74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of Korea
TEL: +82-31-645-6300 FAX: +82-31-645-6401

FCC UNII REPORT

FCC Certification

Applicant Name:
LG Electronics MobileComm U.S.A., Inc.

Address:
1000 Sylvan Avenue, Englewood Cliffs NJ 07632

Date of Issue:
September 08, 2015

Test Site/Location:
HCT CO., LTD., 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea

Report No.: HCT-R-1509-F020

HCT FRN: 0005866421

FCC ID : ZNFH960
APPLICANT : LG Electronics MobileComm U.S.A., Inc.

FCC Model(s): LG-H960

Additional Model(s): LGH960, H960, LG-H960P, LGH960P, H960P, LG-H960AR, LGH960AR, H960AR,LG-H960YK, LGH960YK, H960YK

EUT Type: Cellular/PCS GSM/WCDMA/LTE Phone with WLAN, Bluetooth and NFC

Modulation type OFDM

FCC Classification: Unlicensed National Information Infrastructure(UNII)

FCC Rule Part(s): Part 15.407

Band	Mode	Channel Bandwidth (MHz)	Frequency Range (MHz)	Power (dBm)	Power (W)
UNII1	802.11a	20	5180 – 5240	14.55	0.0285
	802.11n	20	5180 – 5240	14.17	0.0261
	802.11n	40	5190 - 5230	12.63	0.0183
	802.11ac	20	5180 – 5240	15.13	0.0326
	802.11ac	40	5190 - 5230	12.73	0.0187
	802.11ac	80	5210	10.78	0.0120
UNII2A	802.11a	20	5260 – 5320	14.62	0.0290
	802.11n	20	5260 – 5320	14.30	0.0269
	802.11n	40	5270 – 5310	12.77	0.0189
	802.11ac	20	5260 – 5320	15.14	0.0327
	802.11ac	40	5270 – 5310	12.80	0.0191
	802.11ac	80	5290	12.00	0.0158
UNII2C	802.11a	20	5500 – 5720	14.00	0.0251
	802.11n	20	5500 – 5720	13.59	0.0229
	802.11n	40	5510 – 5710	12.50	0.0178
	802.11ac	20	5500 – 5720	14.51	0.0282
	802.11ac	40	5510 – 5710	12.51	0.0178
	802.11ac	80	5530 – 5690	12.30	0.0170
UNII3	802.11a	20	5745 – 5825	13.57	0.0228
	802.11n	20	5745 – 5825	13.21	0.0209
	802.11n	40	5755 – 5795	11.79	0.0151
	802.11ac	20	5745 – 5825	14.15	0.0260
	802.11ac	40	5755 – 5795	11.81	0.0152
	802.11ac	80	5775	11.81	0.0152

Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

Report prepared by : Kyung Soo Kang Test Engineer of RF Team	Approved by : Sang Jun Lee Manager of RF Team

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-R-1509-F020	September 08, 2015	- First Approval Report

Table of Contents

1. GENERAL INFORMATION

Applicant:	LG Electronics MobileComm U.S.A., Inc
Address:	1000 Sylvan Avenue, Englewood Cliffs NJ 07632
FCC ID:	ZNFH960
EUT Type:	Cellular/PCS GSM/WCDMA/LTE Phone with WLAN, Bluetooth and NFC
Model name(s):	LG-H960
Additional Model(s):	LGH960, H960, LG-H960P, LGH960P, H960P, LG-H960AR, LGH960AR, H960AR, LG-H960YK, LGH960YK, H960YK
Date(s) of Tests:	August 12, 2015 ~ September 8, 2015
Place of Tests:	HCT Co., Ltd. 74,Seoicheon-ro 578beon-gil,Majang-myeo,Icheon-si, Gyeonggi-do,17383, Rep. of KOREA (IC Recognition No. : 5944A-3)

2. EUT DESCRIPTION

FCC Model Name	LG-H960	
Additional Model(s):	LGH960, H960, LG-H960P, LGH960P, H960P, LG-H960AR, LGH960AR, H960AR, LG-H960YK, LGH960YK, H960YK	
EUT Type	Cellular/PCS GSM/WCDMA/LTE Phone with WLAN, Bluetooth and NFC	
Power Supply	DC 3.85 V	
Battery Infomation	Model: BL-45B1F Type: Li-ion Battery(Standard)	
Frequency Range	TX_20 MHz BW:	5180 MHz - 5240 MHz (UNII 1)/ 5260 MHz - 5320 MHz (UNII 2A)/ 5500 MHz - 5720 MHz (UNII 2C)/ 5745 MHz - 5825 MHz (UNII 3)
	40 MHz BW:	5190 MHz - 5230 MHz (UNII 1)/ 5270 MHz - 5310 MHz (UNII 2A)/ 5510 MHz - 5710 MHz (UNII 2C) / 5755 MHz - 5795 MHz (UNII 3)
	80 MHz BW:	5210 MHz(UNII 1)/ 5290 MHz(UNII 2A)/ 5530 MHz - 5690 MHz(UNII 2C)/ 5775 MHz (UNII 3)
	RX_20 MHz BW:	5180 MHz - 5240 MHz (UNII 1)/ 5260 MHz - 5320 MHz (UNII 2A)/ 5500 MHz - 5720 MHz (UNII 2C)/ 5745 MHz - 5825 MHz (UNII 3)
	40 MHz BW:	5190 MHz - 5230 MHz (UNII 1)/ 5270 MHz - 5310 MHz (UNII 2A)/ 5510 MHz - 5710 MHz (UNII 2C) / 5755 MHz - 5795 MHz (UNII 3)
	80 MHz BW:	5210 MHz(UNII 1)/ 5290 MHz(UNII 2A)/ 5530 MHz - 5690 MHz(UNII 2C)/ 5775 MHz (UNII 3)
Modulation Type	OFDM(802.11a, 802.11n, 802.11ac)	
Antenna Specification	Manufacturer: LS Mtron Co. Ltd. Antenna type: INTERNAL ANTENNA Peak Gain : -0.83 dBi (5180~5240 UNII1 BAND) / -0.95 dBi (5260~5325 UNII2A BAND) -3.79 dBi (5500~5720 UNII2C BAND) / -7.62 dBi (5745~5825 UNII3 BAND)	

3. TEST METHODOLOGY

The measurement procedure described in FCC KDB 789033 D02 General UNII Test Procedures New Rules v01 dated June 06, 2014 entitled " Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part15, Subpart E" and the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013) were used in the measurement. For 802.11ac, KDB644545 D03 v01 dated August 14, 2014

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.407 under the FCC Rules Part 15 Subpart E.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 6.2 of ANSI C63.10. (Version :2013) Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane below 1GHz. Above 1GHz with 1.5m using absorbers between the EUT and receive antenna. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements in Section 8 of ANSI C63.10. (Version: 2013)

Conducted Antenna Terminal

See Section from 8.1 to 8.4.(KDB 789033)

3.4 DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Channel low, mid and high with highest data rate (worst case) is chosen for full testing.

4. INSTRUMENT CALIBRATION

The. measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipments, which is traceable to recognized national standards

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2014) and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated July 07, 2015 (Registration Number: 90661)

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements. Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.
All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

6. ANTENNA REQUIREMENTS

According to FCC 47 CFR §15.203, §15.407

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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 shall be considered sufficient to comply with the provisions of this section.”

* The antennas of this E.U.T are permanently attached.

* The E.U.T Complies with the requirement of §15.203, §15.407

7. SUMMARY OF TEST RESULTS

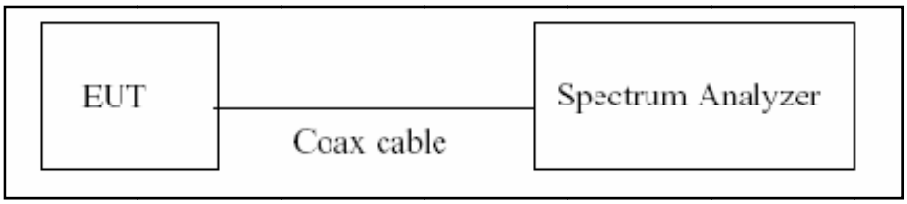
Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
26dB Bandwidth	§15.407 (for Power Measurement)	N/A	CONDUCTED	PASS
6 dB Bandwidth	§15.407(e)	>500 kHz (5725-5850 MHz)		
Maximum Conducted Output Power	§15.407(a)(1)	< 250 mW (5150-5250 MHz) < 250 mW or 11+10 log log $_{10}$ (BW) dBm (5250-5350 MHz) < 250 mW or 11+10 log log $_{10}$ (BW) dBm (5470-5725 MHz) <1 W (5725-5850 MHz)		PASS
Peak Power Spectral Density	§15.407(a)(1),(5)	<11 dBm/ MHz (5150-5250 MHz) <11 dBm/ MHz (5250-5350 MHz) <11 dBm/ MHz (5470-5725 MHz) <30 dBm/500 kHz(5725-5850 MHz)		PASS
Frequency Stability	§15.407(g)	NA		PASS
AC Conducted Emissions 150 kHz-30 MHz	15.207	<FCC 15.207 limits		PASS
Undesirable Emissions	§15.407(b)	<-27 dBm/MHz EIRP (UNII1, 2A, 2C) <-17 dBm/MHz EIRP within 5715-5725 MHz and 5850-5860 MHz (UNII3) <-27 dBm/MHz EIRP outside 5715-5860 MHz (UNII 3)	RADIATED	PASS
General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	15.205, 15.407(b)(5), (6)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		PASS

8. TEST RESULT

8.1 DUTY CYCLE

The zero-span mode on a spectrum analyzer or EMI receiver ,if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set RBW ≥ EBW if possible; otherwise, set RBW to the largest available value. Set VBW ≥ RBW. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are > 50/*T*, where *T* is defined in section B)1)a), and the number of sweep points across duration *T* exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if *T* ≤ 16.7 microseconds.)

