HUAWEI WLAN Products Portfolio

HUAWEI TECHNOLOGIES CO., LTD.

HUAWEI

HUAWEI WLAN Products Portfolio

Huawei AC6005 Brochure-Detailed

Huawei AC6005 is a small box wireless Access Controller (AC) that offers large capacity with high performance. Designed for small- to medium-sized enterprises, the AC6005 is highly reliable and easy to install and maintain. By providing uniform forwarding, control, and policies for wired and wireless data, the AC6005 helps enterprises build a wired and wireless converged network.

The AC features good scalability and offers considerable flexibility in configuring the number of managed APs. When used with Huawei's latest-generation 802.11ac and 802.11n APs, the AC6005 delivers an adaptable office and campus networking solution for small-to-medium enterprises and branches by extending wireless Metropolitan Area Network (MAN) and hotspot coverage. Huawei offers two AC6005 models: the AC6005-8 and the AC6005-8-PWR with PoE support.

Multiple port support

- The AC6005 provides multiple port types to support diverse application scenarios:
- Eight GE ports
- One RJ-45 serial port
- One mini-USB serial port

Large-capacity, high-performance design with proven reliability

- Efficient and scalable: one AC manages up to 128 APs
- Eight GE ports and 4 Gbit/s forwarding capability
- Full PoE on eight ports: powers connected Access Points (APs) or other Powered Devices (PDs)
- Port backup using Link Aggregation Control Protocol (LACP) or Multiple Spanning Tree Protocol (MSTP)

Easy to install and easy to maintain

- Convenient size (320 mm x 233.6 mm x 43.6 mm): small enough to fit a standard cabinet or on a desk
- Built-in web platform for local GUI-based management
- Easy management on eSight with various northbound ports
- Intra-board temperature probe for monitoring the operating environment of the AC in real time

Dynamic energy management

- Low-noise fans dynamically adjust to load changes to keep equipment noise and power consumption low.
- Automatic power-saving mode engages during idle operation (when no peer device is connected).
- Highly integrated, energy-saving design provides even higher performance and lower power consumption when coupled with an intelligent device management system.

Advanced Network Features

- Application scenarios: small- to medium-sized enterprises and branches
- Scalable licensing options
- Flexible networking and forwarding
- Compatibility with IEEE 802.11a/b/g/n/ac
- Comprehensive user policy management and authorization controls
- Secure and reliable 1+1 hot backup and N+1 backup
- Centralized user authentication
- 4 Gbit/s forwarding capability, the largest in the industry among competing products
- Graphics-based, real-time, and efficient WLAN network management and monitoring for optimum network performance
- IPv6 support

Typical Networking

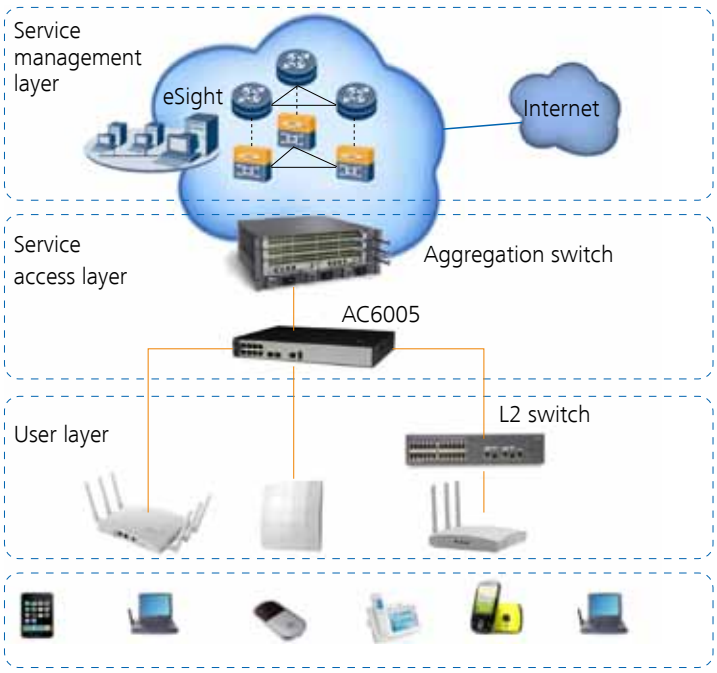
The AC6005 can be deployed in inline, bypass, Wireless Distribution System (WDS), or Wireless Mesh Network (WMN) mode.

1. Inline Networking

In inline networking, APs or access switches directly connect to the AC6005, which functions as both an AC and an aggregation switch to forward and process data and management services for the APs.

In this scenario, the AC6005 sets up Control and Provisioning of Wireless Access Points (CAPWAP) tunnels with the APs for configuration and management. Service data from wireless users can be forwarded between APs and the AC6005 over CAPWAP data tunnels or be directly forwarded by the APs.

Direct forwarding is typically used with small- to medium-sized and centralized WLANs in inline networking scenarios to simplify network architecture.

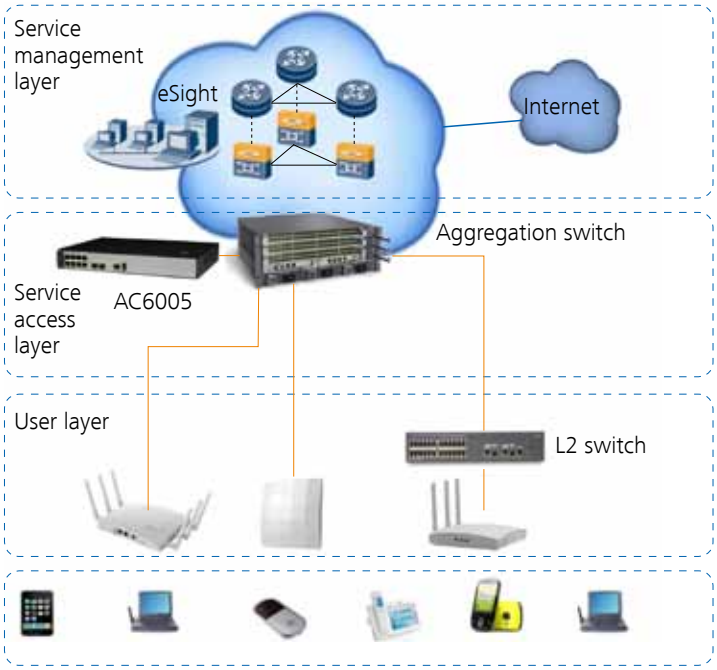


The AC6005 provides powerful access, aggregation, and switching capabilities and can provide PoE/PoE+ connections to APs.

2. Bypass Networking

In bypass networking, the AC6005 connects to a network device (usually an aggregation switch) to manage APs. The AC6005 manages all APs connected to the aggregation switch. Management flows are transmitted in CAPWAP tunnels. Data flows can be forwarded by the AC over CAPWAP tunnels or forwarded to the upper layer network by the aggregation switch without passing through the AC6005.

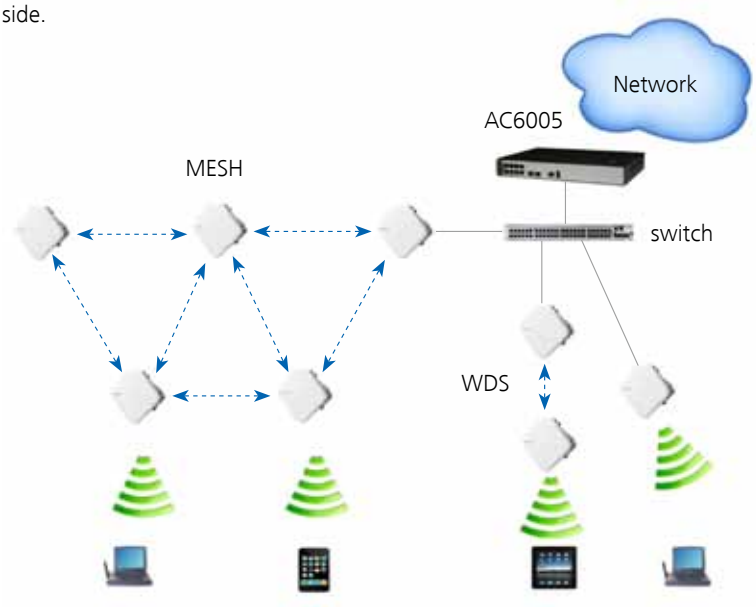
This network topology works well where APs are scattered across hotspots.



Bypass mode deployments require only a small modification to the existing network. You can select direct forwarding or tunnel forwarding mode according to networking requirements. Because tunnel forwarding is commonly used for overlay network deployments, Huawei recommends tunnel forwarding for most enterprise networks.

3. WDS and Mesh Networking

The WDS and WMN modes allow multiple APs to be connected wirelessly in a distributed system that extends the range of wireless network coverage. The WDS and Mesh networks connect to an AC through a switch, and the AC connects to the network through a network device, such as a gateway or an aggregation switch. The WDS and Mesh networks connect to user stations (STAs) or PCs on the user side.



WDS and Mesh networking modes are used to expand outdoor wireless coverage areas.

Product Features

Feature	Description
Scalability	Huawei AC6005 provides licenses for managing 1 or 8 APs. You can purchase multiple licenses for the AC6005 to manage 1 to 128 APs.
Flexible networking	The AC and APs can be connected across a Layer 2 or Layer 3 network. In addition, Network Address Translation (NAT) can be deployed in scenarios where APs are deployed on an internal network and the AC is located on an external network. Services can be mapped between VLANs and Service Set Identifiers (SSIDs). The number of service VLANs and SSIDs can be in a ratio of 1:1 or 1:N, based on service requirements. VLANs are assigned to users based on SSIDs, physical location, or services. The AC can be deployed in inline or bypass mode. The bypass networking mode requires a small modification to the existing network and is easy to deploy. WDS and Mesh networking expand outdoor wireless network coverage.
Flexible forwarding	The AC6005 allows you to easily configure local or centralized forwarding on Virtual Access Point (VAP) settings according to network traffic and service control requirements. Centralized forwarding meets the requirements of most network configurations; however, when bandwidth demands from users connected to the same AP steadily increase, traffic switching loads will increase. Local forwarding reduces the network burden and improves bandwidth efficiency, but the AC does not provide unified user authentication and authorization. The AC6005 solves this problem with support for both local forwarding and centralized authentication to accommodate changing needs.
Radio management	The AC6005 automatically selects and calibrates radio parameters in AP regions. • APs automatically select working channels and power when they go online. • In overlapping areas, APs automatically adjust working channels and power in the event of signal interference. • When an AP is removed or goes offline, the AC6605 increases the power of neighboring APs to compensate for the coverage hole.
Flexible user rights control	The AC6005 uses Access Control Lists (ACLs) based on APs, VAPs, or SSIDs, and provides isolation and bandwidth-limiting. The AC6005 also provides access controls for users and user roles to meet enterprise requirements regarding permissions, authentication and authorization, as well as bandwidth limitations per user and user group. • The AC6005 implements per-user access control based on ACLs, VLAN IDs, and bandwidth limits sent from the RADIUS server. • User groups are defined with access control policies. An ACL, user isolation policy, and bandwidth limitations can be applied to user groups for additional access control. Inter-group user isolation or intra-group user isolation can also be configured.
WDS	The AC6005 provides STA access and wireless bridge management functions, as well as network bridge management in Fit AP mode. The AC6005 supports the following networking modes: point-to-multipoint bridging, single-band/dual-band multi-hop relay, dual-band WDS bridging + WLAN access, and single-band WDS bridging + WLAN access. The AC6005 can also function as a wireless bridge between a central campus network and multiple branch campus networks. This configuration works well for deployments with no wired network or where cable routing is inconvenient.

Feature	Description
High reliability	Two AC backup modes are available: • Dual-link + Hot Standby Backup (HSB): Multiple ACs can be configured on a network to increase WLAN reliability. If an active AC experiences a fault or the link between the active AC and APs disconnects, the APs can switch to a standby AC. HSB + Virtual Router Redundancy Protocol (VRRP) backs up information on the active AC to the standby AC. When the active AC fails or the link is disconnected, the standby AC takes over services of the active AC. • N+1 backup: The AC6005 supports N+1 backup, which allows multiple active ACs to share the same standby AC. This feature provides high reliability at reduced cost.
Load balancing	• Inter-AP load balancing: When a STA is in the coverage area of multiple APs, the AC6005 connects the STA to the AP with the lightest load, delivering STA quantity-based or traffic-based load balancing. • Inter-STA resource balancing: The AC6005 can dynamically and evenly allocate bandwidth resources to prevent some STAs from overusing available bandwidth due to network adapter performance or special applications, such as BT Total Broadband. • 5-G prior: STAs preferentially access the 5 GHz radio to increase the overall air port resource usage efficiency.
Visualized WLAN network management and maintenance	The AC6005 and APs use Fit AP + AC networking and standard Link Layer Discovery Protocol (LLDP) for centralized AP management and maintenance. When paired with Huawei eSight, the AC6005 offers unified graphics-based management, operation, and maintenance for wired and wireless networks.

Performance Indicators

Item	Specifications
Technical specifications	Dimensions (W x D x H): 320 mm x 233.6 mm x 43.6 mm Maximum weight (standard configuration): 2.9 kg Operating temperature: –5°C to 50°C Storage temperature: –40°C to 70°C Humidity: 5% RH to 95% RH (non-condensing) AC input voltage: 100 V AC to 240 V AC, 50/60 Hz (Rated voltage) 90 V AC to 264 V AC, 47 Hz to 63 Hz (Maximum voltage) Maximum power consumption:163.6 W (device power consumption: 39.6 W, PoE: 124 W)
Port type	Eight electrical GE ports, among which the last two are used with two optical ports as combo ports One RJ-45 serial port One mini-USB serial port
Maximum number of managed APs	128

Feature	Description
Number of APs controlled by each license	1 or 8
Number of supported access users	Entire device: 2K
Number of Extended Service Set Identifiers (ESSIDs)	1K
User group management	The AC supports 128 user groups: • Each user group can reference a maximum of eight ACLs. • Each user group can associate with a maximum of 128 ACL rules.
Number of MAC addresses	4K
Number of VLANs	4K
Number of ARP entries	4K
Number of routing entries	4K
Number of multicast forwarding entries	4K
Number of DHCP IP address pools	128 IP address pools, each of which contains a maximum of 16K IP addresses

Product Specifications

Item	Descriptions
Network management and maintenance	Device management and statistics • Command line management based on SSH/Telnet/Console • SNMPv2/v3 • Web-based management • Standard Management Information Bases (MIBs) and Huawei proprietary MIBs • Syslog • AP and station statistics • Alarms with different severities Centralized AP configuration and management • Region-based AP management • Centralized version management and automatic file load • Default AP types and self-defined AP types Visualized AP deployment and topology displays • AP LLDP • AC LLDP

Feature	Description
Wireless protocols	IEEE 802.11a, 802.11b, 802.11g, 802.11d, WMM/802.11e, 802.11h, 802.11n, and 802.11ac
WLAN deployment	AP-AC networking • AP-AC Layer 2/3 networking • AC Layer 2 forwarding or Layer 3 routing • NAT traversal (APs are deployed on a private network and ACs are deployed on a public network) Data forwarding • AP-AC CAPWAP tunnel and DTLS encryption • VAP-based forwarding (centralized forwarding and local forwarding) • Centralized authentication and local forwarding VLAN deployment • Mapping between SSIDs and VLANs and VLAN assignment based on SSIDs or physical locations • WDS deployment • Point-to-point and point-to-multipoint • Automatic topology detection and loop prevention: Spanning Tree Protocol (STP) AC active/standby mode • Dual-link or Virtual Router Redundancy Protocol (VRRP) backup • N+1 backup • 1+1 hot backup
Radio management	Channel and power configuration • Centralized or static channel and power configuration • Automatic channel allocation to implement global or partial radio calibration • Automatic power adjustment to compensate for coverage holes • AP region-based configuration and management Load balancing • Load balancing based on traffic volume • Load balancing based on the number of users
Wireless service control	Extended Service Set (ESS)-based service management • ESS-based SSID hiding and AP isolation at Layer 2 • Maximum number of access users and associated aging time settings in an ESS • ESS-to-service VLAN mappings • ESS associations with a security profile or a QoS profile • Optional Internet Group Management Protocol (IGMP) for APs in an ESS Wireless roaming • Layer 2 roaming • Inter-VLAN Layer 3 roaming • Pairwise Master Key Caching (PMK) caching, fast key negotiation • Inter-AC roaming DHCP service control • Built-in DHCP server • DHCP snooping on APs • DHCP relay and DHCP snooping on the AC Multicast service management • IGMP snooping • IGMP proxy

Feature	Description
Wireless user management	WLAN user management • User blacklist and whitelist • User access number limit • Forced user logout • Multiple queries, including online user information and statistics User group management • ACLs based on user groups • Isolation based on user groups (user isolation in a group or between groups)
Wireless security and authentication	Authentication and encryption • OPEN/WEP/PSK/WPA (2) + 802.1x • WEP/TKIP/AES (CCMP) • WAPI User authentication and control • MAC address authentication, Portal authentication, and 802.1x authentication • Built-in Portal authentication and authentication page customization • MAC + Portal authentication • PEAP/TLS/MD5/CHAP/PAP/TTLS Security and defense • ACLs based on ports, users, and user groups • Isolation based on VAPs and user groups • IPSec • IP source guard for STAs • Rogue AP detection and alarm function • User blacklist and whitelist AAA • Local authentication/local accounts (MAC addresses and accounts) • RADIUS authentication • Multiple authentication servers
Wireless QoS control	Flow control: • VAP-based rate limiting • User-group-based rate limiting • Rate limiting for a specified user • Dynamic traffic control, preventing resources from being wasted by STAs Priority mapping and scheduling • WMM, 802.1p, and DSCP • WMM and QoS mapping for user packets and tunnel packets • QoS priority settings and mapping for CAPWAP tunnel packets
Ethernet features	802.1p, QinQ, Smart Link, and LLDP Storm suppression, port isolation, and link aggregation
Ethernet loop protection	STP/Rapid Spanning Tree Protocol (RSTP)/Multiple Spanning Tree Protocol (MSTP) Bridge Protocol Data Unit (BPDU) protection, root protection, and loop protection Partitioned STP and BPDU tunnels Rapid Ring Protection Protocol (RRPP) Hybrid networking of RRPP rings and other ring networks

Feature	Description
IP routing	IPv4 dynamic routing protocols: RIP, OSPF, BGP, and IS-IS IPv6 dynamic routing protocols: RIPng, OSPFv3, BGP4+, and IS-IS IPv6
Device reliability	VRRP
QoS features	Traffic classifier, traffic behavior, queue scheduling, congestion avoidance, and outbound interface rate limiting
Link detection	BFD EFM OAM, CFM OAM, and Y.1731
IP service control	ARP Built-in DHCP server RADIUS client Built-in FTP server DHCP relay and DHCP snooping

Purchase and Accessory Information

	Part Number	Product Name	Description
Bundle	02356813	AC6005-8-PWR-8AP	AC6005-8-PWR-8AP Bundle(Including AC6005-8-PWR,Resource License 8AP,AC 110/220V)
Bundle	02356816	AC6005-8-8AP	AC6005-8-8AP Bundle(Including AC6005-8,Resource License 8AP,AC 110/220V)
License	88031VEB	L_AC6005_1AP	AC6005 Access Controller AP Resource License(1 AP)
License	88031VEA	L_AC6005_8AP	AC6005 Access Controller AP Resource License(8 AP)
Power supply	Please refer to the ordering guide for more information.		
Power cable			
Optical module			
Optical connector			
Network cable			
Ground bar			

Professional Service and Support

Huawei WLAN planning tools deliver expert network design and optimization services using the most professional simulation platform in the industry. Backed by fifteen years of continuous investment in wireless technologies, extensive network planning and optimization experience, as well as rich expert resources, Huawei helps customers:

- Design, deploy, and operate a high-performance network that is reliable and secure.
- Maximize return on investment and reduce operating expenses.

More Information

For more information, please visit http://e.huawei.com or contact your local Huawei office.

Enterprise Services

Product Overview

Marketing Documentation

Huawei AC6605-26-PWR Brochure-Detailed

Huawei AC6605-26-PWR is a high-performance wireless Access Controller (AC) with advanced features. By providing uniform forwarding, control, and policies for wired and wireless data, the AC6605 helps enterprises to build a wired and wireless converged network.
The AC6605 features good scalability and offers users considerable flexibility in configuring the number of managed APs. When used with Huawei's latest-generation 802.11ac and 802.11n APs, the AC6605-26-PWR delivers an adaptable solution for medium- to large-sized campus and enterprise office networks by extending wireless Metropolitan Area Network (MAN) and hotspot coverage.

Multiple port support

- Two 10GE optical ports
- 20 GE + four GE combo ports
- One RJ-45 serial port
- One RJ-45 network port
- One mini-USB serial port

Large-capacity, high-performance design with proven reliability

- Manages a maximum of 1024 APs and 10K STAs
- Backplane capacity of 128 Gbit/s with non-blocking data switching
- Port backup using Link Aggregation Control Protocol (LACP) or Multiple Spanning Tree Protocol (MSTP)
- Dual hot-swappable AC/DC power supplies

Easy to install and easy to maintain

- Convenient size (442 mm x 420 mm x 43.6 mm): small enough to fit a standard cabinet
- Hot swappable power supplies for easy maintenance
- Boolean port support for environmental monitoring and intra-board temperature probes for monitoring the AC operating environment in real time

Dynamic energy management

- Low-noise fans dynamically adjust to load changes to keep equipment noise and power consumption low.
- Automatic power-saving mode engages during idle operation (when no peer device is connected).
- Highly integrated, energy-saving design provides even higher performance and lower power consumption when coupled with an intelligent device management system.

Advanced Network Features

- Application scenarios: medium- to large-sized enterprises; campus and hospital networks
- Scalable licensing options
- Flexible networking and forwarding
- 128 Gbit/s switching capacity, eliminating the traffic -forwarding bottleneck at the WLAN core layer.
- Compatibility with 802.11a/b/g/n/ac
- Comprehensive user policy management and authorization controls
- Secure and reliable 1+1 hot backup and N+1 backup
- Graphics-based, real-time, and efficient WLAN management and maintenance for optimum network performance
- Power over Ethernet (PoE) power supply for up to 24 ports
- IPv6 support

Typical Networking

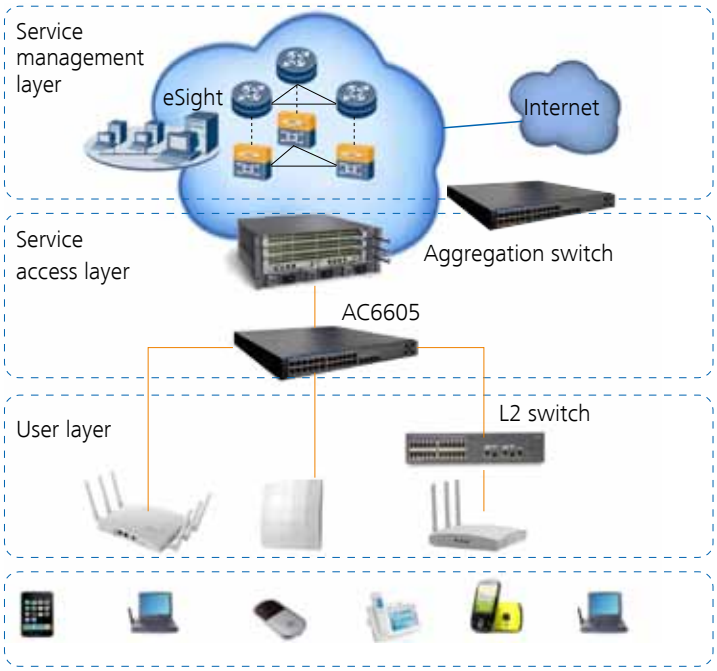
The AC6605-26-PWR can be deployed in inline, bypass, Wireless Distribution System (WDS), or Wireless Mesh Network (WMN) mode.

1. Inline Networking

In inline networking, APs or access switches directly connect to the AC6605, which functions as both an AC and an aggregation switch to forward and process data and management services for the APs.

In this scenario, the AC6605 sets up Control and Provisioning of Wireless Access Points (CAPWAP) tunnels with the APs for configuration and management. Service data from wireless users can be forwarded between APs and the AC6605 over CAPWAP data tunnels or be directly forwarded by the APs.

Direct forwarding is typically used with large-scale and centralized WLANs in inline networking scenarios to simplify network architecture.

