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FCC TEST REPORT

Application No: ZR/2020/80017

Applicant: vivo Mobile Communication Co., Ltd.

Address of Applicant: #283,BBK Road,Wusha,Chang'An, DongGuan City, China

Manufacturer: vivo Mobile Communication Co., Ltd.

Address of Manufacturer #283,BBK Road,Wusha,Chang'An, DongGuan City, China

EUT Description: Mobile phone

Model No.: V2027
Trade Mark: vivo

FCC ID: 2AUCY-V2027

Standards: 47 CFR FCC Part 2, Subpart J

47 CFR Part 15, Subpart C

Test Method: KDB558074 D01 15.247 Meas Guidance v05r02

ANSI C63.10 (2013)

Date of Receipt: 2020/8/7

Date of Test: 2020/8/7 to 2020/8/30

Date of Issue: 2020/8/31

Test Result: PASS *

Authorized Signature:

Derele yang

Derek Yang Wireless Laboratory Manager



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^{. *} In the configuration tested, the EUT complied with the standards specified above.

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1 Version

Revision Record									
Version Chapter Date Modifier Remark									
01		2020/8/31		Original					

Authorized for issue by:		
Tested By	(Mike Hu) /Project Engineer	
Checked By	Dand Chen (David Chen) /Reviewer	



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2 Test Summary

Test Item	Test Requirement	Test method	Test Result	Result
AC Power Line Conducted Emission	15.207	ANSI C63.10 2013	Clause 4.2	PASS
Duty Cycle	-		Clause 4.3	PASS
Conducted Output Power	15.247 (b)(3)	ANSI C63.10 2013	Clause 4.4	PASS
DTS (6 dB) Bandwidth & 99% Occupied Bandwidth	15.247 (a)(2)	ANSI C63.10 2013	Clause 4.5	PASS
Power Spectral Density	15.247 (e)	ANSI C63.10 2013	Clause 4.6	PASS
Band-edge for RF Conducted Emissions	15.247(d)	ANSI C63.10 2013	Clause 4.7	PASS
RF Conducted Spurious Emissions	15.247(d)	ANSI C63.10 2013	Clause 4.8	PASS
Radiated Spurious Emissions	15.247(d);15.205/15.209	ANSI C63.10 2013	Clause 4.9	PASS
Restricted bands around fundamental frequency (Radiated Emission)	15.247(d);15.205/15.209	ANSI C63.10 2013	Clause 4.10	PASS



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3 General Information

3.1 Client Information

Applicant:	vivo Mobile Communication Co., Ltd.
Address of Applicant:	#283,BBK Road,Wusha,Chang'An, DongGuan City, China
Manufacturer:	vivo Mobile Communication Co., Ltd.
Address of Manufacturer:	#283,BBK Road,Wusha,Chang'An, DongGuan City, China

3.2 Test Location

Company:	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
Address:	No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China
Post code:	518057
Telephone:	+86 (0) 755 2601 2053
Fax:	+86 (0) 755 2671 0594
E-mail:	ee.shenzhen@sgs.com

3.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

VCCI

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC –Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• Industry Canada (IC)

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.



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3.4 General Description of EUT

EUT Description::	Mobile phone					
Model No.:	V2027					
Trade Mark:	ivo					
Hardware Version:	MP_0.1					
Software Version:	PD2034EF_EX_A_3.2.4					
IEEE 802.11 WLAN Mode Supported	 ⊠ 802.11B (20 MHz channel bandwidth), ⊠ 802.11G (20 MHz channel bandwidth) ⊠ 802.11N (20 MHz channel bandwidth), ⊠ 802.11N (40 MHz channel bandwidth) 					
Operation Frequency:	2400 MHz -2483.5MHz fc = 2407 MHz + N * 5 MHz, where: -fc = "Operating Frequency" in MHz, -N = "Channel Number" with the range from 1 to 11 for the 20 MHz channel bandwidth, or 3 to 9 for the 40 MHz channel bandwidth.					
Type of Modulation:	IEEE for 802.11B: DSSS IEEE for 802.11G: OFDM IEEE for 802.11N(HT20): OFDM IEEE for 802.11N(HT40): OFDM					
Sample Type:	□ Portable Device, □ Module					
Antenna Type:	☐ External, ☑ Integrated					
Antenna Ports						
Smart System	 ⊠ SISO (for 802.11B/G/N), □ MIMO (for 802.11N): 2 Tx & 2 Rx, □ Diversity (for 802.11B/G): Tx & Rx 					
Antenna Gain:	-1.0dBi					
Power Supply						



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	Operation Frequency of each channel (802.11B/G/N HT20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency	
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz	
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz	
3	2422MHz	6	2437MHz	9	2452MHz			
	0	peration Fr	equency of ea	ch channel	(802.11N HT40))		
Channel	Frequency	Channel	Frequency	Channel	Frequency			
3	2422MHz	6	2437MHz	9	2452MHz			
4	2427MHz	7	2442MHz					
5	2432MHz	8	2447MHz					

Remark:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Channel Frequency for 802.11B/G/N (HT20)	
The Lowest channel	2412MHz	2422MHz
The Middle channel	2437MHz	2437MHz
The Highest channel	2462MHz	2452MHz

3.5 Test Environment and Mode

Operating Environment:	Operating Environment:					
Temperature:	25.0 °C					
Humidity:	50 % RH					
Atmospheric Pressure:	101.30 KPa					
Test mode:						
Transmitting mode:	Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate.					

3.6 Description of Support Units

The EUT has been tested independent unit.



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4 Test results and Measurement Data

4.1 Antenna Requirement

Standard requirement: 47 CFR Part 15C Section 15.203 /247(c)

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is -1.0dBi.