▣ TEST CONFIGURATION



▣ TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer. We tested according to the zero-span measurement method, (B.2 in KDB 789033 D02, issued 06/06/2014)
The largest availble value of RBW is 8 MHz and VBW is 50 MHz. The zero-span method of measuring duty cycle shall not be used if T ≤ 6.25 microseconds. (50/6.25 = 8)
The zero-span method was used becaure all measured T data are > 6.25 microseconds and both RBW and VBW are > 50/*T*.

1. RBW = 8 MHz (the largest availble value)
2. VBW = 8 MHz (≥ RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = T_{on}/ T_{total} and Duty Cycle Factor = 10*log(1/Duty Cycle)

▣ Duty Cycle Factor

Mode	Data Rate (Mbps)	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11a	6	2.064	2.087	0.98897940	0.048
	9	1.386	1.409	0.98367637	0.071
	12	1.040	1.062	0.97928437	0.091
	18	0.700	0.723	0.96818811	0.140
	24	0.532	0.553	0.96202532	0.168
	36	0.364	0.386	0.94300518	0.255
	48	0.276	0.297	0.92929293	0.318
	54	0.248	0.268	0.92537313	0.337
802.11n_20 MHz BW	6.5	5.115	5.130	0.99707602	0.013
	13	2.576	2.599	0.99115044	0.039
	19.5	1.733	1.748	0.99141876	0.037
	26	1.311	1.333	0.98349587	0.072
	39	0.888	0.904	0.98230088	0.078
	52	0.670	0.693	0.96681097	0.147
	58.5	0.604	0.625	0.96640000	0.148
	65	0.542	0.564	0.96099291	0.173
802.11n_40 MHz BW	13.5	2.486	2.501	0.99400240	0.026
	27	1.258	1.281	0.98204528	0.079
	40.5	0.843	0.873	0.96563574	0.152
	54	0.647	0.670	0.96567164	0.152
	81	0.444	0.466	0.95278970	0.210
	108	0.345	0.364	0.94780220	0.233
	121.5	0.308	0.328	0.93902439	0.273
	135	0.283	0.305	0.92786885	0.325

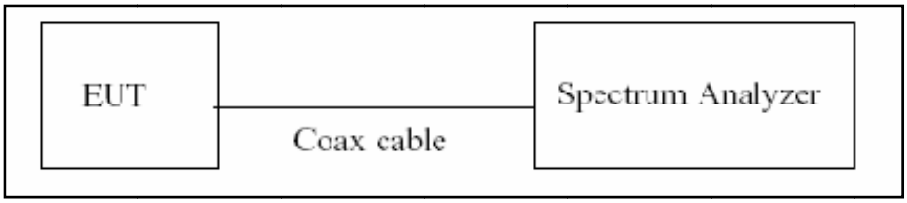
Mode	Data Rate	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11ac_20 MHz BW	6.5	5.120	5.140	0.99610895	0.017
	13	2.580	2.610	0.98850575	0.050
	19.5	1.740	1.760	0.98863636	0.050
	26	1.310	1.330	0.98496241	0.066
	39	0.890	0.910	0.97802198	0.097
	52	0.676	0.698	0.96848138	0.139
	58.5	0.608	0.628	0.96815287	0.141
	65	0.552	0.574	0.96167247	0.170
	78	0.462	0.484	0.95454545	0.202
5.8 GHz Band 802.11ac_40 MHz BW	13.5	2.485	2.505	0.99201597	0.035
	27	1.260	1.285	0.98054475	0.085
	40.5	0.855	0.875	0.97714286	0.100
	54	0.655	0.675	0.97037037	0.131
	81	0.448	0.470	0.95319149	0.208
	108	0.348	0.370	0.94054054	0.266
	121.5	0.312	0.334	0.93413174	0.296
	135	0.288	0.308	0.93506494	0.292
	162	0.244	0.266	0.91729323	0.375
	180	0.244	0.246	0.99186992	0.035
5.8 GHz Band 802.11ac_80 MHz BW	29.3	1.170	1.195	0.97907950	0.092
	58.5	0.610	0.630	0.96825397	0.140
	87.8	0.420	0.440	0.95454545	0.202
	117	0.323	0.345	0.93623188	0.286
	175.5	0.231	0.253	0.91304348	0.395
	234	0.184	0.205	0.89756098	0.469
	263.3	0.167	0.188	0.88829787	0.514
	292.5	0.156	0.177	0.88135593	0.548
	351	0.134	0.156	0.85897436	0.660
	390	0.128	0.150	0.85333333	0.689

8.2 EMISSION BANDWIDTH AND MINIMUM EMISSION BANDWIDTH MEASUREMENT

The bandwidth at 26 dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating at its maximum power control level, as defined in KDB 789033 D02(issued 06/06/2014), at the appropriate frequencies. The spectrum analyzer's bandwidth measurement function is configured to measure the 26 dB bandwidth.

The 26 dB bandwidth is used to determine the conducted power limits.

▣ TEST CONFIGURATION



▣ TEST PROCEDURE (26dB Bandwidth)

The transmitter output is connected to the Spectrum Analyzer.
The Spectrum Analyzer is set to(C.1 in KDB 789033 D02, issued 06/06/2014)

1. RBW = approximately 1 % of the emission bandwidth
2. VBW > RBW
3. Detector = Peak
4. Trace mode = max hold
5. Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1 %.

Note : We tested 26 dB bandwidth using the automatic bandwidth measurement capability of a spectrum analyzer. X dB is set 26 dB.

▣ TEST PROCEDURE (for the band 5.725-5.85 GHz, 6 dB Bandwidth)

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to(C.2 in KDB 789033 D02, issued 06/06/2014)

1. RBW = 100 kHz
2. VBW ≥ 3*RBW
3. Detector = Peak
4. Trace mode = max hold
5. Allow the trace to stabilize
6. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points(upper and lower frequencies) that are attenuated by 6 dB relative to the maximum lever measured in the fundamental emission.

Note : We tested 6 dB bandwidth using the automatic bandwidth measurement capability of a spectrum analyzer. X dB is set 6 dB.

▣ TEST RESULTS for 802.11a_20 MHz BW

Conducted 26 dB Bandwidth Measurements for 802.11a

802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5180	36	20.967	N/A	Pass
5200	40	21.048	N/A	Pass
5240	48	21.129	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11a

802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5260	52	21.059	N/A	Pass
5300	60	21.088	N/A	Pass
5320	64	21.144	N/A	Pass

