, AP-515, AP-534, AP-535, AP-555, AP-318, AP-518, AP-203H, AP-303H, AP-505H, AP-365, AP-367, AP-374, AP-375, AP-377, AP-387, AP-565, AP-567, AP-574, AP-575, AP-577, AP-203R, AP-203RP, AP-303HR) infringe the '853 Patent. CX-3846C (Madisetti WS) at Q/A 171….

NETGEAR

Q3 alleges that the NETGEAR APs (WAC510; WAC540; WAC564) infringe the '853 Patent. CX-3846C (Madisetti WS) at Q/A 109….

COMMSCOPE

Q3 alleges that the Ruckus APs (C110; E510; H320; H510; M510; R310; R320; R510; R550; R610; R650; R710; R720; R730; R750; R850; T305; T310c; T310d; T310n; T310s; T300e; T610; T610s; T710; T710s; T750; T811; 7781-CM; P300) alone, or with the ZoneDirector 1220

> controller infringe the '853 Patent. CX-3846C (Madisetti WS) at Q/A 52….

Resps. Br. at Appendix A.

Thus, as shown in the parties' arguments above, for the '853 patent, (1) HPE accused products are Aruba APs (AP11, AP11D, AP12, AP15 AP17, AP22, AP-303, AP-303P, AP-304, AP-305, AP-314, AP-315, AP-320, AP-324, AP-325, AP-334, AP-335, AP-344, AP-345, AP-504, AP-505, AP-514, AP-515, AP-534, AP-535, AP-555, AP-318, AP-518, AP-203H, AP-303H, AP-505H, AP-365, AP-367, AP-374, AP-375, AP-377, AP-387, AP-565, AP-567, AP-574, AP-575, AP-577, AP-203R, AP-203RP, AP-303HR); (2) NETGEAR accused products are NETGEAR APs (WAC510; WAC540; WAC564); and (3) CommScope accused products are Ruckus APs (C110; E510; H320; H510; M510; R310; R320; R510; R550; R610; R650; R710; R720; R730; R750; R850; T305; T310c; T310d; T310n; T310s; T300e; T610; T610s; T710; T710s; T750; T811; 7781-CM; P300) alone, or with the ZoneDirector 1220 controller. *See* Compl. Br. at 7-10; Resps. Br. at Appendix A.

2. Direct Infringement

a. Claim 1: Common Issues for All Accused Products

As shown below in this ID, in order to provide a clear and thorough analysis, the administrative law judge has largely adopted the organizational structure of respondents' posthearing brief for the infringement section. While the limitation-by-limitation analysis is included in the latter portion of this infringement section, three important reasons for non-infringement that are common to all accused products for all respondents are discussed first.

The record shows that none of the accused products infringe the asserted '853 patent claims for at least the following reasons: (1) complainant's alleged "communications network," the Wi-Fi radio channel of an accused access point, is incorrect and does not satisfy the recited "communications network" that is required by the claims; (2) none of the accused access points practice the asserted '853 patent claims because they do not take into account, or even have any awareness of, any transmission capacities of any other paths or nodes in the overall communication network to which they are attached; and (3) complainant's alleged "total airtime" and/or "channel utilization" metric is not a transmission capacity and cannot satisfy the "overall transmission capacity" in the claims.

Each of these issues are discussed below. In addition to these issues, there are respondent-specific reasons that the accused products do not infringe, as discussed below.

i. Common Issue 1 – "communications network"

Asserted independent method claim 1, with claim terms "communication(s) network" and "internal transmission nodes" in bold and italics, is shown below. The claim term "communication(s) network" appears five times in claim 1.

> **1**. A method for checking permissibility to use a service, the service being implemented in at least one ***communications network***, ***the communication network*** having an overall transmission capacity, the use of the service comprising transmission of at least one service-specific traffic stream which is assigned to the service by an access node which is assigned to the service to ***the communication network***, comprising:
>
> analyzing the use of the service with an access control function which is assigned to the access node; and
>
> checking, via the access control function, without

> further interrogations at ***internal transmission nodes*** of ***the communications network***, whether the use of the service is permitted, the checking performed taking into account an available capacity, which is
>
> determined taking into account the overall transmission capacity, and
>
> available to the access node for transmitting traffic streams to ***the communications network***.

JX-0003 ('853 Patent) at 8:2-18 (emphasis added).

In the claim construction section, the administrative law judge determined that the claim term "communications network" should be construed to mean "a plurality of transmission nodes interconnected by transmission paths." Complainant's alleged "communications network" does not read on the claims because it has neither (1) internal transmission nodes to which the accused access points can transmit traffic streams, nor (2) multiple transmission paths connecting those nodes.

"Internal Transmission Nodes"

Complainant's infringement theory is based on an incorrect "communication network" that does not satisfy the claim limitations. Complainant argues that a single accused access point's (alleged access node) Wi-Fi radio, also referred to as a wireless local area network (WLAN), can be the "communication[s] network" in the claims. *See* Compl. Br. at 200-01, 216, 231; CX-3846C (Madisetti WS) at Q/A 74 ("The Ruckus APs provide a wireless access point that allows clients to connect to the WLAN."), 130 (same statement for accused NETGEAR APs), 199 (same statement for accused Aruba APs). This is incorrect. Independent claim 1, from which all remaining asserted claims 2-9 depend, requires the communication network to have "internal transmission nodes" and

an "overall transmission capacity" of that entire communication network consisting of multiple transmission nodes interconnected by transmission paths. Complainant points to an incorrect and incomplete network having no internal transmission nodes. *See* RX-1195C (Acampora WS) at Q/A 16-17.

Shown below is the language of claim 1 of the '853 patent (from which all remaining asserted claims depend), with relevant language highlighted.

> **Claim 1.** [Element 1.0] A method for checking permissibility to use a service, the service being implemented in at least one communications network,
>
> [Element 1.1] the communication network having an overall transmission capacity,
>
> [Element 1.2] the use of the service comprising transmission of at least one service-specific traffic stream which is assigned to the service by an access node which is assigned to the service to the communication network, comprising:
>
> [Element 1.3] analyzing the use of the service with an access control function which is assigned to the access node; and
>
> [Element 1.4] ***checking,*** via the access control function, ***without further interrogations at internal transmission nodes of the communications network***, whether the use of the service is permitted, the checking performed taking into account an available capacity, which is
>
> [Element 1.5] determined taking into account the overall transmission capacity [of the communications network], and
>
> [Element 1.6] ***[an available capacity, which is] available to the access node for transmitting traffic streams to the communications network***.

The colored phrases above are the parties' main disputes regarding whether the "communications network" requires internal transmission nodes connected by transmission paths, unlike complainant's alleged communication network (which is a single link WLAN).

The first phrase explains what the "communications network" includes.

> "Checking … without further interrogations at internal transmission nodes of the communications network"

This phrase indicates that internal transmission nodes are "of the communications

network." In other words, the "communications network" includes "internal transmission nodes," plural. A plain reading confirms that the claimed communication network must include multiple internal transmission nodes. To read the claim as not requiring such internal transmission nodes (as complainant does) would render meaningless this negative limitation. RX-1195C (Acampora WS) at Q/A 20.

The second phrase indicates that the claimed "access node" transmits traffic streams "***to*** the communications network."

> "[an available capacity, which is] available to the access node for transmitting traffic streams to the communications network"

Therefore, there must be a communication network, *i.e.*, one made up of internal transmission nodes, to which the access node is able to transmit the traffic streams that the access node is requested to transmit. The '853 patent discloses that an unclaimed "transmitter" (*i.e.*, a client device connected to the access node) is requesting to send a traffic stream (service) to the "communications network" via the access node. JX-0003.0008 at 5:46-49, .0009 at 7:35-41; RX-1195C (Acampora WS) at Q/A 21.

The purpose of the "access node" is to provide access to the recited "communications network," which includes a plurality of "internal transmission nodes of the communications network" (as recited in claim 1). This is consistent with how a person of ordinary skill would understand the term "access node." *Id.* at Q/A 22. The specification confirms that an "access node" is for accessing the communication network, for example stating that "network access devices—[are] also referred to as 'edge devices' or also 'access nodes.'" JX-0003.0007 at 2:60-63. As in claim 1, the access node "check[s] permissibility" as to whether there is sufficient transmission capacity in the

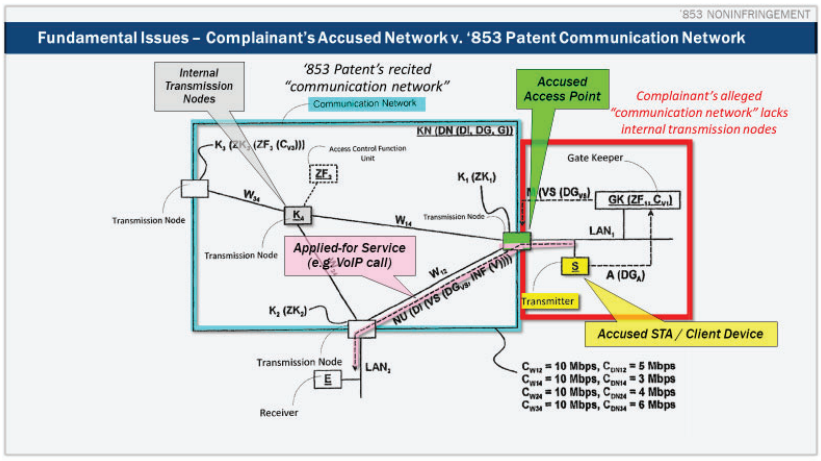
communication network such that access node can transmit the requested "traffic streams to the communication network," or not. RX-1195C (Acampora WS) at Q/A 21-22.

Complainant is incorrect that the WLANs of the accused access points ("APs") satisfy the claimed "communications network." The accused APs allow clients to connect to a WLAN, and complainant's alleged communication network includes only that WLAN and the connected wireless client devices (*e.g.*, mobile phones, laptops) that are requesting to transmit traffic streams to the accused APs. Complainant's accused "communications network" merely includes a set of clients connected to a single access node. Id. at Q/A 23.

Complainant's alleged communications network, a single access point with connected clients, does not satisfy the claimed communications network because there are no "internal transmission nodes" as required by the '853 patent. In other words, there is no broader communication network of transmission nodes beyond the AP that (1) are needed give meaning to the negative limitation requiring that such nodes are not interrogated, and (2) provide the overall transmission capacity "available to the access node for transmitting traffic streams to the communications network," as recited in claim 1. *Id.* at Q/A 24; RDX-0001C.0098-100.

As respondents illustrated in their brief, annotated Figure 1 of the '853 patent is shown below to compare the communication network described by the '853 patent (***blue***) with complainant's proposed communication network (***red***). In the example presented in the '853 patent, Figure 1 shows how a traffic stream associated with a VoIP call would traverse the '853 patent's communication network. JX-0003.0006 at 1:63-67, 2:10-14. The exemplary VoIP call (traffic stream) in the '853 patent is highlighted by the pink

lines showing a call originating from a client device in ***yellow*** (*e.g.*, transmitter S, or a laptop, tablet, or smartphone) on the right, being transmitted via an access node in **green** (access point) to the communications network comprising a set of internal transmission nodes (**grey**, which could be modems, switches, routers, etc.), and reaching another transmission node on the bottom of the figure, which then relays the stream to a client device (receiver E) connected to that other transmission node. This is the type of data transmission described and recited by the '853 patent, with the claimed access control function controlling access to the communication network within the ***blue*** box. *See* RX-1195C (Acampora WS) at Q/A 25.



In contrast to the communication network claimed by the '853 patent, complainant accuses a single access point and its associated clients (transmitter shown in ***yellow*** above) as being the communication network. However, with the exception of the AP (accused access node, shown in ***green***), this alleged communication network lies completely outside of the communication network in the '853 patent and claims. *Id.* at Q/A 25-26, 28-31.

It is incorrect to draw the boundaries of the alleged communication network around only the WLAN, as complainant has done. That is because the accused access points are connected to a broader communication network of internal transmission nodes, as required by the '853 patent and claims. This would be the communication network shown in ***blue*** in RDX-0001C.0100. Complainant disregards this true "communication network," the one existing beyond the access node and to which the access node provides access. Instead, complainant calls the WLAN of the AP the alleged "communication network." This is not correct. *Id.* at Q/A 27.

Complainant argues that the claims do not require internal transmission nodes. *See* Compl. Br. at 201, 216, 231; Madisetti Tr. 48, 50-51. Complainant takes this position because its alleged communication network, a Wi-Fi WLAN, includes no internal transmission nodes. However, if internal transmission nodes are required by the claims, complainant's expert Dr. Madisetti suggests that client devices might be able to count as internal transmission nodes. *Id*. Dr. Madisetti opines that client devices can constitute any node in the network. *See* CX-3846C (Madisetti WS) at Q/A 204, 199; RX-1195C (Acampora WS) at Q/A 27-32.

However, client devices that connect to the accused APs are terminal devices and, thus, cannot constitute the "internal transmission nodes of the communications network" recited in claim 1 of the '853 patent. An internal transmission node is "internal" to the network, meaning not an edge terminal. Client devices cannot be "internal transmission nodes" because they are terminals (*i.e.*, sending or receiving endpoints of data transmissions). *See* RX-1195C (Acampora WS) at Q/A 32-33. In contrast to the recited internal transmission nodes, client devices (stations or STAs) connected to the accused

APs do not pass received traffic to the next hop in the route. In fact, the '853 patent itself uses terms for such terminal devices ("transmitter S" and "receiver E") which are distinct from the "internal transmission nodes." JX-0003 ('853 Pat.) at 5:46-49; 5:15-30. Also, as explained earlier, these transmitters and receivers are outside the "communication network," as clearly depicted in Figure 1. *See* RX-1195C (Acampora WS) at Q/A 32-33.

In the recited communications network, client devices (*e.g.*, the "Transmitter" in Figure 1) are requesting to transmit data streams, via the access node, to the communication network. *Id.* at Q/A 32-33. The communication network includes "internal transmission nodes" for transmitting the data to its destination (another terminal device connected to another access node, as depicted by "Receiver" E in Figure 1). In summary, client devices are requesting to use a service (transmit a traffic stream) via the "access node," to the "communications network" ("…access node for transmitting traffic streams to the communications network", in claim 1). Client devices cannot be internal transmission nodes of the communication network. *Id.*

Internal Transmission Paths

Complainant argues that the connections between the AP's WLAN and its clients constitute multiple transmission paths. *See* Compl. Br. at 201, 216, 231.

In general, the operation of radio transmissions is properly thought of as a single communications channel (single link), which is the wireless equivalent of a set of clients connected to the product by a single wired path that all of the clients are sending data to and "listening" to for packets directed specifically to them. *Id.* at Q/A 35. The WLAN created by an accused AP, the alleged "communications network," does not include "multiple transmission paths." *Id.* In the forward direction (from AP to the clients) an

AP generally broadcasts a radio signal such that the transmission is received by all connected wireless clients and accepted by only the one or more clients to which it is addressed. *Id.* In the reverse direction, the AP's antenna is capable of receiving any radio transmission sent by a client, but if two or more clients transmit at the same time, the transmissions would destructively interfere with each other, preventing any reception. Regardless of how many client devices might be connected to the AP, complainant's alleged communication network remains a single link WLAN which, as reflected by Figure 1 of the '853 patent, is outside the recited communication network except for, at most, the access node itself, which provides an entry point to the communication network. *Id.*

As discussed above, the administrative law judge determined that the claim term "communications network" should be construed to mean "a plurality of transmission nodes interconnected by transmission paths." As explained in that claim construction section, a single transmission path does not satisfy the claim language. A single transmission path is entirely inconsistent with the '853 patent's claimed invention, which requires an access node and multiple (at least two) transmission nodes, which would result in multiple transmission paths between those (at least three) nodes.

As discussed above, the administrative law judge determined that the claim term "the overall transmission capacity" should be construed to mean "the transmission capacities of the plurality of transmission paths between nodes of the communication network." As discussed in that claim construction section, during prosecution the applicant distinguished the claims on the basis of taking into account the overall transmission capacity of the communications network. The applicant argued that the

claimed "overall transmission capacity [of the communications network]" is represented by the capacities of the entirety of the transmission nodes of the communications network and their respective transmission paths, and that the claimed permissibility check takes into account this entire capacity. The applicant used this point to distinguish the claims from prior art that checked a single node's capacity. The applicant clarified that even taking into account the available capacities of a subnetwork of multiple nodes (as disclosed by the Bigham reference), let alone a single node or link, was insufficient to satisfy the limitation of "taking into account … the overall transmission capacity" of the network. *See* RX-1195C (Acampora WS) at Q/A 37.

Contradicting the applicant's representations during prosecution, complainant now argues that a permissibility check taking into account only an accused node's local link capacity infringes the asserted claims. This position is squarely at odds with the prosecution history. *Id.* Thus, complainant's alleged "communications network, " which consists of only an accused product and a single wireless link connected to that product, cannot satisfy the claimed "communication network."

In summary, inasmuch as the alleged "communication network" for the accused products (a WLAN) does not satisfy the "communication network" in the claims, none of the claim limitations that recite and relate to the "communications network" are satisfied by any of the accused access points. *Id.* at Q/A 38-40. Specifically, none of the accused products practice any limitation reciting the (1) "communication(s) network" (claim elements 1.0, 1.1, 1.2, 1.5, 1.6) or (2) "internal transmission nodes of the communications network" (claim element 1.4), and therefore do not infringe asserted claims 1-9.

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ii. Common Issue 2 – "taking into account the overall transmission capacity [of the communication network]"

As discussed above, the administrative law judge determined that the claim term "the overall transmission capacity" should be construed to mean "the transmission capacities of the plurality of transmission paths between nodes of the communication network." As explained in that claim construction section, the claims require taking into account the capacities of the transmission paths and/or nodes of the entire communications network, not just the capacity of a single node (or even a subnetwork of nodes). This limitation was critical to the claims' allowance over the prior art. As noted above, the patent applicant confirmed that even taking into account the capacities of a subnetwork of multiple nodes (as disclosed by the Bigham reference)—let alone the capacity of a single node—was insufficient to satisfy the claim limitation of "taking into account … the overall transmission capacity of the network." RX-1195C (Acampora WS) at Q/A 42.

The accused APs do not make any alleged determination based on the overall transmission capacity of the entire communications network to which they attach. RX-1195C (Acampora WS) at Q/A 43; JX-0175C.0023 (Jou Dep. Tr.) at 85, RX-0935C (Overby WS) at Q/A 58-65 (CommScope), 27-36 (HPE), 40-54 (NETGEAR). Instead, complainant argues that certain products will evaluate their own alleged capacity via a Redacted in Public Version. *See* CX-3846C (Madisetti WS) at Q/A 75 (Ruckus), 131 (NETGEAR), 202 (Aruba). However, if a product could satisfy the claim limitation above by checking only its own node-specific constraints (which was well known in the prior art), it would render the later claim limitation "without further interrogations at

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internal transmission nodes of the communications network" superfluous. The point of this limitation is that the access control function of claim 1 is able to check the permissibility of a requested use only by taking into account the overall transmission capacity of an entire communication network and yet do so "without further interrogations at internal transmission nodes of the communication network." *See* RX-1195C (Acampora WS) at Q/A 113.

The accused APs also do not satisfy complainant's proposed construction of "overall transmission capacity" (*i.e.*, "the amount of data the network can transmit") because the accused products have no cognizance or information regarding the amount of data the overall network can transmit. A single AP's Redacted in Public Version (as alleged by complainant) is not a measure of the amount of data the overall network can transmit, *i.e.*, the network including a plurality of downstream "internal transmission nodes" as recited in the claim. *Id.* at Q/A 113. Contrary to the inventive concept of the '853 patent claims, no accused AP makes any determination whatsoever (let alone a permissibility determination to allow/deny a data stream) based on the overall transmission capacities of the plurality of nodes/paths in an entire network. *Id.*

Accordingly, none of the accused products satisfy the limitation: "determined taking into account the overall transmission capacity" (claim element 1.5), and thus, no accused products infringe any of the asserted claims.

iii. Common Issue 3 – "overall transmission capacity [of the communications network]"

Even if an AP's WLAN could be considered the "communication network" in the '853 patent claims, the accused APs still would not infringe the claims. This is because

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complainant's argument that an access point's [redacted] (or [redacted] [redacted] or any similar expression) corresponds to the claimed "overall transmission capacity" is incorrect. Yet, [redacted] is not the overall transmission capacity of even of a single access point (let alone of an entire "communication network" beyond the access point). *See* RX-1195C (Acampora WS) at Q/A 44.

A person of ordinary skill would understand that [redacted] is not an overall network capacity, a WLAN capacity, or any type of capacity whatsoever. *Id.* at Q/A 44. The word "capacity" (or "transmission capacity") has a long history within the field of telecommunications: it is a measure of the rate at which digital information can be transmitted across a communication channel interconnecting a transmitter and a receiver, and is measured in bits per second. *Id.* at Q/A 45. In a paper published in the late 1940s, Claude Shannon showed that the rate at which information can be communicated across a channel is fundamentally limited by the noise that is introduced by the channel. *Id.* at Q/A 46; RX-0894. In essence, noise sets a limit on the rate, but not the accuracy, at which information can be delivered, with the rate or capacity of a channel being computable from the bandwidth and signal-to-noise ratio of the channel. *Id.* "Transmission capacity" has always been used a measure of the rate at which digital information can be transmitted between a transmitter across a communication channel.

The well-understood meaning of "capacity" is consistent with the use of the term "capacity" in the '853 patent. *See* RX-1195C (Acampora WS) at Q/A 47. In the '853 patent, each instance of "capacity" indicates that its units of measurement are bits per second. *See, e.g.,* JX-0003 at 5:40-5:44 and 6:43-47 (where Capacity C_W, Capacity C_{DN}, and available capacity C_v (along with all related entries in the two Tables) have the units

of Mbps (*i.e.*, Millions of bits per second)).

The actual data rate that is provided by an access point is considerably lower than the IEEE 802.11 standards' maximum data rate. *Id.* at Q/A 48-53. Due to a variety of radio-related propagation impairments (for example proximity to the AP and other environmental factors), the data rate of the wireless link between an AP and its clients will generally be different for different clients. Due to these propagation impairments, the transmission capacity between an AP and client device can vary significantly at different times. Therefore, a single time-shared communication channel between an AP and its associated clients may deliver different data rates to each of its associated clients, and each of these different rates may also change with time. Accordingly, none of these time-varying data rates is the network capacity, nor could any weighted average of these data rates be the network capacity. *Id.* This data rate or capacity is not the basis of complainant's infringement theory.

The Redacted in Public Version of an access point's wireless channel cannot be its overall transmission capacity. Redacted in Public Ver, which is in units of Redacted in Public Version, is the Redacted in Public Version for the access point to make or receive wireless data transmissions. *See* RX-1195C (Acampora WS) at Q/A 44. The transmission capacity that can be achieved in a unit of airtime changes drastically based on many factors, as explained above. In fact, at any given point in time, the transmission capacity achieved on the wireless channel may be one or two orders of magnitude lower than the maximum data set by the fastest modulation and coding rate allowed by the specific generation of IEEE 802.11 standard. *Id.* Therefore, Redacted in Public Version is not an "overall transmission capacity" of an AP (let alone of an entire "communication network" with internal

transmission nodes).

Accordingly, inasmuch as complainant's alleged "Redacted in Public Version" (or Redacted in Public Ver) is not a transmission capacity of any accused AP (let alone the transmission capacity of an overall communications network), none of the accused products practice any limitation reciting the "overall transmission capacity" (claim elements 1.1, 1.4, 1.5, 1.6), and therefore do not infringe asserted claims 1-9 of the '853 patent.

* * *

As discussed below, in addition to these fundamental issues, there are respondent-specific reasons that the accused products do not infringe.

b. Claim 1: HPE Accused Products

There are four primary reasons that the accused Aruba (HPE) APs do not infringe the asserted '853 patent claims.

First, the crux of complainant's infringement contentions for the Aruba APs is based on their alleged operation of Redacted in Public Version. However, Redacted in does not Redacted in Public Version.

Second, Redacted in runs Redacted in Public Version Redacted in Public Version. Based on Order 27, the controllers are not accused products under the '853 patent. The fact that Redacted in runs Redacted in Public Version Redacted in Public Version should preclude complainant's infringement theory. Further, the unaccused controller is a wired device that is not part of complainant's alleged communication network (the wireless network). Inasmuch as a Redacted in Public Vers AP transmits traffic streams to the controller (on the wired side of a network),

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the controller would be an "internal transmission node" in the '853 patent claims. This leads to several problems and inconsistencies with complainant's infringement theory.

Third, claim 1 relates to a permissibility check (as to whether a stream, *e.g.* call, can be admitted to the "communication network" in the claim). Complainant argues that this permissibility check is performed by Redacted in . Redacted in Pu however, Redacted in Public Version Redacted in Public Version. Rather, when the traffic stream associated with a call reaches the Redacted in Public Version , Redacted in Public Version Redacted in Public Version Indeed, Redacted in Public Version . Redacted in Public Version Redacted in Public Version .

Fourth, Redacted in does not take into account the "overall transmission capacity" of complainant's alleged communication network in making any permissibility check. Redacted in considers Redacted in Public Version , and does not even use this in making any permissibility check. Redacted in does not consider Redacted in Public Version Redacted in Public Version .

These four primary reasons are discussed in detail below.

i. Whether the Accused ICH Functionality is Present on Any Accused Aruba Access Point

Complainant accuses four different types of Aruba (HPE) APs of infringement based on the incorrect assumption that Redacted in Public Version Redacted in Public Version In fact, Redacted in Public Version have the accused Redacted in Public Version on them, as set forth below.

Campus APs The Campus APs do not include the Redacted in Public Ve Redacted in Public Ve, including its Redacted in Public Version, on the AP. Rather, this version of Redacted in Public Version Redacted in Public Version is a Redacted in Public Version that resides Redacted in P Redacted in Public Version. *See* RDX-0001C.0111 (citing RX-0516.1070, .1078 (ArubaOS 8.7.1.0); RX-1198C (Balay WS) at Q/A 20). Confirming this point, Mr. Overby testified that the Redacted in Publ source code is not Redacted in Public Version, and is instead Redacted in Public Version Redacted in Public Version. *See* RX-0935C (Overby WS) at Q/A 17, 19. The Redacted in Public Versi AP directs the traffic off the Redacted in Public Versi AP (the accused product) and on to a wired controller. *Id.* at Q/A 20, 24-25; RX-1195C (Acampora WS) at Q/A 61.

Instant APs The Aruba Instant APs Redacted in Public Version. The software build on an Instant AP includes Redacted in Public Version, but the Redacted in Public Version that is installed on the Instant APs Redacted in Public Version. *See* RX-1198C (Balay WS) at Q/A 23; RDX-0001C.0111 (RX-0483C, RX-0691); RX-0935C (Overby WS) at Q/A 22. An Aruba AP running Redacted in Public Version *See* RX-1195C (Acampora WS) at Q/A 64.

Unified APs Unified APs are imported with an Instant AP software build, just like the Instant APs. *See* RX-1198C (Balay WS) at Q/A 11. Therefore, like the Instant APs, the Unified APs Redacted in Public Version. This is further confirmed by Aruba's documentation, which explains that the Unified APs are "shipped with a manufacturing image based on the Instant image." *See* RDX-0001C.0117; CX-3846C (Madisetti WS) at

[11] Redacted in Publ is also known as Redacted in Public Version. *See* RX-1198C (Balay WS) at Q/A 20.

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Q/A 238 (citing CDX-0001C.853.218); RX-1195C (Acampora WS) at Q/A 65-66.[12]

As imported, a Unified AP includes the Instant AP build and will operate as an Instant AP. *See* RX-1198C (Balay WS) at Q/A 11. However, only if a Unified AP Redacted in Public Version, the Unified AP will go through Redacted in Public Version Redacted in Public Version During this Redacted in Public Version, the Unified AP will Redacted in Public Version Redacted in Public Version. The Unified AP is not capable of Redacted in Public Version. Instead, at any one time, the Unified AP only includes e Redacted in Public Version *Id.* at Q/A 11, 24-26; RX-1195C (Acampora WS) at Q/A 65-66.

Instant-On APs The Aruba Instant-On APs Redacted in Public Version Redacted in. The Instant-On APs do not include Redacted in Public Version, of which Redacted in is a subset. *See* RX-1198C at Q/A 28-29. Dr. Balay has confirmed that Instant-On APs Redacted in Public Ver Redacted in Public Version *Id.* As a result, Instant-On APs Redacted in Public Version Redacted in functionality can run only Redacted in Public Version, as explained above. Therefore, one cannot successfully accuse the Instant-On APs of practicing a limitation of the '853 patent because the Instant-On APs have no ability to Redacted in Public Version. *See* RX-1195C (Acampora WS) at Q/A 68.

Accordingly, the accused Redacted in Public Version is not present on Redacted in Public Version Redacted.

[12] The same is generally true for Instant APs, except these APs will not Redacted in Public Version Redacted in Public Version *See* Balay Tr. 398.

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ii. Whether the Accused Redacted in Public Version Exists Only on Non-Accused Controllers

Complainant's final infringement contentions and Dr. Madisetti's expert report did not identify any controllers as specifically accused products for the '853 patent. Dr. Madisetti's witness statement, served July 2, 2021, attempted to identify, for the first time, twelve HPE controllers as accused products. However, the administrative law judge denied complainant's motion to supplement Dr. Madisetti's expert report, where complainant sought to add a footnote referencing a list of controllers as accused products for the '853 patent. *See* Order No. 27 at 4 (denying Motion No. 38). As a result, Dr. Madisetti's reference to controllers as accused products has been stricken. *See* CX-3846C (Madisetti WS) at Q/A 171 (controllers removed); Order No. 31 at 4-8. Therefore, any contention regarding functionality that resides on an unaccused product is not allowed. There is no dispute that the accused Redacted in Public Version resides on a Redacted in Public Version, not on Redacted in Public Version. *See* CX-3847C (Jones WS) at Q/A 80; CX-3846C (Madisetti WS) at Q/A 240.

Dr. Balay's Testimony Regarding the Aruba APs

At the hearing, complainant's cross-examination of HPE/Aruba's corporate representative, Dr. Balay, called into question certain aspects of Dr. Balay's witness statement. Dr. Balay's witness statement clarified and corrected certain details regarding Redacted in that she had previously testified about in her deposition. *See* RX-1198C (Balay WS) at Q/A 31-42. However, the information that complainant focuses on is actually undisputed. All witnesses agree that Redacted in Public Version. This is addressed in Q/As 20-29 of Dr. Balay's testimony. Complainant's experts, Dr. Jones and Dr. Madisetti,

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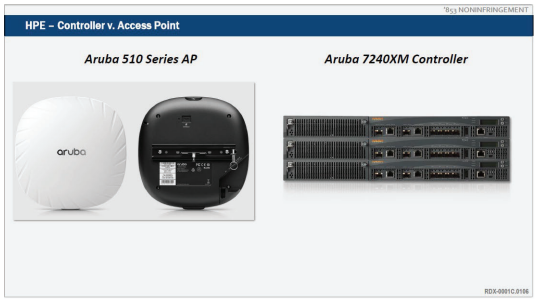
both admit that Redacted in does not reside Redacted in Public Version, and that Redacted in operates Redacted in Public Version *See* CX-3847C (Jones WS) at Q/A 80 ("Redacted in Public Version "); CX-3846C (Madisetti WS) at Q/A 240 ("Redacted in Public Version "). These are the primary factual issues that complainant raised regarding Dr. Balay's testimony. Dr. Balay's testimony, based on her 18 years of experience developing and managing the Aruba APs, is generally agreed upon by both side's experts in this investigation. Indeed, despite having access to the different source code that runs on the different APs, complainant's experts ignored the Instant and Instant-On code. Madisetti Tr. 87-88; CX-3847C.0015-16 (Jones WS) at Q/A 83-95. Yet, complainant criticizes Dr. Balay's clarifying testimony, and argues that Redacted in Public Version

Redacted in P Operates Redacted in Public Version, which is an "Internal Transmission Node"

Complainant's expert, Dr. Madisetti was unclear about whether Redacted in runs on any accused product by "collectively refer[ring] to [access points and controllers] as 'Aruba APs' in [his] answers." *See* CX-3846C (Madisetti WS) at Q/A 171. Complainant refers to these two separate and different networking devices as "Aruba APs" because Dr. Madisetti opines that the "Campus APs include the managing controller." *Id.* at Q/A 171, 240. It is well understood that controllers and APs are separate and distinct networking elements. *See* RX-1195C (Acampora WS) at Q/A 62; RDX-0001C.00106.

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Despite complainant's attempt to treat the APs and controllers as a single device, complainant did not identify controllers as accused products for the '853 patent. Complainant's belated attempt to add controllers was rejected and the controllers have been stricken from Dr. Madisetti's list of accused Aruba products for the '853 patent. *See* CX-3846C (Madisetti WS) at Q/A 171 (controllers redacted); Order No. 31 at 4-8. The accused Redacted in Public Version resides Redacted in Public Version, not Redacted in Public Version. *See* RX-1198C (Balay WS) at Q/A 14; RDX-0001.0116 (JX-0169C (Balay Dep. Tr.) at 29-30). Moreover, in terms of the '853 patent claims, these wired controllers would be internal transmission nodes, not access nodes, since the controllers perform layer 2 switching and, optionally, layer 3 routing. *See* RDX-0001C.0112 (citing RX-0516.0078 (ArubaOS 8.7.1.0 User Guide); RX-1195C (Acampora WS) at Q/A 73.

Even in the context of Aruba APs running the Redacted in Public Version, the Campus APs and controllers are physically different networking devices that are sold separately. *See* RX-1198C (Balay WS) at Q/A 12-13. Complainant's grouping of two separate network elements under one name for the purposes of the analysis is both confusing and problematic. The accused Redacted in Public Version exists only Redacted in Public Version, and not Redacted in Pub [redacted], *id.*, and yet Complainant argues that the functionality is present on an "Aruba AP." For example, complainant (at Q/A 240 of CX-3846C (Madisetti WS)) recognizes that

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"Redacted in Public Version" (which is correct), but (at Q/A 182) asserts that "Redacted in [redacted]" (which is incorrect). *See* Compl. Br. at 229; CX-3846C (Madisetti WS); RX-1195C (Acampora WS) at Q/A 71.

Inasmuch as complainant was not allowed to add controllers to its list accused products, the only accused products are Aruba APs. As noted, Aruba controllers have been removed from complainant's list of the '853 patent accused products. *See* Order No. 31 at 4-8; CX-3846C (Madisetti WS) at Q/A 171 (controllers redacted). Without Redacted in Public Version, the accused Redacted in Public Version cannot even Redacted. *See* RX-1195C (Acampora WS) at Q/A 74.

Even if complainant was allowed to consider controllers in its infringement theory, the accused functionality would still Redacted in Public Version [redacted]. The accused controllers would include the Redacted in Public Version. The controllers would thus have to be considered as part of the "communications network," which would preclude a finding of infringement as it is undisputed that Redacted in does not consider the transmission capacity of the controller. *See* CX-3846C (Madisetti WS) at Q/A 191, 200, 206. The Instant-On, Instant, and Unified APs (as imported, with an Instant AP software build) run a software build that Redacted in Public Versi [redacted] and therefore does not operate in connection with the accused Redacted in Public Version. *See* RX-1195C (Acampora WS) at Q/A 75.

iii. Whether ICH Checks Permissibility

The accused Redacted in Public Version does not check permissibility to use a service (send a traffic stream), as required by claim 1 of the '853 patent. Aruba's documents

confirm that [redacted] is invoked [redacted] *See* RX-1195C (Acampora WS) at Q/A 63; RDX-0001C.0113, .0115, .0125-26; RX-0483C.0007, .0019; RX-0516.1078, .1070, RX-1198C (Balay WS) at Q/A 47-50. As shown in RDX-0001C.0127, even according to complainant's flow chart, regardless of the [redacted] the call is [redacted], *i.e.*, the source code [redacted] *See* RX-1195C (Acampora WS) at Q/A 103. JX-0169C (Balay Dep. Tr.) at 153, 127-128; RX-1195C (Acampora WS) at Q/A 63; RX-0935C (Overby WS) at Q/A 34. Inasmuch as all calls (streams) are [redacted], [redacted] does not check permissibility as to whether a stream can be transmitted.

Complainant argues that [redacted] checks permission to use a "service" in the form of a "voice service." *See* Compl. Br. at 229; CX-3846C (Madisetti WS) at Q/A 181. As noted above, [redacted], so permission of a voice service is not checked. Claim 1 plainly states that the "service" for which permission is checked comprises "transmission of at least one service-specific traffic stream." *See* RX-1195C (Acampora WS) at Q/A 102. This does not encompass checking whether an admitted traffic stream should be provided a certain priority level. Rather, permitting a service (*e.g.*, traffic stream for a call) and determining whether to prioritize a call are two different concepts. *Id.* at Q/A 106. The [redacted] will a[redacted]. The only thing that might change is [redacted]. *Id.*

Moreover, even under complainant's incorrect application of this limitation, the accused Aruba APs do not check permission to use the alleged access category priority level. *See* RX-1195C (Acampora WS) at Q/A 104. If a data stream contains a requested priority level, that level will only be used [redacted]. *See* RX-1198C

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(Balay WS) at Q/A 50. Even then, any requested priority Redacted in Public Version and does not Redacted in Public Version (the accused "communications network"). *See* RX-1195C (Acampora WS) at Q/A 109; RDX-0001C.0105. Redacted in Public Version, Redacted in does not check permission to use one of these priority levels. *See* RX-1195C (Acampora WS) at Q/A 104. Rather, the relevant function in Redacted in will Redacted in Public Version. *See* RX-0935C (Overby WS) at Q/A 32, 34. Contrary to the '853 patent's claim language, Redacted in does not check if a particular priority is permitted. *See* RX-1195C (Acampora WS) at Q/A 104. Instead, the alleged check of capacity occurs Redacted in Public Version, if any. *See* RDX-0001C.0125 (RX-0516.1075, .1071). This is presented in RDX-0001C.0128, which uses complainant's flow chart (CDX-0001C.853.327) to show that the alleged permissibility check (*i.e.*, Redacted in Public Version) Redacted in Public Version. *See* RX-1195C (Acampora WS) at Q/A 104. Inasmuch as the alleged check Redacted in Public Version, the Aruba APs do not "check[] permissibility to use a service." That is, the alleged capacity check is not Redacted in Public Version. *Id.* Therefore, the accused Aruba APs do not "check[] permissibility to use a service," even if the claimed "service" could properly be read on a priority level.

Accordingly, none of the accused Aruba products satisfy claim element 1.0 ("checking permissibility to use a service …") or claim element 1.4 ("checking, via the access control function, … whether the use of the service is permitted, … taking into account an available capacity"), and do not infringe claims 1-9 of the '853 patent.

iv. Overall Transmission Capacity

As explained above, the Campus APs can be connected to Redacted in Public Version , and Redacted in Public Version . The accused "Redacted in Public Version" is limited to a single AP and does not take into account other links or nodes in the controller-based network in which a Campus AP resides. However, under complainant's improper consideration of the Campus AP and a controller as a single device, the capacity of the (improperly combined) "device" would have to include the capacity of the wired link. *See* RX-1195C (Acampora WS) at Q/A 115-16. Redacted in does not analyze the capacity of that link. *See* RDX-0001C.0109.

v. Claim 1: Limitation by Limitation

In view of the foregoing analysis, below is a limitation-by-limitation summary of the reasons the accused Aruba (HPE) products do not infringe the '853 patent claim limitations.

Claim 1. [Element 1.0] A method for checking permissibility to use a service, the service being implemented in at least one communications network.

Complainant's accused communication network is incompatible with the claimed communications network (Common Issue #1). *See* RX-1195C (Acampora WS) at Q/A 16-41. Additionally, the accused Redacted in functionality runs Redacted in Public Version (which is not an accused product) and does not check permissibility to use the service because Redacted in Public Version . *See* RX-1195C (Acampora WS) at Q/A 102; RX-1198C (Balay WS) at Q/A 46-50. Indeed, for the accused Campus APs, Redacted in Public Version (complainant's alleged "communications network") and is Redacted in Public Version in order it

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to Redacted in Public Version. Moreover, the claimed "service" is for "transmission of" the stream. Altering the priority of a stream Redacted in Public Version is not checking permission to use the "service" of transmitting the stream. *Id.*

Even if the claimed "service" could properly be read on a priority level (which it cannot), Redacted in does not check permission to use a priority level. *See* RX-1195C (Acampora WS) at Q/A 102-07. Redacted in Public Version, and the alleged Redacted in Public Version check occurs Redacted in Public Version. *Id.* at Q/A 104; RX-0935C (Overby WS) at Q/A 32, 34; RDX-0001C.0125 (RX-0516.1075, .1071 (ArubaOS 8.7.1.0 User Guide)). This is shown in complainant's expert's own demonstratives. *See* CDX-0001C.853.327.

[Element 1.1] the communication network having an overall transmission capacity,

As discussed in Common Issue #1, none of the accused products have any cognizance of a broader communication network with an "overall transmission capacity." *See* RX-1195C (Acampora WS) at Q/A 110-11. Even under Dr. Madisetti's theory of considering the Campus AP and a controller (on which Redacted in runs) as a single unit (which is improper), the overall capacity of that alleged "communication network" would need to include the capacity of the wired link from AP to controller. However, Redacted in does not analyze the capacity of that link as part of the alleged permissibility check. *Id.* at Q/A 115. Moreover, and as explained above with respect to Common Issue #3, Redacted in Public Ver. This would be the case for each of the 2.4 and 5 GHz radio channels included on most, if not all, of the

accused products. *Id.* at Q/A 116.

[Element 1.2] the use of the service comprising transmission of at least one service-specific traffic stream which is assigned to the service by an access node which is assigned to the service to the communication network, comprising:

First, the accused products do not practice this limitation for the reasons discussed above with respect to Common Issue #1 ("communications network"). *See* RX-1195C (Acampora WS) at Q/A 122, 16-41. Second, the accused Aruba (HPE) APs and controllers running Redacted in do not check permissibility to use a "service comprising transmission of at least one service-specific traffic stream" because Redacted in Public Version . Third, it is undisputed that the alleged access node (Aruba AP) Redacted in Public Version , as it is Redacted in Public Version . Fourth, by the time a call reaches the accused Redacted in Public Version, Redacted in Public Version (alleged communications network), and thus is not "assigned to the service to the communication network." *Id.* at Q/A 123-35.

[Element 1.3] analyzing the use of the service with an access control function which is assigned to the access node; and

The accused Aruba (HPE) APs do not practice this limitation because Redacted in Public Version by an Aruba AP Redacted in Public Version does not "control" "access" to anything. Thus, no "access control function" is applied by the Aruba (HPE) APs. *See* RX-1195C (Acampora WS) at Q/A 138-41. The Aruba controllers also do not perform access control on the traffic stream, because Redacted in Public Version . Additionally, the alleged access control function (Redacted in) is assigned to Redacted in Public Version (an "internal transmission node") not an access node (AP). Moreover, the accused Redacted in Public Version running on the separate controller does not "analyze the use of

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the service" because Redacted in Public Version (alleged to be the priority level) and aRedacted in Public Version. *Id.* at Q/A 142-46.

> ***[Element 1.4] checking, via the access control function, without further interrogations at internal transmission nodes of the communications network, whether the use of the service is permitted, the checking performed taking into account an available capacity, which is***

As explained in Common Issue #1, complainant's alleged "communication network" does not satisfy the claims, for example because the identified communication network does not include internal transmission nodes, as required by this limitation. Additionally, Redacted in Public Version and ensures that Redacted in Public Version. *See* RX-1195C (Acampora WS) at Q/A 152; RDX-0001C.0119 (RX-0483C.0019). Inasmuch as all call streams ("service") are accepted, this "checking…whether the use of the service is permitted" is not satisfied. *See* RX-1195C (Acampora WS) at Q/A 151-52.

During cross-examination, Dr. Madisetti offered a new infringement theory: that the client devices are internal transmission nodes. *See* Madisetti Tr. 50. While both untimely and contrary to the plain meaning of "internal transmission nodes," even were this new argument considered, it is undisputed that Redacted in does not consider the capacity of the client devices. *See* CX-3846C (Madisetti WS) at Q/A 191, 200, 206.

> ***[Element 1.5] determined taking into account the overall transmission capacity [of the communications network], and***

As explained in Common Issue # 2, the accused products do not determine permissibility by "taking into account the overall transmission capacity" of the communications network. Nothing in the alleged communication network, Redacted in (or anything else), considers the capacity of the controller or the wired link between the

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Campus AP and controller. *See* RX-1195C (Acampora WS) at Q/A 164. Inasmuch as Redacted in Public Version does not analyze the controller's capacity/link, this limitation is not satisfied. *Id.* at Q/A 165.

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Treating the AP and controller as one device would reinforce the point that the capacity of the controller (and its wired link to the AP) would need to be considered as part of the "overall transmission capacity." Otherwise, Dr. Madisetti's overall transmission capacity would not cover the transmission capacity of the AP and controller considered together. *Id.* at Q/A 166.

[Element 1.6] [an available capacity, which is] available to the access node for transmitting traffic streams to the communications network.

The accused products do not practice this limitation for the reasons discussed above with respect to Common Issue #1 ("communications network"), for example because the alleged communication network does not include any internal transmission nodes that provide capacity "available to the access node for transmitting traffic streams to the communications network." *See* RX-1195C (Acampora WS) at Q/A 172.

c. Dependent Claims 2-9: HPE Accused Products

Inasmuch as the accused Aruba products do not infringe independent claim 1,

they also do not infringe claims 2-9, which depend from claim 1. Additional reasons that the accused Aruba products do not infringe dependent claims 2-9 are discussed below.

i. Claim 2

Complainant has not shown that any data is actually being transmitted with priority, as required by the method claims of the '853 patent. The claimed "service" is not a priority level. *Id.* at Q/A 176. Additionally, the accused Campus APs do not check any such "transmission of information" because Redacted in Public Version, and any accused controller Redacted in Public Version, as discussed above. *Id.* at Q/A 178.

ii. Claims 3, 7, 8

A wireless network is not a DiffServ network, and Dr. Madisetti has not cited any evidence of a "DiffServ network" in connection with use of the accused APs. *Id.* at Q/A 180. The accused Redacted in Public Version does not "signal" permissibility to transmit a traffic stream with priority—Redacted in Public Version. Moreover, a Campus AP does not transmit a traffic stream's packets with the alleged priority. Packets could only be transmitted with priority after the priority has been applied. Likewise, for a traffic stream originating from a client device connected to a Campus APs, the controller does not "subsequently" transmit the packets to the alleged DiffServ network (WLAN) because, at this point, the packets have left the accused AP and have arrived at the controller. *Id.* at Q/A 182.

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iii. Claim 4

The accused products do not practice this limitation for the reasons discussed in Common Issue #1 ("communications network"). *Id*. at Q/A 188.

iv. Claim 5

The accused Redacted in Public Version Thus, a service quality level is not taken into account when checking the alleged permissibility. Additionally, contrary to the claim language, Redacted in does not check Redacted in Public Version Rather, Redacted in Public Version *Id.* at Q/A 192.

v. Claim 6

Redacted in does not check Redacted in Public Version Redacted in Public Version *Id.* at Q/A 196.

vi. Claim 9

See claim element 1.3, discussing lack of an "access control function" in the APs.

d. Claim 1: NETGEAR and CommScope Accused Products

Complainant's infringement contentions for the accused NETGEAR and CommScope products are substantially the same, and are discussed together. For both the accused NETGEAR APs and Ruckus APs, complainant's infringement theory is based on how the APs perform admission control (if at all) with respect to an Redacted in Public Version from a client (*e.g.*, mobile phone, laptop) that is connected to the AP. For the NETGEAR APs, complainant identifies an "Redacted in Public Version " which is executed by Redacted in Public Version. *See* CX-3847C (Jones WS) at Q/A

58; CX-3846C (Madisetti WS) at Q/A 120, 122. For the CommScope Ruckus APs, the functionality identified for handling such Redacted in Public Version is the Redacted in Public Version (also referred to as Redacted in Public Version) functionality (CX-3846C (Madisetti WS) at Q/A 66), which is implemented in the code Redacted in Public Version. *See* RDX-0001C.0136 (JX-0175C (Jou Dep. Tr.) at 80); RX-0935C (Overby WS) at Q/A 57. These functionalities operate based on the IEEE 802.11e standard and a client device connected to the accused NETGEAR and Ruckus APs uses the Redacted in Public Version (*see, e.g.*, RDX-0001C.0137-38 (JX-0175C at 71:3-13)); RX-1195C (Acampora WS) at Q/A 83-84, 90-91.

The accused Ruckus and NETGEAR APs do not infringe the asserted '853 patent claims because (1) the accused Ruckus and NETGEAR APs do not make any decision for Redacted in Public Version based on capacity information of any other nodes/links in an overall communications network to which they are attached (*see* Common Issues # 1 and 2); and (2) even under complainant's incorrect proposed construction of the "communications network" in the claims, the Ruckus and NETGEAR APs do not make any admission decision based on even their own transmission capacity (*see* Common Issue #3).

i. NETGEAR testing

Complainant references testing of a NETGEAR product as alleged evidence of infringement. *See* CX-3846C (Madisetti WS) at Q/A 114, 129, 142 (citing CX-0688C (NETGEAR WAC510 Access Point Redacted in Public Ve Processing Test Results)). Complainant's expert states that the "NETGEAR APs respond to [Redacted in Public Version] (e.g. Redacted in Public Version)." *See* CX-3846C (Madisetti WS) at Q/A 141. However, the testing does not show an "acceptance or refusal." It shows Redacted in Public Version. *See* CX-

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0688C.0005 (NETGEAR WAC510 Access Point Redacted in Public Version Test Results) ("Redacted in Public Version "); JX-0185C (Maker Dep. Tr.) at 136. Indeed, the acceptance or denial of a Redacted in Public Version based on the alleged available Redacted in Public Ver Redacted in Public Version and/or Redacted in Public Version is not a permissibility check according to the asserted claims of the '853 patent (*see* Common Issue #3). However, even assuming that such an acceptance or rejection was relevant to the claims, nowhere in complainant's testing of the accused NETGEAR products is there evidence that any alleged "service" would Redacted in Public Version. *See* RX-1195C (Acampora WS) at Q/A 88-89.

Complainant's failure to show that any Redacted in Public Version would be Redacted in Public impedes complainant's ability to prove that the accused products actually perform a permissibility check, as alleged. *Id.* at Q/A 84-89. The testing shows that Redacted in Public Version As Mr. Overby explains, Mr. Jones and Dr. Madisetti disregard aspects of the NETGEAR source code that is contrary to their opinions. *See* RX-0935C (Overby WS) at Q/A 44, 49-54. As pointed out by respondents, this may explain why the testing was not able to show than an accused NETGEAR Redacted in Public Version based on the alleged Redacted in Public Version. *See* RX-1195C (Acampora WS) at Q/A 89.

Moreover, the accused functionality is provided by Redacted in Public Version and NETGEAR Redacted in Public Version the particular implementation details of the accused functionality. *See* JX-0177C (Nagaraju Dep. Tr.) at 183, 86; CX-3846C (Madisetti WS) at Q/A 148. Accordingly, if the code (and Dr. Madisetti's test results) suggest that the accused NETGEAR APs may be configured Redacted in Public Version then it follows that complainant's infringement analysis is

wrong. *See* RX-1195C (Acampora WS) at Q/A 89.

ii. CommScope – Whether complainant's infringement allegations for Ruckus APs are representative of all accused products

Complainant's analysis collectively refers to the accused CommScope devices (which includes 30 APs and a controller) as "Ruckus APs." *See* CX-3846C (Madisetti WS) at Q/A 52. Complainant's alleged evidence may not be representative of the range of accused Ruckus products at least because much of the accused functionality in the accused CommScope products Redacted in Public Version for those products. *See* RDX-0001C.0136 (JX-0175C (Jou Dep. Tr.) at 80). The way in which Redacted in Public Version have implemented the accused Redacted in P [redacted] may vary substantially across the accused products. Consequently, complainant has not shown that the cited evidence is representative of the range of accused Ruckus APs. *See* RX-1195C (Acampora WS) at Q/A 92-94.

Complainant references testing of a Ruckus R310 Unleashed ("Ruckus ZoneFlex R310 Access Point") device as alleged evidence of infringement of the asserted '853 patent claims. *See* CX-3846C (Madisetti WS) at Q/A 60 (citing CX-0684C), 68, 70, 73, 84, 86. However, there is no evidence presented from which a person of ordinary skill can determine whether the testing fairly represents the other accused Ruckus APs that are allegedly represented. *See* RX-1195C (Acampora WS) at Q/A 96. Additionally, the testing Mr. Maker performed at Dr. Madisetti's direction did not include a controller. *See* JX-0185C (Maker Dep. Tr.) at 94-95, 112-113; RX-1195C (Acampora WS) at Q/A 90-94.

iii. NETGEAR/CommScope APs: Limitation-by-Limitation

Claim 1. [Element 1.0] A method for checking permissibility to use a service, the service being implemented in at least one communications network.

Complainant's accused "communication network" (WLAN for an AP) is incompatible with the claimed communications network (Common Issue #1). Moreover, the accused priority tags cannot satisfy the "service" recited in the claims, which refers to a traffic stream (stream of data packets), *i.e.*, the "checking permissibility to use a service" in the claim is the checking of whether to permit or deny a requested stream. *See* RX-1195C (Acampora WS) at Q/A 98, 107.

[Element 1.1] the communication network having an overall transmission capacity,

As set forth in Common Issues #1 and 2, none of the accused APs have any cognizance of a broader "communication network" with an "overall transmission capacity." Moreover, as explained in Common Issue #3, the accused Redacted in Public Version (or Redacted in Public Version) is not an amount of data that the wireless channel can transmit. *See* RX-1195C (Acampora WS) at Q/A 110-14. For example, complainant's allegations are Redacted in Public Version, and Redacted in Public V is not the claimed overall transmission capacity of even the AP (let alone of a broader network). Therefore, Dr. Madisetti's identified Redacted in Public V and/or Redacted in Public Version does not represent the claimed "overall transmission capacity." *Id.*; *id.* at 118, 120.

[Element 1.2] the use of the service comprising transmission of at least one service-specific traffic stream which is assigned to the service by an access node which is assigned to the service to the communication network, comprising:

First, the accused products do not practice this limitation for the reasons discussed

above with respect to Common Issue #1 ("communications network"). *See* RX-1195C (Acampora WS) at Q/A 122.

[Element 1.3] analyzing the use of the service with an access control function which is assigned to the access node; and

As discussed above, the alleged "service" identified by Dr. Madisetti (voice service priority level) is not the claimed "service comprising transmission of at least one service-specific traffic stream." *See* RX-1195C (Acampora WS) at Q/A 136

[Element 1.4] checking, via the access control function, without further interrogations at internal transmission nodes of the communications network, whether the use of the service is permitted, the checking performed taking into account an available capacity, which is

As explained in Common Issue #1, complainant's alleged "communication network" is wrong, for example because the identified communication network does not include internal transmission nodes, as required by this limitation. *See* RX-1195C (Acampora WS) at Q/A 148-51.

[Element 1.5] determined taking into account the overall transmission capacity [of the communications network], and

As explained in Common Issue # 2, the accused products do not determine permissibility by "taking into account the overall transmission capacity" of the communications network. Moreover, as explained in Common Issue #3, Redacted in Public Ver [redacted] is not an amount of data that the wireless channel can transmit. *See* RX-1195C (Acampora WS) at Q/A 161-62, 168, 170.

[Element 1.6] [an available capacity, which is] available to the access node for transmitting traffic streams to the communications network.

The accused APs do not practice this limitation for the reasons discussed in Common Issue #1 ("communications network"), for example because the alleged

communication network does not include any internal transmission nodes that provide capacity "available to the access node for transmitting traffic streams to the communications network." *See* RX-1195C (Acampora WS) at Q/A 172.

e. Dependent Claims 2-9: NETGEAR and CommScope Accused Products

Inasmuch as the accused NETGEAR and Ruckus APs do not infringe independent claim 1, they also do not infringe claims 2-9, which depend from claim 1. Additional reasons that the accused APs do not infringe dependent claims 2-9 are discussed below.

i. Claim 2

Complainant has not shown that any data is actually being transmitted with priority, as required by the method claims of the '853 patent. As explained above, the claimed "service" is not a priority level. *See* RX-1195C (Acampora WS) at Q/A 176.

ii. Claims 3, 7, 8

A wireless network is not a DiffServ network, and Dr. Madisetti has not cited any evidence of a "DiffServ network" in connection with use of the accused APs. *Id.* at Q/A 180. If a traffic stream has already been transmitted from an STA to an access node (accused AP) via the wireless network, the access node (accused AP) will not "subsequently transmit[] the traffic stream with priority [back] to DiffServ network [the wireless network]" as required by claim 3 of the '853 patent. *Id.* at Q/A 184 (NETGEAR), 186 (Ruckus).

iii. Claim 4

The accused APs do not infringe for the reasons discussed in Common Issue #1 ("communications network"). *Id.* at Q/A 188.

iv. Claims 5, 6

Complainant has not identified any Redacted in Public Version in any specific Redacted in Public Version, and therefore there is no evidence of infringement under complainant's wrong theory. *Id.* at Q/A 190.

v. Claim 9

See claim element 1.3, explaining lack of an "access control function" in the APs.

3. Indirect Infringement (Inducement)

Complainant argues that HPE directly infringes asserted method claims 1-9 of the '853 patent:

> The evidence showed that HPE directly infringes claims 1-9 of the '853 Patent. CX-3846C at Q/A 230. As detailed above, the HPE APs are configured to Redacted in Public Version. CX-3846C at Q/A 231. The HPE APs perform the elements of claims 1-9 any time they receive traffic from an Redacted in Public Version, including Redacted in Public Version. *Id*. HPE performs testing on the Aruba APs Redacted in Public Version *Id*. This testing includes Redacted in Public Version *Id*.; JX-0179C.0023-24, .0035. HPE has an Redacted in Public Version that focuses on testing access points and controllers Redacted in Public Version CA. *Id*.

Compl. Br. at 244.

Complainant argues that HPE induces infringement of the asserted method claims 1-9 of the '853 patent:

> The evidence showed that HPE induces infringement of claims 1-9 of the '853 patent by end users of the Aruba APs. CX-3846C at Q/A 232. HPE is aware of the '853 patent and the activity that infringes claims 1-9. CX-3846C at Q/A 233. Q3 alleged infringement of the asserted patents by filing the complaint in this investigation, including charts demonstrating infringement. *Id*. Q3 served preliminary and supplemental infringement contentions asserting that HPE infringed the asserted patents via the accused products. *Id*. Based on this, HPE knew or should have known that use of Redacted in Pu by the accused products infringed the asserted patents. *Id*.

> Despite this, HPE continued providing Aruba APs to its customers and continued the encouraging the use of Redacted in. *Id*. After receiving notice of the asserted patents, HPE must have known, or was willfully blind to the fact that, its customers were infringing the asserted patents. *Id*. Not only is Redacted in Public Version but HPE instructs its users on how to configure it. *Id*.; CX-0104.1078. HPE provides support to its customers for the Redacted in Public Version via its website. CX-3846C at Q/A 233. HPE admitted to providing United States customers with instructions to use the infringing features and technical support for such features. *Id*.; CX-0476C.0383-89. Such instructions and support encourage end users to use Redacted in and thereby infringe the '853 Patent. *Id*.

Id.

Complainant argues that CommScope directly infringes asserted method claims 1-9 of the '853 patent:

> As detailed above, the Ruckus APs are configured to support Redacted in Pu. CX-3846C at Q/A 103-104. The Ruckus APs performs the elements of claims 1-9 any time they receive Redacted in Public Version if Redacted in Public Version. CSC [CommScope] performs testing on the Ruckus APs Redacted in Public Version. *Id*. This testing includes Redacted in Public Version. *Id*.; JX-0175C.0036-37. CSC provides a customer support team in the United States that supports the Ruckus APs. CX-3846C at Q/A 104; JX-0175C.0026. At the hearing, CSC's corporate representative confirmed that customer support tests Redacted in Pu if a customer experiences a problem. Tr. (Jou) at 347:17-348:4. CSC's corporate representative further testified that Redacted in Public Version Tr. (Jou) at 347:12-16.

Compl. Br. at 213.

Complainant argues that CommScope induces infringement of the asserted method claims 1-9 of the '853 patent:

> The evidence showed that CSC [CommScope] induces infringement of claims 1-9 by end users of the Ruckus APs. CX-3846C at Q/A 105. CSC is aware of the '853 Patent and the activity that infringes claims 1-9. CX-3846C at Q/A 106. Q3 alleged infringement of the asserted patents by filing the complaint in this investigation, including charts demonstrating infringement. *Id*. Q3 served preliminary infringement and supplemental contentions asserting that CSC infringed the asserted patents. Based on this, CSC knew or should have known that use of Redacted in Pu by the accused products infringed the asserted patents. *Id*.

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> CSC continued providing Ruckus APs to its customers and continued the encouraging the use of [redacted]. *Id*. After receiving notice, CSC must have known, or was willfully blind to the fact that, its customers were infringing the asserted patents. *Id*. In fact, CSC admitted that it supports its United States customers use CAC. *Id*.; CX-0470C.0025. CSC was aware that [redacted] and knew that [redacted] *Id*.; JX-0175C.0014. CSC's customers, like [redacted], and others, [redacted] *Id*.; JX-0175C.0025. CSC admits that the instruction manuals for the Ruckus APs provide instructions for [redacted]. *Id*.; CX-0470C.0023.
>
> CSC was aware that its customers were using [redacted]. CX-3846C at Q/A 107. CSC testified that [redacted] *Id*. CSC testified that other customers [redacted]. *Id*.; JX-0175C.0025. CSC follows the [redacted] testing procedures provided by [redacted]. CX-3846C at Q/A 107; JX-0175C.0014. At the hearing, CSC's corporate representative admitted that [redacted]. Tr. (Jou) at 346:12-347:16.

Id. at 213-14.

Complainant argues that NETGEAR directly infringes asserted method claims 1-9 of the '853 patent:

> The evidence showed that NTG [NETGEAR] directly infringes claims 1-9 pf the '853 Patent. CX-3846C at Q/A 159. As detailed above, the NTG APs are configured to support [redacted]. CX-3846C at Q/A 160. The NTG APs performs the elements of claims 1-9 any time they receive [redacted]. *Id*. NTG performs [redacted]. *Id*. This testing includes [redacted]. *Id*.; JX-0177C.0026-27. NTG also provides a customer support team in the United States that supports the NTG APs. CX-3846C at Q/A 160; JX-0177C.0028. NTG's support team generally attempts to recreate customer problems, directly infringing the '853 Patent. *Id*.; JX-0177C.0028.