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4.2 AC Power Line Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207					
Test Method:	ANSI C63.10: 2013					
Test Frequency Range:	150kHz to 30MHz					
	Fraguenov rango (MHz)	Limit (dBuV)				
	Frequency range (MHz)	Quasi-peak	Average			
1.5	0.15-0.5	66 to 56*	56 to 46*			
Limit:	0.5-5	56	46			
	5-30	60	50			
	* Decreases with the logarith	hm of the frequency.				
Test Procedure:	 5-30 60 50 Decreases with the logarithm of the frequency. The mains terminal disturbance voltage test was conducted in a shielded room. The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to 					



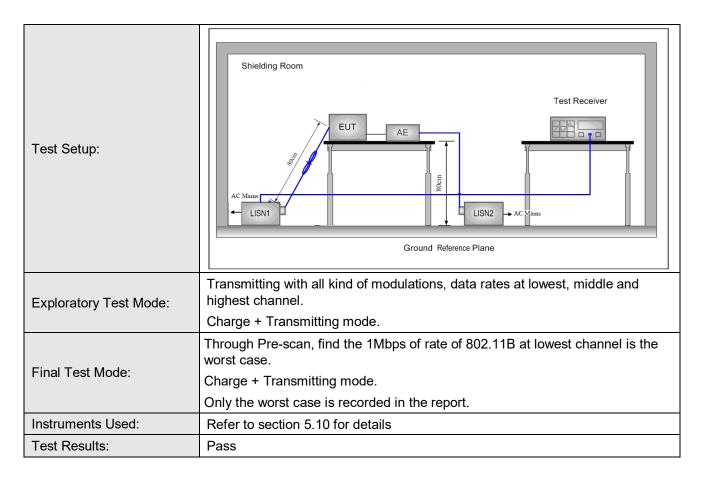
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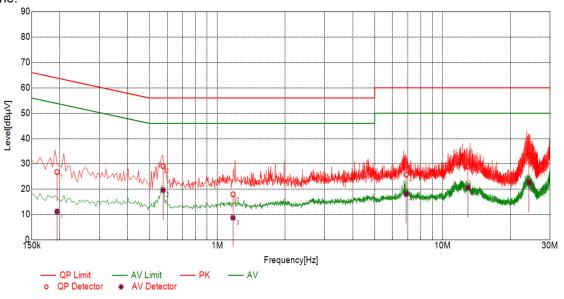
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Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live Line:



Test Graph

Final	Final Data List								
NIC	Freq.	Factor	QP	QP	QP	AV	AV	AV	T
NO.	[MHz]	[dB]	Value	Limit	Margin	Value	Limit	Margin	Туре
1	0.1945	10.10	26.69	63.84	37.15	11.12	53.84	42.72	L
2	0.5752	10.10	29.05	56.00	26.95	19.51	46.00	26.49	L
3	1.1745	10.10	17.91	56.00	38.09	8.67	46.00	37.33	L
4	6.8848	10.10	25.63	60.00	34.37	17.96	50.00	32.04	L
5	12.9680	10.11	28.87	60.00	31.13	20.43	50.00	29.57	L
6	24.1894	10.11	33.38	60.00	26.62	22.57	50.00	27.43	L



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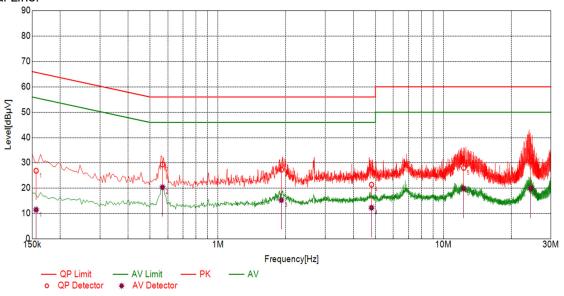
邮编: 518057 t (86-755) 26012053 f (86-755) 26710594



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Test Graph

Final Data List									
NO.	Freq.	Factor	QP	QP	QP	AV	AV	AV	T a
	[MHz]	[dB]	Value	Limit	Margin	Value	Limit	Margin	Туре
1	0.1563	10.10	26.79	65.66	38.87	11.40	55.66	44.26	N
2	0.5679	10.10	29.23	56.00	26.77	20.27	46.00	25.73	N
3	1.9117	10.10	27.21	56.00	28.79	15.24	46.00	30.76	N
4	4.8028	10.10	21.30	56.00	34.70	12.22	46.00	33.78	N
5	12.3105	10.10	27.91	60.00	32.09	19.72	50.00	30.28	N
6	24.4320	10.11	30.69	60.00	29.31	19.80	50.00	30.20	N

Remarks:

- 1. The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.



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4.3 Duty Cycle

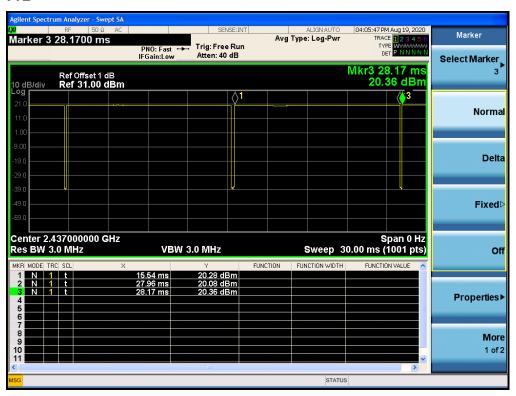
4.3.1 Test Results

Test Mode	TX Freq. [MHz]	Duty cycle [%]
11B	Ant 1: CH1,CH6,CH11	98.34
11G	Ant 1: CH1,CH6,CH11	98.10
11N20	Ant 1: CH1,CH6,CH11	98.21
11N40	Ant 1: CH3,CH6,CH9	94.89

4.3.2 Test Plots

4.3.2.1 ANT1

4.3.2.1.1 11B





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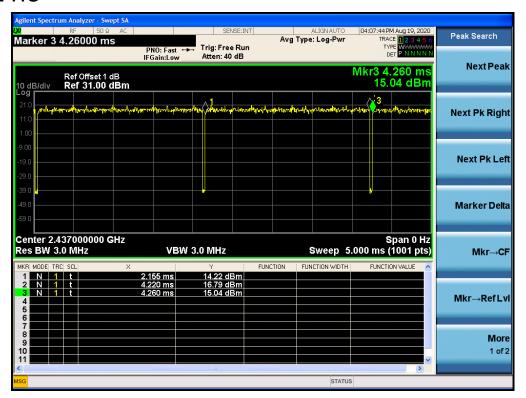
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4.3.2.1.2 11G