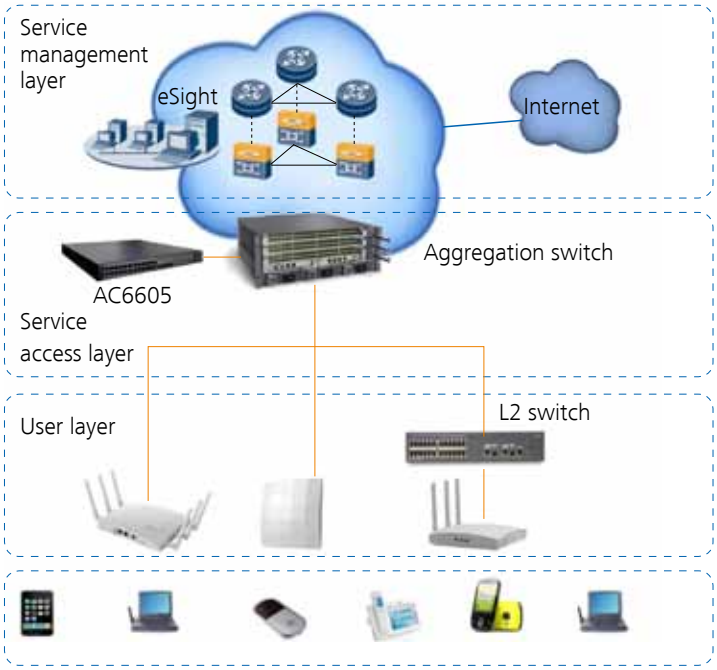


The AC6605 provides powerful access, aggregation, and switching capabilities and can provide PoE/PoE+ connections to APs.

2. Bypass Networking

In bypass networking, the AC6605 connects to a network device (usually an aggregation switch) to manage APs. The AC6605 manages all the APs connected to the aggregation switch. Management flows are transmitted in CAPWAP tunnels. Data flows can be forwarded by the AC over CAPWAP tunnels or forwarded to the upper layer network by the aggregation switch without passing through the AC6605.

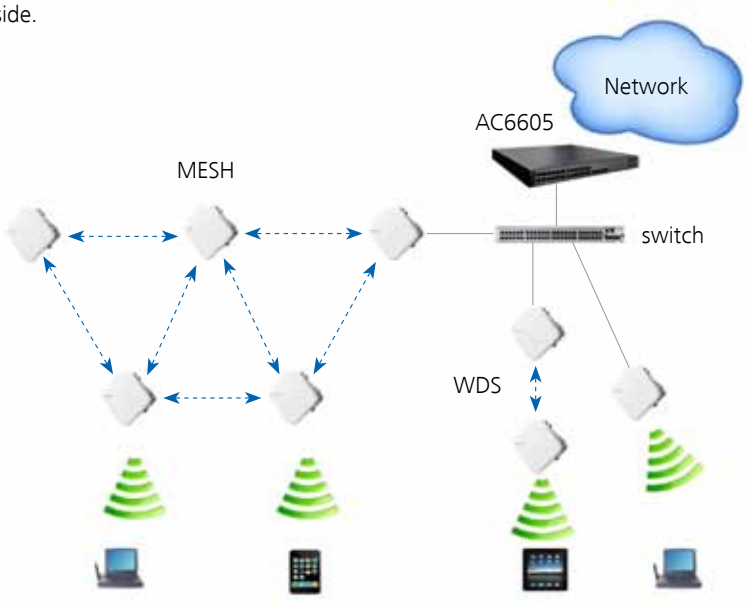
This network topology works well where APs are scattered across hotspots.



Bypass mode deployments require only a small modification to the existing network. You can select direct forwarding or tunnel forwarding mode according to networking requirements. Because tunnel forwarding is commonly used for overlay network deployments, Huawei recommends tunnel forwarding for most enterprise networks.

3. WDS and Mesh Networking

The WDS and WMN modes allow multiple APs to be connected wirelessly in a distributed system that extends the range of wireless network coverage. The WDS and Mesh networks connect to an AC through a switch, and the AC connects to the network through a network device, such as a gateway or an aggregation switch. The WDS and Mesh networks connect to user Stations (STAs) or PCs on the user side.



WDS and Mesh networking are used to expand outdoor wireless coverage areas.

Product Features

Feature	Description
Scalability	Huawei AC6605 provides licenses for managing 16, 64, or 128 APs. You can purchase multiple licenses for the AC6605 to manage 16 to 128 APs.
Flexible networking	The AC and APs can be connected across a Layer 2 or Layer 3 network. Network Address Translation (NAT) can be deployed in configurations where APs are deployed on an internal network and the AC is deployed on an external network. Services can be mapped between Virtual Local Area Networks (VLANs) and Service Set Identifiers (SSIDs). The number of service VLANs and SSIDs can be in a ratio of 1:1 or 1:N, based on service requirements. VLANs are assigned to users based on SSIDs, physical location, or services. The AC can be deployed in inline or bypass mode. Bypass mode requires a small modification to the existing network. The AC6605-26-PWR can provide full PoE power for up to 24 ports to support power-sourcing the APs from the AC.
Flexible forwarding	The AC6605-26-PWR allows you to easily configure local or centralized forwarding on Virtual Access Point (VAP) settings according to network traffic and service control requirements. Centralized forwarding meets the requirements of most network configurations; however, when bandwidth demands from users connected to the same AP steadily increase, traffic switching loads will increase. Local forwarding improves bandwidth efficiency, but the AC does not provide unified user authentication and authorization. The AC6605-26-PWR solves this problem with support for both local forwarding and centralized authentication to accommodate changing needs.
Radio management	The AC6605-26-PWR automatically selects and calibrates radio parameters in AP regions. • APs automatically select working channels and power when they go online. • In overlapping areas, APs automatically adjust working channels and power in the event of signal interference. • When an AP is removed or goes offline, the AC6605 increases the power of neighboring APs to compensate for the coverage hole.
Flexible user rights management	The AC6605-26-PWR uses Access Control Lists (ACLs) based on APs, VAPs, or SSIDs, and provides isolation and bandwidth-limiting. The AC AC6605-26-PWR also provides access controls for users and user roles to meet enterprise requirements regarding permissions, authentication, and authorization, as well as bandwidth limitations per user and user group. • The AC6605-26-PWR implements per-user access control based on ACLs, VLAN IDs, and bandwidth limits sent from the RADIUS server. • User groups are defined with access control policies. An ACL, user isolation policy, and bandwidth limitations can be applied to user groups for additional access control. Inter-group user isolation or intra-group user isolation can also be configured.
WDS	The AC6605-26-PWR provides STA access and wireless bridge management functions, as well as network bridge management in Fit AP mode. The AC6605-26-PWR supports the following networking modes: point-to-multipoint bridging, single-band/dual-band multi-hop relay, dual-band WDS bridging + WLAN access, and single-band WDS bridging + WLAN access. The AC6605-26-PWR can also function as a wireless bridge between a central campus network and multiple branch campus networks. This configuration works well for deployments with no wired network or where cable routing is inconvenient.

Feature	Description
High reliability	Two AC backup modes are available: • Dual-link + Hot Standby Backup (HSB): Multiple ACs can be configured on a network to increase WLAN reliability. If an active AC experiences a fault or the link between the active AC and APs disconnects, the APs can switch to a standby AC. HSB + Virtual Router Redundancy Protocol (VRRP) backs up information on the active AC to the standby AC. When the active AC fails or the link is disconnected, the standby AC takes over services of the active AC. • N+1 backup: The AC6605-26-PWR supports N+1 backup mode, which allows multiple active ACs to share the same standby AC. This feature provides high reliability at reduced cost.
Load balancing	• Inter-AP load balancing: When a STA is in the coverage area of multiple APs, the AC6605-26-PWR connects the STA to the AP with the lightest load, delivering STA quantity-based or traffic-based load balancing. • Inter-STA resource balancing: The AC6605-26-PWR can dynamically and evenly allocate bandwidth resources to prevent some STAs from overusing available bandwidth due to network adapter performance or special applications, such as BT Total Broadband. • 5-G prior: STAs preferentially access the 5 GHz radio to increase the overall air port resource usage efficiency.
Visualized WLAN network management and maintenance	The AC6605-26-PWR and APs use Fit AP + AC networking and standard Link Layer Discovery Protocol (LLDP) for centralized AP management and maintenance. When paired with Huawei eSight, the AC6605-26-PWR offers unified graphics-based management, operation, and maintenance for wired and wireless networks.

Performance Indicators

Item	Specifications
Technical specifications	Dimensions (W x D x H): 442 mm x 420 mm x 43.6 mm Weight: 5.48 kg Operating temperature: -5°C to 50°C Storage temperature: –40°C to 70°C Humidity: 5% to 95% (non-condensing) Input voltage: 100 V AC to 240 V AC, 50/60 Hz; -48 V DC to -60 V DC Maximum power consumption: 85 W
Port type	20 x GE electrical ports + 4 x combo ports + 2 x 10 GE ports Full PoE power for up to 24 ports One RJ-45 serial port One RJ-45 network port One mini-USB serial port Dual, hot-swappable AC/DC power supplies

Item	Specifications
Number of managed APs	16 to 1024 (an integer multiple of 16)
Number of APs controlled by each license	16, 64, or 128
Number of supported access users	Entire device: 10K
Number of Extended Service Set Identifiers (ESSIDs)	4K
User group management	The AC supports 128 user groups: • Each user group can reference a maximum of 8 ACLs. • Each user group can associate with a maximum of 128 ACL rules.
Number of MAC addresses	16K
Number of VLANs	4K
Number of ARP entries	8K
Number of routing entries	10K
Number of multicast forwarding entries	4K
Number of DHCP IP address pools	128 IP address pools, each containing a maximum of 16K IP addresses

Product Specifications

Feature	Description
Network management and maintenance	Device management and statistics • Command line management based on SSH/Telnet/Console • SNMPv2/v3 • Web-based management • Standard Management Information Bases (MIBs) and Huawei proprietary MIBs • Syslog • AP and station statistics • Alarms with different severities Centralized AP configuration and management • Region-based AP management • Centralized version management and automatic version file load • Default AP types and self-defined AP types Graphics-based AP deployment and topology displays • AP LLDP • AC LLDP

Feature	Description
Wireless protocols	IEEE 802.11a, 802.11b, 802.11g, 802.11d, WMM/802.11e, 802.11h, and 802.11n
WLAN deployment	AP-AC networking • AP-AC Layer 2/3 networking • AC Layer 2 forwarding or Layer 3 routing • NAT traversal (APs are deployed on a private network and ACs are deployed on a public network) Data forwarding • AP-AC CAPWAP tunnel and DTLS encryption • VAP-based forwarding (centralized forwarding and local forwarding) • Centralized authentication and local forwarding VLAN deployment • Mapping between SSIDs and VLANs and VLAN assignment based on SSIDs or physical locations WDS deployment • Point-to-point and point-to-multipoint • Automatic topology detection and loop prevention: Spanning Tree Protocol (STP) AC active/standby mode • Dual-link or VRRP backup • N+1 backup • 1+1 hot backup
Radio management	Channel and power configuration • Centralized or static channel and power configuration • Automatic channel allocation to implement global or partial radio calibration • Automatic power adjustment to compensate for coverage holes • AP region-based configuration and management Load balancing • Load balancing based on traffic volume • Load balancing based on the number of users
Wireless service control	Extended Service Set (ESS)-based service management • ESS-based SSID hiding and AP isolation at Layer 2 • Maximum number of access users and associated aging time settings in an ESS • ESS-to-service VLAN mappings • ESS associations with a security profile or a QoS profile • Internet Group Management Protocol (IGMP) support for APs in an ESS Wireless roaming • Layer 2 roaming • Inter-VLAN Layer 3 roaming • Pairwise Master Key (PMK) caching, fast key negotiation • Inter-AC roaming DHCP service control • Built-in DHCP server • DHCP snooping on APs • DHCP relay and DHCP snooping on the AC Multicast service management • IGMP snooping • IGMP proxy

Feature	Description
Wireless user management	WLAN user management • User blacklist and whitelist • User access number limit • Forced user logout • Multiple queries, including online user information and statistics User group management • ACLs based on user groups • Isolation based on user groups (user isolation in a group or between groups)
Wireless security and authentication	Authentication and encryption • OPEN/WEP/PSK/WPA (2) + 802.1x • WEP/TKIP/AES (CCMP) • WAPI User authentication and control • MAC address authentication, Portal authentication, and 802.1x authentication • Built-in Portal authentication and authentication page customization • MAC + Portal authentication • PEAP/TLS/MD5/CHAP Security and defense • ACLs based on ports, users, and user groups • IPSec • Isolation based on VAPs and user groups • IP source guard for STAs • Rogue AP detection and alarm function • User blacklist and whitelist AAA • Local authentication/local accounts (MAC addresses and accounts) • RADIUS authentication • Multiple authentication servers
Wireless QoS control	Flow control: • VAP-based rate limiting • User-group-based rate limiting • Rate limiting for a specified user • Dynamic traffic control, preventing resources from being wasted by STAs • Priority mapping and scheduling • WMM, 802.1p, and DSCP • WMM and QoS mapping for user packets and tunnel packets • QoS priority settings and mapping for CAPWAP tunnel packets
Ethernet features	802.1p, QinQ, Smart Link, and LLDP Storm suppression, port isolation, and link aggregation
Ethernet loop protection	STP/Rapid Spanning Tree Protocol (RSTP)/Multiple Spanning Tree Protocol (MSTP) Bridge Protocol Data Unit (BPDU) protection, root protection, and loop protection Partitioned STP and BPDU tunnels Rapid Ring Protection Protocol (RRPP) Hybrid networking of RRPP rings and other ring networks

Feature	Description
IP routing	IPv4 dynamic routing protocols: RIP, OSPF, IS-IS, and BGP IPv6 dynamic routing protocols: RIPng, OSPFv3, IS-IS IPv6, and BGP4+
Device reliability	VRRP
QoS features	Traffic classifier, traffic behavior, queue scheduling, congestion avoidance, and outbound interface rate limiting
Link detection	BFD EFM OAM, CFM OAM, and Y.1731
IP service control	ARP Built-in DHCP server RADIUS client Built-in FTP server DHCP relay and DHCP snooping

Purchase and Accessory Information

Item	Part Number	Product Name	Description
Bundle	S4017393	AC6605_64	AC6605-26-PWR-64AP Bundle(Including AC6605-26-PWR,Resource License 64AP)
License	88031BVE	L-AC6605-16AP	AC6605 Access Controller AP Resource License(16 AP)
	88031BVF	L-AC6605-64AP	AC6605 Access Controller AP Resource License(64 AP)
Power supply	02310JFA	ES0W2PSA0150	150W AC Power Module(Black)
	02310JFD	ES0W2PSD0150	150W DC Power Module(Black)
	2130983	W2PSA0500	500W AC Power Module(black)
Power cable	Please refer to the ordering guide for more information.		
Optical module			
Optical connector			
Network cable			
Ground bar			

Professional Service and Support

Huawei WLAN planning tools deliver expert network design and optimization services using the most professional simulation platform in the industry. Backed by fifteen years of continuous investment in wireless technologies, extensive network planning and optimization experience, as well as rich expert resources, Huawei helps customers:

- Design, deploy, and operate a high-performance network that is reliable and secure.
- Maximize return on investment and reduce operating expenses.

More Information

For more information, please visit http://e.huawei.com or contact your local Huawei office.

Enterprise Services

Product Overview

Marketing Documentation

Huawei Wireless Access Controller Unit2 Brochure-Detailed

Huawei Access Controller Unit 2 (ACU2) is a WLAN service unit installed on Huawei S12700/S9700/S7700 switches, and provides Access Controller (AC) functions. The ACU2 can be used to provide wireless services on large enterprise or campus networks. It features large capacity, high reliability, various types of services, and works with Huawei wireless Access Points (APs) to deliver large-scale, high-density access services.

High access capacity and processing capability

- An ACU2 can manage a maximum of 2048 APs and 32K STAs.
- The ACU2 provides a nearly 40 Gbit/s line-speed forwarding capability.

Flexible user policy management and authorization control capability

- The ACU2 implements per-user access control based on ACLs, VLAN IDs, and bandwidth limits sent from the RADIUS server.
- You can define user groups for users of different roles and apply access control policies to the user groups. Access of users in a user group is controlled based on the ACL, user isolation policy, and bandwidth limit applied to the user group. You can configure inter-group user isolation or intra-group user isolation as required to implement access control.

Independent service unit, facilitating centralized deployment and capacity expansion

- The ACU2, as a switch card, provides both wired and wireless service capabilities, reducing space occupied and cables in equipment rooms and lowering network construction cost.
- Multiple ACU2s can be installed on a switch to manage N x 2,048 APs (N is the number of ACU2s).

Visualized WLAN network management and maintenance

- The ACU2 and APs establish Fit AP + AC networking for centralized AP management, facilitating network management and maintenance. Huawei AC and AP products support the standard Link Layer Discovery Protocol (LLDP), which helps display topologies of wired and wireless networks for visualized management and maintenance.

Product Characteristics

A WLAN can be built rapidly by adding ACU2s to wired network switches. This shortens WLAN construction costs and time, and reduces the Total Cost of Ownership (TCO). Huawei ACU2 leads the industry with the capacity to manage 2,048 APs. It provides flexible data forwarding, fine-grained user group management control policies, comprehensive radio management, and end-to-end QoS guarantees.

802.11ac-Compatible

Huawei ACU2 is compatible with Huawei 802.11ac wireless APs, permitting users to seamlessly expand wireless networks without incurring additional administrative or equipment expense.

Typical Networking

The ACU 2 can be installed on switches as a WLAN service unit. It can be deployed in the following modes:

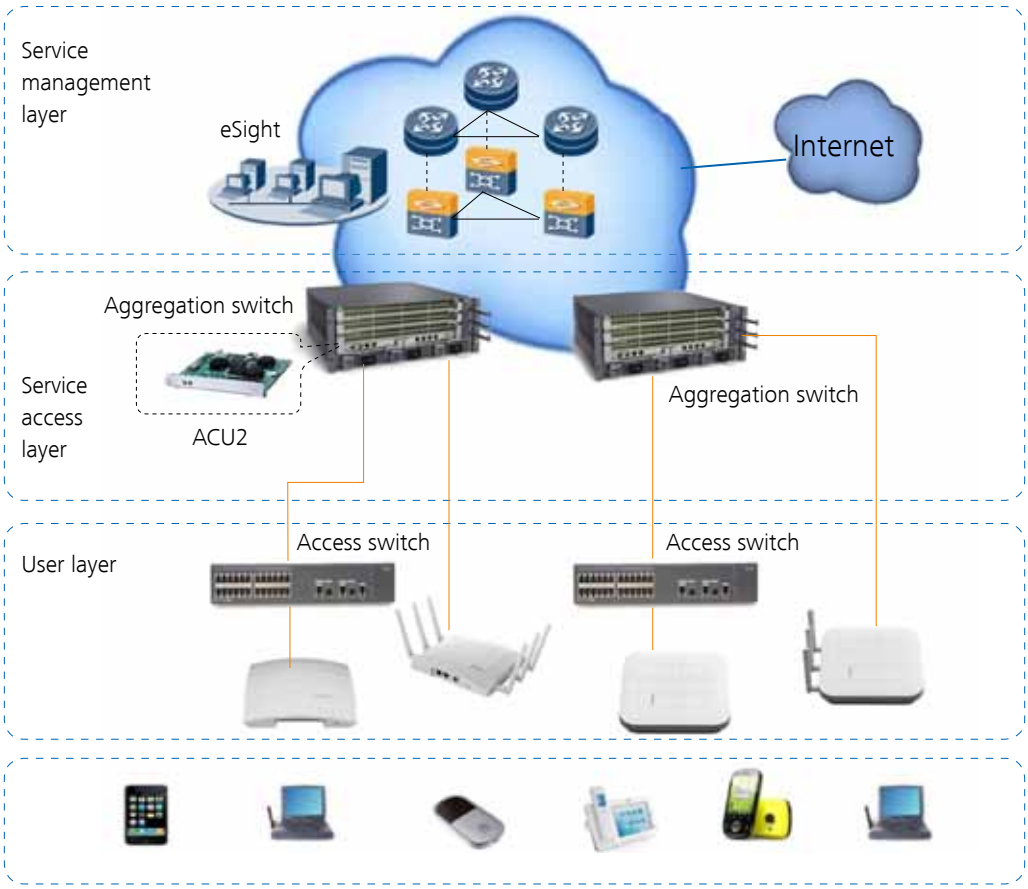
- Inline mode

The ACU2 is installed on the aggregation switch to manage downstream APs or APs connected to access switches.

- Bypass mode

The ACU2 is installed on the aggregation switch, but the ACU2 and APs are located in different areas. APs communicate with the aggregation switch through Layer 3 routing.

ACU2 topology



Performance Indicators

Item	Specifications
Dimensions (W x D x H)	380 mm x 378 mm x 35 mm
Maximum power consumption	168W
Weight	3.2 kg
Forwarding capability	40 Gbit/s

Product Features

Item	Specification
Management capabilities	Maximum number of managed APs: 2K Maximum number of access users: 32K
Wireless protocols	IEEE 802.11a, 802.11b, 802.11g, 802.11d, WMM/802.11e, 802.11h, 802.11n, and 802.11ac
Wired/ switching/ routing	IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX, 1000BASE-T, 1000BASE-SX, 1000-BASE-LH, IEEE 802.1Q Vtagging, and IEEE 802.1AX Link Aggregation
Network management and maintenance	Device management and statistics • Command line management based on SSH/Telnet/Console • SNMPv2/v3 • Standard Management Information Bases (MIBs) and Huawei proprietary MIBs • Syslog • AP and station statistics • Alarms with different severities Centralized AP configuration and management • Region-based AP management • Centralized version management and automatic version file load • Default AP types and self-defined AP types Graphic AP deployment and topology displays • AP LLDP • AC LLDP
WLAN deployment	AP-AC networking • AP-AC Layer 2/3 networking • AC Layer 2 forwarding or Layer 3 routing • NAT traversal (APs are deployed on a private network and ACs are deployed on a public network) Data forwarding • AP-AC CAPWAP tunnel and DTLS encryption • VAP-based forwarding (centralized forwarding and local forwarding) • Centralized authentication and local forwarding VLAN deployment • Mapping between SSIDs and VLANs and VLAN assignments based on SSIDs or physical locations WDS deployment • Point-to-point and point-to-multipoint • Automatic topology detection and loop prevention: Spanning Tree Protocol (STP) AC active/standby mode • Dual-link AC backup • 1+1 hot backup • N+1 or N+N backup

Feature	Description
Radio management	Channel and power configuration • Centralized or static channel and power configuration • Automatic channel allocation to implement global or partial radio calibration • Automatic power adjustment to compensate for coverage holes • AP region-based configuration and management Load balancing • Load balancing based on traffic volume • Load balancing based on the number of users
Wireless service control	Extended Service Set (ESS)-based service management • ESS-based SSID hiding and AP isolation at Layer 2 • Maximum number of access users and associated aging time settings in an ESS • ESS-to-service VLAN mappings • ESS associations with a security profile or a QoS profile • Internet Group Management Protocol (IGMP) support for APs in an ESS Wireless roaming • Layer 2 roaming • Inter-VLAN Layer 3 roaming • Pairwise Master Key (PMK) caching, fast key negotiation • Inter-AC roaming DHCP service control • Built-in DHCP server • DHCP snooping on APs • DHCP relay and DHCP snooping on the AC Multicast service management • IGMP snooping • IGMP proxy
Wireless user management	WLAN user management • User blacklist and whitelist • User access number limit • Forced logout of users • Multiple queries including online user information and statistics User group management • ACLs based on user groups • Isolation based on user groups (user isolation in a group or between groups)
Wireless security and authentication	Authentication and encryption • OPEN/WEP/PSK/WPA (2) + 802.1x • WEP/TKIP/AES (CCMP) • WAPI User authentication and control • MAC address authentication, Portal authentication, and 802.1x authentication • MAC + Portal authentication • Built-in Portal authentication and authentication page customization • PEAP/TTLS/TLS/MD5/CHAP

Feature	Description
Wireless security and authentication	Security and defense • ACLs based on ports, users, and user groups • IPSec • Isolation based on VAPs and user groups • IP source guard for STAs • Rogue AP detection and alarm function • User blacklist and whitelist AAA • Local authentication/local accounts (MAC addresses and accounts) • RADIUS authentication • Multiple authentication servers
Wireless QoS control	Flow control: • VAP-based rate limiting • User-group-based rate limiting • Rate limiting for a specified user • Dynamic traffic control, preventing resources from being wasted by STAs Priority mapping and scheduling • WMM, 802.1p, and DSCP • WMM and QoS mapping for user packets and tunnel packets • QoS priority settings and mapping for CAPWAP tunnel packets

Purchase and Accessory Information

Item	Part Number	Product Name	Description
ACU2	03030TPP	ACU2	WLAN ACU2 Access Controller Unit(128 AP Control Resource Included)
ACU2 License	88032BGV	L-ACU2-128AP	ACU2 Wireless Access Controller AP Resource License(128 AP)
	88032BGX	L-ACU2-256AP	ACU2 Wireless Access Controller AP Resource License(256 AP)
	88032GSM	L-ACU2-384AP	ACU2 Wireless Access Controller AP Resource License(384 AP)
	88032BGY	L-ACU2-512AP	ACU2 Wireless Access Controller AP Resource License(512 AP)

Professional Service and Support

Huawei WLAN planning tools deliver expert network design and optimization services using the most professional simulation platform in the industry. Backed by fifteen years of continuous investment in wireless technologies, extensive network planning and optimization experience, as well as rich expert resources, Huawei helps customers:

- Design, deploy, and operate a high-performance network that is reliable and secure.
- Maximize return on investment and reduce operating expenses.