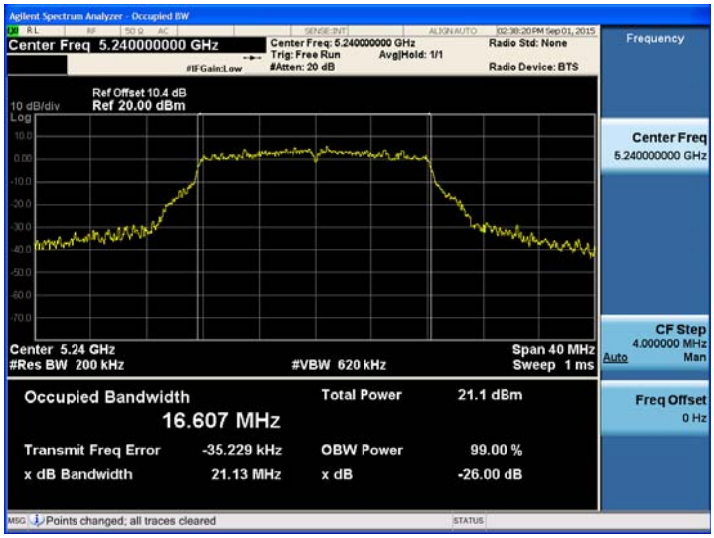
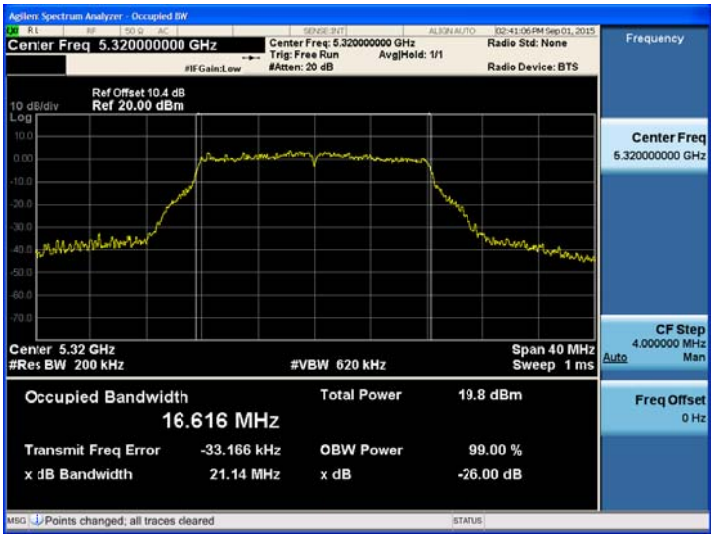
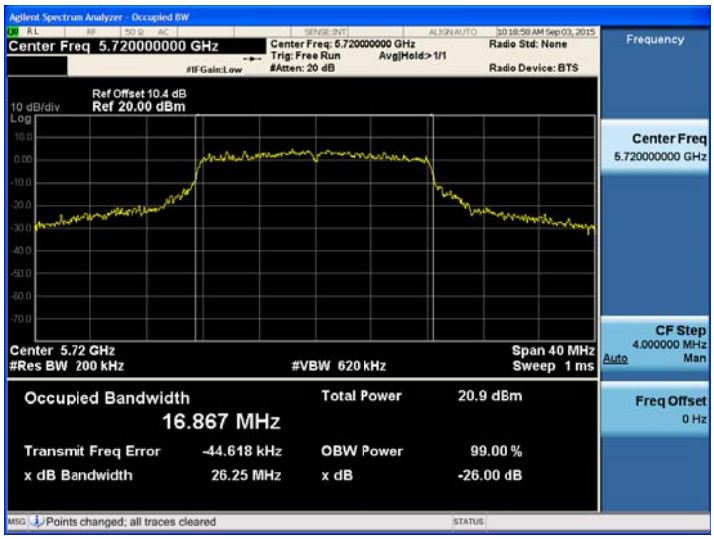
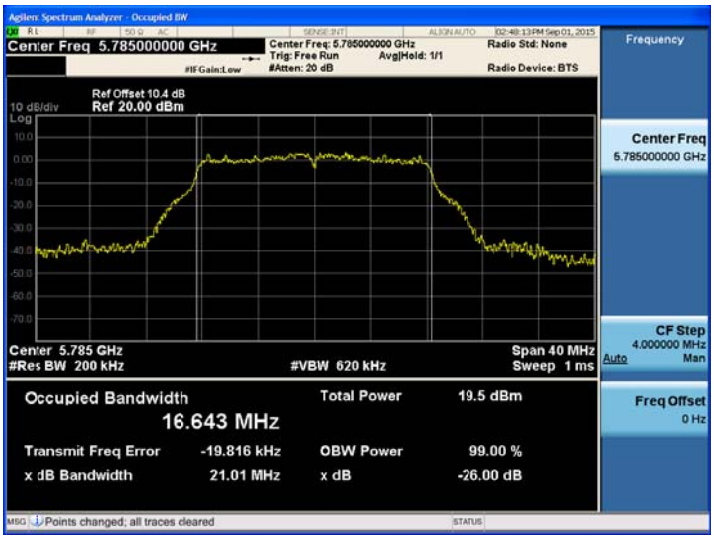
Conducted 26 dB Bandwidth Measurements for 802.11a

802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5500	100	21.016	N/A	Pass
5580	116	21.128	N/A	Pass
5720	144	26.253	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11a

802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	20.918	N/A	Pass
5785	157	21.013	N/A	Pass
5825	165	21.003	N/A	Pass

▣ TEST Plot for 802.11a _20MHz BW

802.11a UNII 1 BAND 26dB Bandwidth (CH48)	802.11a UNII 2A BAND 26dB Bandwidth (CH 64)
	
802.11a UNII 2C BAND 26dB Bandwidth (CH144)	**802.11a UNII 3 BAND 26dB Bandwidth (CH 157)**
	

Note :

In order to simplify the report, attached plots were only the most wide channel.

▣ TEST RESULTS for 802.11n _20MHz BW

Conducted 26 dB Bandwidth Measurements for 802.11n 20M BW

802.11n(20MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5180	36	21.299	N/A	Pass
5200	40	21.287	N/A	Pass
5240	48	21.206	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11n 20M BW

802.11n(20MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5260	52	20.946	N/A	Pass
5300	60	21.172	N/A	Pass
5320	64	21.334	N/A	Pass

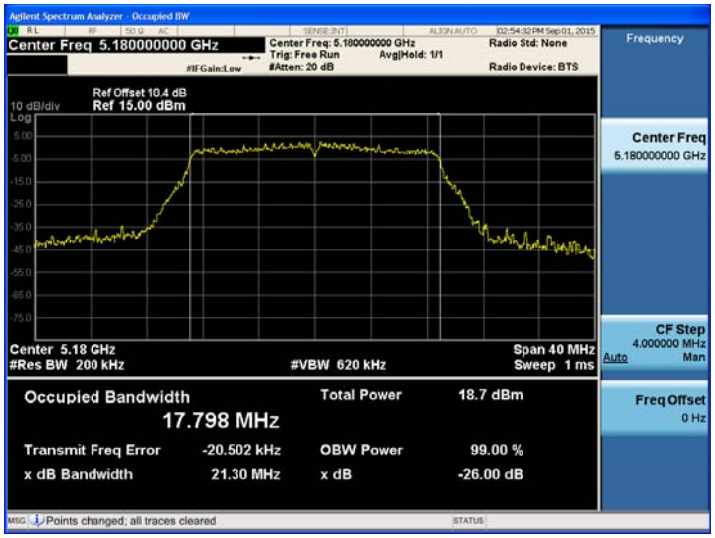
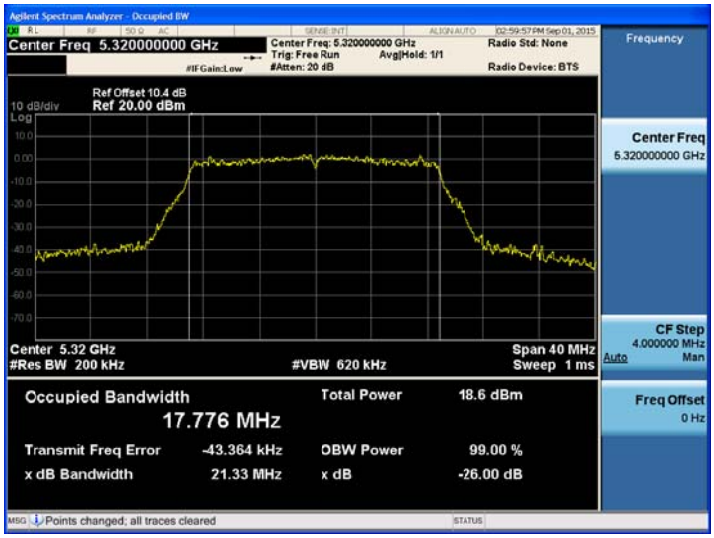
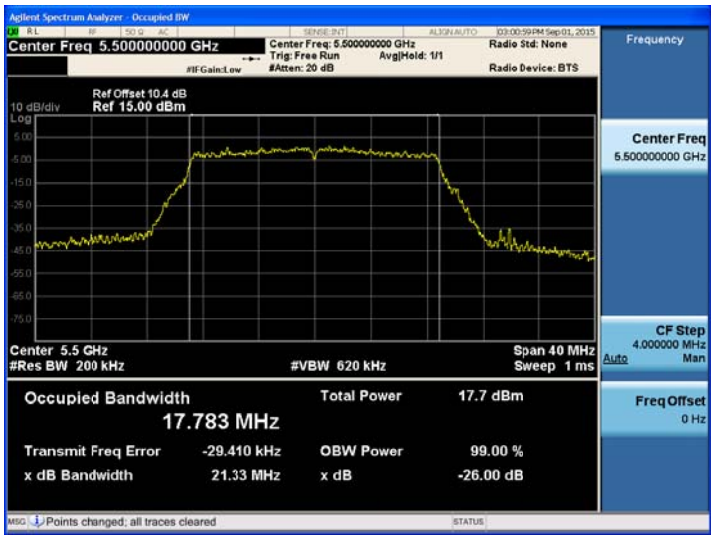
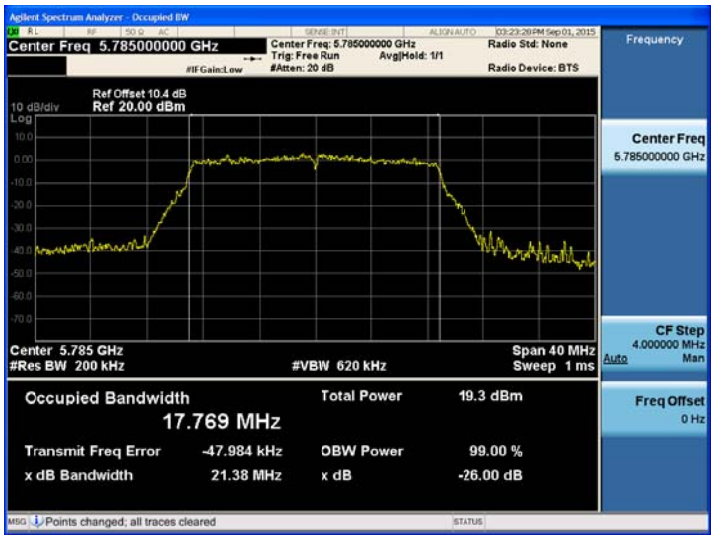
Conducted 26 dB Bandwidth Measurements for 802.11n 20M BW