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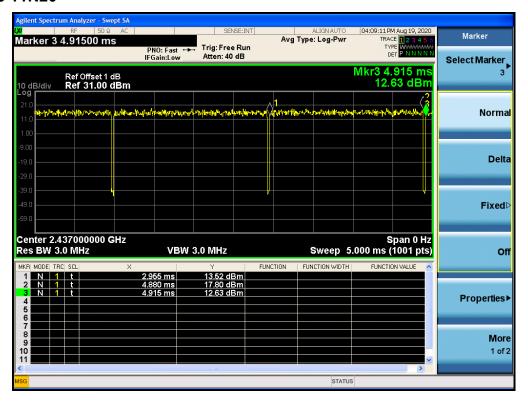
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4.3.2.1.3 11N20





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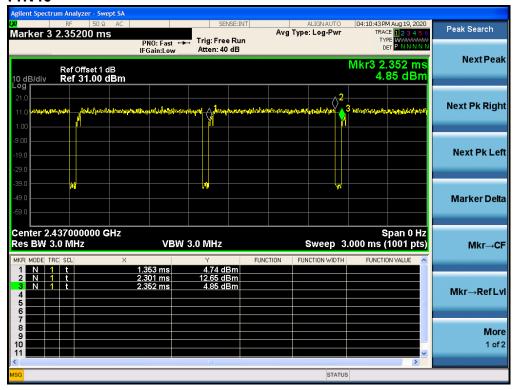
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4.3.2.1.4 11N40





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4.4 Conducted Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(3)				
Test Method:	ANSI C63.10 :2013 Section 11.9.1.3				
Test Setup:	POWER METER E.U.T Non-Conducted Table Ground Reference Plane				
Test Instruments:	Refer to section 5.10 for details				
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates				
	Through Pre-scan, find the				
	1Mbps of rate is the worst case of 802.11B;				
Final Test Mode:	6Mbps of rate is the worst case of 802.11G;				
	6.5Mbps of rate is the worst case of 802.11N(HT20);				
	13.5Mbps of rate is the worst case of 802.11N(HT40).				
Limit:	30dBm				
Test Results:	Pass				



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4.4.1 Test Results

Mode	Test Channel	Peak Output Power (dBm)	Limit (dBm)	Result
	Lowest	19.74	30.00	Pass
802.11B	Middle	19.97	30.00	Pass
002.112	Highest	19.88	30.00	Pass
	Lowest	18.81	30.00	Pass
802.11G	Middle	19.16	30.00	Pass
302.113	Highest	19.10	30.00	Pass
	Lowest	17.18	30.00	Pass
802.11N20	Middle	17.49	30.00	Pass
002.111120	Highest	17.38	30.00	Pass
	Lowest	18.11	30.00	Pass
802.11N40	Middle	18.27	30.00	Pass
332.111110	Highest	17.94	30.00	Pass

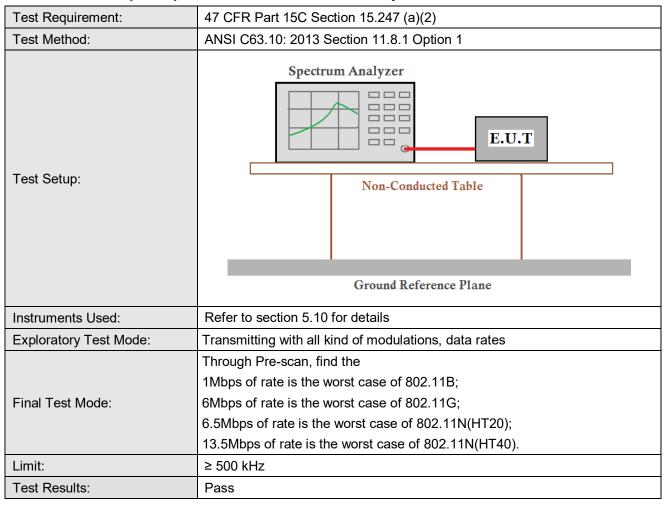


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4.5 DTS (6 dB) Bandwidth & 99% Occupied Bandwidth



4.5.1 Test Results

Mode	Test Channel	Occupied Bandwidth (MHz)	6dB Emission Bandwidth (MHz)	Limit (kHz)	Result
	Lowest	16.82	8.11	≥500	Pass
802.11B	Middle	16.71	7.14	≥500	Pass
0022	Highest	16.68	7.58	≥500	Pass
	Lowest	16.81	15.35	≥500	Pass
802.11G	Middle	16.73	15.52	≥500	Pass
	Highest	16.71	15.33	≥500	Pass
	Lowest	17.96	15.96	≥500	Pass
802.11N20	Middle	17.92	16.52	≥500	Pass
	Highest	17.87	15.97	≥500	Pass
	Lowest	36.07	35.17	≥500	Pass
802.11N40	Middle	36.13	35.20	≥500	Pass
332.711410	Highest	36.11	35.20	≥500	Pass



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4.5.2 Test plots

4.5.2.1 ANT1

4.5.2.1.1 802.11B_Lowest Channel





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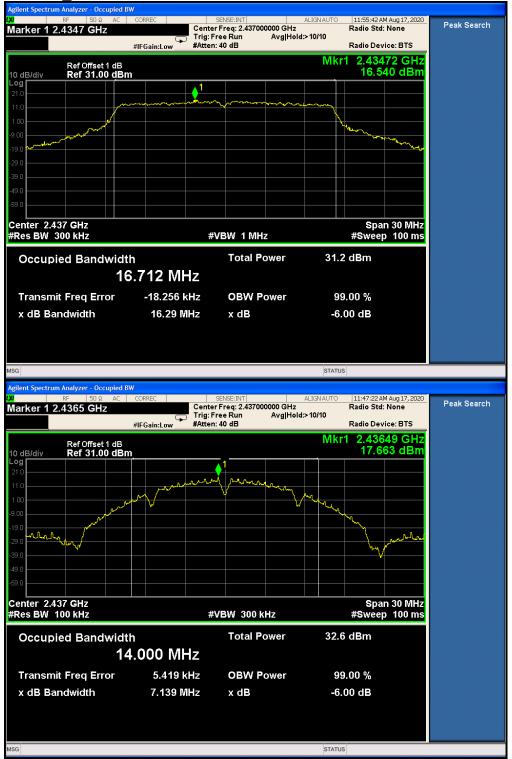
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4.5.2.1.2 802.11B_ Middle Channel