More Information

For more information, please visit http://e.huawei.com or contact your local Huawei office.

Enterprise Services

Product Overview

Marketing Documentation

Huawei AP2010DN Brochure-Detailed

Huawei wall plate AP2010DN uses a standard 86-mm plate and can be easily installed in a junction box, without affecting interior room space or appearance. It is well designed with built-in antennas, a hidden indicator, and a sliding panel.
The AP2010DN provides comprehensive service support capabilities and features high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance.

Wi Fi CERTIFIED

Huawei AP2010DN Access Point

- 2.4 GHz or 5 GHz frequency bands
- Compatibility with IEEE 802.11a/b/g/n

Huawei AP2010DN offers the following advantages:

- Various types of ports, including one uplink GE port, two downlink 100M ports, and a phone port, particularly applicable to hotels, apartments, and offices.
- High-speed and reliable wireless access services: supports 802.11n Beamforming and uses the latest 802.11n chip to achieve higher performance and wider coverage.
- Comprehensive user access control capability: implements user access control based on user group policies and supports a maximum of 128 users.
- High network security: supports multiple authentication and encryption modes, as well as rogue AP and STA detection.
- Flexible networking and strong environment adaptability: automatically adjusts transmission rate, channel, transmit power, and bandwidth to adapt to various environments, and supports identification, location, and display of interference sources of more than eight types.
- Easy management and maintenance: supports plug-and-play (PnP) and works with NMS to implement remote configuration and fast fault location.

Product Features

- Recommended for environments with densely distributed small rooms, such as hotels, dormitories, hospitals, and offices
- 2 x 2 Multiple-Input Multiple-Output (MIMO) technology with a maximum rate of 300 Mbit/s for each radio
- Spectrum analysis
- Wireless Intrusion Detection System (WIDS)/Wireless Intrusion Prevention System (WIPS)
- Auto Radio
- High Density Boost
- User Awareness
- Fast roaming without service interruption
- Beamforming
- IPv6 support
- Batch upgrade
- Pass-through wired port: users can connect to a wired port to access the Internet when wireless connections are unavailable

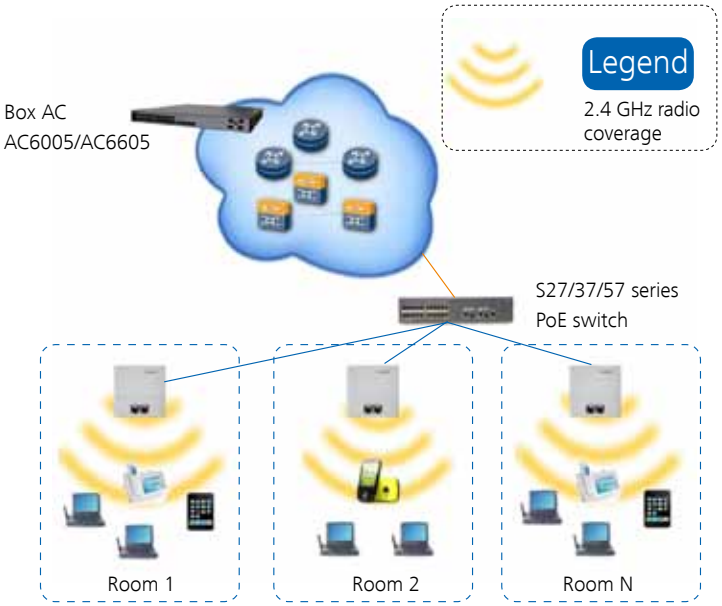
Scalability

When coupled with access controllers (ACs) and Network Management Systems (NMSs), Huawei 802.11n APs can implement real-time monitoring, intelligent Radio Frequency (RF) management, spectrum analysis, wireless positioning, load balancing, roaming, security policy control, wired/wireless network integration, as well as Bring Your Own Device (BYOD) network security control and a smart access strategy. The AC + Fit AP architecture is highly scalable and supports centralized management of multiple Fit APs on a single AC. Software upgrade technologies allow users to seamlessly add and upgrade APs without incurring additional administrative or equipment expense.

Typical Networking

The following figure shows typical AP2010DN networking.

Wall plate AP networking



The wall plate AP2010DN functions as a Fit AP on the network and provides data forwarding functions. An AC implements user access, AP management, authentication, routing, security, and Quality of Service (QoS).

Basic Specifications

Item		Specifications
Technical specifications	Dimensions (W x D x H)	86 mm x 86 mm x 45 mm
	Weight	≤ 0.2 kg
	System memory	128 MB
Power specifications	Power input	PoE power supply in compliance with IEEE 802.3af/at
	Maximum power consumption	5.5W
Environmental specifications	Operating temperature	0°C to +40°C
	Storage temperature	–40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Altitude	–60 m to 4,000 m
	Atmospheric pressure	70 kPa to 106 kPa

Radio Specifications

Item	Description
Antenna type	Built-in antennas
Antenna gain	2.4 GHz: 2 dBi 5 GHz: 2.5 dBi
Maximum number of users	≤ 128
Maximum transmit power	16 dBm NOTE The actual transmit power depends on local laws and regulations.
Power increment	1 dBm
Receiver sensitivity	802.11b (CCK): -96 dBm @ 1 Mb/s; -88 dBm @ 11Mb/s
	802.11g (non-HT20): -91 dBm @ 6 Mb/s; -74 dBm @ 54 Mb/s
	802.11n (HT20): -91 dBm @ MCS0; -71 dBm @ MCS15
	802.11n (HT40): -88 dBm @ MCS0; -68 dBm @ MCS15

Product Features

WLAN features	Compliance with IEEE 802.11a/b/g/n
	Maximum rate: 300 Mbit/s
	Maximum ratio combining (MRC)
	Maximum likelihood detection (MLD)
	Data unit aggregation, including A-MPDU (Tx/Rx) and A-MSDU (Rx only)
	802.11 dynamic frequency selection (DFS)
	Short guard interval (GI)
	Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile to implement priority-based data processing and forwarding
	Automatic and manual rate adjustment (the rate is adjusted automatically by default)
	WLAN channel management and channel rate adjustment
	Automatic channel scanning and interference avoidance
	Service Set Identifier (SSID) hiding
	Signal Sustain Technology (SST)
	Unscheduled Automatic Power Save Delivery (U-APSD)
	Control and Provisioning of Wireless Access Points (CAPWAP)
	Automatic access in Fit AP mode

Network features	Compliance with IEEE 802.3u Auto-negotiation of the rate and duplex mode and automatic switchover between the Media Dependent Interface (MDI) and Media Dependent Interface Crossover (MDI-X) SSID-based VLAN assignment VLAN trunk on uplink Ethernet ports 4094 VLAN IDs (1-4094) and a maximum of 8 Virtual APs (VAPs) for each radio AP control channel in tagged and untagged mixed mode DHCP client, obtaining IP addresses through DHCP Tunnel forwarding and direct forwarding STA isolation in the same VLAN Access Control Lists (ACLs) Link Layer Discovery Protocol (LLDP) Service holding upon CAPWAP link disconnection in direct forwarding Unified authentication on the AC AC dual-link backup
QoS Features	Priority mapping and packet scheduling based on a WMM profile to implement priority-based data processing and forwarding WMM parameter management for each radio WMM power saving Priority mapping for upstream packets and flow-based mapping for downstream packets Queue mapping and scheduling User-based bandwidth limiting Adaptive bandwidth management (the system dynamically adjusts bandwidth allocation based on the user quantity and environment to improve user experience)
Security features	Open system authentication WEP authentication/encryption WPA/WPA2-PSK authentication and encryption WPA/WPA2-802.1x authentication and encryption WAPI authentication and encryption WIDS including rogue AP and STA detection, attack detection, STA/AP blacklist and whitelist
Maintenance features	Unified management and maintenance on the AC Plug-and-Play (PnP) in Fit AP mode: automatic access and configuration loading Batch upgrade Local AP management using Telnet Real-time configuration monitoring and fast fault location using the NMS System status alarm

BYOD	Identifies the device type according to the Organizationally Unique Identifier (OUI) in the MAC address. Identifies the device type according to the User Agent (UA) information in an HTTP packet. Identifies the device type according to DHCP options. The RADIUS server delivers packet forwarding, security, and QoS policies according to the device type carried in the RADIUS authentication and accounting packets.
Spectrum analysis	Identifies interference sources such as Bluetooth devices, microwave ovens, cordless phones, ZigBee devices, wireless game controllers, 2.4 GHz/5 GHz wireless video and audio devices, and baby monitors. Works with the Huawei eSight system to locate and perform spectrum analysis on interference sources.

Standards Compliance

Safety standards	UL 60950-1 CAN/CSA 22.2 No.60950-1 IEC 60950-1	EN 60950-1 GB 4943
Radio standards	ETSI EN 300 328 ETSI EN 301 893 FCC Part 15C: 15.247	FCC Part 15C: 15.407 RSS-210 AS/NZS 4268
EMC standards	EN 301.489-1 EN 301.489-17 ETSI EN 60601-1-2 FCC Part 15 ICES-003 YD/T 1312.2-2004 ITU k.20 GB 9254	GB 17625.1 AS/NZS CIPSR22 EN 55022 EN 55024 CISPR 22 CISPR 24 IEC61000-4-6 IEC61000-4-2
IEEE standards	IEEE 802.11a/b/g IEEE 802.11n IEEE 802.11h	IEEE 802.11d IEEE 802.11e
Security standards	802.11i, Wi-Fi Protected Access 2 (WPA2), and WPA 802.1X Advanced Encryption Standards (AES) and Temporal Key Integrity Protocol (TKIP) EAP Type (s)	

Environmental standards	ETSI 300 019-2-1 ETSI 300 019-2-2 ETSI 300 019-2-3	ETSI 300 019-1-1 ETSI 300 019-1-2 ETSI 300 019-1-3
EMF	CENELEC EN 62311 CENELEC EN 50385 OET65	RSS-102 FCC Part1&2 FCC KDB series
RoHS	Directive 2002/95/EC & 2011/65/EU	
Reach	Directive 1907/2006/EC	
WEEE	Directive 2002/96/EC & 2012/19/EU	

Professional Service and Support

Huawei WLAN planning tools deliver expert network design and optimization services using the most professional simulation platform in the industry. Backed by fifteen years of continuous investment in wireless technologies, extensive network planning and optimization experience, as well as rich expert resources, Huawei helps customers:

- Design, deploy, and operate a high-performance network that is reliable and secure.
- Maximize return on investment and reduce operating expenses.

More Information

For more information, please visit http://e.huawei.com or contact your local Huawei office.

Enterprise Services

Product Overview

Marketing Documentation

Huawei AP5010 Series Brochure-Detailed

Huawei AP5010 wireless Access Point (AP) series offers superior value and flexibility with 2.4 GHz and 5 GHz radios, IEEE 802.11a/b/g/n standards compliance, and Fit AP or Fat AP operation. It supports Multiple-Input Multiple-Output (MIMO) technology, provides radio coverage in a larger area, and offers services simultaneously on 2.4 GHz and 5 GHz frequency bands to connect more users.

The AP5010 provides comprehensive service support capabilities and features proven reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance for indoor environments.

Wi Fi CERTIFIED

Huawei AP5010SN-GN Access Point

- 2.4 GHz frequency band
- Compatibility with IEEE 802.11b/g/n
- iF Design Award winner for superior value

Huawei AP5010DN-AGN Access Point

- 2.4 GHz and 5 GHz frequency bands
- Compatibility with IEEE 802.11a/b/g/n
- iF Design Award winner for superior value

Huawei AP5010 offers the following advantages:

- High-speed and reliable wireless access services: uses the latest 802.11n chip for better performance and wider coverage
- Comprehensive user access control capability: implements user access control based on user group policies and supports a maximum of 128 users.
- High network security: supports multiple authentication and encryption modes, as well as rogue AP and STA detection.
- Flexible networking and strong environment adaptability: provides access and bridging services and automatically adjusts transmission rate, channel, transmit power, and bandwidth to adapt to various environments.
- Easy management and maintenance: supports Plug-and-Play (PnP)

Product Features

- Recommended for smaller locations with simple building structures, high user density, and high capacity demands, such as enterprise offices, campuses, hospitals, large shopping malls, and exhibition centers
- 2 x 2 MIMO technology, with built-in antennas and a maximum rate of 300 Mbit/s for each radio
- Integrated Fit AP and Fat AP functions
- Value-added services, such as spectrum analysis and locating service
- Wireless Distribution System (WDS)/Mesh networking
- Wireless Intrusion Detection System (WIDS)/Wireless Intrusion Prevention System (WIPS)
- Auto Radio
- High Density Boost
- User Awareness
- Fast roaming without service interruption
- Beamforming
- IPv6 support
- PoE power supply in compliance with IEEE 802.3af/at, simplifying installation
- Single-band AP5010SN-GN: works on the 2.4 GHz frequency band
- Dual-band AP5010DN-AGN: works on both 2.4 GHz and 5 GHz frequency bands

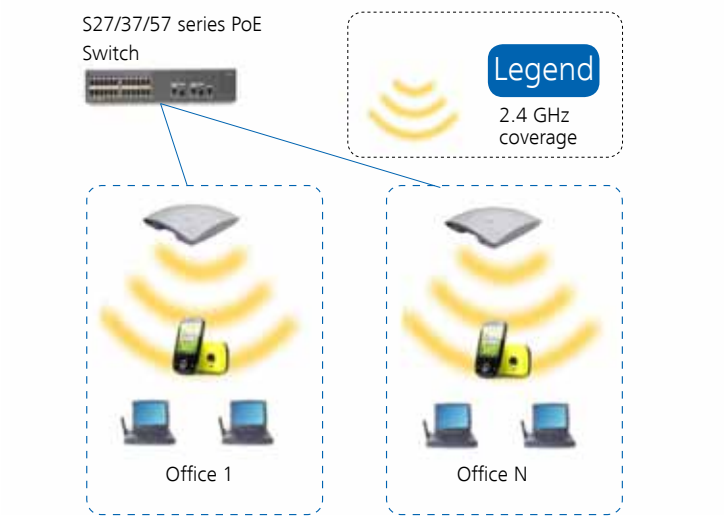
Scalability

When coupled with Access Controllers (ACs) and Network Management Systems (NMSs), Huawei 802.11n APs can implement real-time monitoring, intelligent Radio Frequency (RF) management, spectrum analysis, wireless positioning, load balancing, roaming, security policy control, wired/wireless network integration, as well as Bring Your Own Device (BYOD) network security control and a smart access strategy. The AC + Fit AP architecture is highly scalable and supports centralized management of multiple Fit APs on a single AC. Software upgrade technologies allow users to seamlessly add and upgrade APs without incurring additional administrative or equipment expense.

Typical Networking

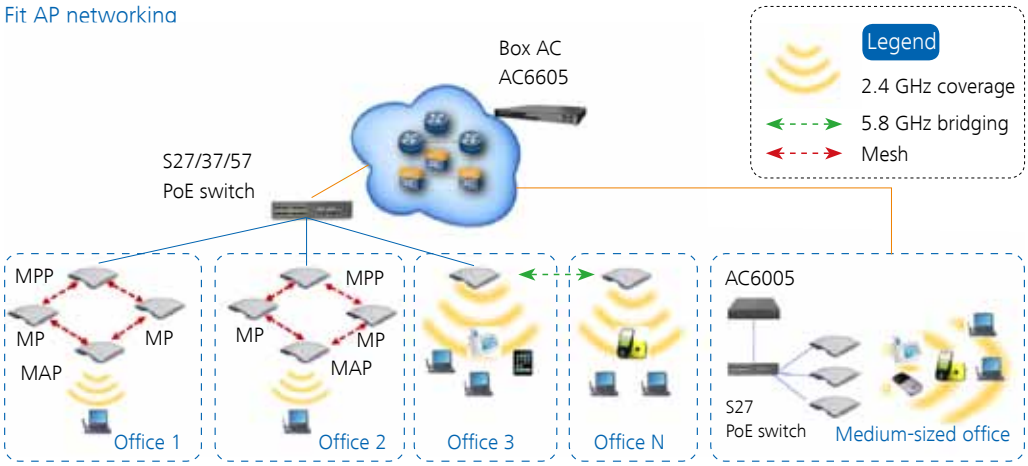
The following figures show typical AP5010SN-GN and AP5010DN-AGN networking.

Fat AP networking



When working as a Fat AP, the AP5010SN-GN and AP5010DN-AGN provide user authentication and access, data security, service data forwarding, Quality of Service (QoS), and other functions, without an AC.

Fit AP networking



When working as a Fit AP, the AP5010SN-GN and AP5010DN-AGN provide data forwarding functions. An AC is required for user access, AP management, authentication, routing, security, and QoS. The AP5010SN-GN and AP5010DN-AGN can also be deployed in a Wireless Distribution System (WDS) or mesh networking as a Fit AP.

In WDS mode, the AP supports Point-to-Point (P2P) and Point-to-Multi-Point (P2MP) networking. With 5 and 2.4 GHz frequency bands, the AP provides wireless bridging and access functions.

Mesh Points (MPs) interconnect in a mesh topology to form a self-configuring and self-healing Wireless Mesh Network (WMN) backbone, and Mesh Portal Points (MPPs) provide a connection to the Internet. Stations connect to the WMN network through Mesh Access Points (MAPs). Dedicated mesh routing protocols provide better transmission quality and ensure high bandwidth and Internet connection service stability.

Basic Specifications

Item		Description
Technical specifications	Dimensions (W x D x H)	180 mm x 180 mm x 50 mm
	Weight	0.4 kg
	System memory	• 128 MB DDR2 • 32 MB flash memory
Power specifications	Power input	• 12V DC ± 10% • PoE power supply: –48V DC (in compliance with IEEE 802.3af/at)
	Maximum power consumption	• AP5010DN-AGN: 9.5W • AP5010SN-GN: 6.0W NOTE The actual maximum power consumption depends on local laws and regulations.
Environmental specifications	Operating temperature	–10°C to +50°C
	Storage temperature	–40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Waterproof and dustproof grade	IP31
	Altitude	–60 m to 4,000 m

Radio Specifications

Item	Description
Antenna type	Built-in antennas
Antenna gain	AP5010DN-AGN: • 2.4 GHz: 4 dBi • 5 GHz: 5 dBi AP5010SN-GN: 4 dBi
Maximum number of users	≤ 128
Maximum transmit power	17 dBm for each radio port NOTE The actual transmit power depends on local laws and regulations.
Power increment	1 dBm

Item	Description
Receiver sensitivity	2.4 GHz 802.11b (CCK): -96 dBm @ 1 Mb/s; -88 dBm @ 11 Mb/s
	2.4 GHz 802.11g (non-HT20): -91 dBm @ 6 Mb/s; -74 dBm @ 54 Mb/s
	2.4 GHz 802.11n (HT20): -91 dBm @ MCS0; -71 dBm @ MCS15
	2.4 GHz 802.11n (HT40): -88 dBm @ MCS0; -68 dBm @ MCS15
	5 GHz 802.11a (non-HT20): -89 dBm @ 6 Mb/s; -71 dBm @ 54 Mb/s
	5 GHz 802.11n (HT20): -90 dBm @ MCS0; -71 dBm @ MCS15
	5 GHz 802.11n (HT40): -85 dBm @ MCS0; -68 dBm @ MCS15

Product Features

WLAN features	AP5010DN-AGN: compliance with IEEE 802.11a/b/g/n AP5010SN-GN: compliance with IEEE 802.11b/g/n AP5010SN-GN: maximum rate of 300 Mbit/s AP5010DN-AGN: maximum rate of 600 Mbit/s Maximum Ratio Combining (MRC) Maximum Likelihood Detection (MLD) Data unit aggregation, including A-MPDU (Tx/Rx) and A-MSDU (Rx only) 802.11 Dynamic Frequency Selection (DFS) for the AP5010DN-AGN Short Guard Interval (GI) Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile to implement priority-based data processing and forwarding Automatic and manual rate adjustment (the rate is adjusted automatically by default) WLAN channel management and channel rate adjustment Automatic channel scanning and interference avoidance Service Set Identifier (SSID) hiding Signal Sustain Technology (SST) Unscheduled Automatic Power Save Delivery (U-APSD) Control and Provisioning of Wireless Access Points (CAPWAP) in Fit AP mode Automatic access in Fit AP mode WDS in Fit AP mode Mesh in Fit AP mode
Network features	Compliance with IEEE 802.3u Auto-negotiation of the rate and duplex mode; automatic switchover between the Media Dependent Interface (MDI) and Media Dependent Interface Crossover (MDI-X) SSID-based VLAN assignment VLAN trunk on uplink Ethernet ports 4,094 VLAN IDs (1 to 4,094) and a maximum of 16 virtual APs (VAPs) for each radio AP control channel in tagged and untagged mixed mode DHCP client, obtaining IP addresses through DHCP Tunnel forwarding and direct forwarding STA isolation in the same VLAN Access Control Lists (ACLs) Link Layer Discovery Protocol (LLDP) Service holding upon CAPWAP link disconnection in Fit AP mode Unified authentication on the AC in Fit AP mode AC dual-link backup in Fit AP mode

QoS features	Priority mapping and packet scheduling based on a WMM profile to implement priority-based data processing and forwarding WMM parameter management for each radio WMM power saving Priority mapping for upstream packets and flow-based mapping for downstream packets Queue mapping and scheduling User-based bandwidth limiting Adaptive bandwidth management (the system dynamically adjusts bandwidth allocation based on the user quantity and environment to improve user experience) Airtime scheduling
Security features	Open system authentication WEP authentication/encryption WPA/WPA2-PSK authentication and encryption WPA/WPA2-802.1x authentication and encryption WAPI authentication and encryption WIDS including rogue AP and STA detection, attack detection, STA/AP blacklist and whitelist
Maintenance features	Unified management and maintenance on the AC in Fit AP mode Plug-and-Play (PnP) in Fit AP mode: automatically going online and loading configurations WDS zero-configuration deployment in Fit AP mode Mesh zero-configuration deployment in Fit AP mode Batch upgrade Local AP management using Telnet or through the serial port Real-time configuration monitoring and fast fault location using the NMS System status alarm
BYOD	Identifies the device type according to the Organizationally Unique Identifier (OUI) in the MAC address. Identifies the device type according to the User Agent (UA) information in an HTTP packet. Identifies the device type according to DHCP options. The RADIUS server delivers packet forwarding, security, and QoS policies according to the device type carried in the RADIUS authentication and accounting packets.
Locating service	• Locates tags manufactured by AeroScout or Ekahau. • Locates Wi-Fi terminals.
Spectrum analysis	Identifies interference sources such as baby monitors, Bluetooth devices, digital cordless phones (at 2.4 GHz frequency band only), wireless audio transmitters (at both the 2.4 GHz and 5 GHz frequency bands), wireless game controllers, and microwave ovens. Works with Huawei eSight to locate and perform spectrum analysis on interference sources.

Standards Compliance

Safety standards	UL 60950-1 CAN/CSA 22.2 No.60950-1 IEC 60950-1 EN 60950-1 GB 4943	
Radio standards	AP5010DN-AGN: ETSI EN 300 328 ETSI EN 301 893 FCC Part 15C: 15.247 FCC Part 15C: 15.407 RSS-210 AS/NZS 4268	AP5010SN-GN: ETSI EN 300 328 FCC Part 15C: 15.247 RSS-210 AS/NZS 4268
EMC standards	EN 301 489-1 EN 301 489-17 ETSI EN 60601-1-2 FCC Part 15 ICES-003 YD/T 1312.2-2004 ITU k.21 GB 9254	GB 17625.1 AS/NZS CIPSR22 EN 55022 EN 55024 CISPR 22 CISPR 24 IEC61000-4-6 IEC61000-4-2
IEEE standards	AP5010DN-AGN: IEEE 802.11a/b/g IEEE 802.11n IEEE 802.11h IEEE 802.11d IEEE 802.11e	AP5010SN-GN: IEEE 802.11b/g IEEE 802.11n IEEE 802.11h IEEE 802.11d IEEE 802.11e
Security standards	802.11i, Wi-Fi Protected Access 2 (WPA2), and WPA 802.1X Advanced Encryption Standards (AES) and Temporal Key Integrity Protocol (TKIP) EAP Type (s)	

Environmental standards	ETSI 300 019-2-1 ETSI 300 019-2-2 ETSI 300 019-2-3 ETSI 300 019-1-1 ETSI 300 019-1-2 ETSI 300 019-1-3
EMF	CENELEC EN 62311 CENELEC EN 50385 OET65 RSS-102 FCC Parts 1 & 2 FCC KDB series
RoHS	Directive 2002/95/EC & 2011/65/EU
Reach	Regulation 1907/2006/EC
WEEE	Directive 2002/96/EC & 2012/19/EU

Professional Service and Support

Huawei WLAN planning tools deliver expert network design and optimization services using the most professional simulation platform in the industry. Backed by fifteen years of continuous investment in wireless technologies, extensive network planning and optimization experience, as well as rich expert resources, Huawei helps customers:

- Design, deploy, and operate a high-performance network that is reliable and secure.
- Maximize return on investment and reduce operating expenses.