Compl. Br. at 226-27.

Complainant argues that NETGEAR induces infringement of the asserted method claims 1-9 of the '853 patent:

> The evidence showed that NTG [NETGEAR] induces infringement of claims 1-9 by end users of the NTG APs. CX-3846C at Q/A 161. NTG is aware of the '853 Patent and the activity that infringes claims 1-9. CX-3846C at Q/A 162. Q3 alleged infringement of the asserted patents by filing the complaint in this investigation, including charts demonstrating infringement. *Id*. Q3 served preliminary and supplemental infringement contentions asserting that NTG infringed the asserted patents via the accused products. Based on this, NTG knew or should have known that use of CAC by the accused products infringed the asserted patents. *Id*.
>
> Despite this, NTG continued providing NTG APs to its customers and continued the encouraging the use of Redacted in Public Versi. *Id*. After receiving notice of the asserted patents, NTG must have known, or was willfully blind to the fact that, its customers were infringing the asserted patents. *Id*. In fact, NTG admitted that it "provides support to United States based customers who use Redacted in Public V functionality on the [NTG APs]". *Id*.; CX-0479C.0007; JX-0177C.0028. NTG admits that its instruction manuals for the NTG APs provide instructions for Redacted in Public Version. CX-3846C at Q/A 162; CX-0479C.0004-05. NTG admits that data sheets for the NTG APs advertise support for Redacted in Public Version. *Id*.; CX-0479C.0006.

Id. at 227.

Direct Infringement of the '853 Patent

Complainant's infringement theory requires that another device, *e.g.*, a client device manufacturer such as a cell phone, tablet, or computer manufacturer, provide at least the request to use a service and the transmission of data to the "access node" (accused product). *See* Compl. Br. at 244 (HPE), 213 (CommScope), 226-27 (NETGEAR); CX-3846C (Madisetti WS) at Q/A 181 (HPE), 66 (CommScope), 120 (NETGEAR); RX-1195C (Acampora WS) at Q/A 201-02. A person having ordinary skill in the art would understand that, in order to check permissibility to use a service, there must be a request to use a service in the first instance. *See* RX-1195C (Acampora WS) at Q/A 201-02. The required client device (or devices) is not at issue in this investigation, and complainant has not alleged that any respondent imports an infringing

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client device. Complainant's infringement opinions therefore do not rely upon evidence of a single entity that could be found to directly infringe the claims because there is no evidence provided of a single entity that performs all of the claimed elements. *Id.* at Q/A 201-202; *Limelight Networks, Inc. v. Akamai Techs., Inc.*, 572 U.S. 915, 922 (2014) (holding that there can be no direct infringement if "the performance of all the patent's steps is not attributable to any one person").

Complainant argues that the respondents directly infringe by testing the accused products in the United States. *See* Compl. Br. at 244. Complainant has not presented any evidence that each of the accused method claim steps of the '853 patent have been performed by any respondent in this alleged testing. Complainant's arguments fail as a matter of law. *E.g., Limelight*, 572 U.S. at 921 ("A method patent … is not infringed unless all the steps are carried out."); *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1222 (Fed. Cir. 2014) ("Because [plaintiff] cannot point to any evidence in the record that [party] performed the infringing steps, or that any of its customers were under its direction or control, the jury did not have substantial evidence to find direct infringement."). Second, even if there were evidence that any respondent tested the alleged functionality, complainant has not shown that the claimed testing (1) is performed in the United States, or (2) performs each and every claim limitation.

Indeed, the accused functionality is Redacted in Public Version [redacted] *See* CX-0477C.0002-3 (HPE Resp. to Rog. 173), RX-1198C (Balay WS) at Q/A 51 (Redacted in Public Version [redacted]); CX-0481C.0002-3 (NETGEAR's Resp. to Rog. 173), JX-0177C.0026-27 (Nagaraju Dep. Tr.) at 99; CX-0472C.0002-3 (CommScope Resp. to Rog. 173), JX-0175C.0036-37 (Jou Dep. Tr.) at

139-140, 97-98, RX-1201C (Jou WS) at Q/A 21. Complainant's arguments have not shown alleged direct infringement. *See* RX-1195C (Acampora WS) at Q/A 201-05; RDX-0001C.0101, .0122, .0138, .0143.

Indirect Infringement of the '853 patent

Complainant argues that respondents' customers indirectly infringe claims 1-9 of the '853 patent. *See* Compl. Br. at 244, 213-14, 227; CX-3846C (Madisetti WS) at Q/A 105 (CommScope), 161 (NETGEAR), 232 (HPE). Complainant argues that respondents encourage their customers to use their products. However, complainant has not presented any evidence (or even alleged) that a NETGEAR and/or HPE customer has actually practiced any asserted '853 patent claim. *Limelight*, 572 U.S. at 921. For CommScope, complainant states Redacted in Public Version constitutes evidence of the use of that functionality. *See* CX-3846C (Madisetti WS) at Q/A 106. However, Redacted in Public Version are not evidence of Redacted in Public Version actually practicing or using the accused functionality in the United States, and Redacted in Public Version does not constitute evidence that those customers ever practiced the asserted '853 patent method claims. *Varian Med. Sys., Inc. v. Elekta AB*, No. CV 15-871, 2016 WL 3748772, at *4 (D. Del. July 12, 2016) (dismissing complaint in part because it "does not adequately allege that *any third party actually used* the accused device" as required by the asserted method claims) (emphasis in original). Even assuming complainant's infringement contentions are correct, there is no evidence that the '853 patent's method claims have been performed because there is no evidence of an end-user or customer performing the accused functionality. *See* RX-1195C (Acampora WS) at Q/A 208-10; RDX-0001C.0101, .0122, .0138, .0143.

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C. Domestic Industry (Technical Prong)

As discussed above, complainant relies on method claims 1-9 of the '853 patent for the technical prong of the domestic industry requirement.

Complainant argues, *inter alia*:

> The evidence showed that Siemens provides "Scalance APs" that perform the methods of the '853 Patent Redacted in Public Version Those products include SCALANCE W7xx products such as WLC71x, W72x, W73x, W73fx, W74x, W76x, W77x, and W78x and substantially similar products. CX-3846C at Q/A 242. In addition, the Scalance W1750D ("W1750D") performs these methods. *Id*. Dr. Madisetti analyzed the Scalance APs and found that they infringe. *See generally* CX-3846C at Q/A 241-289.

Compl. Br. at 246; *see id.* at 246-60.

Respondents disagree. *See* Resps. Br. at 58-60; Resps. Reply Br. 21-23.

As discussed below, complainant does not satisfy the requirements of the technical prong of domestic industry for the '853 patent because the alleged domestic industry products do not practice any claim of the '853 patent.

Complainant identifies two categories of products. The first is the Siemens Scalance W1750D Access Point. The second is a line of Siemens products referred to as the Scalance W*7** APs. *See* RX-1195C (Acampora WS) at Q/A 211.

1. Scalance W1750D

Complainant argues that the Siemens W1750D Redacted in Public Version *See* Compl. Br. at 260. Redacted in Public Version the Siemens W1750D. *See* RX-1198C (Balay WS) at Q/A 15-17. The Redacted in Public Version . *Id.* As Dr. Acampora explained, the Siemens W1750D Redacted in Public Version Redacted in Public Version that

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Redacted in Public Version Redacted in Public Version . *Id.* at Q/A 16-18; RX-1195C (Acampora WS) at Q/A 213-16; RDX-001C.0145-47 (RX-1204 (W1750D Function Manual); RX-1203 (W1750D Configuration Manual); RX-1205 (W1750D Siemens Industry Online Product Support page)). Redacted in Public Version . *Id.*

Redacted in Public Version . *See* Compl. Br. at 260; CX-3846C (Madisetti WS) at Q/A 286. Redacted in Public Version , the identified Scalance W1750D is not within the scope of the '853 patent claims and does not satisfy the DI technical prong. *See* RX-1195C (Acampora WS) at Q/A 212-13, 218, 221, 223.

Complainant's arguments regarding Dr. Balay's testimony create a dispute where none exists. It is undisputed that a Siemens W1750D Redacted in Public Version *See* Balay Tr. 404 Redacted in Public Version However, complainant has presented no evidence that Siemens Redacted in Public Version Redacted in Public Version Complainant did not present any evidence of a Scalance W1750D Redacted in Public Version Indeed, the only specific evidence in the record regarding the use of the Scalance W1750D is Redacted in Public Version

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Redacted in Public Version *See* JX-0185C (Maker Dep. Tr.) at 94-95.

Complainant equates a "virtual controller" Redacted in Public Version with a "service controller" Redacted in Public Version *See* Balay Tr. 429 Redacted in Public Version As explained during the hearing, an Instant AP operating as a "virtual controller" Redacted in Public Version . *See* Balay Tr. 430-431 ("Q. So, Dr. Balay, the question was, does the virtual controller Redacted in Public Version A. No, it doesn't."). Complainant's only allegation as to the Redacted in Public APs is based on Redacted in Public Version

2. Scalance W*7 APs**

Complainant's arguments as to why the "Scalance W7xx" APs allegedly practice the asserted claims of the '853 patent Redacted in Public Version *See* Compl. Br. at 246-54 (claim 1), 254-260 (claims 2-9); CX-3846C (Madisetti WS) at Q/A 247; Resps. Br. at 59; RX-1195C (Acampora WS) at Q/A 217. Complainant summarily asserts that the Siemens APs use "Redacted in Public Version" *See* Compl. Br. at 246 (citing CX-3846C (Madisetti WS) at Q/A 241-89. Complainant has not shown that the Scalance W7xx products actually use Redacted in Public Version, or that, even if they do, the identified Redacted in Public Version on the identified Scalance W7xx products. Redacted in Public Version

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The Siemens APs Redacted in Public Version

would not be within the scope of the '853 patent claims Redacted in Public Version

See RX-1195C (Acampora WS) at Q/A 219-21, 223.

3. Direct and Indirect Practice of Claims 1-9

Complainant presents no evidence that Siemens has ever used or tested any alleged domestic industry product in the United States to allegedly practice the '853 patent claims. *See generally* Compl. Br. at 246-60; CX-3846C (Madisetti WS) at Q/A 242; RX-1195C (Acampora WS) at Q/A 222; RDX-0001C.0148. Complainant also presents no evidence that a Siemens customer has used any alleged domestic industry product in the United States to allegedly practice the '853 patent claims. *Id.* In fact, complainant does not even argue that Siemens has directly or indirectly practiced the '853 patent claims. *Id.* Therefore, complainant cannot satisfy the technical prong of domestic industry.

D. Validity of the '853 Patent

Respondents argue, *inter alia*:

> The earliest filing date to which the '853 Patent claims priority is March 23, 2000 (the date of a German priority application). JX-0003.0003. Asserted claims 1-9 are invalid in view of numerous independent prior art references, three of which are identified below.

Invalidated under both Respondents'	• **Claims 1-2, 4-7, and 9 are anticipated by Li (U.S. Patent No. 6,738,819);** • **Claims 3 and 8-9 are rendered obvious**

and Q3's proposed constructions:	**by Li; and** • **Claims 1-9 are rendered obvious by Shirahase (a printed publication titled "Design and Deployment of QoS Enabled Network for Contents Businesses").**
Mirrors Q3's infringement theory and therefore invalidates under Q3's theory:	• Claims 1-9 are rendered obvious by Scholefield (Pat. App. No. AU 8,685,898) under Q3's proposed constructions and infringement theory.

Q3 alleges that only the following limitations of claim 1 are not disclosed by the prior art:

Reference(s)	Limitations Q3 Alleges are Not Disclosed
Li, Shirahase, and Scholefield	• "overall transmission capacity" (Claim 1.1) • "checking … without further interrogations of the internal transmission nodes" (Claim 1.4) • "an available capacity, which is determined taking into account the overall transmission capacity" (Claim 1.5)
Li only	• "checking … taking into account an available capacity" (Claim 1.4)

Q3 also does not dispute that Li, Shirahase, and/or Scholefield disclose the additional limitations of dependent claims 2-9.

Resps. Br. at 60-61; *see id.* at 61-98; Resps. Reply Br. 23-27.

Complainant disagrees. *See* Compl. Br. at 260-71; Compl. Reply Br. 75-81.

For the reasons set forth below, respondents have not shown by clear and convincing evidence that the asserted claims of the '853 patent are invalid.[13]

[13] On October 8, 2021, the Patent Trial and Appeal Board (PTAB) denied institution of *inter partes* review. The PTAB noted that "the Final Determination in the parallel ITC

1. Li (JX-0012)

As discussed below, respondents did not prove by clear and convincing evidence that U.S. Patent No. 6,738,819 ("Li"), JX-0012, anticipates claims 1-2, 4-7, and 9, or that Li renders obvious claims 3, 8 and 9.

First, Li does not disclose an "overall transmission capacity" as required by claims 1-9. *See* CX-3930C (Martin RWS) at Q/A 17. Dr. Acampora opines that each link in Li's DiffServ network has a "total bandwidth capacity," and that "overall transmission capacity" is the set of numbers reflecting the total link bandwidths of the various links. *Id.* In particular, Dr. Acampora identifies the optical links OC3 and OC12. *Id.* This is incorrect because while the "overall transmission capacity" can partially depend on the transmission capacities of transmission paths of the communications network, the mere presence of transmission paths does not disclose an "overall transmission capacity." *Id.*

Li assesses bandwidth using an "iterative weakest link method," as an improvement upon the shortcomings of the "basic weakest link method." *See* JX-0012 (Li) at 2:40-54. As Li explains, a "basic weakest link method can be used for deciding whether to allow more traffic to enter a network when receiving a new request." JX-0012 (Li) at 4:48-50. The basic weakest link method assumes "that all the admitted traffic will converge onto the weakest link of the network." JX-0012 (Li) at 4:52-54. The basic weakest link method "ensures that the total traffic volume admitted into [the] network

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proceeding is due six months before a final written decision would be due if we did institute an *inter partes* review," and it concluded that "efficiency and integrity of the system are best served by denying institution." *See* Complainant's Notice of Supplemental Authority regarding U.S. Patent No. 8,797,853 (Nov. 2, 2021) Ex. 2 (Case IPR-2021-00754, Paper 9) at 12 (EDIS Doc. ID No. 755711).

will not exceed the capacity of the weakest link (Rw) in the network." JX-0012 (Li) at 4:55-58. In other words, only traffic that can fit on the weakest link is allowed on the network. However, the overall transmission capacity is greater than the capacity of the weakest link. *See* CX-3930C (Martin RWS) at Q/A 18. Indeed, Li criticizes the basic weakest link for its failure to utilize network resources. *Id.*; JX-0012 (Li) at 5:13-19. Further, Li criticizes the assumption that all traffic would "use the weakest link at the same time." *See* CX-3930C (Martin RWS) at Q/A 18; JX-0012 (Li) at 5:37-40. The iterative measurement method initially assumes that traffic will converge onto the weakest link of the network, but then revises that assumption by "periodically measuring the traffic load on each link of the network." *See* CX-3930C (Martin RWS) at Q/A 18; JX-0012 (Li) at 2:49-54, 6:39-53. Li's iterative measurement method "improve[s] bandwidth utilization" because it allows the network to allocate resources that are greater than the weakest link. *See* CX-3930C (Martin RWS) at Q/A 18; JX-0012 (Li) at 3:3-6. However, this improved bandwidth utilization still does not amount to the "overall transmission capacity" for the network. *Id.* As with the basic weakest link method, the "overall transmission capacity" is still greater than the capacity allocated via the iterative measurement method. *Id.*

Second, Li does not disclose "an available capacity, which is determined taking into account the overall transmission capacity" as required by claims 1-9. *See* CX-3930C (Martin RWS) at Q/A 19-20. Dr. Acampora opines Li's "admit limit (AL)" is the claimed available capacity, but the admit limit is not "determined taking into account the overall transmission capacity." *Id.* Instead, the admit limit is determined based on the capacity of the weakest link, which is not the overall transmission capacity. Indeed, Li's

iterative measurement method allows the transmission capacity to exceed the weakest link. *Id.*; JX-0012 (Li) at 6:39-53.

Third, Li does not disclose "checking … taking into account an available capacity" as required by claims 1-9. *See* CX-3930C (Martin RWS) at Q/A 21. Dr. Acampora opines that "Li initially assumes that all flows will be assigned to the weakest link and admits calls accordingly, thereby assuring that QoS objectives are met." *Id.*; RX-0765.0010. This is wrong. *See* CX-3930C (Martin RWS) at Q/A 21. Li states that "[t]he bandwidth allocation is based on the assumption that it is unlikely for all admitted traffic to use the weakest link at the same time." *Id.*; JX-0012 (Li) at 5:37-40. Li does not allow incoming traffic to exceed the capacity of the weakest link, but it does not assume the traffic will converge on that link. *See* CX-3930C (Martin RWS) at Q/A 21. The capacity of the weakest link is not determined taking into account the overall transmission capacity. *Id.* Instead, it is based solely on the isolated capacity of the weakest link, as the reason for updating the weakest link measurement at certain time intervals is that the overall transmission capacity of the network is greater than the capacity of the weakest link. *Id.*; JX-0012 (Li) at Abstract; 5:30-33; 6:30-32.

Fourth, Li does not disclose "checking … without further interrogations of the internal transmission nodes" as required by claims 1-9. *See* CX-3930C (Martin RWS) at Q/A 22. The absence of a requirement for signaling or reservation setup in a network does not mean that the process fails to involve further interrogations. *Id.* Indeed, the prosecution history for the '853 patent discussed this where the applicant explained that "the mere absence of a disclosure is nothing but a mere absence of disclosure, but never a positive proof that the not disclosed steps are not performed." *Id.*; JX-0006.0391 ('853

Patent File History). The fact that Li does not discuss whether further interrogations occur is not evidence that such interrogations do not occur. *See* CX-3930C (Martin RWS) at Q/A 22. Further, Li's specification suggests that interrogations do in fact occur. *Id.* Li checks requests against an admit limit (AL) variable that the QoS manager maintains. *Id.*; JX-0012 (Li) at 6:41-43; 6:61-67. The admit limit is controlled by an "update engine block" that "administers the AL based on measurements polled from all routers 30-32." *See* CX-3930C (Martin RWS) at Q/A 22; JX-0012 (Li) at 6:43-45. This polling constitutes an interrogation. *See* CX-3930C (Martin RWS) at Q/A 22. Li does not preclude these interrogations from occurring as part of the request evaluation process. *Id.* Indeed, such a configuration would be logical, as it would ensure that the system would not inadvertently reject requests based on an inaccurate admit limit. *Id.*

Respondents have not shown that Li renders dependent claims 3, 8, and 9 obvious for the same reasons set forth above for independent claim 1.

2. Shirahase (RX-0136)

As discussed below, respondents did not prove by clear and convincing evidence that a printed publication entitled "Design and Deployment of QoS Enabled Network for Contents Businesses" by Akira Shirahase ("Shirahase"), RX-0136, renders obvious claims 1-9.

First, Shirahase does not disclose "an overall transmission capacity" as required by claims 1-9. *See* CX-3930C (Martin RWS) at Q/A 24. Dr. Acampora opines that the Bandwidth Calculator ("BC") in Shirahase must know the "total bandwidth of each link", which is incorrect. *Id.* Rather, Shirahase states that the BC "keeps a record of bandwidth reservation of all links in a domain." *Id.*; Shirahase, p. 5. This does not require the BC to

have knowledge of the total bandwidth of each link, it merely requires a record of what's been reserved. *See* CX-3930C (Martin RWS) at Q/A 24. There are scenarios where bandwidth can be fluid. *Id.* For example, wireless links present a fluid total bandwidth. *Id.* Similarly, a person of ordinary skill would have understood that the amount of data that can be transmitted over a link is a function of the modulation and coding scheme used on the link. *Id.* Thus, the fact that BC keeps track of bandwidth reservations does not mean a person of ordinary skill would expect the BC to keep track of total bandwidth. *Id.*

Dr. Acampora opines that "the collective set of 'total link bandwidth' for the links in the network satisfies the 'overall transmission capacity' in this limitation," and that it would have been obvious to "subtract the reserved bandwidth from the overall transmission capacity." *Id.*; RX-0765.0029. As an initial matter, the phrase "total link bandwidth" does not appear in Shirahase. *Id.* Further, Shirahase does not state that the BC calculates whether there is sufficient bandwidth available. *Id.* Instead, Shirahase states that the BC performs steps that do not require the BC to calculate the available bandwidth for any of the links. *See* CX-3930C (Martin RWS) at Q/A 24. There are several ways to determine if the links in a route have sufficient available bandwidth without subtracting the reserved bandwidth from a total bandwidth. *Id.* For example, if all links in the network had a minimum required bandwidth, the BC could determine a link has sufficient bandwidth by comparing the reserved amount to the total amount. *Id.* Such comparisons are less taxing on the system than the one Dr. Acampora proposes and, thus, more desirable. *Id.* Also, determining if all links in the route have sufficient amount of bandwidth available is not the same as determining if the network has

sufficient bandwidth available. *Id.* Calculations on a subset of the links in the network do not reveal the overall transmission capacity of the network. *Id.* The BC only considers the links in the route. *Id.* In other words, the BC does not consider every link in the network, only those in the route. *Id.* Inasmuch as the BC does not consider all links in the network, even under Dr. Acampora's reading of Shirahase, determining whether there is sufficient bandwidth does not involve the overall transmission capacity. *Id.* Even if determining whether there is sufficient bandwidth were to involve all links in the network, it would not be necessary to know the total bandwidth for each link. *Id.*

Shirahase does not disclose "overall transmission capacity" under either parties' proposed constructions for this term. *See* CX-3930C (Martin RWS) at Q/A 25. For example, Dr. Acampora states that "Shirahase's network has an "overall transmission capacity" that is both (1) an "amount of data a network can transmit" (complainant's proposed construction) in at least the same way disclosed by the '853 patent, and (2) the transmission capacities of the plurality of transmission paths between nodes of the communications network (respondents' proposed construction)." *Id.*; RX-0765.0029. However, Shirahase does not state that it maintains the set of capacities for the links in its network. *See* CX-3930C (Martin RWS) at Q/A 25. Further, even if the capacity of each network element were known, it would still not show the overall transmission capacity of the network. *Id.* Among other things, how the network links are arranged (e.g., in series vs. in parallel) impacts the network's capacity. *Id.*

Second, Shirahase does not disclose "an available capacity, which is determined taking into account the overall transmission capacity" as required by claims 1-9. *See* CX-3930C (Martin RWS) at Q/A 26. Dr. Acampora opines that "the available capacity is the

lowest remaining unallocated capacity among the set of links on a selected route," and that "the available capacity is then the link in a chosen path for which the difference between the link capacity and the reserved capacity is smallest." *Id.*; RX-0765.0036. Dr. Acampora is incorrect, as this capacity is not determined taking into account the overall transmission capacity of the network. *See* CX-3930C (Martin RWS) at Q/A 26. Dr. Acampora opines that the available capacity of an individual link is available capacity for the overall network. *Id.* However, the available capacity for an individual link is not determined taking into account the overall transmission capacity of the network. *Id.* Whether an individual network link or a chosen path has available capacity does not address whether the network has an available capacity. *Id.* Accordingly, Shirahase does not disclose "an available capacity, which is determined taking into account the overall transmission capacity." *Id.*

Third, Shirahase does not disclose "checking … without further interrogations of the internal transmission modes" as required by claims 1-9. *See* CX-3930C (Martin RWS) at Q/A 27. First, Dr. Acampora is incorrect in concluding that "because the BB maintains a global view of the resource allocation for all nodes, there is no need to further interrogate other transmission nodes in order to perform admission control." *Id.*; RX-0765.0035. For example, the BC needs to interrogate various network nodes to determine their respective capacities. *See* CX-3930C (Martin RWS) at Q/A 27. Such interrogations could be triggered when handling a request to use the Premium Service to ensure accurate processing. *Id.* Moreover, the fact that Dr. Acampora opines that admission control does not require further interrogations does not mean that the process does not involve further interrogations. *Id.* Indeed, this was discussed in the prosecution

for the '853 patent where the applicant explained that "the mere absence of a disclosure is nothing but a mere absence of disclosure, but never a positive proof that the not disclosed steps are not performed." *Id.*; JX-0006.0391 ('853 Patent File History). The fact that Shirahase does not discuss whether further interrogations occur is not evidence that such interrogations do not occur. *See* CX-3930C (Martin RWS) at Q/A 27.

Moreover, respondents have not identified source code from a prior art single-link network (or shown testing from such a system). *Id.* Indeed, respondents have not been able to obtain source code for a prior art system that disclosed "checking, via the access control function, without further interrogations at internal transmission nodes of the communications network, whether the use of the service is permitted." *Id.*

3. Scholefield (JX-00014)

As discussed below, respondents did not prove by clear and convincing evidence that Patent Application No. AU 8,685,898 ("Scholefield"), JX-0014, renders obvious claims 1-9.

First, Scholefield does not disclose the claimed "overall transmission capacity" as required by claims 1-9. *See* CX-3930C (Martin RWS) at Q/A 29. Dr. Acampora's opinion that Scholefield's "theoretical channel capacity" discloses the claimed "overall transmission capacity" is incorrect. *Id.* The term "theoretical channel capacity" refers to the channel capacity under the Shannon-Hartley theorem. *Id.* The Shannon–Hartley theorem establishes what that channel capacity is for a finite-bandwidth continuous-time channel subject to Gaussian noise. *Id.* The theoretical channel capacity refers to the maximum possible channel capacity rather than the overall channel capacity. *Id.* The distinction between theoretical and actual is not trivial. *Id.* There is a difference between

theory and practice. *Id.* For example, certain LTE networks can theoretically deliver "download speeds of 1 Gigabit per second (1 Gbps)." *Id.*; CX-3925.0001. However, "in actual practice, users will typically see speeds that are quite a bit lower, usually in the 100s of Mbps range." *Id.* In other words, Scholefield's "theoretical channel capacity" is not the same as the overall channel capacity. *See* CX-3930C (Martin RWS) at Q/A 29. Indeed, it is well documented that "it is not possible in practice to reach the Shannon limit." *Id.*; CX3926.0003.

Figure 3 of Scholefield illustrates "theoretical channel capacity" as a fixed amount in Figure 3. *See* CX-3930C (Martin RWS) at Q/A 29; JX-0014.0014. In evaluating the new service request, Scholefield compares the network load to the maximum possible channel capacity, rather than its actual transmission capacity. *See* CX-3930C (Martin RWS) at Q/A 29. The maximum possible channel capacity is not the same as the overall transmission capacity. *Id.* The overall transmission capacity corresponds to the maximum actual channel capacity. *Id.* Indeed, the '853 patent recognizes that the overall transmission capacity is dynamic. *Id.*; JX-0003 ('853 Patent) at 3:43-45. In other words, the '853 patent recognizes that the overall transmission capacity is a function of network conditions and not a theoretical construct. *See* CX-3930C (Martin RWS) at Q/A 29. Contrary to Dr. Acampora's opinion, Scholefield's "theoretical channel capacity" is not an overall transmission capacity. *Id.*

Second, Scholefield does not disclose "an available capacity, which is determined taking into account the overall transmission capacity," as required by claims 1-9. *See* CX-3930C (Martin RWS) at Q/A 30. Dr. Acampora incorrectly opines that Scholefield's "surplus capacity" is the claimed available capacity. *Id.* The claims require the available

capacity be "determined taking into account the overall transmission capacity." *Id.* This means that the determination of available capacity must involve the overall transmission capacity. *Id.* The most straightforward way to achieve this is to subtract the used capacity from the overall transmission capacity (*e.g.*, the airtime). *Id.* However, Scholefield's "theoretical channel capacity" is not the same as the claimed "overall transmission capacity." *Id.* Instead, Scholefield's "theoretical channel capacity" represents the maximum possible channel capacity. *Id.*

Scholefield's approach, and its disadvantage, was recognized during the prosecution of the '853 patent. *See* CX-3930C (Martin RWS) at Q/A 31; JX-0006.0368 ('853 Patent File History). By using the "theoretical channel capacity" rather than the actual channel capacity, Scholefield allows for the network to be overloaded. *See* CX-3930C (Martin RWS) at Q/A 31. Indeed, only a fraction of Scholefield's "surplus capacity" will actually be available as the "surplus capacity" was based on a "theoretical channel capacity" that is greater than the actual channel capacity. *Id.* Accordingly, Scholefield does not disclose "an available capacity, which is determined taking into account the overall transmission capacity." *Id.*

Third, Scholefield does not disclose "checking … without further interrogations of the internal transmission nodes" as required by claims 1-9. *See* CX-3930C (Martin RWS) at Q/A 32. In evaluating a service request, Scholefield compares the requirements of the request to the surplus capacity. *Id.*; Scholefield, p. 9. To perform this comparison, Scholefield must first determine the surplus capacity. *Id.* Scholefield uses a recursive estimator to ascertain network conditions. *See* CX-3930C (Martin RWS) at Q/A 32; Scholefield, p. 8. However, Scholefield does not detail whether the recursive estimator

relies on interrogations of the internal transmission nodes of the network. CX-3930C (Martin RWS) at Q/A 32. A person of ordinary skill could have reasonably expected the recursive estimator to rely on interrogations of the internal transmission nodes of the network. *Id.* Querying network components is a straightforward and logical way for the recursive estimator to obtain the estimate of network load that it requires. *Id.*

Dr. Acampora opines that Scholefield discloses "checking, via the access control function, without further interrogations at internal transmission nodes of the communications network" under complainant's interpretation of "the communication network." *See* CX-3930C (Martin RWS) at Q/A 33. Yet, Scholefield does not explain how the data used to calculate surplus capacity is obtained. *Id.* Indeed, this was discussed in the prosecution for the '853 patent where the applicant explained that "the mere absence of a disclosure is nothing but a mere absence of disclosure, but never a positive proof that the not disclosed steps are not performed." *Id.*; JX-0006.0391 ('853 Patent File History). The fact that Scholefield does not discuss whether further interrogations occur is not evidence that such interrogations do not occur, particularly when a person of ordinary skill would have recognized that such interrogations are a logical way to obtain the data used to calculate surplus capacity. *See* CX-3930C (Martin RWS) at Q/A 33.

Moreover, respondents have not identified source code from a prior art single-link network system (or shown testing from such a system). *Id.* Indeed, respondents have not been able to obtain source code for a prior art system that disclosed "checking, via the access control function, without further interrogations at internal transmission nodes of the communications network, whether the use of the service is permitted." *Id.*

4. Secondary Considerations

As discussed above, objective evidence, also known as "secondary considerations," includes commercial success, long felt need, and failure of others. *Graham*, 383 U.S. at 13-17 (1966); *Dystar*, 464 F.3d at 1361. "[E]vidence arising out of the so-called 'secondary considerations' must always when present be considered en route to a determination of obviousness." *Stratoflex*, 713 F.2d at 1538. Nevertheless, secondary considerations, such as commercial success, will not always dislodge a determination of obviousness based on analysis of the prior art. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. at 426 (commercial success did not alter conclusion of obviousness).

Yet, the parties, and especially complainant, presented no argument or evidence concerning secondary considerations. The subject is absent from their posthearing briefs, and from the Joint Outline.[14] Consequestly, the administrative law judge concludes that secondary considerations would have no affect on an obviousness determination, especially if any asserted claim were found to be invalid.

V. U.S. Patent No. 7,895,305

United States Patent No. 7,895,305 ("the '305 patent), entitled "Web-based management engine and system," issued on February 22, 2011, to named inventors Richard Beton, and Robert Hancock. JX-0002 ('305 Patent). The '305 patent issued from Application No. 10/416,006, filed on October 27, 2003. *Id.* The '305 patent relates

[14] In reviewing the record, the administrative law judge notes that there is evidence that the '853 patent was distinguished over the prior art, particularly Scholefield. That evidence, however, was not developed by complainant into an argument relating to a *Graham* factor, such as long felt need or failure of others.

to "a Web-based management engine and system of the type used to monitor and/or control the operation of a network entity, for example, a server or a network router." JX-0002 ('305 Patent) at 1:4-7. The '305 patent has a total of 17 claims. Complainant asserts apparatus claims 1 and 8 of the '305 patent.

As discussed below, the evidence shows that (1) the asserted claims are not infringed by the accused products; (2) complainant has not satisfied the technical prong of the domestic industry requirement; and (3) the asserted claims are not invalid.

Asserted apparatus claims 1 and 8 of the '305 patent read as follows:

> **1**. A Web-based management engine for a network entity, comprising:
>
> an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;
>
> a data store storing data relating to a procedure for managing the at least one operational parameter of the network entity;
>
> a Web server that provides an interactive environment to manage the at least one operational parameter of the network entity, and
>
> an interface that communicates values of the at least one operational parameter between the Web server and the intelligent agent in accordance with the predetermined data structure,
>
> wherein the Web server provides the interactive environment using the Web pages ***generated by a Web page generator***, the Web page generator that generates a ***set of linked Web pages in response to a request to carry out a procedure***, wherein each Web page of the set of linked Web pages being based upon the data stored in the data store and corresponding to at least one step in the procedure to manage the at least one operational

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parameter of the network entity,

wherein the interface uses the stored data relating to a procedure for managing the at least one operational parameter of the network entity to generate a determination result indicating whether information retrieved using a form provided on the set of linked Web pages conforms to a rule relating to the procedure to manage the at least one operational parameter of the network entity, and wherein the interface communicates values to the intelligent agent based on the information retrieved from the form in response to the determination result indicating conformance.

8. A Web-based management system comprising a Web-based management engine comprising:

an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;

a data store storing data relating to a procedure for managing the at least one operational parameter of the network entity;

a Web server that provides an interactive environment to manage the at least one operational parameter of the network entity, and

an interface that communicates values of the at least one operational parameter between the Web server and the intelligent agent in accordance with the predetermined data structure,

wherein the Web server provides the interactive environment using the Web pages generated by a Web page generator, the Web page generator generating a set of linked Web pages in response to a request to carry out a procedure, wherein each Web page of the set of linked Web pages being based upon the data stored in the data store and corresponding to at least one step in the procedure to manage the at least one operational parameter of the network entity, and

wherein the interface uses the stored data relating to the procedure for managing the at least one operational parameter of the network entity to generate a determination result indicating whether values to be communicated to the intelligent agent from the Web server conform to a rule relating to the procedure for managing the at least one operational parameter of the network entity, and

wherein the interface communicates values from the Web server to the intelligent agent in response to the determination result indicating conformance.

JX-0002 ('305 Patent) at 5:34-6:3, 6:30-67 (emphasis added).

A. Claim Construction

1. A Person of Ordinary Skill in the Art

Respondents argue:

> The relevant time period for the '853 Patent is March 2000 based on the Foreign Application DE10014522, filed March 23, 2000. JX-0003.0003. The relevant time period for the '305 Patent is November 7, 2000 based on the Foreign Application GB0027106.4, filed November 7, 2000. JX-0002.0003. The relevant time period for the '677 Patent is March 2002 based on the Foreign Application EP02006022, filed November March 15, 2002. JX-0004. As to all three patents, those of ordinary skill in the art during the relevant period would have had at least an undergraduate degree in Electrical Engineering or Computer Science and four or more years of experience in networking, or a Master's degree in Electrical Engineering or Computer Science and two or more years of experience in networking. RX-1195C.0005. Q3 proposes that a person of ordinary skill in the art "would have had an undergraduate degree in electrical or computer engineering (or a related field) and approximately two years of work experience in the field of networking." CX-3930C.0005-6 at Q/A 10. Under either proposed level of ordinary in the art for the Asserted Patents, the arguments and conclusions are the same.

Resps. Br. at 14.

Complainant does not provide a definition of a person of ordinary skill in the art in its brief. *See* Joint Outline at 3 (citing Compl. Br. at 130). The cited page merely discusses a disputed claim term. *See* Compl. Br. at 130. However, as noted above in

respondents' argument, "Q3 proposes that a person of ordinary skill in the art 'would have had an undergraduate degree in electrical or computer engineering (or a related field) and approximately two years of work experience in the field of networking'." Resps. Br. at 14 (citing CX-3930C (Martin RWS) at Q/A 10).

As seen above, the parties mostly agree on this issue. As proposed by the parties, the undersigned agrees that some combination of education and experience is the appropriate level of ordinary skill. The administrative law judge finds that a person of ordinary skill in the art with respect to the '305 patent is a person would have had at least an undergraduate degree in Electrical Engineering or Computer Science (or a related field) and two to four years of experience in networking, or a Master's degree in Electrical Engineering or Computer Science (or a related field) and two or more years of experience in networking.

2. Agreed Claim Term

The parties agree on the construction of the following claim term.

Claim Term	Agreed Proposed Construction
"network entity" (claims 1, 8)	"device which is capable of being interconnected by network interconnects to form part of an information technology network"

See Compl. Br. at 171; Resps. Claim Constr. Br. at 33.

The administrative law judge has determined to adopt the parties' proposed construction for the claim term "network entity."

3. "generated by a Web page generator"

Below is a chart showing the parties' proposed claim constructions.

Claim Term	Complainant's Proposed Construction	Respondents' Proposed Construction
"generated by a Web page generator" (claims 1, 8)	No Construction Necessary	"created by a Web page generating unit that is not a Web Server or part of a Web Server"

See Compl. Br. at 129-33; Resps. Claim Constr. Br. at 48-52.

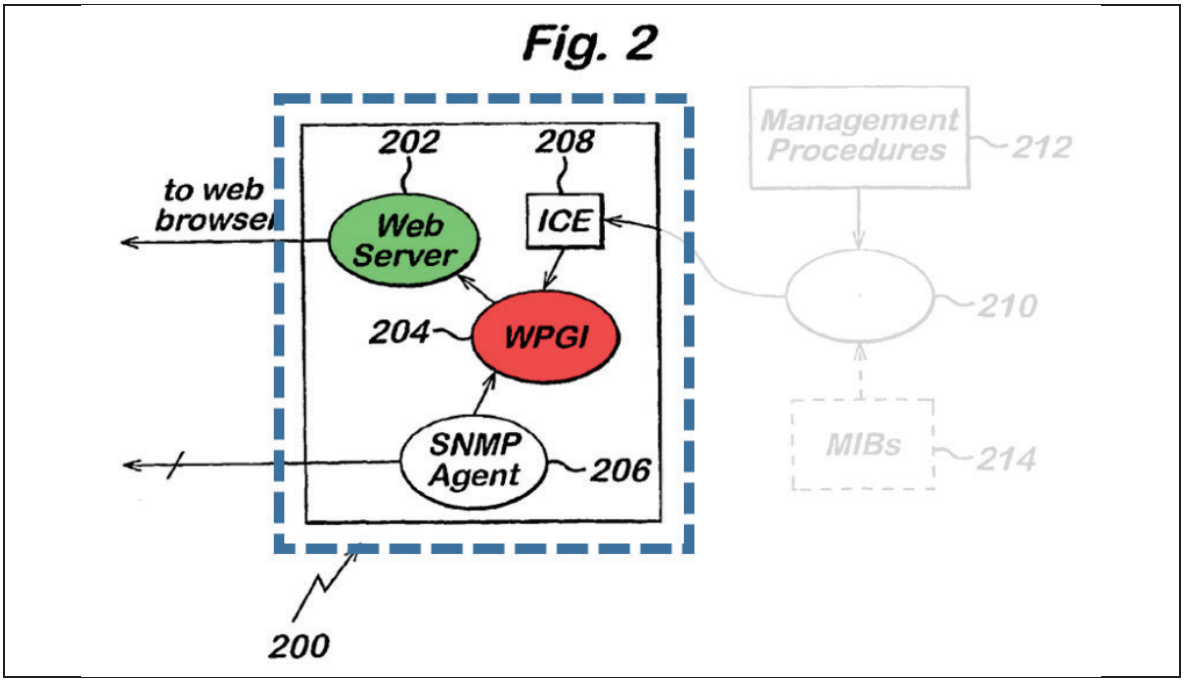
For the reasons discussed below, the administrative law judge has determined that the claim term "generated by a Web page generator" should be construed to mean "created by a Web page generating unit that is not a Web Server or part of a Web Server."

The parties dispute whether the term "generated by a Web page generator" should be construed. Respondents' construction establishes the proper scope of this disputed claim term by distinguishing the "Web page generator" from the Web server in a manner consistent with the intrinsic evidence and ordinary meaning of the term. Complainant seeks to expand the term to cover the Web server and other recited components of the claimed web-based management engine, thereby eliminating the very limitation that was key to the '305 patent's issuance in the first place.

A correct reading of the '305 patent claims makes clear that claim 1 and 8's "web page generator" is separate and distinct from the "web server." The specification describes two different embodiments of the web page generator and web server: one where the two are separate, and another where the two are combined into an "adapted web server." Claims 1 and 8 recite the former, while unasserted claim 15 recites the latter.

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Figure 2 and its accompanying text describe the embodiment recited in claims 1 and 8, where the web page generator (WPGI unit 204; colored ***red*** below) is "a separate independent entity" from that of the web server (Web server 204; colored green below) or any other component of the web-based management engine (200; outlined ***blue*** below):



'305 patent at 3:67-4:2, Fig. 2. This arrangement is distinguished from prior art web-based management systems where the web server retrieved web pages using template web pages:

> One known Web-based management technique comprises a network entity having a Web server in communication with an SNMP agent, the SNMP agent being capable of obtaining data relating to, and modifying data affecting, the behaviour of the network. The ***Web server is arranged to retrieve***, from a store, ***template Web pages*** ("forms") corresponding to procedural steps which need to be taken in order to obtain, and/or modify, data relating to the behavior of the network entity. Data obtained or modified by means of the Web server and the template Web pages are communicated between the Web server and the SNMP agent in the MIB format.

Id. at 1:44-61 (emphasis added). The '305 patent relies on a web page generator separate and distinct from the web server to "provid[e] the automatic generation of Web pages," and uses the web server just to present the web pages generated by the web page generator, which allegedly "permits user-friendly management of a network entity." *Id*. at 2:64-3:5; *see also id.* at 2:1-63.

Alternatively, the specification explains that it may be "conceivable that the WPGI unit 204 can be [sic] form part of the Web server 202." *Id.* at 3:67-4:2. This arrangement is claimed in unasserted claim 15 of the '305 patent. Specifically, independent method claim 15 recites "combining a Web server and web page generator to form an adapted Web server," demonstrating the applicant's intent to treat the "web server" and "web page generator" of claim 1 as two separate and distinct components, which claim 15 then combines "to form an adapted Web server." *See Southwall Techs.*, 54 F.3d at 1579 ("Interpretation of a disputed claim term requires reference not only to the specification and prosecution history, but also to other claims."); *see also e.g.*, *General Elec. Co. v. U. S.*, 572 F.2d 745, 752-53 (Ct. Cl. 1978) ("Significant evidence of the scope of any claim is the language employed in other claims of the same patent."— relying upon two independent claims not at issue to interpret disputed claim term "anti-hunting means" in three independent claims). That respondents' construction results in claim 1 not covering every embodiment described in the specification does not make it incorrect.

The prosecution history likewise confirms that the applicant intended for the disputed claims to cover only the Fig. 2 embodiment. This was the very distinction that the applicant relied upon to distinguish the claimed system from that of the examiner-

cited prior art. *See* Resps. Claim Constr. Br. Ex. 27,[15] Jan. 18, 2008 Office Action Response at 10 ("[T]he Web-based management engine of applicants' claim 1 includes both a Web Server and a Web page generator."), 11-12 ("Stewart does not disclose a Web Server and a Web page generator."). The specification's broader embodiments do not negate a prosecution history that "mandates a narrower construction." *TecSec, Inc. v. IBM Corp.*, 731 F.3d 1336, 1345 (Fed. Cir. 2013).

Finally, respondents' construction also includes the phrase "created by," the plain and ordinary meaning of the phrase "generated by" in the claims. *See, e.g.*, Resps. Claim Constr. Br. Ex. 28, The New Penguin English Dict. (2000) at 582 (defining "generate" as "to bring something into existence; to create it"); Resps. Claim Constr. Br. Ex. 29, Encarta World English Dict. (1999) at 742 (defining "generate" as "create; to bring something into existence or effect."). During prosecution, the applicant intentionally relied upon the term "generated by" to distinguish the claimed web-page generator from examiner-cited prior art that "merely serves previously stored web pages." *See* Resps. Claim Constr. Br. Ex. 30, June 30, 2008 RCE and Office Action Response at 9; Resps. Claim Constr. Br. Ex. 27, Jan. 18, 2008 Office Action Response at 10-12; *Seachange*, 413 F.3d at 1372–73 ("Where an applicant argues that a claim possesses a feature that the prior art does not possess in order to overcome a prior art rejection, the argument may serve to narrow the scope of otherwise broad claim language."). This is also consistent with the specification, which criticizes the prior art approach of using a web server to "retrieve, from a store, template web pages." *See* JX-0002 ('305 Patent) at 1:49-51, 1:61-

[15] The '305 patent prosecution history is also found in JX-0005 ('305 Patent File History).

2:34. Consistent with this intrinsic evidence and the ordinary meaning of the terms, respondents' construction requires that the web page generator create webpages, not just serve previously stored web pages.

4. "set of linked Web pages in response to a request to carry out a procedure"

Below is a chart showing the parties' proposed claim constructions.

Claim Term	Complainant's Proposed Construction	Respondents' Proposed Construction
"set of linked Web pages in response to a request to carry out a procedure" (claims 1, 8)	No Construction Necessary	"plurality of linked Web pages in response to a single request to carry out a procedure"

See Compl. Br. at 133; Resps. Claim Constr. Br. at 52-55.

For the reasons discussed below, the administrative law judge has determined that the claim term "set of linked Web pages in response to a request to carry out a procedure" should be construed to mean "plurality of linked Web pages in response to a single request to carry out a procedure."

The plain language of the term "set of linked Web pages" means a "plurality of linked Web Pages." Nor can there be any dispute that these pages are generated in response to a "request to carry out a procedure," a phrase recited in the limitation itself. The main issue to resolve here is whether the claimed set of linked Web pages are generated in response to one request to carry out a procedure, or multiple requests to carry out a procedure.

The plain language of the claims supports respondents' construction for three reasons. First, the claim language refers to "Web pages" in the plural, not singular, and

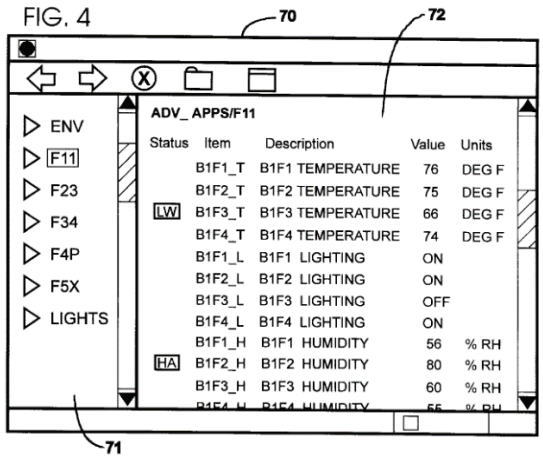
thus requires more than one web page. *See, e.g.*, *Leggett & Platt, Inc. v. Hickory Springs Mfg. Co.*, 285 F.3d 1353, 1357 (Fed. Cir. 2002) ("At the outset, the claim recites 'support wires' in the plural, thus requiring more than one welded 'support wire.'"); *see also Medtronic, Inc. v. Guidant Corp.*, 465 F.3d 1360, 1377 (Fed. Cir. 2006) (holding that "detecting cardiac signals" refers to multiple signals). Second, the claim language describes the "pages" as "linked," which inherently requires multiple pages because a single web page cannot be linked to itself. Third, the claim language uses the plural to refer to the web pages ("set of linked Web pages") and the singular to refer to the request that triggered generation of those claimed pages ("a [singular] request to carry out a [singular] procedure"), confirming that the plurality of web Pages are generated in response to a single, or individual, request.

The Federal Circuit's decision in *Harari v. Lee* is particularly instructive. The disputed claim in that case recited "a *method* comprising accessing a *number* of control gates and *a* bit line to activate a *number* of cells." *Harari v. Lee*, 656 F.3d 1331, 1341 (Fed. Cir. 2011) (emphasis in original). The Court held that the "the plain language of the claim clearly indicates that only a single bit line is used when accessing a number of cells." *Id*. Like the disputed claim in *Harari*, the disputed claims here require that generating the "set of linked generated" in response to "a" single request, not multiple requests.

Further, the prosecution history for the '305 patent supports respondents' proposed construction. To differentiate the claims from the examiner-cited prior art (Meyer), the applicant argued that the web-page generator does not "generat[e] individual

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web-pages in response to individual requests," but rather generates a plurality of linked Web pages in response to a single request:

Applicant's Statement	Fig. 4 of Meyer
Meyer is clear that a ***single Web page is generated in response to a single request*** and a linked page is not generated until that link is selected. This is consistent with the example provided by Meyer in connection with FIG. 4 …. In this example a Web page is generated and when the user selects "F11" a new web page is generated. This single Web page generation does not involve ***a set of linked web pages in response to a request to carry out a procedure*** as recited in claim 1.	

Resps. Claim Constr. Br. Ex. 32, July 15, 2010 Pre-Appeal Br. at 2 (emphasis in original). The applicant went on to explain that Meyer only disclosed a 1:1 correspondence between a generated page and a request to carry out the procedure, which is not the claimed invention:

> The cited sections of Meyer do not support this position. Instead, as is clear from the reproduction of column 5, lines 21-25, this section of Meyer discusses creating 'a Web page' in which 'the network data [is displayed] as a table on that page.' There is nothing in this or any other section discussing that ***more than one Web page*** is generated in response to any ***particular*** request.

Id. at 2-3 (emphasis added); *see also* Resps. Claim Constr. Br. Ex. 31, June 16, 2010 Office Action Response at 2 ("[T]here is no indication [in Meyer] that anything other than a single Web page should be generated, and there is certainly nothing in this or any other section of Meyer disclosing or suggesting generating a set of linked Web pages."). In doing so, the applicant disavowed any construction of this limitation that would cover

generating just one page in response to one request to carry out a procedure. *See Rheox, Inc. v. Entact, Inc.*, 276 F.3d 1319, 1325 (Fed. Cir. 2002) ("Explicit arguments made during prosecution to overcome prior art can lead to a narrow claim interpretation because '[t]he public has a right to rely on such definitive statements made during prosecution.'") (citations removed) (alterations in original); *Ekchian v. Home Depot, Inc.*, 104 F.3d 1299, 1304 (Fed. Cir. 1997) ("[B]y distinguishing the claimed invention over the prior art, an applicant is indicating what the claims do not cover.").

Similarly, during prosecution the applicant made clear that the generation of an individual page in response to an individual request, performed multiple times, would not satisfy the claim. Specifically, the applicant explained that the Meyer-based combination (with Ahlstrom) "at best discloses generating individual web pages in response to individual requests:"

> Appellants' claim 1 recites a web page generator generating "a ***set of linked*** Web pages in response to ***a request*** to carry out a procedure." In contrast, the combination of Ahlstrom and Meyer at best discloses generating an individual Web page that contain links in response to a request, and then generating another individual Web page when one of the links is selected.

Resps. Claim Constr. Br. Ex. 32, July 15, 2010 Pre-Appeal Br. at 1 (underline emphasis added). Thus, generating a single page in response to a single request, but doing so multiple times, still does not satisfy the claim. Consistent with the prosecution history, respondents' construction makes clear the entire set of linked webpages must be generated in response to a single request.

Complainant seeks to broaden the plain language of the claim and contravene its prosecution disclaimers by reading the claim on the generation of a single page in

response to a single request to carry out a procedure. *See Southwall Techs.*, 54 F.3d at 1576 ("Claims may not be construed one way in order to obtain their allowance and in a different way against accused infringers."). Further, prosecution disclaimer precludes complainant from "recapturing through claim interpretation specific meanings disclaimed during prosecution." *See Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1323 (Fed. Cir. 2003). The "set of linked Web pages" limitation must therefore be construed to mean a generating a "plurality of linked Web pages in response to a single request to carry out a procedure."

B. Infringement Analysis of the '305 Patent

As discussed above, complainant asserts apparatus claims 1 and 8 of the '305 patent.

Complainant argues that HPE, CommScope and NETGEAR accused products directly infringe the asserted apparatus claims of the '305 patent. *See* Compl. Br. at 133-70; Compl. Reply Br. at 38-51. Respondents disagree. *See* Resps. Br. at 98-136; Resps. Reply Br. 28-43.

1. Accused Products

Complainant argues:

> The HPE Products that infringe the '305 Patent are the same HPE products that infringe the '677 Patent, as listed above, in Section I.E.1. Likewise, the CommScope Products that infringe the '305 Patent are the same as those listed in Section I.E.1, in addition to the following CommScope controllers: ZoneDirector 1200, vSZ-E, vSZ-H, vSZ-D, SZ100, SZ300, and substantially similar products. The NETGEAR products that infringe the '305 Patent include NETGEAR's: WAC720-100NAS and WAC730-100NAS and substantially similar products; and WC9500, WC7600, WC7500 and substantially similar products.

Compl. Br. at 9-10.

Respondents argue:

HPE

….Q3 alleges that the Aruba APs and controllers (7205, 7210, 7220, 7280, 7240XM, 7005, 7008, 7010, 7024, 7030, 9004, and 9000) infringe the '677 and '305 Patents. *Id.* at Q/As 291, 542.

NETGEAR

….Q3 alleges the NETGEAR APs (WAC720-100NAS and WAC730-100NAS) and controllers (WC9500, WC7600, WC7500) infringe the '305 Patent. *Id.* at Q/A 618.

COMMSCOPE

….Q3 alleges that the Ruckus APs and CommScope controllers (ZoneDirector 1200, vSZE, vSZ-H, vSZ-D, SZ100, SZ300) infringe the '305 Patent. *Id.* at Q/A 595.

Resps. Br. at Appendix A.

Thus, the parties' arguments show that for the '305 patent, (1) HPE accused products are Aruba APs (AP11, AP11D, AP12, AP15 AP17, AP22, AP-303, AP-303P, AP-304, AP-305, AP-314, AP-315, AP-320, AP-324, AP-325, AP-334, AP-335, AP-344, AP-345, AP-504, AP-505, AP-514, AP-515, AP-534, AP-535, AP-555, AP-318, AP-518, AP-203H, AP-303H, AP-505H, AP-365, AP-367, AP-374, AP-375, AP-377, AP-387, AP-565, AP-567, AP-574, AP-575, AP-577, AP-203R, AP-203RP, AP-303HR) and controllers (7205, 7210, 7220, 7280, 7240XM, 7005, 7008, 7010, 7024, 7030, 9004, and 9000); (2) NETGEAR accused products are NETGEAR APs (WAC720-100NAS and WAC730-100NAS) and controllers (WC9500, WC7600, WC7500); and (3) CommScope accused products are Ruckus APs (C110; E510; H320; H510; M510; R310; R320; R510; R550; R610; R650; R710; R720; R730; R750; R850; T305; T310c; T310d; T310n; T310s; T300e; T610; T610s; T710; T710s; T750; T811; 7781-CM; P300) and

CommScope controllers (ZoneDirector 1200, vSZE, vSZ-H, vSZ-D, SZ100, SZ300).

2. Direct Infringement

Complainant argues that the HPE accused products infringe claims 1 and 8 of the '305 patent:

> The evidence has shown that the HPE Products infringe claims 1 and 8 of the '305 Patent. *See generally* CX-3846, Madisetti WS at Q/A 541-593. Q3's expert, Vijay Madisetti, analyzed the HPE Products, and he found them to meet all the limitations of claims 1 and 8 of the '305 Patent. *Id.* The HPE Products are the same products as accused of infringing the '677 Patent. *Id.* at Q/A 543. The evidence discussed in relation to the HPE Products for the '677 Patent including for example identifying these products, their documents, their features, their ArubaOS operating system, also applies to the '305 Patent. *Id.*

Compl. Br. at 133-34; *see id.* at 134-50.

Complainant argues that the CommScope accused products infringe claims 1 and 8 of the '305 patent:

> The evidence has shown that the CommScope Products infringe claims 1 and 8 of the '305 Patent. *See generally* CX-3846, Madisetti WS at Q/A 594-617. Q3's expert, Dr. Madisetti, analyzed the CommScope Products, and he found them to meet all the limitations of claims 1 and 8 of the '305 Patent. *Id.* The CommScope Products are the same products as accused of infringing the '677 Patent (*Id.* at Q/A 596) plus the following CommScope controllers: ZoneDirector 1200, vSZ-E, vSZ-H, vSZ-D, SZ100, SZ300, and substantially similar products. Those products are collectively the "CommScope Products" for this '305 Patent section.
>
> The evidence discussed in relation to the CommScope Products for the '677 Patent including for example identifying these products, their documents, their features, their source code, also applies to the '305 Patent. *Id.*

Compl. Br. at 150; *see id.* at 150-61.

Complainant argues that the NETGEAR accused products infringe claims 1 and 8 of the '305 patent:

> The evidence has shown that the NETGEAR 305 Products infringe claims 1 and 8 of the '305 Patent. *See generally* CX-3846, Madisetti WS at Q/A 618-642. Q3's expert, Dr. Madisetti, analyzed the NETGEAR 305 Products, and he found them to meet all the limitations of claims 1 and 8 of the '305 Patent. *Id.*
>
> The evidence has shown that at least the following NETGEAR Access Points infringe the '305 Patent: WAC720-100NAS and WAC730-100NAS and substantially similar products ("NETGEAR 305 Access Points"). *Id.* at Q/A 618. NETGEAR also provides the following infringing controllers: WC9500, WC7600, WC7500, and substantially similar products (the "NETGEAR Controllers"). *Id.* The NETGEAR Controllers and NETGEAR 305 Access Points are collectively the "NETGEAR 305 Products." *Id.*
>
> The NETGEAR 305 Products are a subset of the products accused of infringing the '677 Patent. *Id.* at Q/A 619. The evidence discussed in relation to the NETGEAR 305 Products for the '677 Patent including for example identifying these products, their documents, their features, and their source code, also applies to the '305 Patent. *Id.*

Compl. Br. at 161; *see id.* at 162-70.

Respondents disagree. *See* Resps. Br. at 98-136.

* * *

For the reasons discussed below, the evidence shows that the asserted '305 patent claims are not infringed by the accused products.

a. "web-based management engine"

1[p], 8[p]	A web-based management engine for a network entity, comprising

The parties do not dispute that the preamble limits the asserted '305 patent claims to a "web-based management engine for a network entity," not just anything capable of managing a network entity. *Compare* CX-3846C (Madisetti WS) at Q/A 554, 600, 627 *with* RX-0863C (Min RWS) at Q/A 16. Nor is there any dispute that, even if it is not limiting, the preamble still recites an apparatus, an "engine," that must "compris[e]" the

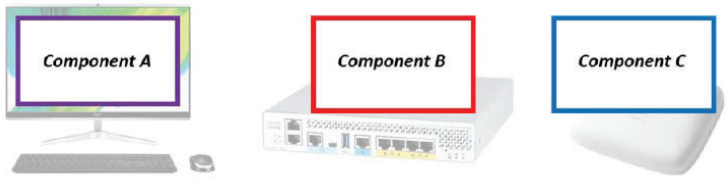
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claimed components, namely an "intelligent agent," "data store," "Web server," "interface," and "web page generator." *Compare* CX-3846C (Madisetti WS) at Q/A 554, 600, 627 *with* RX-0863C (Min RWS) at Q/A 16.

The only dispute is whether every component of the claimed "web-based management engine" must reside on the same device, as respondents argue, or whether those components can be spread across multiple devices, as complainant argues for purposes of infringement. Indeed, to satisfy the technical prong of the domestic industry requirement, complainant argues that the "Redacted in Public Version" on certain RuggedCom devices practices this limitation where every component of that engine resides on a single device, *e.g.*, the RX1400 shown on the left below. Complainant combines software components from one type of accused product (controller) with certain components from a different type of accused product (access point) into a "system" that also includes a browser not provided by any of the respondents.

Complainant's Inconsistent Application of the Term "Engine"

Domestic Industry	*Infringement*
	

For each respondent, the software components that complainant maps to the claimed components of the web-based management engine are spread across multiple devices:

For HPE, the alleged intelligent agent (Redacted in Public) resides on the access points; but alleged interface (Redacted in Public) and web server both reside on the controllers, and the alleged

web page generator (Redacted in Public) executes on the browser (not provided by HPE). *See* RDX-0020C.0096 (Paul Min Demonstratives).[16]

For NETGEAR, the alleged intelligent agent and web server reside on controllers; but alleged interface (Redacted in Public Version) and alleged web page generator (Redacted in Public Ver) execute on browser (not provided by NETGEAR). *See* RX-0863C (Min RWS) at Q/A 26.

For CommScope, the alleged intelligent agent (Redacted in Public Version) and web server reside on the controllers; but the alleged interface (Redacted in Public Version) and the alleged web page generator (Redacted in Public Ver) execute on the browser (not provided by CommScope). *See* RX-0863C (Min RWS) at Q/A 28.

As discussed below, complainant's infringement position is wrong for multiple reasons.

First, complainant's interpretation of "engine" captures any random collection of software for a network entity, rendering the claim term "engine" meaningless. However, "engine" does not just mean "software." It has its own meaning. "Engine" is a term frequently used by those skilled in the art to refer to the core software component responsible for performing a specific function. Dr. Min confirmed at the hearing that "Engine is something that does something very specific, like a network management engine. That's an engine that does network management." *Id*. Dr. Min explained that "engine is [a] term that I use in my own work a lot," including "a content search engine"

[16] Notably, the accused HPE access points Redacted in Public Version identified and relied upon by Dr. Madisetti. The Instant Access Points have a Redacted in Public Version which is not addressed by complainant. The Campus APs Redacted in Public Version. They are Redacted in Public Version. *See* RX-0863C (Min RWS) at Q/A 24.

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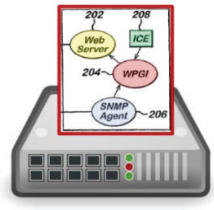
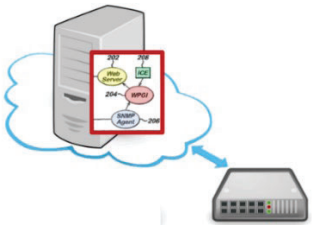
and a "protocol off-load engine," and that "[t]hese are terms that we use as a people in the field." Min Tr. 694-695.