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4.5.2.1.3 802.11B_ Highest Channel





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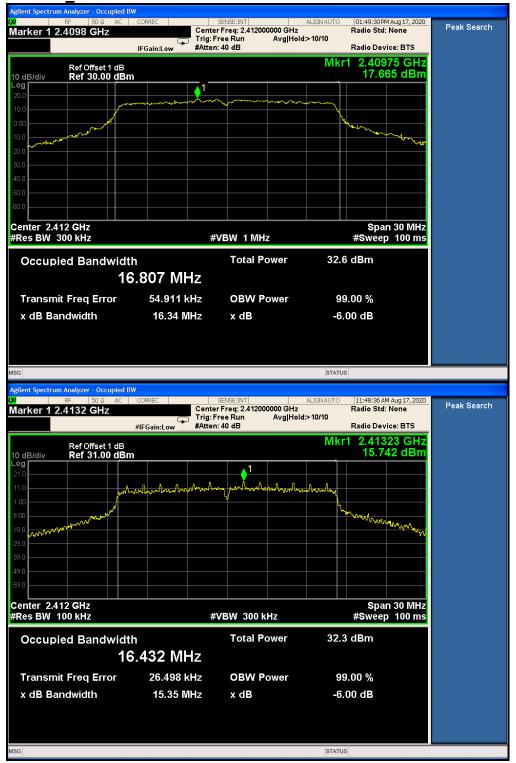
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4.5.2.1.4 802.11G Lowest Channel





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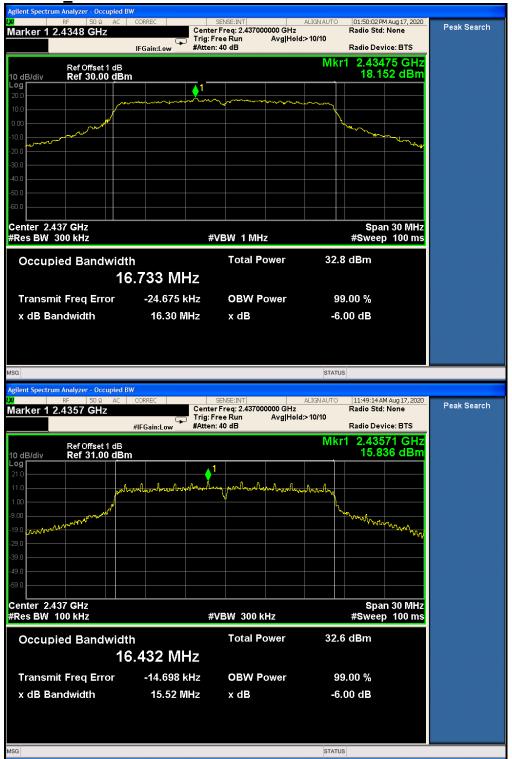
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4.5.2.1.5 802.11G_ Middle Channel





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4.5.2.1.6 802.11G_ Highest Channel





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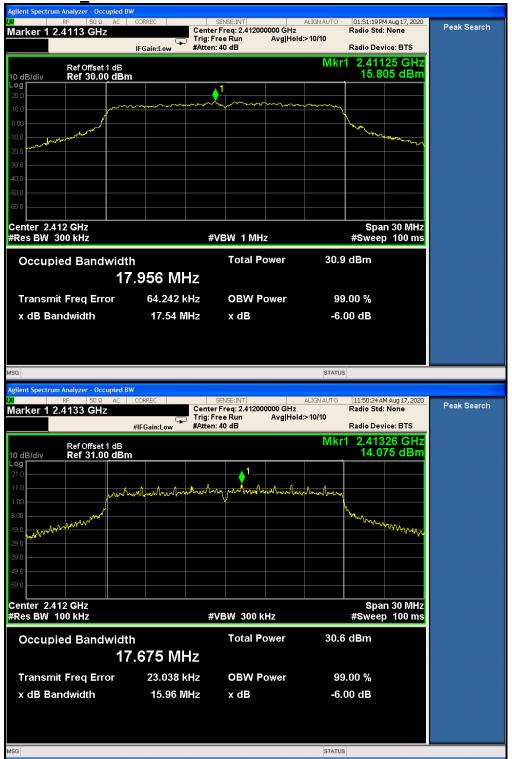
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4.5.2.1.7 802.11N20 Lowest Channel





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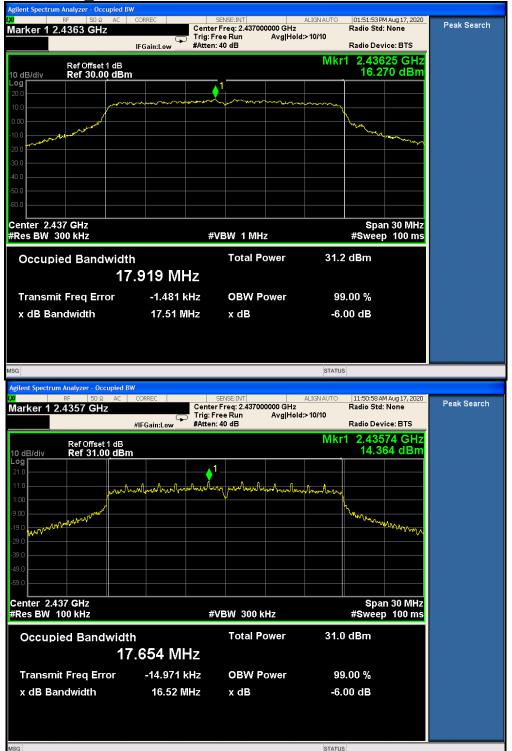
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4.5.2.1.8 802.11 N20_ Middle Channel