802.11n(20MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5500	100	21.326	N/A	Pass
5580	116	21.138	N/A	Pass
5720	144	21.260	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11n 20M BW

802.11n(20MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	21.099	N/A	Pass
5785	157	21.382	N/A	Pass
5825	165	21.332	N/A	Pass

▣ TEST Plot for 802.11n _20MHz BW

802.11n_20 MHz BW UNII 1 BAND 26dB Bandwidth(CH 36)	802.11n_20 MHz BW UNII 2A BAND 26dB Bandwidth(CH 64)
	
802.11n_20 MHz BW UNII 2C BAND 26dB Bandwidth(CH 100)	**802.11n_20 MHz BW UNII 3 BAND 26dB Bandwidth(CH 157)**
	

Note :

In order to simplify the report, attached plots were only the most wide channel.

▣ TEST RESULTS for 802.11ac _20MHz BW

Conducted 26 dB Bandwidth Measurements for 802.11ac 20M BW

802.11ac(20MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5180	36	21.099	N/A	Pass
5200	40	21.437	N/A	Pass
5240	48	21.609	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac 20M BW

802.11ac(20MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5260	52	21.523	N/A	Pass
5300	60	21.302	N/A	Pass
5320	64	21.336	N/A	Pass

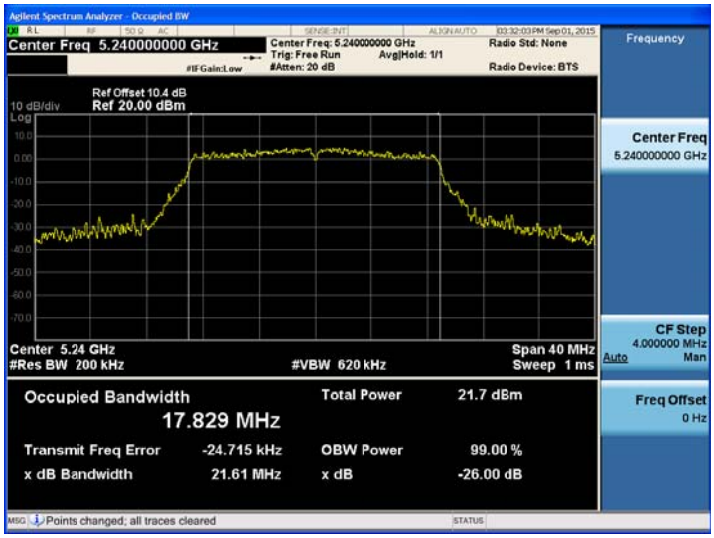
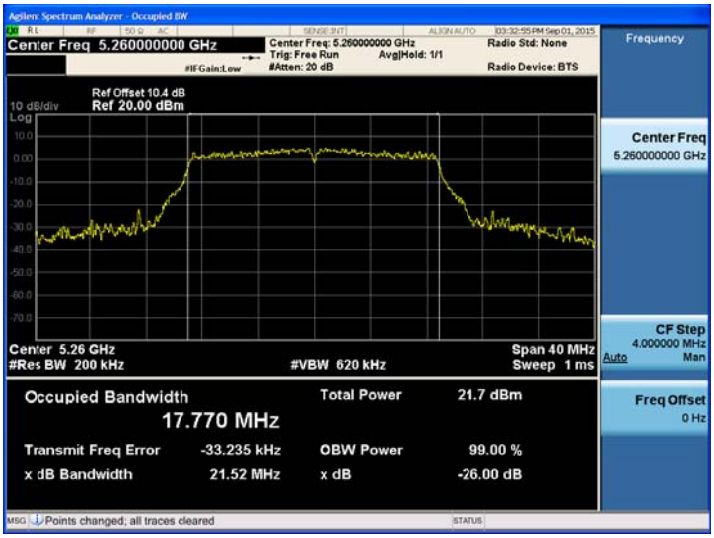
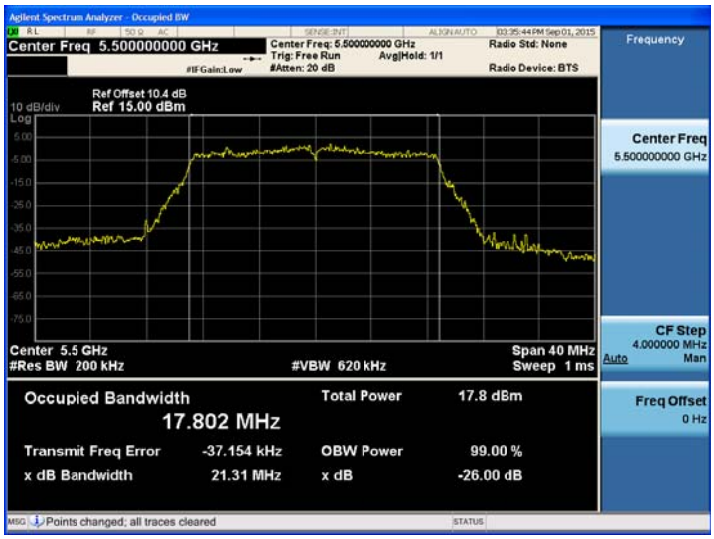
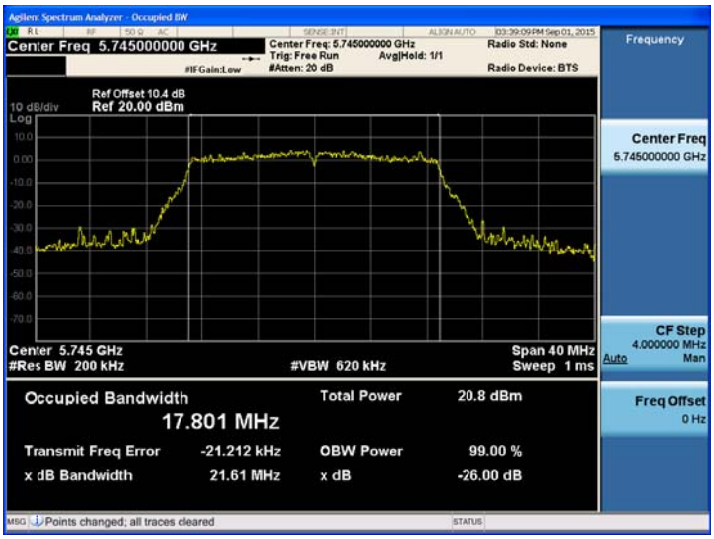
Conducted 26 dB Bandwidth Measurements for 802.11ac 20M BW

802.11ac(20MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5500	100	21.306	N/A	Pass
5580	116	21.281	N/A	Pass
5720	144	21.063	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac 20M BW

802.11ac(20MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	21.605	N/A	Pass
5785	157	21.315	N/A	Pass
5825	165	21.309	N/A	Pass

▣ TEST Plot for 802.11ac _20MHz BW

802.11ac_20 MHz BW UNII 1 BAND 26dB Bandwidth(CH 48)	802.11ac_20 MHz BW UNII 2A BAND 26dB Bandwidth (CH 52)
	
802.11ac_20 MHz BW UNII 2C BAND 26dB Bandwidth (CH 100)	**802.11ac_20 MHz BW UNII 3 BAND 26dB Bandwidth(CH 149)**
	

Note :

In order to simplify the report, attached plots were only the most wide channel.