Although complainant's infringement expert, Dr. Madisetti, did not opine on this issue, complainant's invalidity expert, Dr. Martin, testified that "the word 'engine' is a term that's often used in computer science" and that he too has used it to describe a software component that performs a specific function. *See* JX-0189C (Martin Dep. Tr.) at 279, 263-264. For example, Dr. Martin "refer[s] to the component that does the analysis" in his Redacted in Public Version as the "engine." *See* JX-0189C (Martin Dep. Tr.) at 263-264, 276 ("I chose the word 'engine' because it felt like it appropriately described Redacted in Public Version you know, analysis component."). Indeed, Dr. Martin uses the term "engine" when referring to the "analysis component" in his Redacted in Public Version product to avoid "confusion" because "everyone can understand what I'm talking about when I say engine." *Id*.

Second, complainant's infringement position contradicts the plain and ordinary meaning of the term "engine." According to Dr. Min, a person of ordinary skill would understand the plain and ordinary meaning of "engine" to be the core mechanism driving a device, every component of which must reside on that singular device. *See* RX-0863C (Min RWS) at Q/A 19. This is consistent with Dr. Martin's meaning of the term "engine" when he described the "analysis component" of his Redacted in Public Version product. *See* JX-0189C (Martin Dep. Tr.) at 286 ("all the modules for [the] engine [of the Redacted in Public Version product] run on the same virtual machine"). Indeed, while there are no formal guidelines for what should be called an engine in the software industry, computer scientists like Dr. Min commonly use a car engine as a metaphor to

explain what's "under the hood" of a particular device. *See* RX-0863C (Min RWS) at Q/A 19 (discussing RDX-0020C.0095 (Paul Min Demonstratives)); JX-0189C (Martin Dep. Tr.) at 280-281 (Dr. Martin confirming that "the word 'engine' is used to convey the fact that it does work."). As every component of a car's engine resides in a single car and not spread across multiple cars, a person of ordinary skill would understand that the components of the claimed engine must also reside on the same network device and not spread across multiple network devices. *Id*. Otherwise, the ability to drive one network device would depend on whether the other network devices (those hosting the remaining parts of the claimed engine) are connected to the same network, and whether they are operating. *Id.*

Third, complainant's infringement position contradicts the '305 patent, which discloses that, in the preferred embodiment, "the Web-based management engine is located within the network entity 102." *See* JX-0002 ('305 Patent) at 3:63-64. While the '305 patent discloses that the "Web-based management engine can be remotely located from the network entity" (JX-0002 ('305 Patent) at 3:65-67), it never teaches spreading the components of that engine across multiple network entities, as complainant argues. The '305 patent teaches placing the claimed components within the solid line defining the boundary of the web-based management engine (***red***), whether that engine is "located within the network entity" or "remotely located from the network entity."

Engine Located within Network Entity	Engine Remotely Located From Network Entity
	

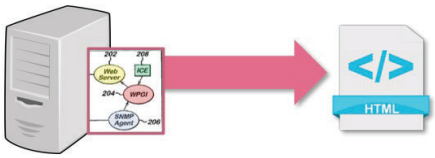
Indeed, when testifying about that same sentence during cross-examination, Dr. Min made clear that the sentence just says that "the whole thing [web-based management engine] can be within that network entity 102 or some other thing, server, dedicated computer, or another network entity"; "It doesn't say part of it is any one place and [the] other part of it is [in] another place." Min Tr. 696-697 (Dr. Min: "But [] the second part of this sentence you highlighted, starting from line 65, that the Web-based management engine can be located remotely, it doesn't say a part of it is. The whole thing can be somewhere else."). Regardless of whether the engine is within the network entity or remotely located from the network entity, every component of that engine must reside in the same device. *See* RX-0863C (Min RWS) at Q/A 20.

b. "web page generator"

1[5], 8[5]	"wherein the web server provides the interactive environment using the web pages generated by a web page generator, the web page generator that generates a set of linked web pages in response to a request to carry out a procedure, wherein each web page of the set of linked web pages being based upon data stored in the data store and corresponding to at least one step in the procedure to manage the at least one operational parameter of the network entity"

The claims require an "engine" with a "web page generator that generates a set of linked web pages in response to a request to carry out a procedure." It is undisputed,

however, that the accused products provide the web user interface ("webUI") using prewritten, stored web pages, *i.e.*, web pages that are manually written by an engineer(s) before the devices are manufactured and then stored on each device during the manufacturing process. *See* RX-1210C (Min SWS) at Q/A 11. However, using web pages that were "custom-written manually" before the device's software was built was what the '305 patent allegedly obviated by providing a "web-based management engine" on the device itself that "provid[es] automatic generation of web pages" using a "web page generator." JX-0002 ('305) at 1:55-67, 2:64-3:7.

Prior Art Manually Written Web Pages	Claimed Web-Page Generation
	

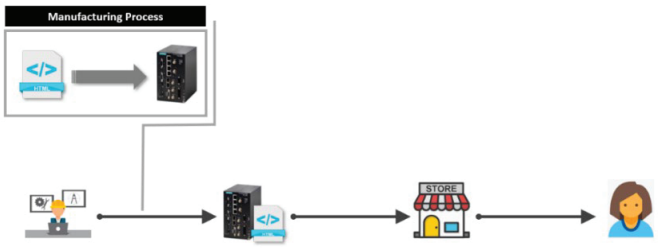
The parties' principal dispute is whether this limitation requires that the alleged web page generator on the accused products create or otherwise bring into existence a new web page, as respondents argue, or whether it may be satisfied by serving prewritten, stored web pages that were manually written offline, as complainant argues. As discussed below, the accused products do not practice this limitation under either party's proposed constructions.

i. "generates a set of linked web pages in response to a request to carry out a procedure"

Unlike the "web page generator" of the claimed "web-based management engine," the accused products use prewritten, stored web pages that were manually written by a software engineer, before the accused products are even manufactured. *See*

RX-1210C (Min SWS) at Q/A 11. The tools used by the software engineer to write the web page(s) do not execute (or even reside) on the accused products. Rather, those tools reside on the software engineer's computer and are manually run by the engineer once as part of the software development process, *i.e.*, prior to starting the Web Server of the accused products. *Id.* Once manually written offline, the .HTML file(s) are then placed on every accused product as part of the manufacturing process.

Writing Web Pages Offline, Before Device Is Even Manufactured



The web pages are not generated by a "web page generator" on the accused products. Rather, the web pages are manually written by an engineer before the product is even manufactured.

Complainant's infringement position contradicts the plain meaning of the claims. Indeed, complainant's own expert, Dr. Paul Martin, admitted that the term "generate" web pages means create web pages that did not previously exist, not serve prewritten, stored web pages:

> **Q:** When you say generating it, you mean that it's created on the spot, not prestored?
>
> **A:** ***If something is pre-stored, it is not generated*** by that thing, sure.
>
> . . . . .
>
> **Q:** Is that also your understanding of the meaning of the claim term generates a set of linked web pages?
>
> **A:** ***Created*** by it at some point, sure.

JX-0189C (Martin Dep. Tr.) at 443 (emphasis added). As Dr. Martin admitted, if something "created the HTML files that were referenced here, then it would, by definition, have generated them, that is tautology." *Id*. at 455; *id*. 444 (Dr. Martin: "when we're talking about Cybercore generating something, that means that Cybercore 650 needs to have created it at some point."), 445 (Dr. Martin: "If Cybercore 650 created the web pages, it generated them, sure.").

Complainant's infringement position also contradicts the prosecution history, where applicants had to make multiple narrowing amendments over the course of six office action responses and an appeal brief. For instance, the applicants expressly distinguished the claimed "web page generator" that generates web pages from the Sawyer prior art "web server that provides ***stored web pages***," which "merely serv[es] ***previously stored web pages***" that were "custom written manually." JX-0005.0194 ('305 Patent File History) (emphasis added). According to the applicants, the claimed engine "avoids this manual process by providing a web page generator that generates web pages ***based on data stored in the data store***." JX-0005.0193 ('305 Patent File History) (emphasis added); RDX-0020C.0133 (Paul Min Demonstratives). The accused products use the same "conventional web-based management techniques" as Sawyer—namely, a web server that "serv[es] previously stored web pages." *See* RX-0863C (Min RWS) at Q/A 145, 147 (HPE), 162 (NETGEAR), 174 (CommScope); JX-0005.0195 ('305 Patent File History) ("[Sawyer] at most discloses a web server that provides stored web pages in response to HTTP requests.").

Further, unlike the claimed web page generator, the accused products cannot generate web pages "in response to a request to carry out a procedure," let alone generate

those web pages "based on the data stored in the data store," as claimed. Complainant argues that the "request to carry out a procedure" is when person opens the webUI (*e.g.*, uses a browser to connect to the accused product). *See* CX-3846C (Madisetti WS) at Q/A 582, 612, 639. However, as explained above, the accused web pages were written in the back office before a customer accesses the webUI, and therefore they cannot be "generated" later, "in response to a request to carry out a procedure" of a user opening the webUI. *See* RX-0863C (Min RWS) at Q/A 145-146, 154-155, 161-162, 168-169, 173-174, 180-181.

ii. JavaScript Executing on the Browser

Complainant argues that the alleged web page generator is "the code that generates the WebUI," which includes certain JavaScript (*.js file) executing on the browser. *See* CX-3846C (Madisetti WS) at Q/A 639 (NETGEAR: alleging that the web page generator is the "Redacted in Public Ver" file); 612 (same for CommScope); 584 (HPE: alleging that the web page generator is the "Redacted in Public" file). Complainant does not explain how JavaScript "generates" a web page by modifying an existing HTML file.

First, the Accused NETGEAR Products do not have any JavaScript file called "Redacted in Public Ver." Dr. Madisetti incorrectly testified in his witness statement that the Redacted in Public Ver file on the accused NETGEAR products generates web pages, when in reality no such file exists on the NETGEAR source code computer. *See* CX-3846C (Madisetti WS) at Q/A 639; CX-3847C (Jones WS) at Q/A 137-38. Dr. Madisetti never reviewed any source code on a source code computer. He only reviewed printouts of the source code, and Redacted in Public Ver does not appear in any printouts of NETGEAR source code. Complainant's source code expert, Mr. Jones, did not discuss the Redacted in Public Ver file in his expert report or

witness statement. During cross examination, Dr. Madisetti repeated his testimony at the hearing:

> Q. And you personally confirmed that that [Redacted in Public Ver] file was -- was saved in the directory as you -- as you described in your witness statement?
>
> A. The directory?
>
> Q. Yeah, did you look at that code and see what was -- what was there?
>
> A. I verified -- I verified what the code did. For example, I described --
>
> Q. How did you verify what that code did?
>
> A. I reviewed Dr. -- Mr. Jones' report. And I believe I reviewed the code as well.

Madisetti Tr. 240; 237 (Dr. Madisetti: "So what I say is that the code that generates the WebUI through this [Redacted in Public Ver] file. And then it generates multiple linked pages."); 239 ("Q. Well, are you -- are you relying on Dr. Jones' review of the [Redacted in Public Ver] file? A. No, but I'm not sure I answered your question.").

Second, JavaScript does not generate web pages. Complainant offers an alternative theory that sending data to a browser which is inserted into a preexisting page by JavaScript satisfies this limitation. This is not the case. Rather, and separate from serving the prewritten, stored web pages, the web server on the accused products can also send the browser unstructured data which can be processed by JavaScript executing on the browser for display. *See* RX-0863C (Min RWS) at Q/A 147. However, such unstructured data is not a "web page." *Id.* at Q/A 164, 177.

Complainant's source code expert, Mr. Jones, differentiated between generating a web page and inserting data into an existing web page in the same way as Dr. Min:

> **Q**: And so [] when a user clicks on an [Redacted in Public Version] to trigger [Redacted in Pu], the [Redacted in Public Version] ***isn't generating a new html file***; it's inserting the response body into an ***existing html file***?

A: I believe that's the way it works.

JX-0187C (Jones Dep. Tr.) at 313-314 (emphasis added); *compare* CX-0682C.0058 *with* RX-1210C (Min SWS) at Q/A 21; RDX-0020C.0139-141 (Paul Min Demonstratives). Thus, the accused products do not generate a web page in response to a "request to carry out a procedure," as claimed. They can only (1) serve pre-written, stored HTML files and/or (2) send unstructured data to JavaScript that can render it for display. *See* RX-1210C (Min SWS) at Q/A 11, 23.

Finally, complainant's argument that modifying an existing web page is the same as generating a new web page, would recapture subject matter that the applicants disavowed during prosecution of the '305 patent. *See* JX-0005.0194-0195 ('305 Patent File History); RX-1210C (Min SWS) at Q/A 25. Indeed, just like the accused products, the network management station 103 of Sawyer includes a web server 503, and Sawyer teaches that "[t]he [web] server 503 stores [the] web pages 507" that rendered by browser. *See* RX-0262 at 3:16-17, 3:31-32; *see also* RX-1210C (Min SWS) at Q/A 25. Just like the accused products, after "the network management station 103 creates an HTTP request for the managed device 101, step 301," Sawyer teaches that the HTTP request "is relayed to the web server 215, step 302," upon which "[t]he web server 215 [] generates an SNMP request for forwarding to the managed device 101 in order to get data to fulfill the HTTP request." *See* RX-0262 at 3:35-45; RDX-0020C.0144 (Paul Min Demonstratives); RX-1210C (Min SWS) at Q/A 25. Upon receiving the data from the managed device 101, Sawyer teaches that the web server 215 will "uses the data in the SNMP response" to modify the stored web page and "forwards the resulting HTTP web page to the managed device 101, step 305," which will then "forward the HTTP web

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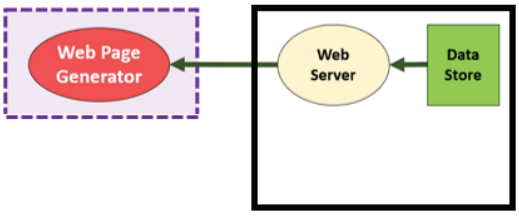
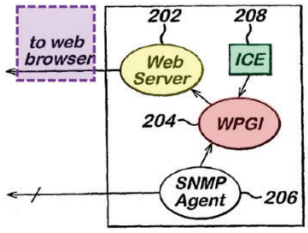
page to the management station 103, step 306, where it is displayed for the user, step 307." RX-0262 at 3:48-54; *see also* RX-1210C (Min SWS) at Q/A 25.

Even if modifying an existing web page were the same as generating a web page, the accused products still would not satisfy this limitation for at least two reasons.

First, the alleged web page generator of the accused products does not modify "a set of linked web pages." *See* RX-1210C (Min SWS) at Q/A 28. For NETGEAR and CommScope, the accused products Redacted in Public Version, and the web server Redacted in Public Version, *i.e.*, when the user first launches the WebUI from the browser. *See* RX-0863C (Min RWS) at Q/A 107 (NETGEAR), 111 (CommScope). Afterwards, the accused products Redacted in Public Version. *See* RX-1210C (Min SWS) at Q/A 11. While the accused HPE products include Redacted in Public Version, the web server Redacted in Public Version Thereafter, the web server Redacted in Public Version *Id.*; *see also* RX-0863C (Min RWS) at Q/A 152. The evidence shows that the alleged web page generator of the accused products would only modify a single web page, whereas the web page generator of the claimed web-based management engine "generates a set of linked web pages in response to a request to carry out a procedure." RX-0863C (Min RWS) at Q/A 151-152 (HPE), 164-166 (NETGEAR), 176-178 (CommScope). Dr. Min illustrated this distinction in RX-1210C (Min SWS) at Q/A 22-25.

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Second, the alleged web page generator of the accused products would only modify a web page after that web page is sent by the web server to the browser, which cannot satisfy the claim's requirement that the web page generator generate the web pages before they are sent by the web server to the browser. *See* RX-0863C (Min RWS) at Q/A 98-99. Specifically, the asserted '305 patent claims require "the Web Server provides the interactive environment using the web pages generated by the web page generator," which means that the web server must serve "generated" web pages. *See* RX-0863C (Min RWS) at Q/A 98. Dr. Min explained that a person of ordinary skill would understand from the claims that the web pages must be "generated" before they are sent from the web server (***yellow*** *below*) to the browser (***purple***), which is consistent with the '305 patent specification. *See* RX-0863C (Min RWS) at Q/A 99; RDX-0020C.0107 (Paul Min Demonstratives).

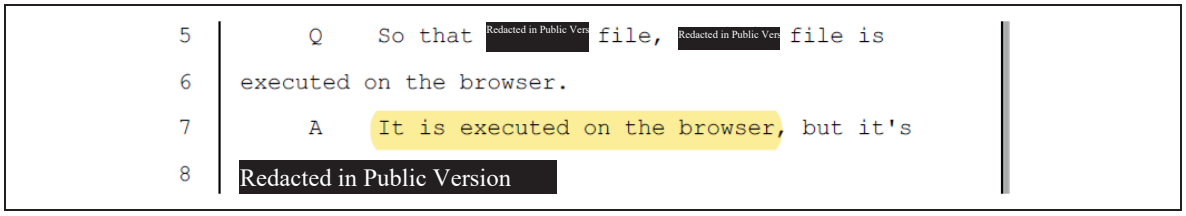
Complainant's Infringement Position	'305 Patent
	

Thus, even if the JavaScript file sent from the accused products to the browser could generate a set of linked web page by modifying an existing web page, that JavaScript file still cannot be the claimed web page generator because it only executes on the browser, *i.e.*, after the web server provides the web pages to the browser. *See* RX-0863C (Min RWS) at Q/A 98.

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Complainant tried to create a factual dispute by having its expert Dr. Madisetti testify for the first time at the hearing that the JavaScript files execute on the accused controllers (Madisetti Tr. 232), despite admitting at his deposition that those same JavaScript files execute on the browser:



Q So that Redacted in Public Vers file, Redacted in Public Vers file is executed on the browser.

A It is executed on the browser, but it's Redacted in Public Version

Madisetti Tr. 238 (same for NETGEAR); *Id.* at 241-242 (same for CommScope). While the JavaScript files are sent by the accused controllers to the browser, they cannot modify web pages (or perform any other functions) while on the accused products. *See* RX-1210C (Min SWS) at Q/A 4; RX-0863C (Min RWS) at Q/A 96-98. Unlike Dr. Madisetti or Dr. Jones, Dr. Min provided a detailed source code trace confirming that the JavaScript files do not modify any of the prewritten, stored web pages until they sent to the browser. *See* RX-0863C (Min RWS) at Q/A 104. For HPE, the accused controllers respond to a request to carry out a procedure by Redacted in Public Version . *See* RX-0863C (Min RWS) at Q/A 145-147 (citing RX-0580C, RX-0578C, RX-0536C-0546C). Redacted in Pub *See* RX-0863C (Min RWS) at Q/A 104; *see*, *e.g.*, RX-0535C (HPE Source Code Print-Out) lns. 1729 to 1753 (Redacted in Public Versi); JX-0167C (Adjali Dep. Tr.) at 133-134. Inasmuch as NETGEAR and CommScope Redacted in Public Version the accused controllers Redacted in Public Version

Redacted in Public Version *See* RX-1210C (Min SWS) at Q/A 11; RX-0863C (Min RWS) at Q/A 107 (NETGEAR), RX-0863C (Min RWS) at Q/A 111-12 (CommScope). For at least these reasons, the accused products do not practice this limitation.

iii. Additional Issues

HPE Accused Products

Dr. Madisetti opines that the Redacted in Public file generates Redacted in Public Version *See* CX-3846C (Madisetti WS) at Q/A 582. This is wrong. As Dr. Min explained, Redacted in Public Version *See* RX-0863C (Min RWS) at Q/A 142. The code excerpted by Dr. Madisetti in Q/A 584 shows that t Redacted This JavaScript file is used to Redacted in Public Version ; it is not generating any web pages. *Id*.

Dr. Madisetti also opines that the Redacted in Public Version is "generated" from Redacted in Public Version. *See* CX-3846C (Madisetti WS) at Q/A 558. That is not true. The Redacted in Public Version is stored Redacted in Public Version (RX-0532C, RX-0578C) and Redacted in Public Version *See* RX-0863C (Min RWS) at Q/A 144; RX-0533C (HPE Source Code Print-Out) lns 573-670, lns 609, 615, 624, 658, 666; *see also* RX-0640C (HPE Source Code Print-Out) lns 1413-1428; RX-0639C (HPE Source Code Print-Out) lns 290 and 458; RX-0639C lns 1089-1099; RX-0579C (HPE Source Code Print-Out) lns 564-661, lns 661, 600, 606, 615, 649, 657.

Dr. Madisetti next opines that Redacted in Public Version

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comprise a "set of linked web pages" because "Redacted in Public Version " *See* CX-3846C (Madisetti WS) at Q/A 558. This is not true. As Dr. Min demonstrated, Redacted in Public Version *See* RX-0863C (Min RWS) at Q/A 149. Complainant relies on Redacted in Public Version Redacted in Public Version Redacted in Public Version *See* RX-0863C (Min RWS) at Q/A 151.

Nor does Redacted in Public Version show a "set of linked web pages." The function Redacted in Public Version in the file Redacted in Public Versio is just JavaScript code for Redacted in Public Version . RX-0535C (HPE Source Code Print-Out) lns 1078-1087. Indeed, the Redacted in Public Version on RX-0535C do not even Redacted in Public Version because Redacted , which is shorthand for Redacted in Public Version Instead of Redacted in Publ, these Redacted in Public Version , which can Redacted in Public Version Redacted in Public Version, in this case, the function Redacted in Public Version. This function Redacted in Public Version

[redacted]

[redacted]

Redacted in Public Version

[redacted] Nor does Redacted in Public Version [redacted] As Dr. Min explained, the pages Redacted in Public Version, and the cited source code does not use Redacted in Public Version for linking web pages. *See* RX-0863C (Min RWS) at Q/A 152.

Complainant also argues that the set of linked web pages are generated in response to "a request to launch the Web interface." *See* CX-3846C (Madisetti WS) at Q/A 582. That is not a "request to carry out a procedure,"[17] but even if it was, the Redacted in Public Version identified by complainant does not appear in response to launching the WebUI. The Redacted in Public Version appears instead and that page does not allow the user to manage the accused access points. *See* RX-0863C (Min RWS) at Q/A 154.

Nor does the purported "evidence" relied upon by complainant show otherwise. Contrary to Dr. Madisetti's testimony, HPE's corporate witness did not confirm that "the HPE Products meet this limitation." *See* CX-3846C (Madisetti WS) at Q/A 583 (relying on JX-0167C (Adjali Dep. Tr.) at 183-184). Mr. Adjali identified Redacted in Public Version [redacted] for the mobility controllers and explained that they are pre-written, -stored files, not

[17] The language of this limitation makes clear that the procedure referred to in "a request to carry out a procedure" is "to manage the at least one operational parameter of the network entity." JX-0002 ('305 Patent) at cl. 1. Otherwise, the claims would recapture subject matter that was distinguished during prosecution, particularly since any generation of more than one web page always comes after launching the web interface. *See* JX-0005.0542 ('305 Patent File History); JX-0005.0552 (applicant distinguishing prior art reference: "In this example a Web page is generated and when the user selects "F11" a new web page is generated. This single Web page generation does not involve generating a set of linked web pages in response to a request to carry out a procedure as recited in the claim 1.").

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that they are generated. *See, e.g.*, JX-0167C (Adjali Dep. Tr.) at 179, 188-189. Although Redacted in Public Version, they are not generated by the Controller. *See* RX-0863C (Min RWS) at Q/A 158. HPE's corporate witness likewise did not confirm that Redacted in Public Version as Dr. Madisetti opines. *See* CX-3846C (Madisetti WS) at Q/A 583 (relying on JX-0167C (Adjali Dep. Tr.) at 185-186). Mr. Adjali never admitted that Redacted in Public Version. He simply identified Redacted in Public Version *See* JX-0167C (Adjali Dep. Tr.) at 184-186. That Mr. Adjali identified the Redacted in Public Version as required by the claims.

Additionally, complainant has not shown that anything other than the web pages are generated in response to the user launching the WebUI. Complainant does not even point to any source code to support its argument. *See* RX-0863C (Min RWS) at Q/A 155. Complainant has not shown that the accused HPE products store the "data" required by this limitation, and thus, it cannot show that each of the web pages is based on that data, as required by the claims. *Id.* at Q/A 156. Complainant has not shown that "the WebUI is used to configure and validate operational parameters," has not shown how or why using the WebUI to "configure and validate operational parameters" is the same as a web page that corresponds to "at least one step in the procedure to manage the at least one operational parameter of the network entity," as required by the claims. Dr. Madisetti points only to screenshots of the WebUI, which do not demonstrate that each web page within the alleged set of linked web pages depicted in these screenshots corresponds to "at least one step in the procedure," as required by the claims. Nor can it. Only the

Configuration page can be used to manage an operational parameter. *Id.* at Q/A 157.

NETGEAR and CommScope Accused Products

For the NETGEAR and CommScope accused products, complainant never identifies any source code in Redacted in Public Ver that "generates" a web page, or "a set of linked web pages." Nor does it show that a "set of linked web pages" are generated at all, let alone by Redacted in Public Ver. Complainant merely points to the tabs on a single web page. *See* CX-3846C (Madisetti WS) at Q/A 639 (NETGEAR), 612 (CommScope). However, as Dr. Min explained, "a tab is not a web page; it's just a part of a web page. Nor does the presence of those tabs suggest that the web interface comprises more than a single web page." RX-0863C (Min RWS) at Q/A 177. The accused WebUI for both NETGEAR and CommScope Redacted in Public Version (RX-0863C (Min RWS) at Q/A 166 (NETGEAR), 178 (CommScope)), which is what the applicants distinguished from "a set of linked web pages." *See* JX-0005.0542 ('305 Patent File History); JX-0005.0552.

Additionally, complainant has not shown that the tabs are generated in response to the user making a request to launch the WebUI. The sole WebUI screenshot cited by Dr. Madisetti (CX-1313C.0030-31; CX-0735C.0114-15) cannot show when the tabs are purportedly generated, and Dr. Madisetti does not point to any source code to support this argument. *See* RX-0863C (Min RWS) at Q/A169, 177. Complainant has not shown that the accused CommScope and NETGEAR products store the "data" required by this limitation, and thus, complainant cannot show that each of the web pages is based on that data, as required by the claims. For the accused NETGEAR products, Dr. Madisetti does

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not offer an opinion on whether each web page is "based upon the data stored in the data store," as required by the claims. For the accused CommScope products, CPX-0006C.469 (COMMSCOPE_CODE_0000469) cited by Dr. Madisetti does not include the relevant source code he mentioned. The code cited by Dr. Madisetti merely shows Redacted in Public Version . Nothing in the code informs that the web page is "based upon the data stored in the data store." *See* RX-0863C (Min RWS) at Q/A 183.

Moreover, Dr. Madisetti does not offer an opinion on whether each web page "correspond[s] to at least one step in the procedure to manage the at least one operational parameter of the network entity." While Dr. Madisetti says that the webpages "are used to modify [the] operational parameters," he has not shown how or why this is the same as a web page that corresponds to "at least one step in the procedure to manage the at least one operational parameter of the network entity," as required by the claims. Dr. Madisetti points only to a screenshot of the WebUI, which cannot demonstrate that each webpage within the alleged set of linked web pages depicted in that screenshot corresponds to "at least one step in the procedure." *See* RX-0863C (Min RWS) at Q/A 184.

Complainant has not shown each tab corresponds to webpages. Dr. Madisetti relies upon an excerpt of a CommScope user manual (CX-1313C.0030-31) describing several form elements for ZoneDirector, but nothing in that excerpt shows that each tab corresponds to a web page. *See* CX-3846C (Madisetti WS) at Q/A 609. The WebUI Redacted in Public Version . *See* RX-0863C (Min RWS) at Q/A 177. Similarly, for NETGEAR, as a user navigates Redacted in Public Versio

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Redacted in Public Version, Redacted in Public Version

. Nothing suggests that new web pages are "generated" or even displayed when a user navigates to different tabs. *Id.* at Q/A 165.

c. "intelligent agent"

1[1], 8[1]	An intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with the predetermined data structure.

Complainant argues that the intelligent agent is the software on the accused products responsible for sending and receiving messages. For HPE, Dr. Madisetti opines that "[t]he intelligent agent is the code in the access point that receives and/or processes Redacted in Public Version from the controller," which "includes the Redacted in Public Version." *See* CX-3846C (Madisetti WS) at Q/A 562. For NETGEAR, Dr. Madisetti opines that "[t]he intelligent agent is the controller software called Redacted in Public Version" (CX-3846C (Madisetti WS) at Q/A 628), "which handles sending configurations to the network entities (access points), thereby modifying the behavior of the access points." *See* CX-3846C (Madisetti WS) at Q/A 631.

Complainant's argument is wrong because (1) it renders the term "intelligent agent" meaningless; (2) it contradicts the plain and ordinary meaning of the term "agent," and (3) the alleged intelligent agents neither obtain nor modify any operational parameters of the alleged network entity.

First, an "intelligent agent" is not simply any software process that receives and processes messages. Under complainant's argument, most, if not all, software processes would qualify as an "intelligent agent," rendering the term meaningless. The patentee

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knew how to use the term "software" (*e.g.* JX-0002 ('305 Patent) at 1:56), but chose to claim an "intelligent agent." The code in the AP that receives and/or processes messages is not an agent; it is just Redacted in Public Version. *See* RX-0863C (Min RWS) at Q/A 31 ("Long before the '305 Patent, computer scientists knew of many ways to send messages within and between devices, and in my career, I've never heard these common messaging mechanisms used as the litmus test of an "intelligent agent."). Dr. Madisetti's inability to identify code that does more than dispatch messages to other software only shows the lack of an intelligent agent. *See* RX-0863C (Min RWS) at Q/A 41-42, 60-61.

Second, while the term "intelligent agent" is not a term of art, the term "agent" is. A person of ordinary skill would know that the plain and ordinary meaning of "agent" is software that acts on behalf of a managing entity while running in a persistent (runs continuously to complete a particular objective), autonomous (decides for itself when an activity should be performed), and perspective manner (perceives the context in which it operates and takes action accordingly). *See* RX-0863C (Min RWS) at Q/A 32 (discussing RX-0300). Although the '305 patent does not define the term "intelligent agent," the one example that it does provide ("SNMP Agent 206") aligns with the plain and ordinary meaning of that term, namely software "agent" that acts on behalf of a managing entity in a persistent, autonomous, and perspective manner. *See* JX-0002 ('305 Patent) at 2:36. For example, an SNMP agent acts in a persistent, autonomous, and perspective manner when it monitors operating parameters, perceives the presence of certain conditions, and autonomously sends alerts to an SNMP manager when certain

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conditions are met. *See* RX-0863C (Min RWS) at Q/A 33. The accused products lack such an agent. *See* RX-0863C (Min RWS) at Q/A 29-76.

Third, the alleged intelligent agents neither obtain nor modify any operational parameters. For HPE, Redacted in Public does not actually obtain and/or modify the alleged operational parameters. Dr. Madisetti does not show that Redacted in Public Version . Nor does he show that Redacted in Public Version *See* RX-0863C (Min RWS) at Q/A 45.

For NETGEAR, Dr. Madisetti says that Redacted in Public Version (CX-3846C (Madisetti WS) at Q/A 631) and points to the function Redacted in Public Version in CPX-0007C.351 (NTGRITC_CODE_0000001-705), but Dr. Madisetti admits that it Redacted in Public Version *Id*. As shown on RDX-0020C.0102 (Paul Min Demonstratives), this function merely Redacted in Public Version ; it is not related to obtaining or configuring an operational parameter of the AP or modifying the behavior of the AP. In fact, Dr. Madisetti has not identified any source code in Redacted in Public Version that is related to any of Redacted in Public Version *See* RX-0863C (Min RWS) at Q/A 64.

For CommScope, Redacted in Public Version . *See* CX-0464C (Commscope Respondents' Eighth Supplemental Objections and Responses To Complainant's First Set

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Of Interrogatories Nos. 1-77 to Respondents Dated Apr. 5, 2021) at CommScope Third Supplemental Response to Interrogatory No. 58. Dr. Madisetti has not shown that any of the accused products actually use the alleged Redacted in Public Version to "obtain[] information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity," or even "interact[] with the network entity in accordance with a predetermined data structure."

Nor does complainant show that the accused products have an intelligent agent. HPE's corporate witness did not "confirm[] that there is an intelligent agent used for Redacted in Pub," as Dr. Madisetti opines in Q/A 256. Rather, HPE's corporate witness testified that he would not characterize it as an agent. *See* JX-0167C (Adjali Dep. Tr.) at 172 ("Q: So is there a Redacted in Public Version on the Campus APs? A: I'm not sure I would characterize it as an agent per se. It is a process running on the AP.").

The NETGEAR source code relied upon by complainant either does not include Redacted in Public Version or is not related to Redacted in Public Version. Dr. Madisetti cites CPX-0007 (NTGRITC_CODE_0000001-705) to show that Redacted in Public Version *See* CX-3846C (Madisetti WS) at Q/A 631. However, that code Redacted in Public Version) is JavaScript executed in the browser; not the Redacted in Public Version on the controllers. *See* RX-0863C (Min RWS) at Q/A 63.

Predetermined Data Structure

Even if the code that processes and receives messages was an intelligent agent (and it is not), the alleged intelligent agent cannot "interact[] with the network entity in accordance with a predetermined data structure," as required by the claims. *See* RX-

0863C (Min RWS) at Q/A 46, 65, 73. Complainant argues that the protocols used by the accused controllers to communicate with the accused access points are a "predetermined data structure" because they are "a protocol established in advance [of] the intelligent agent interacting with the network entity." *See* CX-3846C (Madisetti WS) at Q/A 562, 601, 628.

For HPE, Dr. Madisetti opines that the "predetermined data structure is Redacted in Pub," and reasons that "[i]t is predetermined given that it is a protocol established in advance [of] the intelligent agent interacting with the network entity." *See* CX-3846C (Madisetti WS) at Q/A 562. For NETGEAR, Dr. Madisetti opines that "[t]he predetermined data structure is the data structure which is found in Redacted in Public Version," and "[t]he predetermined data structure can also include Redacted in Public Version," which misspells Redacted in Public V *See* CX-3846C (Madisetti WS) at Q/A 628. For CommScope, Dr. Madisetti opines that "predetermined data structure is the Redacted in Public Version which is defined by the Redacted in Public Version," stating that "this data structure can be found in the function Redacted in Public Version and other sections of Redacted in Public Version," and reasons that "it is predetermined given that it is established in advance of the intelligent agent interacting with the network entity." *See* CX-3846C (Madisetti WS) at Q/A 601.

Complainant's arguments are wrong. First, a protocol defines a mechanism by which two entities can communicate; it is not itself a data structure. *See* RX-0863C (Min RWS) at Q/A 36. Redacted in Public Version are communication protocols for sending/receiving messages, they are not a data structure. Indeed, the '305 patent never refers to SNMP as a predetermined data structure even though the "P" in SNMP stands for protocol. *See* JX-0002 ('305 Patent). As Dr. Min explained:

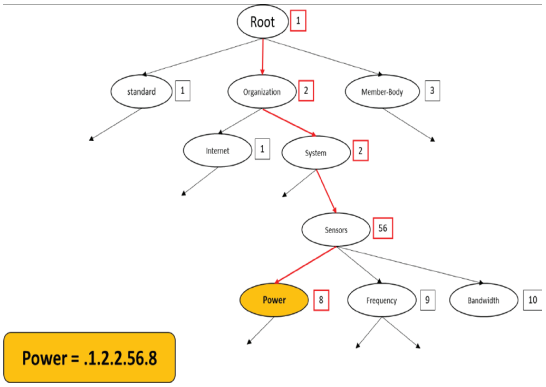
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> Protocols define the format of messages to be understood between the sending entity and the receiving entity. The protocol messages sent and received do not have the predefined data structures, and instead each protocol message has a header, which instructs the receiver how to interpret the body of the message.

RX-0863C.0024 at Q/A 75. Nor is Redacted in Public Version itself a predetermined data structure. *See* RX-0863C (Min RWS) at Q/A 67. Redacted in Public Version "is an infrastructure module for communication between the controller and Access Point," which Redacted in Public Version JX-0048C.0016 (WC7520 Software Architecture). Nothing indicates that Redacted in Public Version is a data structure, let alone a "predetermined data structure." *See* RX-0863C (Min RWS) at Q/A 67.

Second, complainant's infringement position contradicts the plain and ordinary meaning of the term "predetermined data structure." *See* RX-0863C (Min RWS) at Q/A 36. While a protocol may use a predetermined data structure, it would do so by using the same data structure every time it sends a message so that the recipient knows the data structure used in the message before it even receives the message. *Id*. That the same predetermined data structure must be used is reflected in the claims, which refer to "a" and "the" structure used by the intelligent agent and interface. This is also consistent with the '305 patent specification, which makes clear that "the intelligent agent may be an SNMP agent" and "[t]he predetermined data structure may be an MIB." *Id.* Indeed, SNMP uses the same data structure in every SNMP message, (namely, the Object Identifiers from the MIB data structure) so that the recipient always knows the data structure used in the SNMP message before it even receives the message. *Id.*

RDX-0020C.0097 (Paul Min Demonstratives)	RX-0863C.0014 at Q/A 38
	SNMP message use a predetermined data structure of OIDs. The sender of an SNMP message will use the OIDs to specify what attributes are being communicated. The recipient of the SNMP message will take the OIDs and look up in a MIB tree to find out what the OID is actually referring to. Because every SNMP message will use OIDs to specify the attributes in the message, and the SNMP message recipient knows that the attributes in the message will always be OIDs, we say that SNMP protocol uses a predetermined data structure – MIB.

The alleged intelligent agents simply do not use a predetermined data structure. For HPE, Redacted in Pub does not use the same data structure for its messages. A Redacted in Pub message can use a different data structure each time it is sent. As a result, the recipient of a Redacted in Pub message cannot and does not necessarily know the specific data structure used in the Redacted in Pub before it receives the message. The recipient of the Redacted in Pub message cannot identify the data structure used by the Redacted in Pub message unless and until Redacted in Public Version [redacted]. *See* RX-0863C (Min RWS) at Q/A 51 (using RDX-0020C.0099 (Paul Min Demonstratives) to show that Redacted in Public Version [redacted]); RX-0608C (HPE Source Code Print-Out); RX-0609C (HPE Source Code Print-Out); RX- 0610C (HPE Source Code Print-Out); RX-0625C (HPE Source Code Print-Out); RX-0626C (HPE Source Code Print-Out); RX-0627C (HPE Source Code Print-Out).

For NETGEAR, Redacted in Public Version communicate using Redacted in Public Version (RDX-0020C.0103 (Paul Min Demonstratives)), which means they do not use a

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"predetermined data structure. Redacted in Public Version

There is no "predetermined data structure" involved because all of the operational parameters Redacted in Public Version , not identified from a "predetermined data structure." *See* RX-0863C (Min RWS) at Q/A 69. For CommScope, Redacted in Public Version *See* CX-0464C (Commscope Respondents' Eighth Supplemental Objections and Responses To Complainant's First Set Of Interrogatories Nos. 1-77 to Respondents Dated Apr. 5, 2021) at CommScope Third Supplemental Response to Interrogatory No. 58.

Nor does the purported "evidence" relied upon by complainant satisfy this limitation. *See* RX-0863C (Min RWS) at Q/A 50, 52, 53. Despite Dr. Madisetti's statement to the contrary, HPE's corporate witness never testified Redacted in Public Version *See* CX-3846C (Madisetti WS) at Q/A 565; RX-0863C (Min RWS) at Q/A 52. Mr. Adjali simply stated that Redacted in Public Version *See* JX-0167C (Adjali Dep. Tr.) at 57 (explaining that Redacted in Pub is "a communication protocol."), at 59 (explaining that "Redacted in Pub . . . does have a specific what I would describe as syntax in which the controller and the AP need to understand, if that's what you're implying by saying format.")).

The exemplary Redacted in Pub message relied upon by Dr. Madisetti (CX-3289C.0035) shows that Redacted in Public Version

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Redacted in Public Version The former allows the recipient to process the data in the latter since Redacted in Pub messages do not use the same data structure in every message. For this reason, Redacted in Public Version *See* RX-0863C (Min RWS) at Q/A 50.

Redacted in Public Version (RDX-0020C.0098 (Paul Min Demonstratives)) shows Redacted in Public Version *See* RX-0863C (Min RWS) at Q/A 51 (analyzing RX-0616C (HPE Source Code Print-Out); RX-0953C (HPE Source Code Print-Out); RX-0615C (HPE Source Code Print-Out); RX-0614C (HPE Source Code Print-Out) (Opaque definition)). Additionally, Redacted in Public Version *See* RX-0616C (HPE Source Code Print-Out) ln. 2323. Together, these parameters Redacted in Public Version The function Redacted in Public Version However, Redacted in Public Version is not a data structure. In fact, Redacted in Public Version is completely lacking in structure. Redacted in Pub uses Redacted in because Redacted in Public Version *See* RX-0618C (HPE Source Code Print-Out).

The Redacted in Public Version function (RX-0600C (HPE Source Code Print-Out) and on RDX-0020C.0100 (Paul Min Demonstratives)), the Redacted in Public Version (RX-0600C (HPE Source Code Print-Out) and RDX-0020C.0100 (Paul Min Demonstratives)), and Redacted in Public Version (RX-0582C (HPE Source Code Print-Out) and RDX-0020C.0100 (Paul Min

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Demonstratives)) actually show that Redacted in Pub messages are not based on any predetermined data structure and instead, as shown below, they are Redacted in Public Version [redacted] There is no "predefined data structure" Redacted in Public Version *See* RX-0863C (Min RWS) at Q/A 54. That code on RDX-0020C.0101 (Paul Min Demonstratives) just shows Redacted in Public Version [redacted] The same is true for RX-0582C (HPE Source Code Print-Out). That code merely shows Redacted in Public Version [redacted] *See* RX-0863C (Min RWS) at Q/A 56-57.

The Redacted in Public Version source code cited by Dr. Madisetti (RDX-0020C.0104 (Paul Min Demonstratives)) shows that Redacted in Public Version [redacted] *See* RX-0863C (Min RWS) at Q/A 71.

d. "interface"

1[4], 8[4]	an interface that communicates values of the at least one operational parameter between the Web server and the intelligent agent in accordance with the predetermined data structure.

Dr. Madisetti's opinions concerning this limitation are merely conclusory opinions that certain software on each accused product satisfies this limitation. Complainant does not explain why the identified software purportedly constitutes the claimed interface, let alone that it uses a "predetermined data structure" as claimed. Nor

can it. Dr. Min's unrefuted testimony on the code shows the identified software is not the claimed interface.

For the accused NETGEAR and CommScope products, complainant broadly contends that the alleged interface is "the software that supplies the web server user inputs and provides them to the intelligent agent in accordance with the predetermined data structure." *See* Compl. Br. at 157, 167. Complainant's arguments merely recite the claim language, stating only that the alleged interface can be found in JavaScript while lacking any analysis:

- For NETGEAR, the alleged interface "can be found in Redacted in Public Version, which also includes Redacted in Public Version ." CX-3846C (Madisetti WS) at Q/A 637.
- For CommScope, the alleged interface "can be found in the Redacted in Public Version function" and "the Redacted in Public Version." CX-3846C (Madisetti WS) at Q/A 611.

As an initial matter, complainant's arguments are too vague. *See* RX-0863C (Min RWS) at Q/A 128, 131. For example, Redacted in Public Version has over 1600 lines of code, yet complainant does not point to any specific lines of code that qualify as the claimed interface. *See* RX-0863C (Min RWS) at Q/A 128. The same is true of Redacted in Public Version" and "Redacted in Public Version." *See* RX-0863C (Min RWS) at Q/A 131.

Complainant's infringement position also contradicts the claim language because neither Redacted in Public Version nor Redacted in Public Version is positioned "between the Web server and the intelligent agent," as required by the claims. *See* RX-0863C (Min RWS) at Q/A 128-30 (NETGEAR), 133-135 (CommScope). According to Dr. Min, a person of ordinary skill would "understand from reading the claims that the interface must be

positioned such that it communicates values 'between the Web Server and the intelligent agent' 'in accordance with the predetermined data structure.'" *See* RX-0863C (Min RWS) at Q/A 144; RDX-0020C.0109 (Paul Min Demonstratives). This is consistent with the plain and ordinary meaning of the term "interface"—namely, "software for connecting two items of software together so they can communicate with each other." *See* RX-0863C (Min RWS) at Q/A 115.

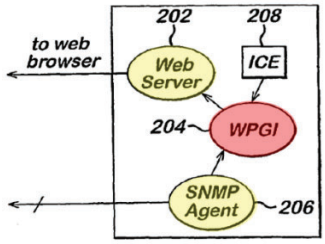
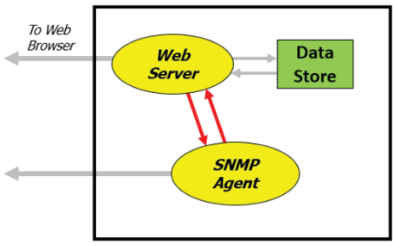


Dr. Min testified that the claim language also aligns with the '305 patent specification, which teaches positioning the interface between the web server and the intelligent agent so it can communicate with both the web server and the intelligent agent. *Id.* at Q/A 116. The '305 patent discloses the interface (WPGI 204) in only one position: between the Web Server 202 and the SNMP Agent 206 such that the web server and agent communicate through the interface. *See* RX-0863C (Min RWS) at Q/A 116 (discussing RDX-0020C.0110 (Paul Min Demonstratives)). It appears that this was intentional. Inasmuch as prior art engines provided the WebUI using prewritten, stored web pages based on the predetermined data structure used by the network entity, "the web server and the intelligent agent communicated directly." *Id.* at Q/A 177. The '305 patent, however, teaches "generating web pages (on the fly) for the network entity currently being managed [by] positioning an interface [***red*** below] between the web server and intelligent agent [in order] to automatically convert the data communicated

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between the Web Server and the intelligent agent into the predetermined data structure used by the network entity." *Id.* Dr. Min illustrated this distinction below (*id.* at Q/A 116-117; RDX-0020C.0110 (Paul Min Demonstratives)).

The '305 Patent	The Prior Art
	

Despite complainant's arguments to the contrary, the alleged interface cannot satisfy this limitation. For NETGEAR, the alleged interface (Redacted in Public Version) cannot communicate between the web server and alleged intelligent agent (Redacted in Public Version). *See* RX-0863C (Min RWS) at Q/A 128. Inasmuch as the Redacted in Public Version is JavaScript running on the client-side browser, it cannot communicate values "between" the web server and the appliance manager since they both reside on the controller. *Id.* at Q/A 129. Nor does Redacted in Public Version communicate values using the alleged predetermined data structure (Redacted in Public Version). *Id.* at Q/A 128. As shown in the schematic below (RDX-0020C.0013 (Paul Min Demonstratives)), which Dr. Madisetti relies upon (CX-3846C (Madisetti WS) at Q/A 623), any communication between the browser (***purple***) and the processes within the controllers occurs via Redacted in Public (***pink***), not the Redacted in Public Version (***orange***). *See* RX-0863C (Min RWS) at Q/A 130.

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Redacted in Public Version

Complainant's own source code expert, Mr. Jones, confirmed that "[t]he Redacted in Public Version is used for communications between the AP and the Controller," and in fact Mr. Jones did not think that Redacted in Public Version communicates with the Redacted in Public Version using Redacted in Public Version:

> Q: And based on your review of the NETGEAR source code, was the Redacted in Public Version used to communicate between Redacted in Public Version and the Redacted in Public Version file running on the browser?
>
> A: I don't think so.

JX-0186C (Jones Dep. Tr.) at 123, 124 ("Q: Communications between the browser and the controller do not use Redacted in Public Version, correct? A: I don't know. I suspect the answer is no").

For CommScope, the alleged interface (Redacted in Public Version) likewise does not communicate values between the web server and the alleged intelligent agent (Redacted in Public Version). *See* RX-0863C (Min RWS) at Q/A 133. Inasmuch as Redacted in Public Version is JavaScript running on the client-side browser, it cannot communicate values "between" the web server and the Redacted in Public Version since both purportedly reside on the controller. *Id.* at Q/A 134. Nor does validators.js communicate with the web server using the alleged predetermined data structure (Redacted in Public Version). *Id.* at Q/A 133. Redacted in Public Version is

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JavaScript running on the browser, and [redacted] is a protocol used for communications between a controller and an access point. *Id.* at Q/A 136. The communication between the browser and the web server does not use [redacted], and complainant has not presented any evidence suggesting otherwise. *Id.* Mr. Jones not only "agree[d] that [redacted] does not provide any communication functionality" (JX-0186C (Jones Dep. Tr.) at 117-118), he also confirmed that [redacted] does not even use the alleged predetermined data structure:

> Q: Does [redacted] use the [redacted]?
>
> A: No, it does not.

JX-0186C (Jones Dep. Tr.) at 116, 115 ("Q: Is [redacted] executed on the Browser? A: Yes.").

For HPE, complainant argues that the "interface is the backend controller code, including the [redacted]," which allegedly uses [redacted] as a predetermined data structure to communicate between the "web server of the controller and the intelligent agent of the Access Point ([redacted] software) via [redacted]." *See* Compl. Br. at 144; CX-3846C (Madisetti WS) at Q/A 579. Indeed, complainant provides no evidence to support its theory. Dr. Min's unrefuted testimony on the source code shows the exact opposite.

First, [redacted] does not communicate with the web server, let alone using [redacted]. Rather, data enters/exits the web server through [redacted] that undisputedly do not use [redacted]. In the upstream direction, [redacted]. *See*

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RX-0863C (Min RWS) at Q/A 123. However, rather than use [redacted], [redacted]. *Id.* [redacted] [redacted]. *Id.* Likewise, in the other direction, [redacted] *Id.* at Q/A 124. [redacted] *Id.* at Q/A 125. Dr. Min shows this in the annotated diagram below (RDX-0020C.0112 (Paul Min Demonstratives)):

[redacted]

Complainant's experts offered no rebuttal to Dr. Min's analysis. For example, complainant has not shown that [redacted] is used when communicating with the web server. *See.* RX-0863C (Min RWS) at Q/A 123-25. Complainant's own source code expert, Dr. Jones, admitted this, testifying that "[redacted] is pretty much used for communications between the controller and the AP." *See* JX-0186C (Jones Dep. Tr.) at 129-130.

Second, the alleged interface ([redacted]) does not communicate with [redacted], let alone using [redacted]. Rather, [redacted] *See* RX-0863C (Min RWS) at Q/A 122.

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e. "data store"

1[2], 8[2]	a data store storing data relating to a procedure for managing the at least one operational parameter of the network entity.

Complainant argues that the accused products infringe this limitation by storing information, values, and rules for verifying and/or modifying the operational parameters of the network entity. *See* CX-3846C (Madisetti WS) at Q/A 568 (HPE), 633 (NETGEAR), 606 (CommScope). Complainant's infringement position is wrong for multiple reasons.

First, complainant's infringement position contradicts the claim language. Element 1.2 requires storing "data relating to a procedure for managing the at least one operational parameter of the network entity," not storing the actual procedure. Thus, the "data relating to a procedure" cannot be the same as alleged procedure. Rather, this limitation requires "data relating to a procedure for managing the at least one operational parameter of the network entity," which is different from the separately claimed "procedure" and the separately claimed "operational parameter." Dr. Madisetti conflates the claimed "procedure" with the separately claimed "data relating to a procedure." If this limitation only required storing the software of the other limitations, as complainant

argues, then it would be meaningless. *See* RX-0863C (Min RWS) at Q/A 79.

Second, complainant's infringement position contradicts the prosecution history. *See* RX-0863C (Min RWS) at Q/A 80. The procedure identified by Dr. Madisetti is no different from the "policies, or declarative statements that contain objectives for how a network is to behave" that the applicant distinguished from "a procedure for managing the at least one operational parameter of the network entity." *Id.*; *e.g.*, JX-0005.0505 ('305 Patent File History) (exemplary policy: "If Source in R&Dlaboratory then Allow Internet Access."); JX-0005.0507 (another exemplary policy). As one example, the regulatory channel check identified by Dr. Madisetti reflects a policy that the network should not use an unlicensed radio channel. *See* CX-3846C (Madisetti WS) at Q/A 559. Thus, the alleged data stored on the accused products cannot satisfy this claim limitation. *See* RX-0863C (Min RWS) at Q/A 80.

Third, even if the data allegedly stored on the accused products was "data relating to a procedure for managing the at least one operational parameter of the network entity," complainant does not identify the specific "information, values, and rules" for HPE (RX-0863C (Min RWS) at Q/A 85), the "data needed for Redacted in Public Version to validate operational parameters," or the "values used for setting rules, the entered values intended to be used to set operational parameter, and the rules for setting the values or operational parameters" for NETGEAR (RX-0863C (Min RWS) at Q/A 89), or the "data needed for Redacted in Public Version to validate operational parameters" for CommScope (RX-0863C (Min RWS) at Q/A 93). Nor does complainant show that any of that data is actually used by the accused products to "generate a set of linked web pages" or "generate a determination result."

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f. "Web server"

1[3], 8[3]	a Web server that provides an interactive environment to manage the at least one operational parameter of the network entity.

The accused products do not include the claimed web server that "provides the interactive environment using the web pages generated by a web page generator." *See* RX-0863C (Min RWS) at Q/A 102, 106, 110.

For HPE, complainant argues that the controllers contain a web server, not the access ints. The Campus Access Points Redacted in Public Version. While Dr. Madisetti cites to deposition testimony concerning the Instant Access Points, he does not provide any opinions for the remainder of the claim limitations for the Instant Access Points. *See* Compl. Br. at 33, 34, 37; RX-0863C (Min RWS) at Q/A 102. For NETGEAR, the contents in the directory identified by Dr. Madisetti does not contain the web server. That folder contains only JavaScript files that are executed on the browser. Dr. Madisetti incorrectly opines that the Web server runs on JavaScript on the controllers. *See* Compl. Br. at 168. However, the web server does not run on JavaScript because JavaScript files are executed on the browser, not the web server. *See* RX-0863C (Min RWS) at Q/A 106. For CommScope, complainant does not identify with sufficient particularity the web server on the controllers that satisfies this limitation. Dr. Madisetti points only to a directory without identifying any particularity lines of code showing that the web server provides any interactive environment, let alone the specific WebUI identified by Dr. Madisetti. *See* Compl. Br. at 157; RX-0863C (Min RWS) at Q/A 110.

g. "generate a determination result"

1[6], 8[6]	wherein the interface uses the stored data relating to a procedure for managing the at least one operational parameter of the network entity to generate a determination result indicating whether information retrieved using a form provided on the set of linked Web pages conforms to a rule relating to the procedure to manage the at least one operational parameter of the network entity

Complainant claims that the accused products infringe this limitation by comparing the "stored data relating a procedure" against information retrieved using a form on the WebUI to verify whether the information conforms to an unspecified rule. *See* RX-0863C (Min RWS) at Q/A 186.

First, complainant's infringement position contradicts the claim language. *Id.* at Q/A 187. The term "generate a determination result" does not simply mean "determine" whether the retrieved information conforms to a rule (*e.g.*, verify). Rather, the interface must also "generate" the "result" of that determination. *Id*. Inasmuch as the result must also "indicat[e]" whether the information conforms to a result, a person of ordinary skill would understand that this limitation also requires that the interface indicate the result. *Id.*

Second, complainant's infringement position contradicts the prosecution history for the same reason. *See* RX-0863C (Min RWS) at Q/A 188; JX-0005.0442 ('305 Patent File History) (applicant replaced the term "verify" with "generate a determination result indicating whether" to distinguish prior art reference Grover).

Third, the accused products do not practice this limitation because (1) the alleged interfaces do not "generate a determination result," (2) the alleged interfaces do not validate information using the "stored data relating to a procedure," (3) the validation

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checks do not validate "information retrieved using a form on the set of linked web pages"; and (4) the validation checks do not indicate whether the retrieved information conforms to "a rule relating to the procedure to manage the operational parameters of the network entity." *See* RX-0863C (Min RWS) at Q/A 191-99 (HPE), 200-02 (NETGEAR), 204-07 (CommScope).

For HPE, Dr. Madisetti opines that the "Redacted in Public Version" on the controllers uses "the information, values, and rules used to validate and/or modify the operational parameter and generates a determination result indicating whether information retrieved using a form on the set of linked web pages conforms to a rule relating to a procedure to manage the at least one operation [sic] parameter or [sic] the network entity," but only identifies two validation checks: Redacted in Public Version

See Compl. Br. at 147; CX-3846C (Madisetti WS) at Q/A 558, 559. Complainant's argument is incorrect for multiple reasons. *See* RX-0863C (Min RWS) at Q/A 190.

First, the two "validation checks" performed by Redacted in Public V are no different than the prior art process of "verify[ing] information" distinguished by the applicants during prosecution. *Id.* at Q/A 191. The applicant in fact replaced the term "verify" with "generate a determination result" to make that distinction even clearer. *Id.*; JX-0005.0460 ('305 Patent File History). What's more, the applicants expressly distinguished such policy validations from the "procedure" recited in the independent claims. *Id.* at Q/A 192; JX-0005.0502-0517 at 5, 6-7 ('305 Patent File History). In other words, the claims require that the interface perform "an analysis to determine if a procedural step for managing a network entity is possible," (*id.*) but Dr. Madisetti does not opine, or show, that Redacted in Public V performs this analysis. *See* RX-0863C (Min RWS) at

Q/A 191-92.

Second, Redacted in Public Version does not perform the validation checks using the "stored data relating to a procedure" as claimed. The validation checks do not validate "information retrieved using a form on the set of linked web pages" as claimed; and the validation checks do not indicate whether the retrieved information conforms to "a rule relating to the procedure," as claimed. *See* RX-0863C (Min RWS) at Q/A 194. In fact, Dr. Madisetti does not show that the "channel" and "regulatory country" validation is performed on data entered into a form on a web page. *Id*. Nor does Redacted in Public Version validate any other parameters identified by Dr. Madisetti. *Id.* at Q/A 195. For example, Redacted in Public Version does not validate the Redacted in Public Version value using the stored data. *Id.* (Dr. Min demonstrating that Redacted in Public Version); CPX-0008C.3541 (Q3_HPE_CODE_0000001-5775), ln. 1089.

For NETGEAR and CommScope, complainant does not identify any specific "determination result" that is generated by the alleged interface (Redacted in Public Version and Redacted in Public Version, respectively), let alone show that the alleged interfaces are even capable of generating a determination result. *See* Compl. Br. at 169, 159; RX-0863C (Min RWS) at Q/A 200 (NETGEAR), 204 (CommScope). Nor does complainant identify any specific data allegedly used by the alleged interfaces Redacted in Public Version to generate a determination result, let alone show that the alleged interfaces actually use those unidentified values or rules to generate the alleged determination result. *Id.* at Q/A 202 (NETGEAR), 207 (CommScope). Dr. Madisetti does not identify

any source code that supports this argument. *Id.* at Q/A 202 (NETGEAR), 207 (CommScope).

As with the other limitations, none of the purported 'evidence' relied upon by complainant shows that the accused products practice this limitation. For HPE, Dr. Madisetti purportedly provides "examples of those forms [] in the WebUI images," but none of the WebUI images actually show a form for Redacted in Public Version Complainant's reliance on the HPE Manual (CX-0104.0032) is similarly misplaced because, as shown by Dr. Min, those validations do not use the data stored in the data store. The excerpts from the two verification checks performed by Redacted in Public Version does not satisfy this limitation for the reasons above. *See* RX-0863C (Min RWS) at Q/A 197-198. For NETGEAR, Dr. Madisetti relies on screenshots of the WebUI to satisfy this limitation (CX-3846C.0299-0311), but he never shows that the alleged parameters in the screenshots are validated by Redacted in Public Version. For CommScope, Dr. Madisetti never shows that the returned value in CPX-0006C.469 (COMMSCOPE_CODE_0000001-473) is reflected in the interactive environment. Nor does he show that the validation in CX-1313C.0297 is performed by Redacted in Public Version

1[7], 8[7]	wherein the interface communicates values to the intelligent agent based on the information retrieved from the form in response to the determination result indicating conformance.

Complainant argues that the alleged interface on the accused controller satisfies this limitation by sending the retrieved information to the alleged intelligent agent. For HPE, complainant argues that "Redacted in Public V communicates values to the intelligent agent (Redacted in Public), referring back to Redacted in Public Version . *See* Compl.

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Br. at 148; CX-3846C (Madisetti WS) at Q/A 589, 559. For NETGEAR, complainant argues that "the Redacted in Public Version, which also includes the validation code and is part of the interface takes operational parameter values input into the WebUI, validates them, and then sends them to the intelligent agent Redacted in Public Version) to be sent to the access point." *See* Compl. Br. at 169; CX-3846C (Madisetti WS) at Q/A 641. For CommScope, complainant argues that "the Redacted in Public Version function, which is part of the interface, communicates values… to the intelligent agent to be sent to the access point via Redacted in Public V." *See* Compl. Br. at 160; CX-3846C (Madisetti WS) at Q/A 616. Moreover, complainant has not shown that the retrieved information is only sent to the alleged intelligent agent after it is validated. *See* RX-0863C (Min RWS) at Q/A 209.

Additionally, complainant's infringement position contradicts the claim language and the prosecution history. Claim 1 requires that the interface communicate the values to the intelligent agent "in response to the determination result indicating conformance," which in fact requires that the interface not communicate the values to the agent until after the determination result indicates conformance. *See* RX-0863C (Min RWS) at Q/A 210. During prosecution, the applicant narrowed claim 1 by adding Element 1.7 to make clear that the interface must "verify[] commands prior to sending them to the intelligent agent." *Id.* at Q/A 211; JX-0005.0468-0469 ('305 Patent File History). The interface must not communicate values to the intelligent agent until after the determination result indicates conformance. *See* RX-0863C (Min RWS) at Q/A 210-11.

The accused products do not infringe this limitation for multiple reasons. First, the alleged determination result does not "indicat[e] conformance," as claimed. *Id.* at Q/A 214, 217, 220. For HPE, while Dr. Madisetti relies upon Redacted in Public Version

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Redacted in Public Version to satisfy this limitation, the applicants expressly distinguished such policy validations from the "procedure" recited in the independent claims. JX-0005.0502-0517 ('305 Patent File History). Put differently, the claims require that the interface perform "an analysis to determine if a procedural step for managing a network entity is possible," (JX-0005.0502-0517), but Dr. Madisetti does not opine, or demonstrate, that Redacted in Public Version performs this analysis. *Id.* at Q/A 214. The same is true of Redacted in Public Version for the CommScope controllers and of Redacted in Public Version for the NETGEAR controllers. *Id.* at Q/A 217 (NETGEAR), 220 (CommScope).