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4.5.2.1.9 802.11 N20_ Highest Channel





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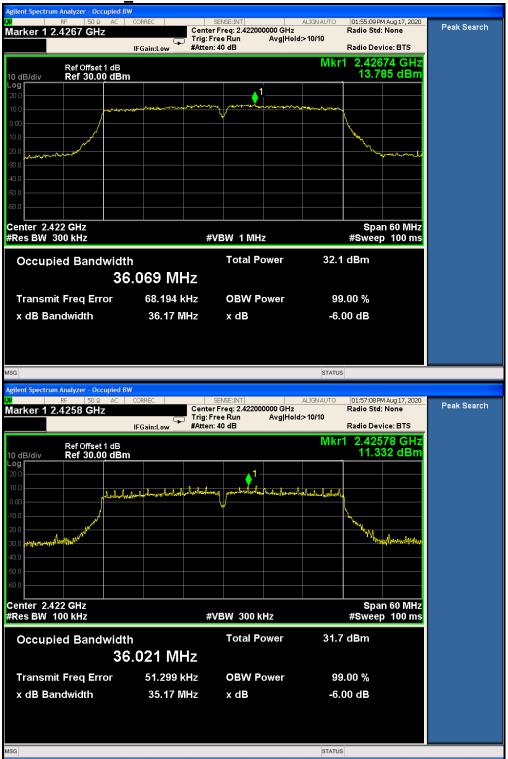
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4.5.2.1.10 802.11N40_Lowest Channel





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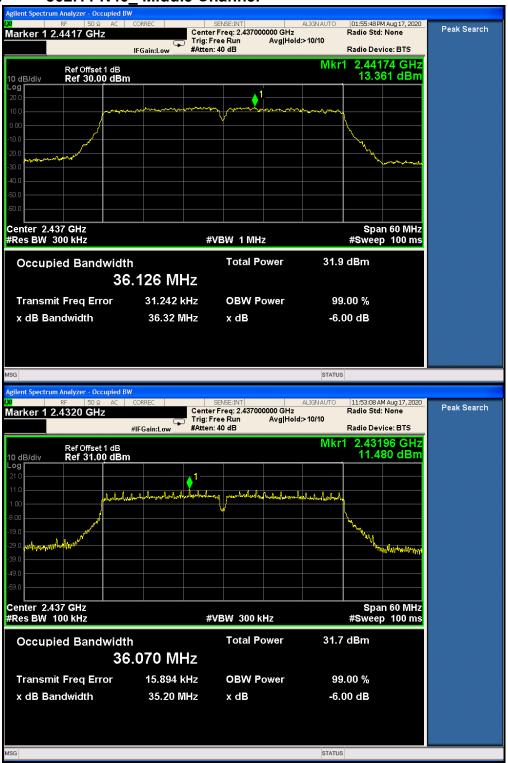
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4.5.2.1.11 802.11 N40_ Middle Channel





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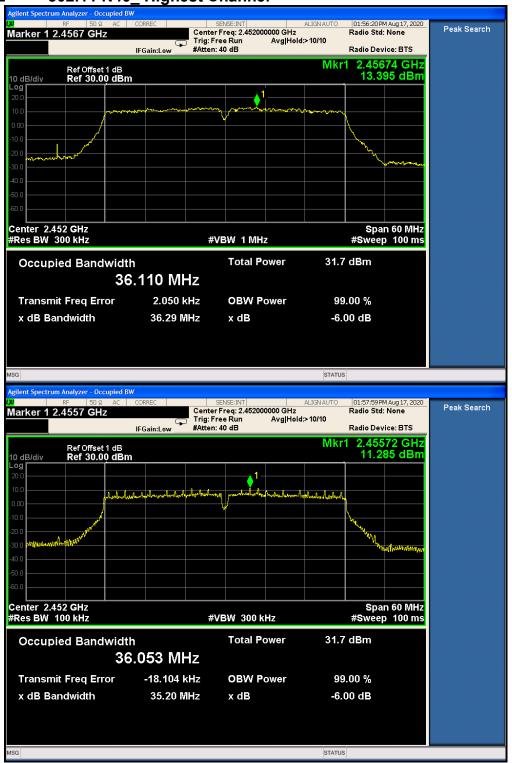
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4.5.2.1.12 802.11 N40_ Highest Channel



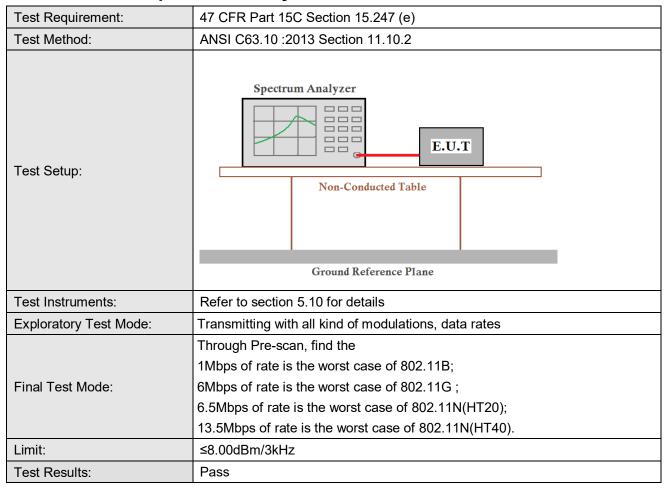


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4.6 Power Spectral Density



4.6.1 Test Results

Mode	Test Channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
	Lowest	-4.93	≤8.00	Pass
802.11B	Middle	-4.74	≤8.00	Pass
	Highest	-4.79	≤8.00	Pass
	Lowest	-7.47	≤8.00	Pass
802.11G	Middle	-7.14	≤8.00	Pass
	Highest	-7.20	≤8.00	Pass
	Lowest	-9.03	≤8.00	Pass
802.11N20	Middle	-8.39	≤8.00	Pass
	Highest	-9.38	≤8.00	Pass
	Lowest	-10.69	≤8.00	Pass
802.11N40	Middle	-10.63	≤8.00	Pass
332.77110	Highest	-11.32	≤8.00	Pass