More Information

For more information, please visit http://e.huawei.com or contact your local Huawei office.

Enterprise Services

Product Overview

Marketing Documentation

Huawei AP5030DN and AP5130DN Brochure-Detailed

Huawei AP5030DN and AP5130DN are cost-effective 802.11ac Access Points (APs) designed for Wireless Local Area Networks (WLANs). These models operate in Fit or Fat mode, provide comprehensive service support capabilities, and feature proven reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance.
The AP5030DN and AP5130DN comply with IEEE 802.11ac and provide gigabit access for wireless users, ensuring a quality user experience on wireless networks.

Wi Fi CERTIFIED

Huawei AP5030DN Access Point

- Built-in antennas
- 2.4 GHz and 5 GHz frequency bands
- IEEE 802.11a/b/g/n/ac

Huawei AP5130DN Access Point

- External antennas
- 2.4 GHz and 5 GHz frequency bands
- IEEE 802.11a/b/g/n/ac

Huawei AP5030DN&AP5130DN offers the following advantages:

- High-speed and reliable wireless access services: uses the latest 802.11ac chip for better performance and wider coverage.
- Integrated Multiple-Input Multiple-Output (MIMO) antennas: implements omnidirectional coverage without coverage holes, and provides a maximum rate of 1.75 Gbit/s.
- Comprehensive user access control capability: implements user access control based on user group policies and supports a maximum of 256 users.
- High network security: supports multiple authentication and encryption modes, as well as rogue AP detection.
- Flexible networking and strong environment adaptability: works for access, WDS, and mesh networking scenarios
- Easy management and maintenance: supports Plug-and-Play (PnP)

Product Features

- Recommended for use in locations with a large area or high user density, such as exhibition centers, hospitals, factories, and logistics centers
- 3 x 3 MIMO technology (three spatial streams): 450 Mbit/s at 2.4 GHz, 1.3 Gbit/s at 5 GHz, and 1.75 Gbit/s for the device
- Spectrum analysis
- Locating service
- Wireless Intrusion Detection System (WIDS)/Wireless Intrusion Prevention System (WIPS)
- Auto Radio
- High Density Boost
- User Awareness
- Beamforming
- IPv6 support
- Industry-level design with high waterproof and dustproof protection ratings for challenging environments
- PoE power supply in compliance with IEEE 802.3af/at, simplifying AP installation
- External antennas on the AP5130DN for flexibility in configuring antenna gains and selecting device positioning

Scalability

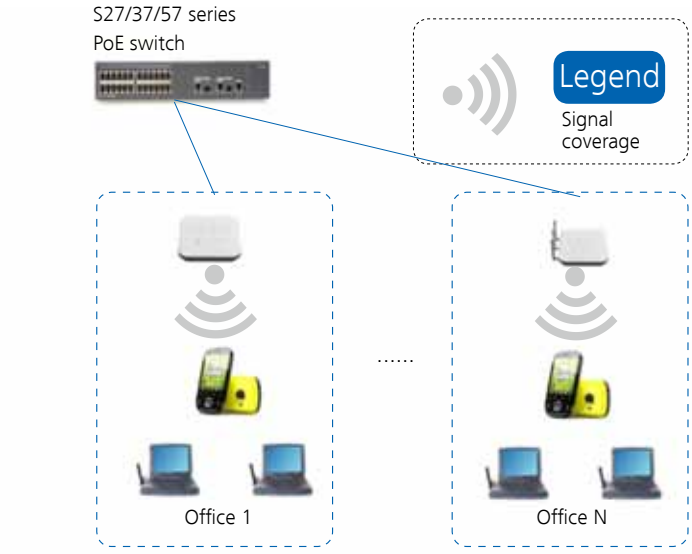
When coupled with Access Controllers (ACs) and Network Management Systems (NMSs), Huawei 802.11ac APs can implement real-time monitoring, intelligent Radio Frequency (RF) management, spectrum analysis, wireless positioning, load balancing, roaming, security policy control, wired/wireless network integration, as well as Bring Your Own Device (BYOD) network security control and a smart access strategy. The AC + Fit AP architecture is highly scalable and supports centralized management of multiple Fit APs on a single AC. Software upgrade technologies allow users to seamlessly add and upgrade APs without incurring additional administrative or equipment expense.

AP Networking

Huawei models AP5030DN and AP5130DN can work in AP, Wireless Distribution System (WDS), or mesh mode.

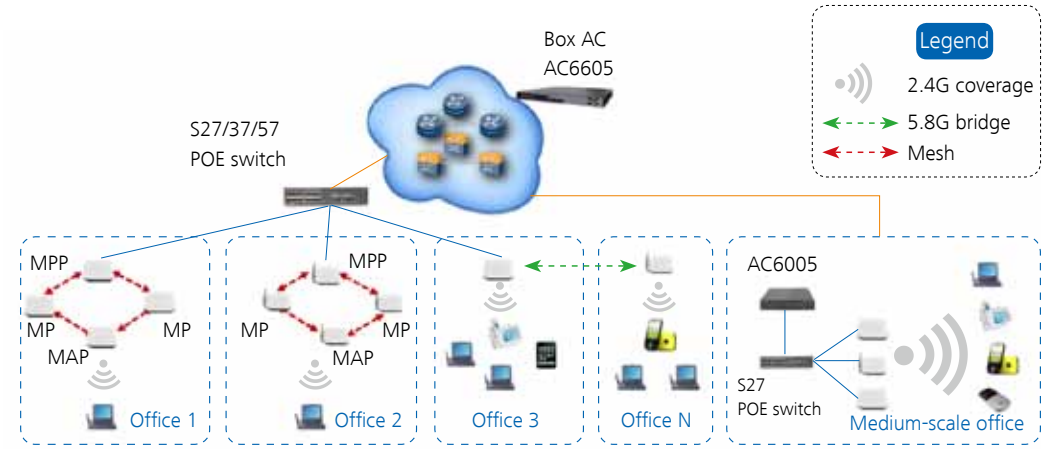
The following figures show typical AP5030DN and AP5130DN networking.

Fat AP networking



When working as a Fat AP, the AP5030DN and AP5130DN provide user authentication and access, data security, service data forwarding, Quality of Service (QoS), and other functions, without an AC.

Fit AP networking



When working as a Fit AP, the AP5030DN and AP5130DN provide bridging and data forwarding functions. An AC is required for user access, AP management, authentication, routing, security, and QoS.

In WDS mode, the AP supports Point-to-Point (P2P) and Point-to-Multi-Point (P2MP) networking. With 5 GHz and 2.4 GHz frequency bands, the AP5030DN and AP5130DN provide wireless bridging and access functions.

Mesh Points (MPs) interconnect in a mesh topology to form a self-configuring and self-healing Wireless Mesh Network (WMN) backbone, and Mesh Portal Points (MPPs) provide a connection to the Internet. Stations can connect to the WMN network through Mesh Access Points (MAPs). Dedicated mesh routing protocols provide better transmission quality and ensure high bandwidth and highly stable Internet connections.

Basic Specifications

Item		Description
Technical specifications	Dimensions (W x D x H)	220 mm x 220 mm x 53 mm
	Weight	1.0 kg
	System memory	• 256 MB DDR2 • 32 MB flash memory
Power specifications	Power input	• 12V DC ± 10% • PoE power supply: -48V DC (in compliance with IEEE 802.3af/at)
	Maximum power consumption	13W NOTE The actual maximum power consumption depends on local laws and regulations.
Environmental specifications	Operating temperature	–10°C to +50°C
	Storage temperature	–40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Dustproof and waterproof grade	IP41
	Altitude	–60 m to 4,000 m
	Atmospheric pressure	70 kPa to 106 kPa

Radio Specifications

Item	Description
Antenna type	AP5030DN: built-in antennas AP5130DN: external dual-band antennas
Antenna gain	• AP5030DN: 4 dBi (2.4 GHz); 5 dBi (5 GHz) • AP5130DN: 2.5 dBi (2.4 GHz); 4 dBi (5 GHz)
Maximum number of users	≤ 256
Maximum transmit power	20 dBm NOTE The actual transmit power depends on local laws and regulations.
Power increment	1 dBm

Item	Description
Receiver sensitivity	2.4 GHz 802.11b (CCK): -96 dBm @ 1 Mb/s; -89 dBm @ 11 Mb/s
	2.4 GHz 802.11g (non-HT20): -87 dBm @ 6 Mb/s; -74 dBm @ 54 Mb/s
Receiver sensitivity	2.4 GHz 802.11n (HT20): -87 dBm @ MCS0; -71 dBm @ MCS7
	2.4 GHz 802.11n (HT40): -84 dBm @ MCS0; -68 dBm @ MCS7
	5 GHz 802.11a (non-HT20): -90 dBm @ 6 Mb/s; -73 dBm @ 54 Mb/s
	5 GHz 802.11n (HT20): -89 dBm @ MCS0; -70 dBm @ MCS7
	5 GHz 802.11n (HT40): -86 dBm @ MCS0; -66 dBm @ MCS7
	5 GHz 802.11ac (VTH20): -88 dBm @ MCS0NSS1; -65 dBm @ MCS8NSS1
	5 GHz 802.11ac (VTH40): -85 dBm @ MCS0NSS1; -60 dBm @ MCS9NSS1
	5 GHz 802.11ac (VTH80): -82 dBm @ MCS0NSS1; -57 dBm @ MCS9NSS1

Product Features

WLAN features	Compliance with IEEE 802.11a/b/g/n/ac
	Maximum rate: 1.75 Gbit/s
	Maximum Ratio Combining (MRC)
	Maximum Likelihood Detection (MLD)
	Data unit aggregation, including A-MPDU (Tx/Rx) and A-MSDU (Rx only)
	802.11 Dynamic Frequency Selection (DFS)
	Short Guard Interval (GI) in 20 MHz, 40 MHz, and 80 MHz modes
	Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile to implement priority-based data processing and forwarding
	Automatic and manual rate adjustment (the rate is adjusted automatically by default)
	WLAN channel management and channel rate adjustment
	Automatic channel scanning and interference avoidance
	Service Set Identifier (SSID) hiding
	Signal Sustain Technology (SST)
	Unscheduled Automatic Power Save Delivery (U-APSD)
	Control and Provisioning of Wireless Access Points (CAPWAP) in Fit AP mode
	Automatic access in Fit AP mode
	WDS in Fit AP mode
	Mesh networking in Fit AP mode

Network features	Compliance with IEEE 802.3u Auto-negotiation of the rate and duplex mode; automatic switchover between the Media Dependent Interface (MDI) and Media Dependent Interface Crossover (MDI-X) SSID-based VLAN assignment VLAN trunk on uplink Ethernet ports 4,094 VLAN IDs (1 to 4,094) and a maximum of 16 virtual APs (VAPs) for each radio AP control channel in tagged and untagged mixed mode DHCP client, obtaining IP addresses through DHCP Tunnel forwarding and direct forwarding STA isolation in the same VLAN Access control lists (ACLs) Link Layer Discovery Protocol (LLDP) Service holding upon CAPWAP link disconnection in Fit AP mode Unified authentication on the AC in Fit AP mode AC dual-link backup in Fit AP mode
QoS features	Priority mapping and packet scheduling based on a WMM profile to implement priority-based data processing and forwarding WMM parameter management for each radio WMM power saving Priority mapping for upstream packets and flow-based mapping for downstream packets Queue mapping and scheduling User-based bandwidth limiting Adaptive bandwidth management (the system dynamically adjusts bandwidth based on the number of users and radio environment to improve user experience) Airtime scheduling
Security features	Open system authentication WEP authentication/encryption WPA/WPA2-PSK authentication and encryption WPA/WPA2-802.1x authentication and encryption WAPI authentication and encryption WIDS including rogue AP and STA detection, attack detection, STA/AP blacklist and whitelist

Maintenance features	Unified management and maintenance on the AC in Fit AP mode Plug-and-Play (PnP) in Fit AP mode: automatic ally going online and loading configurations WDS zero-configuration deployment in Fit AP mode WMN zero-configuration deployment in Fit AP mode Batch upgrade Local AP management through the serial port or using Telnet Real-time configuration monitoring and fast fault location using the NMS System status alarm
BYOD	Identifies the device type according to the Organizationally Unique Identifier (OUI) in the MAC address. Identifies the device type according to the User Agent (UA) information in an HTTP packet Identifies the device type according to DHCP options. The RADIUS server delivers packet forwarding, security, and QoS policies according to the device type carried in the RADIUS authentication and accounting packets.
Locating service	Locates tags manufactured by AeroScout or Ekahau. Locates Wi-Fi terminals.
Spectrum analysis	Identifies interference sources such as baby monitors, Bluetooth devices, digital cordless phones (at 2.4 GHz frequency band only), wireless audio transmitters (at both the 2.4 GHz and 5 GHz frequency bands), wireless game controllers, and microwave ovens. Works with Huawei eSight to locate and perform spectrum analysis on interference sources.

Standards Compliance

Safety standards	UL 60950-1 CAN/CSA 22.2 No.60950-1 IEC 60950-1	EN 60950-1 GB 4943
Radio standards	ETSI EN 300 328 ETSI EN 301 893 FCC Part 15C: 15.247	FCC Part 15C: 15.407 RSS-210 AS/NZS 4268
EMC standards	EN 301 489-1 EN 301 489-17 ETSI EN 60601-1-2 FCC Part 15 ICES-003 YD/T 1312.2-2004 ITU k.21 GB 9254	GB 17625.1 AS/NZS CIPSR22 EN 55022 EN 55024 CISPR 22 CISPR 24 IEC61000-4-6 IEC61000-4-2

IEEE standards	IEEE 802.11a/b/g IEEE 802.11n IEEE 802.11ac	IEEE 802.11h IEEE 802.11d IEEE 802.11e
Security standards	802.11i, Wi-Fi Protected Access 2 (WPA2), and WPA 802.1X Advanced Encryption Standards (AES) and Temporal Key Integrity Protocol (TKIP) EAP Type (s)	
Environmental standards	ETSI 300 019-2-1 ETSI 300 019-2-2 ETSI 300 019-2-3	ETSI 300 019-1-1 ETSI 300 019-1-2 ETSI 300 019-1-3
EMF	CENELEC EN 62311 CENELEC EN 50385 OET65	RSS-102 FCC Parts 1 & 2 FCC KDB series
RoHS	Directive 2002/95/EC & 2011/65/EU	
Reach	Regulation 1907/2006/EC	
WEEE	Directive 2002/96/EC & 2012/19/EU	

Professional Service and Support

Huawei WLAN planning tools deliver expert network design and optimization services using the most professional simulation platform in the industry. Backed by fifteen years of continuous investment in wireless technologies, extensive network planning and optimization experience, as well as rich expert resources, Huawei helps customers:

- Design, deploy, and operate a high-performance network that is reliable and secure.
- Maximize return on investment and reduce operating expenses.

More Information

For more information, please visit http://e.huawei.com or contact your local Huawei office.

Enterprise Services

Product Overview

Marketing Documentation

Huawei AP6010 Series Brochure-Detailed

Huawei AP6010, a standard indoor Access Point (AP) with an elegant design, supports 2.4 GHz and 5 GHz frequency bands, complies with IEEE 802.11a/b/g/n, and works in Fit AP and Fat AP modes. It supports Multiple-Input Multiple-Output (MIMO) technology, provides radio coverage for large areas, and offers services simultaneously on 2.4 GHz and 5 GHz to connect more users.

The AP6010 provides comprehensive service support capabilities and features proven reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance meeting indoor settled network requirements.

Huawei AP6010SN-GN Access Point

- 2.4 GHz frequency band
- Compatibility with IEEE 802.11b/g/n
- Certified energy-efficient
- iF Design Award winner for superior value

Huawei AP6010DN-AGN Access Point

- 2.4 GHz and 5 GHz frequency bands
- Compatibility with IEEE 802.11a/b/g/n
- Certified energy-efficient
- Tolly certified
- iF Design Award winner for superior value

Huawei AP6010 offers the following advantages:

- High-speed and reliable wireless access services: supports 802.11n Beamforming and uses the latest 802.11n chip for better performance in high-density scenarios
- Comprehensive user access control: implements fine-grained user management
- Secure network: supports multiple authentication and encryption methods, as well as rogue AP and STA detection
- Flexible networking and strong environment adaptability: provides access and bridging services; automatically adjusts radio parameters and bandwidth for different environments
- Easy management and maintenance: supports Plug-and-Play (PnP); professional network design tools optimize deployment

Product Features

- Recommended for middle- to large-scale scenarios with high user density and bandwidth requirements, such as educational institutions, government offices, airports, bus stations, and retail stores
- Integrated Fit AP and Fat AP functions
- Wireless Intrusion Detection System (WIDS)/Wireless Intrusion Prevention System (WIPS)
- Wireless Distribution System (WDS)/Mesh networking
- Value-added services, such as spectrum analysis and locating service
- Auto Radio
- High Density Boost
- User Awareness
- IPv6 support
- 300 Mbit/s for each frequency band and integrated built-in antenna
- PoE power supply in compliance with IEEE 802.3af/at, simplifying installation
- Single-band AP6010SN-GN: works on the 2.4 GHz frequency band
- Dual-band AP6010DN-AGN: works on both 2.4 GHz and 5 GHz frequency bands

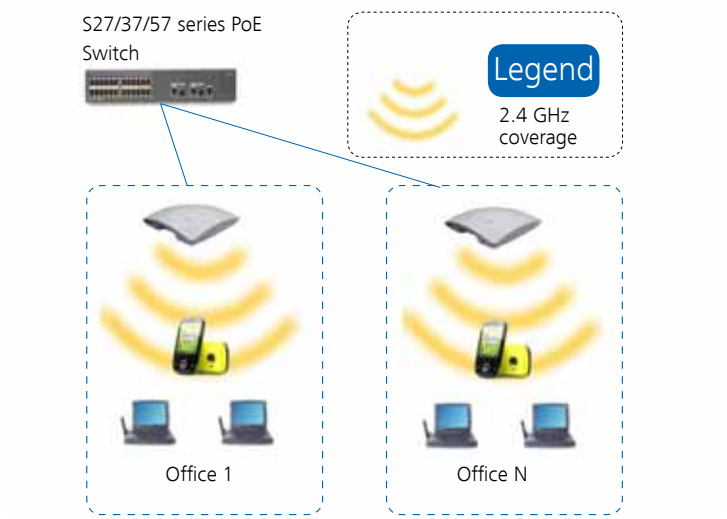
Scalability

When coupled with Access Controllers (ACs) and Network Management Systems (NMSs), Huawei 802.11n APs can implement real-time monitoring, intelligent Radio Frequency (RF) management, spectrum analysis, wireless positioning, load balancing, roaming, security policy control, wired/wireless network integration, as well as Bring Your Own Device (BYOD) network security control and a smart access strategy. The AC + Fit AP architecture is highly scalable and supports centralized management of multiple Fit APs on a single AC. Software upgrade technologies allow users to seamlessly add and upgrade APs without incurring additional administrative or equipment expense.

Typical Networking

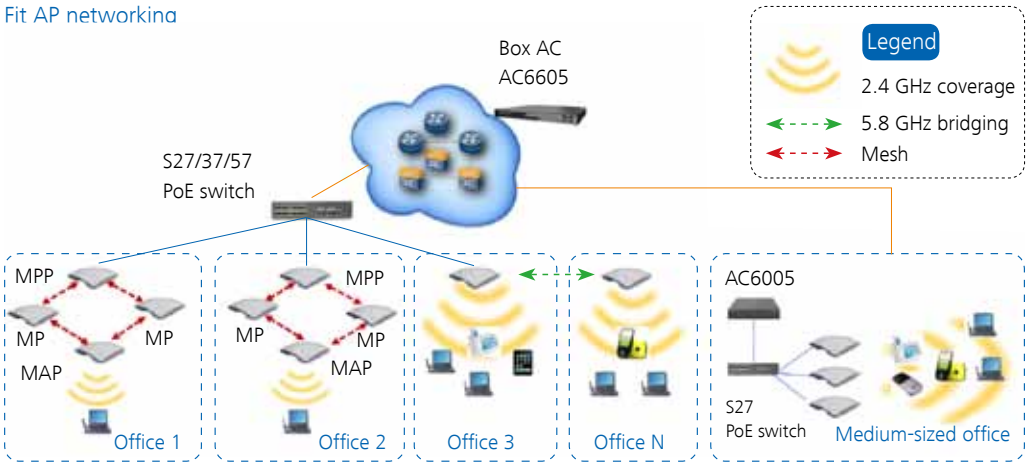
The following figures show typical AP6010SN-GN and AP6010DN-AGN networking.

Fat AP networking



In Fat AP mode, the AP6010SN-GN and AP6010DN-AGN provide user authentication and access, data security, service data forwarding, Quality of Service (QoS), and other functions, without an AC.

Fit AP networking



In Fit AP mode, the AP6010SN-GN and AP6010DN-AGN provide data forwarding functions. An AC is required for user access, AP management, authentication, routing, security, and QoS. The AP6010SN-GN and AP6010DN-AGN can also be deployed in a Wireless Distribution System (WDS) or mesh network as a Fit AP.

In WDS mode, the AP supports Point-to-Point (P2P) and Point-to-Multi-Point (P2MP) networking. With 5 GHz and 2.4 GHz frequency bands, the AP provides wireless bridging and access functions.

Mesh Points (MPs) interconnect in a mesh topology to form a self-configuring and self-healing Wireless Mesh Network (WMN) backbone, and Mesh Portal Points (MPPs) provide a connection to the Internet. Stations connect to the WMN network through Mesh Access Points (MAPs). Dedicated mesh routing protocols provide better transmission quality to ensure high bandwidth and Internet connection service stability.

Basic Specifications

Item		Description
Technical specifications	Dimensions (W x D x H)	180 mm x 180 mm x 50 mm
	Weight	0.4 kg
	System memory	• 128 MB DDR2 • 32 MB flash memory
Power specifications	Power input	• 12V DC ± 10% • PoE power supply: –48V DC (in compliance with IEEE 802.3af/at) NOTE The AP6010DN-AGN and AP6010SN-GN cannot use PoE power supply and adapter power supply simultaneously.
	Maximum power consumption	• AP6010DN-AGN: 10.2W • AP6010SN-GN: 6.5W NOTE The actual maximum power consumption depends on local laws and regulations.
Environmental specifications	Operating temperature	–10°C to +50°C
	Storage temperature	–40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Waterproof and dustproof grade	IP31
	Altitude	–60 m to 4,000 m

Radio Specifications

Item	Description
Antenna type	Built-in antennas
Antenna gain	AP6010DN-AGN: • 2.4 GHz: 4 dBi • 5 GHz: 5 dBi AP6010SN-GN: 4 dBi
Maximum number of users	≤ 128
Maximum transmit power	20 dBm for each radio port NOTE The actual transmit power depends on local laws and regulations.
Power increment	1 dBm

Item	Description
Receiver sensitivity	2.4 GHz 802.11b (CCK): –97 dBm @ 1 Mb/s; –90 dBm @ 11 Mb/s
	2.4 GHz 802.11g (non-HT20): –92 dBm @ 6 Mb/s; –74 dBm @ 54 Mb/s
	2.4 GHz 802.11n (HT20): –92 dBm @ MCS0; –71 dBm @ MCS15
	2.4 GHz 802.11n (HT40): –89 dBm @ MCS0; –68 dBm @ MCS15
	5 GHz 802.11a (non-HT20): –89 dBm @ 6 Mb/s; -70 dBm @ 54 Mb/s
	5 GHz 802.11n (HT20): –88 dBm @ MCS0; –67 dBm @ MCS15
	5 GHz 802.11n (HT40): –85 dBm @ MCS0; –63 dBm @ MCS15

Product Features

WLAN features	AP6010DN-AGN: compliance with IEEE 802.11a/b/g/n
	AP6010SN-GN: compliance with IEEE 802.11b/g/n
	AP6010SN-GN: maximum rate of 300 Mbit/s
	AP6010DN-AGN: maximum rate of 600 Mbit/s
	Maximum Ratio Combining (MRC)
	Maximum Likelihood Detection (MLD)
	Data unit aggregation, including A-MPDU (Tx/Rx) and A-MSDU (Rx only)
	802.11 Dynamic Frequency Selection (DFS) for the AP6010DN-AGN
	Short Guard Interval (GI)
	Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile for priority-based data processing and forwarding
	Automatic and manual rate adjustment (the rate is adjusted automatically by default)
	WLAN channel management and channel rate adjustment
	Automatic channel scanning and interference avoidance
	Service Set Identifier (SSID) hiding
	Signal Sustain Technology (SST)
	Unscheduled Automatic Power Save Delivery (U-APSD)
	Control and Provisioning of Wireless Access Points (CAPWAP) in Fit AP mode
	Automatically going online in Fit AP mode
	WDS in Fit AP mode
	Mesh networking in Fit AP mode

Network features	Compliance with IEEE 802.3u Auto-negotiation of the rate and duplex mode; automatic switchover between the Media Dependent Interface (MDI) and Media Dependent Interface Crossover (MDI-X) SSID-based VLAN assignment VLAN trunk on uplink Ethernet ports 4,094 VLAN IDs (1 to 4,094) and a maximum of 16 virtual APs (VAPs) for each radio AP control channel in tagged and untagged mixed mode DHCP client , obtainingIP addresses through DHCP Tunnel forwarding and direct forwarding STA isolation in the same VLAN Access Control Lists (ACLs) Link Layer Discovery Protocol (LLDP) Service holding upon CAPWAP link disconnection in Fit AP mode Unified authentication on the AC in Fit AP mode AC dual-link backup in Fit AP mode
QoS features	Priority mapping and packet scheduling based on a WMM profile for priority-based data processing and forwarding WMM parameter management for each radio WMM power saving Priority mapping for upstream packets and flow-based mapping for downstream packets Queue mapping and scheduling User-based bandwidth limiting Adaptive bandwidth management (the system dynamically adjusts bandwidth allocation based on the user quantity and environment to improve the user experience) Airtime scheduling
Security features	Open system authentication WEP authentication/encryption WPA/WPA2-PSK authentication and encryption WPA/WPA2-802.1x authentication and encryption WAPI authentication and encryption WIDS including rogue AP and STA detection, attack detection, STA/AP blacklist and whitelist
Maintenance features	Unified management and maintenance on the AC in Fit AP mode Plug-and-Play (PnP) in Fit AP mode: automatically going online and loading configurations WDS zero-configuration deployment in Fit AP mode Mesh zero-configuration deployment in Fit AP mode Batch upgrade Local AP management using Telnet or through the serial port Real-time configuration monitoring and fast fault location using the NMS System status alarm

BYOD	Identifies the device type according to the Organizationally Unique Identifier (OUI) in the MAC address. Identifies the device type according to the User Agent (UA) information in an HTTP packet. Identifies the device type according to DHCP options. The RADIUS server delivers packet forwarding, security, and QoS policies according to the device type carried in the RADIUS authentication and accounting packets.
Locating service	Locates tags manufactured by AeroScout or Ekahau. Locates Wi-Fi terminals.
Spectrum analysis	Identifies interference sources such as baby monitors, Bluetooth devices, digital cordless phones (at 2.4 GHz frequency band only), wireless audio transmitters (at both the 2.4 GHz and 5 GHz frequency bands), wireless game controllers, and microwave ovens. Works with Huawei eSight to locate and perform spectrum analysis on interference sources.