Second, even if HPE's Redacted in Public Version, Redacted in Public Version (for the CommScope controllers), and Redacted in Public Version (for the NETGEAR controllers) do perform "an analysis to determine if a procedural step for managing a network entity is possible," complainant has not shown that the alleged interfaces only communicate values to the alleged intelligent agent if the alleged determination result indicates conformance. *See* RX-0863C (Min RWS) at Q/A 215, 218, 221. For HPE, Dr. Madisetti never opines or, shows, that Redacted in Public Version communicates the values to Redacted in Public Version if and only if the verification check performed by Redacted in Public Version indicates conformance to the rule. *Id.* at Q/A 215. Rather, Dr. Madisetti simply states that "Redacted in Public Version communicates values to the agent (Redacted in Public Version) to meet this limitation," but as shown above, the prosecution history makes clear that the interface must "verify[] commands prior to sending them to the intelligent agent." *Id.*; JX-0005.0502-0517 ('305 Patent File History). The same is true for the alleged interfaces for the accused NETGEAR and CommScope controllers. *See* RX-0863C (Min RWS) at Q/A 218 (NETGEAR), 221 (CommScope).

C. Domestic Industry (Technical Prong)

For the technical prong of the domestic industry requirement, complainant relies on apparatus claims 1, 2, 5 and 8 of the '305 patent.

Complainant argues, *inter alia*:

> Siemens provides networking products under the RuggedCom brand, which include the RX1400 switch, the RX1500 switch and router, and substantially similar products (the "RuggedCom Products"). The evidence has shown that the RuggedCom Products practice claims 1, 2, 5 and 8 of the '305 Patent. *See generally* CX-3846, Madisetti WS at Q/A 643-673. Q3's expert, Vijay Madisetti, analyzed the RuggedCom Products, and he found them to meet all the limitations of claims 1, 2, 5 and 8 of the '305 Patent. *Id.*
>
> The RX1400 is shown and described in CX-0618C. CX-3846, Madisetti WS at Q/A 645 (citing CX-0618C.0010-.0011). The RX1500 is shown and described in CX-0613C. CX-3846, Madisetti WS at Q/A 646 (citing CX-0613C.0010-.0011).

Compl. Br. at 170 ; *see id.* at 170-77; Compl. Reply Br. 51-53.

Respondents argue that the alleged domestic industry products do not practice any asserted claim of the '305 patent. *See* Resps. Br. at 176-83; Resps. Reply Br. 54.

As discussed below, the evidence shows that complainant has not satisfied the technical prong of the domestic industry requirement.

As an initial matter, Dr. Madisetti only maps the frontend code to the '305 patent claims. *See* RX-0863C (Min RWS) at Q/A 239 ("Although Dr. Madisetti's witness statement refers to the source code executed on the RuggedCom Products, Dr. Madisetti did not rely upon that code to reach the opinions expressed in his expert report because that backend code wasn't produced until after Dr. Madisetti served his expert report and I served my rebuttal report."). In any event, as discussed below, the backend code

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reviewed by Dr. Min and Mr. Jones shows that the RuggedCom devices do not practice the '305 patent. *See* RX-1210C (Min SWS) at Q/A 5.

1. "web page generator"

1[5], 8[5]	"wherein the web server provides the interactive environment using the web pages generated by a web page generator, the web page generator that generates a set of linked web pages in response to a request to carry out a procedure, wherein each web page of the set of linked web pages being based upon data stored in the data store and corresponding to at least one step in the procedure to manage the at least one operational parameter of the network entity"

Dr. Min's analysis of the backend code confirms that the RuggedCom devices do not practice this limitation because they provide the Redacted in Public Version [redacted] *See* RX-1210C (Min SWS) at Q/A 11; CPX-0030C (SCL-RC000001 – SCL-RC000686). Dr. Min's opinion is consistent with Mr. Jones' understanding of the backend code. *See* RX-1210C (Min SWS) at Q/A 16. Mr. Jones testified that the Redacted in [redacted] *See* JX-0187C (Jones Dep. Tr.) at 290-291. Mr. Jones also confirmed during his supplemental deposition that Redacted in Public Version [redacted] *Id.* at 196:4-10. Consistent with Dr. Min's opinion, Mr. Jones agreed that "before the

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RuggedCom product is even turned on by the user, the Redacted in Public Version [redacted] *Id.* at 297.

RuggedCom devices do not generate web pages in response to a user selecting any of the nodes from the navigation menu, Redacted in Public Version *See* RX-1210C (Min SWS) at Q/A 28. Rather, when a user selects a node from the navigation bar, Redacted in Public Version [redacted] *Id.* This is consistent with Mr. Jones' witness statement and testimony, as well as the Siemens Configuration Manuals for the RX1400 and RX1500, which make clear that wRedacted in Public Version [redacted] *See* RX-1210C (Min SWS) at Q/A 28; RDX-0020C.0153-154 (Paul Min Demonstratives); JX-0187C (Jones Dep. Tr.) at 313-314.

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Responsive to the alleged "request to carry out a procedure," RuggedCom devices Redacted in Public [redacted]. They simply Redacted in Public Version *See* RX-1210C (Min SWS) at Q/A 19-21; RDX-0020C.0136-141 (Paul Min Demonstratives); JX-0187C (Jones Dep. Tr.) at 313-314, 311-312, 301.

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A form is not the same as a web page. *See* RX-1210C (Min SWS) at Q/A 22. A browser can only render web pages from html files (*.html), not from an html block code composed as a form element. *Id.* One html file gets rendered to one web page. *Id.* One cannot simply pass a block of html code to the browser and asks the browser to render it as a web page. *Id.* If one wants to see a form depicted by a block of html code, he or she must first insert it into an existing HTML file. *Id.* In response to an HTTP Get request, the web server returns a block of html code composed of a form as the response body, not a standalone html file. *Id.* To display the form, the browser must have this block of html code, insert it into an existing html file, and render the modified html file as a whole web page. *Id*.

The block of html code is only composed as a form, which is rendered as part of a web page (as shown in RDX-0020C.0137 (Paul Min Demonstratives)). A form is not itself a web page. *Id.* One can access the web page containing this form using a URL, but the user cannot access this form through that URL without the .html file. *Id.* The only way to see a form in a browser is to use a URL to access the .html file that contains this form. *Id.* This explanation, based on Dr. Min's testimony, is consistent with Mr. Jones' understanding of the Redacted in Public Version. *Id.* at Q/A 23. Mr. Jones testified during his supplemental deposition that Redacted in Public Version

See RDX-0020C.0140 (Paul Min Demonstratives); JX-0187C (Jones Dep. Tr.) at 313-314.

Modifying a web page is not the same as generating one. When a user modifies a web page, one is simply changing the content of a previously generated web page,

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whereas when a user generates a web page, one is creating (bringing into existence) an .HTML file that did not exist prior to the act of generation. *See* RX-1210C (Min SWS) at Q/A 24. Modifying an existing web page cannot satisfy this limitation of the '305 patent for at least the following two reasons. The terms "form" and "web page" are separately claimed because both appear in the '305 patent claims. For this reason, a person of ordinary skill would understand that creating a "form" is not the same as creating a "web page." Indeed, the claim language requires using "a form provided on the set of linked web pages," which is consistent with the plain and ordinary meaning of the term form, *i.e.*, a portion of a web page. In fact, the RuggedCom devices (RX1400 and RX1500) Redacted in Public Version

See id. at Q/A 27.

Even if modifying an existing web page were the same as generating a web page, the RX1400 and RX1500 products still would not practice this limitation because Redacted in Public V

See RX-1210C (Min SWS) at Q/A 28. Both Dr. Min and Mr. Jones (the only experts who opined on the backend code) confirmed that Redacted in Public Version

. *See* RX-1210C (Min SWS) at Q/A 19-25; CX-3847C (Jones WS) at Q/A 145; JX-0187C (Jones Dep. Tr.) at 313-314, 311-312, 301; RDX-0020C.0146 (Paul Min Demonstratives).

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2. "generate a determination result"

1[6], 8[6]	wherein the interface uses the stored data relating to a procedure for managing the at least one operational parameter of the network entity to generate a determination result indicating whether information retrieved using a form provided on the set of linked Web pages conforms to a rule relating to the procedure to manage the at least one operational parameter of the network entity

Complainant argues that the RuggedCom devices practice this limitation because Redacted in Public Version *See* Compl. Br. at 175-76. However, Redacted in Public Version (lines 17824-17832) Redacted in Public Version (lines 17835-17839) Redacted in Public Version (CPX-0030C SCL-RC000666 (SCL-RC000001 – SCL-RC000686)). *See* RX-1210C (Min SWS) at Q/A 29-32; RDX-0020C.0156-157 (Paul Min Demonstratives). Rather, as Dr. Min opined, Redacted in Public Version *See* RX-1210C (Min SWS) at Q/A 31. Redacted in Public Vers . *Id.*

Complainant does not show that Redacted in Public Version . *See* RX-1210C (Min SWS) at Q/A 29-32. Mr. Jones states that Redacted in Public Version *Id.* Given its absence in Redacted in Public Version), Dr. Min believes that Redacted in Public Version *Id.* Thus, Redacted in Public Vers cannot satisfy this limitation because it Redacted in Public Version

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Redacted in Public Version *Id.* This is consistent with Mr. Jones' understanding of the Redacted in Public Version *See* RX-1210C (Min SWS) at Q/A 32. Mr. Jones testified that Redacted in Public Version JX-0187C (Jones Dep. Tr.) at 339. Mr. Jones agreed that the Redacted in Public Version *Id.* at 337. Mr. Jones does not dispute that the Redacted in Public Version *Id.* at 342.

3. "wherein the interface communicates"

1[7], 8[7]	wherein the interface communicates values to the intelligent agent based on the information retrieved from the form in response to the determination result indicating conformance.

Complainant appears to argue that the alleged interface satisfies this limitation by Redacted in Public Version *See* Compl. Br. at 176 ("this limitation can be met for example by the transactions written Redacted in Public Version"). Yet, that argument is not supported by the evidence. *See* RX-1210C (Min SWS) at Q/A 33.

Redacted in Public Version *Id.* As shown on RDX-0020C.0162 (Paul Min Demonstratives), Redacted in Public Version *Id.* Mr. Jones confirmed that the Redacted in Public Version

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and Mr. Jones never identifies any Redacted in Public Version [redacted]. *See* JX-0187C (Jones Dep. Tr.) at 354-356.

Furthermore, Redacted in Public Version [redacted]. *See* RX-1210C (Min SWS) at Q/A 33. Indeed, Mr. Jones admitted during his deposition that Redacted in Public Version [redacted]. *See* JX-0187C (Jones Dep. Tr.) at 356-357, 365-366, 369, 360, 353, 354-356. Inasmuch as Redacted in Public Version [redacted], the RuggedCom devices cannot satisfy this limitation. *See* RX-1210C (Min SWS) at Q/A 33.

Contrary to complainant's argument, Redacted in Public Version [redacted]. *Id*. Complainant appears to argue that this limitation can be met either by committing values that have been validated using the commit button and/or writing transactions to the CDB database. *See* Compl. Br. at 176 ("the RuggedCom Products meet this limitation [ ] for example, Redacted in Pub [redacted], as shown in CDX-1C.305.152 (title label) (CDX-0001C-305.0153, footer label))"). However, both Dr. Min and Mr. Jones confirmed that Redacted in Public Version [redacted]. *Id.*; JX-0187C (Jones Dep. Tr.) at 358-359, 360, 361-362, 143.

In addition, the functions associated with the Redacted in Public Version [redacted]. *See*

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RX-1210C (Min SWS) at Q/A 33. Mr. Jones testified that "Redacted in Public Version [redacted]." *See* JX-0187C (Jones Dep. Tr.) at 358-359, 360. The WebUI for the RuggedCom devices includes a separate and distinct button, the Commit button, only further demonstrates that a user must manually select the "Commit" button in order to trigger the functions associated with that button. *See* RX-1210C (Min SWS) at Q/A 33. This was confirmed by Mr. Jones. *See* JX-0187C (Jones Dep. Tr.) at 361-362. Indeed, the product manuals state that the user must select the "Commit" button from the toolbar to "commit all pending changes." *See* RX-1210C (Min SWS) at Q/A 33. A person of ordinary skill would understand that the values cannot be automatically committed because the toolbar also includes an "Exit Transaction" button that allows the user to "exit from the configuration editing mode" so that "all pending changes will be discarded." *Id*. If the values were automatically committed after validation as complainant suggests, then the "Exit Transaction" button would also be rendered superfluous. *Id.*

4. RSG900

The RSG900 does not include the same software components as the RX1400 and RX1500. *See* RX-1210C (Min SWS) at Q/A 34-37. This is because Redacted in Public Version [redacted] *Id.* at Q/A 35. Indeed, Mr. Jones confirmed that the RSG900 not only Redacted in Public Version [redacted] *See* JX-0187C (Jones Dep. Tr.) at 367, 367. Mr. Jones also testified that Redacted in Public Version [redacted] *Id.* at 367-368. Mr. Jones admitted

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that RSG900 does not even Redacted in Public Version which complainant argues is the process for generating a determination result. *Id*. at 367-368.

D. Validity of the '305 Patent

Respondents argue, *inter alia*:

> Rarely does one find a case with more evidence of prior use than this one. Even setting aside HPE's own prior conception and commercialization of the invalidating CNMS product, the record is replete with evidence showing that "Web-based network management systems were very common by then, and most vendors offered their products for Web-based network management." RX-0864C (Min WS) at Q/A 21 (citing RX-0267). The earliest filing date to which the '305 Patent claims priority is November 7, 2000. JX-0002 ('305 Patent), sec. (30). And yet, as Dr. Min recognized, "a prior art book titled *Web-Based Network Management* identifies 'at least a ***couple dozen vendors*** who offer[ed] products for Web-based network management' in the 1990s, including Hewlett Packard, IBM, and WIPRO." *Id*. (quoting RX-0267); RDX-0020C.0004. The '305 Patent itself describes several prior art web-based management techniques, "whereby Internet pages (also known as web pages) are used to obtain and manipulate information concerning the operation of the network entity." *Id*. (1:40-44).
>
> Unsurprisingly, claims 1 and 8 of the '305 Patent are invalid in view of a WIPRO prior art patent (Nair), a Canon prior art patent (Carcerano), and HPE's own prior art software product called Compaq Network Management Software (CNMS):

	Respondents' Constructions and/or Litigation Position	**Q3's Constructions and/or Litigation Position**
Nair (§ 103)	✓	✓
Nair + Carcerano (§ 103)	✓	✓
CNMS (§ 102)		✓
CNMS (§ 103)		✓
CNMS (§ 102(g))		✓

> As shown below, Q3 does not meaningfully dispute the prior art's straightforward disclosures. Nor does Q3 dispute that Nair and CNMS disclose the additional limitations of dependent claims 2 and 5 of the '305 Patent, which Q3 has maintained for Domestic Industry even though claims 2 and 5 are no longer asserted against Respondents.

Resps. Br. at 136-37; *see id.* at 137-76; Resps. Reply Br. 43-54.

Complainant disagrees. *See* Compl. Br. at 177-86; Compl. Reply Br. 53-57.

* * *

For the reasons set forth below, respondents have not shown by clear and convincing evidence that the asserted apparatus claims of the '305 patent are invalid.

1. Nair (RX-0080)

As discussed below, respondents have not shown by clear and convincing evidence that U.S. Patent No. 5,987,513 ("Nair"), RX-0080, renders obvious claims 1-3, 5-6, 8-9, and 11-14.

Respondents have not shown that Nair discloses element [1.1] or [8.1]. In his expert report, Dr. Min opined that Nair's "SNMP Back-End 630" discloses the "intelligent agent," but in his witness statement he opined that the so-called "SNMP agent 310/370" discloses that element. *See* Min Tr. 665, 666. Dr. Min testified at the hearing that he "still maintain[s] my position saying that the SNMP back-end in Nair … can be an intelligent agent as claimed." *Id.* at 668.

Nair discloses components 310 and 370 as "agents." *See* RX-0080 (Nair) at 8:55-67; 9:37-51; 9:66-10:12. The "SNMP backend 630" is the thing that communicates with the SNMP agents. It is not an agent itself. *See* CX-3930C (Martin RWS) at Q/A 71; RX-

0080 (Nair) at 20:5-9; 20:54-64. However, with respect to elements [1.4] and [8.4], Dr. Min opines that the intelligent agent is the "SNMP Back-End 360." *See* Min Tr. 668.

Respondents have not shown that Nair discloses or renders obvious element [1.3] or [8.3] which is "a Web server that provides an interactive environment to manage the at least one operational parameter of the network entity." Respondents argue that Nair's "HTTP front-end 660" discloses the claimed "Web server." However, Nair explicitly discloses that it is instead "Cybercore 650" that is a web server. *See* CX-3930C (Martin RWS) at Q/A 73. "Cybercore 650 performs many of [the] traditional web server functions in addition to several functions to provide the features of the present invention. Thus, cybercore 650 can be implemented by modifying web-server software." *See* RX-0080 (Nair) at 19:36-40, 21:15-16. Further, Nair discloses "cybercore 650" as the "core module." *See* RX-0080 (Nair) at 19:26-27. "The components of computer system (e.g., cybercore 650) access the required portion of the software, templates etc. during execution in a known way depending on where they are stored." RX-0080 (Nair) at 28:17-20. Nair does not disclose that "HTTP front-end 660" is a web server. *See* CX-3930C (Martin RWS) at Q/A 73.

Further, respondents are incorrect that Nair teaches that the HTTP Front-End 660 is transferring documents and web pages to a browser. *See* CX-3930C (Martin RWS) at Q/A 73. Rather, Nair discloses that it is "cybercore 650" that causes data to be transferred to a browser. *See* RX-0080 (Nair) at 21:15-16; 19:47-61. "Cybercore 650 interacts with front-end 660, back-end 630, and displays data retrieved dynamically using the templates." RX-0080 (Nair) at 19:48-50. Nair discloses that the "cybercore 650" has HTTP server functionality, but Nair is ambiguous about the functionality of the "HTTP

Front-End 660," and does not explicitly disclose it as a web server. *See* CX-3930C (Martin RWS) at Q/A 73. Indeed, a person of ordinary skill could have concluded that the front-end is a proxy server, for example. *See* CX-3930C (Martin RWS) at Q/A 73.

Respondents also have not shown that Nair discloses or renders obvious element [1.4] or [8.4] which is "an interface that communicates values of the at least one operational parameter between the Web server and the intelligent agent in accordance with the predetermined data structure." As discussed above, Nair's "cybercore 650" is disclosed as a web server. Thus, Dr. Min's opinions regarding this element that rely upon "HTTP front-end 660" as the "Web server" are incorrect, as well as his identification of "cybercore 650" as representing the "interface." *See* CX-3930C (Martin RWS) at Q/A 74. As discussed above, Nair's "SNMP back-end 630" is not disclosed as the "intelligent agent."

Dr. Min is incorrect that Nair discloses that "when the user using the browser wants to see the operational parameter of a selected network element, the HTTP Front-End 660 passes two things to the Cybercore 650 at step 1110: (1) the URL of a desired template, and (2) an identifier for the selected network element." *See* RX-0864C (Min WS) at Q/A 62 (citing to RX-0080 (Nair) at 20:13-20). The paragraph that Dr. Min cites to does not discuss the HTTP front-end 660, and does not disclose that that element performs the function that Dr. Min opines it does. *See* CX-3930C (Martin RWS) at Q/A 75.

Dr. Min opines, "to the extent that the SNMP Agent is the intelligent agent, it is my opinion that a person of ordinary skill would understand that the Cybercore 650 and SNMP Back-End 630 comprise the interface and still communicate with the SNMP

Agent based on the same OID numbers gathered by the interface." *See* RX-0864.0017 (Min WS). Dr. Min is incorrect because his analysis of this element solely focuses on the "SNMP back-end 630," but not "the Cybercore 650" as the claimed "intelligent agent." *See* CX-3930C (Martin RWS) at Q/A 75. Thus, respondents have not shown that this element is disclosed in Nair. *See* CX-3930C (Martin RWS) at Q/A 75.

Respondents also have not shown that Nair discloses or renders obvious element [1.5] or [8.5]. Nair does not disclose or render obvious this element under the constructions proposed by either party for the terms (1) "generated by a Web page generator" or (2) "set of linked Web pages in response to a request to carry out a procedure." *See* CX-3930C (Martin RWS) at Q/A 76. Dr. Min opines that the "Web page generator" of this element is disclosed by Nair's "cybercore 650." However, as noted above, Nair explicitly discloses that the "cybercore 650" is a web server. *See* CX-3930C (Martin RWS) at Q/A 77; RX-0080 (Nair) at 19:36-40; 19:26-27; 28:17-20. Thus, the "cybercore 650" cannot disclose the claimed "Web page generator."

Respondents have not shown that Nair discloses or renders obvious element [1.6] or [8.6]. While respondents argue that Nair's "cybercore 650" discloses the claimed "interface," the "cybercore 650" is a server. *See* CX-3930C (Martin RWS) at Q/A 79-80. Further, Nair does not disclose that the "cybercore 650" performs all the limitations in this element. *See id*. Dr. Min opines that the "determination result" is the "error message," but the "cybercore 650" does not generate that error message. *See id*. Nair states that "NMS 101 includes a default error page if an error occurs and no onError clause is specified for a group." RX-0080 (Nair) at 16:44-46.

Respondents have not shown that Nair discloses or renders obvious element [1.7] and [8.7]. As discussed, it is incorrect that Nair's "cybercore 650" discloses the claimed "interface," or that Nair's "SNMP back-end 630" discloses the claimed "intelligent agent," or that Nair's "error message" discloses the claimed "determination result." *See* CX-3930C (Martin RWS) at Q/A 81. Thus, for at least those reasons, Nair does not disclose this element. *See id*.

2. Carcerano (RX-0049) in combination with Nair

As discussed below, respondents have not shown by clear and convincing evidence that Nair combined with E.P. Pub. No. 0,996,253 ("Carcerano"), RX-0049, renders obvious claims 1-3, 5-6, 8-9, and 11-14.

As an initial matter, respondents rely on Carcerano to fill apparent gaps within Nair for elements [1.5], [1.6], and [1.7]. Thus, to the extent Nair does not disclose the remaining claim elements, as argued above, then combining it with Carcerano would not address those deficiencies. *See* Min Tr. 672; CX-3930C (Martin RWS) at Q/A 86. Furthermore, respondents have not shown that the proposed combination renders the claims obvious, because there is not a reasonable expectation of success, the combination may involve undue experimentation, a person of ordinary skill would not have looked from Nair to Carcerano, and the combination would involve significant complexity. *See* CX-3930C (Martin RWS) at Q/A 85-87. Dr. Min opines that a person of ordinary skill would have been motivated to combine Carcerano (RX-0049) with Nair, and that Carcerano discloses "a set of linked Web pages" and a "determination result" for elements [1.5], [1.6], and [1.7].

Dr. Min opines that "[a]pplying Carcerano's teachings to Nair's Network Management System, a [POSITA] would have been motivated to implement the 'Log on/off button 129' from Carcerano into the access level rights [sic] the hypertext documents of Nair in order to allow a user to toggle from end user mode to administrator mode, (password required), or vice versa (no password required)." *See* RX-0864C (Min WS) at Q/A 110. Yet, Dr. Min simplifies the complexity and magnitude of the alleged combination by adding the "Log on/off button" from Carcerano to the "hypertext documents of Nair." *See* CX-3930C (Martin RWS) at Q/A 86. Dr. Min's understanding would not simply add an HTML element to a web page. *See* CX-3930C (Martin RWS) at Q/A 86. In order for the "Log on/off button" to have any meaning, an entire account management system needs to be ported over from Carcerano. *See id.* That is, "Log on/off" requires one or more user accounts to be associated with the Log on or Log off action in order for either of these operations to have any contextual meaning, and a "Log on" or "Log off" button requires there be at least one account to "Log on" to or "Log off" of. *See id.* Dr. Min appears to acknowledge this. He states, "allow a user to toggle from end user mode to administrator mode, (password required), or vice versa (no password required)." *See* RX-0864C.0029 (Min WS).

Managing user accounts properly is a complex and detailed process. *See* CX-3930C (Martin RWS) at Q/A 87. One would, at a minimum, need to add the ability to securely manage an administrator password including to store, update and change it, as well as the ability to securely facilitate user session tracking on both a client and server. *See id.* User session tracking is the concept of keeping track of clients that are "logged" into the system at the server side so that privileged information that requires credentials

can be returned to such clients. *See id.* This can be implemented in a wide variety of ways, but integrating such a change in Nair is not trivial. *See id.* One integrating such a change into Nair would at a minimum need to add components to the system to facilitate the functions secure username and password storage, for user session tracking (both client and server-side).

3. "CNMS"

Respondents argue, "CNMS is prior art to the '305 Patent under pre-AIA 35 U.S.C. § 102(g) because Compaq conceived of and reduced to practice the claimed web-based management engine in the United States before the '305 Patent's invention date. A patent is invalid for prior invention under §102(g)(2) if another inventor either reduced the invention to practice first, or conceived of the invention first and then exercised reasonable diligence in reducing the invention to practice, provided that the prior inventor did not abandon, suppress, or conceal the invention." Resps. Br. at 174-75. Respondents argue that "CNMS" anticipates or renders obvious asserted claims 1-2, 5 and 8 of the '305 patent.

As discussed below, respondents have not shown by clear and convincing evidence that alleged prior art product "CNMS" anticipates or renders obvious asserted claims 1-2, 5 and 8.

First, respondents have not shown that CNMS is prior art under pre-AIA 35 U.S.C. § 102 (g). Specifically, respondents have not shown that CNMS is a single reference that was publicly available before the critical date of the '305 patent, or that they did not suppress or conceal the "invention" within CNMS. First, Dr. Min admitted that he is not opining that a single document regarding CNMS discloses each and every

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claim limitation, and that he is not relying solely upon source code as disclosing each and every claim limitation.[18] *See* Min Tr. 677-678, 679.

Second, respondents have not shown that the claimed functionality of CNMS was available to the public. Dr. Min admitted that the source code and other evidence that he relied upon regarding CNMS was marked "Confidential Business Information" under the Protective Order, which provides that "confidential business information is information which has not been made public." *See* Min Tr. 679-680; Order No. 1. Dr. Min further admitted that he had to review non-public source code to verify the functionalities, and that "CNMS is not a product that was sold." *See* Min Tr. 680-681. Dr. Min also admitted that users could not observe the inner workings of CNMS: "Q. You agree, don't you, that users of CNMS could not observe the inner workings of CNMS? A. Users cannot see the inner working. That is correct. And that's why I need a high-definition, high-level source code to verify that." Min Tr. 683.

The testimony of fact witnesses Peter Hansen and David Green, upon which respondents rely, does not show that a particular version of CNMS was publicly available as of the critical date. *See* CX-3930C (Martin RWS) at Q/A 91-94. For example, Mr. Hansen testified that the source code for CNMS was not publicly available, or made available to customers. *See* JX-0193C (Hansen Dep. Tr.) at 42, 43. He testified that the

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See JX-0193C (Hansen Dep. Tr.) at 51-53. Moreover, with respect to the CD that Mr.

[18] In relying on numerous versions of two different software offerings, numerous supporting networking devices (switches, routers, and hubs), numerous user guides, and other documentation, Dr. Min has not demonstrated that any one software offering or document embodied or disclosed each and every claim limitation. *See* CX-3930C (Martin RWS) at Q/A 88-90.

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Hansen provided to Dr. Min, about which Dr. Min says he "primarily relied upon," Mr. Hansen testified that he did not remember how the CD was created or what version of CNMS was the last version he worked on. *See* JX-0193C (Hansen Dep. Tr.) at 35, 37. He testified that he did not know whether the contents of the CD corresponded to a released version of CNMS, or whether any or all of the code on the CD was built and delivered. *See* JX-0193C (Hansen Dep. Tr.) at 84-85, 86-89. Like Dr. Min, he testified that customers would not have been able to observe how CNMS functioned. *See* JX-0193C (Hansen Dep. Tr.) at 129, 134.

Moreover, with respect to the CNMS Source Code CD that Mr. Hansen provided to Dr. Min, Mr. Hansen's testimony demonstrates a lack of knowledge about facts such as the contents of the CD, where they came from, and who had access to them. For example, Mr. Hansen testified that he did not know whether anyone used the installation package that was on the CD to install CNMS, and did not remember who created the CD. *See* JX-0193C (Hansen Dep. Tr.) at 44-45. He testified that he did not know how the files that were included on the CD were selected. *See* JX-0193C (Hansen Dep. Tr.) at 84. With respect to Redacted in Public Version (JX-0057C), Mr. Hansen testified that he did not know Redacted in Public Version *See* JX-0193C (Hansen Dep. Tr.) at 107. Mr. Green testified that he was not familiar with CNMS, and "had nothing to do with CNMS," and was not involved in the creation of the CDs he provided to Dr. Min. *See* JX-0191C (Green Dep. Tr.) at 51, 64.

Respondents have not shown that element [1.4] and [8.4] is disclosed by CNMS or rendered obvious by CNMS. Dr. Min opines that the claimed "operational parameter"

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is disclosed by the Redacted in Public Version of a device. *See* RX-0864C.0038 (Min WS). For element [1.4], Dr. Min does not identify any claimed "values" of Redacted in Publi that are "communicated" between the "Web server" and the "intelligent agent." Rather, Dr. Min opines that some, unidentified "values" are communicated, or "validated." Moreover, Dr. Min does not demonstrate that it is the "interface," which he opines is Redacted in Public Version that communicates any "values." *See* CX-3930C (Martin RWS) at Q/A 95.

4. Secondary Considerations

As discussed above, objective evidence, also known as "secondary considerations," includes commercial success, long felt need, and failure of others. *Graham*, 383 U.S. at 13-17 (1966); *Dystar*, 464 F.3d at 1361. "[E]vidence arising out of the so-called 'secondary considerations' must always when present be considered en route to a determination of obviousness." *Stratoflex*, 713 F.2d at 1538. Nevertheless, secondary considerations, such as commercial success, will not always dislodge a determination of obviousness based on analysis of the prior art. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. at 426 (commercial success did not alter conclusion of obviousness).

Yet, the parties, and especially complainant, presented no argument or evidence concerning secondary considerations. The subject is absent from their posthearing briefs, and from the Joint Outline. Consequestly, the administrative law judge concludes that secondary considerations would have no affect on an obviousness determination, especially if any asserted claim were found to be invalid.

VI. U.S. Patent No. 7,609,677

United States Patent No. 7,609,677 ("the '677 patent), entitled "Internet protocol based information transmission in a radio communication system," issued on October 27, 2009, to named inventors Enric Mitjana, and Maximilian Riegel. JX-0001 ('677 Patent). The '677 patent issued from Application No. 10/507,850, filed on April 25, 2005. *Id.* This application claims priority to European Application No. 020 06 022.4 filed on March 15, 2002. *Id.* at 1:8-10. The '677 patent relates to "a method for transmitting information in a communication system with at least two communicating devices." JX-0001 ('677 Patent) at 1:16-18. The '677 patent has a total of 16 claims. Complainant asserts method claims 1-6 of the '677 patent.

As discussed below, the evidence shows that (1) the asserted claims are not infringed by the accused products; (2) complainant has not satisfied the technical prong of the domestic industry requirement; and (3) the asserted claims are not invalid.

Asserted method claims 1-6 of the '677 patent read as follows:

> **1**. A method for transmitting information in a communication system with at least two communicating devices, comprising:
>
> linking the at least two communicating devices for transmission of the information at least via a radio communication interface of a radio communication system having base stations interlinked via a base station network, said linking using channels arranged in hierarchical protocol layers;
>
> ***supplying channel-specific information***, at least from one channel for a radio link between one of the communicating devices and at least one base station, to a ***hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices***;

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and

initiating at least one of a changeover in respect of at least one multiple access medium and a handover based on the channel-specific information supplied from the channel for the radio link to the hierarchically higher Internet protocol based channel for the overall link.

2. A method according to claim **1**, wherein said supplying sends the channel-specific information to the hierarchically higher Internet protocol based channel via a bit transmission channel to provide specific information about a physical radio link between the one of the communicating devices and the at least one base station.

3. A method according to claim **2**, wherein said supplying supplies the channel-specific information to the hierarchically higher Internet protocol based channel via a data link layer channel to ensure the radio link between the at least one of the communicating devices and the at least one base station.

4. A method according to claim **2**, wherein the channel-specific information relates to parameter information about the radio link between the at least one of the communicating devices and the at least one base station.

5. A method according to claim **2**, wherein the channel-specific information relates to calculations on data relating to the radio link between the at least one of the communicating devices and the at least one base station.

6. A method according to claim **3**, wherein the channel-specific information is control information related to the radio link between the at least one of the communicating devices and the at least one base station.

JX-0001 (‘677 Patent) at 5:50-6:26 (emphasis added).

A. Claim Construction

1. A Person of Ordinary Skill in the Art

Respondents argue:

> The relevant time period for the '853 Patent is March 2000 based on the Foreign Application DE10014522, filed March 23, 2000. JX-0003.0003. The relevant time period for the '305 Patent is November 7, 2000 based on the Foreign Application GB0027106.4, filed November 7, 2000. JX-0002.0003. The relevant time period for the '677 Patent is March 2002 based on the Foreign Application EP02006022, filed November March 15, 2002. JX-0004. As to all three patents, those of ordinary skill in the art during the relevant period would have had at least an undergraduate degree in Electrical Engineering or Computer Science and four or more years of experience in networking, or a Master's degree in Electrical Engineering or Computer Science and two or more years of experience in networking. RX-1195C.0005. Q3 proposes that a person of ordinary skill in the art "would have had an undergraduate degree in electrical or computer engineering (or a related field) and approximately two years of work experience in the field of networking." CX-3930C.0005-6 at Q/A 10. Under either proposed level of ordinary in the art for the Asserted Patents, the arguments and conclusions are the same.

Resps. Br. at 14.

Complainant does not provide a definition of a person of ordinary skill in the art in its brief. *See* Joint Outline at 1 (citing Compl. Br. at 27, 121). The cited pages merely discuss claim construction and validity issues. *See* Compl. Br. at 27, 121. However, as noted above in respondents' argument, "Q3 proposes that a person of ordinary skill in the art 'would have had an undergraduate degree in electrical or computer engineering (or a related field) and approximately two years of work experience in the field of networking'." *See* Resps. Br. at 14 (citing CX-3930C (Martin RWS) at Q/A 10).

As seen above, the parties mostly agree on this issue. As proposed by the parties, the undersigned agrees that some combination of education and experience is the appropriate level of ordinary skill. The administrative law judge finds that a person of

ordinary skill in the art with respect to the '677 patent is a person would have had at least an undergraduate degree in Electrical Engineering or Computer Science (or a related field) and two to four years of experience in networking, or a Master's degree in Electrical Engineering or Computer Science (or a related field) and two or more years of experience in networking.

2. Agreed Claim Terms

The parties agree on the construction of the following claim terms.

Claim Term	Agreed Proposed Construction
"changeover [in respect of at least one multiple access medium]" (claim 1)	"a change from one multiple access medium to another"
"handover" (claim 1)	"a switch from communicating with one base station to communicating with a different base station"

See Compl. Br. at 56-57; Resps. Claim Constr. Br. at 33.

The administrative law judge has determined to adopt the parties' proposed construction for the claim terms "changeover [in respect of at least one multiple access medium]" and "handover."

3. "supplying channel-specific information"

Below is a chart showing the parties' proposed claim constructions.

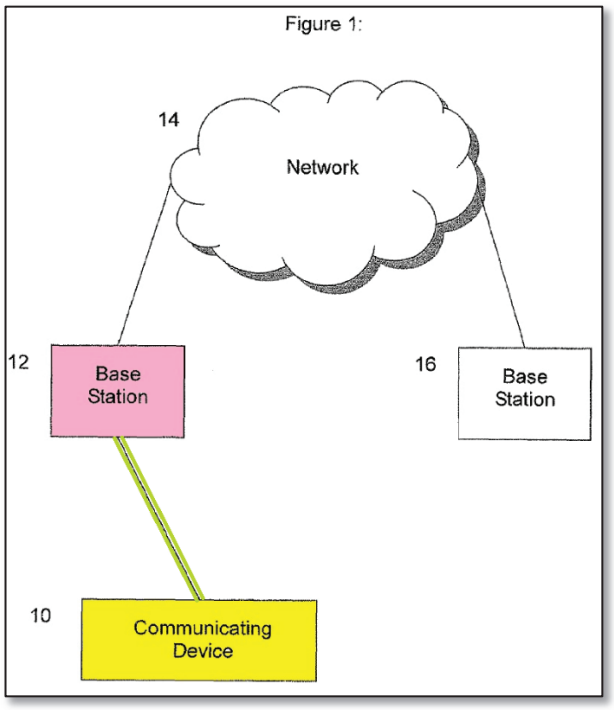
Claim Term	Complainant's Proposed Construction	Respondents' Proposed Construction
"supplying channel-specific information" (claim 1)	plain and ordinary meaning or "supplying any suitable information about the channel"	"transmitting information about the physical radio link"

See Compl. Br. at 23-25; Resps. Claim Constr. Br. at 39-43.

For the reasons discussed below, the administrative law judge has determined that the claim term "supplying channel-specific information" should be construed to mean "transmitting information about the physical radio link."

The '677 patent specification confirms that supplying channel-specific information requires transmitting information about a physical radio link between a communicating device and a base station, as proposed by respondents. Annotated Figure 1, below, shows a communicating device 10 (*e.g.*, a mobile device) (yellow) communicating with a base station 12 (pink) over a physical radio link (green).

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Both the surrounding claim language and specification confirm that the "channel" in the term "channel-specific information" is the physical radio link between the communicating device and base station. *Id*. at 3:18-19 ("information is supplied at least from one channel on a channel-specific basis…"), 3:65-67 (referring to a "bit transmission channel"), cl. 1 ("supplying channel-specific information, at least from one channel for a radio link...."). As a simple matter of logic and grammar, this physical radio link information is information about the physical radio link.

The '677 patent's Summary of the Invention section explains that the "channel-specific" information concerns the radio link: "[a]ccording to the invention, for the radio link between a communicating device and at least one base station, information is supplied at least from one channel on a channel-specific basis …." JX-0001 ('677 Patent) at 3:17-22. Accordingly, every embodiment of "channel-specific information" in

the '677 patent describes information about a channel of the physical radio link between communicating device 10 and base station 12. *See, e.g.*, JX-0001 ('677 Patent) at 3:63-4:2 ("specific information about the physical radio link between a communicating device 10 and at least one base station 12 is supplied from a bit transmission channel"); *id*. at 4:3-7 ("channel-specific information to be supplied to the hierarchically higher Internet protocol based channel from a data link layer channel for ensuring the radio link between a communicating device 10 and at least one base station 12."); and *id*. at 4:15-17 ("parameter information in respect of the radio link between communicating device 10 and base station can 12 be communicated to higher layers").

The prosecution history confirms that supplying channel-specific information requires transmitting information about a physical radio link between a communicating device and a base station. During prosecution, the applicant distinguished its purported invention from a prior art reference, Lopponen, on the basis that Lopponen does not disclose exchanging information about the "physical channel conditions" to the transport layer, Layer 4. *See* Applicant's Response to Rejection 2007-10-26, at 8 ("Thus, any data exchanged on the overall link using the internet protocol is unaware of the physical channel conditions. There is no apparent change in this process disclosed, suggested, or even contemplated in the disclosure of Lopponen."). Complainant cannot now recapture an alternative specific meaning disclaimed during prosecution.

During prosecution, applicant distinguished its purported invention from a combination of prior art references, Lopponen in view of U.S. Patent Application No. 2005/0009528 ("Iwamura"). In response to a rejection, applicant argued that "Iwamura, as in Lopponen, there is no disclosure, suggestion, nor even contemplation that such

channel-specific information present at the physical layer (modulation is effected at the physical layer) is supplied to an Internet protocol based layer. Even a combination of the two references do not suggest the supply of radio link channel related information to an Internet protocol based channel." *See* Resps. Claim Constr. Br. Ex. 23, June 30, 2008 Applicant's Response to Rejection at 9.[19]

In sum, respondents' construction requiring "supplying channel-specific information" to mean transmitting information about a physical radio link is confirmed by both the '677 patent specification and file history.

Complainant's proposed construction of "channel-specific information" is derived from a single sentence in the specification stating that the supplied information "can basically encompass and contain all suitable information." JX-0001 ('677 Patent) at 4:13-14. However, the term "all suitable information" is vague and the specification provides little guidance to one of skill in the art as to what would render any particular channel information suitable or not suitable.

Complainant does not dispute that channel-specific information includes "information about the physical radio link," as required by respondents' proposed construction. Rather, complainant's primary argument is that respondents are seeking to read a limitation from the specification into the meaning of "channel-specific information." *See* Compl. Br. at 14-15.

Yet, it is clear from the claim language that the '677 patent requires "supplying channel-specific information, at least from one channel for a radio link between one of

[19] The '677 patent prosecution history is also found in JX-0004 ('677 Patent File History).

the communicating devices and at least one base station." JX-0001 ('677 Patent) at claim 1. Inasmuch as the claim language describes from where the channel-specific information derives (*i.e.*, at least from one channel for a radio link), one can understand what channel-specific is, *i.e.*, information about the physical radio link. The prosecution history further confirms that supplying channel-specific information requires transmitting information about a physical radio link between a communicating device and a base station. *See* Resps. Claim Constr. Br. Ex. 23, June 30, 2008 Applicant's Response to Rejection at 9 ("Even a combination of the two references do not suggest the supply of radio link channel related information to an Internet protocol based channel."); Resps. Claim Constr. Br. Ex. 18, October 26, 2007 Applicant's Response to Rejection at 8 ("Thus, any data exchanged on the overall link using the internet protocol is unaware of the physical channel conditions."). Complainant cannot now recapture an alternative specific meaning disclaimed during prosecution. *See Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1323 (Fed. Cir. 2003); *Gillespie v. Dywidag Sys. Int'l, USA*, 501 F.3d 1285, 1291 (Fed. Cir. 2007) ("The patentee is held to what he declares during the prosecution of his patent.").

Complainant argues that respondents' proposed construction of "channel-specific information" is improper because it excludes an embodiment that supposedly describes transmitting information about a layer 2 channel. Compl. Br. at 24-25 ("channel-specific information to be supplied…*from a data link layer channel*") (emphasis in original). This is not correct. Every embodiment in the '677 patent specification discusses "channel-specific information" in the context of a physical radio link.

The embodiment cited by complainant describes how the channel-specific

information is sent to the higher channel, not what that information comprises. Specifically, the embodiment refers to sending the "channel-specific information … to the hierarchically higher Internet protocol based channel from a data link layer [layer 2] channel." *See* JX-0001 ('677 Patent) at 4:3-12. That the channel-specific information is supplied from a data link layer channel to the higher channel does not mean the information itself must be about the data link layer channel. Indeed, the '677 patent explains that one can supply channel-specific information "via a data link layer channel" so as to "ensure the radio link between the at least one of the communicating devices and the at least one base station." JX-0001 ('677 Patent) at claim 3. Thus, respondents' proposed construction is consistent with the specification.

Complainant argues that term "supplying" requires no additional construction. However, complainant does not dispute that the meaning of the term "supplying" is "transmitting." *Id.* at 15-16. Nor does it dispute that transmitting is consistent with the specification of the '677 patent, which makes clear that channel-specific information is "transmitted to higher layers." *See* JX-0001 ('677 Patent) at 3:63-4:2, 4:3-12; Compl. Br. at 15. Claim 1 itself states that "channel-specific information [was] supplied from the channel for the radio link," meaning it is transmitted over the radio link.

4. "hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices"

Below is a chart showing the parties' proposed claim constructions.

Claim Term	Complainant's Proposed Construction	Respondents' Proposed Construction
"[supplying channel-specific information, at least from one channel for a radio link between one of the communicating devices and at least one base station, to a] hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices" (claim 1)	"[supplying channel-specific information, at least from one channel for a radio link between one of the communicating devices and at least one base station, to a] Layer 4 or higher layer of the hierarchical protocol layers for an overall link between the at least two communicating devices"	"[supplying channel-specific information, at least from one channel for a radio link between one of the communicating devices and at least one base station, to a] ISO/OSI layer 3 or above based channel for an overall link between the at least two communicating devices"

See Compl. Br. at 25-31; Resps. Claim Constr. Br. at 33-39; Resps. Reply Br. at 55-57.

Complainant argues, *inter alia*:

> The first dispute for this term is whether the "hierarchically higher Internet protocol based channel" is Layer 3 as set forth in Complainant's construction or Layer 4 as set forth in Respondents' construction. Respondents proposed adopting Complainant's construction for the purpose of narrowing the issues. Complainant responded by proposing to adopt Respondent's construction because it would further narrow the issues by eliminating the Matta reference. The parties agreed to swap positions and briefing on this term, where Complainant now seeks Respondent's construction and vice-versa as reflected in the table above.

Compl. Br. at 25-26.

Respondents argue, *inter alia*:

> The procedural history of this term's proposed construction is worth noting. On June 30, 2021, Respondents attempted to narrow the disputes in the case by adopting Q3's (broader) proposed construction, which included at least Layers 3 and 4 as hierarchically higher Internet protocol based channels. Two weeks later, Q3 decided to be opportunistic and

> changed its position to adopt Respondents' prior proposed construction, which had already been abandoned. Now, according to Q3, Layer 3 is *not* a hierarchically higher Internet protocol based channel, as that term is used in the '677 Patent.

Resps. Br. at 56 n.16.

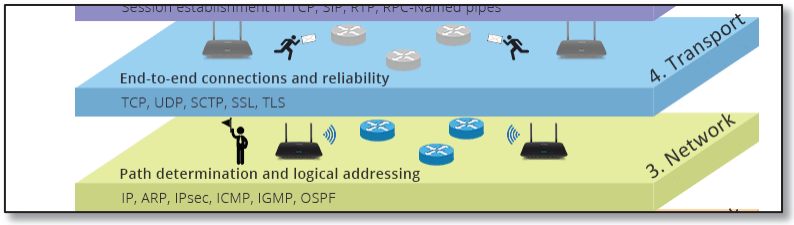
As discussed below, the administrative law judge has determined that the claim term "hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices" should be construed to mean "ISO/OSI layer 3 or above based channel for an overall link between the at least two communicating devices."

There is no dispute that this term would ordinarily include Layer 3, nor does complainant deny that Internet protocol based networking protocols in the OSI stack start at Layer 3. Indeed, Dr. Lin confirmed that layer 3 is the network layer, and layer 4 is the transport layer during the hearing. Lin Tr. 603-604.

The '677 patent specification states that "the information to be forwarded to hierarchically higher channels or layers being primarily Layer 1 and/or Layer 2 information as defined in the ISO/OSI model." *See* JX-0001 ('677 Patent) at 3:30-32; 3:63-4:2 (describing Layer 1 information being supplied to higher layers); 4:3-12 (describing Layer 2 information being supplied to higher layers). Therefore, a person of ordinary skill would understand that the hierarchically higher layers begin at Layer 3.

This construction of the term "hierarchically higher Internet protocol based channel" is consistent with the OSI model, as illustrated in complainant's own demonstratives. On CDX-0001C-677.0044 reproduced below, the two layers that start at Layer 3 ("Network") and Layer 4 ("Transport") show the typical IP based protocol

functions. For Layer 3, it contains the "path determination and logical addressing" (which is required for IP protocols) and includes "IP, ARP, IPsec, ICMP, IGMP, OSPF" protocols supported at this layer.[20] For Layer 4, also part of the IP protocol, is described as "end-to-end connections and reliability," and includes "TCP, UDP, SCTP, SSL, TLS" protocols being supported. Thus, at least Layers 3 and 4 are the Internet Protocol based layers that meet the hierarchically higher Internet protocol based channel requirement of the claims. *See* Lin Tr. 603-604.



Narrowing this term would narrow the breadth of the invention, and would impermissibly limit the invention based upon a misreading of one disclosed embodiment. Further narrowing of this claim is not warranted. To "limit the claims to the disclosed embodiments without a clear disclaimer in the intrinsic record that limits the invention to these embodiments." *Nautilus Group, Inc. v. Icon Health & Fitness, Inc.*, 82 F. App'x 691, 694 (Fed. Cir. 2003). Thus, the claims should not be narrowed to exclude Layer 3.

[20] There is no dispute that "IP protocol" is Layer 3. *See* CX-3846C (Madisetti WS) at Q/A 415 ("Examples of protocol layers are AppleTalk, or IP protocol, which are layer 3.").

5. "initiating at least one of a changeover [in respect of at least one multiple access medium] and a handover"

Below is a chart showing the parties' proposed claim constructions.

Claim Term	Complainant's Proposed Construction	Respondents' Proposed Construction
"initiating at least one of a changeover [in respect of at least one multiple access medium] and a handover" (claim 1)	"causing, or facilitating, the beginning of at least a changeover or a handover"	"initiating at least one of (i) a change from one multiple access medium to another and (ii) a switch from communicating with one base station to communicating with a different base station"

See Compl. Br. at 31-32; Resps. Claim Constr. Br. at 43-46.

For the reasons discussed below, the administrative law judge has determined that the claim term "initiating at least one of a changeover [in respect of at least one multiple access medium] and a handover" should be construed to mean "initiating at least one of (i) a change from one multiple access medium to another and (ii) a switch from communicating with one base station to communicating with a different base station."

The main dispute regarding the phrase "initiating at least one of a changeover [in respect of at least one multiple access medium] and a handover" is over the meaning of "initiating." As noted above, the parties agree on the meaning of "changeover [in respect of at least one multiple access medium]" (*i.e.*, a change from one multiple access medium to another) and "handover" (*i.e.*, a switch from communicating with one base station to communicating with a different base station.). These agreed definitions are reflected in respondents' proposed construction.

The broader language of claim 1 recites: "initiating at least one of a changeover in respect of at least one multiple access medium and a handover based on the channel-specific information supplied from the channel for the radio link to the hierarchically higher Internet protocol based channel for the overall link." In accordance with the parties' agreed construction of "changeover" and "handover," this step requires that at least one of a "change" and a "switch" is initiated based on the channel-specific information supplied from the channel for the radio link to the hierarchically higher Internet protocol based channel for the overall link.

Indeed, each of the specification's descriptions of the "initiating" step describes a clear and direct link between the channel-specific information and the occurrence of handover/changeover. *See* JX-00014 ('677 Patent) at 4:65-67 ("[O]n the basis of the transmitted information, the frequency, time slot and/or code used can be changed."), 5:29-31 ("If … a radio link is deteriorating, the mobile station can initiate an IP address change before the link breaks up completely."), 5:35-37.

Complainant's proposed construction replaces the word "initiating" with a dictionary definition of "initiating" that lacks support in the intrinsic record. One should not start with the extrinsic evidence and work backwards in construing a claim. *See Phillips*, 415 F.3d at 1321 (Fed. Cir. 2005) ("The risk of systematic overbreadth is greatly reduced if the court instead focuses at the outset on how the patentee used the claim term in the claims, specification, and prosecution history, rather than starting with a broad definition and whittling it down). The fact that the words "causing" and "facilitating" appear in a dictionary definition of "initiating" should not supersede the teachings of the intrinsic record, which never mention "causing, or facilitating, the beginning of" in

connection with the disclosed changeover or handover. *See Phillips*, 415 F.3d at 1321-22 (cautioning that "[d]ictionaries, by their nature, provide an expansive array of definitions … from the common to the obscure. By design, general dictionaries collect the definitions of a term as used not only in a particular art field, but in many different settings … Thus, the use of the dictionary may extend patent protection beyond what should properly be afforded by the inventor's patent."). Each of the specification's descriptions of the "initiating" step describe a clear and direct link between the channel-specific information and the actual changeover or handover. *See, e.g.*, JX-0001 ('677 Patent) at 4:65-67 ("[O]n the basis of the transmitted information, the frequency, time slot and/or code used can be changed."), 5:29-31 ("If, for example, a radio link is deteriorating, the mobile station can initiate an IP address change before the link breaks up completely."), 5:35-37 (similar). Complainant's proposed construction, particularly inclusion of the verb "facilitate,"[21] would deny the claimed linkage between the channel-specific information and the initiation of a changeover or handover to include unclaimed steps that simply precede the changeover or handover.

Even if dictionary definitions were helpful in interpreting "initiating," complainant's dictionaries are inconsistent with the general meaning of the term as confirmed by various other dictionaries at the relevant time period. *See, e.g.*, Resps. Claim Constr. Br. Ex. 24, Collins English Dictionary (Fourth Edition 1998) at 792 (initiate: "to begin or originate"); Resps. Claim Constr. Br. Ex. 25, Random House

[21] Complainant's cited definition from the New Oxford American Dictionary does not include this verb.

Webster's College Dictionary (2000) at 680 (initiate: "to begin, set going, or originate").[22]

B. Infringement Analysis of the '677 Patent

As discussed above, complainant asserts method claims 1-6 of the '677 patent.

Complainant argues that HPE, CommScope and NETGEAR accused products directly infringe the asserted method claims 1-6 of the '677 patent, and that HPE, CommScope and NETGEAR induce infringement. *See* Compl. Br. at 32-100; Compl. Reply Br. at 2-6, 6-31. Respondents disagree. *See* Resps. Br. at 185-187, 187-231; Resps. Reply Br. 63-83.

1. Accused Products

Complainant argues:

> The HPE products that infringe the '677 Patent include HPE's: AP-303, AP-303P, AP-304, AP-305, AP-314, AP-315, AP-320, AP-324, AP-325, AP-334, AP-335, AP-344, AP-345, AP-504, AP-505, AP-514, AP-515, AP-534, AP-535,AP-555, AP-318, AP-518, AP-203H, AP-303H, AP-505H, AP-365, AP-367, AP-374,AP-375, AP-377, AP-387, AP-565, AP-567, AP-574, AP-575, AP-577, AP-203R, AP-203RP, AP-303HR, and any substantially similar models; and the 7200 series (e.g., 7205, 7210, 7220, 7280, 7240XM), 7000 series (e.g., 7005, 7008,7010, 7024, 7030), and 9000 series (e.g., 9004 and 9000) and any substantially similar models.
>
> The CommScope products that infringe the '677 Patent include CommScope's: C110; E510; H320; H510; M510; R310; R320; R510; R550; R610; R650; R710; R720; R730; R750; R850; T305; T310c; T310d; T310n; T310s; T300e; T610; T610s; T710; T710s; T750; T811; 7781-CM; P300 and any substantially similar models.
>
> The NETGEAR products that infringe the '677 Patent include NETGEAR's: EX6100; WAC510; RBR750; RBS750; BR500-100NAS; EAX20-100NAS; EAX80-100NAS; EX6100-100NAS; EX6150-100NAS;

[22] Complainant's cited Merriam-Webster's Collegiate Dictionary also defines "initiate" as "set going," but complainant appears to ignore this portion of its dictionary.

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EX6250-100NAS; EX6400-100NAS;EX7000-100NAS; EX7300-100NAS; EX7500-100NAS; EX8000-100NAS; LBR20-100NAS; MK62-100CNS; MK63-100CNS; MS60-100NAS; R6220-100NAS; R6230-100NAS; R6260-100NAS; R6350-100NAS; R6400-100NAS; R6700-100NAS; R6850-100NAS; R6900-200NAS; R7000-100CNS; R7200-100CNS; R7350-100NAS; R7400-100NAS; R7450-100NAS; R7800-100NAS; R7850-100NAS; R7900P-100NAS;R7960P-100NAS; R8000-100NAS; R9000-100NAS; RAX120-100NAS; RAX200-100CNS; RAX20-100NAS; RAX35-100NAS; RAX38-100NAS; RAX40-100NAS;RAX45-100NAS; RAX50-100NAS; RAX75-100NAS; RAX80-100NAS; RBK12-100NAS; RBK13-100NAS; RBK14-100NAS; RBK20W-100NAS; RBK22-100MXS;RBK23-100NAS; RBK43S-100NAS; RBK44-100NAS; RBK50-100NAS; RBK53S-100NAS; RBK752-100NAS; RBK753-100NAS; RBK842-1CCNAS; RBK852-100NAS; RBK853-100NAS; RBR20-100NAS; RBS10-100NAS; RBS20-100NAS;RBS50-100NAS; RBS750-100NAS; RBS850-100NAS; RBW30-100NAS; SRC60-100NAS; SRK60-100NAS; SRR60-100NAS; WAC104-100NAS; WAC124-100NAS;WAC510-100NAS; WAC540-100NAS; WAC564-100NAS; WAC720-100NAS;WAC730-100NAS; XR300-100NAS; XR500-100NAS; XRM570-100NAS; EAX11-100NAS; EAX12-100NAS; EAX14-100NAS; EAX15-100NAS; EAX18-100NAS;EX2700-100PAS; EX2800-1AZNAS; EX3110-100NAS; EX3700-100NAS; EX5000-1AZNAS; EX6110-100NAS; EX6120-100NAS; EX7700-100NAS; R6020-100NAS;R6080-100NAS; R6120-100NAS; R6330-1AZNAS; R6700AX-1AZNAS; R7000P-100AUS; R8000P-1AZNAS; RAX10-100NAS; RAX30-100NAS; RAX42-100NAS;RAX43-100NAS; RAX48-100NAS; RAX70-100NAS; RAX78-100NAS; RAXE500-100NAS; RBK53-100NAS; RBK962-100NAS; RBK963-100NAS; RBS960-100NAS; SRK60B03-100NAS; SRK60B04-100NAS; SRK60B05-100NAS; SRK60B06-100NAS; SRS60-100NAS; SXK30-100NAS; SXK30B3-100NAS; SXK30B4-100NAS;SXK80-100NAS; SXK80B3-100NAS; SXK80B4-100NAS; SXR30-100NAS; SXS30-100NAS; SXS80-100NAS; WAC510B03-100NAS; WAC510PA-100NAS;WAC540PA-100NAS; WAX202-100NAS; WAX204-100NAS; WAX206-100NAS; WAX214-100NAS; WAX214PA-100NAS; WAX218-100NAS; WAX218PA-100NAS;WAX610-100NAS; WAX610PA-100NAS; WAX610Y-100NAS; WAX620-100NAS;WAX620PA-100NAS; WAX630-100NAS; WAX630PA-100NAS; XR1000-100CNS and any substantially similar models.

Compl. Br. at 7-9.

Respondents argue:

HPE

….Q3 alleges that the Aruba APs and controllers (7205, 7210, 7220, 7280, 7240XM, 7005, 7008, 7010, 7024, 7030, 9004, and 9000) infringe the '677 and '305 Patents. *Id.* at Q/As 291, 542.

NETGEAR

….Q3 alleges that the NETGEAR products that provide Wi-Fi connectivity (EX6100; WAC510; RBR750; RBS750; BR500-100NAS; EAX20-100NAS; EAX80-100NAS; EX6100-100NAS; EX6150-100NAS; EX6250-100NAS; EX6400-100NAS; EX7000-100NAS; EX7300-100NAS; EX7500-100NAS; EX8000-100NAS; LBR20-100NAS; MK62-100CNS; MK63-100CNS; MS60-100NAS; R6220-100NAS; R6230-100NAS; R6260-100NAS; R6350-100NAS; R6400-100NAS; R6700-100NAS; R6850-100NAS; R6900-200NAS; R7000-100CNS; R7200-100CNS; R7350-100NAS; R7400-100NAS; R7450-100NAS; R7800-100NAS; R7850-100NAS; R7900P-100NAS; R7960P-100NAS; R8000-100NAS; R9000-100NAS; RAX120-100NAS; RAX200-100CNS; RAX20-100NAS; RAX35-100NAS; RAX38-100NAS; RAX40-100NAS; RAX45-100NAS; RAX50-100NAS; RAX75-100NAS; RAX80-100NAS; RBK12-100NAS; RBK13-100NAS; RBK14-100NAS; RBK20W-100NAS; RBK22-100MXS; RBK23-100NAS; RBK43S-100NAS; RBK44-100NAS; RBK50-100NAS; RBK53S-100NAS; RBK752-100NAS; RBK753-100NAS; RBK842-1CCNAS; RBK852-100NAS; RBK853-100NAS; RBR20-100NAS; RBS10-100NAS; RBS20-100NAS; RBS50-100NAS; RBS750-100NAS; RBS850-100NAS; RBW30-100NAS; SRC60-100NAS; SRK60-100NAS; SRR60-100NAS; WAC104-100NAS; WAC124-100NAS; WAC510-100NAS; WAC540-100NAS; WAC564-100NAS; WAC720-100NAS; WAC730-100NAS; XR300-100NAS; XR500-100NAS; XRM570-100NAS; EAX11-100NAS; EAX12-100NAS; EAX14-100NAS; EAX15-100NAS; EAX18-100NAS; EX2700-100PAS; EX2800-1AZNAS; EX3110-100NAS; EX3700-100NAS; EX5000-1AZNAS; EX6110-100NAS; EX6120-100NAS; EX7700-100NAS; R6020-100NAS; R6080-100NAS; R6120-100NAS; R6330-1AZNAS; R6700AX-1AZNAS; R7000P-100AUS; R8000P-1AZNAS; RAX10-100NAS; RAX30-100NAS; RAX42-100NAS; RAX43-100NAS; RAX48-100NAS; RAX70-100NAS; RAX78-100NAS; RAXE500-100NAS; RBK53-100NAS; RBK962-100NAS; RBK963-100NAS; RBS960-100NAS; SRK60B03-100NAS; SRK60B04-100NAS; SRK60B05-100NAS; SRK60B06-100NAS; SRS60-100NAS; SXK30-100NAS; SXK30B3-100NAS; SXK30B4-100NAS; SXK80-100NAS; SXK80B3-100NAS; SXK80B4-100NAS; SXR30-100NAS; SXS30-

100NAS; SXS80-100NAS; WAC510B03-100NAS; WAC510PA-100NAS; WAC540PA-100NAS; WAX202-100NAS; WAX204-100NAS; WAX206-100NAS; WAX214-100NAS; WAX214PA-100NAS; WAX218-100NAS; WAX218PA-100NAS; WAX610-100NAS; WAX610PA-100NAS; WAX610Y-100NAS; WAX620-100NAS; WAX620PA-100NAS; WAX630-100NAS; WAX630PA-100NAS; XR1000-100CNS) infringe the '677 Patent. *Id.* at Q/A 429….

COMMSCOPE

….Q3 alleges the Ruckus APs infringe the '677 Patent. *Id.* at Q/A 391….

Resps. Br. at Appendix A.