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4.6.2 **Test plots**

4.6.2.1 ANT1

4.6.2.1.1 802.11B Lowest Channel





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4.6.2.1.2 802.11B_ Middle Channel



4.6.2.1.3 802.11B_ Highest Channel





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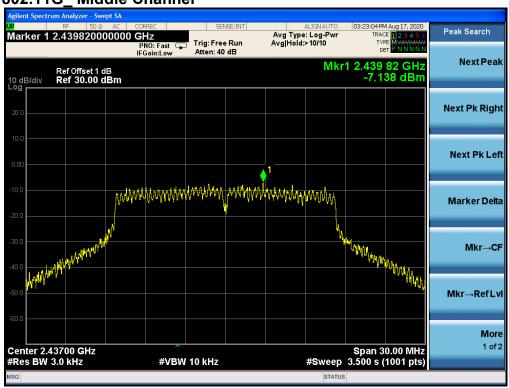
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4.6.2.1.4 802.11G_Lowest Channel



4.6.2.1.5 802.11G Middle Channel





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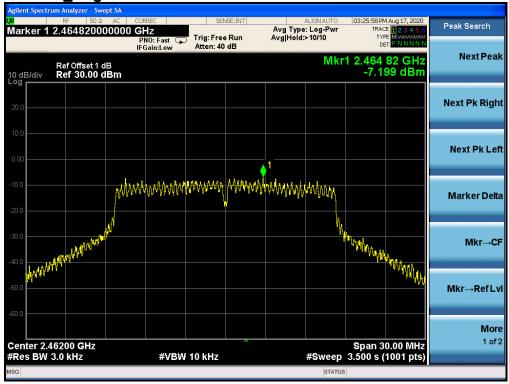
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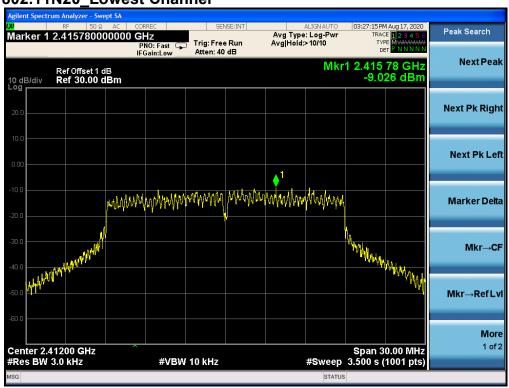
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4.6.2.1.6 802.11G_ Highest Channel



4.6.2.1.7 802.11N20 Lowest Channel





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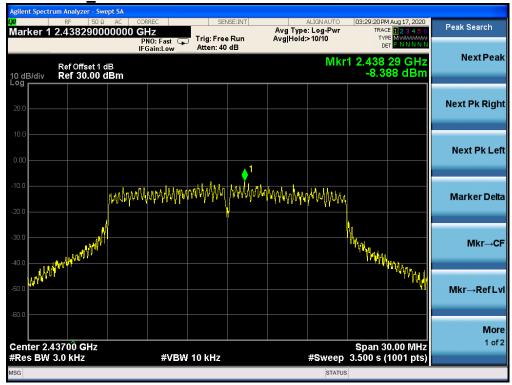
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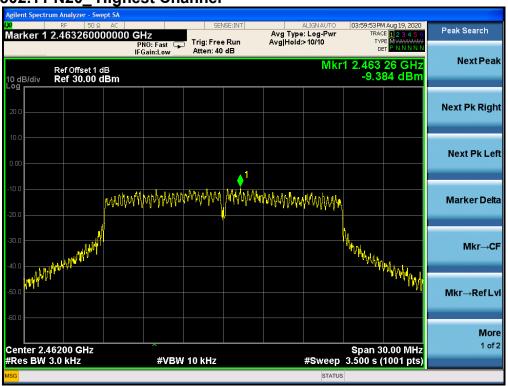
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4.6.2.1.8 802.11 N20_ Middle Channel



4.6.2.1.9 802.11 N20_ Highest Channel





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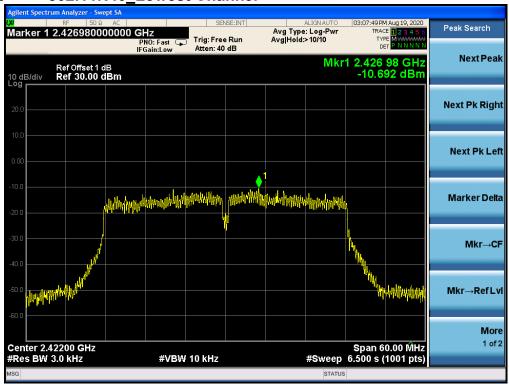
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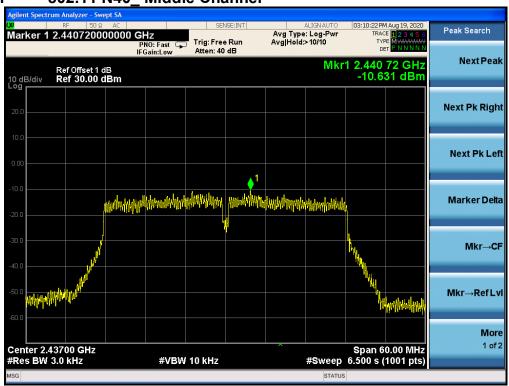
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4.6.2.1.10 802.11N40_Lowest Channel



4.6.2.1.11 802.11 N40 Middle Channel





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4.6.2.1.12 802.11 N40_ Highest Channel