Standards Compliance

Safety standards	UL 60950-1 CAN/CSA 22.2 No.60950-1 IEC 60950-1	EN 60950-1 GB 4943
Radio standards	AP6010DN-AGN: ETSI EN 300 328 ETSI EN 301 893 FCC Part 15C: 15.247 FCC Part 15C: 15.407 RSS-210 AS/NZS 4268	AP6010SN-GN: ETSI EN 300 328 FCC Part 15C: 15.247 RSS-210 AS/NZS 4268
EMC standards	EN 301 489-1 EN 301 489-17 ETSI EN 60601-1-2 FCC Part 15 ICES-003 YD/T 1312.2-2004 ITU k.21 GB 9254	GB 17625.1 AS/NZS CIPSR22 EN 55022 EN 55024 CISPR 22 CISPR 24 IEC61000-4-6 IEC61000-4-2
IEEE standards	AP6010DN-AGN: IEEE 802.11a/b/g IEEE 802.11n IEEE 802.11h IEEE 802.11d IEEE 802.11e	AP6010SN-GN: IEEE 802.11b/g IEEE 802.11n IEEE 802.11h IEEE 802.11d IEEE 802.11e

Security standards	802.11i, Wi-Fi Protected Access 2 (WPA2), and WPA 802.1X Advanced Encryption Standards (AES) and Temporal Key Integrity Protocol (TKIP) EAP Type (s)	
Environmental standards	ETSI 300 019-2-1 ETSI 300 019-2-2 ETSI 300 019-2-3	ETSI 300 019-1-1 ETSI 300 019-1-2 ETSI 300 019-1-3
EMF	CENELEC EN 62311 CENELEC EN 50385 OET65	RSS-102 FCC Parts 1 & 2 FCC KDB series
RoHS	Directive 2002/95/EC & 2011/65/EU	
Reach	Regulation 1907/2006/EC	
WEEE	Directive 2002/96/EC & 2012/19/EU	

Professional Service and Support

Huawei WLAN planning tools deliver expert network design and optimization services using the most professional simulation platform in the industry. Backed by fifteen years of continuous investment in wireless technologies, extensive network planning and optimization experience, as well as rich expert resources, Huawei helps customers:

- Design, deploy, and operate a high-performance network that is reliable and secure.
- Maximize return on investment and reduce operating expenses.

More Information

For more information, please visit http://e.huawei.com or contact your local Huawei office.

Enterprise Services

Product Overview

Marketing Documentation

Huawei AP7030DE Brochure-Detailed

Huawei AP7030DE is a technology-leading access point (AP) that works in Fit AP mode on Wireless Local Area Networks (WLANs). It provides comprehensive service support capabilities and features high reliability, high security, simple network deployment, automatic Access Controller (AC) discovery and configuration, and real-time management and maintenance. The AP7030DE complies with IEEE 802.11ac and provides gigabit access for wireless users. This high capacity greatly improves user experience on wireless networks.

Wi Fi CERTIFIED

Huawei AP7030DE Access Point

- Smart antenna arrays
- 2.4 GHz and 5 GHz frequency bands
- Compatibility with IEEE 802.11a/b/g/n/ac

Huawei AP7030DE advantages:

- Flexible smart antenna array: supports targeted and accurate coverage; provides ubiquitous signals; suppresses interference; improves signal gain.
- High-speed, reliable wireless access services: uses the latest 802.11ac chip for higher performance and wider coverage.
- Comprehensive user access control: implements user access control based on user group policies; supports a maximum of 256 users.
- Solid network security: supports multiple authentication and encryption modes, as well as rogue AP detection.
- Flexible networking and strong environment adaptability: supports AP, WDS, and Mesh networking modes.
- Easy management and maintenance: supports Plug-and-Play (PnP).

Product Features

- Industry-leading AP recommended for use in mid- and large-sized scenarios with high user density and bandwidth requirements, such as educational institutions, government offices, airports, bus stations, and retail stores
- 3 x 3 Multiple-Input Multiple-Output (MIMO), three spatial streams, 600 Mbit/s at 2.4 GHz radio, 1.3 Gbit/s at 5 GHz radio, and 1.9 Gbit/s system rate for the AP7030DE
- Industry-level design with high waterproof and dustproof protection grades: applicable to challenging environments
- PoE power supply in compliance with IEEE 802.3at, simplifying AP installation
- Smart antenna array suppresses interference signals and improves signal gain
- Value-added services such as spectrum analysis and locating service
- Wireless Intrusion Detection System (WIDS)/Wireless Intrusion Prevention System (WIPS)
- Auto Radio
- High Density Boost
- User Awareness
- Link Following
- Beamforming
- IPv6 support

Scalability

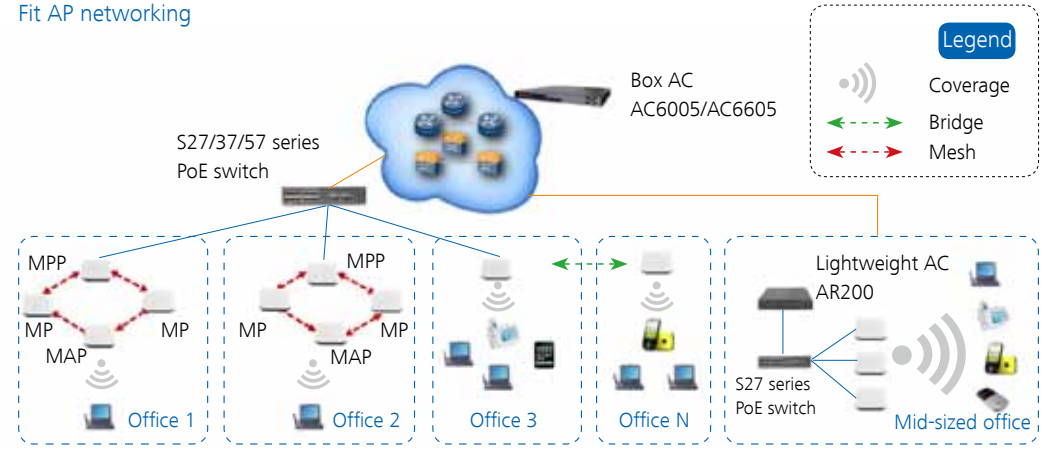
When coupled with ACs and Network Management Systems (NMSs), Huawei 802.11ac APs can implement real-time monitoring, intelligent Radio Frequency (RF) management, spectrum analysis, wireless positioning, load balancing, roaming, security policy control, wired/wireless network integration, as well as Bring Your Own Device (BYOD) network security control and a smart access strategy. The AC + Fit AP architecture is highly scalable and supports centralized management of multiple Fit APs on a single AC. Software upgrade technologies allow users to seamlessly add and upgrade APs without incurring additional administrative or equipment expense.

Typical Networking

Huawei AP7030DE can work in AP, WDS, or Mesh mode.

The following figure shows typical AP7030DE networking.

Fit AP networking



When working as a Fit AP, the AP7030DE provides bridging and data forwarding functions. An AC is required for user access, AP management, authentication, routing, security, and QoS.

In WDS mode, the AP supports Point-to-Point (P2P) and Point-to-Multi-Point (P2MP) networking modes. With 5 and 2.4 GHz frequency bands, the AP7030DE can implement wireless bridging and access functions.

Mesh Points (MPs) interconnect to form a self-configuring, self-healing Wireless Mesh Network (WMN) backbone, and Mesh Portal Points (MPPs) provide a connection to the Internet. Stations (STAs) can connect to the WMN network through Mesh Access Points (MAPs). Dedicated mesh routing protocols can provide better transmission quality to ensure high bandwidth and Internet connection service stability.

Basic Specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	220 mm x 220 mm x 53 mm
	Weight	1.4 kg
	System memory	• 256 MB DDR3 • 32 MB flash memory
Power specifications	Power input	• 12 V DC ± 10% • PoE power supply: -48 V DC (in compliance with IEEE 802.3at)
	Maximum power consumption	• 21 W NOTE The actual maximum power consumption depends on local laws and regulations.

Environment specifications	Operating temperature	-20°C to +50°C
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Dustproof and waterproof grade	IP41
	Altitude	-60 m to 4,000 m
	Atmospheric pressure	70 kPa to 106 kPa

Radio Specifications

Item	Description
Antenna type	Built-in dual-band smart antenna (up to 12 antennas)
Antenna gain	• 2.4 GHz: 4 dBi • 5 GHz: 4 dBi
Maximum number of users	≤ 256
Maximum transmit power	2.4 GHz: 20 dBm per radio port 5 GHz: 16 dBm per radio port NOTE The actual transmit power depends on local laws and regulations.
Power increment	1 dBm

Product Features

WLAN features	Compliance with IEEE 802.11a/b/g/n/ac Maximum rate: 1.9 Gbit/s Maximum Ratio Combining (MRC) Maximum Likelihood Detection (MLD) Data unit aggregation, including A-MPDU (Tx/Rx) and A-MSDU (Rx only) 802.11 Dynamic Frequency Selection (DFS) Short Guard Interval (GI) in 20 MHz, 40 MHz, and 80 MHz modes Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile to implement priority-based data processing and forwarding Automatic and manual rate adjustment (the rate is adjusted automatically by default) WLAN channel management and channel rate adjustment Automatic channel scanning and interference avoidance Service set identifier (SSID) hiding Signal Sustain Technology (SST) Unscheduled Automatic Power Save Delivery (U-APSD) Control and Provisioning of Wireless Access Points (CAPWAP) in Fit AP mode Automatically going online in Fit AP mode WDS in Fit AP mode Mesh in Fit AP mode

Network features	Compliance with IEEE 802.3u Auto-negotiation of the rate and duplex mode and automatic switchover between the Media Dependent Interface (MDI) and Media Dependent Interface Crossover (MDI-X) SSID-based VLAN assignment VLAN trunk on uplink Ethernet ports 4,094 VLAN IDs (1-4,094) and a maximum of 16 Virtual APs (VAPs) for each radio AP control channel in tagged and untagged mixed mode DHCP client, obtaining IP addresses through DHCP Tunnel forwarding and direct forwarding STA isolation in the same VLAN Access Control Lists (ACLs) Link Layer Discovery Protocol (LLDP) Service holding upon CAPWAP link disconnection in direct forwarding Unified authentication on the AC AC dual-link backup
QoS features	Priority mapping and packet scheduling based on a WMM profile to implement priority-based data processing and forwarding WMM parameter management for each radio WMM power saving Priority mapping for upstream packets and flow-based mapping for downstream packets Queue mapping and scheduling User-based bandwidth limiting Adaptive bandwidth management (the system dynamically adjusts bandwidth allocation based on the user quantity and environment to improve user experience) Airtime scheduling
Security features	Open system authentication WEP authentication/encryption WPA/WPA2-PSK authentication and encryption WPA/WPA2-802.1x authentication and encryption WAPI authentication and encryption WIDS including rogue AP and STA detection, attack detection, STA/AP blacklist and whitelist

Maintenance features	Unified management and maintenance on the AC PnP: automatically going online and loading configurations. WDS zero-configuration deployment WMN zero-configuration deployment Batch upgrade Local AP management using Telnet or through the serial port Real-time configuration monitoring and fast fault location using the NMS System status alarm
BYOD	Identifies the device type according to the Organizationally Unique Identifier (OUI) in the MAC address. Identifies the device type according to the User Agent (UA) information in an HTTP packet. Identifies the device type according to DHCP options. The RADIUS server delivers packet forwarding, security, and QoS policies according to the device type carried in the RADIUS authentication and accounting packets.
Locating service	Locates tags manufactured by AeroScout or Ekahau. Locates Wi-Fi terminals.
Spectrum analysis	Identifies interference sources such as Bluetooth devices, microwave ovens, cordless phones, ZigBee devices, game controllers, 2.4 GHz/5 GHz wireless video and audio devices, and baby monitors. Works with eSight to locate and perform spectrum analysis on interference sources.

Standards Compliance

Safety standards	UL 60950–1 CAN/CSA 22.2 No.60950-1 IEC 60950–1	EN 60950–1 GB 4943
Radio standards	ETSI EN 300 328 ETSI EN 301 893 FCC Part 15C: 15.247	FCC Part 15C: 15.407 RSS-210
EMC standards	EN 301.489–1 EN 301.489–17 FCC Part 15 ICES-003	YD/T 1312.2-2004 ITU k.21 GB 9254 GB 17625.1

IEEE standards	IEEE 802.11a/b/g	IEEE 802.11h
	IEEE 802.11n	IEEE 802.11d
	IEEE 802.11ac	IEEE 802.11e
Security standards	802.11i, Wi-Fi Protected Access 2 (WPA2), and WPA	
	802.1X	
	Advanced Encryption Standards (AES) and Temporal Key Integrity Protocol (TKIP)	
	EAP Type (s)	
Environment standards	ETSI 300 019-2-2	
	ETSI 300 019-2-3	
EMF	CENELEC EN 62311	
	CENELEC EN 50385	
	OET65	
	RSS-102	
RoHS	Directive 2002/95/EC	
Reach	Regulation 1907/2006/EC	
WEEE	Directive 2002/96/EC	

Professional Service and Support

Huawei WLAN planning tools deliver expert network design and optimization services using the most professional simulation platform in the industry. Backed by fifteen years of continuous investment in wireless technologies, extensive network planning and optimization experience, as well as rich expert resources, Huawei helps customers:

- Design, deploy, and operate a high-performance network that is reliable and secure.
- Maximize return on investment and reduce operating expenses.

More Information

For more information, please visit http://e.huawei.com or contact your local Huawei office.

Enterprise Services

Product Overview

Marketing Documentation

Huawei AP7110 Series Brochure-Detailed

Huawei AP7110 is a technology-leading Access Point (AP) that works in Fit mode on Wireless Local Area Networks (WLANs). It provides comprehensive service support capabilities and features high reliability, high security, simple network deployment, automatic Access Controller (AC) discovery and configuration, and real-time management and maintenance.

Wi Fi CERTIFIED

Huawei AP7110SN-GN Access Point

- 2.4 GHz frequency band
- Compatibility with IEEE 802.11b/g/n

Huawei AP7110DN-AGN Access Point

- 2.4 GHz and 5 GHz frequency bands
- Compatibility with IEEE 802.11a/b/g/n
- Tolly certified

Huawei AP7110 advantages:

- High-speed, reliable wireless access services: uses the latest 802.11n chip for higher performance and wider coverage; provides a rate of 450 Mbit/s for each radio; excellent for high-density applications.
- Comprehensive user access control capability: implements user access control based on user group policies; supports a maximum of 256 users.
- Solid network security: supports multiple authentication and encryption modes, as well as rogue AP and STA detection.
- Flexible networking and strong environment adaptability: provides access and bridging services and automatically adjusts working channel, transmit power, and bandwidth to adapt to various environments.
- Easy management and maintenance: supports Plug-and-Play (PnP) and deployment based on expert network planning and optimization tools.

Product Features

- Industry-leading AP for good radio performance; recommended for use in large scenarios or scenarios with high user density, including exhibition centers, hospitals, factories, and stadiums
- 802.11n 3 x 3 Multiple-Input Multiple-Output (MIMO), three spatial streams, 450 Mbit/s for each radio, and 900 Mbit/s system rate for the AP7110DN-AGN
- Industry-level design with high waterproof and dustproof protection grades: applicable to challenging environments
- PoE power supply in compliance with IEEE 802.3af/at, simplifying AP installation
- External antenna enables flexible configuration of antenna gain and selection of deployment positions
- Value-added services such as spectrum analysis and locating service
- Wireless Distribution System (WDS)/Mesh
- Wireless Intrusion Detection System (WIDS)/Wireless Intrusion Prevention System (WIPS)
- Auto Radio
- High Density Boost
- User Awareness
- Beamforming
- IPv6 support
- Working frequencies:
- AP7110SN-GN: 2.4 GHz
- AP7110DN-AGN: 2.4 GHz and 5 GHz

Scalability

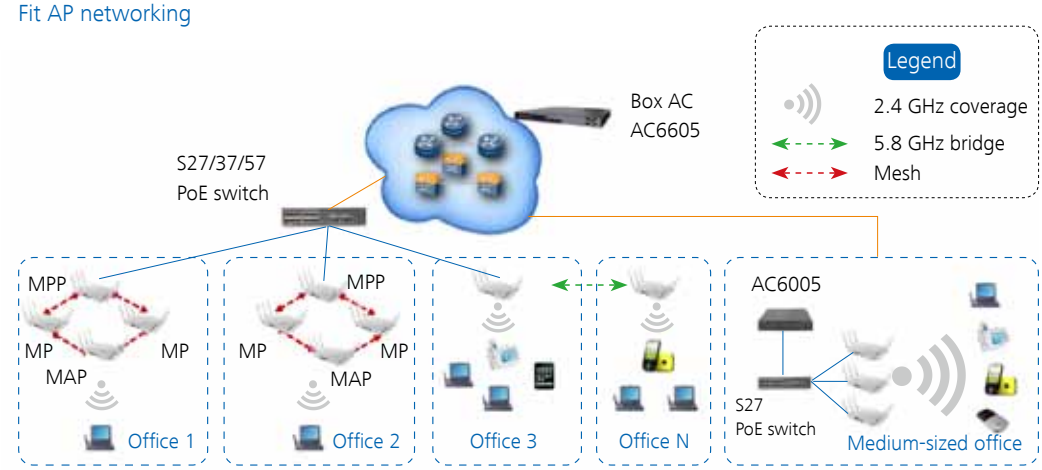
When coupled with ACs and Network Management Systems (NMSs), Huawei 802.11ac APs can implement real-time monitoring, intelligent Radio Frequency (RF) management, spectrum analysis, wireless positioning, load balancing, roaming, security policy control, wired/wireless network integration, as well as Bring Your Own Device (BYOD) network security control and a smart access strategy. The AC + Fit AP architecture is highly scalable and supports centralized management of multiple Fit APs on a single AC. Software upgrade technologies allow users to seamlessly add and upgrade APs without incurring additional administrative or equipment expense.

Typical Networking

Huawei AP7110SN-GN and AP7110DN-AGN can work in AP, WDS, or Mesh mode.

The following figure shows typical AP7110SN-GN and AP7110DN-AGN networking.

Fit AP networking



When working as Fit APs, the AP7110SN-GN and AP7110DN-AGN provide data forwarding functions. An AC is required for user access, AP management, authentication, routing, security, and QoS. The AP7110SN-GN and AP7110DN-AGN can also be deployed in a Wireless Distribution System (WDS) or mesh networking as Fit APs.

In WDS mode, the AP supports Point-to-Point (P2P) and Point-to-Multi-Point (P2MP) networking modes. With 5 GHz and 2.4 GHz frequency bands, the APs can implement wireless bridging and access functions.

Mesh Points (MPs) interconnect to form a self-configuring, self-healing Wireless Mesh Network (WMN) backbone, and Mesh Portal Points (MPPs) provide a connection to the Internet. Stations (STAs) can connect to the WMN network through Mesh Access Points (MAPs). Dedicated mesh routing protocols can provide better transmission quality to ensure high bandwidth and Internet connection service stability.

Basic Specifications

Item		Description
Technical specifications	Dimensions (W x D x H)	200 mm x 200 mm x 45 mm
	Weight	1.0 kg
	System memory	• 256 MB DDR3 • 32 MB flash memory

Power specifications	Power input	• 12 V DC ± 10% • PoE power supply: -48 V DC • AP7110SN-GN in compliance with IEEE 802.3af/at • AP7110DN-AGN in compliance with IEEE 802.3at
	Maximum power consumption	• AP7110DN-AGN: 15.7W • AP7110SN-GN: 8.7W NOTE The actual maximum power consumption depends on local laws and regulations.
Environmental specifications	Operating temperature	-10°C to +55°C
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Waterproof and dustproof grade	IP41
	Altitude	-60 m to 4,000 m

Radio Specifications

Item	Description
Antenna type	External antennas, RP-SMA
Antenna gain	AP7110DN-AGN: • 2.4 GHz: 2.5 dBi • 5 GHz: 4 dBi AP7110SN-GN: 2.5 dBi
Maximum number of users	≤ 256
Maximum transmit power	20 dBm for each radio port NOTE The actual transmit power depends on local laws and regulations.
Power increment	1 dBm
Receiver sensitivity	2.4 GHz 802.11b (CCK): -97 dBm @ 1 Mb/s; -89 dBm @ 11 Mb/s
	2.4 GHz 802.11g (non-HT20): -93 dBm @ 6 Mb/s; -74 dBm @ 54 Mb/s
	2.4 GHz 802.11n (HT20): -93 dBm @ MCS0; -73 dBm @ MCS23
	2.4 GHz 802.11n (HT40): -86 dBm @ MCS0; -70 dBm @ MCS23
	5 GHz 802.11a (non-HT20): -93 dBm @ 6 Mb/s; -74 dBm @ 54 Mb/s
	5 GHz 802.11n (HT20): -93 dBm @ MCS0; -69 dBm @ MCS23
	5 GHz 802.11n (HT40): -87 dBm @ MCS0; -66 dBm @ MCS23

Product Features

WLAN features	AP7110DN-AGN: compliance with IEEE 802.11a/b/g/n AP7110SN-GN: compliance with IEEE 802.11b/g/n AP7110SN-GN: maximum rate of 450 Mbit/s AP7110DN-AGN: maximum rate of 900 Mbit/s Maximum Ratio Combining (MRC) Maximum Likelihood Detection (MLD) Data unit aggregation, including A-MPDU (Tx/Rx) and A-MSDU (Rx only) 802.11 Dynamic Frequency Selection (DFS) for the AP7110DN-AGN Short Guard Interval (GI) Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile to implement priority-based data processing and forwarding Automatic and manual rate adjustment (the rate is adjusted automatically by default) WLAN channel management and channel rate adjustment Automatic channel scanning and interference avoidance Service Set Identifier (SSID) hiding Signal Sustain Technology (SST) Unscheduled Automatic Power Save Delivery (U-APSD) Control and Provisioning of Wireless Access Points (CAPWAP) in Fit AP mode Automatically going online in Fit AP mode WDS in Fit AP mode Mesh in Fit AP mode
Network features	Compliance with IEEE 802.3u Auto-negotiation of the rate and duplex mode and automatic switchover between the Media Dependent Interface (MDI) and Media Dependent Interface Crossover (MDI-X) SSID-based VLAN assignment VLAN trunk on uplink Ethernet ports 4,094 VLAN IDs (1 to 4,094) and a maximum of 16 Virtual APs (VAPs) for each radio AP control channel in tagged and untagged mixed mode DHCP client, obtaining IP addresses through DHCP Tunnel forwarding and direct forwarding STA isolation in the same VLAN Access Control Lists (ACLs) Link Layer Discovery Protocol (LLDP) Service holding upon CAPWAP link disconnection in Fit AP mode Unified authentication on the AC in Fit AP mode AC dual-link backup in Fit AP mode

QoS features	Priority mapping and packet scheduling based on a WMM profile to implement priority-based data processing and forwarding WMM parameter management for each radio WMM power saving Priority mapping for upstream packets and flow-based mapping for downstream packets Queue mapping and scheduling User-based bandwidth limiting Adaptive bandwidth management (the system dynamically adjusts bandwidth allocation based on the user quantity and environment to improve user experience) Airtime scheduling
Security features	Open system authentication WEP authentication/encryption WPA/WPA2-PSK authentication and encryption WPA/WPA2-802.1x authentication and encryption WAPI authentication and encryption WIDS including rogue AP and STA detection, attack detection, STA/AP blacklist and whitelist
Maintenance features	Unified management and maintenance on the AC in Fit AP mode Plug-and-Play (PnP) in Fit AP mode: automatically going online and loading configurations WDS zero-configuration deployment in Fit AP mode Mesh zero-configuration deployment in Fit AP mode Batch upgrade Local AP management using Telnet or through the serial port Real-time configuration monitoring and fast fault location using the NMS System status alarm
BYOD	Identifies the device type according to the Organizationally Unique Identifier (OUI) in the MAC address. Identifies the device type according to the User Agent (UA) information in an HTTP packet. Identifies the device type according to DHCP options. The RADIUS server delivers packet forwarding, security, and QoS policies according to the device type carried in the RADIUS authentication and accounting packets.
Locating service	Locates tags manufactured by AeroScout or Ekahau. Locates Wi-Fi terminals.