Thus, the parties' arguments show that for the '677 patent, (1) HPE accused products are Aruba APs[23] and controllers (7205, 7210, 7220, 7280, 7240XM, 7005, 7008, 7010, 7024, 7030, 9004, and 9000); (2) NETGEAR accused products are NETGEAR products that provide Wi-Fi connectivity;[24] and (3) CommScope accused products are

[23] AP11, AP11D, AP12, AP15 AP17, AP22, AP-303, AP-303P, AP-304, AP-305, AP-314, AP-315, AP-320, AP-324, AP-325, AP-334, AP-335, AP-344, AP-345, AP-504, AP-505, AP-514, AP-515, AP-534, AP-535, AP-555, AP-318, AP-518, AP-203H, AP-303H, AP-505H, AP-365, AP-367, AP-374, AP-375, AP-377, AP-387, AP-565, AP-567, AP-574, AP-575, AP-577, AP-203R, AP-203RP, AP-303HR.

[24] (EX6100; WAC510; RBR750; RBS750; BR500-100NAS; EAX20-100NAS; EAX80-100NAS; EX6100-100NAS; EX6150-100NAS; EX6250-100NAS; EX6400-100NAS; EX7000-100NAS; EX7300-100NAS; EX7500-100NAS; EX8000-100NAS; LBR20-100NAS; MK62-100CNS; MK63-100CNS; MS60-100NAS; R6220-100NAS; R6230-100NAS; R6260-100NAS; R6350-100NAS; R6400-100NAS; R6700-100NAS; R6850-100NAS; R6900-200NAS; R7000-100CNS; R7200-100CNS; R7350-100NAS; R7400-100NAS; R7450-100NAS; R7800-100NAS; R7850-100NAS; R7900P-100NAS; R7960P-100NAS; R8000-100NAS; R9000-100NAS; RAX120-100NAS; RAX200-100CNS; RAX20-100NAS; RAX35-100NAS; RAX38-100NAS; RAX40-100NAS; RAX45-100NAS; RAX50-100NAS; RAX75-100NAS; RAX80-100NAS; RBK12-100NAS; RBK13-100NAS; RBK14-100NAS; RBK20W-100NAS; RBK22-100MXS; RBK23-100NAS; RBK43S-100NAS; RBK44-100NAS; RBK50-100NAS; RBK53S-100NAS; RBK752-100NAS; RBK753-100NAS; RBK842-1CCNAS; RBK852-100NAS; RBK853-100NAS; RBR20-100NAS; RBS10-100NAS; RBS20-100NAS; RBS50-100NAS; RBS750-100NAS; RBS850-100NAS; RBW30-100NAS; SRC60-100NAS; SRK60-100NAS; SRR60-100NAS; WAC104-100NAS; WAC124-100NAS; WAC510-100NAS; WAC540-100NAS; WAC564-100NAS; WAC720-100NAS; WAC730-

Ruckus APs (C110; E510; H320; H510; M510; R310; R320; R510; R550; R610; R650; R710; R720; R730; R750; R850; T305; T310c; T310d; T310n; T310s; T300e; T610; T610s; T710; T710s; T750; T811; 7781-CM; P300).

2. Direct Infringement

For the reasons discussed below, the accused products do not infringe the '677 patent.

Asserted independent method claim 1 of the '677 patent reads as follows:

> **1**. A method for transmitting information in a communication system with at least two communicating devices, comprising:
>
> ***linking the at least two communicating devices*** for transmission of the information at least via a radio communication interface of a radio communication system having base stations interlinked via a base station network, said linking using channels arranged in hierarchical protocol layers;
>
> ***supplying channel-specific information***, at least from one channel for a radio link between one of the

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100NAS; XR300-100NAS; XR500-100NAS; XRM570-100NAS; EAX11-100NAS; EAX12-100NAS; EAX14-100NAS; EAX15-100NAS; EAX18-100NAS; EX2700-100PAS; EX2800-1AZNAS; EX3110-100NAS; EX3700-100NAS; EX5000-1AZNAS; EX6110-100NAS; EX6120-100NAS; EX7700-100NAS; R6020-100NAS; R6080-100NAS; R6120-100NAS; R6330-1AZNAS; R6700AX-1AZNAS; R7000P-100AUS; R8000P-1AZNAS; RAX10-100NAS; RAX30-100NAS; RAX42-100NAS; RAX43-100NAS; RAX48-100NAS; RAX70-100NAS; RAX78-100NAS; RAXE500-100NAS; RBK53-100NAS; RBK962-100NAS; RBK963-100NAS; RBS960-100NAS; SRK60B03-100NAS; SRK60B04-100NAS; SRK60B05-100NAS; SRK60B06-100NAS; SRS60-100NAS; SXK30-100NAS; SXK30B3-100NAS; SXK30B4-100NAS; SXK80-100NAS; SXK80B3-100NAS; SXK80B4-100NAS; SXR30-100NAS; SXS30-100NAS; SXS80-100NAS; WAC510B03-100NAS; WAC510PA-100NAS; WAC540PA-100NAS; WAX202-100NAS; WAX204-100NAS; WAX206-100NAS; WAX214-100NAS; WAX214PA-100NAS; WAX218-100NAS; WAX218PA-100NAS; WAX610-100NAS; WAX610PA-100NAS; WAX610Y-100NAS; WAX620-100NAS; WAX620PA-100NAS; WAX630-100NAS; WAX630PA-100NAS; XR1000-100CNS)

communicating devices and at least one base station, to a ***hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices***; and

initiating at least one of a changeover in respect of at least one multiple access medium and a handover based on the channel-specific information supplied from the channel for the radio link to the hierarchically higher Internet protocol based channel for the overall link.

JX-0001 ('677 Patent) at 5:50-6:2 (emphasis added).

a. Claim 1: HPE Accused Products

i. Overview: Instant, Unified, and Instant On APs

Complainant's infringement case is based on HPE's patented Client Match technology. However, not all accused products run Client Match, let alone the same version of Client Match. Despite this, complainant (through Dr. Madisetti) only analyzed the Campus AP version and has not offered any infringement opinion on non-Campus AP versions, *i.e.*, Instant, Unified, and Instant On APs. *See* Madisetti Tr. 87.

Dr. Madisetti does not analyze the Instant On APs. Indeed, the undisputed evidence shows the Instant On APs Redacted in Public Version. *See* RX-1198C (Balay WS) at Q/A 57; RX-1196C (Lin RWS) at Q/A 25-26. The Instant APs, which run the Redacted in Public Version, do not implement the key features of Redacted in Public Version that complainant relies on to support its infringement case. *See* RX-1198C (Balay WS) at Q/A 79-82. Redacted in Public Version *See* RX-1198C (Balay WS) at Q/A 11.

Rather than analyze Redacted in Public Version

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Redacted in Public Version, complainant instead argues that a customer could Redacted in Public Version . However, the undisputed evidence confirms that Redacted in Public Version . *See* RX-1198C (Balay WS) at Q/A 28, 57. Complainant offers no evidence that any U.S. customers Redacted in Public Version . Further, even assuming complainant had such evidence, that does not change the fact that (1) these products are imported with Redacted in Public Version (RX-1198C (Balay WS) at Q/A 11-14), and (2) certainly not all customers make such a Redacted in Public Version. *See* RX-1198C (Balay WS) at Q/A 11.

ii. Client Match Overview

Certain Aruba (HPE) APs provide a technology branded as Client Match, which Redacted in Public Version . *See* RX-1196C.0010 (Lin RWS). Client Match aims to provide better connectivity to clients by Redacted in Public Version *Id*. Dr. Lin and Mr. Overby provide a thorough overview of HPE's Client Match technology, summarized below. *See* RX-1196C (Lin RWS) at Q/A 22-23, 25-38; RX-0935C (Overby WS) at Q/A 87-94. Complainant accuses three algorithms in Client Match: Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 28-31.

The Redacted in Public Version implementation is described in detail below. With respect to Campus APs and Client Match's Redacted in Public Version, HPE's Campus APs will Redacted in Public Version *See* RX-0935C (Overby WS) at Q/A 88-89; CPX-0008C.3336 at ln. 2974, ln. 3299 (HPE

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Produced Source Code Q3_HPE_CODE_0000001-5775); RX-0554C at lns. 2801, 2812-2815, 2854; CPX-0008C.2788 at lns. 1234-1235. The Campus AP also transmits the Redacted in Public Version to the HPE controller by using a version of Aruba's Redacted in Public Ver *See* CPX-0008C.3336 at ln. 2974.

Once the controller receives the message from the AP, Redacted in Public Version . *See* CPX-0008C.2864 at lns. 2829, 2958, 2959, 3095, 3133-3135 (HPE Produced Source Code Q3_HPE_CODE_0000001-5775). That application Redacted in Public Version During the next Redacted in Public Version, the AP Redacted in Public Vers *See* CPX-0008C.3336 at lns. 2974, 3347; CPX-0008C.0312 at ln. 833. The Redacted in Public Version function compares Redacted in Public Version with Redacted in Public Version. This Redacted in Public Version was not received via Redacted in Pub; rather, it was Redacted in Public Version . *See* RX-1198C (Balay WS) at Q/A 69; RX-1196C (Lin RWS) at Q/A 157. If the Redacted in Public Version , the Redacted in Public Version function calls another function to Redacted in Public Version . *See* CPX-0008C.0312 at lns. 833, 911, 926; CPX-0008C.0312 at lns. 539, 544, 568, 569, 648.

If Client Match is Redacted in Public Version , the controller can Redacted in Public Version . *See* CPX-0008C.1428 at lns. 2144-2147, 2149-2157, 2180 (HPE Produced Source Code Q3_HPE_CODE_0000001-5775); CPX-0008C.1682 at lns. 224, 249-271, 387-391. Then, if the client is Redacted in Public Vers compatible, the Campus AP Redacted in Public Version *See* RX-0600C at lns. 1758-1762, 2227, 2228; CPX-0008C.0512 at ln. 10950;

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RX-0485C (Q3_HPE_0059339 at 385); RX-0486C (Q3_HPE_0059417 at 431); JX-0065C (Q3_HPE_0017078 at 81). The client can Redacted in Public Version . Ultimately, the handover is Redacted in Public Version. *See* RX-1198C (Balay WS) at Q/A 59-60.

As noted above, Instant APs' version of Client Match is Redacted in Public Version . For Instant APs, the Redacted in Public Version between devices, known as "Redacted in Public Version," uses Redacted in Public Version. *See* CPX-0008C.4649 at lns. 4979, 4987, 4992, 4997, 4924, 4951, 4963, 4965 (HPE Produced Source Code Q3_HPE_CODE_0000001-5775). The Redacted in Public Version in Instant APs is stored Redacted in Public Version and the Instant AP will Redacted in Public Version *See, e.g.*, RX-0513C.0012 (Redacted in Public Version); JX-0088C.0014 (Redacted in Public Version) ("Redacted in Public Version ."). Instant APs Redacted in Public Version .

Instant-On APs Redacted in Public Version . *See* RX-1198C (Balay WS) at Q/A 57.

iii. Individual Limitations Not Found in the HPE Products

Claim 1 [preamble]: "A method for transmitting information in a communication system with at least two communicating devices, comprising:"

There are several issues with complainant's theory of infringement for the preamble of claim 1 of the '677 patent. *See* RX-1196C (Lin RWS) at Q/A 55-58. First, complainant's allegations require unaccused third-party devices to perform one or more

steps of the '677 patent's asserted claim 1. Those products are outside the notice of investigation, and the accused products themselves therefore cannot infringe. Dr. Madisetti opines that "HPE's corporate witnesses also supplied testimony supporting my position that the Aruba access points themselves perform the method of claim 1 without relying on the clients, *i.e.*, the communicating devices." *See* CX-3846C (Madisetti WS) at Q/A 319. This is wrong. The cited testimony just states that Client Match runs on certain HPE accused products and not on third-party client devices. That does not mean that those third-party client devices are not necessary to perform the claimed limitation. To the contrary, the third-party devices ("communicating devices") are expressly recited in the claim.

Second, complainant generally identifies three types of HPE access points in Dr. Madisetti's witness statement, ("Controller Based," "Instant AP" or "Unified AP"),[25] but does not reconcile the differences between these products as it relates to the asserted claim limitations, most importantly because Redacted in Public Version [redacted] *See* RX-1196C (Lin RWS) at Q/A 40, 57-58; RX-1198C (Balay WS) at Q/A 55-57. For example, Dr. Madisetti overlooks the fact that Redacted in Public Version [redacted] As Dr. Balay explains in her witness testimony, Redacted in Pu [redacted] *See* RX-1198C (Balay WS) at Q/A 80-82. Dr. Madisetti overlooks the fact that Redacted in Public Version [redacted] *See* RX-1196C (Lin RWS) at Q/A 58.

[25] Instant On APs are absent from Dr. Madisetti's analysis.

Claim 1[a]: "linking the at least two communicating devices for transmission of the information at least via a radio communication interface of a radio communication system having base stations interlinked via a base station network, said linking using channels arranged in hierarchical protocol layers;"

Complainant's arguments regarding the "linking…" step are both conclusory and not supported by evidence. *See* JX-0102.0001 (Technology Brief- What is Aruba ClientMatch). Complainant argues that the step of linking two communicating devices (*e.g.*, a phone and laptop) for transmission of information is met by merely providing the connections via the interlinking of the base stations in a base station network. In support, complainant relies on one high-level figure in an HPE manual showing a phone and a laptop individually connected to a network. While the HPE products can be used to allow third-party devices to connect to a network, that does not necessarily mean there is any overall link between the identified phone and the laptop for "transmission of information." Dr. Madisetti has not shown an overall link between two third-party devices and, as Dr. Lin testified, the figure alone does not show infringement of this method claim limitation. *See* JX-0001 ('677 Patent) at claim 1 ("CSI[26] is supplied for an overall link between the at least two communicating devices."); Lin Tr. 571; RX-1196C (Lin RWS) at Q/A 68-70.

Claim 1[b]: "supplying channel-specific information, at least from one channel for a radio link between one of the communicating devices and at least one base station, to a hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices; and"

The accused HPE products do not satisfy limitation 1[b]. Complainant focuses on Client Match and argues that the "channel-specific information" is Redacted in Public Version

[26] "CSI" is "channel-specific information" or "channel specific information."

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Redacted in Public Version *See* CX-3846C (Madisetti WS) at Q/A 336-37; Madisetti Tr. 139. However, even under the three distinct Client Match algorithms complainant identifies, HPE's Client Match does not meet the step of "supplying channel-specific information."

First, Client Match does not supply channel-specific information "from one channel for a radio link" as the claim requires. Instead, as complainant and its expert concede, Client Match supplies this channel-specific information Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 33; Madisetti Tr. 145.

Second, Client Match is not supplying such information "to a hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices." Instead, the CSI identified by Dr. Madisetti Redacted in Public Version Each portion of limitation 1[b] is discussed separately, below.

"supplying channel-specific information, at least from one channel for a radio link between one of the communicating devices and at least one base station"

Dr. Madisetti identifies Redacted in Public Version as the "channel-specific information" that originated on the Campus AP and was not supplied "at least from one channel for a radio link." *See* CX-3846C (Madisetti WS) at Q/A 337. Inasmuch as this information originated on the Campus AP (and not a cellphone or laptop, for example) and is provided Redacted in Public Version the Campus APs cannot infringe this limitation requiring

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that the channel-specific information be supplied "from one channel for a radio link".[27] *See* RX-1196C (Lin RWS) at Q/A 85-88.

Rather than use the originally-accused Redacted in Public Version transmitted by a client device, the accused APs measure Redacted in Public Version .[28] *See, e.g.*, CX-0473C.0259-0261 (Interrogatory No. 68); RX-1198C.0012 (Dr. Balay) at Q/A 67-69. For Campus APs, the AP then Redacted in Publi The controller Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 33. In no instance is the accused channel-specific information supplied from the claimed radio link.[29] *Id*.

Under complainant's proposed construction of the "supplying" step, supplying includes an AP observing Redacted in Public Version and supplying that information Redacted in Public Version *See* CX-3846C (Madisetti WS) at Q/A 337-38. However, this reading is inconsistent with the claim language and is

[27] Further, with respect to Instant APs, which Dr. Madisetti does not even argue meet this claim unless Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 86; *see also*, CX-0485C at Interrogatory No. 68.

[28] In the complaint, complainant originally accused respondents of infringing the '677 patent based on the IEEE 802.11k standard. Complainant has since abandoned those contentions. Redacted in Public Version in its U.S. Pat. No. 9,936,441. *See* U.S. Patent No. 9,936,441 at 2:48-51.

[29] Complainant does not address the Instant AP code. As explained in HPE's Response to Interrogatory No. 68, the Instant APs have a Redacted in Public Version but, like the Campus APs, Redacted in Public Version *See* CX-0485C (HPE Discovery Response).

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contrary to its plain and ordinary meaning as confirmed by the '677 patent and its file history. *See* JX-0001 ('677 Patent); JX-0004 ('677 Patent File History). With respect to the claim language, this limitation recites both an origin—"from one channel for a radio link"—from which the channel-specific information is supplied, and the destination—"to a hierarchically higher Internet protocol based channel for an overall link"—to which it is supplied. Likewise, the next limitation ("initiating…") reinforces that that channel-specific information must have been "supplied from the channel for the radio link to the hierarchically higher Internet protocol based channel." In other words, an AP measuring an observed signal strength is not channel-specific information "suppl[ied] …from" the radio link "to" the higher channel, because the measured value originated at the AP. *See* RX-1196C (Lin RWS) at Q/A 86.

In addition, none of the "examples of the supplying of CSI" identified by Dr. Madisetti (*i.e.*, using at least three functions Redacted in Public Version , demonstrates that this limitation is met. *See* RX-1196C (Lin RWS) at Q/A 88-89.

Redacted in Public Version

This Client Match functionality (running on the controller) will Redacted in Public Version .[30] *See* RX-1198C (Balay WS) at Q/A 64. Complainant argues "CSI includes the Redacted in Public Version" and this "example correlates to the Redacted in Public Version" in the HPE source code. *See* CX-3846C (Madisetti WS) at Q/A 341-42. However, this Redacted in Public V

[30] Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 92-93.

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value is never supplied over a channel for a radio link, as explained above. *See* RX-1196C (Lin RWS) at Q/A 90.

Another type of CSI Dr. Madisetti identifies with respect to the Redacted in Public Version is "Redacted in Public Version" *See* CX-3846C (Madisetti WS) at Q/A 352, 356, 366. Not only is this never supplied over a channel for a radio link (RX-1196C (Lin RWS) at Q/A 90; RX-0935C at Q/A 88), but this purported CSI is not "from a radio link between one of the communicating devices and at least one base station," as required by the claim. The Redacted in Public Version complainant points to (CX-3846C (Madisetti WS) at Q/A 352-353; RDX-0002C.0227) is for Redacted in Public Version (*e.g.*, AP 2 or AP 3), and not the AP the client is linked to (AP 1), *i.e.*, the claimed "radio link." *See, e.g.*, RDX-0002C.0226 (Dr. Madisetti admits that pbss.signal is for the "potential AP association."). CSI for a destination AP is not "from a radio link between one of the communicating devices and at least one base station" because no "radio link" has been established with that proposed AP. *See* RX-1196C (Lin RWS) at Q/A 92-93; JX-0188C (Martin Dep. Tr.) at 167.

Dr. Madisetti references the Redacted in Public Version function, claiming that it is Redacted in Public Version meaning it is used to Redacted in Public Version *See* CX-3846C (Madisetti WS) at Q/A 354, 355 (Redacted in Public Version), 352; *see also* CX-3847C (Jones WS) at Q/A 99, 100, 98. Dr. Madisetti's identification of the Redacted in Public Version function does not meet the supplying limitation for several reasons. First, Dr. Madisetti does not provide any explanation as to how he believes that relates to

the claimed "supplying…" limitation. *See* RX-1196C (Lin RWS) at Q/A 97. Second, Dr. Madisetti's analysis contradicts complainant's invalidity expert, Dr. Martin, regarding a similar feature in the Matta prior art. *See* RX-1196C (Lin RWS) at Q/A 94; *see also id.* at Q/A 97, 160. The Redacted in Public Version is a Redacted in Public Version , *i.e.*, it is used to Redacted in Public Version , and is used Redacted in Public Version As explained in detail below, Dr. Martin opines that, in the context of the Matta prior art, using channel-specific information as a "gatekeeper" to eliminate possible APs from consideration does not satisfy the claims. *See* CX-3930C (Martin WS) at Q/A 50.

Redacted in Public Version **Example**

This Client Match functionality (running on the controller) performs Redacted in Public Version . Complainant argues that "CSI includes the Redacted in Public Version " as another example. *See* CX-3846C (Madisetti WS) at Q/A 339, 353-356; RX-1198C (Balay WS) at Q/A 65. However, Redacted in Public Version is not channel-specific information "from a radio link between one of the communicating devices and at least one base station," and the Redacted in Public V value is never supplied over a channel for a radio link (as explained above). *See* CX-0485C (HPE Discovery Response); Lin Tr. 585-586.

Further, as shown in Dr. Madisetti's own demonstrative (CDX-1C.677.142 at CDX-0001C-677.0144), one accused CSI is the Redacted in Public Version

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Redacted in Public Version In his overview, Dr. Madisetti states that the Redacted in Public Version *See* CX-3846C (Madisetti WS) at Q/A 351. This information about a Redacted in Public Version does not meet the limitation. *See* RX-1196C (Lin RWS) at Q/A 95-96. The comments in the code refer to this as a Redacted in Public Version (CPX-0008C.0036 (HPE Produced Source Code Q3_HPE_CODE_0000001-5775) line 461; RX-1196C (Lin RWS) at Q/A 96), denoting that Redacted in Public Version .[31] In other words, this purported CSI cannot be "from a radio link between one of the communicating devices and at least one base station."

Dr. Madisetti references the Redacted in Public Version function with respect to the Redacted in Public Version, and his identification of this function does not meet the supplying limitation for the same reasons discussed above. *See* RX-1196C (Lin RWS) at Q/A 97; *see also id.* at Q/A 94, 160.

Redacted in Public Version **Example**

Redacted in Public Version is an algorithm used to Redacted in Public Version *See* RX-1198C (Balay WS) at Q/A 66. Complainant argues that "CSI includes the Redacted in Public Version" and the Redacted in Public Version " *See*

[31] This is also true for Dr. Madisetti's reliance on Redacted in Public Version for his Redacted in Pu . *See* RX-1196C (Lin RWS) at Q/A 95-96.

CX-3846C (Madisetti WS) at Q/A 358. However, the Redacted in Public Version actually has Redacted in Public Version and it is important to be clear about Redacted in Public Version The Redacted in Public Version referenced in Dr. Madisetti's testimony about "Redacted in Public Version" (CX-3846C (Madisetti WS) at Q/A 357) corresponds to the Redacted in Public Version. This Redacted in Public Version cannot infringe claim 1 because it was (1) never supplied from a channel for a radio link because it is the Redacted in Public Version and (2) is not supplied over Redacted in Pub to the alleged IP channel. *See* RX-1196C (Lin RWS) at Q/A 98.

The second Redacted in Public Version that Dr. Madisetti references is allegedly Redacted in Public Version. vCX-3846C (Madisetti WS) at Q/A 360. Like all of the accused Redacted in Public Version discussed above, this also was not supplied from the claimed radio link, but rather Redacted in Public Version. Further, it is only used as an input to Redacted in Public Version for Redacted in Public Version. *See* RX-1196C (Lin RWS) at Q/A 98. As discussed below, Dr. Martin agrees that Redacted in Public Version falls outside the claims. *See* CX-3930C (Martin WS) at Q/A 50; JX-0188C (Martin Dep. Tr.) at 167. Thus, this purported CSI is not used to Redacted in Public Version as Dr. Madisetti opines.

"supplying…to a hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices"

The accused HPE products do not meet this portion of limitation 1[b]. Complainant argues that CSI is supplied to a "hierarchically higher Internet protocol based channel for an overall link between the at least two communication devices" because some (but not all) of the CSI is sent between the controller and AP using a

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Redacted in Public Version. *See* CX-3846C (Madisetti WS) at Q/A 342. Complainant's theory is wrong for several reasons.

As an initial matter, Client Match on the Instant and Unified APs Redacted in Public Version and thus, they do not infringe. *See* RX-1196C (Lin RWS) at Q/A 124. Dr. Madisetti has no rebuttal opinion beyond saying that Redacted in Public Version Madisetti Tr. 153. However, Dr. Madisetti did not review any Instant AP source code. Moreover, multiple experts, fact, and corporate witnesses testified that Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 124; RX-0513C.0012; RX-0514C.0015.

With respect to Campus APs Redacted in Public Version [32] *See* RX-1196C (Lin RWS) at Q/A 100-02. The communicating devices (*e.g.*, phones and laptops) identified by complainant have no awareness of, or access to, Redacted in Public Version No information transmitted from a communication device to a Campus AP is ever sent over Redacted in Pub because, as explained in the HPE ArubaOS 8.7.1.0 User Guide, Redacted in Public Version [33] *See* RX-

[32] Further, Redacted in Public Version *See* RX-1198C (Balay WS) at Q/A 73-80; RX-0516.

[33] Client Match also does not operate a "hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices" because the application Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 113. Neither the controller's Redacted in Public Version nor the Campus AP's

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0516.0817; RX-1196C (Lin RWS) at Q/A 76 ("The UDP version of PAPI uses a UDP channel for these communications, which is not used to carry the traffic from any client device."). Rather, Redacted in Public Version that is not a part of any link between the communicating devices. *Id*., RDX-0002C.0231; CX-3587 (ArubaOS 8.7.1.0_User_Guide-a00105869en_us.pdf); RX-1198C (Balay WS) at Q/A 76. Thus, Redacted in Public Version, sending information over Redacted in Pub is not sending information to a "hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices" because Redacted in Pub communications are separate from the overall link between the devices.

Complainant's Proposed Claim Construction

Dr. Madisetti seeks to split in half the clause "a hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices," opining that the last half ("for an overall link…") modifies the "supplying" verb that appears thirty-one words earlier, and not the language that immediately precedes it, *i.e.*, "a hierarchically higher Internet protocol based channel." From this, Dr. Madisetti opines that the accused products meet the "overall link" because CSI is provided for the purpose of maintaining a good link and therefore it is "for an overall link between the at

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Redacted in Public Version *Id*. Instead, Redacted in Public Version is processed by Redacted in Public Version *Id*. Redacted in Public Version *See* RX-0479C; RX-1196C (Lin RWS) at Q/A 114-116. Thus, Client Match does not operate a "hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices" because Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 116; RX-1198C (Balay WS) at Q/A 76-80.

least two communicating devices." *See* CX-3846C (Madisetti WS) at Q/A 344. This reading goes against rules of grammar,[34] intrinsic evidence, and what complainant's invalidity expert Dr. Martin opines.

First, the surrounding claim language refutes complainant's proposed construction. Limitation 1(a) explains that "linking" of the "two communicating devices" occurs via "channels arranged in hierarchical protocol layers." This tells a person of ordinary skill that the "link" in "higher Internet protocol based channel for an overall link between the at least two communicating devices" likewise refers to an actual link between the devices, and not merely a "purpose," as Dr. Madisetti opines. Further, in limitation 1(b), CSI is supplied to a "hierarchically higher Internet protocol channel for an overall link between the at least two communicating devices," and in limitation 1(c) the "initiating" step is based on the CSI supplied "to the hierarchically higher Internet protocol based channel for the overall link." Thus, the higher Internet protocol based channel must be for an overall link (and not for a "purpose" of maintaining a good link via a handoff) as "the" overall link must exist before the handoff is initiated. *See* RX-1196C (Lin RWS) at Q/A 108.

The specification shows that the higher IP channel is for an overall link between the communicating devices. The Abstract states "This hierarchically higher channel is an Internet protocol-based channel for the overall link between the at least two

[34] The doctrine of the last antecedent is a long established rule of grammar which allows the "qualifying phrase to apply only to the immediately preceding antecedent." *Red River Holdings, LLC v. United States*, 87 Fed. Cl. 768, 795 (2009); *see also Barnhart v. Thomas*, 540 U.S. 20, 21 (2003) ("rule of the last antecedent," under which a limiting clause or phrase should be read to modify only the noun or phrase that it immediately follows.)

communicating devices." *See* JX-0001 ('677 Patent). The Summary of the Invention states that "[a]ccording to the invention," the "hierarchically higher channel which is an Internet protocol based channel for the overall link between the two or more communication devices." *Id.* at 3:17-22. Further the patent explains that the prior art shows "an Internet protocol based channel is used for the overall link" (*id.* at 2:65-3:2) and that the higher OSI layer is "an Internet protocol based channel for the overall link." *Id.* at 5:7-10. Each of these disclosures show that the proper reading of the claim is that "for an overall link" describes the hierarchically higher Internet protocol channel.

The file history supports this reading. JX-0004 ('677 Patent File History). In an office action response dated 10/26/07, the patentee's arguments highlighted the proper view of the Internet protocol channel being for the overall link. As illustrated in RDX-0002C.0234, the patentee criticized prior art because "any data exchanged on the overall link using the internet protocol is unaware of the physical channel conditions." *See* JX-0004.0267 ('677 Patent File History). Moreover, as shown in RDX-0002C.0235, a final rejection dated 9/2/2008 shows the examiner agreed with the same construction when they stated: "in VoIP system a hierarchically higher Internet protocol based channel is used for an overall link between the at least two communicating devices)." *See* JX-0004.0279 ('677 Patent File History).

Complainant's invalidity expert, Dr. Martin, agrees with respondents' proposed construction. Dr. Martin opines that having a hierarchically higher Internet protocol based channel for an overall link means a hierarchically higher channel used to link the communicating devices such that they can communicate with one another. *See* JX-0188C (Martin Dep. Tr.) at 64-65, 67. He further explains that the importance of this is

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to ensure there "is a logical link between the two devices, an overall link between them." *Id*. at 109-110.

As Dr. Lin testified, Dr. Madisetti's cited intrinsic evidence does not support his proposed construction. *See* RX-1196C (Lin RWS) at Q/A 112. For example, Dr. Madisetti cites Figure 2 as purportedly describing the '677 patent's claimed method, but Fig. 2 does not recite all the claim elements. *Id*. The rest of Dr. Madisetti's citations are not persuasive. *Id*. Indeed, even if complainant's reading of the claim was correct, the purpose of Redacted in Public Version in Campus APs is to pRedacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 113, 123. Therefore, the accused HPE products do not meet this limitation.

Complainant's Alternative Theory: Client Match Itself is Redacted in Public Vers

Complainant argues that "[t]he ClientMatch software is Redacted in Public Version " *See* Compl. Br. at 53 (citing CX-3846C (Madisetti WS) at Q/A 361). The implication is that supplying the identified CSI to the Client Match application within the HPE device itself is supplying to a hierarchically higher Internet protocol based channel at layer 4 of the OSI networking stack. This is wrong. As an initial matter, complainant's alternative theory does not solve its "overall link" problem as the supposed "channel" Redacted in Public Version is not part of an "overall link" between the two communicating devices (*e.g.*, phone and laptop). Further, complainant's theory is factually incorrect because, as explained above, Redacted in Public Version

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Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 114-17. Redacted in Public Version

See RX-1196C (Lin RWS) at Q/A 118-19.

Further, as Dr. Lin explains, an application can talk directly to layer 2 without going through a networking or transport layer. *See* Lin Tr. 652. There are many different applications that operate in user-space but that are not part the OSI networking stack. Examples are applications like Microsoft Word or Minesweeper. *Id*.; RX-1196C (Lin RWS) at Q/A 119. As Mr. Overby testified, just because an application is operating within a device does not mean it is part of the networking stack, and indeed the type of calls being used in this situation are all calling straight to the device driver software, bypassing the intermediate layers. *See* RX-0935C (Overby WS) at Q/A 77 (citing Linux manual pages). This was confirmed by Dr. Lin. *See* RX-1196C (Lin RWS) at Q/A 122. Indeed, Dr. Madisetti cites no evidence to support his opinion that any user-space application is part of the OSI networking layers.

Lastly, complainant argues that Redacted in Public Version allegedly means that information is supplied to at least layer 4 because Redacted in Public Version *See* Compl. Br. at 53-54 (citing CX-3846C (Madisetti WS) at Q/A 361). However, this intra-device communication is not related to the networking stack because sending measurement data between software on the same device is not supplying information to a hierarchically higher IP based channel for the overall link between two

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communicating devices. The accused Redacted in Public Version was not sent through layers 1-6, as would be required if Redacted in Public Version. The Redacted in Public Version is Redacted in Public Version. *See* RX-1196C (Lin RWS) at Q/A 120-22. This movement of data within the AP is not related to the claimed "overall link" between the communicating devices. *Id.* at Q/A 123.

> ***Claim 1[c]: "initiating at least one of a changeover in respect of at least one multiple access medium and a handover based on the channel-specific information supplied from the channel for the radio link to the hierarchically higher Internet protocol based channel for the overall link."***

The accused HPE products do not infringe this limitation for several reasons. First, there can be no initiating a changeover or a handover "based on the channel-specific information supplied from the channel for the radio link" because, as explained above, the alleged channel-specific information is never supplied from the radio link. *See* RX-1196C (Lin RWS) at Q/A 151. There cannot be any initiating a changeover or a handover based on supplying the channel-specific information "to the hierarchically higher Internet protocol based channel for the overall link" because, as explained above, Redacted in Pub message exchanges are not "for the overall link" between two communicating devices. For example, the two communicating devices identified by Dr. Madisetti that purport to share an overall link have no awareness of, or access to, the Redacted in Pub communications, because the Redacted in Public Version[35] and Redacted in Public Version.

[35] With respect to Instant APs, Redacted in Public Version and thus there can be no initiating a changeover or a handover based on supplying the channel-specific information "to the hierarchically higher Internet protocol based channel for the overall link." *See* RX-0513C.0012; RX-0514C.0015; RX-1198C (Balay WS) at Q/A 79-80; *See* discussion of Redacted in P; RX-1196C (Lin

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See RDX-0002C.0231; CX-3587; RX-1198C (Balay WS) at Q/A 74-76.

Second, the HPE accused products do not initiate a changeover or handover because Redacted in Public Version [redacted] When Client Match Redacted in Public Version [redacted] *See* RX-1196C (Lin RWS) at Q/A 22-23, 30, 148, 153, 155, 170; RX-1198C (Balay WS) at Q/A 59-62; RX-1199C (Gielty WS) at Q/A 28-30; Gielty Tr. 322-323. Thus, at the time a HPE accused AP sends Redacted in Public Version, Redacted in Public Version [redacted] This is because Redacted in Public Version [redacted] In fact, the 802.11v standard expressly states that the client must be able to reject any 802.11v request.[36]

The Aruba documents produced in this case confirm that Redacted in Public Version [redacted] (JX-0065C ("Redacted in Public Version [redacted]"), RX-0485C (Q3_HPE_0059339 – 416) at 363 ("Redacted in Public Version [redacted]"); *see* RX-0485C (Q3_HPE_0059339 – 416) at 361 ("Redacted in Public Ve [redacted]"); *id*. at 363 ("Redacted in Public Version "); *see also* JX-0065C (Q3_HPE_0017078 – 088 at 083), *id*. at 082; *See* RX-0486C (Q3_HPE_0059417 – 462). Complainant and its experts do not dispute these facts, and they did not analyze

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RWS) at Q/A 37, 124; RX-0935C (Overby WS) at Q/A 94.

[36] *See* RX-0289.001 (802.11v Standard), *id*. at .0034 ("5.2.12.3 BSS transition management.")); *id.* at .207 (Fig. 10-6k ("STA roaming evaluation and decision")); *id.* at .0153-0154; RDX-0002C.0237; *see also* Gielty Tr. 316, 316-317, 319-321.

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any client device source code to confirm how they respond to a 802.11v request. *See* Madisetti Tr. 191; JX-0186C (Jones Dep. Tr.) at 221-223. Dr. Madisetti apparently agrees with this position because he acknowledges that a "user of the products" may initiate a handover, which supports the point that the client and/or a user must accept or deny any request. *See* CX-3846C (Madisetti WS) at Q/A 369. Thus, it is Redacted in Public Version,[37] Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 153.

Although Dr. Madisetti opines that "initiating" merely requires the start of something, and not completion (Madisetti Tr. 190-191), complainant's invalidity expert, Dr. Martin, interprets "initiating" to require the handover be completed based on the supplied CSI. Dr. Martin applies his interpretation to opine that the Takagi prior art does not disclose "initiating" a handover because it is "not inevitable," JX-0188C (Martin Dep. Tr.) at 182-183, *e.g.*, Takagi's radio terminal can decide to move in a direction opposite the new AP, and the handoff may not complete. *Id*. at 184-185. Based on Dr. Martin's analysis, the accused HPE products are not initiating a handover merely by Redacted in Public Version

Complainant argues that the "Redacted in Public Version , but complainant's claim that

[37] None of the respondents in this investigation provide the claimed "communicating devices" (*e.g.*, smartphone or laptop), nor has complainant alleged that they do. As the alleged CSI is not sent to the client devices, they cannot be initiating a handover "based on" the supplied CSI.

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this encompasses "initiating" a handover or changeover is misplaced. *See* CX-3846C (Madisetti WS) at Q/A 371. Complainant has not provided any evidence that this Redacted in Public Version actually occurs. As Dr. Balay's unrebutted testimony shows, this functionality Redacted in Public Version *See* RX-1198C (Balay WS) at Q/A 66-71; RX-1196C (Lin RWS) at Q/A 153, 155. However, Redacted in Public Version This lack of evidence undermines complainant's case as the only asserted independent claim is a method claim, which requires evidence of actual use. Moreover, complainant's claim that Redacted in Public Version inconsistent with the teachings of the '677 patent. *See* JX-0001 ('677 Patent) at 3:37-43; 5:29-31.

Finally, the HPE accused products do not initiate a handover "based on" the CSI allegedly being supplied to the "hierarchically higher Internet protocol based channel." Complainant argues that "HPE's access points / controllers initiate a handover based on the channel-specific information" during at least Redacted in Public Version " *See* CX-3846C (Madisetti WS) at (Q/A 370. Each is incorrect as discussed below.[38]

[38] In addition to the three identified functions, complainant argues that "channel-specific information" can further include Redacted in Public Version *See* CX-3846C (Madisetti WS) at Q/A 337. Dr. Madisetti provides no analysis regarding how this purported CSI would meet the claim 1 limitations. First, Redacted in Public Version is just an indication of Redacted in Public Version Further, a handover is not initiated based on this information: the cited code Redacted in Public Version Also, the cited code is Redacted in Public Version so this function is Redacted in Public Version and Dr.

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Redacted in Public Version **Example**

Complainant argues that "Redacted in Public Version initiates a handover (Redacted in Public Version) based at least on "Redacted in Public Version" *See* CX-3846C (Madisetti WS) at Q/A 370. However, Dr. Madisetti admits that this algorithm Redacted in Public Version *See* CX-3846C (Madisetti WS) at Q/A 353. Dr. Jones' code analysis and Dr. Madisetti's demonstrative CDX-0001C.677.146 confirm the same. CX-3847C (Jones WS) at Q/A 99; *see also* RX-1196C (Lin RWS) at Q/A 158. As Mr. Jones admits, Redacted in Public Version *See* CX-3847C at Q/A 99; RX-0521C at lns. 3033-45. Thus, Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 158; *see also* RX-0485C.0030; JX-0064C.

Further, neither of the identified CSI[39] are used as a basis to initiate a handover or changeover because, Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 159, 160, 96, 97. Dr. Madisetti acknowledges that the identified CSI are ultimately used (Redacted in Public Version) to Redacted in Public Version

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Madisetti does not show that the alleged channel-specific information Redacted in Public Version Second, Redacted in Public Version is again not CSI nor is this information sent over a channel for a radio link. *See* RX-1196C (Lin RWS) at Q/A 196. Third, Redacted in Public Version is not CSI, rather, it is simply Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 161, 196.

[39] As noted above, Dr. Madisetti identifies as channel-specific information Redacted in Public Version (ii) the "RSSI measurement of the current link" that are checked in est_client_rel_view. *See* CX-3846C (Madisetti WS) at Q/A 356, 355, 366. Neither of these meet the claim limitations for the reasons discussed here.

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Redacted in Public Version

See CX-3846C (Madisetti WS) at Q/A 366. Indeed, complainant's other expert, Dr. Martin, agrees that using CSI to Redacted in Public Version would not meet the "initiating" limitation. *See* RX-1196C (Lin RWS) at Q/A 160); CX-3930C (Martin WS) at Q/A 50; JX-0188C (Martin Dep. Tr.) at 167.

Lastly, one of the identified Redacted in Public Version is only for Redacted in Public Version not the Redacted in Pub of the "radio link" between the identified communicating device and the base station to which it is linked. *See* RX-1196C (Lin RWS) at Q/A 159-161; *see* CX-3847C (Jones WS) at Q/A 99 (Dr. Jones agreeing that the AP Redacted in Public Version). The claims require that the CSI be from one channel for a radio link between the one communicating device and the connected base station. The proposed destination AP is not linked to the communicating device. Thus, there can be no initiating a changeover or handover "based on" supplying the identified Redacted in Pub values because those values are not "supplied from the channel for the radio link."

Redacted in Public Version **Example**

Complainant argues that "Redacted in Public Version initiates a handover (Redacted in Public Version) based using Redacted in Public Version." *See* Compl. Br. at 58 (citing CX-3846C (Madisetti WS) at Q/A 370). However, any steering is not based on channel-specific information at all, but rather is based on Redacted in Public Version . *See* RX-1196C (Lin RWS) at Q/A 162. For example, as per the Redacted in Public Version function, the

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Redacted in Public Version is triggered based on two inquiries: (1) Redacted in Public Version (RX-0521C at lns. 2627-28), and (2) fRedacted in Public Version (*id*. at lns. 2632-2640). Only after these inquiries occur does Redacted in Public Version (*id*. at 2648) Redacted in Public Version Even if Redacted in Public Version Thus, the cited Redacted in Public Version[40] do not become the basis for initiating a handover in the Redacted in Public Version. *See* RX-1196C (Lin RWS) at Q/A 162; *see also* RX-0485C.0030; JX-0064C.

Further, as discussed above with respect to Redacted in Public Version, neither of the identified CSI are used as a basis to initiate a handover or changeover because, instead, Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 162, 163; *id*. at Q/A 90, 94. As noted above, Dr. Martin agrees that Redacted in Public Version would not meet the "initiating" limitation. *Id.* at Q/A 160; CX-3930C (Martin WS) at Q/A 50.

Lastly, one of the identified Redacted in Pub values is only for Redacted in Public Version not the Redacted in Pub of the "radio link" between the identified communicating device and the base station to which it is linked. Mr. Jones admits that the current AP Redacted in Public Version *See* CX-3847C

[40] Dr. Madisetti identifies as channel-specific information Redacted in Public Version *See* CX-3846C (Madisetti WS) at Q/A 352, 355, 366. Neither of these meet the claim limitations for the reasons discussed here.

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(Jones WS) at Q/A 98. Thus, with respect to Redacted in Public Version, there can be no initiating a handover "based on" supplying the identified Redacted in Pu values because those values are not "from the channel for the radio link."

Redacted in Public Version

Complainant argues that Redacted in Public Version *See* Compl. Br. at 49 (citing CX-3846C (Madisetti WS) at Q/A 357). However, this Redacted in Public Version is not based on CSI sent to the allegedly hierarchically higher IP channel. Rather, as Mr. Jones' confirms, this algorithm is based on Redacted in Public Version [41] (CX-3847C at Q/A 101), which is a value Redacted in Public Version, not Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 164-65; *id.* at Q/A 98. In other words, this evaluation does not use an SNR value that ever left the AP, and certainly not one that was received via PAPI UDP. Thus, with respect to the Redacted in Public Version, there can be no initiating a changeover or handover "based on" CSI supplied to the "hierarchically higher Internet protocol based channel for the overall link" because Redacted in Public Version Further, the other CSI complainant points to with respect to the Redacted in Public Version are, again, Redacted in Public Version, and thus do not form the basis of a handover.

[41] As explained by respondents, Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 164-65; CX-0485C.

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See CX-3846C (Madisetti WS) at Q/A 371; *id.* at Q/A 358; RX-1196C (Lin RWS) at Q/A 98, 99.

b. Claim 1: NETGEAR Accused Products

There are at least three distinct reasons why the accused NETGEAR products do not infringe the '677 patent. First, the accused application used in NETGEAR's products, Redacted in Public Version, does not supply channel-specific information "to a hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices." Instead, Redacted in Public Version that is not part of the overall link between the at least two communicating devices.

Unlike the '677 patent, Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 42-43. Rather, Redacted in Publ *Id.* at Q/A 43. Between the client and the APs Redacted in Public Version *Id.* Redacted in Publi , on the other hand, uses Redacted in Public Version to create communications links between the AP nodes and Redacted in Public Version in the network, as further explained below.

In general, complainant accuses the use of Redacted in Public Version to show how the accused devices supply information to a hierarchically higher internet protocol channel. However, the source code related to Redacted in Public Version is not related to networking, and thus cannot meet the "hierarchically higher Internet protocol based channel" requirement for transmission of information. *See* Overby Tr. 467.

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Complainant's sole evidence comes from [redacted], and complainant chose to forego any analysis of [redacted] documents, testimony, or code review. *See* Madisetti Tr. 132. Further, at JX-0088C.2395 ([redacted]), even the [redacted] shows that [redacted] Specifically, the guide states that [redacted] *See* JX-0088C.2432 ([redacted] *See* RX-0346 (IEEE 1905 Wikipedia Page). Thus, complainant's reliance on [redacted] shows that [redacted] are sent between APs, and the accused NETGEAR products are not "supplying channel-specific information…to a hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices."

Second, because [redacted] does not meet the "supplying" limitation, it also cannot meet the claimed "initiating" limitation at least because [redacted] never initiates a handover based on supplying CSI "to a hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices."

Third, even if [redacted] met the "supplying" limitation (it does not), it does not perform the "initiating" limitation. It is the client devices, such as laptops or smartphones, that decide whether to initiate a handover. At most, [redacted]

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i. Redacted in Public Version Overview

NETGEAR products support Redacted in Public Version technologies which provide Redacted in Public Version Dr. Lin, Mr. Overby, and Mr. Gielty provide a thorough overview of certain features of Redacted in Public Version within their witness statements which is summarized in the following paragraphs. *See* RX-1196C (Lin RWS) at Q/A 41-46; RX-0935C (Overby WS) at Q/A 74-86; RX-1199C (Gielty WS) at Q/A 10-30.

ii. Individual Limitations Not Found in the NETGEAR Products

As discussed below, there are issues with complainant's identification of NETGEAR accused products. Complainant's allegations are limited to NETGEAR products using Redacted in Public Version that provide Redacted in Public Version compatibility. Even though complainant introduces the idea of Redacted in Public Version, complainant does not cite to or support the allegations with any source code or evidence about Redacted in Public Version. Madisetti Tr. 131. Instead, complainant concludes after looking at one of 12 chipsets that "Redacted in Public Version function in sufficiently similar fashion such that Redacted in Public Version products also infringe." *See* CX-3846C (Madisetti WS) at Q/A 454-55. However, complainant does not show how Redacted in Public Version are either similar or differentiated through its analysis. Thus, only the products including Redacted in Public Version that provide Redacted in Public Version functionality were analyzed.

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Claim 1 [preamble]: "A method for transmitting information in a communication system with at least two communicating devices, comprising:"

NETGEAR does not directly or indirectly infringe the method claim 1 as it relates to the "at least two communicating devices" portion of the claim. As previously stated, the accused NETGEAR products only include relevant access points. Complainant's theories require third-party devices (*e.g.*, phone and laptop) to perform one or more steps of the '677 patent's asserted independent claim 1, a method claim. Inasmuch as no single entity performs all the steps of claim 1 of the '677 patent, NETGEAR cannot infringe.

Claim 1[a]: "linking the at least two communicating devices for transmission of the information at least via a radio communication interface of a radio communication system having base stations interlinked via a base station network, said linking using channels arranged in hierarchical protocol layers;"

The accused NETGEAR products do not link two communicating devices, *e.g.*, laptop, tablet, or mobile phone (or "meters" shown in demonstratives) for transmission of information. *See* CDX-0001C.677.147; CX-3846C (Madisetti WS) at Q/A 469. That the NETGEAR access points can be used to allow third-party devices to individually connect to a network does not mean that there is any overall link between the phone and the laptop "for transmission of the information." In other words, complainant has not shown that there is any link between two communicating devices for the transmission of information.

Complainant argues that the accused products infringe based on a Redacted in Public Version [redacted] from Qualcomm. *See* JX-0049C.0010 (Redacted in Public Version [redacted]). However, the pages show Redacted in Public Version [redacted], and do not

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provide any evidence of the two communicating devices being linked across the base station network. *See* CX-3846C (Madisetti WS) at Q/A 463-64.

Complainant's reliance on a third-party YouTube video in support of its allegations (CX-3859.0001), is improper and unpersuasive for several reasons. *See* Compl. Br. at 88. Complainant relies on its expert witness to explain in vague terms who and what is depicted in the video. Complaint's expert witness has no basis upon which to do so. *See id.* The video lacks any indicia of authentication. It is unclear who is seen in the video. Much of the audio is unclear. The video does not even purport to list credits, or the names or identities of responsible persons or companies. The individuals seen in the video were not identified or deposed. No documentation supporting the video was offered. *See* Hr'g Tr. 27, 613. In addition to the questionable source and unreliability of the video, there is no correlation between a presentation of the animated PowerPoint demonstration and the accused NETGEAR products, no mention of how the functions described in the video would actually work in the accused NETGEAR products, and no mention of NETGEAR at all in the video by the speakers, and no explanation of who the speakers are or their qualifications. No inference can be made about how NETGEAR products actually work. *See* RX-1196C (Lin RWS) at Q/A 169-70. Thus, the video does not provide any support of Dr. Madisetti's opinions. *Id*.

Complainant's argument that Redacted in Public Version implementations are the same is wrong for several reasons. First, complainant states that NETGEAR's fact witness, Mr. Steve Gielty, confirms the similarity of operation. However, Mr. Gielty explicitly stated that the two implementations are both Redacted in Public Version *See* JX-0173C (Gielty Dep. Tr.) at 127. While both Redacted in Public Version

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Redacted in Public Version, complainant has not provided any evidence that Redacted in Public Version, nor has it stated that they do in each case. Further, Redacted in Public Version is a NETGEAR marketing term related to certain NETGEAR Redacted in Public Version that Redacted in Public Version *See* CX-0478C, Interrogatory 87. Also, Redacted in Public Version as described above with respect to any NETGEAR Redacted in Public Version *Id.*; RX-1196C (Lin RWS) at Q/A 77.

Finally, complainant states that "[d]ocumentation for Redacted in Public Version shows that it has functionality that meets the limitations of the asserted claims in the same way as the Redacted in Public Version discussed in this chart." *See* CX-3846C (Madisetti WS) at Q/A 474. However, this Redacted in Public Version document describes Redacted in Public Version JX-0049C.0026 (Redacted in Public Version); RX-1196C (Lin RWS) at Q/A 22-23, 42, 63, 77. As discussed above, NETGEAR's Redacted in Public Version products use Redacted in Public Version, not Redacted in Public Version.

Claim 1[b]: "supplying channel-specific information, at least from one channel for a radio link between one of the communicating devices and at least one base station, to a hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices; and"

The NETGEAR accused products do not meet this limitation for several reasons. First and foremost, in the link between the APs and the AP acting as a controller, the communications are sent only as layer 2 communications. *See* RX-1196C (Lin RWS) at Q/A 125-26. Communications between the AP and the client are also performed via

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802.11 standard communication protocols, which is also performed on layer 2. *Id*. Thus, no information in the NETGEAR products is supplied to a "hierarchically higher Internet protocol."

Complainant's citations to Redacted in Public Version source code functions only confirm that Redacted in Public Version is limited to layer 2 communications. For example, each of the complainant arguments relies on Redacted in Public Version but they confirm Redacted in Pu reliance on layer 2.[42] The Redacted in Public Version determines which AP to recommend for steering "based on an 802.11k Beacon Report." *See* CX3846C (Madisetti WS) at Q/A 477. Inasmuch as 802.11k is strictly a Layer 2 protocol a Beacon Report is not supplied to "a hierarchically higher Internet protocol based channel."

Further, there is no evidence that this function has information about a second communicating device (part of the overall link between two communicating devices), and Redacted in Public Version. Complainant cites to the Redacted in Public Version to state that Redacted in Public Version (2.4 vs 5 GHz network channels). However, that is the basic premise of any channel steering under this function in Redacted in Publi and does not indicate that any channel-specific information is supplied to "a hierarchically higher Internet protocol based channel." Complainant's reliance on the Redacted in Public Version is wrong for the same reasons. *See* CX-3846C (Madisetti WS) at Q/A 479.

[42] There is no evidence that Broadcom implements Redacted in Public Version *See* CX-3846C (Madisetti WS) at Q/A 467.

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Qualcomm's Redacted in Public Version explicitly confirms that Redacted in Public Version relies on Layer 2 protocols. Any information that is transferred between Wi-Fi nodes (Redac) for the purpose of Redacted in Public Version . *See* JX-0088C.2395, .2432 (Redacted in Public Version). Inasmuch as Redacted in Public Version . Further, at JX-0088C (Redacted in Public Version) at Q3_HPE_0129611 (page 2432), the guide states that IEEE standard 1905.1 defines a common interface including for wireless transmissions IEEE 802.11, which is also layer 2. *See* RX-1196C (Lin RWS) at Q/A 46, 130.

With no support from the source code or Redacted in Public Version product literature to support its case, complainant argues that within the Redacted in Public Version Redacted in Public Version *See* CX-3846C (Madisetti WS) at Q/A 480-81. This argument is wrong. The cited code in line 1659 appears to show a Redacted in Public Version to the device driver layer. *See* RX-1196C (Lin RWS) at Q/A 133. However, this socket was never "connected" or "bound" to an IP address, and complainant has not provided any code or evidence that would show otherwise. Without evidence that the identified socket is ever associated with an IP address, you cannot send or receive any IP-related traffic over the network, and thus cannot send information to layer 4 or higher. Although socket is in the user space, it does not interface with the networking stack in the OSI model or lower layers. *See* RX-0935C (Overby WS) at Q/A 77-86.

Moreover, even if the socket were considered a means to supply channel-specific information to Layer 4 or higher, this would still not satisfy the claim because the socket is not "a hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices." The identified socket is an internal communication within the NETGEAR access point and does not form "an overall link" between two communication devices. Similar to the HPE sockets, the communicating devices identified by complainant have no awareness of, or access to, this socket. *See* RX-1196C (Lin RWS) at Q/A 102-03.

Complainant's reliance on the third-party YouTube video is of no avail. Indeed, complainant does not address portions of the video describing information exchange "in the MAC layer," (layer 2) and not in "a hierarchically higher Internet protocol based channel." Complainant's reliance on a supposed engineer's general statement that "it is done at the application layer as well as driver, so you know throughout" is misplaced as well because this statement does not explain what is done at various layers, nor does it explain which layers are used.

Claim 1[c]: "initiating at least one of a changeover in respect of at least one multiple access medium and a handover based on the channel-specific information supplied from the channel for the radio link to the hierarchically higher Internet protocol based channel for the overall link."

The NETGEAR accused products do not meet the "initiating" limitation as complainant argues. First, there can be no initiating a changeover or a handover because, as explained above, the NETGEAR products do not supply the identified channel-specific information to a hierarchically higher Internet protocol based channel for an overall link between two communicating devices.

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Complainant argues that "Redacted in Public Version Network triggers clients roaming between APs', meaning that the NETGEAR products initiate a handover." *See* Compl. Br. at 95 (citing CX-3846C (Madisetti WS) at Q/A 484). Even if this were true, complainant has not shown that any Redacted in Public Version "trigger" is "based on" channel-specific information being "supplied from the channel for the radio link to the hierarchically higher Internet protocol based channel for the overall link." Indeed, the Redacted in Public Version documentation states that roaming is Redacted in Public Version . *See* JX-0049C.0009 (Redacted in Public Version). Even the Redacted in Public Version mentioned in the documentation is Redacted in Public Version . *See* RX-1196C (Lin RWS) at Q/A 167-68.

Complainant argues that the Redacted in Public Version documentation shows "initiating" "based on the channel-specific information supplied…to the hierarchically higher Internet protocol based channel for the overall link" because Redacted in Public Version purportedly provides "Redacted in Public Version " *See* Compl. Br. at 96 (citing CX-3846C (Madisetti WS) at Q/A 484); RX-1196C (Lin RWS) at Q/A 167-68. However, "Redacted in Public V " means that certain content, such as streaming 4K video or web browsing, "gets the appropriate bandwidth." *Id*. This is not related to initiating handovers or changeovers, and does not show that CSI is supplied to a higher IP based channel for the overall link between two communicating devices.

Second, complainant's reliance on the supposed Redacted in Public Version YouTube video (it is not clear who took the video) for this limitation is unpersuasive. *Id.* at Q/A 169-70. For

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example, complainant cites to one engineer's purported statement that "they will send a request to steer it to the other access point, but the devices can refuse to move." *Id*. This excerpt actually supports NETGEAR's position that "steering" is not the same as "initiating" as explained above. *Id*. This confirms the end-user device (not the accused products) decides whether to initiate a handover and connect to a different access point.

Third, like the HPE products discussed above, the NETGEAR accused products do not initiate a handover because the client/communication device always decides whether to initiate a handover. *See* RX-1199C (Gielty WS) at Q/A 30. For example, even when Redacted in Public Version, such as moving to a new AP, it is always the client that decides whether to follow the recommendation. *See* Gielty Tr. 322-323. Complainant does not dispute this fact. In the case of 802.11v, a transition management frame allows "an AP to request" a client device to transition to a specific AP, but the client device does not have to honor that request. *See, e.g.*, RX-0289.0034, .0207; *see also* discussion of HPE products and limitation 1[b], above. Ultimately, it is up to the client to decide whether to initiate a handoff, and complainant does not show that a client device does so based on the claimed channel-specific information supplied to the claimed higher Internet protocol based channel.[43] Finally, complainant's citations to NETGEAR corporate deposition testimony have not shown that the NETGEAR products practice the initiating limitation.

c. Claim 1: CommScope Accused Products

[43] *See* RX-0289.001 (802.11v Standard), *id*. at .0034 ("5.2.12.3 BSS transition management.")); *id.* at .207 (Fig. 10-6k ("STA roaming evaluation and decision")); *id.* At .0153-0154; RDX-0002C.0237; *see also* Gielty Tr. 316-317, 319-321.

There are at least three distinct reasons why the accused CommScope products do not infringe the '677 patent. First, complainant does not identify any third-party client devices required to infringe for this respondent, such as a smartphone or laptop, to satisfy the claimed "communicating device" limitation. Instead, complainant argues that certain Mesh APs that are part of a Smart Mesh WiFi base station network are the claimed "communicating devices." However, the Mesh APs are base stations, not communicating devices, which is the only technically correct reading, because the Mesh APs (base stations) are not "communicating devices" in the '677 patent which, for example, separately claims "communicating devices" and a "radio communication system having base stations interlinked via a base station network." *See* RX-1196C (Lin RWS) at Q/A 50-51; RDX-0002C.247. Rather, the Ruckus APs form the network's backbone. *See* RX-0956 (Overview of Smart Mesh Networking); RDX-0002C.0246; RDX-0002C.0248.

Second, Smart Mesh is not supplying channel-specific information "to a hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices." Instead, the CSI identified by Dr. Madisetti is only ever sent within a Mesh AP's operating system via Redacted in Public Version that is not part of the overall link between the at least two communicating devices. The accused APs seek out ways to Redacted in Public Version and the Redacted in Public Version collects information Redacted in Public Version *Id.*; RX-1201C (Jou WS) at Q/A 10-22. Redacted in Public Version that does not have any bearing on the "overall link" between the APs, but is an internal communication system for use between the APs as opposed to over a network. *See* RX-1196C (Lin RWS) at Q/A 113.

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Further, Smart Mesh communications between APs takes place at Redacted in Public V. Redacted in Pu [redacted]. *See* RX-1196C (Lin RWS) at Q/A 52-54. Redacted in Public Version [redacted]. *Id*.

Third, inasmuch as Smart Mesh does not meet the "supplying" limitation, it cannot meet the claimed "initiating" limitation at least because Smart Mesh never initiates a handover based on supplying CSI "to a hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices," as discussed below.

i. CommScope's Smart Mesh Overview

CommScope's Smart Mesh is Redacted in Public Version [redacted]. Dr. Lin, Mr. Overby, and Dr. Jou provide a thorough overview of certain features of CommScope's Smart Mesh within their witness statements which is summarized in the following paragraphs. *See* RX-1196C (Lin RWS) at Q/A 50-53; RX-0935C (Overby WS) at Q/A 74-86; RX-1201C (Jou WS) at Q/A 10-14.

ii. Individual Limitations Not Found in the CommScope Products

Complainant's allegations are directed to CommScope's Smart Mesh feature. *See* Compl. Br. at 63 (citing CX-3846C (Madisetti WS) at Q/A 391-92); RX-1196C (Lin RWS) at Q/A 64-65. However, certain accused products, like the R310 series AP products do not support Smart Mesh functionality. *Id*.

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Although complainant argues that "[Redacted in Public V] Access Points, alone or with controllers, perform a method (or allow a user to perform a method) for transmitting information in a communication system with at least two communicating devices" where the "communicating devices are shown as Mesh APs," complainant has not shown the accused products (or a user of the accused products) are transmitting information in a communication system with at least two communicating devices.

Claim 1 [preamble]: "A method for transmitting information in a communication system with at least two communicating devices, comprising:"

Complainant argues that "[Redacted in Public V] Access Points perform a method (or allow a user to perform a method) for transmitting information in a communication system with at least two communicating devices" where the "communicating devices are shown as Mesh APs," however, this makes the accused CommScope products both the claimed "base stations" and the claimed "communicating devices" in the mesh network. *See* CX-0221.0324 (Unleashed 200.9 User Guide). However, the terms of the claim should have different meanings and the accused APs cannot satisfy both terms of the claim or else the terms would be rendered superfluous.[44] *See* RX-1196C (Lin RWS) at Q/A 80-81.