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4.7 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)				
Test Method:	ANSI C63.10: 2013 Section 11.13				
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane				
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates				
Final Test Mode:	Through Pre-scan, find the 1Mbps of rate is the worst case of 802.11B; 6Mbps of rate is the worst case of 802.11G; 6.5Mbps of rate is the worst case of 802.11N(HT20); 13.5Mbps of rate is the worst case of 802.11N(HT40).				
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.				
Instruments Used:	Refer to section 5.10 for details				
Test Results:	Pass				



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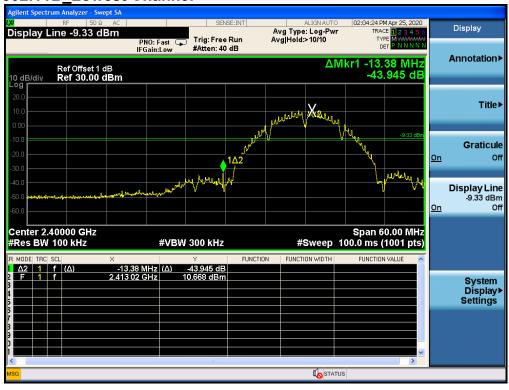
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4.7.1 **Test plots**

4.7.1.1 ANT1

4.7.1.1.1 802.11B Lowest Channel





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4.7.1.1.2 802.11B_ Highest Channel



4.7.1.1.3 802.11G_Lowest Channel





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4.7.1.1.4 802.11G_ Highest Channel



4.7.1.1.5 802.11N20 Lowest Channel





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4.7.1.1.6 802.11 N20_ Highest Channel



4.7.1.1.7 802.11N40_Lowest Channel





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4.7.1.1.8 802.11 N40_ Highest Channel





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4.8 RF Conducted Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)				
Test Method:	ANSI C63.10: 2013 Section 11.11				
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane				
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates				
	Through Pre-scan, find the				
	1Mbps of rate is the worst case of 802.11B;				
Final Test Mode:	6Mbps of rate is the worst case of 802.11G;				
	6.5Mbps of rate is the worst case of 802.11N(HT20);				
	13.5Mbps of rate is the worst case of 802.11N(HT40).				
	In any 100 kHz bandwidth outside the frequency band in which the spread				
	spectrum intentional radiator is operating, the radio frequency power that is				
Limit:	produced by the intentional radiator shall be at least 20 dB below that in the				
	100 kHz bandwidth within the band that contains the highest level of the				
	desired power, based on either an RF conducted or a radiated measurement.				
Instruments Used:	Refer to section 5.10 for details				
Test Results:	Pass				



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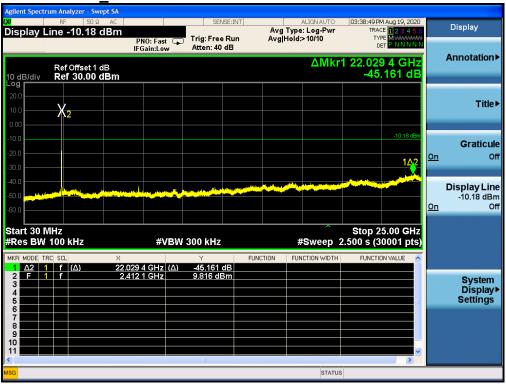
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4.8.1 Test plots

4.8.1.1 ANT1

4.8.1.1.1 802.11B Lowest Channel





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4.8.1.1.2 802.11B Middle Channel



4.8.1.1.3 802.11B_ Highest Channel





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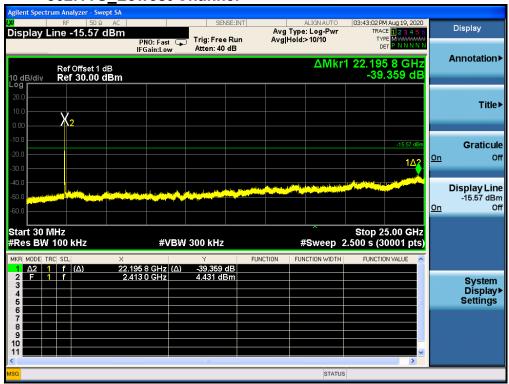
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4.8.1.1.4 802.11G Lowest Channel



4.8.1.1.5 802.11G Middle Channel





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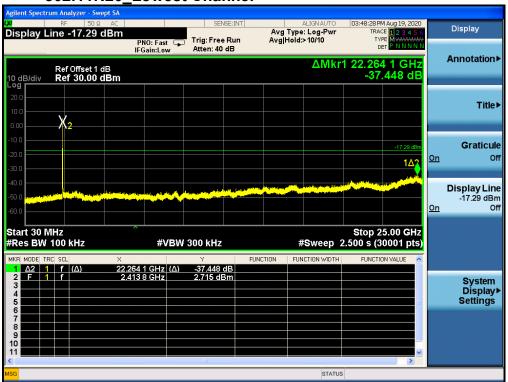
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4.8.1.1.6 802.11G_ Highest Channel



4.8.1.1.7 802.11N20 Lowest Channel





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4.8.1.1.8 802.11 N20_ Middle Channel



4.8.1.1.9 802.11 N20_ Highest Channel





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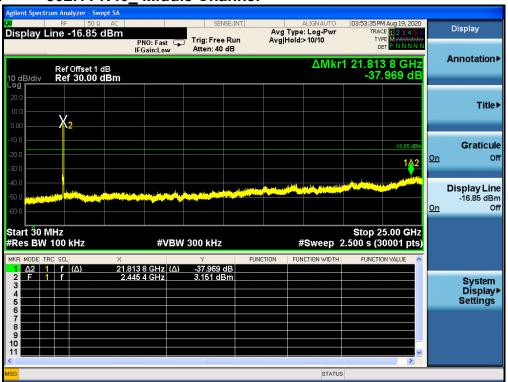
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4.8.1.1.10 802.11N40 Lowest Channel



4.8.1.1.11 802.11 N40 Middle Channel





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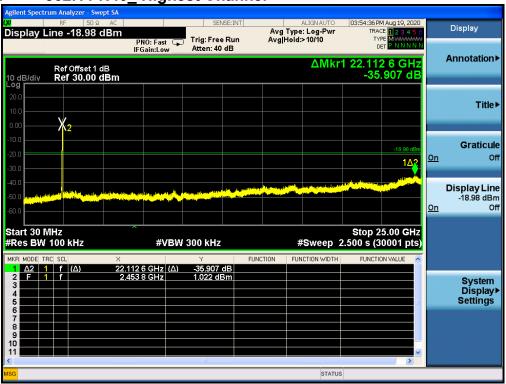
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4.8.1.1.12 802.11 N40_ Highest Channel



Remark:

Scan from 9kHz to 25GHz, the disturbance between 9KHz to 30MHz was very low, and the above harmonics were the highest point could be found when testing, The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.