Spectrum analysis	Identifies interference sources such as baby monitors, Bluetooth devices, digital cordless phones (at 2.4 GHz frequency band only), wireless audio transmitters (at both the 2.4 GHz and 5 GHz frequency bands), wireless game controllers, and microwave ovens. Works with eSight to locate and perform spectrum analysis on interference sources.

Standards Compliance

Safety standards	UL 60950-1 CAN/CSA 22.2 No.60950-1 IEC 60950-1	EN 60950-1 GB 4943
Radio standards	AP7110DN-AGN: ETSI EN 300 328 ETSI EN 301 893 FCC Part 15C: 15.247 FCC Part 15C: 15.407 RSS-210	AS/NZS 4268 AP7110SN-GN: ETSI EN 300 328 FCC Part 15C: 15.247 RSS-210 AS/NZS 4268
EMC standards	EN 301 489-1 EN 301 489-17 ETSI EN 60601-1-2 FCC Part 15 ICES-003 YD/T 1312.2-2004 ITU k.21 GB 9254	GB 17625.1 AS/NZS CIPSR22 EN 55022 EN 55024 CISPR 22 CISPR 24 IEC61000-4-6 IEC61000-4-2
IEEE standards	AP7110DN-AGN: IEEE 802.11a/b/g IEEE 802.11n IEEE 802.11h IEEE 802.11d IEEE 802.11e	AP7110SN-GN: IEEE 802.11b/g IEEE 802.11n IEEE 802.11h IEEE 802.11d IEEE 802.11e
Security standards	802.11i, Wi-Fi Protected Access 2 (WPA2), and WPA 802.1X Advanced Encryption Standards (AES) and Temporal Key Integrity Protocol (TKIP) EAP Type(s)	

Environmental standards	ETSI 300 019-2-1 ETSI 300 019-2-2 ETSI 300 019-2-3	ETSI 300 019-1-1 ETSI 300 019-1-2 ETSI 300 019-1-3
EMF	CENELEC EN 62311 CENELEC EN 50385 OET65	RSS-102 FCC Parts 1 & 2 FCC KDB series
RoHS	Directive 2002/95/EC & 2011/65/EU	
Reach	Regulation 1907/2006/EC	
WEEE	Directive 2002/96/EC & 2012/19/EU	

Professional Service and Support

Huawei WLAN planning tools deliver expert network design and optimization services using the most professional simulation platform in the industry. Backed by fifteen years of continuous investment in wireless technologies, extensive network planning and optimization experience, as well as rich expert resources, Huawei helps customers:

- Design, deploy, and operate a high-performance network that is reliable and secure.
- Maximize return on investment and reduce operating expenses.

More Information

For more information, please visit http://e.huawei.com or contact your local Huawei office.

Enterprise Services

Product Overview

Marketing Documentation

Huawei AP6310SN-GN Brochure-Detailed

Huawei AP6310SN-GN is a cost-effective indoor distributed single-band Access Point (AP) with high power and reliability. It supports the 2.4 GHz frequency band, complies with IEEE 802.11b/g/n, and works in Fit AP mode. It provides comprehensive service support capabilities and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance, which meets indoor distributed network requirements.

Wi Fi CERTIFIED

Huawei AP6310SN-GN Access Point:

- 2.4 GHz frequency band
- Compatibility with IEEE 802.11b/g/n

Huawei AP6310SN-GN advantages:

- High speed and reliable wireless access services: uses the latest 802.11n chip to achieve higher performance
- Comprehensive user access control capability: implements fine-grained management.
- Solid network security: supports multiple authentication and encryption modes, as well as rogue AP and STA detection.
- Flexible networking and strong environment adaptability: automatically adjusts working channel, transmit power, and bandwidth to adapt to various environments, and supports identification of non-Wi-Fi interference sources.
- Easy management and maintenance: supports Plug-and-Play (PnP).

Product Features

- With its high power, the AP6310SN-GN can work on a 2G/3G/CATV indoor distribution system and share the lines of 2G/3G/CATV signals. The AP is also recommended for use in indoor distributed wide coverage applications where signal attenuation is large and user density is high.
- Maximum transmit power: 500 mW (27 dBm)
- Spectrum analysis
- Wireless Intrusion Detection System (WIDS)/Wireless Intrusion Prevention System (WIPS)
- Auto Radio
- High Density Boost
- User Awareness
- Beamforming
- IPv6
- PoE power supply in compliance with IEEE 802.3af/at, simplifying installation
- Working frequency: 2.4 GHz
- Maximum wireless link rate: 150 Mbit/s

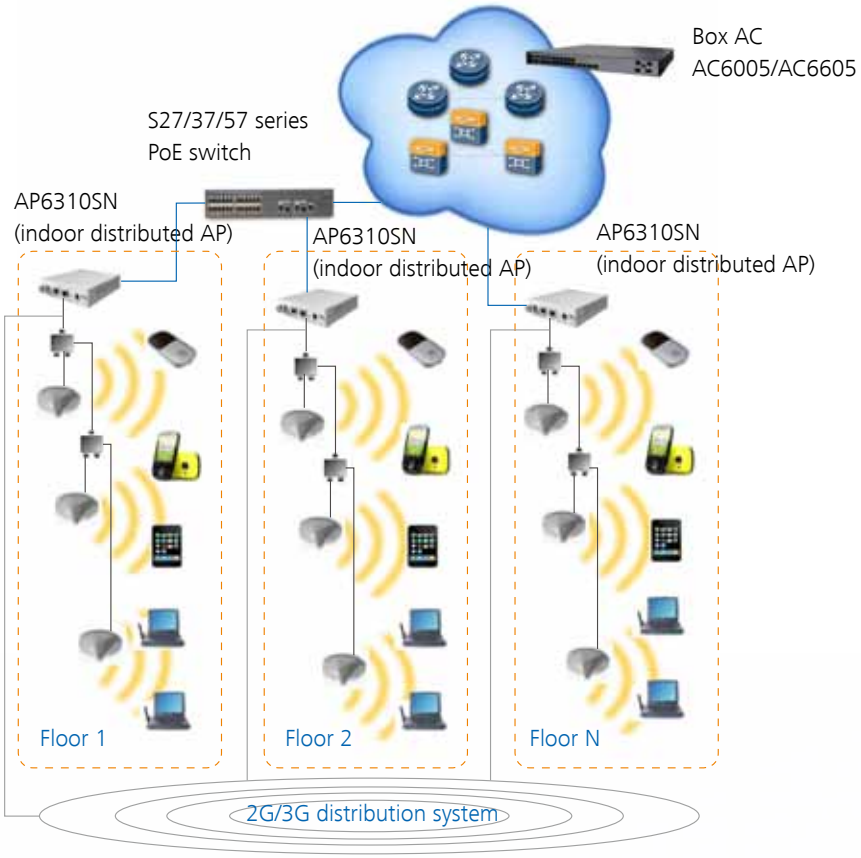
Scalability

When coupled with ACs and Network Management Systems (NMSs), Huawei 802.11n APs can implement real-time monitoring, intelligent Radio Frequency (RF) management, spectrum analysis, load balancing, roaming, security policy control, wired/wireless network integration, as well as Bring Your Own Device (BYOD) network security control and a smart access strategy. The AC + Fit AP architecture is highly scalable and supports centralized management of multiple Fit APs on a single AC. Software upgrade technologies allow users to seamlessly add and upgrade APs without incurring additional administrative or equipment expense.

Typical Networking

The AP6310SN-GN can be deployed in indoor distributed mode.

Fit AP networking



In this networking, the AP6310SN-GN functions as a Fit AP to provide bridging and data forwarding functions. An AC is required for user access, AP management, authentication, routing, security, and QoS.

Basic Specifications

Item		Description
Technical specifications	Dimensions (W x D x H)	150 mm x 130 mm x 35 mm
	Weight	0.6 kg
	System memory	• 128 MB DDR2 • 32 MB flash memory
Power specifications	Power input	• 12 V DC ± 10% • PoE power supply: -48 V DC (in compliance with IEEE 802.3af/at) NOTE The AP6310SN-GN cannot use PoE power supply and adapter power supply simultaneously.
	Maximum power consumption	8.3W NOTE The actual maximum power consumption depends on local laws and regulations.
Environmental specifications	Operating temperature	-10°C to +50°C
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Waterproof and dustproof grade	IP31
	Altitude	-60 m to 4,000 m

Radio Specifications

Item	Description
Antenna type	External antenna with a type-N female connector
Antenna gain	Depends on antennas used
Maximum number of users	≤ 128
Maximum transmit power	27 dBm for the radio port NOTE The actual transmit power depends on local laws and regulations.
Power increment	1 dBm
Receiver sensitivity	802.11b (CCK): -97 dBm @ 1 Mb/s; -90 dBm @ 11 Mb/s
	802.11g (non-HT20): -92 dBm @ 6 Mb/s; -74 dBm @ 54 Mb/s
	802.11n (HT20): -92 dBm @ MCS0; -71 dBm @ MCS15
	802.11n (HT40): -89 dBm @ MCS0; -68 dBm @ MCS15

Product Features

WLAN	AP6310SN-GN: complies with IEEE 802.11b/g/n AP6310SN-GN: maximum rate of 150 Mbit/s Maximum Ratio Combining (MRC) Maximum Likelihood Detection (MLD) Data unit aggregation including MAC Protocol Data Unit Aggregation (A-MPDU — Tx/Rx) and MAC Service Data Unit Aggregation (A-MSDU — Rx only) Short Guard Interval (GI) Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile to implement priority-based data processing and forwarding Automatic and manual rate adjustment (the rate is adjusted automatically by default) WLAN channel management and channel rate adjustment Automatic channel scanning and interference avoidance Service Set Identifier (SSID) hiding Signal Sustain Technology (SST) Unscheduled Automatic Power Save Delivery (U-APSD) Control and Provisioning of Wireless Access Points (CAPWAP) in Fit AP mode Automatically going online in Fit AP mode
Network	Compliance with IEEE 802.3u Auto-negotiation of the rate and duplex mode and automatic switchover between the Media Dependent Interface (MDI) and Media Dependent Interface Crossover (MDI-X) SSID-based VLAN assignment VLAN trunk on uplink Ethernet ports 4,094 VLAN IDs (1 to 4,094) and a maximum of 16 Virtual APs (VAPs) for each radio AP control channel in tagged and untagged mixed mode DHCP client, obtaining IP addresses through DHCP Tunnel forwarding and direct forwarding STA isolation in the same VLAN Access Control Lists (ACLs) Link Layer Discovery Protocol (LLDP) Service holding upon CAPWAP link disconnection in Fit AP mode Unified authentication on the AC in Fit AP mode AC dual-link backup in Fit AP mode

QoS	Priority mapping and packet scheduling based on a WMM profile to implement priority-based data processing and forwarding WMM parameter management for the radio WMM power saving Priority mapping for upstream packets and flow-based mapping for downstream packets Queue mapping and scheduling User-based bandwidth limiting Adaptive bandwidth management (the system dynamically adjusts bandwidth allocation based on the user quantity and environment to improve user experience) Airtime scheduling
Security	Open system authentication WEP authentication/encryption WPA/WPA2-PSK authentication and encryption WPA/WPA2-802.1x authentication and encryption WAPI authentication and encryption WIDS, including rogue AP and STA detection, attack detection, STA/AP blacklist and whitelist
Maintenance	Unified management and maintenance on the AC in Fit AP mode Plug-and-Play (PnP) in Fit AP mode: automatically going online and loading configurations Batch upgrade Local AP management using Telnet or through the serial port Real-time configuration monitoring and fast fault location using the NMS System status alarm
BYOD	Identifies the device type according to the Organizationally Unique Identifier (OUI) in the MAC address. Identifies the device type according to the User Agent (UA) information in an HTTP packet. Identifies the device type according to DHCP options. The RADIUS server delivers packet forwarding, security, and QoS policies according to the device type carried in the RADIUS authentication and accounting packets.
Spectrum analysis	Identifies interference sources such as baby monitors, Bluetooth devices, digital cordless phones (at 2.4 GHz frequency band only), wireless audio transmitters (at both 2.4 GHz and 5 GHz frequency bands), wireless game controllers, and microwave ovens. Works with eSight to locate and perform spectrum analysis on interference sources.

Standards Compliance

Safety standards	UL 60950-1	EN 60950-1
	CAN/CSA 22.2 No.60950-1	GB 4943
	IEC 60950-1	
Radio standards	ETSI EN 300 328	FCC Part 15C: 15.407
	ETSI EN 301 893	RSS-210
	FCC Part 15C: 15.247	AS/NZS 4268
EMC standards	EN 301 489-1	GB 17625.1
	EN 301 489-17	AS/NZS CIPSR22
	ETSI EN 60601-1-2	EN 55022
	FCC Part 15	EN 55024
	ICES-003	CISPR 22
	YD/T 1312.2-2004	CISPR 24
	ITU k.21	IEC61000-4-6
	GB 9254	IEC61000-4-2
IEEE standards	IEEE 802.11b/g	IEEE 802.11d
	IEEE 802.11n	IEEE 802.11e
	IEEE 802.11h	
Security standards	802.11i, Wi-Fi Protected Access 2 (WPA2), and WPA	
	802.1X	
	Advanced Encryption Standards (AES) and Temporal Key Integrity Protocol (TKIP)	
	EAP Type (s)	
Environmental standards	ETSI 300 019-2-1	ETSI 300 019-1-1
	ETSI 300 019-2-2	ETSI 300 019-1-2
	ETSI 300 019-2-3	ETSI 300 019-1-3
EMF	CENELEC EN 62311	RSS-102
	CENELEC EN 50385	FCC Parts 1 & 2
	OET65	FCC KDB series
RoHS	Directive 2002/95/EC & 2011/65/EU	
Reach	Regulation 1907/2006/EC	
WEEE	Directive 2002/96/EC & 2012/19/EU	

Professional Service and Support

Huawei WLAN planning tools employ the most professional simulation platform of the industry, delivering expert network design and optimization services. Backed by 15-year continuous investment in wireless field, extensive network planning and optimization experience, as well as rich expert resources and advanced platform, Huawei helps customers:

- Design, deploy, and operate a high-performance network that is reliable and secure.
- Maximize return on investment and reduce operating expenses.

More Information

For more information, please visit http://e.huawei.com or contact your local Huawei office.

Enterprise Services

Product Overview

Marketing Documentation

Huawei AP6510DN-AGN and AP6610DN-AGN Brochure-Detailed

Huawei AP6510DN-AGN is a standard outdoor dual-band Access Point (AP) that offers services over 2.4 GHz and 5 GHz frequency bands.
Huawei AP6610DN-AGN, a "hardened" outdoor dual-band AP, features improved coverage and offers simultaneous services on both 2.4 GHz and 5 GHz to connect more users. It supports wireless network bridging, complies with IEEE 802.11a/b/g/n, and works in Fit and Fat AP modes.
Both APs provide comprehensive service support capabilities and feature high reliability, high security, simple network deployment, automatic Access Controller (AC) discovery and configuration, and real-time management and maintenance, which meets outdoor settled network requirements.

Wi Fi CERTIFIED

Huawei AP6510DN-AGN Access Point

- 2.4 GHz and 5 GHz frequency bands
- Compatibility with IEEE 802.11a/b/g/n

Huawei AP6610DN-AGN Access Point

- 2.4 GHz and 5 GHz frequency bands
- Compatibility with IEEE 802.11a/b/g/n
- Connection to upstream devices through optical fibers
- Local AC power supply

AP6510DN-AGN and AP6610DN-AGN advantages:

- High reliability and surge protection: high-level, built-in surge protector; no additional surge protection device required. This design simplifies installation and saves costs.
- High-speed, reliable wireless access services: uses the latest 802.11n chip to achieve higher performance; targeted at high-density applications.
- Comprehensive user access control capability: implements fine-grained management.
- Solid network security: multiple authentication and encryption modes, as well as rogue AP and STA detection.
- Flexible networking and strong environment adaptability: provides access and bridging services and automatically adjusts radio parameters and bandwidth to adapt to various environments.
- Easy management and maintenance: supports Plug-and-Play (PnP) and deployment based on expert network planning and optimization tools.

Product Features

- Industry-grade 802.11n AP with IP67 dustproof and waterproof protection for use in coverage applications such as squares, pedestrian streets, and amusement parks. Bridging applications include wireless harbors, data backhaul, and video surveillance, and train-to-ground backhaul.
- Built-in, high-level surge protector simplifies deployment and reduces costs.
- Latest-generation 2 x 2 Multiple-Input Multiple-Output (MIMO) chips, energy-efficient design, and a rate of up to 600 Mbit/s
- Integrated Fit and Fat AP functions
- Wireless Intrusion Detection System (WIDS)/Wireless Intrusion Prevention System (WIPS)
- Wireless Distribution System (WDS)/Mesh
- Auto Radio
- High Density Boost
- User Awareness
- Beamforming
- IPv6 support
- Value-added services such as spectrum analysis and locating service
- AP6510DN-AGN: auto-sensing uplink GE electrical ports and PoE power supply
- AP6610DN-AGN: uplink GE optical ports and AC power supply

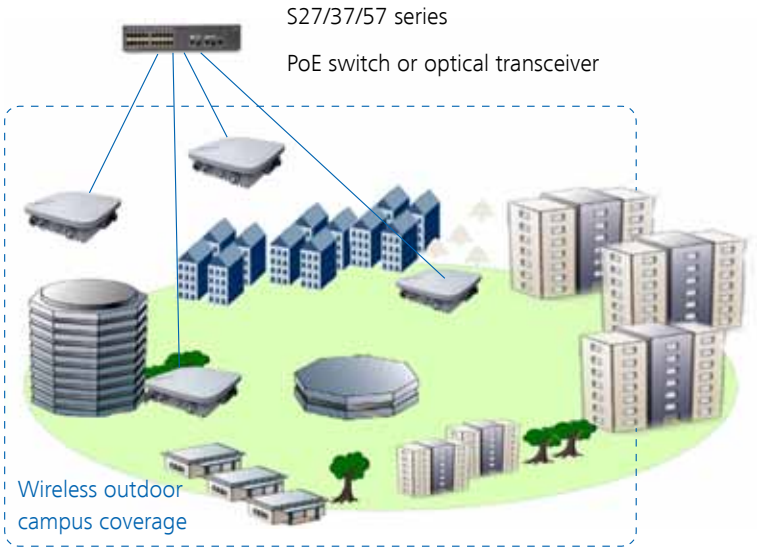
Scalability

When coupled with ACs and Network Management Systems (NMSs), Huawei 802.11n APs can implement real-time monitoring, intelligent Radio Frequency (RF) management, spectrum analysis, wireless positioning, load balancing, roaming, security policy control, wired/wireless network integration, as well as Bring Your Own Device (BYOD) network security control and a smart access strategy. The AC + Fit AP architecture is highly scalable and supports centralized management of multiple Fit APs on a single AC. Software upgrade technologies allow users to seamlessly add and upgrade APs without incurring additional administrative or equipment expense.

Typical Networking

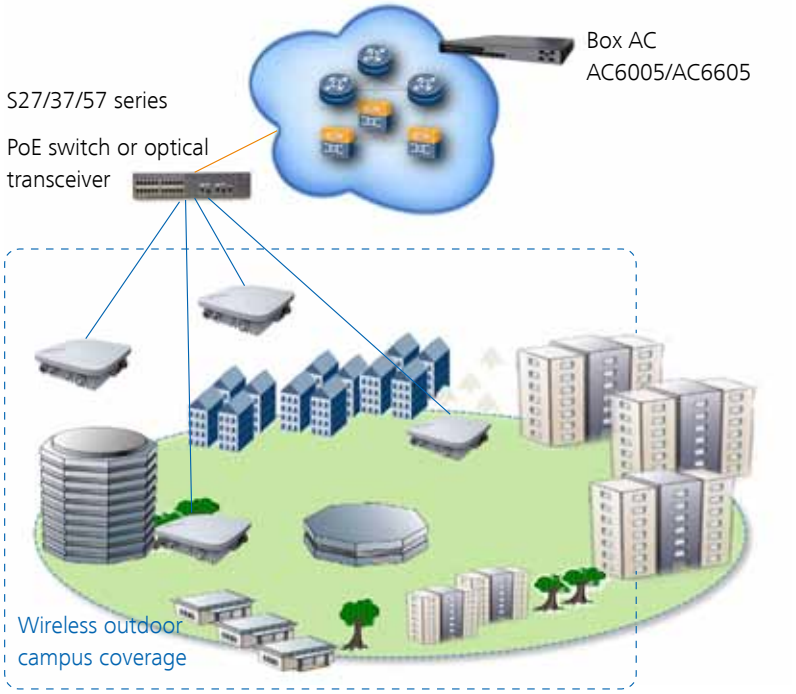
The following figures show typical AP6510DN-AGN and AP6610DN-AGN networking.

Fat AP networking



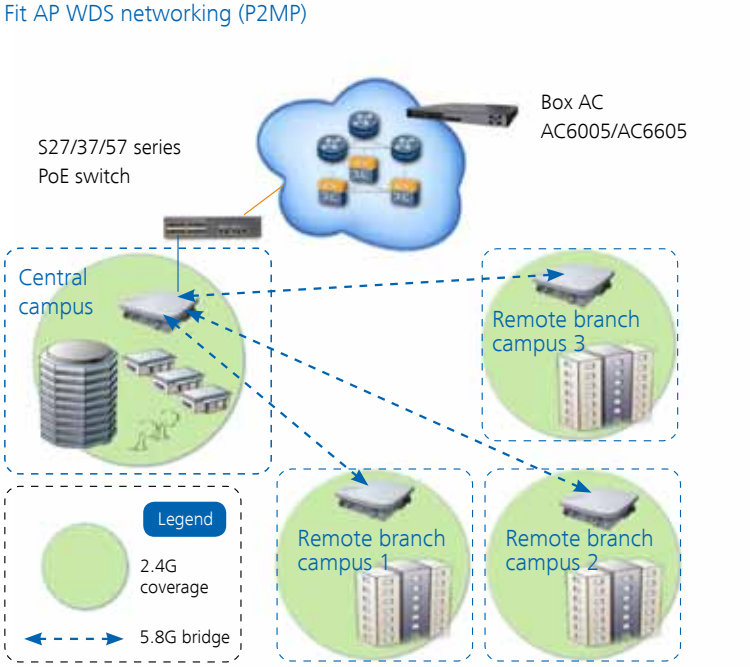
When working as Fat APs, the AP6510DN-AGN and AP6610DN-AGN provide user authentication and access, data security, service data forwarding, Quality of Service (QoS), and other functions without an AC.