▣ TEST RESULTS for 802.11n_40MHz BW

Conducted 26 dB Bandwidth Measurements for 802.11n_40 M BW

802.11n(40MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5190	38	39.252	N/A	Pass
5230	46	38.893	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11n_40 M BW

802.11n(40MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5270	54	39.024	N/A	Pass
5310	62	39.043	N/A	Pass

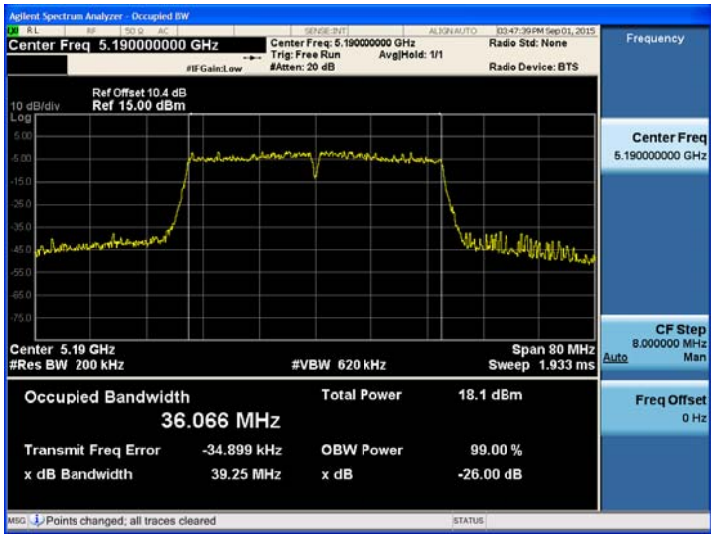
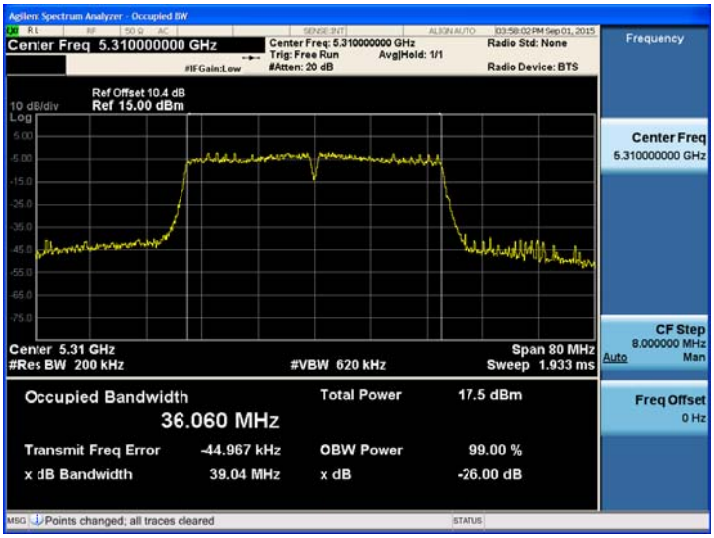
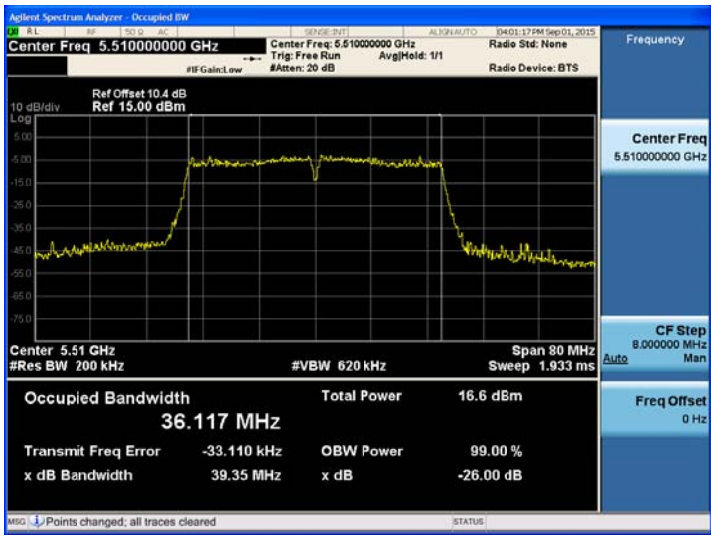
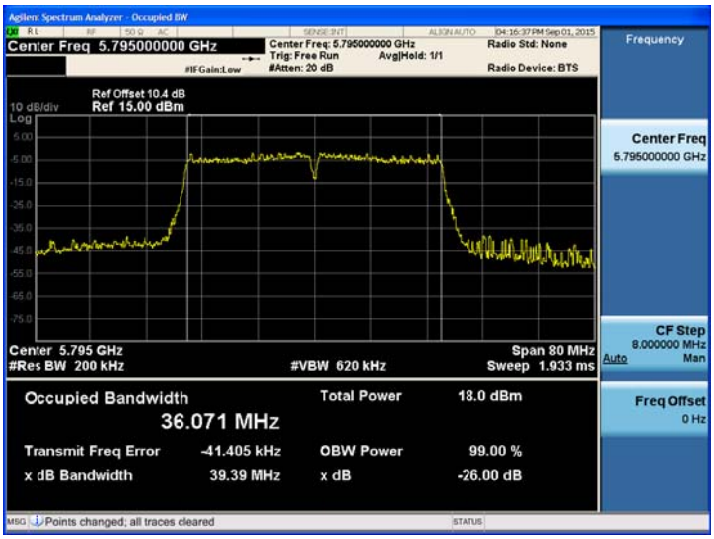
Conducted 26 dB Bandwidth Measurements for 802.11n_40 M BW

802.11n(40MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5510	102	39.353	N/A	Pass
5550	110	39.074	N/A	Pass
5710	142	39.202	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11n_40 M BW

802.11n(40MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	39.107	N/A	Pass
5795	159	39.394	N/A	Pass

▣ TEST Plot for 802.11n_40MHz BW

802.11n_40 MHz BW UNII 1 BAND 26dB Bandwidth(CH 38)	802.11n_40 MHz BW UNII 2A BAND 26dB Bandwidth (CH 62)
	
802.11n_40 MHz BW UNII 2C BAND 26dB Bandwidth(CH 102)	**802.11n_40 MHz BW UNII 3 BAND 26dB Bandwidth (CH 159)**
	

Note :

In order to simplify the report, attached plots were only the most wide channel.

▣ TEST RESULTS for 802.11ac_40MHz BW

Conducted 26 dB Bandwidth Measurements for 802.11ac_40 M BW

802.11ac(40MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5190	38	39.301	N/A	Pass
5230	46	39.175	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac_40 M BW

802.11ac(40MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5270	54	39.117	N/A	Pass
5310	62	39.190	N/A	Pass