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4.9 Radiated Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205						
Test Method:	ANSI C63.10 :2013 Section 11.12						
Test Site:	Measurement Distance: 3m or 10m (Semi-Anechoic Chamber)						
	Frequency	Detector	RBW	VBW	Remark		
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak		
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average		
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak		
Receiver Setup:	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak		
Receiver Setup.	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average		
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak		
	30MHz-1GHz	Quasi-peak	100 kHz	300kHz	Quasi-peak		
	Above 1GHz	Peak	1MHz	3MHz	Peak		
	Above IGHZ	Peak	1MHz	10Hz	Average		
	Frequency	Field strength	Limit (dBuV/m)	Remark	Measurement		
	Frequency	(microvolt/meter)	Limit (dbdv/m)	Nemark	distance (m)		
	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300		
	0.490MHz-1.705MHz	24000/F(kHz)			30		
	1.705MHz-30MHz	30	-	-	30		
	30MHz-88MHz	100	40.0	Quasi-peak	3		
Limit:	88MHz-216MHz	150	43.5	Quasi-peak	3		
Little	216MHz-960MHz	200	46.0	Quasi-peak	3		
	960MHz-1GHz	500	54.0	Quasi-peak	3		
	Above 1GHz	500	54.0	Average	3		
	Remark: 15.35(b), Unless otherwise specified, the limit on peak radio frequency						
	emissions is 20dB above the maximum permitted average emission limit						
	applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.						

Test Setup:	



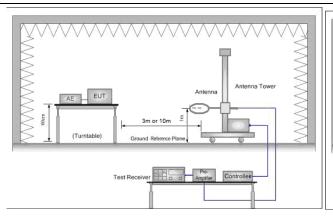
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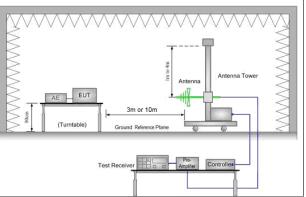


Figure 1. Below 30MHz

Figure 2. 30MHz to 1GHz

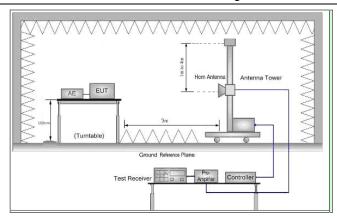


Figure 3. Above 1 GHz

Test Procedure:

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW=100 kHz for f < 1 GHz, RBW=1MHz for f>1GHz ; VBW \geqslant RBW; Sweep = auto;

Detector function = peak; Trace = max hold for peak

(3) For average measurement: use duty cycle correction factor method per 15.35(c).

Duty cycle = On time/100 milliseconds



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	On time = N 1 *L 1 +N 2 *L 2 ++N n-1 *LN n-1 +N n *L n				
	Where N 1 is number of type 1 pulses, L 1 is length of type 1 pulses, etc.				
	Average Emission Level = Peak Emission Level + 20*log(Duty cycl				
	f. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters(for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.				
	g. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.				
	h. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.				
	i. Test the EUT in the lowest channel, the middle channel ,the Highest channel				
	j. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case.				
	k. Repeat above procedures until all frequencies measured was complete.				
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates.				
	Charge + Transmitting mode.				
Final Test Mode:	Pretest the EUT at Charge + Transmitting mode.				
	Through Pre-scan, find the				
	1Mbps of rate is the worst case of 802.11B;				
	6Mbps of rate is the worst case of 802.11G;				
	6.5Mbps of rate is the worst case of 802.11N(HT20);				
	13.5Mbps of rate is the worst case of 802.11N(HT40)				
	For below 1GHz, through Pre-scan, find the 1Mbps of rate of 802.11B at lowest channel is the worst case. Only the worst case is recorded in the report.				
Instruments Used:	Refer to section 5.10 for details				
Test Results:	Pass				



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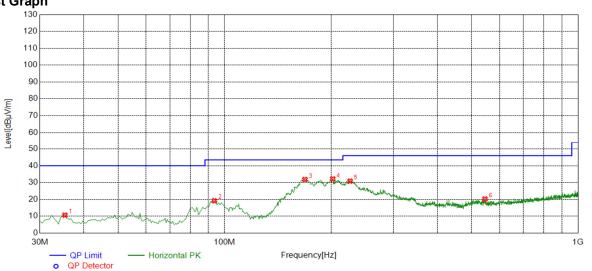
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4.9.1 Radiated Emission below 1GHz 4.9.1.1 Charge + Transmitting

Project Information				
Mode:	2.4G WIFI	State:		
Environment:	Temp: 25°C; Humi:60%	Engineer:		





Suspected List

	Suspected List							
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.3377	10.69	-32.65	40.00	29.31	150	242	Horizontal
2	93.5668	19.23	-32.81	43.50	24.27	150	273	Horizontal
3	168.779	31.85	-33.69	43.50	11.65	150	220	Horizontal
4	202.261	32.23	-30.77	43.50	11.27	150	44	Horizontal
5	226.523	30.89	-30.09	46.00	15.11	150	35	Horizontal
6	545.327	20.26	-21.56	46.00	25.74	150	2	Horizontal

Final Data List



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