Fit AP networking



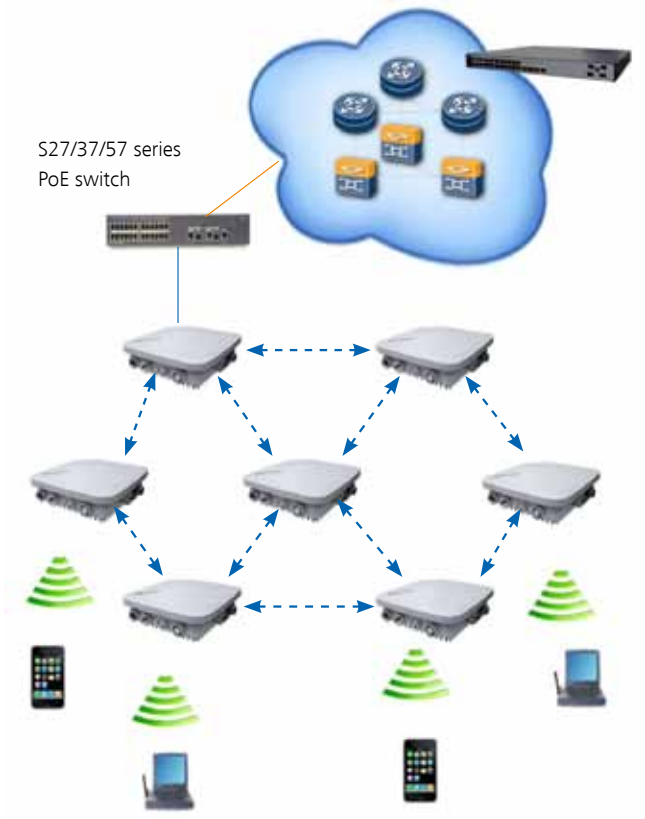
When working as Fit APs, the AP6510DN-AGN and AP6610DN-AGN provide data forwarding functions. An AC is required for user access, AP management, authentication, routing, security, and QoS.

Fit AP WDS networking (P2MP)



In WDS networking, the AP6510DN-AGN or AP6610DN-AGN uses wireless links to connect two or more independent wired or wireless LANs so that users in these LANs can communicate with each other. In WDS mode, the AP supports Point-to-Point (P2P) and Point-to-Multi-Point (P2MP) networking modes. With 5 and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Fit AP Mesh networking



Mesh Points (MPs) interconnect in a Mesh topology to form a self-configuring, self-healing Wireless Mesh Network (WMN) backbone, and Mesh Portal Points (MPPs) provide a connection to the Internet. Stations can connect to the WMN network through Mesh Access Points (MAPs). Dedicated Mesh routing protocols can provide better transmission quality to ensure high bandwidth and stable Internet connections.

Basic Specifications

Item		Description
Technical specifications	Dimensions (W x D x H)	255 mm x 255 mm x 83 mm
	Weight	• AP6510DN-AGN: 2.2 kg • AP6610DN-AGN: 2.65 kg
	System memory	128 MB DDR2 32 MB flash memory
Power specifications	Power input	• AP6510DN-AGN: PoE power supply -48 V DC (in compliance with IEEE 802.3at) • AP6610DN-AGN: AC power supply Rated voltage range: 100 V AC to 240 V AC, 50/60 Hz Maximum voltage range: 90 V AC to 264 V AC, 47 Hz to 63 Hz NOTE The AP6610DN-AGN does not support PoE power supply. Ensure that reliable AC power supply is available where the AP is installed.
	Maximum power consumption	• AP6510DN-AGN: 25.5W • AP6610DN-AGN: 30W NOTE The actual maximum power consumption depends on local laws and regulations.
Environmental specifications	Operating temperature	-40°C to +60°C
	Storage temperature	-40°C to +70°C
	Operating humidity	0% to 100% (non-condensing)
	Waterproof and dustproof grade	IP67
	Altitude	-60 m to 4,000 m

Radio Specifications

Item	Description
Antenna type	Dual-polarized antennas or common outdoor antennas
Maximum number of users	≤ 256 NOTE The number of concurrent online users on each VAP cannot exceed 128. The number of concurrent online users on each radio cannot exceed 128.
Maximum transmit power	• AP6510DN-AGN: 2.4 GHz: 26 dBm for each radio port; 5 GHz: 20 dBm for each radio port • AP6610DN-AGN: 2.4 GHz: 27 dBm for each radio port; 5 GHz: 24 dBm for each radio port NOTE The actual transmit power depends on local laws and regulations.
Power increment	1 dBm

Item	Description
Receiver sensitivity	2.4 GHz 802.11b (CCK): -97 dBm @ 1 Mb/s; -90 dBm @ 11 Mb/s
	2.4 GHz 802.11g (non-HT20): -92 dBm @ 6 Mb/s; -74 dBm @ 54 Mb/s
	2.4 GHz 802.11n (HT20): -92 dBm @ MCS0; -71 dBm @ MCS15
	2.4 GHz 802.11n (HT40): -89 dBm @ MCS0; -68 dBm @ MCS15
	5 GHz 802.11a (non-HT20): -90 dBm @ 6 Mb/s; -71 dBm @ 54 Mb/s
	5 GHz 802.11n (HT20): -84 dBm @ MCS0; -67 dBm @ MCS15
	5 GHz 802.11n (HT40): -81 dBm @ MCS0; -64 dBm @ MCS15

Product Features

WLAN	Compliance with IEEE 802.11a/b/g/n
	AP6510DN-AGN and AP6610DN-AGN: maximum rate of 300 Mbit/s for each radio
	Maximum Ratio Combining (MRC)
	Maximum Likelihood Detection (MLD)
	Data unit aggregation, including MAC Protocol Data Unit Aggregation (A-MPDU — Tx/Rx) and MAC Service Data Unit Aggregation (A-MSDU — Rx only)
	802.11 Dynamic Frequency Selection (DFS) for the AP6010DN-AGN
	Short Guard Interval (GI)
	Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile to implement priority-based data processing and forwarding
	Automatic and manual rate adjustment (the rate is adjusted automatically by default)
	WLAN channel management and channel rate adjustment
	Automatic channel scanning and interference avoidance
	Service Set Identifier (SSID) hiding
	Signal Sustain Technology (SST)
	Unscheduled Automatic Power Save Delivery (U-APSD)
	Control and Provisioning of Wireless Access Points (CAPWAP) in Fit AP mode
	Automatically going online in Fit AP mode
	WDS in Fit AP mode
	Mesh in Fit AP mode

Network	Compliance with IEEE 802.3u Auto-negotiation of the rate and duplex mode and automatic switchover between the Media Dependent Interface (MDI) and Media Dependent Interface Crossover (MDI-X) SSID-based VLAN assignment VLAN trunk on uplink Ethernet ports 4,094 VLAN IDs (1 to 4,094) and a maximum of 16 Virtual APs (VAPs) for each radio AP control channel in tagged and untagged mixed mode DHCP client, obtaining IP addresses through DHCP Tunnel forwarding and direct forwarding STA isolation in the same VLAN Access Control Lists (ACLs) Link Layer Discovery Protocol (LLDP) Service holding upon CAPWAP link disconnection in Fit AP mode Unified authentication on the AC in Fit AP mode AC dual-link backup in Fit AP mode
QoS	Priority mapping and packet scheduling based on a WMM profile to implement priority-based data processing and forwarding WMM parameter management for each radio WMM power saving Priority mapping for upstream packets and flow-based mapping for downstream packets Queue mapping and scheduling User-based bandwidth limiting Adaptive bandwidth management (the system dynamically adjusts bandwidth allocation based on the user quantity and environment to improve user experience) Airtime scheduling
Security	Open system authentication WEP authentication/encryption WPA/WPA2-PSK authentication and encryption WPA/WPA2-802.1x authentication and encryption WAPI authentication and encryption WIDS including rogue AP and STA detection, attack detection, STA/AP blacklist and whitelist

Maintenance	Unified management and maintenance on the AC in Fit AP mode Plug-and-Play (PnP) in Fit AP mode: automatically going online and loading configurations WDS zero-configuration deployment in Fit AP mode Mesh zero-configuration deployment in Fit AP mode Batch upgrade Local AP management using Telnet Real-time configuration monitoring and fast fault location using the NMS System status alarm
BYOD	Identifies the device type according to the Organizationally Unique Identifier (OUI) in the MAC address. Identifies the device type according to the User Agent (UA) information in an HTTP packet. Identifies the device type according to DHCP options. The RADIUS server delivers packet forwarding, security, and QoS policies according to the device type carried in the RADIUS authentication and accounting packets.
Locating service	• Locates tags manufactured by AeroScout or Ekahau. • Locates Wi-Fi terminals.
Spectrum analysis	Identifies interference sources such as baby monitors, Bluetooth devices, digital cordless phones (at 2.4 GHz frequency band only), wireless audio transmitters (at both the 2.4 GHz and 5 GHz frequency bands), wireless game controllers, and microwave ovens. Works with eSight to locate and perform spectrum analysis on interference sources.

Standards Compliance

Safety standards	UL 60950-1	IEC 60950-22
	UL 60950-22	EN 60950-1
	CAN/CSA 22.2 No.60950-1	EN 60950-22
	CAN/CSA 22.2 No.60950-22	GB 4943
	IEC 60950-1	
Radio standards	ETSI EN 300 328	FCC Part 15C: 15.407
	ETSI EN 301 893	RSS-210
	FCC Part 15C: 15.247	AS/NZS 4268
EMC standards	ETSI EN 301 489-1	GB 17625.1
	ETSI EN 301 489-17	AS/NZS CIPSR22
	ETSI EN 60601-1-2	EN 55022
	FCC Part 15	EN 55024
	ICES-003	CISPR 22
	YD/T 1312.2-2004	CISPR 24
	ITU k.21	IEC61000-4-6
	GB 9254	IEC61000-4-2

IEEE standards	IEEE 802.11a/b/g IEEE 802.11n IEEE 802.11h	IEEE 802.11d IEEE 802.11e
Security standards	802.11i, Wi-Fi Protected Access 2 (WPA2), and WPA 802.1X Advanced Encryption Standards (AES) and Temporal Key Integrity Protocol (TKIP) EAP Type(s)	
Environmental standards	ETSI 300 019-2-1 ETSI 300 019-2-2 ETSI 300 019-2-4 IEC 60068-2-52	ETSI 300 019-1-1 ETSI 300 019-1-2 ETSI 300 019-1-4
EMF	CENELEC EN 62311 CENELEC EN 50385 OET65	RSS-102 FCC Parts 1 & 2 FCC KDB series
RoHS	Directive 2002/95/EC & 2011/65/EU	
Reach	Regulation 1907/2006/EC	
WEEE	Directive 2002/96/EC & 2012/19/EU	

Professional Service and Support

Huawei WLAN planning tools deliver expert network design and optimization services using the most professional simulation platform in the industry. Backed by fifteen years of continuous investment in wireless technologies, extensive network planning and optimization experience, as well as rich expert resources, Huawei helps customers:

- Design, deploy, and operate a high-performance network that is reliable and secure.
- Maximize return on investment and reduce operating expenses.

More Information

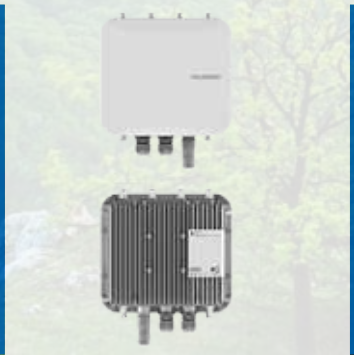
For more information, please visit http://e.huawei.com or contact your local Huawei office.

Enterprise Services

Product Overview

Marketing Documentation

Huawei AP8030DN and AP8130DN Brochure-Detailed



Huawei AP8030DN and AP8130DN are the latest-generation 802.11ac outdoor Access Points (APs) that offer high flexibility with IEEE 802.11a/b/g/n/ac standards compliance and Fit AP or Fat AP operations. Both APs are physically hardened and feature enhanced outdoor coverage performance. They offer services simultaneously on 2.4 GHz and 5 GHz radios to connect more users, support wireless bridging, and provide gigabit access for wireless users. The AP8030DN and AP8130DN provide comprehensive service support and feature high reliability, high security, simple network deployment, automatic Access Controller (AC) discovery and configuration, and real-time management and maintenance, which meet outdoor network requirements.

Wi Fi CERTIFIED

Huawei AP8030DN Access Point

- Compatibility with IEEE 802.11a/b/g/n/ac
- Built-in antenna
- Dual Ethernet ports and one optical port
- 2.4 GHz and 5 GHz frequency bands

Huawei AP8130DN Access Point

- Compatibility with IEEE 802.11a/b/g/n/ac
- External antenna
- Dual Ethernet ports and one optical port
- 2.4 GHz and 5 GHz frequency bands
- The AP can switch from the 2.4 GHz frequency band to the 5 GHz frequency band. When working at dual 5 GHz frequency bands simultaneously, the AP provides a system rate of 2.6 Gbit/s and can function as a repeater AP to implement wireless bridging functions, which reduces costs and improves device usage efficiency.

Huawei AP8030DN and AP8130DN advantages:

- High-speed, reliable outdoor wireless access services: uses the latest 802.11ac chip to achieve higher performance and wider coverage; provides a rate of 1.75 Gbit/s.
- One optical port and dual GE electrical ports; data backup and PoE power supply
- High surge protection: high-level built-in surge protector; no additional surge protection device required. This design simplifies installation and saves costs.
- Comprehensive user access control: implements fine-grained management.
- Solid network security: supports multiple authentication and encryption modes, as well as rogue AP and STA detection.
- Flexible networking and strong environment adaptability: provides access and bridging services and automatically adjusts radio parameters and bandwidth to adapt to various environments.
- Easy management and maintenance: supports Plug-and-Play (PnP) and deployment based on expert network planning and optimization tools.

Product Features

- Outdoor 802.11ac AP with IP67 dustproof and waterproof protection for use in coverage scenarios (for example, high-density stadiums, squares, pedestrian streets, and amusement parks) and bridging scenarios (for example, wireless harbors, data backhaul, video surveillance, and train-to-ground backhaul)
- Built-in, high-level surge protector, simplifying deployment and reducing costs
- Latest-generation 802.11ac 3 x 3 Multiple-Input Multiple-Output (MIMO) chips, energy-efficient design, and a rate of up to 1.75 Gbit/s
- Integrated Fit and Fat AP functions
- Wireless Intrusion Detection System (WIDS)/Wireless Intrusion Prevention System (WIPS)
- Wireless Distribution System (WDS)/Mesh
- Auto Radio
- High Density Boost
- User Awareness
- Beamforming
- IPv6 support
- Value-added services such as spectrum analysis and locating service
- One optical port and two auto-sensing uplink GE electrical ports; PoE power supply

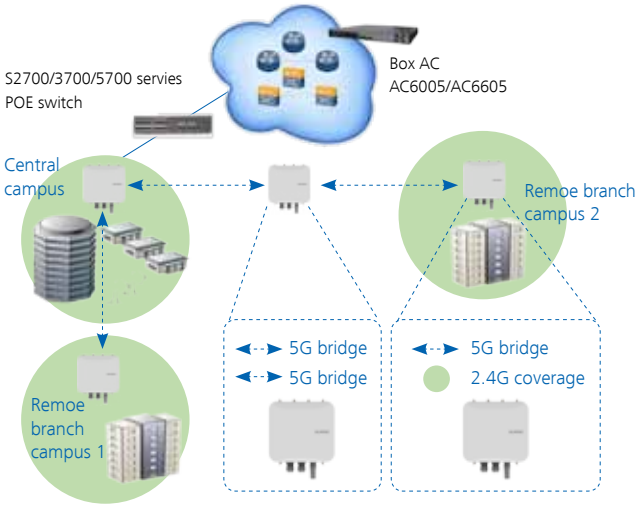
Scalability

When coupled with ACs and Network Management Systems (NMSs), Huawei 802.11ac APs can implement real-time monitoring, intelligent Radio Frequency (RF) management, spectrum analysis, wireless positioning, load balancing, roaming, security policy control, wired/wireless network integration, as well as Bring Your Own Device (BYOD) network security control and a smart access strategy. The AC + Fit AP architecture is highly scalable and supports centralized management of multiple Fit APs on a single AC. Software upgrade technologies allow users to seamlessly add and upgrade APs without incurring additional administrative or equipment expense.

Typical Networking

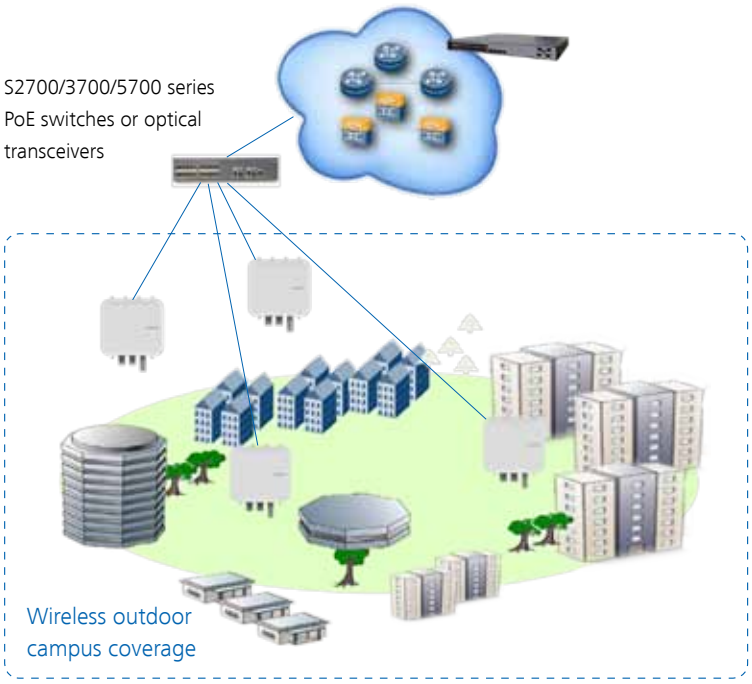
The following figures show typical AP8030DN and AP8130DN networking.

Fit AP WDS (P2MP networking)



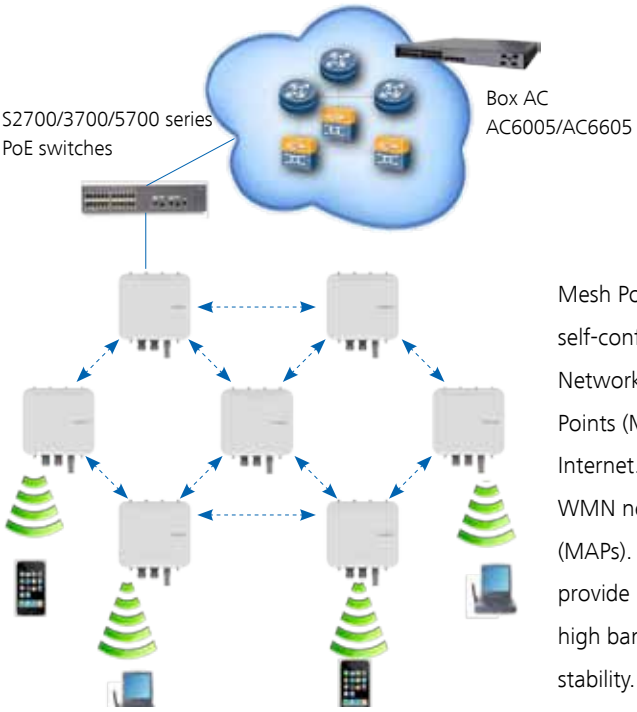
In WDS networking, the AP8030DN and AP8130DN use wireless links to connect two or more independent wired or wireless LANs so that users can communicate with each other. In WDS mode, the APs support Point-to-Point (P2P) and Point-to-Multi-Point (P2MP) networking. With 5 GHz and 2.4 GHz frequency bands, the APs can implement wireless bridging and access functions. In addition, AP8130DN can work at dual 5 GHz radios simultaneously to implement long-distance repeater functions with maximum rate of 2.6 Gbit/s.

Fit AP networking (access point mode)



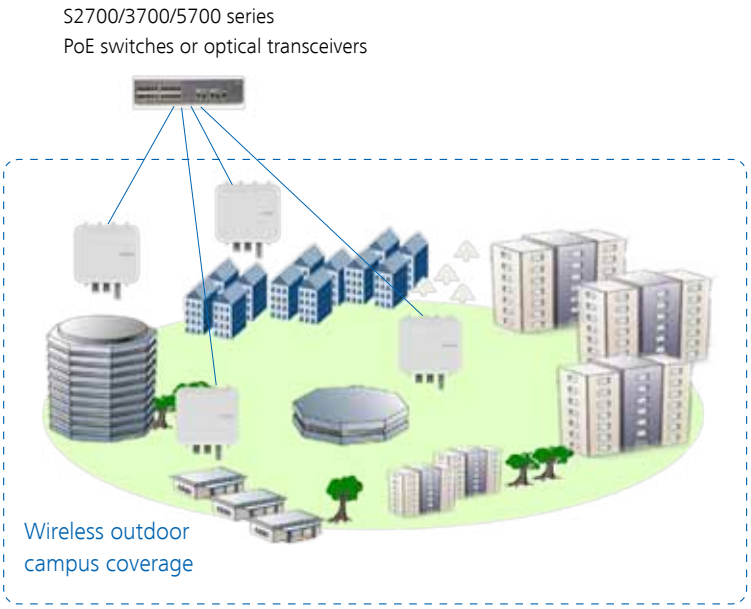
When working as Fit APs, the AP8030DN and AP8130DN provide data forwarding functions. An AC is required for user access, AP management, authentication, routing, security, and QoS.

Fit AP Mesh networking



Mesh Points (MPs) interconnect to form a self-configuring, self-healing Wireless Mesh Network (WMN) backbone, and Mesh Portal Points (MPPs) provide a connection to the Internet. Stations (STAs) can connect to the WMN network through Mesh Access Points (MAPs). Dedicated mesh routing protocols can provide better transmission quality to ensure high bandwidth and Internet connection service stability.

Fat AP networking



When working as Fat APs, the AP8030DN and AP8130DN provide user authentication and access, data security, service data forwarding, Quality of Service (QoS), and other functions without an AC.

Basic Specifications

Item		Description
Technical specifications	Dimensions (W x D x H)	290 mm x 260 mm x 100 mm
	System memory	256 MB DDR3 64 MB flash memory
Power specifications	Power input	AP8030DN/AP8130DN: PoE power supply (-48 V DC, in compliance with IEEE 802.3at) NOTE The AP does not support AC power supply. If AC power supply is required, use a PoE adapter. Ensure that the installation position of the PoE adapter meets requirements.
	Maximum power consumption	AP8030DN/AP8130DN: 25.5 W NOTE The actual maximum power consumption depends on local laws and regulations.
Environmental specifications	Operating temperature	–40°C to +60°C
	Storage temperature	–40°C to +70°C
	Operating humidity	0% to 100% (non-condensing)
	Waterproof and dustproof grade	IP67
	Altitude	–60 m to 4,000 m

Radio Specifications

Item	Description
Antenna type	AP8030DN: built-in antenna (directional antenna with 10dBi gain @2.4G&5G, horizontal beam-width 60° and vertical beam-width 30°) AP8130DN: outdoor external antenna
Maximum number of users	≤ 256 NOTE The number of concurrent online users on each VAP cannot exceed 128. The number of concurrent online users on each radio cannot exceed 128.
Maximum transmit power	• AP8030DN: 2.4 GHz: 23 dBm 5 GHz: 21 dBm • AP8130DN: 2.4 GHz: 23 dBm 5 GHz: 21 dBm NOTE The actual transmit power depends on local laws and regulations.
Power increment	1 dBm

Item	Description
Receiver sensitivity	2.4 GHz 802.11b (CCK): -96 dBm @ 1 Mb/s; –89 dBm @ 11 Mb/s
	2.4 GHz 802.11g (non-HT20): -87 dBm @ 6 Mb/s; –74 dBm @ 54 Mb/s
	2.4 GHz 802.11n (HT20): -87 dBm @ MCS0/8; –71 dBm @ MCS7/15
	2.4 GHz 802.11n(HT40): -84 dBm @ MCS0/8; –68 dBm @ MCS7/15
	5 GHz 802.11a (non-HT20): -90 dBm @ 6 Mb/s; –73 dBm @ 54 Mb/s
	5 GHz 802.11n (HT20): -87 dBm @ MCS0/8; –70 dBm @ MCS7/15
	5 GHz 802.11n (HT40): -86 dBm @ MCS0/8; –66 dBm @ MCS7/15
	5 GHz 802.11ac (HT20): -88 dBm @ MCS0NSS1; –65 dBm @ MCS8NSS1
	5 GHz 802.11ac (HT40): -85 dBm @ MCS0NSS1; –60 dBm @ MCS9NSS1
	5 GHz 802.11ac (HT80): -82 dBm @ MCS0NSS1; –57 dBm @ MCS9NSS1

Product Features

WLAN features	Compliance with IEEE 802.11a/b/g/n/ac; maximum rate of 1.75 Gbit/s
	Maximum Ratio Combining (MRC)
	Maximum Likelihood Detection (MLD)
	Data unit aggregation, including A-MPDU (Tx/Rx) and A-MSDU (Rx only)
	802.11 Dynamic Frequency Selection (DFS)
	Short Guard Interval (GI)
	Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile for priority-based data processing and forwarding
	Automatic and manual rate adjustment (the rate is adjusted automatically by default)
	WLAN channel management and channel rate adjustment
	Automatic channel scanning and interference avoidance
	Service Set Identifier (SSID) hiding
	Signal Sustain Technology (SST)
	Unscheduled Automatic Power Save Delivery (U-APSD)
	Control and Provisioning of Wireless Access Points (CAPWAP) in Fit AP mode
	Automatic going online in Fit AP mode
	WDS networking in Fit AP mode
	Mesh networking in Fit AP mode

Network features	Compliance with IEEE 802.3u Auto-negotiation of the rate and duplex mode; automatic switchover between the Media Dependent Interface (MDI) and Media Dependent Interface Crossover (MDI-X) SSID-based VLAN assignment VLAN trunk on uplink Ethernet ports 4,094 VLAN IDs (1 to 4,094) and a maximum of 16 Virtual APs (VAPs) for each radio AP control channel in tagged and untagged mixed mode DHCP client, obtaining IP addresses through DHCP Tunnel forwarding and direct forwarding STA isolation in the same VLAN Access Control Lists (ACLs) Link Layer Discovery Protocol (LLDP) Service holding upon CAPWAP link disconnection in Fit AP mode Unified authentication on the AC in Fit AP mode AC dual-link backup in Fit AP mode
QoS features	Priority mapping and packet scheduling based on a WMM profile for priority-based data processing and forwarding WMM parameter management for each radio WMM power saving Priority mapping for upstream packets and flow-based mapping for downstream packets Queue mapping and scheduling User-based bandwidth limiting Adaptive bandwidth management (the system dynamically adjusts bandwidth allocation based on the user quantity and environment to improve the user experience) Airtime scheduling
Security features	Open system authentication WEP authentication/encryption WPA/WPA2-PSK authentication and encryption WPA/WPA2-802.1x authentication and encryption WAPI authentication and encryption WIDS including rogue AP and STA detection, attack detection, STA/AP blacklist and whitelist
Maintenance features	Unified management and maintenance on the AC in Fit AP mode Plug-and-Play (PnP) in Fit AP mode: automatically goes online and loads configurations WDS zero-configuration deployment in Fit AP mode Mesh zero-configuration deployment in Fit AP mode Batch upgrade Local AP management using Telnet Real-time configuration monitoring and fast fault location using the NMS System status alarm

BYOD	Identifies the device type according to the Organizationally Unique Identifier (OUI) in the MAC address. Identifies the device type according to the User Agent (UA) information in an HTTP packet. Identifies the device type according to DHCP options. The RADIUS server delivers packet forwarding, security, and QoS policies according to the device type carried in the RADIUS authentication and accounting packets.
Locating service	Locates tags manufactured by AeroScout or Ekahau. Locates Wi-Fi terminals.
Spectrum analysis	Identifies interference sources such as baby monitors, Bluetooth devices, digital cordless phones (at 2.4 GHz frequency band only), wireless audio transmitters (at both the 2.4 GHz and 5 GHz frequency bands), wireless game controllers, and microwave ovens. Works with Huawei eSight to locate and perform spectrum analysis on interference sources.