Claim 1[a]: "linking the at least two communicating devices for transmission of the information at least via a radio communication interface of a radio communication system having base stations interlinked via a base station network, said linking using channels arranged in hierarchical protocol layers;"

Complainant argues that the linking of at least two communicating devices (*e.g.*, the mesh access points) is "done via the radio communication interface (e.g., the Wi-Fi

[44]*Merck & Co. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) ("A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.").

interface) of a radio communications system having base stations (e.g., the root access points) interlinked via a base-station network (e.g., the network interlinking the access points)." *See* Compl. Br. at 65 (citing CX-3846C (Madisetti WS) at Q/A 410-11); RX-1196C (Lin WS) Q/A 79-80. CommScope's Mesh APs are not "communicating devices" as the '677 patent claims clearly distinguish between "communicating devices" and "base stations interlinked via a base station network." The accused Mesh APs are "base stations interlinked via a base station network" and are not the "communicating devices," such as mobile phones or laptops connecting to base stations as envisioned by the '677 patent. *See, e.g.*, JX-0001 ('677 Patent) at 5:17-31, Fig. 1. In fact, complainant does not dispute that the APs are base stations in a "base station network." *See* RDX-0002C.0251. At least under complainant's arguments, the claimed "base station network" comprises both Root APs and Mesh APs, and thus, both Root APs and Mesh APs are base stations and not the "communicating devices."

Complainant does not provide any evidence to show that the APs perform the steps of "linking." *See* CX-3846C (Madisetti WS) at Q/A 410-11. Complainant does not identify or provide any evidence that shows which Mesh APs it considers to be linked, as required by the claim.

Claim 1[b]: "supplying channel-specific information, at least from one channel for a radio link between one of the communicating devices and at least one base station, to a hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices; and"

The CommScope accused products do not meet the "supplying" limitation for several reasons. *See* RX-1196C (Lin RWS) at Q/A 139-40. First, as explained above, complainant has not provided any evidence that shows the accused products perform

limitation 1[a] ("linking"). *Id.* at Q/A 140-141. For this reason alone, the accused products do not infringe limitation 1[b].

Second, complainant's allegations regarding its identification of "communicating devices" are inconsistent and improper. *Id.* at Q/A 142-43. For example, complainant argues that "information is supplied for an overall link between the at least two communicating devices, *e.g.*, the information relating to the connection between base station E and communicating device A is supplied for the connection between communicating device B and communicating device A" and "[t]hat information can be used for communicating device B to connect to communicating device C instead." *See* CX-3846C (Madisetti WS) at Q/A 416-17. In the prior limitation 1[a], complainant identified the "two communicating devices" generally as "the mesh access points" without identifying any specific mesh access points that meet the claim limitation. Now, with respect to the "supplying" limitation 1[b], complainant identifies three communicating devices (A, B, and C) (*i.e.*, three mesh access points) without specifying which ones are the claimed "two communicating devices." However, regardless of the defined "two communicating devices" all are base stations in its annotated figure CX-0221.0324 (Unleashed 200.9 User Guide), thus the accused products cannot infringe at least because the APs are all the same, and are not "supplying channel-specific information, at least from one channel for a radio link between one of the communicating devices [*e.g.*, communicating device A, B, or C] and at least one base station [*e.g.*, Root APs]." Complainant has not provided any evidence, nor can it, that shows a "channel for a radio link between one of the communicating devices [*e.g.*, communicating device B] and at least one base station [*e.g.*, Root AP]." *See* RDX-0002C.0247-250.

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Complainant has not provided any evidence that shows any channel-specific information is supplied to a hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices (in this hypothetical arrangement) because each Mesh AP in the network exchanges information on layer 2, as discussed above. Further, as to complainant's argument that the claimed "radio link" is between communicating device A and Root AP, complainant has not shown that any CSI about that radio link is supplied to a "hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices," nor has it identified what would be the "overall link" between APs in that arrangement.

Specifically, as illustrated in its own demonstrative (CDX-0001C-677.0134), complainant has not explained whether the overall link is between device A and device B, or between device A and device C, or between device B and device C. Even if the overall link was between device A and B, the CommScope products could not infringe this limitation because there is no evidence that channel-specific information (*e.g.*, from the radio link between communicating device A and the Root AP), is supplied to a hierarchically higher Internet protocol based channel for an overall link between, for example, devices A and B.

Third, none of the alleged channel-specific information identified in complainant's infringement contentions are supplied to a "hierarchically higher Internet protocol based channel for an overall link between the two communicating devices." Complainant argues that the "Redacted in Public Version [redacted]" and claims that the "Redacted in Public Version [redacted]." *See* CX-3846C (Madisetti WS) at Q/A 415. Complainant further argues that these are

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Redacted in Public Version *Id*. However, this is not an accurate depiction of the cited code, because Redacted in Public Version call does not supply any network information to layer 4, nor is it relevant to the issues related to the '677 patent. *See* RX-0935C (Overby WS) at Q/A 83-86. Redacted in Public Version and Dr. Madisetti has not cited any evidence that would show otherwise. *Id*. Complainant refers to a Linux Drivers Textbook that explains that "[a]ny ioctl command that is not recognized by the protocol layer is passed to the device layer." *See* CDX-0001C.677.136; CX-3846C (Madisetti WS) at Q/A 415. That is what happens in the cited CommScope code. Yet, this shows Redacted in Public Version This would explain Redacted in Public Version *See* RX-1196C (Lin RWS) at Q/A 144-46. Here, Redacted in Public Version, so that the application can talk to the device driver, but it does not go through the IP layer (or layer 3/4).

Claim 1[c]: "initiating at least one of a changeover in respect of at least one multiple access medium and a handover based on the channel-specific information supplied from the channel for the radio link to the hierarchically higher Internet protocol based channel for the overall link."

The accused CommScope products do not infringe this claim element for several reasons. First, complainant argues that the accused access points initiate a handover "based on the channel-specific information" discussed in limitation 1[b]. *See* Compl. Br. at 73 (citing CX-3846C (Madisetti WS) at Q/A 416-17); RX-1196C (Lin RWS) at Q/A

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174-78. However, complainant never identifies which "CSI" from limitation 1[b] it contends is the basis for initiating a handover.

Second, complainant argues that "information can be used for communicating device B to connect to communicating device C instead, which involves switching from communicating with one base station, *e.g.*, base station E, to communicating with a different base station, *e.g.*, base station D." *See* CX-3846C (Madisetti WS) at Q/A 416-17; RX-1196C (Lin RWS) at Q/A 176. However, complainant has not provided an evidence that shows that any handover was "based on the channel-specific information supplied from the channel for the radio link to the hierarchically higher Internet protocol based channel for the overall link."

Finally, the accused Smart Mesh APs do not initiate a handover or changeover "based on the channel-specific information…to the hierarchically higher Internet protocol based channel for the overall link." *See* RX-1196C (Lin RWS) at Q/A 177-78. As explained above, Mesh APs Redacted in Public Version, and thus, no channel-specific information is supplied to a hierarchically higher Internet protocol based channel for the overall link between two communicating devices.

* * *

Asserted dependent method claims 2-6 of the '677 patent read as follows:

> **2**. A method according to claim **1**, wherein said supplying sends the channel-specific information to the hierarchically higher Internet protocol based channel via a bit transmission channel to provide specific information about a physical radio link between the one of the communicating devices and the at least one base station.

> **3**. A method according to claim **2**, wherein said supplying supplies the channel-specific information to the hierarchically higher Internet protocol based channel via a data link layer channel to ensure the radio link between the at least one of the communicating devices and the at least one base station.
>
> 4. A method according to claim **2**, wherein the channel-specific information relates to parameter information about the radio link between the at least one of the communicating devices and the at least one base station.
>
> **5**. A method according to claim **2**, wherein the channel-specific information relates to calculations on data relating to the radio link between the at least one of the communicating devices and the at least one base station.
>
> **6**. A method according to claim **3**, wherein the channel-specific information is control information related to the radio link between the at least one of the communicating devices and the at least one base station.

JX-0001 ('677 Patent) at 6:3-26.

d. Dependent Claim 2 : "A method according to claim 1, wherein said supplying sends the channel-specific information to the hierarchically higher Internet protocol based channel via a bit transmission channel to provide specific information about a physical radio link between the one of the communicating devices and the at least one base station."

Complainant has not provided evidence that the accused products send channel-specific information to the hierarchically higher Internet protocol based channel "via a bit transmission channel" as required by the claim. Rather, complainant concludes that this element is met without demonstrating that a "bit transmission channel" is present in the

accused devices, or that any alleged "channel-specific information" is supplied via the "bit transmission channel." *See* RX-1196C Lin WS) at Q/A 179-82.

Further, complainant argues that the accused products meet claim 2 because in "claim 1, the [redacted] can be supplied via the bit transmission channel, e.g., layer 1." *See* Compl. Br. at 59, 74, 97 (citing CX-3846C (Madisetti WS) at Q/A 374, 418, 488). This is wrong for the same reasons discussed above because any RSSI information is provided based on Layer 2 protocols, and there is no evidence that RSSI is supplied to "a hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices." *See* RX-1196C (Lin RWS) at Q/A 179-82.

e. Dependent Claim 3: "A method according to claim 2, wherein said supplying supplies the channel-specific information to the hierarchically higher Internet protocol based channel via a data link layer channel to ensure the radio link between the at least one of the communicating devices and the at least one base station."

The accused products do not infringe claim 3. *See* RX-1196C (Lin RWS) at Q/A 183-86. Complainant has not provided any evidence that the accused products infringe. Instead, complainant concludes that this element is met without providing any evidence that a "data link layer channel" is present in the products, or that any alleged "channel-specific information" is supplied via the "data link layer channel."

Complainant argues that the HPE accused products meets the limitations contained in claim 2. For the reasons discussed above, this is wrong. Further, complainant argues that the accused products meet claim 3 because in "claim 1, the channel specific information can be supplied via the data link layer, e.g., layer 2." *See*

Compl. Br. at 60; CX-3846C (Madisetti WS) at Q/A 376. This opinion is inconsistent with complainant's positions related to how the channel-specific information is transmitted Redacted in Public Version. Specifically, complainant, through its prior analysis of claim 1, argued that channel-specific information is supplied to Redacted in Public Version, but here contends it is supplied to a "data link layer, e.g., layer 2" (Redacted in Public Version). Complainant's analysis stating that channel-specific information is being supplied in two apparently disparate manners is wrong. *See* RX-1196C (Lin RWS) at Q/A 184. Complainant has not provided any evidence to support its positions.

Complainant argues that the accused NETGEAR and CommScope products meet the limitations contained in claim 2. For the reasons discussed above, this is wrong. *See* RX-1196C (Lin RWS) at Q/A 185-186. Complainant argues that the accused products meet claim 3 because "Redacted in Pub can be supplied via the data link layer, e.g., layer 2, to the Redacted in Public Version discussed above to ensure that the radio link between the at least one of the communicating devices and the at least one base station, e.g., Redacted in Public Version " *See* Compl. Br. at 75, 98; CX-3846C (Madisetti WS) at Q/A 419, 489. However, complainant has not provided any evidence in support.

f. Dependent Claim 4: "A method according to claim 2, wherein the channel-specific information relates to parameter information about the radio link between the at least one of the communicating devices and the at least one base station."

Complainant has not provided any evidence that the accused products practice claim 4. *See* CX-3846C (Madisetti WS) at Q/A 377-78, 420, 490. Instead, complainant summarily concludes that this element is met without providing any evidence that

"channel-specific information" is supplied and whether it includes any alleged "parameter information." *See* Compl. Br. at 60, 75, 98; RX-1196C (Lin RWS) at Q/A 187-90. Complainant further argues that the accused products meet the limitations of claim 2. For the reasons discussed above, this is wrong. Complainant does not provide any evidence that the Redacted in Pub qualifies as "parameter information" as disclosed in the patent. In the '677 patent, the example surrounds QoS information, but Redacted in Pub is not congruent to this type of information. *Id.* at Q/A 188-90.

g. Dependent Claim 5: "A method according to claim 2, wherein the channel-specific information relates to calculations on data relating to the radio link between the at least one of the communicating devices and the at least one base station."

The accused products do not infringe claim 5. *See* RX-1196C (Lin RWS) at Q/A 191-194. Complainant has not provided any evidence that the accused products infringe. Instead, complainant's expert concludes that this element is met without providing any evidence that "channel-specific information" is supplied and whether it allegedly relates to "calculations on data relating to the radio link." *See* Compl. Br. at 60, 76, 98; CX-3846C (Madisetti WS) at Q/A 379-380, 421, 491.

Complainant argues that the HPE accused products meet the limitations contained in claim 2. For the reasons discussed above, this is incorrect. *See* RX-1196C (Lin RWS) at Q/A 192. Further, complainant does not demonstrate that the Redacted in Public Version was performed based on "data relating to the radio link," but is instead based on Redacted in Public Version.

Complainant argues that the NETGEAR and CommScope products infringe claim 2. For the reasons discussed above, this is wrong. Further, complainant argues that the

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accused products meet claim 5 because in "claim 1, the channel-specific information includes calculations on Redacted in Public Version of the proposed channel between the at least one of the communicating devices and the at least one base station." *See* Compl. Br. at 76, 98; CX-3846C (Madisetti WS) at Q/A 421, 491. Complainant has not provided sufficient evidence to support his position. *See* RX-1196C (Lin RWS) at Q/A 193-94.

h. Dependent Claim 6: "A method according to claim 3, wherein the channel-specific information is control information related to the radio link between the at least one of the communicating devices and the at least one base station."

The accused products do not infringe claim 6. *See* RX-1196C (Lin RWS) at Q/A 195-98. Complainant has not provided any evidence that the accused products infringe. *Id.*

Complainant argues for all respondents that the accused products meet the limitations contained in claim 3. *See* Compl. Br. at 61, 76, 99 (citing CX-3846C (Madisetti WS) at Q/A 382-83, 422-23, 492-93). For the reasons discussed above, this is wrong. Complainant further claims that control information in HPE accused products is "Redacted in Public Version" "Redacted in Public Version" or "Redacted in Public Version" *Id.* at Q/A 382. However, complainant has not explained why any of the purported "channel-specific information" is "control information" in the '677 patent, or why it would satisfy the limitations found in claim 1, where complainant points to a different alleged channel-specific information. *See* RX-1196C (Lin RWS) at Q/A 195-98. Further, complainant has not established how NETGEAR and CommScope provide any of the purported "channel-specific information" as "control information" in the '677

patent. *Id*.

3. Indirect Infringement (Inducement)

Complainant argues that HPE directly infringes asserted method claims 1-6 of the '677 patent:

> The evidence has shown that HPE directly infringes the asserted claims by testing and operating the HPE Products in the United States. CX-3846C (Madisetti WS) at Q/A 384. As discussed above, the HPE Products practice the asserted claims when operated, including when operated with their roaming and/or steering functionality. *Id*. HPE tests the HPE Products in the United States and abroad, thereby performing all the steps in the asserted claims. *Id*. CX-3591C.0018 shows that HPE tests the sticky client function discussed above. *Id*. CX-3591C.0016 shows that HPE tests the multiple access points and clients, *e.g*., communicating devices. *Id*. And CX-3591C.0020-21 shows that HPE tests Redacted in [redacted] with multiple access points and clients, e.g., communicating devices. *Id*.
>
> HPE's corporate deposition testimony also shows that HPE directly infringes the claims of this patent by conducting tests of the accused products in the United States. CX-3846C (Madisetti WS) at Q/A 385 (citing JX-0179C.0023-24 and .0035). For example, Redacted in Public Version [redacted]. *Id*.
>
> HPE's interrogatory responses further show that HPE directly infringes the claims of this patent. CX-3846C (Madisetti WS) at Q/A 386. Redacted in Public Version [redacted] CX-3846C (Madisetti WS) at Q/A 384 (citing to CX-0477C.0003-04). Respondents' Expert, Dr. Lin, incorrectly testified in his witness statement that the Redacted in Public Version [redacted]." RX-1196C (Lin WS) at Q/A 200. As demonstrated at the hearing, HPE's interrogatory responses contradict that testimony by explicitly describing that Redacted in Public Version [redacted] Tr. (Lin) at 568:15-569:22.

Compl. Br. at 61-62.

Complainant argues that HPE induces infringement of the asserted method claims 1-6 of the '677 patent:

> The evidence has shown that HPE induces infringement of the asserted claims by end users in the United States. CX-3846C (Madisetti WS) at Q/A 387. Evidence of that inducement can be found in, among other things, HPE's user manuals and instructions as to how to use the products. *Id*. HPE also provides a vast array of support to its United States customers via its support websites, *e.g*., https://support.hpe.com/hpesc/public/home/ and https://asp.arubanetworks.com/. *Id*.
>
> HPE induces infringement of its customers by providing the ArubaOS user guide that instructs HPE's customers as to how to set up and use the products in an infringing manner. CX-3846C (Madisetti WS) at Q/A 388 (citing CX-0104.0016). The ArubaOS guide provides detailed instructions describing ClientMatch and showing how to configure ClientMatch. *Id.* (citing CX-0104.0569-70).
>
> HPE's interrogatory responses further show that HPE induces infringement. CX-3846C (Madisetti WS) at Q/A 389 (citing CX-0477C.0004-05, Response to Interrogatory No. 175). HPE's responses to RFAs also indicate that HPE induces infringement. *Id.* (citing CX-0476C.0383-86).

Compl. Br. at 62-63.

Complainant argues that CommScope directly infringes asserted method claims 1-6 of the '677 patent:

> CommScope directly infringes the asserted claims by testing and operating the Redacted in Public V Access Points in the United States. CX-3846C (Madisetti WS) at Q/A 424. As discussed above, the CommScope Redacted in Public V Access Points practice the asserted claims when operated, including when operated with the Redacted in Public Version. *Id*. CommScope tests the Redacted in Public V Access Points in the United States and abroad, thereby performing all the steps in the asserted claims. *Id*. CommScope's deposition testimony shows that CommScope directly infringes the claims of this patent by conducting tests of the accused products in the United States. *Id*. This includes Redacted in Public Version, which would encompass the accused functionality. *Id.* (citing JX-0175C.26 (Jou Tr.) at 97:8-12; 139:22-140:12.

Compl. Br. at 76-77.

Complainant argues that CommScope induces infringement of the asserted method claims 1-6 of the '677 patent:

> CommScope induces infringement of the asserted claims by end users in the United States. CX-3846C (Madisetti WS) at Q/A 425. Evidence of that inducement can be found in, among other things, user manuals and instructions as to how to use the products. *Id*. CommScope also provides a vast array of support to its United States customers via its support websites. *Id*.
>
> CommScope induces infringement of its customers by providing documents and detailed instructions to its customers showing them how to deploy the Redacted in Public Version that infringe the '677 Patent as discussed above. CX-3846C (Madisetti WS) at Q/A 426. For example, JX-0029C.0379-399 includes an entire chapter devoted to Redacted in Public Version Thus, CommScope induces infringement of the asserted claims by end users in the United States. *Id*. The Redacted in Public Version chapter also includes a reference to another chapter, which contains "recommendations and best practices in planning and deploying Redacted in Public Version ." *Id.* (citing JX-0029C.399). The Redacted in Public Version Best Practices chapter starts at JX-0029C.0401.
>
> CommScope's interrogatory responses further show that CommScope induces infringement. CX-3846C (Madisetti WS) at Q/A 427; *see, e.g.*, CX-0472C.0006 (Response to Interrogatory No. 175). CommScope's responses to RFAs also show that CommScope induces infringement. CX-3846C (Madisetti WS) at Q/A 427; *see, e.g.*, CX-0471C.0006-07 (Response to RFA 220; Response to RFA 222).

Compl. Br. at 77-78.

Complainant argues that NETGEAR directly infringes asserted method claims 1-6 of the '677 patent:

> NETGEAR directly infringes the asserted claims by testing and operating the NETGEAR Products in the United States. CX-3846C, Madisetti WS at Q/A 494. Complainant has shown that the NETGEAR Products practice the asserted claims when operated, including when operated with their roaming and/or steering functionality. *Id*. NETGEAR's deposition testimony shows that NETGEAR directly infringes the claims of this patent by conducting tests of the accused products in the United States. CX-3846C, Madisetti WS at Q/A 495; *see e.g.*, JX-0172C.0030, .08, .10, .17-18, .23-24, .29, .41-42, .48. For example, NETGEAR Redacted in Public Version CX-3846C, Madisetti WS at Q/A 495; JX-0172C.0030. Another example excerpt of NETGEAR's deposition testimony at JX-0172C.0030 shows that NETGEAR directly

> infringes the claims of this patent by conducting tests of the NETGEAR Products in the United States. CX-3846C at Q/A 495.
>
> NETGEAR's interrogatory responses show that NETGEAR directly infringes the claims of this patent. CX-3846C, Madisetti WS at Q/A 496. As shown in those responses, NETGEAR specifically tests Redacted in Public Version. *Id*. (citing CX-0481C.0004 (Response to Interrogatory No. 174 (4/21/2021)). NETGEAR's documents also show that NETGEAR tests the NETGEAR Products in the United States, thereby performing all the steps in the asserted claims. CX-3846C, Madisetti WS at Q/A 497 (citing CX-3921C.0002).).

Compl. Br. at 99-100.

Complainant argues that NETGEAR induces infringement of the asserted method claims 1-6 of the '677 patent:

> NETGEAR induces infringement of the asserted claims by end users in the United States. CX-3846C, Madisetti WS at Q/A 498. Evidence of that inducement can be found in among other things, user manuals and instructions as to how to use the products. *Id*. NETGEAR's user guides include instructions to its end users as to how to set up and use the NETGEAR products in an infringing manner. CX-3846C, Madisetti WS at Q/A 499. The example user guide at CX-1361C.0003, .07, .08, and .11 is illustrative, showing for example "When to Use Your Extender" and "Use as an Access Point." *Id*. NETGEAR's interrogatory responses further indicate that NETGEAR induces infringement of its end users. CX-3846C, Madisetti WS at Q/A 500 (citing CX-0481C.0004-06 (Response to Interrogatory No. 175)). NETGEAR's responses to RFAs also indicate that NETGEAR induces infringement of its end users. CX-3846C, Madisetti WS at Q/A 500 (citing CX-0480C.0004-06 (Response to RFA 159)).

Compl. Br. at 100.

a. Direct Infringement of the '677 Patent

As discussed below, complainant has not shown direct infringement. *See* RX-1196C (Lin RWS) at Q/A 199-200. The '677 patent claims a method for transmitting information in a communications network, which requires at least two communicating devices. Without the communicating devices, one could not perform the method. Dr.

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Madisetti's allegations require that a third-party provide at least a mobile phone and laptop, for example, to even meet the limitation required by all asserted claims. There cannot be any direct infringement if the respondents do not provide the "at least two communicating devices." Moreover, even for the "supplying" limitation, respondents cannot directly infringe because a third-party device, such a mobile phone that can communicate via radio, is required in order to have a radio link between that device and a base station.

Testing

While Dr. Madisetti opines that respondents infringe by testing the accused products in the United States, to the extent any such testing could be considered an infringing act, Dr. Madisetti has not provided any evidence to support that the testing could perform each and every claim limitation of the asserted patent.

Nothing Dr. Madisetti cites shows that HPE actually tests any of the accused products in the United States. Certain HPE documents contain testing details, but no such information regarding the testing being done in the United States. *See* CX-3591C.0016, .0018, 0020-21 (Redacted in Public Version). Dr. Madisetti's conclusory opinion has not shown direct infringement through testing (in the U.S.) of any device. As confirmed by respondents' interrogatory and other discovery responses, and the testimony of HPE's corporate witness, the accused Client Match functionality is Redacted in Publi [redacted] *See, e.g.*, CX-0477 (HPE's Response to Interrogatory No. 174 (Redacted in Public Version); RX-1198C (Balay WS) at Q/A 85; CX-0481C (NETGEAR's Response to Interrogatory No. 174); CX-0472C (CommScope's Response to Interrogatory No. 174 (CommScope's

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understanding is that Redacted in Public Version)); RX-1201C (Jou WS) at Q/A 22. Thus, complainant has not shown direct infringement through testing (in the U.S.) of any device.

b. Indirect Infringement of the '677 patent

As discussed below, complainant has not shown indirect infringement. *See* RX-1196C (Lin RWS) at Q/A 201. Complainant does not argue that respondents' customers directly infringe claims 1-6 of the '677 patent or that the accused products necessarily infringe claims 1-6. As discussed above, infringement of the '677 patent requires multiple entities such that neither respondents' customers nor a third-party manufacturer could directly infringe claims 1-6 of the '677 patent. The accused products also do not necessarily use the 802.11, 802.11k, 802.11v, 802.11r, or 802.1Q standards, as the accused products are capable of supporting hundreds of different standards and protocols. *Id.* at Q/A 199-201. Complainant has not pointed to any specific instances of direct infringement or provided any evidence that the accused products necessarily infringe the '677 patent. *Id*.

Respondents do not encourage, and do not possess a specific intent to encourage, another's infringement of the '677 patent. *Id.* Thus, there is no basis on which a finding of indirect infringement can be found as to any of the respondents.

Complainant argues that respondents' advertisements, distribution channels, circulation of instruction manuals, and customer support, among other things, induces respondents' customers to infringe the '677 patent. However, respondents do not encourage, and do not possess a specific intent to encourage, another's infringement of the '677 patent through use of their manuals, advertisements, distribution, or otherwise.

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Id. The fact that respondents advertise their products, distribute their products, provide technical support, etc. to respondents' customers plays no role in any specific intent to infringe the '677 patent. *Id*.

C. Domestic Industry (Technical Prong)

As noted above, complainant relies on method claims 1-6 of the '677 patent for the technical prong of the domestic industry requirement.

Complainant argues, *inter alia*:

> **Technical Prong of Domestic Industry for the '677 Patent – SCALANCE W700 Series Products**
>
> The evidence has shown that Siemens provides "SCALANCE W700 Series Products" that perform the methods of the asserted claims of the '677 Patent using their Redacted in Public Version . *See generally* CX-3846C, Madisetti WS at Q/A 501-524. Those products include SCALANCE W7xx products such as W72x, W73x, W73fx, W74x, W76x, W77x, and W78x and substantially similar products. CX-3846C, Madisetti WS at Q/A 501. Dr. Madisetti analyzed the SCALANCE W700 Series Products, and he found them to meet all the limitations of the asserted claims of the '677 Patent. CX-3846C, Madisetti WS at Q/A 501-524. In his analysis, Dr. Madisetti reviewed several documents, which are cited in his witness statement. *Id*.
>
> ….
>
> **Technical Prong of Domestic Industry for the '677 Patent – SCALANCE W1750D**
>
> The evidence has shown that the SCALANCE W1750D or its users practice the methods of claims 1-6 of the '677 Patent. *See generally* CX-3846C, Madisetti WS at Q/A 525-540. The SCALANCE W1750D is Redacted in Public Version CX-3846C, Madisetti WS at Q/A 529. Redacted in Public Version *Id*. Thus, the SCALANCE W1750D meets all the limitations of the asserted claims of the '677 Patent. CX-3846C, Madisetti WS at Q/A 525-540.

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Compl. Br. at 100-101, 104; *see id.* at 101-108.

Respondents disagree. *See* Resps. Br. 277-78; Resps. Reply Br. 91-93.

As discussed below, the evidence shows that complainant has not satisfied the technical prong of the domestic industry requirement.

As discussed below, complainant has not satisfied the technical prong of the domestic industry requirement for the same reasons the NETGEAR and HPE accused products do not infringe the asserted claims.

Category 1: SCALANCE W700

Complainant's arguments as to why the "SCALANCE W700" series products allegedly practice the '677 patent Redacted in Public Version *See* Compl. Br. at 101-02. Complainant summarily argues that the Siemens APs use "Redacted in Public Version." *See* Compl. Br. at 101. However, complainant cites no evidence that the Scalance W7xx products actually use Redacted in Public Version, or that, even if they do, that the identified Redacted in Public Version is the same code present and enabled on the identified Scalance W7xx products. *Id*. at 101. In any event, the Siemens APs would not be within the scope of the '677 patent claims for Redacted in Public Version . *See* RX-1196C (Lin RWS) at Q/A 7, 202-03, 204-15. Further, the evidence cited to show Siemens' direct practice of the claims does not show any of the claimed limitations. *See id.* at 102-03 (citing "wireless site survey and configuration," wireless support, and configuration support in documents, but no claim limitations).

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Category 2: The Scalance W1750D

As to "SCALANCE W1750D," Redacted in Public Version [redacted] *See* Compl. Br. at 104; CX-3846C (Madisetti WS) at Q/A 525-40. [redacted] the identified Scalance W1750D is not within the scope of the '677 patent claims and does not satisfy the technical prong. *See* RX-1196C (Lin RWS) at Q/A 7, 202-03, 216-20.

In summary, complainant's arguments regarding the Scalance W1750D are wrong, and the Scalance W1750D is not within the scope of the asserted '677 patent claims. Siemens W1750D is based on the Redacted in Public Version [redacted]. *See* RX-1198C (Balay WS) at Q/A 15-18; CX-3634C Redacted in Public Version [redacted] d; RX-1205; RX-1204; RX-1203; RX-1207; RX-1206. However, complainant's analysis for the Redacted in Public Version are based primarily on the product's use of Redacted in Pub functionality. *See* CX-3846C (Madisetti WS) at Q/A 530. As discussed above, the Redacted in Public Version does not use the Redacted in Public Version message system, but rather uses a different system named Redacted in Public Version [redacted]. Moreover, it appears that complainant never analyzed the code for the Instant APs (including the Redacted in Public Versic). *See* RX-1196C (Lin RWS) at Q/A 218. Thus, it has not been established that the Redacted in Pu [redacted] is within the scope of the '677 patent claims and likewise no viable domestic industry evidence for the Scalance W1750D.

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Complainant's arguments regarding Dr. Balay's "self-serving" testimony are not persuasive. *See* Compl. Br. at 105. Dr. Balay testified that Redacted in Public Version Balay Tr. 404 ("Redacted in Public Version). Indeed, Redacted in Public Version . *See* Resps. Br. at 37, 188; Balay Tr. 398.

Indeed, complainant has presented no evidence that Siemens has ever purchased or used an Redacted in Public controller or that a Scalance W1750D ever has been used with an Redacted in Public controller, let alone in the United States. Complainant has not presented any evidence of a Scalance W1750D operating Redacted in Public Version , let alone in the United States. The only specific evidence in the record regarding the use of the Scalance W1750D is Redacted in Public Version . *See* JX-0185C (Maker Dep. Tr.) at 94-95.

Complainant's argument that equates the W1750D to a Campus AP as sold is not persuasive. Dr. Balay stated that Redacted in Public Version *See* Balay Tr. 412, 403. The record evidence shows that the W1750D is sold as an Redacted in Public Version and while Redacted in Public Version , there is no evidence that it has ever been done nor has complainant stated that it tested this functionality.

D. Validity of the '677 Patent

Respondents argue, *inter alia*:

> At the time of the '677 Patent's purported invention, the patent's underlying technology was well-known. For example, at the time of the '677 Patent, radio communications systems, including cellular and Wi-Fi

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networks, were well-known. JX-0188C (Martin Tr.) at 122:21-25. JX-0001 ('677 Patent) at 1:29-38, 2:47-54, 2:55-58; 4:53-61, 4:31-47. Base station networks, layered communication protocols (such as the ISO/OSI model), Internet protocol communications, and Quality of Service (QoS) were also all well-known at the time. RX-0778 (Lin WS) at Q/A 19; RDX-0002C.0004. Importantly, handoff methods within radio communication systems were also well-known, including handoffs being initiated based on radio channel quality information. JX-0188C (Martin Tr.) at 123:1-5; JX-0001 at 4:67-5:3; RX-0925 (*Pitcher*) at 10:63-11:9, 11:28-37; RX-1190 (*Takagi)* at [0088]; RX-0266 (*Ahmed*) at 19:13-26; RX-0241 (*Matta*) at 3:54-64, 3:44-53, 3:65-4:4.

The asserted claims (1-6) of the '677 Patent are invalid in view of numerous independent references which are identified below.

- Claims 1-6 are anticipated by *Pitcher* (RX-0778 at Q/A 31-100)
- Claims 1-6 are anticipated by *Matta* (RX-0778 at Q/A 101-156)
- Claims 1-6 are anticipated by *Takagi* (RX-0778 at Q/A 157-208)
- Claims 1-6 are anticipated by *Ahmed* (RX-0778 at Q/A 209-253)
- Claims 1-6 are rendered obvious by *Takagi* in view of *Pitcher* (RX-0778 at Q/A 157-208)
- Claims 1-6 are rendered obvious by *Matta* in view of *Matta '915* (RX-0778 at Q/A 101-156); RX-0226 (*Matta '915*)
- Claims 1-6 are rendered obvious by *Pitcher* in view of *Park* (RX-0778 at Q/A 31-100); RX-0178 (*Park*).

As discussed below, each of these references discloses or renders obvious every limitation of claims 1-6 of the '677 Patent.

Q3 does not challenge that many of the claim limitations are disclosed in the prior art. In fact, for *Takagi*, there is only a single dispute regarding limitation (1[c]), *i.e.*, whether *Takagi* discloses "initiating…a handover based on supplying channel-specific information from the channel for the radio link to the hierarchically higher Internet protocol based channel for the overall link." Q3 does not challenge that the channel-specific information is supplied according to the claim (limitation 1[b]), but only whether that supplying results in initiating a handover. As shown below, *Takagi's* preferred embodiment expressly discloses this limitation and Q3's challenge should be rejected. Q3's challenges to the

> remaining references should also be rejected because *Pitcher*, *Matta*, and *Ahmed* anticipate or render obvious the asserted claims.

Resps. Br. at 231-32; *see id.* at 232-77; Resps. Reply Br. 83-91.

Complainant disagrees. *See* Compl. Br. at 108-27; Compl. Reply Br. 32-38.

For the reasons set forth below, respondents have not shown by clear and convincing evidence that the asserted claims of the '677 patent are invalid.

1. Pitcher alone and Pitcher combined with Park

As discussed below, respondents have not shown by clear and convincing evidence that U.S. Patent No. 6,947,405 ("Pitcher"), RX-0925, anticipates claims 1-6, or that Pitcher in combination with U.S. Patent No. 5,912,878 ("Park"), RX-0178, render claims 1-6 obvious.

Pitcher does not disclose "supplying channel specific information … to a hierarchically higher Internet protocol based channel," as required by element 1[b]. *See* CX-3930C (Martin WS) at Q/A 35. Citing the examples in Figures 8 and 9, respondents' expert, Dr. Lin opines that the "channel specific information" in Pitcher is measurements of a radio signal, such as signal strength and Bit Error Rate, and that the mobile terminal (element 22) supplies that information between the mobile terminal (element 22) and the wireless home network (element 100) to the mobile switching center (element 40). *Id.* However, in Figures 8 and 9 the measurements of the radio signal are not supplied to a hierarchically higher layer. *Id.* Instead, they are supplied from the mobile station (element 22) to radio base station (element 28) to the mobile switching center (element 40), without being supplied to a hierarchically higher layer. *Id*.

Along the path for relaying measurement information from the mobile station to the radio base station to the mobile switching center, Pitcher never discloses supplying that measurement information to a hierarchically higher layer. *See* CX-3930C (Martin WS) at Q/A 36. Instead that information stays at the same layer. Respondents' expert, Dr. Lin opines that Figure 8 shows radio measurements sent from the mobile terminal to the cyber base station via the voice client. *Id.* However, as shown above, Figure 8 shows sending measurements from the mobile station to the radio base station to the mobile switching station. *Id.* Thus, the voice client and cyber base station are bypassed in favor of the radio base station. *Id.*

Complainant has annotated Figure 3 to further show this bypassing, which shows that any radio measurements sent in the example of Figure 8 can skip the voice client and cyber base station altogether as shown by the yellow lines. *Id.*; CDX-0006C.022. Inasmuch as the measurement data in Figure 8 is never sent to the voice client, it is never "encapsulated in 'internet protocol packets'" to be sent to the cyber base station. *See* CX-3930C (Martin WS) at Q/A 36. Thus, Dr. Lin's opinion that these messages are encapsulated in "internet protocol packets" is incorrect. *Id.* The "voice client 102 encapsulates messages between the mobile terminal 22 and cyber base station 128 in internet protocol packets." *Id.*; Pitcher at 5:7-10. Therefore, in the example of Figure 8 (as well as the example in Figure 9), there is no encapsulation in IP packets. *See* CX-3930C (Martin WS) at Q/A 36. Accordingly, it would be incorrect to conclude that the measurement data in the embodiments of Figure 8 or Figure 9 is encapsulated into an IP packet, and therefore supplied to a hierarchically higher internet protocol layer. *Id.*

Respondents' expert, Dr. Lin opines that Pitcher's "Cellular Messages" disclose supplying channel specific information to a hierarchically higher layer. *See* CX-3930C (Martin WS) at Q/A 37. Yet, the Cellular Messages are already "higher layer protocol" messages and thus are not supplied to a hierarchically higher layer. *Id.*; Pitcher at 4:50-51, 4:58-59. To the extent layer 3 information is sent using a Cellular Message over internet protocol, which is also layer 3, that information remains at layer 3, and thus is not supplied to a hierarchically higher layer. *See* CX-3930C (Martin WS) at Q/A 37. The only layer 2 information that Pitcher discloses as potentially part of a Cellular Message is "addressing, error control, and Slow Associated Control Channel (SACCH) information." *Id.*; Pitcher at 4:59-61. However, none of that information is identified by Dr. Lin as the claimed channel specific information. *See* CX-3930C (Martin WS) at Q/A 37. This is because none of that information is disclosed by Pitcher as being a basis for the initiation of a handover or changeover. *Id.* Further, Pitcher does not refer to Cellular Messages as containing the measurement data that Dr. Lin opines is the "channel specific information," (e.g., signal strength and Bit Error Rate). *Id.* Instead, Pitcher discloses that "[t]hese Cellular Messages include control channel messages, call setup and tear-down messages, voice information and data." *Id.*; Pitcher at 4:50-51; 4:47-49.

Pitcher's disclosure that "the cyber base station 128 may report measurements of the mobile terminal transmissions" does not disclose element 1[b]. *See* CX-3930C (Martin WS) at Q/A 38; Pitcher at 11:28-38. There is no indication in Pitcher of the specific layer used to transmit those measurements. *Id.* Rather, Pitcher states that "the cyber base station 128 may either report the same values the mobile terminal 22 reports" or that "the broadband modem may provide wireless home network measurement data to

the cyber base station 128 via the voice client 102." *Id.* Those passages do not describe how those values are reported or how the modem may provide the measurement data. *Id.* In neither of those instances are the measurements discussed as being supplied to a hierarchically higher channel. *Id.* Moreover, the layers of those measurements are never discussed. *Id.* Indeed, Dr. Lin testified at the hearing that "Pitcher . . . doesn't explicitly state one way or the other" whether the cyber base station communicates with the mobile switching center using internet protocol. Lin Tr. 624.

With respect to respondents' obviousness arguments, Pitcher in combination with Park does not disclose claim element 1[b] obvious. *See* CX-3930C (Martin WS) at Q/A 39. Respondents' expert, Dr. Lin's opinion that combining Pitcher with Park would improve the overall performance of a communication system is incorrect. *Id.* For example, adding additional information for Pitcher's system to process would not necessarily improve user response time. *Id.* Moreover, Pitcher already allows a "mobile end station to move or roam around from place to place and still be able to communicate with other end stations on the Internet," as disclosed by Park. *Id.*; Park at 2:65-3:4. Any alleged "improved performance" that could be provided by importing Park's alleged disclosure of supplying lower layer channel information to higher layers is outweighed by other detriments that Dr. Lin did not consider. *See* CX-3930C (Martin WS) at Q/A 39. Respondents' expert, Dr. Lin suggests that his substitution would involve modifications to the mobile switching center, but Pitcher expressly seeks to minimize changes to the mobile switching center because "such infrastructure is complicated and expensive" and the mobile switching centers "are very complex and require a long development cycle to create and test new features." *Id.*; Pitcher at 6:54-59; 14:15-22. Thus, a person of

ordinary skill would not have been motivated to add the feature suggested by Dr. Lin. *See* CX-3930C (Martin WS) at Q/A 39.

Pitcher does not disclose element 1[c] for at least the reason that Pitcher does not disclose initiating of the handover or changeover based on the claimed channel-specific information, where that channel specific information is "for a radio link between one of the communicating devices and at least one base station." *See* CX-3930C (Martin WS) at Q/A 40. The main problem with Dr. Lin's opinion is that he identifies three examples of base stations in Pitcher: (1) base station 28, (2) cyber base station 128; and (3) wireless home network 100. *See* Resps. Br. at 242-43; CX-3930C (Martin WS) at Q/A 41.

The claims provide two requirements of the base station. *See* CX-3930C (Martin WS) at Q/A 42. First, in limitation 1[b] the channel specific information is from a channel for a radio link between the communicating device and the base station. *Id.* Second, a handover from limitation 1[c] requires a "switch from communicating with one base station to communicating with a different base station." *Id.* The only switching from communicating with one base station to another base station that is described in Pitcher is switching between base stations 28 and cyber base stations 128. *Id.* The mobile switching station initiates handovers in Pitcher. *Id.*; Pitcher at 3:21-26; 11:6-10; 11:54-60; 13:24-29; Figs. 8-9. Thus, it follows that handoffs (switching from communicating with one base station to another base station) can occur only between base stations 28 and/or cyber base stations 128. *See* CX-3930C (Martin WS) at Q/A 42. Consequently, when a handoff occurs, it is a handover between radio base stations and/or cyber base stations as set forth for example in Figures 8 and 9. Pitcher at 10:57-14:7. "[The] cyber base station 128 may mimic the operation of the radio base stations 28 so

that the mobile switching center 40 does not know the difference between them." *See* Pitcher at 5:17-19; 6:60-61; CX-3930C (Martin WS) at Q/A 42. Thus, the mobile switching center is merely controlling connections to an array of base stations 28. *See* CX-3930C (Martin WS) at Q/A 42; Pitcher at 3:14-26.

Further, Pitcher does not contemplate roaming between wireless home networks 100 in the same cell coverage area. *See* CX-3930C (Martin WS) at Q/A 42. This is apparent from Figure 4, in which all of the wireless home networks in a standard cell coverage area are connected to the same radio base station 28 and cyber base station 128. *Id.*; Pitcher at 5:64-6:4; RX-0925.0005; CDX-0006C.023. However, when the mobile switching station initiates a handover to or from a cyber base station, it does not do so based on channel specific information for a radio link between the mobile station 22 and the cyber base station 128. *See* CX-3930C (Martin WS) at Q/A 42. Rather, any alleged channel specific information is between the mobile station 22 and the wireless home network 100. *Id.* Respondents' expert, Dr. Lin admitted this during the hearing. *See* Lin Tr. 629, 631. Inasmuch as a handover requires a "switch from communicating with one base station to communicating with a different base station," and Pitcher's mobile switching station only initiates handovers between radio base stations 28 and the cyber base station 128, Pitcher's alleged base stations are limited to radio base stations 28 and cyber base stations 128. *Id.* Thus, Pitcher cannot meet the limitation of "initiating at … a handover based on the channel-specific information supplied from the channel for the radio link …" *Id.*

Moreover, Pitcher never initiates "a changeover in respect of … [a] multiple access medium." *Id.* Regardless of whether the mobile station device is ultimately

communicating with a mobile station 22 or cyber base station 128, it still does so using a cellular standard. *Id.* Indeed, nothing in Pitcher describes a mobile station that is able to handle calls without using the cellular standard. *Id.* For example, when the mobile terminal communicates with voice client 102, it still does so using the cellular standard. *Id.*; Pitcher at 4:47-59; 7:51-52. Pitcher does not suggest that the mobile switching center initiates any change among the mobile stations as to the multiple access medium for the cellular standard they are using. *See* CX-3930C (Martin WS) at Q/A 42. For example, Pitcher does not disclose the mobile switching center initiating a mobile station's change from communicating in using CDMA based cellular standard to a TDMA based cellular standard. *Id.* Additionally, Dr. Lin's discussion of the embodiments shown in Figures 8-9 and their related written description passages has not shown that this limitation is met because, as discussed above, the measurement data in Figures 8 and 9 are never sent to the voice client, and thus never "encapsulated in 'internet protocol packets'" to be sent to the cyber base station. *Id.* Accordingly, they are never supplied to hierarchically higher internet protocol based channel, and thus cannot from the basis of the "channel specific information." *Id.*

Dependent claims 2-6 are valid over Pitcher and over Pitcher in view of Park. *See* CX-3930C (Martin WS) at Q/A 43. Respondents' expert, Dr. Lin does not rely upon Park for any of the additional limitations for claims 2-6, but opines that Pitcher itself discloses those limitations, and thus the combination fails for the same reasons discussed above. *Id.* Further, Dr. Lin has not identified within Pitcher several additional limitations required by these claims. *Id.* For example, he does not identify any specific "bit transmission channel" within Pitcher for claim 2. *Id.* He does not identify any

specific "data link layer channel" within Pitcher for claim 3. *Id.* While he identifies "BER (bit error rate)" as "control information" for claim 6, he is incorrect that BER controls the quality of the signal and thus qualifies as control information. *Id.* Instead, BER provides the information of the number of bit errors over time. *Id.*

2. Matta alone and Matta combined with Matta '915

As discussed below, respondents have not shown by clear and convincing evidence that U.S. Patent No. 7,099,283 ("Matta"), RX-0241, anticipates claims 1-6 or that Matta in combination with U.S. Patent No. 7,245,915 ("Matta '915"), RX-0226, render claims 1-6 obvious.

Matta does not disclose element 1[b] for at least the reason that Matta does not disclose "supplying channel specific information … to a hierarchically higher Internet protocol based channel." *See* CX-3930C (Martin WS) at Q/A 45. Respondents' expert, Dr. Lin opines that the claimed channel specific information is met by "layer 2 measurements" discussed in Matta. *Id.*; Matta at 11:53-58. However, Dr. Lin does not show that those layer 2 measurements are supplied to a hierarchically higher Internet protocol based channel. *See* CX-3930C (Martin WS) at Q/A 45-46. Indeed, Dr. Lin makes assumptions about what a person of ordinary skill would have understood about Matta, as opposed to what Matta actually discloses. *Id.*

Dr. Lin opines that a person of ordinary skill "would understand that the layer 2 measurement information is likewise transmitted in IP packets." *Id.*; RX-0778C, Lin WS at Q/A at 42. Dr. Lin opines that layer 2 measurement data is actually transmitted to the routers via layer 3 based on Matta's disclosure that "access router 22 collects QoS data." *Id.*; Matta at 15:4-6. Dr. Lin opines that routers must only operate at layer 3 so that he

can further assume that a "POSITA would therefore have understood Matta's access router to use layer 3 communications in obtaining the QoS measurements from other hops." *See* CX-3930C (Martin WS) at Q/A 46; RX-0778C, Lin WS at Q/A at 42. Dr. Lin's assumptions and opinion about a person of ordinary skill's supposed understanding are not persuasive. *See* CX-3930C (Martin WS) at Q/A 46. Indeed, at the hearing Dr. Lin acknowledged that Matta's "wireless hops" are not the same as the "hops" he referred to in his opinion. Lin Tr. 640-641. Respondents' expert, Dr. Lin opines that inasmuch as an access router 22 collects layer 2 measurements about the wireless hop between remote terminal 12 and base station 16, that that collection must occur via the internet protocol (layer 3). *See* CX-3930C (Martin WS) at Q/A 47. However, the access router 22 is part of an access point that also contains the radio tower 18 and server 20. *Id.*; Matta at 4:63-66. Moreover, the Access Point can be a single device, containing a radio tower, server, and access router, working together collectively. *See* CX-3930C (Martin WS) at Q/A 47; RX-0241.0003.

In view of the foregoing, it is not necessary for an IP packet to be sent to or within that device containing layer 2 measurements. *See* CX-3930C (Martin WS) at Q/A 47. A person of ordinary skill would have understood that information sent between server 20 and access router 22 does not have to be sent via internet protocol, and instead could simply be layer 2 data that is passed around the device. *Id.* In other words, a person of ordinary skill would not have understood that every data transmission intra-device in a network such as that described by the Matta references must be accomplished via layer 3. *Id.* This is apparent given that Matta and Matta '915 describe components of the network that are operating in layer 2. *Id.*; Matta '915 at 5:51-53. Even router to router

transmission need not necessarily occur at layer 3 and can occur at layer 2. *See* CX-3930C (Martin WS) at Q/A 47.

Moreover, Matta states that a "frame refers to the groups of bits at layer 2, the same as a packet at layer 3." *Id.*; Matta at 14:61-62. Matta '915 indicates that the routers transmit data in frames, i.e., at layer 2: "[u]sing routing tables and routing protocols, access routers read the network address in each transmitted frame and make a decision on how to send it based on the most expedient route." *See* CX-3930C (Martin WS) at Q/A 47; Matta '915 at 5:47-50 (emphasis added). This shows that routers in Matta and Matta '915 also transmit and manipulate information via layer 2. *See* CX-3930C (Martin WS) at Q/A 47.

Further, Dr. Lin's opinion that access routers 22 are collecting wireless layer 2 information across the core network 26 is not persuasive. *Id.*; RX-0778C, Lin WS at Q/A 42. Matta does not indicate that a single access router 22 collects and analyzes layer 2 measurement data from wireless hops 34 across the core network. *See* CX-3930C (Martin WS) at Q/A 47. Respondents' expert, Dr. Lin admitted at the hearing that he is not opining that the access routers 22 are part of the core network 26. Lin Tr. 635-636. Matta discloses collecting layer 3 QoS information via probing packets sent through the fixed core network, but does not disclose collecting layer 2 QoS information via those probing packets. *Id.*; Matta at 7:33-39; 7:53-56; 3:7-64; Lin Tr. 637. Matta indicates that the processing of layer two QoS parameters occurs locally at access points 22. *See* CX-3930C (Martin WS) at Q/A 47.

Dr. Lin is incorrect in his opinion that Matta explains that layer 2 measurements are combined with layer 3 measurements. *See* CX-3930C (Martin WS) at Q/A 48.

Combining layer 2 and layer 3 measurements does not mean that layer 2 measurements are supplied to layer 3. *Id.* As shown in Figure 10, the layer 2 and layer 3 information is merely combined. *Id.*; Matta at 2:50-52. Dr. Lin cites to the following excerpt from Matta as support for his opinion: "[a]nother approach can be to map layer 2 QoS parameters of the wireless hop 34 into layer 3 QoS parameters." *See* CX-3930C (Martin WS) at Q/A 48. However, as Dr. Lin concedes, mapping is just an example of combining, which does not qualify as supplying layer 2 information to layer 3. *Id.* In other words, mapping layer 2 QoS parameters into layer 3 QoS parameters does not mean that layer 2 information is supplied to layer 3. *Id.* For example, the mapping of layer 2 QoS parameters into layer 3 QoS parameters could involve a transformation of the layer 2 QoS parameters instead of a supplying to parameters to layer 3. *Id.* A map is a function that transforms or converts the layer 2 parameters into layer 3 parameters. *Id.*

Matta '915 does not disclose "supplying channel specific information … to a hierarchically higher Internet protocol based channel." *See* CX-3930C (Martin WS) at Q/A 49. Respondents' expert, Dr. Lin cites to many passages from Matta '915, none of which show supplying channel specific information from layer 2 to layer 3. *Id.* For example, Dr. Lin cites to Matta '915 at 1:6-11, which only shows that Matta '915 discloses "layer three quality of service (QoS) aware trigger." *Id.* Dr. Lin cites to Matta '915 at 4:34-43, which only discloses an "all-IP wireless communication system that is suitable for real-time applications such as VoIP." *Id.* Neither of those things show supplying channel specific information from layer 2 to layer 3 or higher. *Id.* Similarly, just because a handoff trigger "can be used by a handoff mechanism at any layer such as layer 2, layer 3, or both," does not mean that channel specific information is supplied

from layer 2 to layer 3 or higher. *Id.* Likewise, the statement in Matta '915 that "the handoff triggering mechanism is moved to layer 3" does not mean that channel specific information is supplied from layer 2 to layer 3 or higher. *Id.*; Lin Tr. 644-645.

Matta does not disclose element 1[c] for at least the reason that Matta does not disclose that initiating of a handover or changeover is based on the claimed channel-specific information supplied from the channel for the radio link to the hierarchically higher Internet protocol based channel for the overall link. *See* CX-3930C (Martin WS) at Q/A 50. Any QoS parameters relating to wireless hops that are used in Matta's triggering decision are not also used to initiate (or cause, or facilitate, the beginning of) a switch from communicating with one base station to communicating with a different base station. *Id.* Instead, the layer 2 QoS parameters are used as a gatekeeper to eliminate base stations that do not meet the threshold signal-to-noise ratio. *Id.*; Matta at 15:12-21. Matta further explains that in another approach path selection will be solely based on the QoS13 ranking parameters, thereby excluding QoS layer 2 parameters from the initiation of switching from communicating with one base station to communicating with a different base station. *See* CX-3930C (Martin WS) at Q/A 50; Matta at 15:21-26.

Matta '915 does not disclose element 1[c]. *See* CX-3930C (Martin WS) at Q/A 51. For this limitation, Dr. Lin relies on similar positions he has set forth for limitation 1[b] as they relate to Matta '915, and are similarly incorrect. *Id.* Further, dependent claims 2-6 are valid over Matta alone and over Matta in view of Matta '915. *See* CX-3930C (Martin WS) at Q/A 52. Dr. Lin does not rely upon Matta '915 for any of the additional limitations for claims 2-6, but opines that Matta itself discloses those limitations. *Id.* As these claims all depend from claim 1, Dr. Lin has not demonstrated

invalidity of these claims for at least all of the reasons already discussed for claim 1. *Id.* Further, Dr. Lin has not identified within Matta several additional limitations required by these claims. *Id.* He does not identify any specific "bit transmission channel" within Matta for claim 2. *Id.* He does not identify any specific "data link layer channel" within Matta for claim 3. *Id.* While he identifies "BER (bit error rate)" as "control information" for claim 6, he is wrong that BER controls the quality of the signal and thus qualifies as control information. *Id.* Instead, BER provides the information of the number of bit errors over time. *Id.*

3. Takagi alone and Takagi combined with Pitcher

As discussed below, respondents have not shown by clear and convincing evidence that EP Patent Application No. EP0903905A2 ("Takagi"), RX-1190, anticipates claims 1-6 or that Takagi in combination with Pitcher render claims 1-6 obvious.

Takagi does not disclose element 1[c] for at least the reason that Takagi does not disclose initiating a handover or changeover based on the claimed channel-specific information, which is "for a radio link between one of the communicating devices and at least one base station" as recited in the claim. *See* CX-3930C (Martin WS) at Q/A 54. Respondents' expert, Dr. Lin's opinion rests on stretching what an embodiment of Takagi does with "received signal strength or the BER." *See* CX-3930C (Martin WS) at Q/A 55. Dr. Lin relies on embodiments of Takagi that purportedly show a radio terminal (e.g., Fig. 8) supplying a notification of received signal strength or BER (bit error rate) to a gateway. *Id.* Complainant highlighted certain portions related to signal strength and BER in Figure 8, showing that when the gateway receives the signal strength and BER information, it does not initiate a handover between base stations. *Id.* Rather, it merely

allows a gateway to start preparation for the handoff to another gateway. *Id*. Thus, the gateway's preparation for a handoff does not involve initiating a handover between base stations. *Id.* Instead, the gateway's preparation allows the gateway to take steps to prepare for switching gateways, if necessary, in response to an imminent handover between base stations. *Id.*; Takagi at [0088], [0106]. The procedure involving sending the received signal strength or the BER to the gateway only allows the gateway to "predict[] a handoff across base stations" and "detect[] the completion of a handoff"; not initiate a handoff. *See* CX-3930C (Martin WS) at Q/A 55; Takagi at [0109]; Takagi at [0023], [0024], [0113].

Takagi does not disclose a process for initiating a handover at the TCP layer of the gateway. *See* CX-3930C (Martin WS) at Q/A 56. As Dr. Lin admits, that procedure relates to a handoff of the gateways, which by nature cannot be initiating handovers between access points. *Id.* Moreover, Dr. Lin's characterization of those steps as "initiating a handoff" is not persuasive. *Id.* Instead, Takagi itself describes those steps as "the preparation" for when a "handoff between gateway device is likely to occur." *Id.*; Takagi at [0106] (stating twice "a gateway device that is conjectured to be a moving target.") (emphasis added).

Both a person of ordinary skill and a lay person would have understood that preparing for something does not mean initiating that thing. *See* CX-3930C (Martin WS) at Q/A 56. Takagi's description of the prior art explains that the transfer of gateways after a handoff between base stations requires the gateways to exchange information so that the TCP connection can be relayed to the new gateway. *Id.*; Takagi at [0009]. Thus, Takagi tries to predict when a base station handover requiring a change of gateways will

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occur, so as to start that transfer of information, presumably to improve throughput. *See* CX-3930C (Martin WS) at Q/A 56; Takagi at [0024], [0025]. Figure 2 of Takagi provides an example for illustrating the statement above and the principals of Takagi related to these statements. *See* CX-3930C (Martin WS) at Q/A 56. In Takagi, the gateways (*e.g.*, elements 901, 902, and 903) each cover a set of base stations. *Id.*; Takagi at [0072]. For example, gateway 901 is indirectly connected to base stations 1401, 1402, and 1403, and gateway 902 is directly connected to base stations 1404, 1405, and 1406, and so on for gateway 903. *See* CX-3930C (Martin WS) at Q/A 56.

Takagi in view of Pitcher does not disclose element 1[c]. *See* CX-3930C (Martin WS) at Q/A 57. As discussed above, Pitcher does not disclose this element. *Id.* Further, Dr. Lin has not demonstrated that the combination would "improve [the] performance" of Takagi, or that a person of ordinary skill in the art would have had a reasonable expectation of success in making that combination. *Id.* Respondents' expert, Dr. Lin did not consider a number of issues that would have deterred a person of ordinary skill from combining Takagi with Pitcher. *Id.* A person of ordinary skill would not have been motivated to combine Takagi and Pitcher. *See* CX-3930C (Martin WS) at Q/A 58. Indeed, Pitcher explicitly teaches away from any modifications of its infrastructure or mobile switching center due to the complexity and effort required to make such changes. *Id.*

Combining Pitcher and Takagi would necessarily require the kind of modifications that Pitcher seeks to avoid. *Id.* A person ordinary skill would not have sought to implement Pitcher's mobile switching center 40 or its related functions in Takagi given the considerable effort and expense associated with modifying the

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switching center to operate in the environment of Takagi. *Id.* Dr. Lin's combination involves modifying Pitcher's mobile switching center for use in the system of Takagi. *Id.* However, Pitcher seeks minimize changes to the mobile switching center because "such infrastructure is complicated and expensive" and the mobile switching centers "are very complex and require a long development cycle to create and test new features." *Id.*; Pitcher at 6:54-59; 14:15-22.

Further, this combination involves the considerable costs and engineering effort required to redesign the radio terminals, base station, routers, and gateways of Takagi, all so that they can support the supplying of layer 1 or layer 2 channel information to a mobile switching center 40. *See* CX-3930C (Martin WS) at Q/A 59. Those changes are unnecessary given that the radio terminals of Takagi are sufficiently handing-off between base stations in the first place. *Id.*; Takagi at [0107] and [108]. Respondents' expert, Dr. Lin has not provided any reason why the mobile switching center of Pitcher needs to be reworked to be used in Takagi so that the mobile switching center can decide to handoff Takagi's radio terminals, when those terminals are already sufficiently being handed-off between base stations. *See* CX-3930C (Martin WS) at Q/A 59. Moreover, Dr. Lin appears not to have considered the overall complexity of combining the two disparate references of Takagi and Pitcher, which teach vastly different technologies. *Id.*

Pitcher teaches a system that allows a wireless home network to function essentially as replacement for cellular radio base stations. *Id.*; Pitcher at 1:66-2:43. That functionality requires Pitcher's invention of a cyber base station connected over the internet to a voice client that connects to the mobile home network. *See* CX-3930C (Martin WS) at Q/A 59; Pitcher at Figs. 3 and 4. On the other end, the cyber base station

connects to the cellular services mobile switching station. *See* CX-3930C (Martin WS) at Q/A 59. Takagi focuses on improvements to internet gateway devices at the transport layer. *Id.*; Takagi at [0017]. A person of ordinary skill would not have looked to take features that purportedly involve supplying of layer 1 or layer 2 channel information to a cellular mobile switching center 40 (Pitcher) and apply those to a reference that is focused on improving transport layer internet gateway communications (Takagi). *See* CX-3930C, (Martin WS) at Q/A 59. Inasmuch as those technologies are so different from each other, the sheer complexities of combining them (*e.g.*, the engineering effort, the experimentation, the costs) and the lack of motivation to do so would prevent a person of ordinary skill from attempting that combination. *Id.*

Dependent claims 2-6 are not invalid in view of Takagi alone and over Takagi in view of Pitcher. *See* CX-3930C (Martin WS) at Q/A 60. Dr. Lin does not rely upon Pitcher for any of the additional limitations for claims 2-6, but opines that Takagi itself discloses those limitations. *Id.* As these claims all depend from claim 1, these claims are valid for at least the reasons discussed for claim 1. *Id.* Further, Dr. Lin has not identified within Takagi several additional limitations required by these claims. *Id.* He does not identify any specific "bit transmission channel" within Takagi for claim 2. *Id.* He does not identify any specific "data link layer channel" within Takagi for claim 3. *Id.* While he identifies "BER (bit error rate)" as "control information" for claim 6, he is wrong that BER controls the quality of the signal and thus qualifies as control information. *Id.* Instead, BER provides the information of the number of bit errors over time. *Id.*

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4. Ahmed

As discussed below, respondents have not shown by clear and convincing evidence that U.S. Patent No. 7,502,361 ("Ahmed"), RX-0266, anticipates claims 1-6.

Ahmed does not disclose element 1[b] at least for the reason that Ahmed does not disclose "supplying channel specific information … to a hierarchically higher Internet protocol based channel." *See* CX-3930C (Martin WS) at Q/A 62. Respondents' expert, Dr. Lin opines that the claimed "channel specific information" is Ahmed's "signal strength information," which he further opines is "sent to the network node's 'handoff manager,' which operates at the Subnetwork layer." *See* CX-3930C (Martin WS) at Q/A 63; RX-0778C, Lin WS at Q/A 71. Indeed, Ahmed does not disclose providing signal strength information to a network node's subnetwork layer. *See* CX-3930C (Martin WS) at Q/A 64. An embodiment of a mobile communication system of Ahmed is described in annotated Figure 1 of the cited demonstrative, where an example mobile station 102 is annotated in green color and an example network node 104 is annotated in blue color. *Id.*; CDX-006C.031 (citing Ahmed); Ahmed at 5:49-50, 6:37-41, and 6:41-45.