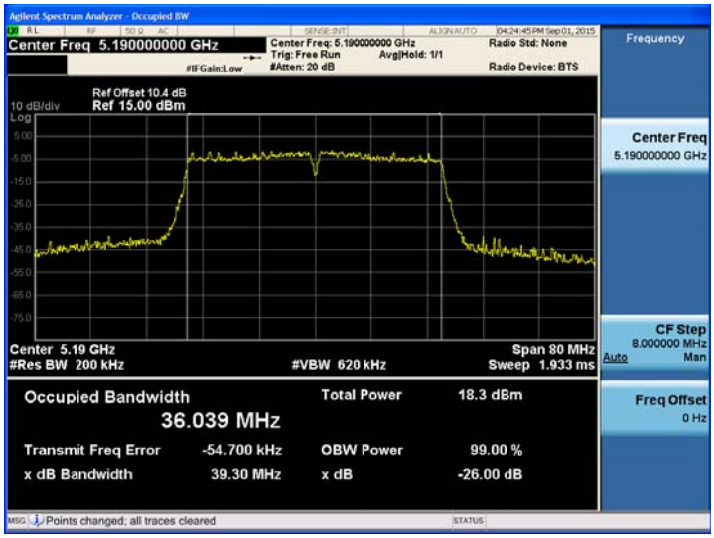
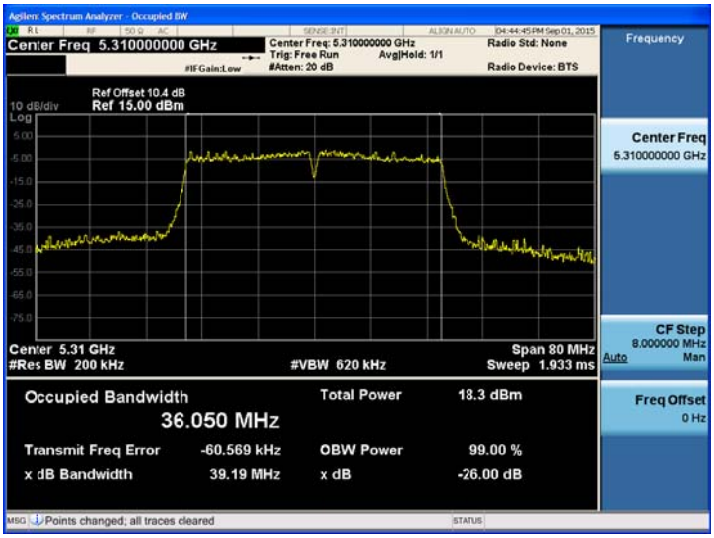
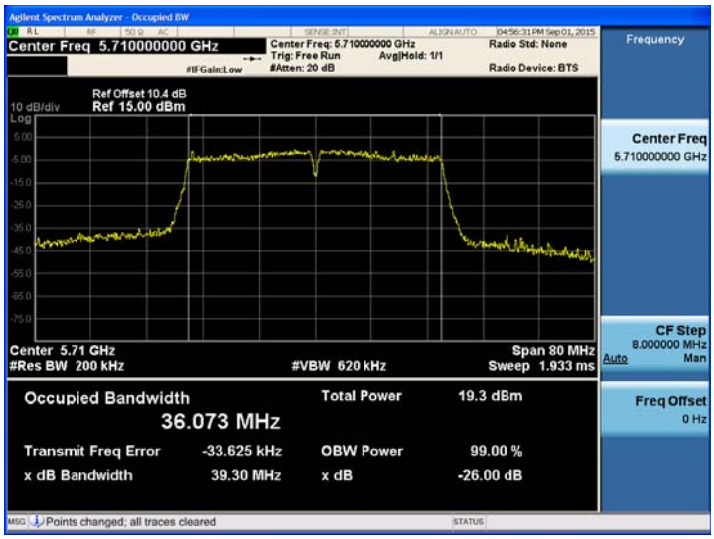
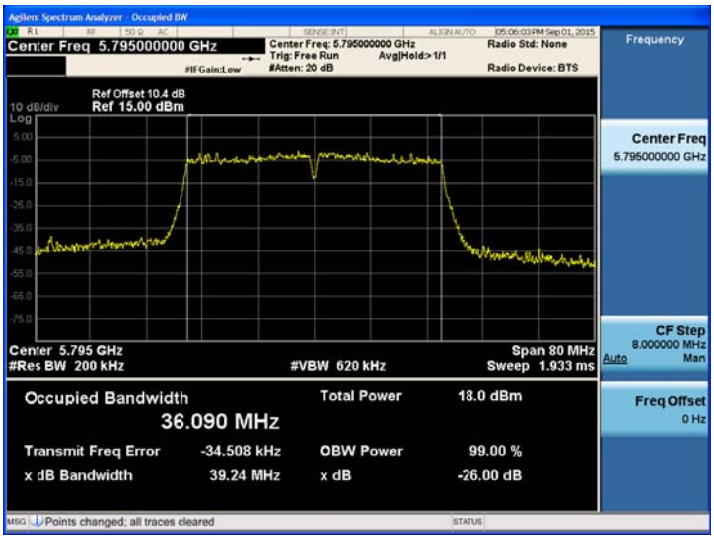
Conducted 26 dB Bandwidth Measurements for 802.11ac_40 M BW

802.11ac(40MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5510	102	39.155	N/A	Pass
5550	110	39.045	N/A	Pass
5710	142	39.300	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac_40 M BW

802.11ac(40MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	39.129	N/A	Pass
5795	159	39.238	N/A	Pass

▣ TEST Plot for 802.11ac_40MHz BW

802.11ac_40 MHz BW UNII 1 BAND 26dB Bandwidth(CH 38)	802.11ac_40 MHz BW UNII 2A BAND 26dB Bandwidth(CH 62)
	
802.11ac_40 MHz BW UNII 2C BAND 26dB Bandwidth(CH 142)	**802.11ac_40 MHz BW UNII 3 BAND 26dB Bandwidth(CH 159)**
	

Note :

In order to simplify the report, attached plots were only the most wide channel.

▣ TEST RESULTS for 802.11ac_80MHz BW

Conducted 26 dB Bandwidth Measurements for 802.11ac_80M BW

802.11ac(80M) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5210	42	81.533	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac_80M BW

802.11ac(80M) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5290	58	80.696	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac_80M BW

802.11ac(80M) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5530	106	81.218	N/A	Pass
5690	138	81.408	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac_80M BW

802.11ac(80M) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	80.815	N/A	Pass

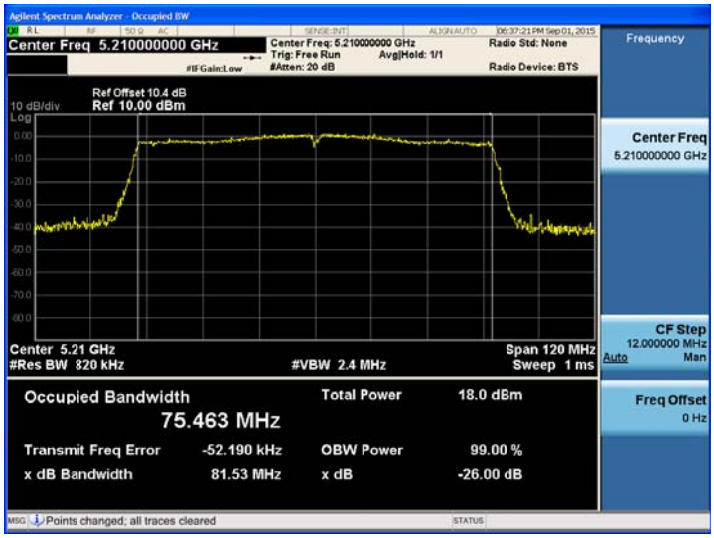
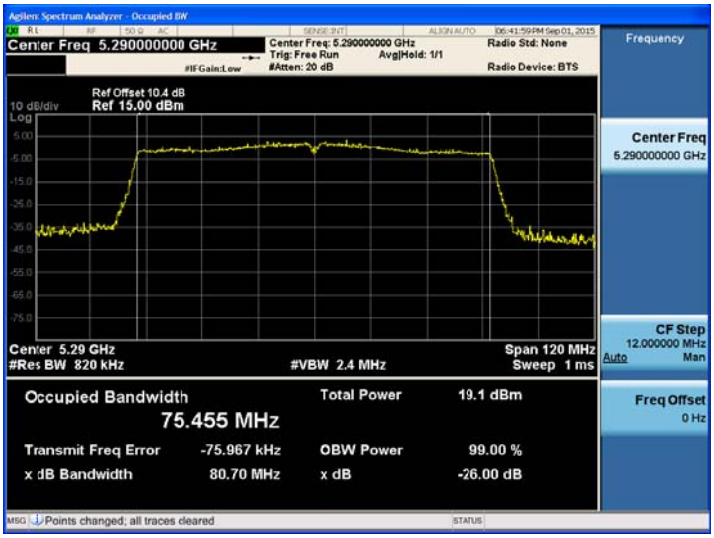
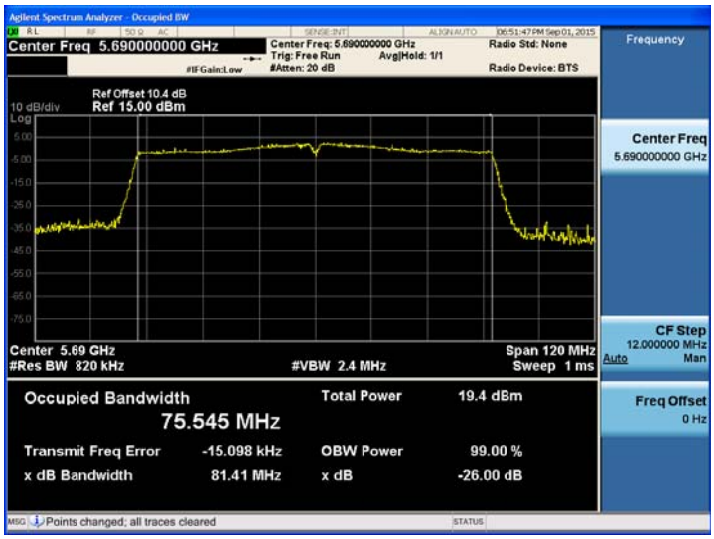
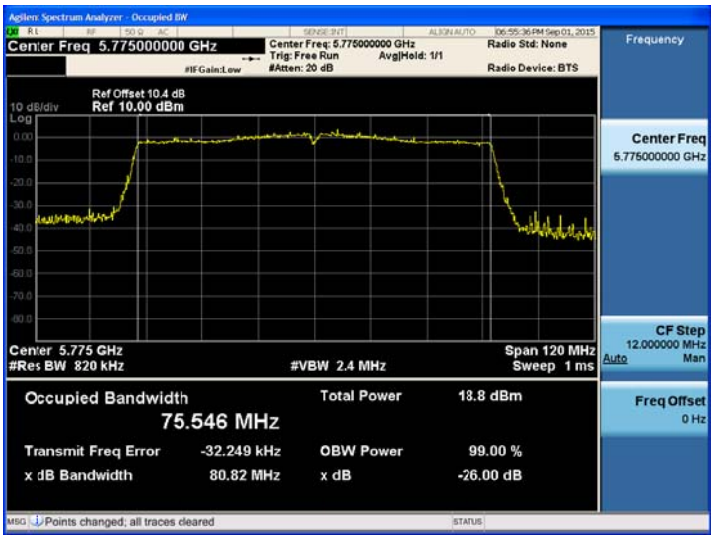
Note :

1. In order to simplify the report, attached plots were only the most wide channel.

2. DFS test channels should be defined. So, We performed the OBW test to prove that no part of the fundamental emissions of any channels belong to UNII1 and UNII3 band for DFS.