Standards Compliance

Safety standards	UL 60950–1 UL 60950–22 CAN/CSA 22.2 No.60950-1 CAN/CSA 22.2 No.60950-22 IEC 60950–1	IEC 60950–22 EN 60950–1 EN 60950–22 GB 4943
Radio standards	ETSI EN 300 328 ETSI EN 301 893 FCC Part 15C: 15.247	FCC Part 15C: 15.407 RSS-210 AS/NZS 4268
EMC standards	ETSI EN 301 489–1 ETSI EN 301 489–17 ETSI EN 60601-1-2 FCC Part 15 ICES-003 YD/T 1312.2-2004 ITU k.21 GB 9254	GB 17625.1 AS/NZS CIPSR22 EN 55022 EN 55024 CISPR 22 CISPR 24 IEC61000-4-6 IEC61000-4-2
IEEE standards	IEEE 802.11a/b/g IEEE 802.11n IEEE 802.11ac	IEEE 802.11h IEEE 802.11d IEEE 802.11e
Security standards	802.11i, Wi-Fi Protected Access 2 (WPA2), and WPA 802.1X Advanced Encryption Standards (AES) and Temporal Key Integrity Protocol (TKIP) EAP Type (s)	

Environmental standards	ETSI 300 019-2-1 ETSI 300 019-2-2 ETSI 300 019-2-4 IEC 60068-2-52	ETSI 300 019-1-1 ETSI 300 019-1-2 ETSI 300 019-1-4
EMF	CENELEC EN 62311 CENELEC EN 50385 OET65	RSS-102 FCC Parts 1 & 2 FCC KDB series
RoHS	Directive 2002/95/EC & 2011/65/EU	
Reach	Regulation 1907/2006/EC	
WEEE	Directive 2002/96/EC & 2012/19/EU	

Professional Service and Support

Huawei WLAN planning tools deliver expert network design and optimization services using the most professional simulation platform in the industry. Backed by fifteen years of continuous investment in wireless technologies, extensive network planning and optimization experience, as well as rich expert resources, Huawei helps customers:

- Design, deploy, and operate a high-performance network that is reliable and secure.
- Maximize return on investment and reduce operating expenses.

More Information

For more information, please visit http://e.huawei.com or contact your local Huawei office.

Enterprise Services

Product Overview

Marketing Documentation

Huawei AT815SN Brochure-Detailed

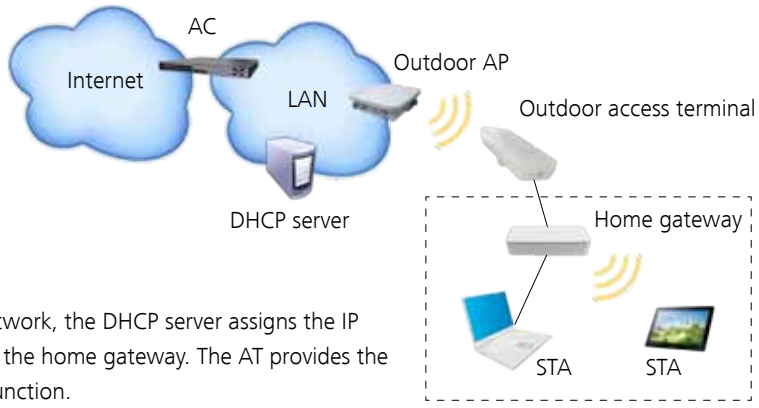
Huawei AT815SN is a standard outdoor access terminal (AT) that provides excellent remote access performance and enhanced protection. It supports 2x2 MIMO and the 5 GHz frequency band, complies with IEEE 802.11a/n, and can work as a wireless bridge. It provides comprehensive service support capabilities and features high reliability, high security, simple network deployment, and real-time remote management and maintenance, which meets outdoor long-distance access requirements.

Product Features

- Supports 2x2 MIMO and provides a maximum rate of 300 Mbit/s.
- Supports Wi-Fi Multimedia (WMM) and priority mapping on the air interface and wired interface.
- Uses the latest 802.11n chip to provide higher performance and wider coverage.
- Supports CPE WAN Management Protocol (CWMP) and can be remotely managed in a centralized manner.
- Supports batch upgrade.
- Allows real-time monitoring on the network management system (NMS) to facilitate remote configuration and fast fault location.
- Provides strong hardware protection capability.
- Adapts to a wide temperate range from -20° C to +55° C.
- Uses industry-standard components and design methods, improving industry-level reliability.
- Provides IP55 protection level.
- Provides a built-in antenna and uses a built-in surge protection design.
- Supports isolation of Ethernet interfaces.

Typical Networking

The following figure shows typical AT815SN networking.



On the network, the DHCP server assigns the IP address to the home gateway. The AT provides the bridging function.

Basic Specifications

Item		Specifications
Technical specifications	Dimensions (H x W x D)	49 mm x 295 mm x 132 mm
	Weight	0.8 kg
	System memory	128 MB DDR2 32 MB flash memory
Power specifications	Power input	PoE power: -48 V DC PoE function in compliance with IEEE 802.3af
	Maximum power consumption	9.5W
Environment specifications	Operating temperature	-20°C to +55°C
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Waterproof grade	IP55
	Altitude	-60 m to 5,000 m (If the altitude is lower than 1,800 meters, the AT operates within the normal temperature range. When the altitude is between 1,800 m and 5,000 m, the operating temperature reduces by 1°C every time the altitude increases by 220 m.)

Radio Specifications

Item	Description		
Antenna type	Built-in antenna		
Antenna gain	13 dBi		
Maximum transmit power	5 GHz: 23 dBm		
Channel rate	802.11g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s 802.11n: 300 Mbit/s		
Receiver sensitivity	5 GHz 802.11a (non-HT20) • -93 dBm @ 6 Mb/s • -92 dBm @ 9 Mb/s • -92 dBm @ 12 Mb/s • -88 dBm @ 18 Mb/s • -86 dBm @ 24 Mb/s • -81 dBm @ 36 Mb/s • -79 dBm @ 48 Mb/s • -77 dBm @ 54 Mb/s	5 GHz 802.11n (HT20) • -93 dBm @ MCS0 • -91 dBm @ MCS1 • -88 dBm @ MCS2 • -85 dBm @ MCS3 • -80 dBm @ MCS4 • -78 dBm @ MCS5 • -75 dBm @ MCS6 • -73 dBm @ MCS7 • -91 dBm @ MCS8 • -89dBm @ MCS9 • -86 dBm @ MCS10 • -83 dBm @ MCS11 • -78 dBm @ MCS12 • -76 dBm @ MCS13 • -73dBm @ MCS14 • -71 dBm @ MCS15	5 GHz 802.11n (HT40) • -89 dBm @ MCS0 • -87dBm @ MCS1 • -85 dBm @ MCS2/ • -82 dBm @ MCS3 • -78 dBm @ MCS4 • -74 dBm @ MCS5 • -72 dBm @ MCS6 • -70 dBm @ MCS7 • -87 dBm @ MCS8 • -86dBm @ MCS9 • -83 dBm @ MCS10 • -80 dBm @ MCS11 • -76 dBm @ MCS12 • -72 dBm @ MCS13 • -70 dBm @ MCS14 • -68 dBm @ MCS15

Product Features

WLAN features	Compliance with IEEE 802.11a/b/g/n, providing a maximum rate of 300 Mbit/s Maximum ratio combining (MRC) Maximum-likelihood detection (MLD) Data unit aggregation, including A-MPDU (Tx/Rx) 802.11 dynamic frequency selection (DFS) Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile to implement priority-based data processing and forwarding Automatic and manual rate adjustment (the rate is adjusted automatically by default) WLAN channel management and channel rate adjustment Signal sustain technology (SST)
Network features	Compliance with IEEE 802.3u Auto-negotiation of the rate and duplex mode and automatic switchover between the Media Dependent Interface (MDI) and Media Dependent Interface Crossover (MDI-X) VLAN trunk on uplink air interfaces DHCP client, obtaining IP addresses through DHCP
QoS Features	Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile to implement priority-based data processing and forwarding Priority mapping for upstream packets and flow-based mapping for downstream packets Queue mapping and scheduling
Security features	WPA2-PSK authentication and encryption
Maintenance features	CPE WAN Management Protocol (CWMP) and remote management in a centralized manner Batch upgrade Local AP management using Telnet Real-time configuration monitoring and fast fault location using the NMS System status alarm

Standards Compliance

Safety standards	UL 60950, 2nd Edition CAN/CSA-C22.2 No. 60950, 2nd Edition IEC 60950, 2nd Edition	EN 60950, 2nd Edition GB 4943
Radio standards	ETSI EN 301 893 FCC Part 15C: 15.247 FCC Part 15E: 15.407	RSS-210 RSS-102 AS/NZS 4268
EMC standards	EN 301 489–17 FCC Part 15 ICES-003	YD/T 1312.2-2004 EN 55022(Class B) AS/NZS CIPSR22

IEEE standards	IEEE 802.11a IEEE 802.11n IEEE 802.11h	IEEE 802.11d IEEE 802.11e
Security standards	802.11i, Wi-Fi Protected Access 2 (WPA2), and WPA Advanced Encryption Standards (AES)	
Environmental standards	ETSI 300 019-2-1 ETSI 300 019-2-2 ETSI 300 019-2-3	
EMF	CENELEC EN 62311 CENELEC EN 50385 FCC Bulletin OET65	RSS-102 FCC Part1&2 FCC KDB
RoHS	Directive 2002/95/EC&2011/65/EU	
Reach	Regulation 1907/2006/EC	
WEEE	Directive 2002/96/EC & 2012/19/EU	

Professional Service and Support

Huawei WLAN planning tools deliver expert network design and optimization services using the most professional simulation platform in the industry. Backed by fifteen years of continuous investment in wireless technologies, extensive network planning and optimization experience, as well as rich expert resources, Huawei helps customers:

- Design, deploy, and operate a high-performance network that is reliable and secure.
- Maximize return on investment and reduce operating expenses.

More Information

For more information, please visit http://e.huawei.com or contact your local Huawei office.

Enterprise Services

Product Overview

Marketing Documentation

Huawei WLAN Antenna Brochure-Detailed

Wireless Local Area Networks (WLANs) are deployed in a variety of ways to meet customer requirements, and specific WLAN antennas are key to successful installations. Huawei offers a series of antennas that match different coverage scenarios, whether indoors or out.

Indoor Distributed Deployment

(Ceiling-mounted antenna)

A ceiling-mounted antenna receives signals from Access Points (APs) through the indoor distributed system. Depending on requirements, the antenna provides omnidirectional or directional indoor coverage.

An omnidirectional antenna pattern forms almost a complete circle in the horizontal plane. Omnidirectional antennas are normally employed in open offices, conference rooms, and hotels demanding indoor distributed coverage.

Ceiling-mounted directional antennas, on the other hand, form major lobes with high gain in certain directions; other directions provide low gain. Directional antennas are used in situations that require small coverage angles but long coverage distances. Typical scenarios include corridors in hospitals and airports.

Performance Indicators

	Omnidirectional Antenna	Directional Antenna
Antenna Part Number	27010210	27010209
Working Frequency	2.4 GHz	2.4 GHz
Gain	3 dBi	7 dBi
Coverage Distance	60m	80m

		Omnidirectional Antenna	Directional Antenna
Lobe Width	Horizontal	360°	88°
	Vertical	N/A	47°
Dimensions (mm)		Φ186 mm x 85 mm	210 mm x 180 mm x 44 mm
Connector		N-female	N-female
VSWR		1.5	1.5
Antenna Weight		275 g	430 g

Outdoor Coverage/Mesh Scenario

WLAN deployment is required in some open outdoor scenarios such as parks, amusement parks, and school playgrounds. Different types of antennas can be selected to meet different outdoor coverage requirements. Methods for accessing terminals in WLAN mesh networks can be used for outdoor coverage, so antenna selection methods are similar.

1. Omnidirectional coverage

Omnidirectional antennas are required where users are distributed and signals need to seamlessly cover areas in each outdoor corner. Antenna patterns are nearly circular in the horizontal plane. Omnidirectional antennas are classified into two types:

- Type one: User density is high. The antenna has small gain and its dimensions are small. Its N Male interface can directly connect to an AP, and the coverage distance is within 500m.
- Type two: User density is low. The N Female interface of this antenna connects to an AP through the feeder. This antenna is mounted against a pole to implement omnidirectional coverage, and provides coverage distance of about 1 km.

Antenna Part Number		27011332	27011333	27010913	27010215
Working Frequency		2.4 GHz	5 GHz	2.4 GHz	2.4 GHz
AP Quantity		2	2	2	2
Gain		3 dBi	5 dBi	8 dBi	11 dBi
Coverage Distance		500 m	200 m	1,000 m	1,500 m
Lobe Width	Horizontal	360°	360°	360°	360°
	Vertical	32°	20°	11.5°	9°
Dimensions (mm)		280 mm	280 mm	Φ29 mm x 720 mm	1100 mm

Antenna Part Number	27011332	27011333	27010913	27010215
Connector	N-Male	N-Male	N-female	N-female
Pole Diameter (mm)	N/A	N/A	48 mm-135 mm	35 mm-50 mm
VSWR	2	2	1.5	1.4
Antenna Weight	218 g	218 g	500 g	976 g

2. Directional coverage

In some special outdoor settings — for example, corridors, and oil pipelines, or places where there are many pedestrians — directional coverage is required. Directional antennas increase gain in the directions where electromagnetic fields focus. Directional antennas form major lobes in certain directions with high gain, while other directions have low gain. Directional antennas are either single-polarized or dual-polarized antennas. A single-polarized antenna uses a radio interface to connect to an AP, and a dual-polarized antenna uses two radio interfaces to connect to an AP.

Antenna Part Number		27010902	27010219	27010223	27010912
Working Frequency		2.4 GHz	2.4 GHz	2.4 GHz	5 GHz
AP Quantity		2	2	2	2
Gain		14.5 dBi	15.5 dBi	17 dBi	16 dBi
Coverage Distance		2000 m	2500 m	3000 m	800 m
Lobe Width	Horizontal	110°	120°	90°	100°
	Vertical	6°	7°	7°	5.5°
Dimensions (mm)		1140 mm x 114 mm x 54 mm	970 mm x 140 mm x 58 mm	970 mm x 140 mm x 58 mm	547 mm x 250 mm x 18 mm
Connector		N-female	7/16DIN or N-female	7/16DIN or N-female	N-female
Pole Diameter (mm)		48 mm-135 mm	46 mm-75 mm	50 mm-115 mm	48 mm-135 mm
VSWR		1.5	1.5	1.5	1.7
Antenna Weight		3400 g	4500 g	5000 g	1800 g

Antenna Part Number	27010812	27010904	27010898	27010889	27010906
Working Frequency	2.4 GHz	2.4 GHz	2.4 GHz	5 GHz	5 GHz
AP Quantity	1	1	1	1	1
Gain	12 dBi	14 dBi	16.5 dBi	11.5 dBi	14 dBi

Antenna Part Number		27010812	27010904	27010898	27010889	27010906
Coverage Distance		1500 m	2000 m	3000 m	500 m	650 m
Lobe Width	Horizontal	60°	30°	65°	60°	32°
	Vertical	30°	30°	7.5°	30°	32°
Dimensions (mm)		250 mm x 155 mm x 60 mm	250 mm x 250 mm x 25 mm	875 mm x 176 mm x 63 mm	230 mm x 145 mm x 55 mm	220 mm x 120 mm x 25 mm
Connector		N-femalex2	N-femalex2	N-femalex2	N-femalex2	N-femalex2
Pole Diameter (mm)		30 mm-114 mm	30 mm-114 mm	48 mm-135 mm	35 mm-114 mm	30 mm-114 mm
VSWR		1.45	2	1.5	1.8	2
Antenna Weight		1000 g	600 g	4200 g	1300 g	800 g

Wireless Bridges

In some outdoor settings that require point-to-point transmission, two APs can be used to build a wireless bridge for high-speed data backhaul. In such situations, there are high requirements for distance and throughput, so antennas are required to provide high gain and small lobe width.

Antenna Part Number		27010889	27010890	27011016	27011015
Working Frequency		5 GHz	5 GHz	5 GHz	5 GHz
AP Quantity		1	1	1	1
Gain		11.5	19	23	28
Coverage Distance		1000 m	5000 m	7000 m	10000 m
Lobe Width	Horizontal	60°	15°	9°	6°
	Vertical	30°	15°	9°	6°
Dimensions (mm)		230 mm x 145 mm x 55 mm	250 mm x 250 mm x 25 mm	Φ400 mm	Φ600 mm
Connector		N-femalex2	N-femalex2	N-femalex2	N-femalex2
Pole Diameter (mm)		35 mm-114 mm	35 mm-114 mm	40 mm-114 mm	40 mm-114 mm
VSWR		1.8	1.8	2	1.5
Antenna Weight		1300 g	1300 g	3000 g	7000 g

Professional Service and Support

Huawei WLAN planning tools deliver expert network design and optimization services using the most professional simulation platform in the industry. Backed by fifteen years of continuous investment in wireless technologies, extensive network planning and optimization experience, as well as rich expert resources, Huawei helps customers:

- Design, deploy, and operate a high-performance network that is reliable and secure.
- Maximize return on investment and reduce operating expenses.

More Information

For more information, please visit http://e.huawei.com or contact your local Huawei office.

Enterprise Services

Product Overview

Marketing Documentation

Huawei WLAN Accessory Brochure-Detailed

In addition to APs and antennas, some accessories are also required to deploy indoor or outdoor WLANs. This document describes Huawei accessories specially designed for indoor and outdoor scenarios.

PoE Adapter

A PoE adapter has two RJ45 ports. One RJ45 port connects to a switch or a network device, and the other is used to transmit network data and supply power to the power sourcing equipment (PSE). The PoE adapter supports a maximum power of 35 W and provides indicators that indicate power input and output status.

Appearance	Part Number	Input	Output	Port	Standards Compliance
	02220369	90~264V 50~60Hz	54V, 0.65A	0/100/1000BAST-T	802.3at

AC-to-DC Power Adapter

The AC-to-DC power adapter is used where only the AC power supply is available but the DC power supply is required.

Appearance	Part Number	AC Input	DC Output
	02220094	100~240V, 50~60Hz, 0.8A	12V, 2A

Radio Frequency (RF) Coaxial Connector

The RF coaxial connector can connect the following:

- Two coaxial cables
- A coaxial cable and a microstrip
- A coaxial cable and a waveguide antenna

Its plug is installed on the cable terminal, and socket on the device.

Appearance	Part Number	Connecting Cable	Connector Type	Application Scenario
	14040150	1/2 inch super-flexible jumper	N-type straight male connector	Outdoor and indoor antenna feeder systems

Appearance	Part Number	Frequency Range	Connector Type	Application Scenario
	14040288	0 GHz–11 GHz	N-type straight female connector	Outdoor and indoor antenna feeder systems

Sheet Metal Mounting Bracket

The sheet metal mounting bracket is used to mount a device to the wall, ceiling, or T-rail.

Appearance	Part Number
	21150735

Optical Fiber Tube

The optical fiber tube protects optical fibers against water intrusion.

Appearance	Part Number
	21201708

Power Splitter

The power splitter divides a signal on the input port into even signals on two or more output ports.

Appearance			

Part Number	27020079	27020081	27020080
Type	1:2	1: 3	1:4
Maximum Insertion Loss	3.5 dB	5.4 dB	6.6 dB
Frequency Range	800–2500 MHz		
Input Connector	N-type female connector		
Application Scenario	Indoor distributed system		
Minimum Isolation	20 dB		
Maximum Input/ Output Standing Wave Ratio (SWR)	1.3	1.35	1.3
Maximum Amplitude Balance	±0.3 dB		
Maximum Power	35 W		
Operating Temperature	-25°C to +55°C		
Relative Humidity	5 to 95%		
Dimensions (W x D x H)	62 mm × 55 mm × 19 mm	71 mm × 60 mm × 19 mm	104 mm × 74 mm × 19 mm
Weight	170 g	220 g	370 g

Dual-band Combiner

The dual band combiner combines WLAN signals and other communications system signals into one indoor distributed system.

Appearance		
Part Number	27030081	
Channel	Channel 1 (TETRA/CDMA/GSM/DCS/ PHS/3G)	Channel 2 (WLAN)
Frequency Range	800–2200 MHz	2400–2500 MHz
Insertion Loss (dB)	≤0.5 dB	≤ 0.5 dB

Stop-Band Attenuation	≥80 dB @ channel 2	≥80 dB @ channel 1
Pass Band Ripple	≤ 0.2 dB	≤ 0.3 dB
Voltage Standing Wave Ratio (VSWR)	≤ 1.2	
Third-order Intermodulation	< –120 dBc (2 x 43 dBm carrier)	
Impedance	50 Ω	
Port Type	N-F	
Maximum Power Rating	100 W	
Operating Temperature	-25°C–+65°C	
Dimensions (W x D x H)	216 mm × 84 mm × 21 mm	
Weight	0.9 kg	

Antenna Coupler

The coupler divides a signal on the input port into uneven signals on two output ports.

Appearance		
Part Number	27130002	
Tap Loss	Input ->P 1: –0.4 dB	Input ->P 2: –10.4 dB
Frequency Range	694 – 2700 MHz	
Impedance	50 Ω	
Insertion Loss	< 0.05 dB	
Third-order Intermodulation	< –150 dBc (2 x 43 dBm carrier)	
Maximum Power Consumption	100 W	
Weight	500 g	
Dimensions (W x D x H)	244 mm × 64 mm × 25 mm	

Professional Service and Support

Huawei WLAN planning tools deliver expert network design and optimization services using the most professional simulation platform in the industry. Backed by fifteen years of continuous investment in wireless technologies, extensive network planning and optimization experience, as well as rich expert resources, Huawei helps customers:

- Design, deploy, and operate a high-performance network that is reliable and secure.
- Maximize return on investment and reduce operating expenses.

More Information

For more information, please visit http://e.huawei.com or contact your local Huawei office.

Enterprise Services

Product Overview

Marketing Documentation

HUAWEI TECHNOLOGIES CO.,LTD.
Huawei Industrial Base
Bantian Longgang
Shenzhen 518129,P.R.China
Tel: +86 755 28780808

www.huawei.com