Ahmed relies on a "a new protocol layer" that "is provided as part of a protocol stack." *See* CX-3930C (Martin WS) at Q/A 64; Ahmed at Abstract. That new protocol layer is called the "Subnetwork protocol layer." *See* CX-3930C (Martin WS) at Q/A 64; Ahmed at 10:3-5. The Subnetwork layer "is included specifically to handle mobility management and other functions." *See* CX-3930C (Martin WS) at Q/A 64; Ahmed at 10:6-8. The Subnetwork layer is shown, for example, in Fig. 3A. *See* CX-3930C (Martin WS) at Q/A 64; CDX-0006C.032 (Ahmed, Fig. 3A). The Subnetwork layer includes functional processing modules as shown in annotated Fig. 3B in the cited demonstrative,

where the Mobility Management Module (yellow) includes a handoff manger module (11:15-16), which is the focus of Dr. Lin's opinions that are rebutted below. *See* CX-3930C (Martin WS) at Q/A 64; CDX-0006C.033 (citing Ahmed, Fig. 3B); Ahmed at 10:48-50.

With regard to Dr. Lin's opinion that Ahmed meets the limitation of "supplying channel specific information … to a hierarchically higher Internet protocol based channel," Dr. Lin opines that Ahmed at 19:13-19 shows that limitation. *See* CX-3930C (Martin WS) at Q/A 65; Ahmed at 19:13-19. However, that passage does not show that signal strength information is provided to a hierarchically higher Internet protocol based channel. *Id.* Ahmed does not disclose where the mobile devices provide signal strength information to, much less that they are supplied to a hierarchically higher Internet protocol based channel. *See* CX-3930C (Martin WS) at Q/A 65. Dr. Lin opines that the signal strength information is provided to the handoff manager module of subnetwork layer of the network node and, from that opinion, further opines that the signal strength information is supplied to a hierarchically higher Internet protocol based channel. *Id.*

Ahmed discloses "a handoff manager module that is responsible for collecting relevant information from neighboring nodes." *Id.*; Ahmed at 19:14-16 (emphasis added). However, Ahmed does not state that the handoff manager is responsible for collecting information from mobile devices, and is silent about what information, if any, the handoff manager module collects from mobile devices. *See* CX-3930C (Martin WS) at Q/A 65. Ahmed is silent as to how the mobile devices "assist in handoff decisions by providing signal strength information from neighboring nodes" and where that information is provided. *Id.* Further, even if Ahmed disclosed a mobile device providing

signal strength information to a handoff manager module in the Subnetwork layer, that would not qualify "supplying channel specific information … to a hierarchically higher Internet protocol based channel." *Id.* This is because the handoff manager is located at the subnetwork layer, which is below network layer (layer 3) and transport layer (layer 4). *Id.*; CDX-0006C.0323; Ahmed at 10:59-64.

Ahmed's written description further demonstrates that the subnetwork layer is below the network and transport layers in the following passage: "Subnetwork layer D also functions as a convergence layer, which supports higher network layers such as TCP/IP, UDP, and mobile TCP. Interface to such higher layer is through a higher layer protocol interface module 22 (FIG. 3B), which provides interface functions, as known in the art, for the Subnetwork layer." *See* CX-3930C (Martin WS) at Q/A 66; Ahmed at 10:59-64.

Respondents' approach overlooks the fact that the Subnetwork layer is below layer 3 by pointing to the following sentence from Ahmed: "However, it is to be appreciated that a network layer above the Subnetwork layer D is optional in that the Subnetwork layer may directly support a transport/network protocol, for example, mobile TCP." *See* CX-3930C (Martin WS) at Q/A 66; Ahmed at 10:64-67. However, even if the Subnetwork layer can "directly support a transport/network protocol," it does not mean that Ahmed discloses supplying signal strength information from the mobile device to transport/network layer. *See* CX-3930C (Martin WS) at Q/A 66. It further does not suggest that the functional processing modules as shown in Fig. 3B, such as the handoff manager module (part of the mobility manager module) can be adapted to support and receive transport/network layer information that would be used to initiate a handoff. *Id.*

Indeed, Ahmed offers no proposed changes to the handoff manager module to support receiving transport/network layer information. *Id.* Respondents' expert, Dr. Lin's cited passage from Ahmed only suggests that the Subnetwork layer D can directly support the transport/network protocol – not that Subnetwork layer D can be significantly changed such that all of its functionality occurs at the transport/network layer. *Id.*

Further, Ahmed does not disclose element 1[c] for at least the reason that Ahmed does not disclose that the initiating of a handover or changeover is based on the claimed channel-specific information supplied from the channel for the radio link to the hierarchically higher Internet protocol based channel for the overall link. *See* CX-3930C (Martin WS) at Q/A 67. For example, Ahmed discloses that "mobiles communicating with the network node also assist in handoff decisions by providing signal strength information from neighboring nodes." *See* CX-3930C (Martin WS) at Q/A 68; Ahmed at 19:16-18. However, Dr. Lin does not explain how "assisting in handoff decisions" equates to initiating a handover. *See* CX-3930C (Martin WS) at Q/A 68. Presumably, this is because Ahmed does not provide any details regarding how the mobile devices "assist in handoff decisions by providing signal strength information from neighboring nodes." *Id.* Assisting in handoff does not mean initiating a handoff. *Id.* For example, assisting in a handoff could occur as a final check after a handoff has been initiated and thus the signal strength information would only be used to block an already initiated handoff. *Id.* Regardless, without any further details from Ahmed, Dr. Lin cannot meet his burden show that "assist[ing] in handoff decisions by providing signal strength information from neighboring nodes" anticipates the "initiating" requirement of this limitation. *Id.* Moreover, Ahmed does not disclose, and Dr. Lin has not shown, any

signal strength information is supplied to the handoff manager to "make[] the decisions as to when and to which node a mobile should handoff." *Id.* Accordingly, in that scenario, Dr. Lin has not shown that Ahmed anticipates the part of the limitation that requires "initiating … based on the channel specific information supplied from the channel for the radio link to the hierarchically higher Internet protocol based channel for the overall link." *Id.*

Dependent claims 2-6 are valid and enforceable over Ahmed. *See* CX-3930C (Martin WS) at Q/A 69. First, these claims all depend from claim 1, and thus are valid for at least all of the reasons already discussed for claim 1. *Id.* Further, Dr. Lin has not identified within Ahmed several additional limitations required by these claims. *Id.* He does not identify any specific "bit transmission channel" within Ahmed for claim 2. *Id.* He does not identify any specific "data link layer channel" within Takagi for claim 3. *Id.* While he identifies "BER (bit error rate)" as "control information" for claim 6, he is incorrect that BER controls the quality of the signal and thus qualifies as control information. *Id.* Instead, BER provides the information of the number of bit errors over time. *Id.*

5. Secondary Considerations

As discussed above, objective evidence, also known as "secondary considerations," includes commercial success, long felt need, and failure of others. *Graham*, 383 U.S. at 13-17 (1966); *Dystar*, 464 F.3d at 1361. "[E]vidence arising out of the so-called 'secondary considerations' must always when present be considered en route to a determination of obviousness." *Stratoflex*, 713 F.2d at 1538. Nevertheless, secondary considerations, such as commercial success, will not always dislodge a

determination of obviousness based on analysis of the prior art. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. at 426 (commercial success did not alter conclusion of obviousness).

Yet, the parties, and especially complainant, presented no argument or evidence concerning secondary considerations. The subject is absent from their posthearing briefs, and from the Joint Outline. Consequestly, the administrative law judge concludes that secondary considerations would have no affect on an obviousness determination, especially if any asserted claim were found to be invalid.

VII. Domestic Industry (Economic Prong)

A violation of section 337(a)(1)(B), (C), (D), or (E) can be found "only if an industry in the United States, with respect to the articles protected by the patent, copyright, trademark, mask work, or design concerned, exists or is in the process of being established." 19 U.S.C. § 1337(a)(2). Section 337(a) further provides:

> (3) For purposes of paragraph (2), an industry in the United States shall be considered to exist if there is in the United States, with respect to the articles protected by the patent, copyright, trademark, mask work, or design concerned—
>
> (A) significant investment in plant and equipment;
>
> (B) significant employment of labor or capital; or
>
> (C) substantial investment in its exploitation, including engineering, research and development, or licensing.

19 U.S.C. § 1337(a)(3).

With respect to the economic prong, and whether or not section 337(a)(3)(A) or (B) is satisfied, the Commission has held that "whether a complainant has established that its investment and/or employment activities are significant with respect to the articles

protected by the intellectual property right concerned is not evaluated according to any rigid mathematical formula." *Certain Printing and Imaging Devices and Components Thereof*, Inv. No. 337-TA-690, Comm'n Op. at 27 (Feb. 17, 2011) ("*Printing and Imaging Devices*") (citing *Certain Male Prophylactic Devices*, Inv. No. 337 TA-546, Comm'n Op. at 39 (Aug. 1, 2007)). Rather, the Commission examines "the facts in each investigation, the article of commerce, and the realities of the marketplace." *Id.* "The determination takes into account the nature of the investment and/or employment activities, 'the industry in question, and the complainant's relative size.'" *Id.* (citing *Stringed Musical Instruments* at 26).

With respect to the economic prong of the domestic industry requirement, for all three asserted patents, complainant relies exclusively on evidence relating to its licensee, Siemens Industry, Inc. (also referred to as SII). Complainant argues, "The evidence demonstrates that SII's employment of labor directed to SII's Domestic Industry Products, in context, comprises significant, qualifying domestic industry activities under 19 U.S.C § 1337(a)(2) and (a)(3)(B)." Compl. Br. at 280-81; *see id.* at 271-93. Respondents argue, "Q3 has failed to present sufficient evidence to satisfy the economic prong of the ITC's domestic industry requirement." Resps. Br. at 278; *see id.* at 278-95.

For the reasons discussed below, complainant has not satisfied the economic prong of the domestic industry requirement of 19 U.S.C. § 1337(a)(3)(B).

A. Whether SII's Investments in the United States Are Significant

Complainant argues:

> The evidence demonstrates that SII's employment of labor directed to SII's Domestic Industry Products, in context, comprises significant,

qualifying domestic industry activities under 19 U.S.C § 1337(a)(2) and (a)(3)(B). *See gen.,* CX-3931C (Rev. J. Brown WS). The Domestic Industry Products comprise a "large part" of [redacted] business and are very significant to SII's overall business. JX-0180C at 26:8-27:4, Tr. at 281:12-17. Likewise, SII's technical support teams—the [redacted]—provide critical and significant value-added technical support directed towards the Domestic Industry Products in the United States, without which the products are for the most part not salable. The number of U.S.-based SII technical employees working to support the Domestic Industry Products is also relatively and absolutely significant. As of September 2020, SII employed [redacted] individuals at the Johnson City Facility, including members of the [redacted] *See* JX-0159C ([redacted]; JX-0140C; JX-0180C at 147:3-150:3; JX-0145C. The [redacted] employees are U.S.-based but are based in various locations throughout the United States, not Johnson City. *See* JX-0111C.0005; JX-0180C at 32:16-33:5. Table 3 shows the overall direct or allocated costs that SII incurred related to each of these teams in fiscal years 2019 and 2020:

Table 3. SII's U.S. Investments Relating to the Domestic Industry Products

	FY2019	FY2020	Total
Redacted in Public Version	Redacted in Public Version		
Compensation			
Computer Equipment			
Travel-related Expenses			
Redacted in Public Version			
SCALANCE			
RUGGEDCOM			
Redacted in Public Version			
Redacted Logistics Team			
Real Estate			
Total			

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Table 3 relies on JX-0109C (Redacted in Public Version); JX-0145C (same); CX-0276C (Email from Siemens' Counsel re: Redacted in Public Version); CX-3736C (same); JX-0151C (2020 Employee Expenses); JX-0154C (SII's Redacted in Public Version US Performance); JX-0155C (same); JX-0158C (Computer Supply Investments); JX-0165C (Redacted in Public Version Personnel and Costs); JX-0166C (Redacted in Public Version Real Estate); JX-0180C (Richards Dep.) at 39:14–19, 150:13–18.

Although all the investments listed in Table 3 are cognizable under the domestic industry requirement, Complainant's economic expert, Justin Brown, only considered the labor expenses listed in Table 4 to ensure he presented a conservative analysis (CX-3931C at Q/A 90):

Table 4. Labor Costs Considered in the Domestic Industry Analysis

	FY2019	FY2020
Redacted in Public Version	Redacted in Public Version	
Total Labor Expenses		

When the sales-based allocation factors are applied on top of SII's already-allocated labor expenditures for FY2019 and FY2020, as shown in Table 5, SII's costs that are attributable to the Domestic Industry Products are significant compared to the overall revenues and profits associated with the sale of those products, collectively and individually. CX-3931C (Brown WS) at Q/A 91–127. The relatively high cost of technical support for the Domestic Industry Products reflects the significant level of value added represented by these labor expenses, which are essential to the salability of the domestic industry products.

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Table 5. Allocation of Labor Expenses

Domestic Industry Product Groups	2019		2020		Total FY19–FY20
	Sales % of Total [redacted] Sales	Allocation of Labor Expenses ($3,327,641)	Sales % of Total [redacted] Sales	Allocation of Labor Expenses ($3,378,877)	
SCALANCE (total)	Redacted in Public Version				
W1750D					
W7xx					
W72x					
W73x / W73fx					
W74x					
W76x					
W77x					
W78x					
W - Other					
RUGGEDCOM (total)					
RX14xx					
RX15xx					
Combined Total					

As shown in Table 5, SII invested a total of $[redacted] and $[redacted] in technical support and logistics labor expenditures directed towards the Domestic Industry Products in fiscal years 2019 and 2020, respectively. *See also*, *id.* (showing a total of $[redacted] and $[redacted] in labor expenditures for FY 2019 and FY 2020, respectively for the SCALANCE products, which practice the '677 and '853 Patents); *see also, id*. (showing a total of $[redacted] and $[redacted], for FY 2019 and FY 2020, respectively for the RUGGEDCOM products that practice the '305 Patent). As discussed above, at each level of allocation, the calculations performed on SII's domestic industry investments are conservative. *See, e.g.,* CX-3931C (Brown WS) at Q/A 83, 90, 99-104. Further, if additional allocations such as on a patent by patent, product by product, team by team, or shortened time period bases, such adjustments can be performed easily. CX-3931C (Rev. J. Brown WS) at Q/A 102, 104, 109–110; *see also,* Table 6.

Table 6. SII's Combined Technical Support Labor Expenses Allocated to the Domestic Industry Products by Asserted Patents (FY2019 and FY2020 Combined)

	'677 Patent	'305 Patent	'853 Patent
SCALANCE	Redacted in Public Version		
W1750D			
W7xx			
W72x			
W73x / W73fx			
W74x			
W76x			
W77x			
W78x			
W - Other			
RUGGEDCOM			
RX14xx			
RX15xx			
Total			

Compl. Br. at 280-84.

Respondents argue:

> Q3 has failed to present sufficient evidence to satisfy the economic prong of the ITC's domestic industry requirement. Q3, a non-practicing entity, does not make or sell any products; it does not even have any employees. JX-0170C (Bodepudi Dep. Tr.) at 57:7-64:20; Tr. (Brown) at 15:21-22; 279:10-14, 287:20-24. Rather, Q3 relies solely the investments of its licensee's U.S. subsidiary, Siemens Industry Inc. ("SII"), to establish the economic prong of the domestic industry in this Investigation. JX-0170C (Bodepudi) at 57:7-64:20; Tr. (Brown) at 279:15-19. But the DI Products are Redacted in Public Version, manufactured, Redacted in Public Version outside of the United States, in Germany and Canada, by Siemens AG or Siemens Canada, respectively. JX-0180C (Richards Dep. Tr.) at 199:11-19; 212:15-214:3; 214:7-17; 214:21-216:8; Tr. (Brown) at 287:20-288:22. Despite the bold predictions in the Complaint that it intended to prove a domestic industry under all three prongs of Section 337(a)(3), Q3's domestic industry claims have now been reduced exclusively to SII's alleged "technical support" activities under Section 337(a)(3)(B). CX-3931C (Brown WS) at Q/A 50; RX-1208C (Bazelon WS) at Q/A 23; Tr. (Brown) at 277:21-24, 278:6-10.
>
> But even these claims fail for several reasons. First, and most importantly, the aggregate numbers Q3 claims as qualifying investments are so impossibly low that there cannot be a sufficient domestic industry.

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As set forth in detail below, Q3's own figures are a trivial ~$[redacted] per year for each of the '677 and '853 Patents and barely more, ~$[redacted] per year for the '305 Patent. These figures in themselves are woefully short of the ITC's domestic industry requirement and are meaningless when placed in context of the tens of billions of dollars in Siemens' revenues. Indeed, as set forth below, Q3's claimed domestic industry investments are [redacted] of Siemens revenues. Moreover, even these shockingly low figures are based on faulty calculations and methodology. Q3 has failed to show that SII's investments in the U.S. are significant. RX-1208C (Bazelon WS) at Q/A 17. Second, these investments include activities that are purely sales and marketing and improperly include profits and work performed outside of the United States. *Id.* These claimed investments are also inflated because they are based on investments in products that Siemens [redacted] *Id*. In addition, Q3 has failed to provide the requisite support to substantiate certain investments. *Id.* Finally, Q3 has failed to show that a sales-allocation to the alleged DI Products is appropriate in this Investigation. *Id.* Any one of these flawed approaches, but certainly in combination, are fatal to Q3's domestic industry arguments.

Resps. Br. at 278-79.

In its reply brief, complainant argues, *inter alia*:

Respondents argue that Q3's investments are "overstated" and "inflated." *Id.* at 286-293. This is not correct as a matter of law or fact. The relevant Domestic Industry that the Commission should assess is the investments and expenditures of SII's [redacted] group, which is the SII segment most closely tied to the Domestic Industry Products. Respondents' analysis is inaccurate and improper because it uses different definitions of the Domestic Industry for the numerator and denominator. *See id*. Like Q3, Respondents use SII's [redacted] segments' investments that are related solely to the Domestic Industry Products, but compare these investments to Siemens' and SII [redacted], *overall* revenues. *Id.* at 280. As the evidence shows, Siemens and Siemens' [redacted] Segment contain a multitude of other companies and business segments that do not sell or support the Domestic Industry Products. *See, e.g.,* JX-0163C (Nov. 12, 2020, Presentation: [redacted]); JX-0180C at 20:11-22:6 (stating that SII is made up of many different business segments, including [redacted], which, in turn, is made up of different business segments), 205:15-206:4 (noting that Siemens includes separate legal entities such as Siemens Health and Siemens Energy). As Mr. Richards testified, [redacted]

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Redacted in Public Version *See* *id.* at 22:18-20; *see also,* JX-0163C.0006-8.

Compl. Br. at 84-85.

Siemens Industry Inc. ("SII") is a large corporation with revenues of over $15 billion per year in the United States. *See* RDX-0038C.011 (Supplemental Coleman Bazelon Demonstratives); RX-0333.0021 (Siemens Ann. Rpt.). According to complainant, "Redacted in Public Version ."

Compl. Br. at 278.

In FY2019 SII invested $Redacted in Public Version in labor for its Redacted in Public Version Division (also "Redacted in Public Version Segment"), $Redacted in Public Version in labor for its Redacted in Public Version Business Unit (also "Redacted"), and $Redacted in Public Version in its Redacted in Public Version Business Segment (also "Redacted in Pu"). *See* RDX-0038C.014 (Supplemental Coleman Bazelon Demonstratives); JX-0164C (SII Labor Expenditures). In FY2020, SII invested $Redacted in Public Version in labor for its Redacted in Public Version Segment, $Redacted in Public Version in labor for its Redacted in Public Version Business Unit, and $Redacted in Public Version in its Redacted in Public Version Group. *See* RDX-0038C.015 (Supplemental Coleman Bazelon Demonstratives); JX-0164C (SII Labor Expenditures).

"Table 6" from complainant's brief (reproduced below) shows that when properly allocated, there were investments of only $Redacted in Public Vers for each of the '677 and '853 patents in FY2019 and FY2020 combined and $Redacted in Public Vers for the '305 patent in alleged labor expenditures. Those investments are small when one considers the amounts of investment in absolute numbers, and moreover insignificant especially when one

considers the fact that during the same period, SII invested more than $Redacted in Public Version, $Redacted in Public Version, and $Redacted in Public Version in labor for its Redacted in Public Version Segment, Redacted in Public Version Unit, and Redacted in Public Version Group, respectively.[45]

Table 6. SII's Combined Technical Support Labor Expenses Allocated to the Domestic Industry Products by Asserted Patents (FY2019 and FY2020 Combined)

	'677 Patent	'305 Patent	'853 Patent
SCALANCE	Redacted in Public Version		
W1750D			
W7xx			
W72x			
W73x / W73fx			
W74x			
W76x			
W77x			
W78x			
W - Other			
RUGGEDCOM			
RX14xx			
RX15xx			
Total			

Compl. Br. at 284.

As shown in the table from respondents' brief (reproduced below), these numbers are extremely low in comparison to Siemens' revenues:

[45] In each investigation, "the inquiry depends on 'the facts in each investigation, the article of commerce, and the realities of the marketplace.'" *Certain Carburetors and Products Containing Such Carburetors*, Inv. No. 337-TA-1123, Comm'n Op. at 8 (Oct. 28, 2019) (quoting Printing and Imaging Devices, Comm'n Op. at 27)).

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Fiscal Year	Siemens overall Revenues	Siemens Revenue from its [redacted] Segment	Q3's claimed investments in the '677 Patent	Q3's claimed investments in the '853 Patent	Q3's claimed investments in the '305 Patent
FY2019	$102.20 billion[46]	$18.1 billion	Redacted in Public Version		
FY2020	$67.24 billion	$17.62 billion			
TOTAL	**$169.44 billion**	**$35.72 billion**			

Resps. Br. at 280.

As shown in the table above, complainant's claimed investments in the '677 and '853 patents are [redacted] of Siemens revenues and [redacted] of Siemens [redacted] segment revenue. Complainant's claimed domestic industry investments in the '305 patent are [redacted] of Siemens revenues and [redacted] of Siemens revenues from its [redacted] segment. These numbers are not disputed. These figures for the three asserted patents derive from the calculations of complainant's economic expert. As discussed below, under these circumstances, even if the entirety of complainant's alleged domestic industry investments is counted, it cannot be said that complainant has shown "significant employment of labor or capital."[48]

Complainant's economic expert, Mr. Brown, originally provided testimony that investments of $[redacted] in the '677 and '305 patents, and $[redacted] in the '853 patent

[46] Siemens' revenues in this table are from CX-0004 (Siemens FY2019 Annual Report) and CX-0669 (Siemens FY2020 Annual report) with conversions from Euros to dollars, calculated by respondents according to www.cuurrencymatrix.com on August 17, 2021.

[47] *See* CDX-0007C.034 (Demonstratives for the Witness Statement of Justin Brown) (breaking down SII's alleged investments by FY).

[48] As discussed subsequently, the evidence shows that the alleged domestic investments overstate the amounts properly attributable to any domestic industry.

accounted for 3.94% of the DI Product sales. *Id.*; CDX-0003C.0036-37; Brown Tr. 290-292. Later, Mr. Brown submitted a revised witness statement. Brown Tr. 289. After reducing the amount of investments in the '305 patent further, by 14% (reflecting $[redacted], not the current $[redacted]), by 78% in the '853 patent, and 86% in the '677 patent, Mr. Brown concluded that the investments in each patent by SII was still [redacted] *See* CX-3931C (Brown WS) at Q/A 114-15; CDX-0007C.0037 (Demonstratives for the Witness Statement of Justin Brown); RX-1208C (Bazelon SRWS) at Q/A 49; Brown Tr. 291-292.

Complainant compares these investments to sales of only the products practicing each asserted patent. However, this approach does not take into account whether these investments are significant in the context of SII or the marketplace. *See* RX-1208C (Bazelon SRWS) at Q/A 49. Even if the alleged expenditures Mr. Brown considers constitute 3.94% of the DI Product sales, complainant has failed to provide adequate context for why 3.94% is significant. *See id.* at Q/A 45, 48. Moreover, although complainant argues that these activities add value, it remains unclear how much value is added by the activities performed by SII with respect to the imported DI products. *Id.* Given that a large portion of SII's investments are related to purely sales and marketing activities, it is unclear whether any value is being added to the alleged DI products in the United States through SII's "technical support." *Id.* at Q/A 48, 59.

The 3.94% is the most generous significance value possible because it is the alleged labor expenditures associated with certain of the alleged DI products compared to the sales of only those same products. *Id.* at Q/A 50. However, the evidence shows that the alleged DI products are often used in combination with other Siemens [redacted]

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Redacted in Public Version products and there is an overlap between the alleged DI products used in Redacted in Public Version. *See* JX-0163C (Siemens presentation); JX-0180C (Richards Dep. Tr.) at 30-31; RDX-0038C.003 (Supplemental Coleman Bazelon Demonstratives). Thus, the alleged labor expenditures associated with the DI products should have been compared to the sales of the Redacted in Public Version segment in the United States. *See* RX-1208C (Bazelon SRWS) at Q/A 50. This would result in the investments representing 0.01% of the share of revenues from the Redacted in Public Version segment for the '305 patent and 0.003% for the '677 and '853 patents. *Id.*; RDX-0038C.013 (Supplemental Coleman Bazelon Demonstratives); JX-0163C (Siemens presentation).

As argued by respondents, the results would have differed markedly had complainant performed a comparison of the alleged technical support labor expenses relating to the alleged DI products to the total domestic labor expenses in the Redacted in Pu business group, the Redacted business unit, and the Redacted in Public Version segment. *See* RX-1208C (Bazelon SRWS) at Q/A 52. For the '305 patent in FY2019 and FY2020, respectively, this amounts to 2.01% and 2.36% of the domestic Redacted in Pu personnel expenses, 0.29% and 0.32% of the domestic Redacted personnel expenses, and 0.09% and 0.10% of domestic Redacted in Public V personnel expenses. *Id.*; RDX-0038C.014-.015 (Supplemental Coleman Bazelon Demonstratives); JX-0164C (SII personnel costs). For the '677 and '853 patents in FY2019 and FY2020, respectively, this amounts to 0.77% and 0.80% of the domestic Redacted in Pu personnel expenses, 0.11% of the domestic Redacted personnel expenses, and Redacted in Public of the domestic Redacted in Public Version personnel expenses. *Id.*

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An appropriate comparison to show the significance of what is being done in the U.S. with respect to the alleged DI products as compared to other products in the U.S. would be to consider the Redacted personnel expenses or the Redacted in Public Version personnel expenses. There is an overlap between the alleged DI products used in Redacted in Public Ver [redacted] *See* JX-0163C (Siemens presentation); JX-0180C (Richards Dep. Tr.) at 30-31. Indeed, Mr. Richards, SII's Director of Engineering and Services for Redacted in Pub testified that the alleged DI products are Redacted in Public Version [redacted]. *See* CX-3931C (Brown WS) at Q/A 49; JX-0180C (Richards Dep. Tr.) at 23; Brown Tr. 280. These are not significant investments in the context of SII's business and Siemens as a whole.

Additionally, inasmuch as these products are r Redacted in Public Version manufactured, Redacted in Public Version outside of the United States, a proper comparison would have been that of the U.S. labor expenditures associated with the alleged DI products with the expenditures in activities associated with the alleged DI products outside of the United States. *See* RX-1208C (Bazelon SRWS) at Q/A 53. For example, a comparison could have been done between SII's alleged investments in the United States and Siemens Canada's alleged investments outside of the United States relating to the alleged DI products. Siemens Canada employed Redacte and Redacte manufacturing employees and Redacted in and Redacted in R&D employees in FY2019 and FY2020, respectively. *Id.*; JX-0105C (Siemens CA headcount). Siemens Canada's labor expenses in just these two categories of employees related to the alleged RuggedCom DI products were Redacted in Public Version higher than SII's labor expenses related to the alleged DI products in FY2019 and Redacted in Public Version higher in FY2020. *See* RX-1208C (Bazelon SRWS) at Q/A 52; RDX-0038C.016 (Supplemental Coleman

Bazelon Demonstratives);[49] JX-0106C (Siemens CA salaries). This comparison does not include other relevant activities within Siemens Canada, including engineering testing, service and repair, new product integration, and customer support. *See* JX-0105C (Siemens CA headcount). It is expected the Siemens AG numbers relating to the SCALANCE products would be similar, if not greater, than those of Siemens Canada. *See* RX-1208C (Bazelon SRWS) at Q/A 53.

B. Whether Certain Expenditures Are Overstated

Respondents argue that complainant's "investments include activities that are purely sales and marketing and improperly include profits and work performed outside of the United States." Resps. Br. at 279. As discussed below, the investments on which complainant relies to establish a domestic industry include sales and marketing activities for which complainant did not allocate or remove from its domestic industry analysis. *See* RX-1208C (Bazelon SRWS) at Q/A 23; Brown Tr. 281-284. Yet, it is well-established that sales and marketing, alone, are insufficient to establish a domestic industry. *Certain Collapsible Sockets for Mobile Electronic Devices and Components Thereof*, Inv. No. 337-TA-1056, Comm'n Op. at 19-20 (July 9, 2018) ("[I]t is well-settled that evidence of sales and marketing investments alone are not sufficient to demonstrate the existence of a domestic industry."); *Schaper Mfg. Co. v. U.S. Int'l Trade Comm'n*, 717 F.2d 1368, 1373 (Fed. Cir. 1983) ("Schaper's very large expenditures for advertising and promotion cannot be considered part of the production process. Were we to hold

[49] The numbers shown in RDX-0038C.017 (Supplemental Coleman Bazelon Demonstratives) have been revised to remove the non-practicing RSG9xx products from the calculations.

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otherwise, few importers would fail the test of constituting a domestic industry."). Indeed, the Commission typically does not consider sales and marketing expenses in the satisfaction of the domestic industry requirement. *See Certain Kinesiotherapy Devices and Components Thereof*, Inv. No. 337-TA-823, Comm'n Op. at 29 n.8 (July 12, 2013) (noting that "sales and marketing and are not the sort of expenditures" that the Commission has credited under the economic prong).

As discussed above, complainant relies on alleged technical labor support expenses for activities performed by the Siemens Redacted in Public Version Engineering Support Team, also referred to as Redacted in Pu. *See* CX-3931C (Brown WS) at Q/A 83, 84; CDX-0004C.024. Mr. Richards testified that the work of his team (the Redacted in Pu Engineering Support Team) is Redacted in Public Version . *See* JX-0180C (Richards Dep. Tr.) at 33, 35. Additionally, Mr. Richards testified that Redacted in Public Version . *Id.* at 36. Complainant did not account for these sales activities, and instead, includes the entirety of the Redacted in Pu Engineering Support Team's labor in its domestic industry analysis. Brown Tr. 281. Yet, not all the activities upon which complainant relies constitute typical customer service activities. *See* RX-1208C (Bazelon SRWS) at Q/A 23, 24. Rather, these activities include Redacted in Public Version , which could be viewed as part of sales and marketing activities. *Id.*; JX-0126C, JX-0127C, JX-0131C, JX-0132; RDX-0007C.009.

Additionally, the expenditures included in complainant's domestic industry analysis include profits paid to Redacted in Public Version

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Redacted in Public Version. For example, complainant relies on the labor expenses for Redacted in Public Version

Redacted in Public Version *See* CX-3931C (Brown WS) at Q/A 85. While these employees are considered part of SII on a Redacted in Public Version, they are in fact Redacted in Public Version *Id.* at Q/A 64; CX-0265C.

Moreover, when it contracts the Redacted in Public Version Team, SII Redacted in Public Version

Redacted in Public Version. *See* RX-1208C (Bazelon SRWS) at Q/A 34; RDX-0038C.010 (Supplemental Coleman Bazelon Demonstratives); JX-0180C (Richards Dep. Tr.) at 79-80. The evidence on which complainant relies states that these "expenses" are revenue. *See* JX-0154C (Brown Exhibit 2 - Excel Spreadsheet 'US Performance FY20 Redacted in Pu Service,' 'US Performance FY19 Redacted in Pu Service,' and 'US Redacted in Pu Services Part Numbers'). Additionally, Mr. Richards testified that the Redacted in Public Version

Redacted in Public Version. *See* JX-0180C (Richards Dep. Tr.) at 111; RX-1208C (Bazelon SRWS) at Q/A 34. Complainant does not account for the profit margin and instead argues that it is appropriate to consider profits as part of the domestic industry analysis because it is an expense to SII. *See* CX-3931C (Brown WS) at Q/A 70. However, profits are not considered in the analysis of a domestic industry. *See, e.g.*, *Lelo, Inc. v. ITC,* 786 F.3d 879, 884-85 (Fed. Cir. 2015).

Thus, the expenditures on which complainant relies are overstated when considered within the proper legal framework.

VIII. Conclusions of Law

1. The Commission has subject matter, personal, and *in rem* jurisdiction in this investigation.

2. The accused products have been imported or sold for importation into the United States.

3. The accused products do not infringe the asserted claims of U.S. Patent Nos. 8,797,853; 7,895,305; and 7,609,677.

4. The domestic industry requirement has not been satisfied with respect to U.S. Patent Nos. 8,797,853; 7,895,305; and 7,609,677.

5. It has not been shown by clear and convincing evidence that the asserted claims of U.S. Patent Nos. 8,797,853; 7,895,305; and 7,609,677 are invalid.

IX. Initial Determination on Violation

Accordingly, it is the INITIAL DETERMINATION of the undersigned that a violation of section 337 (19 U.S.C. § 1337) has not occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation, of certain routers, access points, controllers, network management devices, other networking products, and hardware and software components thereof that infringe the asserted claims of U.S. Patent No. 8,797,853; U.S. Patent No. 7,895,305; and U.S. Patent No. 7,609,677.

Further, this Initial Determination, together with the record of the hearing in this investigation consisting of (1) the transcript of the hearing, with appropriate corrections

as may hereafter be ordered, and (2) the exhibits received into evidence in this investigation, is CERTIFIED to the Commission.

In accordance with 19 C.F.R. § 210.39(c), all material found to be confidential by the undersigned under 19 C.F.R. § 210.5 is to be given *in camera* treatment.

The Secretary shall serve a public version of this ID upon all parties of record and the confidential version upon counsel who are signatories to the Protective Order, as amended, issued in this investigation.

X. Recommended Determination on Remedy and Bonding

This is the recommended determination of the administrative law judge on remedy and bonding.

The administrative law judge must issue a recommended determination concerning the appropriate remedy in the event that the Commission finds a violation. *See* 19 C.F.R. § 210.42(a)(1)(ii). That recommendation is contained herein below. Nevertheless, the Commission did not authorize the administrative law judge to take public interest evidence or to provide findings and recommendations concerning the public interest. Thus, in accordance with the usual Commission practice and the applicable Commission Rule, only the Commission can determine the role that public interest factors may play in this investigation. *See* 19 C.F.R. § 210.50(b)(1).

Complainant argues, *inter alia*:

> In this Investigation, the evidence shows that Q3 faces unfair competition by the Respondents in the U.S. market for routers, access points, controllers, network management devices, other networking products, and hardware and software components. The facts in this Investigation warrant the Commission exercising its full remedial authority to prevent future importation, sales, offers for sale, and promotion of infringing

> products in the United States. As set forth below, the evidence at the hearing demonstrated the appropriate and necessary remedies are limited exclusion orders ("LEO"), cease-and desist-orders ("CDO"), and a 100% bond during the Presidential review period.

Compl. Br. at 293-94.

Respondents argue, *inter alia*:

> The evidence in this Investigation establishes that there has been no violation of Section 337 and therefore no remedial orders or bond should issue. However, should the Commission determine that there has been a violation of Section 337, the scope of any remedial order should be narrowly tailored to address only those specific unfair acts found by the Commission, without interrupting legitimate commerce.

Resps. Br. at 296.

A. Limited Exclusion Order

The Commission has broad discretion in selecting the form, scope, and extent of the remedy in a section 337 proceeding. *Viscofan, S.A. v. United States Int'l Trade Comm'n*, 787 F.2d 544, 548 (Fed. Cir. 1986). A limited exclusion order directed to respondents' infringing products is among the remedies that the Commission may impose. *See* 19 U.S.C. § 1337(d).

Complainant argues:

> Section 337 requires that a LEO be issued against those Respondents found in violation unless such relief is determined to be contrary to the public interest. *See* 19 U.S.C. § 1337(d)(1) (the Commission "shall direct that the [infringing] articles concerned, imported by any person violating the provision of this section, be excluded from entry into the United States"). If a violation is found, the ALJ should recommend that the Commission issue an LEO containing the standard, customary language used by the Commission covering each Respondents' infringing articles "manufactured by or on behalf of" or "imported by or on behalf of" any Respondent found to violate Section 337, as well as any parents, subsidiaries, affiliates, and other related entities typically included in an LEO. *See Personal Transporters, Components Thereof, & Manuals Therefor* ("*Personal Transporters*"), Inv. No. 337-TA-935, Comm'n Op.

> (Pub. Version) at 5 (Apr. 20, 2016). The LEOs should exclude from entry into the U.S. the Respondents' Accused Products that infringe the asserted claims of the Asserted Patents.

Compl. Br. at 294.

Respondents argue:

> To the extent a limited exclusion order is issued, the Commission should include a provision whereby Respondents can certify that their imported products are not subject to exclusion. Certification provisions are frequently included in exclusion orders and would help mitigate the possibility that an exclusion order improperly prohibits the legitimate importation of non-covered products. *Certain Access Control Sys. & Components Thereof*, Inv. No. 337-TA-1016, Comm'n Op. at 34 (Apr. 21, 2018) ("[C]ertification provisions are included in exclusion orders to aid CBP in enforcement of Commission orders.").

Resps. Br. at 296.

The administrative law judge recommends that in the event the Commission determines that a violation of section 337 has occurred, and if consideration of the statutory public interest factors does not require that remedies be set aside or modified, the Commission should issue a limited exclusion order covering all of the infringing articles imported, sold for importation, or sold after importation by respondents and should apply to respondents' affiliated companies, parents, subsidiaries or other related business entities, or their successors or assigns.

Further, in the event the Commission does issue a limited exclusion order in this investigation, the exclusion order should include a provision that allows the respondents to certify, pursuant to procedures to be specified by U.S. Customs and Border Protection, that they are familiar with the terms of the order, that they have made appropriate inquiry, and that, to the best of their knowledge and belief, the products being imported are not excluded from entry under the order.

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B. Cease and Desist Order

Section 337 provides that in addition to, or in lieu of, the issuance of an exclusion order, the Commission may issue a cease and desist order as a remedy for a violation of section 337. 19 U.S.C. § 1337(f)(1). Under Commission precedent, "[c]ease and desist orders are generally issued when, with respect to the imported infringing products, respondents maintain commercially significant inventories in the United States or have significant domestic operations that could undercut the remedy provided by an exclusion order." *Certain Air Mattress Systems, Components Thereof, and Methods of Using the Same*, Inv. No. 337-TA-971, Comm'n Op. at 49 (May 17, 2017) (citations and footnote omitted); *Ground Fault Circuit Interrupters and Products Containing Same*, Inv. No. 337-TA-615, Comm'n Op. at 24 (Mar. 26, 2009).

Complainant argues:

> The evidence established that CDOs are warranted against each of the Respondents because they maintain commercially significant inventories of infringing products in the U.S. and have significant domestic operations:
>
> - CommScope maintains U.S. operations and U.S. inventory of various Accused Products in excess of [redacted] units. *See* JX-0026C; CX-0197; CX-0202; JX-0174C (Hejnicki).
> - HPE maintains U.S. operations and U.S. inventory of various Accused Products in excess of [redacted] units. *See* CX-0312; JX-0182C (Tewari); CX-0313; CX-0314.
> - NETGEAR maintains U.S. operations and U.S. inventory of various Accused Products in excess of [redacted] units. *See* CX-0110; CX-0113; CX-0482; JX-0168C (Apperley).

Compl. Br. at 295.

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Respondents argue:

Q3 has failed to show that a cease and desist order is necessary and that a limited exclusion order would not afford complete relief. RX-1208C (Bazelon WS) at Q/A 71. First, Q3 fails to show that any of Respondents' inventory of the accused products is significant. *Id.* at Q/A 72. Q3 merely states what it alleges Respondents' inventory in the United States is quantitatively but provides no context as to ***how or why*** this inventory level is significant. CPHB at 284-285. Notwithstanding Q3's failure to show that this inventory is significant, Q3 has failed to establish that this is inventory ***only*** of the accused products. Q3 argues that CommScope maintains inventory in excess of Redacted in Public V units; HPE maintains inventory in excess of Redacted in Public Vers units; and that NETGEAR maintains inventory in excess of Redacted in Public Version units. CPHB at 285. However, these numbers represent Respondents' ***entire U.S. inventory***, not just that of the ***accused products***. Indeed, this inventory includes, *inter alia*, switches, raw materials, and components, none of which are accused of infringing the Asserted Patents. *See, e.g.*, JX-0089C (HPE inventory) (including non-accused products); CX-0197C (CommScope inventory) (including non-accused products); JX-0026C (Ruckus Inventory) (showing non-accused products); JX-0046C (NETGEAR inventory) (showing non-accused products); RX-1199C (Gielty WS) at Q/A 33 (noting the inclusion of raw materials and components); RX-1208C (Bazelon WS) at Q/As 74, 78. Q3 also improperly counts products that will be shipped outside of the U.S. RX-1208C (Bazelon WS) at Q/A 76; RX-1198C (Balay WS) at Q/A 54; RX-1199C (Gielty WS) at Q/A 34; RX-1201C (Jou WS) at Q/A 25. Because Q3 has failed to show what Respondents' actual inventory of the accused products is, or whether any such inventory is significant, a cease and desist order is not appropriate in this Investigation.

Additionally, Q3 fails to account for whether the inventory actually sits in the warehouse, or whether the stock is immediately depleted. *Id.*; RX-1208C (Bazelon WS) at Q/As 71, 77. Indeed, the practice of the Respondents is Redacted in Public Version CX-0485C.0041 (HPE 11th Supp. Rog Resps.); RX-1198C (Balay WS) at Q/A 53; RX-1199C (Gielty WS) at Q/A 32; RX-1201C (Jou WS) at 24; Tr. (Jou) at 348:18-350:20. Q3 has also not shown that the inventory is representative of Respondents' actual inventory in the U.S.; but rather just a snapshot in time. RX-1208C (Bazelon WS) at Q/As 74-75, 77; CX-0485C.0041 (HPE's 11th Supp. Rog Resps.); JX-0182C (Tewari Dep. Tr.) at 203:17-204:19, 208:2-20; RX-1198C (Balay WS) at Q/A 53; RX-1199C (Gielty WS) at Q/A 32; RX-1201C (Jou WS) at Q/A 24.

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> Moreover, Q3 has not shown that a limited exclusion order would not result in the requested relief. Q3 does not manufacture or sell products. JX-0170C (Bodepudi) at 57:7-64:20. Nor does Q3 receive a reasonable royalty for products under any license for the Asserted Patents. Consequently, Q3 has not shown that the sales of any inventory would cause any incremental harm to Q3 or cause any economic losses or otherwise "undercut the relief provided by the exclusion order." Thus, Q3 has shown no need for a cease and desist order in this Investigation. Additionally, Q3's corporate representative admitted that he could not identify any harm from Respondents' continued sales of the accused products. JX-0170C (Bodepudi) at 146:12-158:17. This is expected as Q3 only has at most three employees (which Q3 disputes, claiming it has no employees) and does not manufacture or sell products. JX-0170C (Bodepudi) at 15:21-22, 57:7-64:20. Accordingly, a cease and desist order should not be issued in this Investigation.
>
> To the extent the Commission finds that a cease and desist order is appropriate, such a remedy should only be directed to the products found to be in violation of Section 337. Additionally, the Commission should allow a carve-out for imports that are for repairs, replacement, and fulfillment of warranties; for design-around and testing; and for certification of compliance with any applicable standards. RX-1208C (Bazelon WS) at Q/A 71. Each of the Respondents perform these actions in the United States. JX-0182C (Tewari Dep. Tr.) at 209:18-210:19; RX-1198C (Balay WS) at Q/A 52; RX-1199C (Gielty WS) at Q/A 31; RX-1201C (Jou WS) at Q/A 23. These carve outs have been previously granted by the Commission and Respondents provide current customers in the U.S., with support, maintenance, and/or replacement of products under various circumstances. *See e.g., Certain Magnetic Data Storage Tapes & Cartridges Containing the Same*, Inv. No. 337-TA-1012, Comm'n Op. at 127-128, (Apr. 2, 2018). Accordingly, they are proper in this Investigation.

Resps. Br. at 296-99.

As noted above, complainant argues that CommScope maintains inventory in excess of Redacted in Public Version; HPE maintains inventory in excess of Redacted in Public Version; and NETGEAR maintains inventory in excess of Redacted in Public Version. Those gross numbers do not appear to be disputed.

While there is no lower limit on the number of articles a domestic respondent must have in inventory before the inventory can be found to be commercially significant, a complainant must nevertheless demonstrate, based on the record, that a cease and desist order is necessary to address the violation found in the investigation so as not to undercut the relief provided by the exclusion order. *See Certain Magnetic Data Storage Tapes and Cartridges Containing Same (II)*, Inv. No. 337-TA-1076, Comm'n Op. at 62-63 (June 20, 2019); *Certain Magnetic Tape Cartridges & Components Thereof*, Inv. No. 337-TA-1058, Comm'n Op. at 65 (quoting *Certain Agricultural Vehicles and Components Thereof*, Inv. No. 337-TA-487, Comm'n Op. at 14 (Sept. 24, 2004)). Under the proper legal standard, one of respondents' arguments directly weakens complainant's ability to make such a showing in this instance. Respondents argue that the inventory numbers upon which complainant bases its arguments reflect their entire inventories at a given time, including an unspecified number of products that are not accused in this investigation. *See* Resps. Br. at 297.

As seen in the quotation above from complainant's main brief, complainant refers to the inventories in question as pertaining to "infringing products," but does not address the question of whether any of the inventories contain non-accused products and if so to what extent. When filing its reply brief, complainant had seen respondents' main brief, and argued in its reply that respondents admitted that they maintain commercially significant inventories of accused products in the United States. Yet, in its reply, complainant did not address the particular issue raised by respondents concerning the extent to which their inventories include non-accused (and potentially non-infringing) products. *See* Compl. Reply Br. at 88.

In its scant reply on the question of the issuance of cease and desist orders, with respect to a somewhat different issue raise by respondents (*i.e.*, the "transient nature" of inventories), complainant argued, "Respondents admit that their U.S. inventory of Accused Products '***could be build-up of higher than normal levels*** of certain products to meet requested demand. . . .'" *Id*. (citing RX-1208C (Bazelon WS) at Q/A 75-77). The administrative law judge has considered that evidence, and whether or not it resolves the issue of inventories containing accused and non-accused products. It has been determined that the evidence is not strong enough to determine the mix of potentially infringing and non-infringing products in respondents' inventories, and whether respondents have, or could obtain, inventories of infringing products sufficient to undercut other relief imposed by the Commission. In fact, some of the testimony relied upon further weakens complainant's arguments for the issuance of cease and desist orders. *See*, *e.g.*, *id*. at Q/A 77 ("Consequently, Respondents' inventory is not indicative of sales that would substitute for future importation. Rather, for the most part, it is a reflection of past sales.").

Accordingly, the administrative law judge does not recommend the issuance of cease and desist orders, in the event that violations of section 337 are found in this investigation.

C. Bond

Pursuant to section 337(j)(3), the administrative law judge and the Commission must determine the amount of bond to be required of a respondent, during the 60-day Presidential review period following the issuance of permanent relief, in the event that

the Commission determines to issue a remedy. The purpose of the bond is to protect the complainant from any injury. 19 U.S.C. § 1337(j)(3); 19 C.F.R. §§ 210.42(a)(1)(ii), 210.50(a)(3).

Complainant argues:

> First, calculating the appropriate amount of bond based on price differential or a reasonable royalty is impractical or insufficient. *See Certain Microsphere Adhesives, Process for Making Same, & Prods. Containing Same, Including Self-Stick Repositionable Notes* ("*Microsphere Adhesives*"), Inv. No. 337-TA-366, Comm'n Op. at 24-25; *see also* CX-0233. The disparate pricing among and within categories of Respondents' Accused Products makes such a formulation difficult for U.S. Customs and Border Patrol to administer. *See, e.g.*, CX-0197; CX-0198. Under similar conditions, the Commission has set a 100 percent bond during the Presidential Review Period. *See Microsphere Adhesives*, at 35-36; *see also Certain Digital Multimeters & Prods. with Multimeter Functionality* ("*Digital Multimeters*"), Inv. No. 337-TA-588, Comm'n Op. at 12-13 (June 3, 2008). Thus, a bond equal to 100 percent of the selling price should be entered for Respondents' infringing products.
>
> Moreover, a 100% bond is necessary because Q3 will suffer injury if Respondents are permitted to continue to import and sell their infringing and unlicensed products during the Presidential Review period at Complainant's expense. The Respondents maintain significant domestic inventories of imported Accused Products. *See* CX-0312 ("With respect to the statistical data on the quantity and value of the imports of the involved articles, based on the investigation to date, HPE Respondents state that they have imported approximately [Redacted in Public Version] units since January 2019 with an approximate value of [Redacted in Public Version]"); CX-0109 ("With respect to the statistical data on the quantity and value of imports of the involved articles, NETGEAR states that it has imported approximately [Redacted in Public Version] units since October 2018, with an approximate total value of US [Redacted in Public Version].")); *see also* JX-0026C (CommScope had [Redacted in Public V] units of the Accused Products in the United States, with [Redacted in Public V] units in Louisville, Kentucky; [Redacted in Public V] units in Carson, California; and [Redacted in Publ] units in Sunnyvale California); JX-0116C; JX-0027C; JX-0174C (Hejnicki Dep. 115:2-116:7 (confirming CommScope maintains inventory of the accused products in the United States in at least Louisville, Kentucky; Carson, California; Sunnyvale, California; Seattle, Washington; and Cary, North Carolina)); JX-0046C; JX-0168C (Apperley Dep. 51:4-9, 57:6-58:9 (confirming NETGEAR maintains inventory of the accused products in the United States in City of Industry, California)); JX-0089C; CX-0313;

JX-0182C (Tewari Dep. 195:17-196:3 (confirming HPE maintains inventory of the accused products in the United States)).

Compl. Br. at 297-98.

Respondents argue:

> Q3 requests the imposition of 100% bond. CPHB at 285-286. However, Q3 has not shown that a 100% bond is necessary or appropriate in this Investigation. Q3 argues that a price differential is not practical in this Investigation. *Id*. Respondents agree, especially given that Q3 does not manufacture or sell products. RX-1208C (Bazelon WS) at Q/As 80-81; Tr. (Brown) at 279:10-14. Further, Siemens' products are not comparable to Respondents' products. RX-1208C (Bazelon WS) at Q/A 81. Indeed, Siemens' products are designed for industrial applications such as oil and gas refineries or machines to manufacture airplanes. JX-0180C (Richards Dep. Tr.) at 28:3-31:3; Tr. (Brown) at 280:9-17.
>
> Moreover, because Q3 does not manufacture or sell products in the United States (or at all), Q3 is not suffering any injury. JX-0170C (Bodepudi Dep. Tr.) at 57:7-64:20; RX-1208C (Bazelon WS) at Q/A 80. Indeed, Q3's corporate representative testified that he could not identify any harm from Respondents' continued sales of the accused products. JX-0170C (Bodepudi Dep. Tr.) at 46:12-158:17. Additionally, Q3 has not shown that it competes for any sales of the accused products, and does not show that Respondents obtain any advantage from the alleged infringing activity. RX-1208C (Bazelon WS) at Q/A 80.
>
> Q3 also alleges it may be injured by the failure to collect reasonable royalties or revenue from Respondents. CPHB at 286-287. However, Respondents have not taken a license to the Asserted Patents and Q3 is not receiving any reasonable royalties for the Asserted Patents. RX-1208C (Bazelon WS) at Q/A 80. Therefore, Q3 cannot be injured by the failure to receive royalties. Q3 also argues that Respondents have imported large quantities of the "involved" articles, warranting a 100% bond and citing to Respondents' responses to the complaint. CPHB at 287. However, these numbers are misleading, and identify imports of non-accused products. *Compare* Compl. Ex. 23 (Doc ID. 720175) with CX-3846C (Madisetti WS) at Q/As 52, 109, 171, 291, 391, 429, 542, 595, 618. The fact that Respondents import products does not result in injury to Q3. RX-1208C (Bazelon WS) at Q/A 80.
>
> Q3 also argues for a 100% bond because (i) there are a wide variety of accused products and (ii) there is insufficient evidence to determine what royalty rate would be reasonable for all patents and all products. CPHB at 287. Neither of these arguments justify a 100% bond.

> It is Q3's burden to establish the necessity for a reasonable bond. Conclusory arguments that it would be difficult to determine a price differential or a royalty rate does not justify the request for 100% bond. Moreover, Q3's is in the business of monetizing patents, and thus, it is impractical that Q3 would not be able to identify a royalty rate for the Asserted Patents. RX-1208C (Bazelon WS) at Q/A 82; Tr. (Brown) at 278:25-279:8. Because Q3 has failed to meet its burden, no bond should issue in this Investigation. RX-1208C (Bazelon WS) at Q/As 79-83. Alternatively, a nominal bond should issue. *Id.* at Q/A 83.

Resps. Br. at 299-300.

When reliable price information is available, the Commission has often set bond by eliminating the differential between the domestic product and the imported, infringing product. *Certain Microsphere Adhesives, Processes for Making Same, and Products Containing Same, Including Self-Stick Repositionable Notes*, Inv. No. 337-TA-366, Comm'n Op. at 24 (1995). In other cases, the Commission has turned to alternative approaches, especially when the level of a reasonable royalty rate could be ascertained. *Certain Integrated Circuit Telecommunication Chips and Products Containing Same, Including Dialing Apparatus*, Inv. No. 337-TA-337, Comm'n Op. at 41 (1995). A 100 percent bond has been required when no effective alternative existed. *Certain Flash Memory Circuits and Products Containing Same*, Inv. No. 337-TA-382, USITC Pub. No. 3046, Comm'n Op. at 26-27 (July 1997) (a 100% bond imposed when price comparison was not practical because the parties sold products at different levels of commerce, and the proposed royalty rate appeared to be *de minimis* and without adequate support in the record).

In this investigation, there is no dispute that complainant is in the business of determining the value of patents. Furthermore, its domestic industry case relies on the investments of SII. Thus, complainant could have offered evidence concerning the

appropriate royalty rate or other bond for the accused products. Under these circumstances, the administrative law judge agrees with respondents that no bond requirement should issue in this investigation. *See Certain Magnetic Tape Cartridges and Components Thereof*, Inv. No. 337-TA-1058, Comm'n Op. at 73-74 (imposing no bond upon failure to show bond is warranted).

XI. Order

To expedite service of the public version of this document, the parties shall file a joint proposed public version, on the date and in the manner required by Order No. 29.

DPShaw

David P. Shaw
Administrative Law Judge

Issued: December 7, 2021

Public Version

CERTAIN ROUTERS, ACCESS POINTS, CONTROLLERS, NETWORK MANAGEMENT DEVICES, OTHER NETWORKING PRODUCTS, AND HARDWARE AND SOFTWARE COMPONENTS THEREOF

Inv. No. 337-TA-1227

CONFIDENTIAL CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **INITIAL DETERMINATION** has been served upon the following parties as indicated, on **December 7, 2021.**



Lisa R. Barton, Secretary
U.S. International Trade Commission
500 E Street, SW, Room 112
Washington, DC 20436

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On Behalf of Respondents CommScope Holding Company, Inc., CommScope, Inc., Arris US Holdings, Inc. Ruckus Wireless, Inc., Hewlett Packard Enterprise Co., Aruba Networks, LLC, and Netgear, Inc.:

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THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office

July 14, 2020

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THIS OFFICE OF:

U.S. PATENT: *8,797,853*
ISSUE DATE: *August 05, 2014*

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Bitzinger et al.

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(54) **SYSTEM AND METHOD FOR CHECKING THE PERMISSIBILITY OF A USE OF A SERVICE**

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See application file for complete search history.

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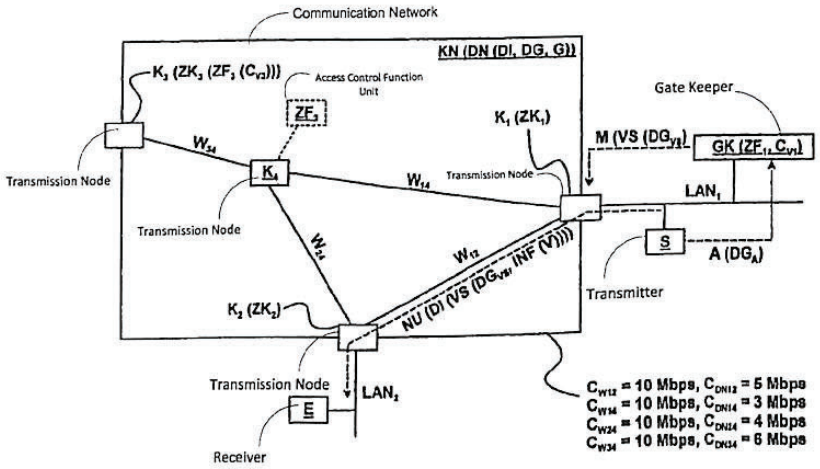
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(57) **ABSTRACT**

An access control function (ZF) which checks a requested use (NU) of a service (DI) by considering an available capacity C_v which is detected by considering the entire transmission capacity (G) and is available to an access node (ZK) for transmitting traffic flows (VS) to the communications network. The service is carried out in at least one communications network (KN) that is provided with an entire transmission capacity (G). The access node (ZK) is allocated to the access control function (ZF) which checks the requested use (NU) of the service (DI).

13 Claims, 1 Drawing Sheet



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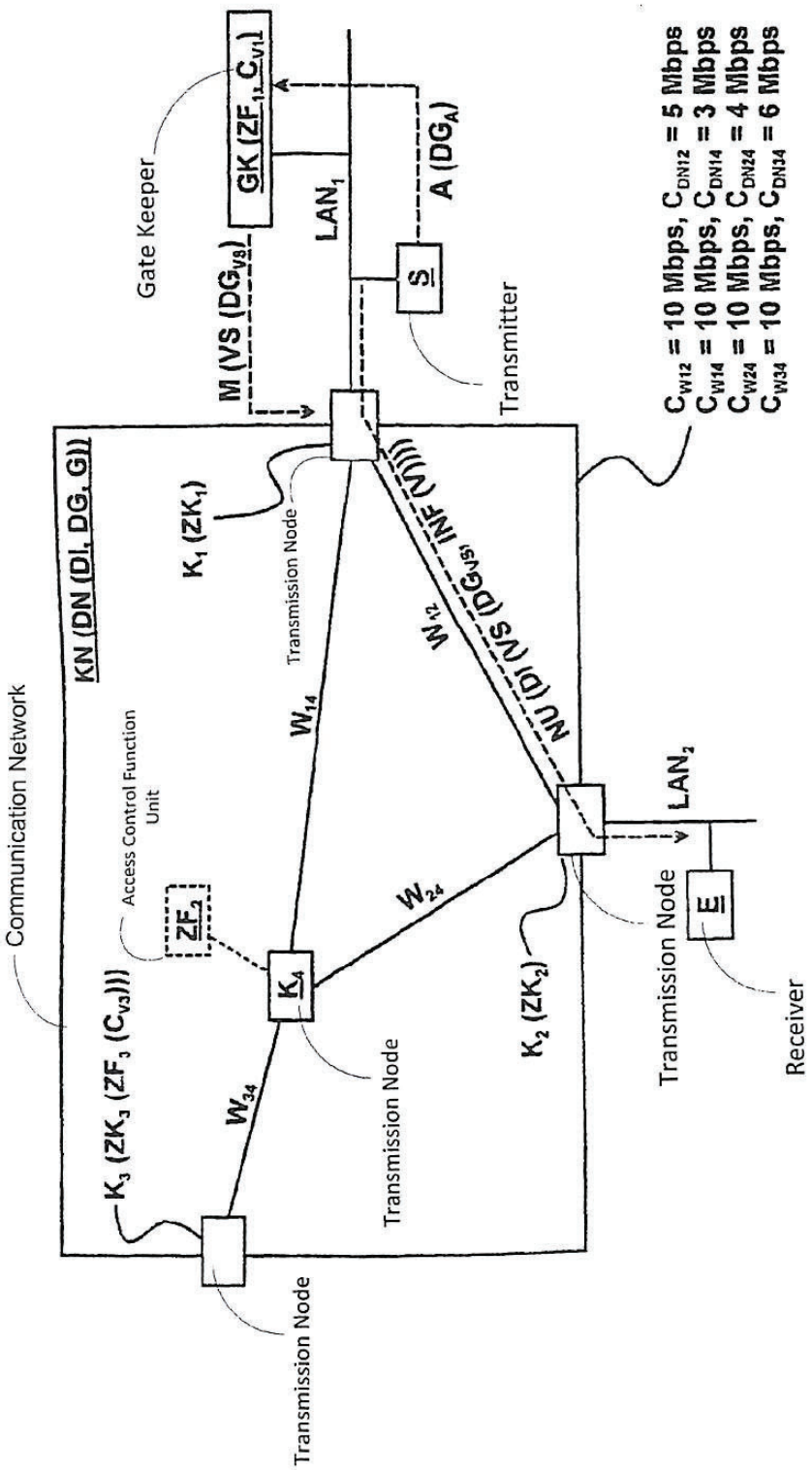
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SYSTEM AND METHOD FOR CHECKING THE PERMISSIBILITY OF A USE OF A SERVICE

CLAIM FOR PRIORITY

This application claims priority to International Application No. PCT/DE01/00863 which was published in the German language on Sep. 27, 2001.

TECHNICAL FIELD OF THE INVENTION

The invention relates to a system and method for checking the permissibility of a use of a service.

BACKGROUND OF THE INVENTION

Contemporary packet-oriented communications networks—also referred to as "data networks"—have previously been designed essentially for transmitting packet streams which are also referred to in the specialist field as "data packet streams". Hence, there is usually no need for an ensured transmission service quality level. The transmission of the data packet streams thus takes place, for example, with delays whose timing fluctuates as the individual data packets of the data packet streams are usually transmitted in the sequence of their network access, i.e. the timing delays become longer the more packets are to be transmitted by a data network. In the specialist field, the transmission of data is therefore also referred to as a transmission service without real time conditions or as a non-real time service.