3. In case of UNII channels 138, 142 and 144, this device is satisfied with KDB644545 D03. We were applied only UNII 2C requirement for channels 138, 142 and 144. Because UNII 2C requirement is worse than UNII 3 limit.

▣ TEST Plot for 802.11ac _80MHz BW

802.11ac_80 MHz BW UNII 1 BAND 26dB Bandwidth(CH 42)	802.11ac_80 MHz BW UNII 2A BAND 26dB Bandwidth(CH 58)
	
802.11ac_80 MHz BW UNII 2C BAND 26dB Bandwidth(CH 138)	**802.11ac_80 MHz BW UNII 3 BAND 26dB Bandwidth(CH 155)**
	

Note :

In order to simplify the report, attached plots were only the most wide channel.

Conducted 6 dB Bandwidth

▣ TEST RESULTS for 802.11a/n/ac_20MHz BW

Conducted 6 dB Bandwidth Measurements for 802.11a

802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.387	0.5	Pass
5785	157	16.340	0.5	Pass
5825	165	16.361	0.5	Pass

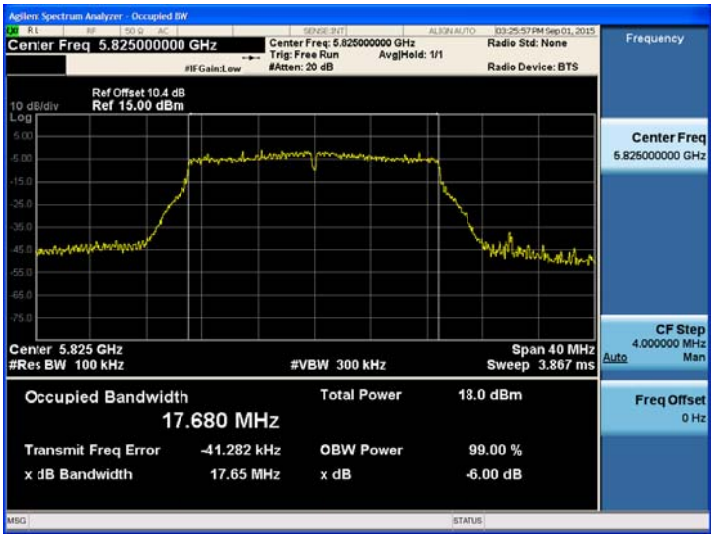
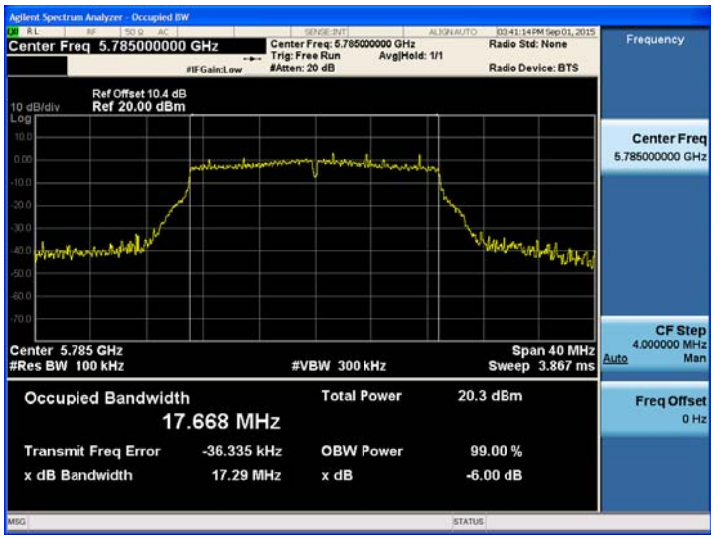
Conducted 6 dB Bandwidth Measurements for 802.11n_20MHz BW

802.11n(20MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.578	0.5	Pass
5785	157	17.565	0.5	Pass
5825	165	17.650	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11ac_20 MHz BW

802.11ac(20MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.616	0.5	Pass
5785	157	17.285	0.5	Pass
5825	165	17.564	0.5	Pass

▣ TEST Plot for 802.11a/n/ac_20MHz BW

802.11a UNII 3 BAND 6dB Bandwidth (CH.149)	802.11n_20 MHz BW UNII 3 BAND 6dB Bandwidth(CH.165)
	
802.11ac_20 MHz BW UNII 3 BAND 6dB Bandwidth(CH.149)	
	

Note :

1. **In order to simplify the report, attached plots were only the most wide channel.**

▣ TEST RESULTS for 802.11n/ac_40MHz BW

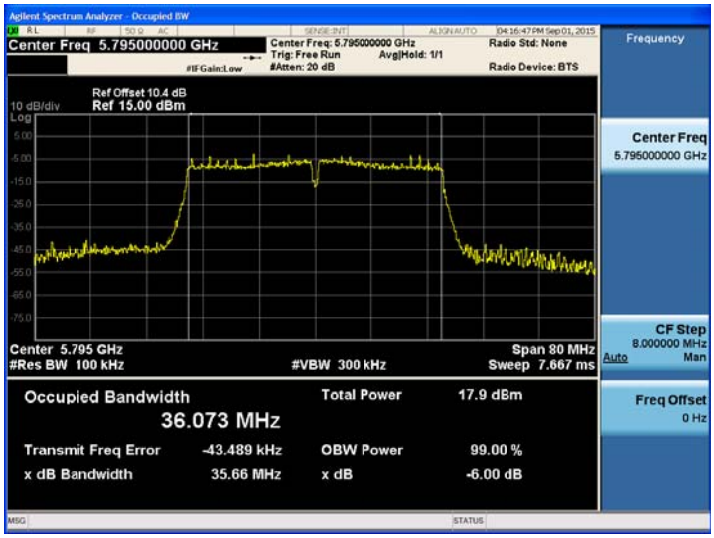
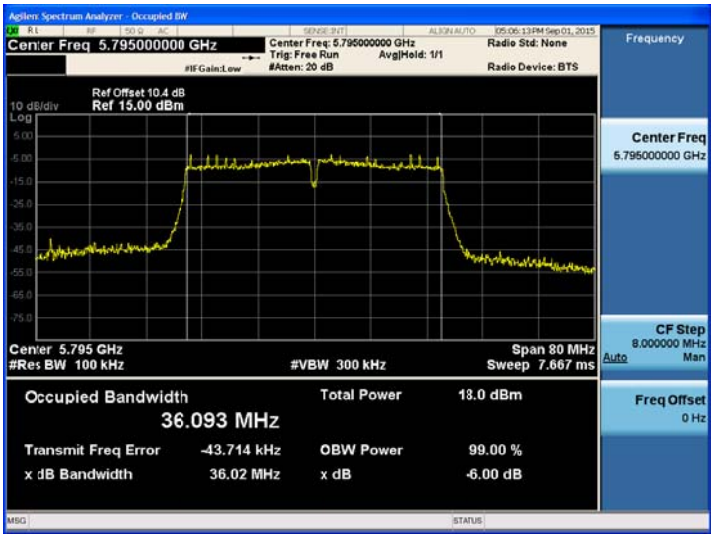
Conducted 6 dB Bandwidth Measurements for 802.11n_40MHz BW

802.11n(40MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.493	0.5	Pass
5795	159	35.665	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11ac_40 MHz BW

802.11ac(40MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.921	0.5	Pass
5795	159	36.016	0.5	Pass

▣ TEST Plot for 802.11n/ac _40MHz BW

802.11n_40 MHz BW UNII 3 BAND 6dB Bandwidth(CH.159)	802.11ac_40 MHz BW UNII 3 BAND 6dB Bandwidth(CH.159)
	

Note :

1. **In order to simplify the report, attached plots were only the most wide channel.**

▣ TEST RESULTS for 802.11ac_80MHz BW

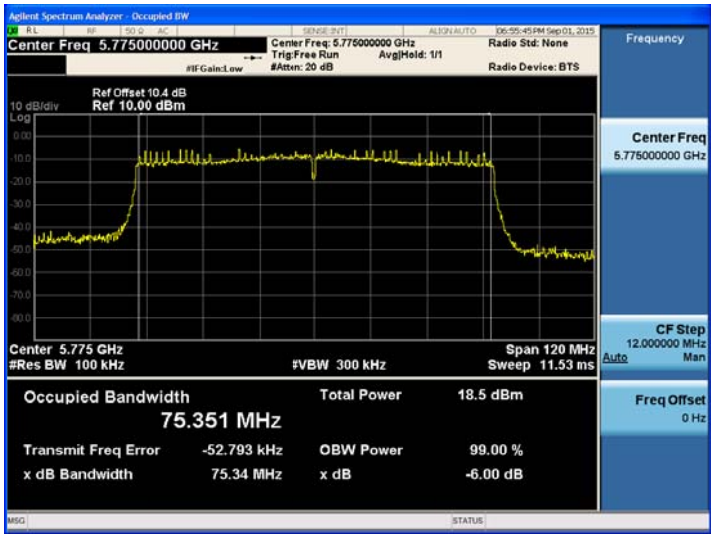
Conducted 6 dB Bandwidth Measurements for 802.11ac_80MHz BW