In the course of the convergence of line-oriented speech networks and packet-oriented data networks, real time services, i.e. transmission services under real time conditions such as the transmission of speech information or moving image information, are increasingly also being implemented in packet-oriented communications networks, i.e. the transmission of the real time services which have previously usually been transmitted in a line-oriented fashion is being carried out in a packet-oriented fashion, i.e. in packet streams, in a convergent speech-data network. These packet streams are also referred to as "real time packet streams". Here, the problem arises that for an implementation of a real time service which is embodied as a packet-oriented transmission a high level of service quality is necessary for the implementation to remain comparable in, terms of quality with a line-oriented transmission. In particular, a minimum—for example <200 ms—delay without fluctuations in the delay is important as real time services generally require a continuous stream of information, and cannot compensate a loss of information, for example due to packet losses, by repeated transmission of the discarded packets. As these service-quality-level requirements basically apply to all communications networks with packet-oriented transmission, they are independent of the specific refinement of a packet-oriented communications network. The packets can consequently be embodied as Internet packets, X.25 packets or frame-relay packets, but also as ATM cells. Data packet streams and real time packet streams are, in this case, exemplary embodiments of traffic streams which are transmitted in communications networks.

For the transmission of speech and image information via the packet-oriented Internet—also referred to as "VoIP"—protocols for a transmission over the Internet have been proposed in the international standards—in particular the H.323 standard. Here, the network is divided into a plurality of

"H.323" zones in which what are referred to as "gatekeepers" are respectively provided for

- converting E.164 telephone numbers to computer names and their Internet addresses,
- permissibility checking for incoming and outgoing conversations,
- administration of transmission capacities,
- registration of H.323 terminals.

However, as there is no ensured service quality level for the Internet transmission in the current H.323 standards, the current VoIP technology has the disadvantage that the quality of the transmission of speech and images decreases if the number of packets to be transmitted by the Internet rises. In this respect, the IETF (Internet Engineering Task Force) has proposed that a plurality of service classes should be introduced in the packet-oriented Internet which previously did not ensure any service quality levels, said proposal being in Blake et. al., "An Architecture for Differentiated Services", RFC 2475, 1998, ftp://venera.isi.edu/in-notes/rfc2475.txt and in Nichols et. al, "Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers", RFC 2474, 1998, ftp://venera.isi.edu/in-notes/rfc2474.txt. Such an Internet is also referred to as 'DiffServe network'. Here, the individual packet streams are each assigned to a specific service class and, depending on their service class, are transmitted by the transmission nodes of the Internet with or without priority over packets of other service classes. The service quality level which is required for the real time services can thus be ensured, for example, by virtue of the fact that the associated real time packet streams are assigned to a service class which is transmitted with priority by the nodes of the Internet—the real time packet streams are thus prioritized with respect to the data packet streams.

By forming a class of traffic streams which are to be transmitted with priority, a (virtual) separate communications network for the transmission of the prioritized traffic streams with a separate overall transmission capacity, which comprises part of the overall transmission capacity of the Internet, is formed within the Internet. Here, that capacity which is necessary to transmit the traffic streams which are just still capable of being transmitted without loss of traffic is considered to be the overall transmission capacity of a communications network which is composed of transmission nodes and paths. In other words, this means that it would not be possible to transmit a further traffic stream in the communications network without a loss of traffic. The still available transmission capacity of a given route between two transmission nodes of the communications network accordingly depends not only on the traffic which is transmitted directly between these two transmission nodes but also on that traffic which is transmitted at least partially along the given route as a consequence of a transmission along other routes in the communications network.

In a priority-controlled transmission, network access control is basically necessary at least for the prioritized traffic as the requested service quality level can only be ensured if no more prioritized traffic is fed to the communications network than the maximum which can be transmitted by said communications network. For this purpose, network access devices—also referred to as "edge devices" or also "access nodes" from the point of view of the communications network—are proposed for the Internet with a plurality of service classes, said devices performing the network access control. In this context, the edge devices can

- control the volume of the traffic fed to the communications network by means of packet streams;

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set priority markers in the packets corresponding to the priority of their packet streams;

monitor priority markers of packet streams and if appropriate correct them if the packets are already marked with priorities;

monitor the transmission capacity of prioritized packet streams.

Hitherto, how a permissibility check of a transmission of a packet stream which has been applied for, for example, at a gatekeeper or an edge device is to be brought about in this context has not been regulated.

A method in which resources which are necessary for the transmission of a packet stream are requested from each transmission node of a communications network using a reservation protocol RSVP, and the transmission of the packet stream does not occur if at least one transmission node cannot make available the requested resources is known. In this context, the permissibility check is checked in the transmission nodes taking into account only capacities which can be determined locally, i.e. usually the capacities of the outgoing transmission paths and/or channels. In addition, the reservation protocol RSVP must be implemented in each—i.e. even the internal—transmission node of the communications network.

SUMMARY OF THE INVENTION

The invention discloses a method for checking the permissibility of the transmission of a packet stream in a communications network.

In one embodiment of the invention, there is permissibility checking of a use, applied for with an access control function, of a service which is implemented in at least one communications network having an overall transmission capacity, during which checking the access control function checks whether the applied-for use of the service is permitted, taking into account an available capacity which is determined taking into account the overall transmission capacity and which is made available to an access node assigned to the access control function, for transmitting traffic streams to the communications network.

A number of advantages of the invention are as follows:

The access control can be adapted in a flexible way to changes in the overall transmission capacity by changing the available capacity.

The permissibility checking is carried out solely by the access control function. As a result, there is no need for the applied-for use of the service to be checked in the transmission nodes of the communications network. This entails the particularly nice advantage that the invention can be used without changing the transmission nodes of the communications network.

The use of the service can be applied for without specifying any desired service quality level. As a result, there is advantageously no need for such a service quality level to be determined by the applicant for the application for the use of the service.

According to another embodiment of the invention, there is provision that the service is embodied as a transmission of information, in particular speech information, which is brought about using traffic streams which are transmitted with priority. As a result, for example in a packet-oriented communications network, the particular service quality level requirements of a transmission of speech information in an integrated speech/data network are advantageously fulfilled.

According to still another embodiment of the invention, the overall transmission capacity depends at least partially on the transmission capacities of the transmission paths of the communications network. As a result, to the overall transmission capacity of the communications network is taken into account very efficiently as these values are static and thus can be determined without costly calculation methods. If the transmission capacities of the transmission paths are stored in the local routing tables of the transmission nodes, they can advantageously be obtained from the latter in a very efficient way and essentially without information transmissions in the communications network.

According to yet another embodiment of the invention, the checking of the permissibility is carried out taking into account a service quality level which is necessary for the use of the service and which is determined by the access control function. As a result, a traffic management system is advantageously implemented by virtue of the fact that an appropriate high service quality level is ensured, for example, for traffic streams which transmit information, for example, in real time, i.e. with the shortest possible delays and/or with a specific capacity, and an appropriately low service quality level is ensured for traffic streams which transmit information with variable delays and/or with a non-specific capacity. Examples of information which tends to be transmitted with a high service quality level are speech telephone services or image telephone services. Examples of information which tends to be transmitted with a low service quality level are email, files or Internet pages. The traffic management system can also be implemented as a function of the user of the service. For example, a regular customer is assigned a high service quality level every time he uses the service and an occasional user is assigned a lower service quality level.

According to one aspect of the invention, when a desired service quality level is specified when the use of the service is applied for, said service quality level is taken into account by the access control function in the determination of the necessary service quality level. Thus, for example a preset, necessary "on demand" service quality level is adapted to the requirements of the applicant without the preset having to be changed.

According to another aspect of the invention, there is provision for the communications network to be embodied as a DiffServ network which transmits traffic streams with an ensured service quality level in a packet-oriented fashion. The permissibility checking is carried out according to the invention on a traffic-stream-specific basis. In the application of the invention in a DiffServ network there is thus a particular advantage as in a DiffServ network there is no provision for a transmission with an ensured traffic-stream-specific service quality level, but rather that the prioritized traffic streams will be transmitted with priority.

According to an aspect of the invention, there is provision for the access control function to signal the permissibility of the traffic stream to be transmitted with priority during use of the service to the assigned access node, and for the access node to subsequently transmit the traffic stream with priority to the DiffServ network. This advantageously causes the traffic stream to be transmitted to the communications network by the access node with the necessary service quality level.

According to still another aspect of the invention, the access control function is implemented in a gatekeeper. The invention is thus advantageously integrated seamlessly into the existing infrastructure of a contemporary Internet, in particular of a DiffServ network. In addition, the permissibility checking according to the invention can be integrated into the permissibility checking of the gatekeeper defined in the H.323 standard, as a result of which the external behavior of the conventional permissibility checking remains advanta-

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geously essentially unchanged. In addition, the transmission nodes the communications network are relieved of loading as there is no need for permissibility checking in them.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is explained in more detail below with reference to a FIGURE.

FIG. 1 shows an exemplary block circuit diagram of a communications network.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 shows, by way of example, a block circuit diagram of a communications network KN with an overall transmission capacity G. The communications network KN is embodied, for example, as a service DI with DiffServ network DN ensuring to a service quality level DG. The service DI is, for example, a transmission of traffic streams VS with a service quality level DG_{vs} which is brought about, for example, by means of prioritized transmission of the traffic streams VS. The communications network KN will be assumed to comprise four transmission nodes K, of which the first transmission node K_1 is embodied as a first access node ZK_1, the second transmission node K_2 is embodied as a second access node ZK_2 and the third transmission node K_3 is embodied as a third access node ZK_3. Traffic streams VS are transmitted to the communications network KN by the access nodes ZK.

The transmission nodes are connected to one another by means of four transmission paths W_{12}, W_{14}, W_{24} and W_{34} which have transmission capacities C_w, the indices indicating those transmission nodes K_i and K_j between which the transmission path W_{ij} is provided. In this context, the following capacities C_{DN} is reserved for the DiffServ network DN by the transmission capacities C_w of the transmission paths W:

Transmission path W	Capacity C_W	Capacity C_{DN}
W_{12}	C_{W12} = 100 Mbps	C_{DN12} = 5 Mbps
W_{14}	C_{W14} = 10 Gbps	C_{DN14} = 3 Mbps
W_{24}	C_{W24} = 10 Gbps	C_{DN24} = 4 Mbps
W_{34}	C_{W34} = 10 Mbps	C_{DN34} = 6 Mbps

A first local area network LAN_1 is connected to the access node K_1 with a transmitter S and a gatekeeper GK. A second local area network LAN_2 is connected to the access node K_2 with a receiver E.

Furthermore, a plurality of ways of implementing an access control function ZF are specified by way of example:

- A decentralized, access-node-specific implementation as access control function ZF_1 in the gatekeeper GK which will be assumed to be assigned to the access node ZK_1. Permissibility checking of traffic streams VS which are to be transmitted to the communications network KN by means of the access node ZK_1 is carried out here taking into account a capacity C_{v1} which is available for the assigned access node ZK_1.
- A central implementation as access control function ZF_2 which is reached physically via the transmission node K_4. It is used, for example, for determining capacities C_v which are respectively available for, if appropriate, access nodes K of the DiffServ network DN and which are signaled to it, for example, on request.
- A decentralized, access-node-specific implementation as access control function ZF_3 in the access node ZK_3, as a result of which it is assumed to be implicitly assigned to this node. Permissibility checking of traffic streams VS which are to be transmitted to the communications network KN by the access node ZK_3 is carried out here taking into account a capacity C_{v3} which is available for the assigned access node ZK_3.

In addition, the following transmissions of information are indicated:

- Use NU of the service DI which is embodied, for example, as a transmission of information, during which a traffic stream VS with, for example, information INF embodied as speech information V is transmitted from the transmitter S to the receiver E along the route S=>K_1=>K_2=>E. In this context, the traffic stream VS is transmitted with a necessary service quality level DG_{vs} at least in the communications network KN.
- Application A from the transmitter S to the gatekeeper GK with which the use NU is applied for.

If appropriate a desired service quality level DG_A is specified in the application A.

- Optional signaling M by the access control function ZF_1 implemented in the gatekeeper GK to the assigned access node ZK_1 specifying the permitted traffic stream VS and, if appropriate, its service quality level DG_{vs} which is necessary for the transmission.

For an exemplary embodiment of the invention it will be assumed that the access control function ZF is implemented in a decentralized and access-node-specific fashion as an access control function ZF_1 in the gatekeeper GK, and that the communications network KN is embodied as a DiffServ network DN.

The use NU of the service DI is applied for to the gatekeeper GK by the transmitter S with the application A. In this context, for example, the desired service quality level DG_A is specified. For example, it shall be assumed that the service DI is embodied as a transmission of speech information V and a continuous transmission capacity of 64 kbps is specified as the service quality level DG_A.

The access checking will be assumed to take place, for example, on the basis of the following available capacities C_v:

Access node	Available capacity C_V
ZK_1	C_{V1} = 2 Mbps
ZK_2	C_{V2} = 3 Mbps
ZK_3	C_{V3} = 1 Mbps

As a result, although less capacity C_v is available to the access nodes ZK_1 and ZK_2 in the example than capacities C_{DN} reserved for the DiffServ network DN on the transmission paths W, the advantage which this entails is that when each of the available capacities C_v is completely exhausted, the access nodes ZK cannot exceed the capacity C_{DN} reserved for the DiffServ network on any of the transmission paths W of the entire (!) communications network KN, as:

C_{DN12} (5 Mbps)>=C_{V1} (2 Mbps)+C_{v2} (3 Mbps)
C_{DN14} (3 Mbps)>=C_{v1} (2 Mbps)+C_{v3} (1 Mbps)
C_{DN24} (4 Mbps)>=C_{v2} (3 Mbps)+C_{v3} (1 Mbps)
C_{DN34} (6 Mbps)>=C_{v1} (2 Mbps)+C_{v2} (3 Mbps)+C_{v3} (1 Mbps)

In this example, it is assumed that the information streams run in each case along the route with the lowest number of transmission nodes K—also referred to as "least hops". In this exemplary embodiment, the overall transmission capacity G depends essentially on the transmission capacity of the transmission paths W of the communications network KN which is

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embodied as a DiffServ network DN, but is not limited to it. It may also depend, for example, on the transmission capacities of the transmission nodes. With a definition of the available capacities C_v which is carried out in such a way according to the invention taking into account the overall transmission capacity G of the DiffServ network DN, there is advantageously no need for permissibility checking in the internal transmission nodes K of the communications network KN.

The access control function ZF is aware of the capacity C_{v1} of 2 Mbps which is made available to the access node ZK_1 for the transmission of traffic streams VS to the DiffServ network DN. As a result, for example 32 telephone calls with a capacity of 64 kbps which decisively influences the service quality level DG_{vs}, 64 telephone calls with a capacity of 32 kbps or 128 telephone calls with a capacity of 16 kbps, can be transmitted. Any other desired distributions of the service quality level DG are possible. For example, it is also possible to provide a mix, for example up to 20 telephone calls with a capacity of 64 kbps, further telephone calls, up to 20, with a capacity of 32 kbps, and the remaining up to 8 telephone calls with a capacity of 16 kbps. The latter distribution will be assumed below.

After the application A has been received, the access control function ZF_1 checks the permissibility of the applied-for use NU. At the time of the checking, it will be assumed that 20 telephone calls with a capacity of 64 kbps, 10 telephone calls with a capacity of 32 kbps and 3 telephone calls with a capacity of 16 kbps are permitted—i.e. of the available capacity C_{v1}, 1648 kbps are assigned and 400 kbps are free at the time. As a result, the applied-for use NU of the service DI is basically permitted taking into account the available capacity C_{v1}.

In addition, it will be assumed that there is a configuration such that the transmitter S usually carries out telephone calls with a capacity of 16 kbps if there is no desired service quality level DG_A specified in the application A. The service quality level DG_A of 64 kbps desired by the transmitter S is not permissible as, at the time, the 20 provided telephone calls with 64 kbps are assigned. For this reason, the access control function ZF_1 determines a transmission with 32 kbps, instead of the usually provided 16 kbps, taking into account the desired service quality level DG_A of 64 kbps as the necessary service quality level DG_{vs}, and the applied-for use NU is permitted with this necessary service quality level DG_{vs}.

According to another embodiment of the invention, the permissibility of the applied-for use NU is signaled to the access node ZK_1. With an access-node-specific implementation of the access control function ZF this is carried out, for example, by virtue of the fact that a value which indicates the permissibility is stored in a storage medium of the access node ZK. When the access function ZF is implemented remotely from the access node ZK, the permissibility is transmitted to the access node ZK with, for example, at least one message M which is transmitted to the access node ZK.

It is to be noted that the invention is not restricted to DiffServ networks DN but rather can be applied in any communications network KN with service quality levels DG. For example, application is provided in local area networks LAN_1, LAN_2. Here, the access nodes ZK are embodied, for example, as access cards provided in the transmitter S or in the receiver E or as access functionalities relating to the local area networks LAN. After the permissibility has been checked according to the invention, speech information V is transmitted in the local area networks LAN with appropriate necessary service quality levels DG_{vs}.

What is claimed is:

1. A method for checking permissibility to use a service, the service being implemented in at least one communications network, the communication network having an overall transmission capacity, the use of the service comprising transmission of at least one service-specific traffic stream which is assigned to the service by an access node which is assigned to the service to the communication network, comprising:

analyzing the use of the service with an access control function which is assigned to the access node; and

checking, via the access control function, without further interrogations at internal transmission nodes of the communications network, whether the use of the service is permitted, the checking performed taking into account an available capacity, which is

determined taking into account the overall transmission capacity, and

available to the access node for transmitting traffic streams to the communications network.

2. The method as claimed in claim **1**, wherein the service is embodied as a transmission of information which is brought about using traffic streams which are transmitted with priority.

3. The method as claimed in claim **2**, wherein the access control function signals the permissibility of the traffic stream to be transmitted with priority during use of the service to the assigned access node, and the access node subsequently transmits the traffic stream with priority to DiffServ network.

4. The method as claimed in claim **1**, wherein the overall transmission capacity depends at least partially on the transmission capacities of transmission paths of the communications network.

5. The method as claimed in claim **1**, wherein the checking of the permissibilty is carried out taking into account a service quality level which is determined by the access control function.

6. The method as claimed in claim **4**, wherein a desired service quality level is specified when the use of the service is applied for, the service quality level is taken into account by the access control function in the determination of necessary service quality level.

7. The method as claimed in claim **1**, wherein the communications network is embodied as a DiffServ network which transmits traffic streams with an ensured service quality level in a packet-oriented fashion.

8. The method as claimed in claim **7**, wherein the access control function signals the permissibility of the traffic stream to be transmitted with priority during use of the service to the assigned access node, and the access node subsequently transmits the traffic stream with priority to DiffServ network.

9. The method as claimed in claim **1**, wherein the access control function is implemented within a gatekeeper.

10. A device comprising:

at least one means for checking permissibility of use of a service which is implemented in at least one communications network having an overall transmission capacity, wherein the at least one means:

transmits at least one service-specific traffic stream which is assigned to the service by an access node assigned to the service to the communications network;

analyzes the use of the service with an access control function which is assigned to the access node; and

checks the access and via control function, without further interrogations at internal transmission nodes of the communications network, whether the use of the service is permitted, the checking performed taking into account an available capacity,

the overall transmission capacity, and

which is made available to the access node for transmitting traffic streams to the communications network.

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11. The device as claimed in claim 10, wherein the device is configured for connection to at least one other device by at least one transmission path to perform at least a portion of the checking.

12. The device of claim 10, wherein the device is a gatekeeper.

13. The device of claim 10, wherein the device is a transmission node.

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U.S. PATENT: *7,895,305*
ISSUE DATE: *February 22, 2011*

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Under Secretary of Commerce for Intellectual Property
and Director of the United States Patent and Trademark Office

SYLVIA HOLLEY
Certifying Officer

US007895305B2

(12) **United States Patent**
Beton et al.

(10) **Patent No.: US 7,895,305 B2**
(45) **Date of Patent: Feb. 22, 2011**

(54) **WEB-BASED MANAGEMENT ENGINE AND SYSTEM**

(75) Inventors: **Richard Beton**, Romsey (GB); **Robert Hancock**, Southampton (GB)

(73) Assignee: **Siemens Aktiengesellschaft**, Munich (DE)

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See application file for complete search history.

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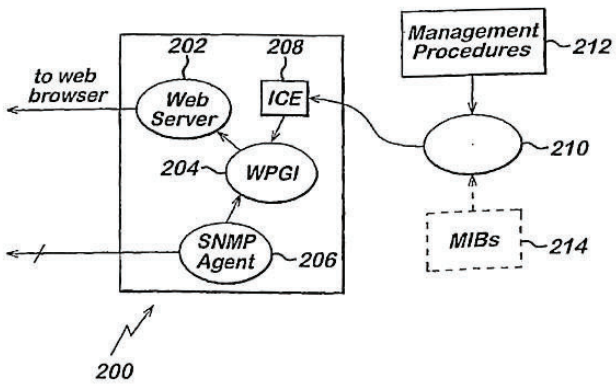
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(74) *Attorney, Agent, or Firm*—Crowell & Moring LLP

(57) **ABSTRACT**

A Web-based management engine is provided. The engine includes a Web page generator that generates Web pages based upon data relating to procedural steps for management of the at least one aspect of the behavior of the network entity. The engine also includes an interfacing component arranged to communicate data between a Web server and an SNMP agent in accordance with a predetermined data structure so as to manage the at least one aspect of the behavior of the network entity. Such a Web-based management engine obviates the complex to generate and inflexible template Web pages of known Web-based management systems.

17 Claims, 1 Drawing Sheet



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Fig. 1

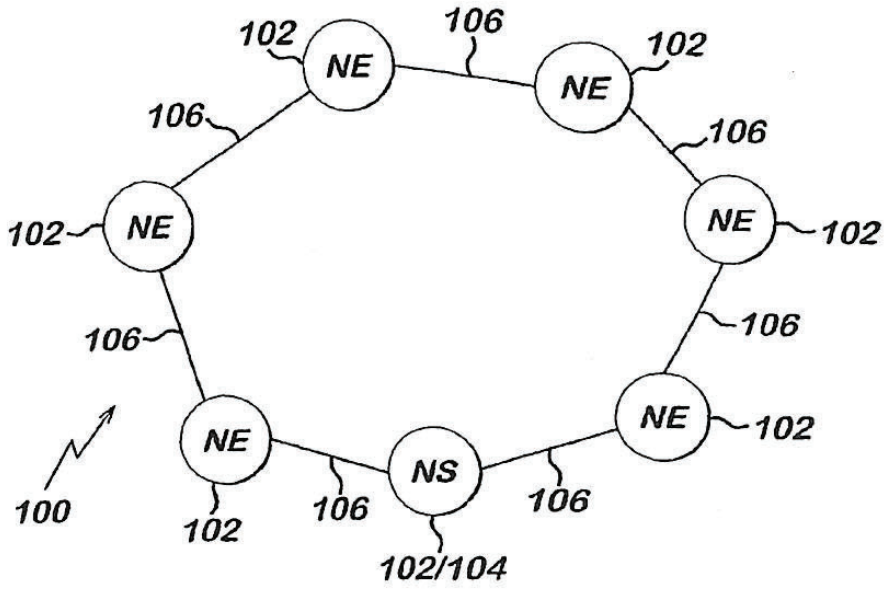
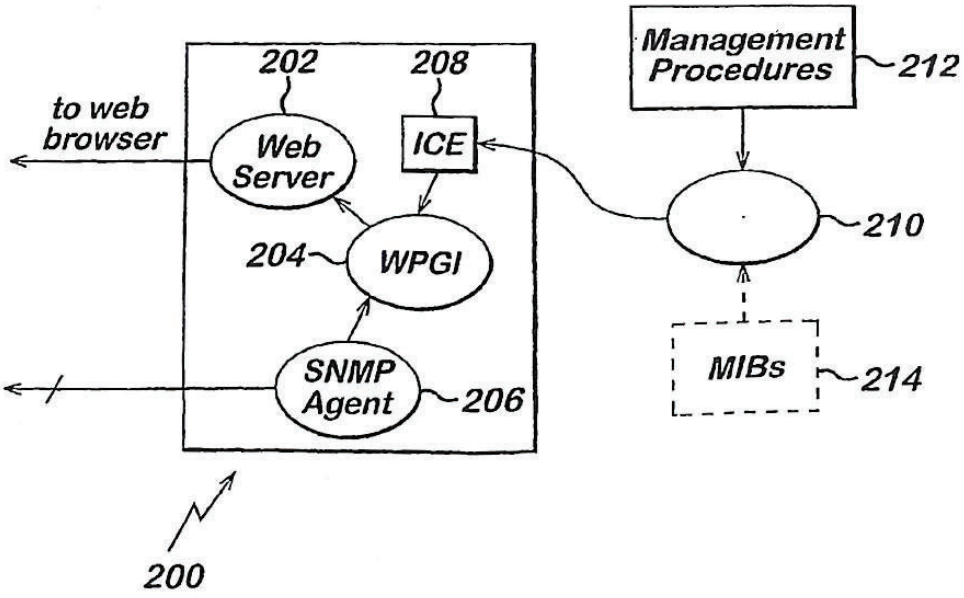


Fig. 2



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WEB-BASED MANAGEMENT ENGINE AND SYSTEM

The present invention relates to a Web-based management engine and system of the type used to monitor and/or control the operation of a network entity, for example, a server or a network router.

An information technology network typically comprises a large number of interconnected entities (hereinafter referred to as "network entities"), for example, computers. It is necessary to manage the network entities in the network by monitoring and/or controlling operational parameters of the network entities.

In large networks, it is known to provide umbrella network management using an umbrella network management server operating in accordance with a Simple Network Management Protocol (SNMP). The network management server is capable of sending a request for information, or an instruction, to other network entities comprising SNMP agents in order to obtain information concerning the operation of the other network entities, or modify the operation thereof. However, umbrella network management is not cost-effective in smaller networks, because the network management server required to support the umbrella management is relatively expensive.

Under the SNMP, data relating to the behaviour of the network entities conform to complex data structures called Management Information Bases (MIBs). MIBs are used for monitoring and controlling operational parameters of network entities and includes operational parameters of connections between the network entities, for example, packet-related parameters, such as packet in/out parameters, octet parameters and frame parameters. A network entity supporting an SNMP may have one or more MIBs associated therewith. In order to obtain more specific information relating to a particular network entity, hardware manufacturers create specific, or enterprise, MIBs for the particular network entity.

In order to manage smaller networks in the light of the complexity of MIBs, Web-based management techniques have been developed, whereby Internet pages (also known as "Web pages") are used to obtain and manipulate information concerning the operation of the network entity. One known Web-based management technique comprises a network entity having a Web server in communication with an SNMP agent, the SNMP agent being capable of obtaining data relating to, and modifying data affecting, the behaviour of the network. The Web server is arranged to retrieve, from a store, template Web pages ("forms") corresponding to procedural steps which need to be taken in order to obtain, and/or modify, data relating to the behaviour of the network entity. Data obtained or modified by means of the Web server and the template Web pages are communicated between the Web server and the SNMP agent in the MIB format. Part of the building process of the software for the network entity includes the provision of the template Web pages ("forms") to allow a network administrator to execute procedural steps necessary to obtain data relating to the behaviour of the network entity, and/or modify the behaviour of the network entity. However, the template Web pages ("forms")) have to be custom-written manually for different network entities, since as mentioned above different network entities have different, specific, MIBs associated therewith. Additionally, due to the complexity of the MIBs, a considerable amount of time and effort is required to write the template Web pages ("forms").

It is therefore an object of the present invention to simplify management of network entities in a network using a Web based management technique.

According to the present invention, there is provided a Web-based management engine for a network entity, which comprises an intelligent agent for obtaining information about at least one operational parameter of the network entity and/or modifying the behaviour of the network entity, the intelligent agent being arranged to interact with the network entity in accordance with a predetermined data structure; a data store arranged to store data relating to a procedure for managing the at least one operational parameter of the network entity; a Web server for providing an interactive environment to manage the at least one operational parameter of the network entity using the Web pages generated by the Web page generator, the Web page server being adapted to be capable of generating a set of linked Web pages in response to a request to carry out a procedure, the set of linked Web pages being based upon the data stored in the data store and constituting the procedure to manage the at least one operational parameter of the network entity, and an interface arranged to communicate data between the Web server and the intelligent agent in accordance with the predetermined data structure.

According to an embodiment of the invention, the data relating to the procedure for managing the at least one operational parameter of the network entity includes data relating to rules to be observed in relation to the operational procedure, and the Web-based management engine, and further comprising means for verifying the rules relating to the procedure.

The Web-based management engine may further comprise means for generating at least one variant Web page corresponding to, but in a different natural language to that of, at least one of the set of linked Web pages.

The intelligent agent may be an SNMP agent.

The predetermined data structure may be an MIB.

In an embodiment of the invention, upon rejection of the data by the intelligent agent, data submitted immediately previously is resubmitted to the intelligent agent.

The present invention also provides a Web-based management system comprising the Web-based management engine as described.

Such a system may further comprise means for compiling a non machine-readable management procedure into machine-readable data.

Such a system may further comprise means for verifying that the non-machine readable management procedure can conform, when compiled, to the predetermined data structure.

The machine-readable data may be a binary format file.

The machine-readable data may be stored in a text file.

The machine readable data may be stored in a database file.

Any such system may further comprise a Web browser.

The present invention also provides a method of manufacturing a Web based management engine. The method comprises the steps of: translating management procedures into a machine readable format, storing the translated management procedures in a machine readable file, the machine readable file corresponding to at least one Web page, and compiling a Web server and translation means to form an adapted Web server, the adapted Web server being capable of translating the content of the machine readable file into at least one Web page for transmission by the adapted Web server.

It is thus possible to provide a Web-based management engine and system which permits user-friendly management of a network whilst providing automatic generation of Web pages or forms in, for example, Hyper Text Markup Language

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(HIML) or Extensible Meta Language (XML) which have been automatically pre-validated. Consequently, the present invention obviates the expenditure of large amounts of time and effort in the generation and de-bugging of Web pages ("forms") for network management. Also, rule verification which would otherwise be much more difficult to implement with known Web-based management techniques is possible.

At least one embodiment of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

FIG. **1** is a schematic illustration of an information technology network for use with an embodiment of the invention;

FIG. **2** is a schematic diagram of a web-based management engine network entity constituting an embodiment of the invention.

Referring to FIG. **1**, an information technology network, for example, a computer network **100**, comprises a plurality of network entities **102** and a network server **104** interconnected by network interconnect **106**. In this example, the network interconnects **106** are cables, such as Ethernet cables known in the art, but other forms of interconnection are possible, such as wireless interconnections. For the purposes of the present invention, a network entity is defined as any device which is capable of being interconnected by network interconnects to form part of an information technology network, for example, a terminal, a server or a router.

A Web-based management engine **200** (FIG. **2**) for a network entity **102** comprises a Web server **202** in communication with a Web page generator and interface (WPGI) unit **204**, the WPGI unit **204** being in communication with an SNMP (Simple Network Management Protocol) agent **206** and coupled to a storage unit, such as an Electronic Erasable Programmable Read Only Memory (EEPROM) **208**. The EEPROM **208** stores a data file, for example, an ICE file, the ICE file being a binary format file containing information relating to procedural steps which have to be taken in order to manage at least one aspect of the behaviour of the network entity **102**.

The ICE files are generated by an ICE generation module **210**. As part of the software building process, the ICE generation module **210** receives text-based details of procedural steps **212** necessary to manage the network entity **102**. The ICE generation unit **210** performs static analysis on the procedural steps **212** before compiling this information down into the binary format, or ICE, files for use by the WPGI unit **204**. The binary format of the ICE files comprises a tree-structured syntax for the Web server **202** to follow. ICE files can be implemented in a number of ways. However, in this example, the binary trees of the ICE files are interpreted in a manner similar to that of an abstract tree syntax by the Mice programming language. In order to perform the static analysis on the text-based details of the procedural steps **212**, the ICE generation module **210** has a database **214** of available MIBs (Management Information Bases); the static analysis takes place off-line, i.e. prior to starting the Web server **202**, and is a comparison of the text-based details of the procedural steps **212** with the database **214** of MIBs in order to ensure that the text-based details of the procedural steps **212** conform to MIBs structures. For example, in can be necessary to prevent attempts to modify a numeric field with text data. Typically, the ICE files are loaded into the EEPROM **208** during the manufacture of the network entity **102**.

Although in the above example the Web-based management engine is located within the network entity **102**, it should be appreciated that this is not essential and that the Web-based management engine can be located remotely from the network entity **102**. Also, it is conceivable that the WPGI unit **204** can be form part of the Web server **202** as opposed to being a separate independent entity.

In a first example of operation of the above apparatus, one of the network entities **102** is a server. A network administrator wanting to modify an operational parameter of the server, for example the name of the server, navigates through a management Web-site, or collection of linked forms until the desired form is found for modification of the server name.

The forms (not shown) through which the network administrator navigates are generated by the WPGI unit **204** using data stored in the ICE file relating to the procedural steps required to make the modification. Once the network administrator has modified an appropriate field, the data obtained by means of the form is communicated to the WPGI unit **204** which generates data conforming to the MIBs structure (hereinafter referred to as MIBs Format Management data, or MFM data) and communicates the MFM data to the SNMP agent **206**. Thereafter, the SNMP agent **206** uses the MFM data to modify the name of the server according to an appropriate SNMP procedure known in the art.

In a second example of the operation of the above apparatus, one of the network entities **102** is a router. The network administrator wanting to modify a mapping in the router, for example, a mapping of an ingress port to an egress port in the router, navigates through the management Web-site, or collection of linked forms until the desired form is found for modification of the router mapping.

The forms through which the network administrator navigates are again generated by the WPGI unit **204** using data stored in the ICE file. Once the network administrator has modified an appropriate field, the data collected by means of the form is communicated to the WPGI unit **204** which generates data conforming to the MIBs structure, i.e. MFM data, and communicates the MFM data to the SNMP agent **206**. Thereafter, the SNMP agent **206** uses the MFM data to modify the router mapping according to another appropriate SNMP procedure known in the art.

In a third example of the operation of the above apparatus, the text-based details of procedural steps **212** include rules relating to the operational parameters of a network entity **102**, for example, the router described in the second example of the operation of the above apparatus. At the time of building the software for the router, the manufacturer specifies that if the network administrator configures the router to transmit more than a predetermined number of packets within a specified time period, then the bit rate of the router cannot exceed a specified bit rate. This rule is incorporated into the ICE file generated by the ICE generation module **210** and implemented by the WPGI unit **204** when the network administrator navigates to an appropriate form for modifying the packet parameters. Consequently, the WPGI unit **204** in conjunction with the Web server **202** will not permit the network administrator to select a bit rate which exceeds the specified bit rate in the light of the number of packets to be transmitted.

In an alternative example, the WPGI unit **204** in conjunction with the Web server **202** can permit the network administrator to set whatever values the network administrator so desires. Subsequently, the WPGI unit **204** submits the MFM data corresponding to the values of the operational parameters set by the network administrator to the SNMP agent **206**, the SNMP agent **206** consequently rejecting the operational parameters set if the router cannot support such values. If the router rejects the values set, the WPGI unit **204** then resets the modified operational parameters back to their previous values and transmits MFM data to the SNMP agent, the MFM data corresponding to the reset values. The fact that the operational values set by the network administrator cannot be supported

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by the router is communicated back to the network administrator in a manner specified by the text-based details of the procedural step, for example, a different Web page.

As a further alternative example, the Web browser of the network administrator can use JavaScript routines to verify that the rules relating to the operational parameters of the network entity **102**.

In another example, a three tiered scheme for verifying the observance of rules relating to the operational parameters of the network entity **102** is implemented: a first check is carried out by the Web browser, a second check is carried out by the WPGI unit **204**, and a third check is carried out by the SNMP agent **206**.

In any of the above examples of operation of the apparatus, a privilege system may be incorporated, whereby the forms generated by the WPGI unit **204** and presented by the Web server **202** require the network administrator to provide a password in order to obtain information relating to, and/or modify, an operational parameter of the network entity.

Although, in the above examples, a single form is completed by a network administrator, it is conceivable that more than one such form is completed.

In summary, the above examples show how a network administrator can define and/or make enquiries as to operational parameters of a network entity. The Web-based management engine generates data conforming to a predefined data structure, such as MIBs, in order to obtain the functionality desired by the network administrator and/or information. The functionality desired by the network administrator, and/or information is obtained, via a management protocol agent, such as an SNMP agent.

The invention claimed is:

1. A Web-based management engine for a network entity, comprising:

an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;

a data store storing data relating to a procedure for managing the at least one operational parameter of the network entity;

a Web server that provides an interactive environment to manage the at least one operational parameter of the network entity, and

an interface that communicates values of the at least one operational parameter between the Web server and the intelligent agent in accordance with the predetermined data structure,

wherein the Web server provides the interactive environment using the Web pages generated by a Web page generator, the Web page generator that generates a set of linked Web pages in response to a request to carry out a procedure, wherein each Web page of the set of linked Web pages being based upon the data stored in the data store and corresponding to at least one step in the procedure to manage the at least one operational parameter of the network entity,

wherein the interface uses the stored data relating to a procedure for managing the at least one operational parameter of the network entity to generate a determination result indicating whether information retrieved using a form provided on the set of linked Web pages conforms to a rule relating to the procedure to manage the at least one operational parameter of the network entity, and wherein the interface communicates values to the intelligent agent based on the information retrieved from the form in response to the determination result indicating conformance.

2. The Web-based management engine as claimed in claim **1**, wherein the data relating to the procedure for managing the at least one operational parameter of the network entity is a file in a binary format that includes a tree-structured syntax used when generating the set of linked Web pages.

3. The Web-based management engine as claimed in claim **2**, wherein the data relating to the procedure for managing the at least one operational parameter of the network entity includes data relating to rules to be observed in relation to the operational procedure, and the Web-based management engine, and further comprising a verification component that verifies the rules relating to the procedure.

4. The Web-based management engine as claimed in claim **2**, wherein at least one variant Web page is generated that corresponds to, but in a different natural language to that of, at least one of the set of linked Web pages.

5. The Web-based management engine as claimed in claim **2**, wherein the intelligent agent is an SNMP agent.

6. The Web-based management engine as claimed in claim **2**, wherein the predetermined data structure is an MIB.

7. The Web-based management engine as claimed in claim **2**, wherein upon rejection of a communicated value for the at least one operational parameter of the network entity by the intelligent agent, the interface sends information to the intelligent agent to reset a value of the at least one operational parameter of the network entity to a previous value.

8. A Web-based management system comprising a Web-based management engine comprising:

an intelligent agent that obtains information about at least one operational parameter of the network entity and/or modifies the behavior of the network entity, the intelligent agent interacting with the network entity in accordance with a predetermined data structure;

a data store storing data relating to a procedure for managing the at least one operational parameter of the network entity;

a Web server that provides an interactive environment to manage the at least one operational parameter of the network entity, and

an interface that communicates values of the at least one operational parameter between the Web server and the intelligent agent in accordance with the predetermined data structure,

wherein the Web server provides the interactive environment using the Web pages generated by a Web page generator, the Web page generator generating a set of linked Web pages in response to a request to carry out a procedure, wherein each Web page of the set of linked Web pages being based upon the data stored in the data store and corresponding to at least one step in the procedure to manage the at least one operational parameter of the network entity, and

wherein the interface uses the stored data relating to the procedure for managing the at least one operational parameter of the network entity to generate a determination result indicating whether values to be communicated to the intelligent agent from the Web server conform to a rule relating to the procedure for managing the at least one operational parameter of the network entity, and

wherein the interface communicates values from the Web server to the intelligent agent in response to the determination result indicating conformance.

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9. The Web-based management system as claimed in claim 8, wherein the data relating to the procedure for managing the at least one operational parameter of the network entity is a file in a binary format that includes a tree-structured syntax used when generating the set of linked Web pages.

10. The system as claimed in claim 9, further comprising a compiler that performs a static analysis on a text-based description of procedural steps of a management procedure that includes comparing the text-based description of procedural steps to a database of predetermined structures for managing the at least one operational parameter of the network to verify that the procedural steps of the management procedures conform to the predetermined structures, and compiles the verified text-based description of procedural steps of the management procedure into machine-readable data.

11. The system as claimed in claim 8, wherein the data relating to a procedure for managing the at least one operational parameter of the network entity is stored in a binary format file.

12. The system as claimed in claim 8, wherein the data relating to a procedure for managing the at least one operational parameter of the network entity is stored in a text file.

13. The system as claimed in claim 8, wherein the data relating to a procedure for managing the at least one operational parameter of the network entity is stored in a database file.

14. The system as claimed in claim 9, further comprising a Web browser.

15. A method of manufacturing a Web based management engine, the method comprising the steps of:

performing a static analysis by retrieving a predetermined data structure for managing at least one operational parameter of a network entity and comparing a text-based description of procedural steps of management procedures for the network entity to the predetermined data structure to verify that the procedural steps conform to the predetermined data structure,

translating the verified text-based description of procedural steps of the management procedures into a machine readable format,

storing the translated management procedures in a machine readable file, the machine readable file corresponding to at least one Web page, and

combining a Web server and web page generator to form an adapted Web server that translates the content of the machine readable file into at least one Web page for transmission by the adapted Web server,

wherein the web page generator generates a set of linked web pages in response to a request to carry out a procedure, wherein each Web page of the set of linked web pages being based upon the data stored in a data store and corresponding to at least one step in a procedure to manage at least one operational parameter of a network entity.

16. The method of claim 15, wherein the machine readable file is in a binary format that includes a tree-structured syntax used when generating the set of linked web pages.

17. The method of claim 15, wherein the predetermined data structure is an MIB.

* * * * *

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U.S. PATENT: *7,609,677*

ISSUE DATE: *October 27, 2009*

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and Director of the United States Patent and Trademark Office

SYLVIA HOLLEY

Certifying Officer

US007609677B2

(12) **United States Patent**
Mitjana et al.

(10) **Patent No.: US 7,609,677 B2**
(45) **Date of Patent: Oct. 27, 2009**

(54) **INTERNET PROTOCOL BASED INFORMATION TRANSMISSION IN A RADIO COMMUNICATION SYSTEM**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 284 days.

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(51) **Int. Cl.**
H04Q 7/00 (2006.01)

(52) **U.S. Cl.** **370/333**; 370/328; 370/331; 370/332

(58) **Field of Classification Search** 370/380, 370/401, 328, 355, 474, 333, 331, 332
See application file for complete search history.

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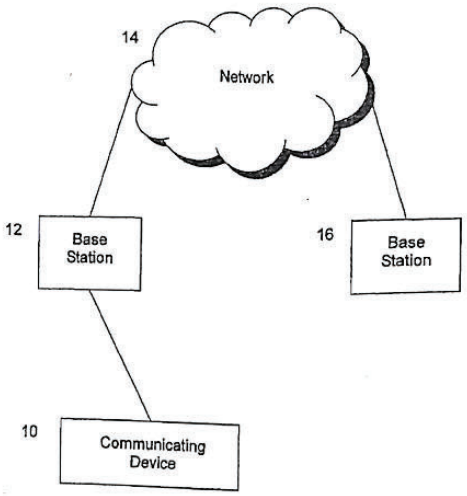
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(74) *Attorney, Agent, or Firm*—Staas & Halsey LLP

(57) **ABSTRACT**

Information is transmitted in a communication system having at least two communicating devices using a link between the at least two communicating devices provided at least via a radio communication interface of a radio communication system having a number of base stations that are interlinked via a base station network. The link is realized using channels arranged in hierarchical protocol layers. Channel-specific information is given to a hierarchical higher channel at least from one channel for the radio link between a communicating device and at least one base station. This hierarchically higher channel is an Internet protocol-based channel for the overall link between the at least two communicating devices.

16 Claims, 2 Drawing Sheets



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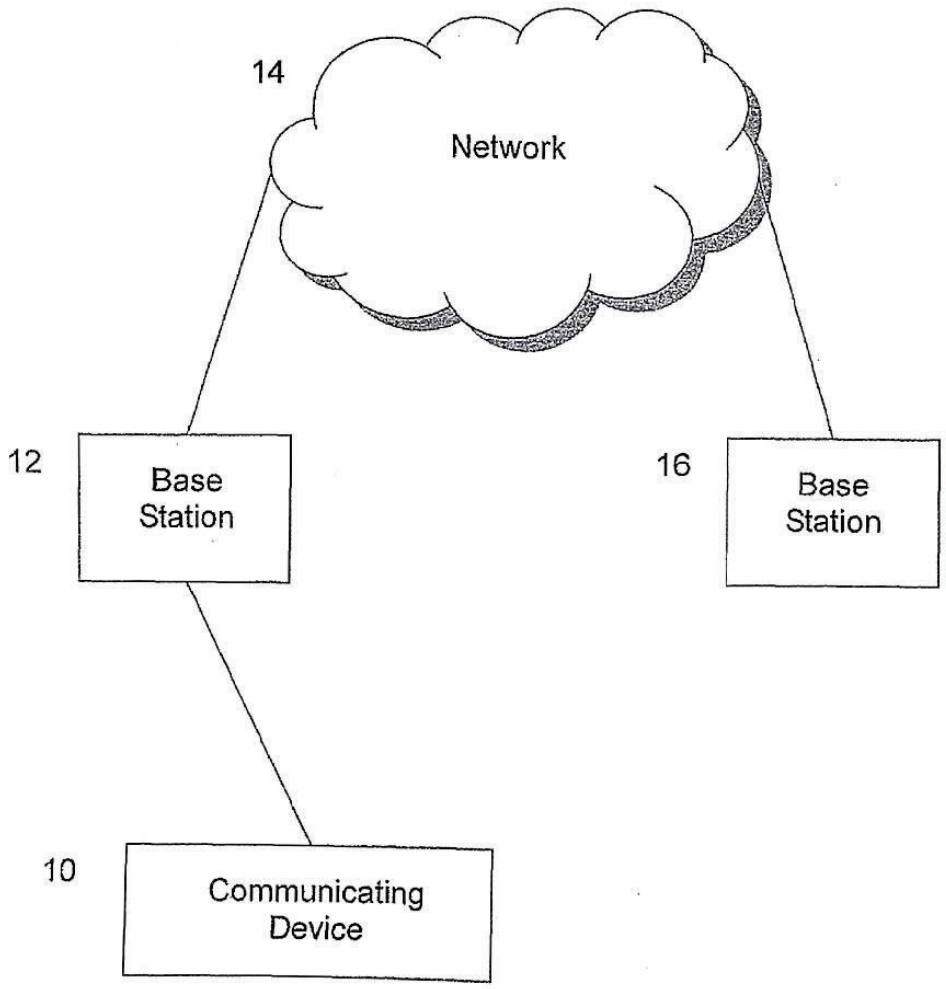
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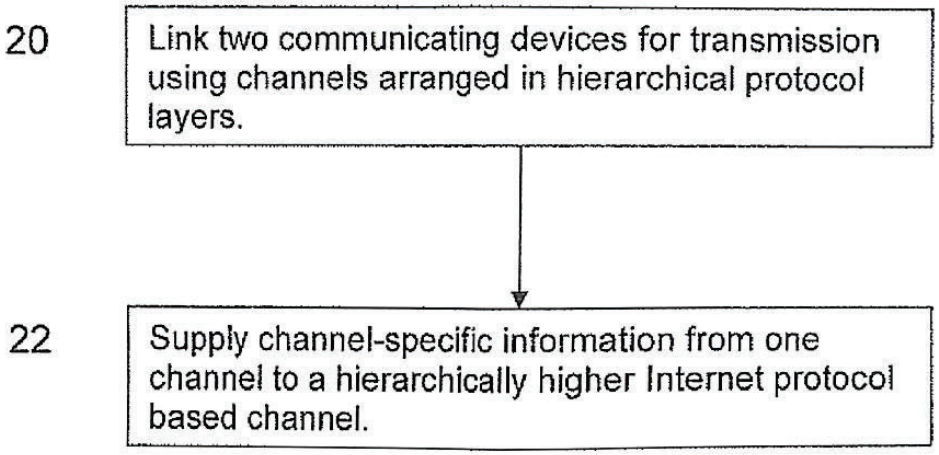
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Figure 1:



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Figure 2:



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INTERNET PROTOCOL BASED INFORMATION TRANSMISSION IN A RADIO COMMUNICATION SYSTEM

CROSS REFERENCE TO RELATED APPLICATION

This application is based on and hereby claims priority to European Application No. 020 06 022.4 filed on Mar. 15, 2002, the contents of which are hereby incorporated by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to a method for transmitting information in a communication system with at least two communicating devices.

2. Description of the Related Art

Communication systems are becoming increasingly important not only in the commercial but also in the private sector. Strenuous efforts are being made to link cable-based communication systems with radio communication systems. The resulting hybrid communication systems are bringing about an increase in the number of available services, but also allow greater flexibility on the communications side. Thus devices are being developed which can use different systems (multi homing).

In this context, radio communication systems are acquiring great importance because of the user mobility which they allow.

In radio communication systems, information (e.g. voice, image information, video information, SMS [Short Message Service] or other data) is transmitted across a radio interface between transmitting and receiving station (base station or user station) using electromagnetic waves. These electromagnetic waves are emitted using carrier frequencies within the frequency band provided for the relevant system.

For the introduced GSM system (Global System for Mobile Communications), frequencies in the 900, 1800 and 1900 MHz range are used. These systems basically transmit voice, fax and short messages (SMS) as well as digital data.

For future mobile communication systems employing CDMA or TD/CDMA transmission, such as UMTS (Universal Mobile Telecommunication System) or other third-generation systems, frequencies in the frequency band around 2000 MHz are envisioned. These third-generation systems are being developed with the objectives of worldwide radio coverage, a large range of services for data transmission and above all flexible management of the capacity of the radio interface, which is the interface with the least resources in radio communication systems. With these radio communication systems, it is to be possible above all, through flexible management of the radio interface, to enable the user station to transmit and/or receive a large amount of data at a high data rate.

In these radio communication systems, access by stations to the common radio resources of the transmission medium, such as time, frequency, power or space, will be controlled by multiple access (MA).

With time division multiple access (TDMA), each transmit and receive frequency band is subdivided into time slots, one or more cyclically repeated time slots being assigned to the stations. The radio resource "time" is separated by TDMA on a station-specific basis.

With frequency division multiple access (FDMA), the entire frequency range is subdivided into narrowband ranges, one or more narrow frequency bands being assigned to the stations. The radio resource "frequency" is separated by FDMA on a station-specific basis.

With code division multiple access (CDMA), the power/information to be transmitted is encoded on a station-specific basis by a spreading code including a large number of individual so-called chips, which means that the power to be transmitted is randomly spread over a large frequency range according to the code. The spreading codes used by different stations within a cell/base station are each mutually orthogonal or essentially orthogonal, which means that a receiver detects the signal power assigned to it and suppresses other signals. The radio resource "power" is separated by the spreading code on a station-specific basis by CDMA.

In the case of orthogonal frequency division multiplexing (OFDM), the data is transmitted wideband, the frequency band being subdivided into equidistant, orthogonal subcarriers so that the simultaneous phase offset of the subcarriers clamps a two-dimensional data flow in the time-frequency domain. The radio resource "frequency" is separated by orthogonal subcarriers on a station-specific basis by OFDM. The aggregated data symbols transmitted on the orthogonal subcarriers during a time unit are termed OFDM symbols.

The multiple access methods can be combined. For example, many radio communication systems use a combination of TDMA and FDMA, each narrow band of frequencies being subdivided into time slots.

For the UMTS mobile communication system mentioned, a distinction is drawn between so-called FDD (frequency division duplex) mode and TDD (time division duplex) mode. TDD mode is particularly characterized by the fact that a common frequency band is used both for signal transmission in the uplink (UL) direction and in the downlink (DL) direction, whereas FDD mode uses a different frequency band in each case for both transmission directions.

In second and/or third-generation radio communication links, information can be transmitted on a circuit switched (CS) or packet switched (PS) basis.

For information transmission, the two or more communicating devices are linked at least via a radio communication interface of a radio communication system having a plurality of base stations interlinked via a base station network, the link being implemented on the basis of channels arranged in hierarchical protocol layers. These layers are described e.g. in the ISO/OSI reference model which was created for extensive standardization of communication systems.

Generally there is a mobile terminal as the communicating device on one side of the radio interface and, on the other side, a base station connected to a core network via the base station network. These have a uniform function, but may have different designations depending on the technical system, such as BTS (base transceiver station) in the GSM system, Node B in the UMTS system or AP (access point) in the HIPERLAN/2 system.

Modern mobile communication systems such as GPRS (General Packet Radio Service) or UMTS are based on proprietary protocols in order to be able to provide a high degree of mobility. This leads to disadvantages particularly in hybrid communication systems which are composed of independently operating communication systems. The proprietary radio communication protocols are not IP (Internet protocol) transparent. Because of the different types of protocols, an Internet protocol based end to end connection is not therefore possible.

Even if an Internet protocol based channel is used for the overall link between two communicating devices of a communication system which are communicating with one

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another across a radio communication interface, there are still disadvantages because of the protocol structures.

Thus a radio link from a base station to a mobile terminal across the radio interface will possibly be kept in a certain radio channel (e.g. frequency), even though a better quality radio link could be ensured in another available radio channel (e.g. using another frequency). Add to this the problem of the possibly large time invariance of the radio link.

SUMMARY OF THE INVENTION

An object of the present invention is therefore to disclose a method and a communications system of the abovementioned type by which communication can be improved, the quality of the radio link having to be taken into account as far as possible.

According to the invention, for the radio link between a communicating device and at least one base station, information is supplied at least from one channel on a channel-specific basis to a hierarchically higher channel which is an Internet protocol based channel for the overall link between the two or more communicating devices.

Within the scope of the present invention, the channel specific-information includes in particular layer-specific information which, e.g. according to the ISO/OSI model, is not intended for forwarding and/or processing at higher layers, but is used only for information in the same and/or possibly lower layers. The invention therefore means a certain break with the strict system architecture of the protocol layers, the information to be forwarded to hierarchically higher channels or layers being primarily Layer 1 and/or Layer 2 information as defined in the ISO/OSI model. The hierarchically higher channel or channels to which the information is transmitted according to the invention from hierarchically subordinate channels mainly relate to Layer 4 or higher layers in accordance with the ISO/OSI model.

By delivering the channel-specific information to one or more hierarchically higher channels, it is possible to operate proactively in the hierarchically higher layer so that altogether the communication system is provided with a fast and effective way of keeping or setting up the best link if, for example, indications of quality impairments in respect of the radio link are present.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and/or other aspects and advantages of the invention will become apparent, and more readily appreciated from the following description of the preferred embodiments, taken in conjunction with accompanying drawings of which:

FIG. **1** illustrates an example communication system; and

FIG. **2** illustrates a method of transmitting information in the example communication system.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. **1** illustrates an example communication system which may be used with one or more of the following embodiments, while FIG. **2** illustrates a method of transmitting information in the example communication system. In one embodiment of the invention, specific information about the physical radio link between a communicating device **10** and at least one base station **12** is supplied from a bit transmission channel to the hierarchically higher Internet protocol based

channel (operations **20** and **22** in FIG. **2**). This means that Layer 1 information is transmitted to higher layers.

An additional or alternative possibility is for channel-specific information to be supplied to the hierarchically higher Internet protocol based channel from a data link layer channel for ensuring the radio link between a communicating device **10** and at least one base station **12**. With this measure, Layer 2 information is transmitted to higher layers, the data link layer being decomposable, for example, into the sublayers medium access control (MAC), radio link control (RLC), packet data convergence protocol (PDCP) and broadcast/multicast control (BMC).

The information supplied to hierarchically higher channels can basically encompass and contain all suitable information. In particular, parameter information in respect of the radio link between communicating device **10** and base station can **12** be communicated to higher layers. In particular, this relates to information regarding the quality of service (QOS) of the radio link, the parameter information possibly containing in particular test results—e.g. from radio channel quality measurements.

However, the information can also relate to calculations from information in respect of the radio link between communicating device **10** and base station **12**, this applying particularly to calculations taking place at Layer 1 and/or for Layer 1.

The information can advantageously relate to control information regarding the radio link between communicating device **10** and base station **12**, in particular information from the RLC layer being communicable.

In a development of the invention, an Internet protocol based channel is used for the link between the two or more communicating devices in accordance with SCTP protocol. This SCTP (stream control transmission protocol) relates to a recently developed technology for transporting signaling messages over IP-based cable networks. Its use in conjunction with radio communication networks has not so far been envisioned. Surprisingly, however, it has also been shown that this protocol can be advantageously used for radio communication networks.

In contrast to other Internet protocol communications such as TCP/IP, SCTP allows one or more further IP address pairs via which other physical links could be immediately activated to be reserved in addition to the pair of IP addresses active in the physical link. In the event of interference or interruption to communications, a much faster changeover to an alternative physical link can therefore be performed.

Thus, for example, in a mobile terminal which is connected e.g. to an Internet server via the radio interface and the associated core network **14**, a number of IP addresses can be allocated via which a link can be established if necessary.

Within the scope of the invention, various access networks with a radio communication interface can be used, the different radio communication systems being employed additively or alternatively. The different access networks can be, for example, a UMTS system, a GSM system and/or a WLAN system (wireless LAN—local area network). In particular the WLAN system can be specified according to the HIPERLAN/2 standard, the IEEE 802.11a standard or the HiSWAN-A standard.

In a development of the invention, a changeover in respect of at least one multiple access medium and/or a handover is initiated on the basis of the information supplied to hierarchically higher channels. Thus, for example, on the basis of the transmitted information, the frequency, time slot and/or code used can be changed. In the case of a handover, all known

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types of the handover can be initiated, such as the variants known as so-called hard (break-before-make) or soft (make-before-break) handover.

With the communication system according to the invention for implementing the described method, means are provided for transmitting channel-specific information for the radio link between a communicating device **10** and at least one base station **12** from one channel to a hierarchically higher channel which is an Internet protocol based channel for the overall link between the two or more communicating devices.

In addition, further means for performing the appropriately modified method described above can be present in the communication system.

The advantages of the invention will now be explained in greater detail with reference to three examples:

On the basis of the invention it can be ensured that the best radio link always exists. Thus, for example, it is possible, in a scenario where a mobile terminal (such as communicating device **10**) is in visual contact with a plurality of base stations (such as base stations **12** and **16**), to change between different links, taking into account the quality of the individual links. For example, in a conference room with coverage by two stations a laptop can switch over the link from one base station to the other if, for example, a person is standing between laptop and the initially active base station and thus the initial link (line of sight) is interrupted or impaired.

A similar changeover can take place for handover between different base stations of the same technical radio communication system. If, for example, a radio link is deteriorating, the mobile station can initiate an IP address change before the link breaks up completely.

A handover between base stations belonging to different radio communication systems is also possible. For example, one base station can belong to the UMTS network and another base station can be part of a WLAN network. A changeover can be initiated here, for example, because of the quality of the link, because of network-specific characteristics of the different network links such as different costs and/or because of network-specific availabilities of special services.

The invention results in improved performance while at the same time reducing the signaling complexity and therefore also reducing interference.

Essentially, in conjunction with the inventive communication of the channel-specific information to hierarchically higher channels, knowledge acquired in connection with the publicly sponsored projects BRAIN and MIND can be used. This relates particularly to the so-called IP_2W interface (IP to wireless interface).

The invention claimed is:

1. A method for transmitting information in a communication system with at least two communicating devices, comprising:

linking the at least two communicating devices for transmission of the information at least via a radio communication interface of a radio communication system having base stations interlinked via a base station network, said linking using channels arranged in hierarchical protocol layers;

supplying channel-specific information, at least from one channel for a radio link between one of the communicating devices and at least one base station, to a hierarchically higher Internet protocol based channel for an overall link between the at least two communicating devices; and

initiating at least one of a changeover in respect of at least one multiple access medium and a handover based on the channel-specific information supplied from the channel for the radio link to the hierarchically higher Internet protocol based channel for the overall link.

2. A method according to claim **1**, wherein said supplying sends the channel-specific information to the hierarchically higher Internet protocol based channel via a bit transmission channel to provide specific information about a physical radio link between the one of the communicating devices and the at least one base station.

3. A method according to claim **2**, wherein said supplying supplies the channel-specific information to the hierarchically higher Internet protocol based channel via a data link layer channel to ensure the radio link between the at least one of the communicating devices and the at least one base station.

4. A method according to claim **2**, wherein the channel-specific information relates to parameter information about the radio link between the at least one of the communicating devices and the at least one base station.

5. A method according to claim **2**, wherein the channel-specific information relates to calculations on data relating to the radio link between the at least one of the communicating devices and the at least one base station.

6. A method according to claim **3**, wherein the channel-specific information is control information related to the radio link between the at least one of the communicating devices and the at least one base station.

7. A method according to claim **1**, wherein said linking further uses an Internet protocol based channel between the at least two communicating devices in accordance with a stream control transmission protocol.

8. A method according to claim **7**, wherein said linking uses different access networks to provide the radio communication interface.

9. A communication system, comprising:

at least two communicating devices;

base stations;

a base station network interlinking said base stations;

means for transmitting channel-specific information at least from one channel for a radio link between one of said communicating devices and at least one of said base stations to a hierarchically higher Internet protocol based channel for an overall link between said communicating devices; and

means for initiating at least one of a changeover in respect of at least one multiple access medium and a handover based on the information transmitted by said transmitting means from the channel for the radio link to the hierarchically higher Internet protocol based channel for the overall link.

10. A communication system according to claim **9**, wherein said transmitting means sends the channel-specific information to the hierarchically higher Internet protocol based channel via a bit transmission channel to provide specific information about a physical radio link between the one of said communicating devices and the at least one of said base stations.

11. A communication system according to claim **10**, wherein said transmitting means supplies the channel-specific information to the hierarchically higher Internet protocol based channel via a data link layer channel to ensure the radio link between the one of said communicating devices and the at least one of said base stations.

12. A communication system according to claim **10**, wherein the channel-specific information relates to parameter information about the radio link between the one of said communicating devices and the at least one of said base stations.

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13. A communication system according to claim 11, wherein the channel-specific information relates to calculations on data relating to the radio link between the one of said communicating devices and the at least one of said base stations.

14. A communication system according to claim 11, wherein the channel-specific information is control information related to the radio link between the one of said communicating devices and the at least one of said base stations.

15. A communication system according to claim 10, wherein said linking further uses an Internet protocol based channel between said at least two communicating devices in accordance with a stream control transmission protocol.

16. A communication system according to claim 15, further comprising different access networks providing the radio communication interface.

* * * * *

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FORM 30. Certificate of Service **Form 30**
July 2020

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Case Number 2022-1957

Short Case Caption Q3 Networking LLC v. ITC

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Case Number: 2022-1957

Short Case Caption: Q3 Networking LLC v. ITC

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