802.11ac(80MHz) Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	75.342	0.5	Pass

▣ TEST Plot for 802.11ac _80MHz BW

802.11ac_80 MHz BW UNII 3 BAND 6dB Bandwidth

(CH.155)



Note :

1. **In order to simplify the report, attached plots were only the most wide channel.**

8.3 OUTPUT POWER MEASUREMENT

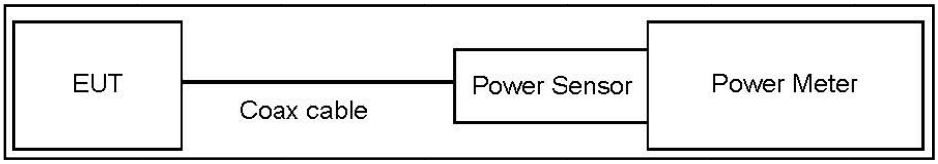
Test Requirements and limit, §15.407(a)(1)

A transmitter antenna terminal of EUT is connected to the input of a Power meter or Spectrum Analyzer .Measurement is made while the EUT is operating in transmission mode at the appropriate frequencies.

▣ Limit

Band	Mode	Limit (dBm)
UNII 1, 2A, 2C	802.11a,n,ac	23.98
UNII 3	802.11a,n,ac	30.00

▣ TEST CONFIGURATION(20 MHz BW)



▣ TEST PROCEDURE(20 MHz BW)

▪ Average Power (Procedure E.3.a in KDB 789033, issued 06/06/2014).

1. Measure the duty cycle.
2. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
3. Add 10 log (1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

Note :

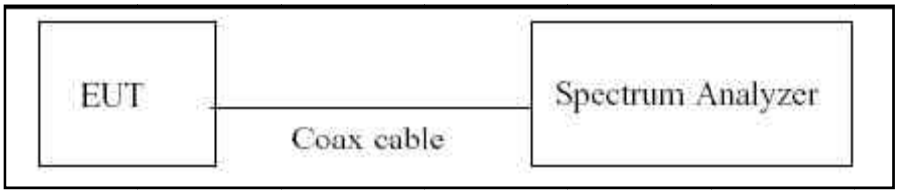
1. Actual value of loss for the attenuator and cable combination is below table.

Band	Loss(dB)
UNII 1, 2A, 2C, 3	10.4

(Actual value of loss for the attenuator and cable combination)

2. In case of UNII channels 138, 142 and 144, this device is satisfied with KDB644545 D03.
   We were applied only UNII 2C requirement for channels 138, 142 and 144.
   Because UNII 2C requirement is worse than UNII 3 limit.

▣ TEST CONFIGURATION(40 MHz BW & 80 MHz BW)



▣ TEST PROCEDURE(40 MHz BW & 80 MHz BW)

▪ Average Power

The transmitter output is connected to the Spectrum Analyzer. We use the spectrum analyzer's integrated band power measurement function. We tested according to Method SA-2 in KDB 789033(issued 06/06/2014).

The Spectrum Analyzer is set to

1. Measure the duty cycle.
2. Set span to encompass the 26 dB EBW of the signal.
3. RBW = 1 MHz.
4. VBW ≥ 3 MHz.
5. Number of points in sweep ≥ 2*span/RBW.
6. Sweep time = auto.
7. Detector = RMS.
8. Do not use sweep triggering. Allow the sweep to "free run".
9. Trace average at least 100 traces in power averaging(RMS) mode
10. Integrated bandwidth = OBW
11. Add 10log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

▣ Sample Calculation (Conducted)

Output Power = Reading Value + ATT loss + Cable loss(1 ea) + Duty Cycle Factor

▣ Sample Calculation (EIRP)

Output Power = Reading Value + ATT loss + Cable loss(1 ea) + Duty Cycle Factor + Ant gain

Note: 1. Spectrum reading values are not plot data. The power results in plot is already including the actual values of loss for the attenuator and cable combination.

2. Spectrum offset = Attenuator loss + Cable loss

3. Actual value of loss for the attenuator and cable combination is below table.

Band	Loss(dB)
UNII 1, 2A, 2C, 3	10.4

(Actual value of loss for the attenuator and cable combination)

802.11a_20MHz BW (UNII 1)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11a_20M BW Mode: 5180~5240)

802.11a(20MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5180	36	6	13.44	0.05	13.49	23.98
		9	13.47	0.07	13.54	23.98
		12	13.45	0.09	13.54	23.98
		18	13.38	0.14	13.52	23.98
		24	13.45	0.17	13.62	23.98
		36	13.27	0.25	13.52	23.98
		48	12.30	0.32	12.62	23.98
		54	12.18	0.34	12.52	23.98
5200	40	6	14.50	0.05	14.55	23.98
		9	14.45	0.07	14.52	23.98
		12	14.42	0.09	14.51	23.98
		18	14.41	0.14	14.55	23.98
		24	14.34	0.17	14.51	23.98
		36	14.15	0.25	14.40	23.98
		48	13.27	0.32	13.59	23.98
		54	13.09	0.34	13.43	23.98
5240	48	6	14.41	0.05	14.46	23.98
		9	14.25	0.07	14.32	23.98
		12	14.30	0.09	14.39	23.98
		18	14.28	0.14	14.42	23.98
		24	14.20	0.17	14.37	23.98
		36	14.13	0.25	14.38	23.98
		48	13.17	0.32	13.49	23.98
		54	13.02	0.34	13.36	23.98

802.11a _20MHz BW (UNII 2A)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11a_20M Mode: 5260~5320)

802.11a Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5260	52	6	14.50	0.05	14.55	23.98
		9	14.44	0.07	14.51	23.98
		12	14.47	0.09	14.56	23.98
		18	14.48	0.14	14.62	23.98
		24	14.41	0.17	14.58	23.98
		36	14.22	0.25	14.47	23.98
		48	13.31	0.32	13.63	23.98
		54	13.43	0.34	13.77	23.98
5300	60	6	14.57	0.05	14.62	23.98
		9	14.46	0.07	14.53	23.98
		12	14.44	0.09	14.53	23.98
		18	14.42	0.14	14.56	23.98
		24	14.33	0.17	14.50	23.98
		36	14.26	0.25	14.51	23.98
		48	13.26	0.32	13.58	23.98
		54	13.12	0.34	13.46	23.98
5320	64	6	13.44	0.05	13.49	23.98
		9	13.57	0.07	13.64	23.98
		12	13.44	0.09	13.53	23.98
		18	13.38	0.14	13.52	23.98
		24	13.27	0.17	13.44	23.98
		36	13.25	0.25	13.50	23.98
		48	12.20	0.32	12.52	23.98
		54	12.29	0.34	12.63	23.98

802.11a _20MHz BW (UNII 2C)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11a_20M Mode: 5500~5720)

802.11a Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5500	100	6	11.74	0.05	11.79	23.98
		9	11.77	0.07	11.84	23.98
		12	11.60	0.09	11.69	23.98
		18	11.68	0.14	11.82	23.98
		24	11.59	0.17	11.76	23.98
		36	11.40	0.25	11.65	23.98
		48	10.50	0.32	10.82	23.98
		54	10.41	0.34	10.75	23.98
5580	116	6	13.87	0.05	13.92	23.98
		9	13.60	0.07	13.67	23.98
		12	13.79	0.09	13.88	23.98
		18	13.76	0.14	13.90	23.98
		24	13.62	0.17	13.79	23.98
		36	13.61	0.25	13.86	23.98
		48	12.66	0.32	12.98	23.98
		54	12.58	0.34	12.92	23.98
5720	144	6	13.82	0.05	13.87	23.98
		9	13.93	0.07	14.00	23.98
		12	13.80	0.09	13.89	23.98
		18	13.75	0.14	13.89	23.98
		24	13.65	0.17	13.82	23.98
		36	13.53	0.25	13.78	23.98
		48	13.60	0.32	13.92	23.98
		54	13.56	0.34	13.90	23.98

802.11a _20MHz BW (UNII 3)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11a_20M BW Mode: 5745~5825)

802.11a (20MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	6	13.48	0.05	13.53	30
		9	13.50	0.07	13.57	30
		12	13.42	0.09	13.51	30
		18	13.36	0.14	13.50	30
		24	13.30	0.17	13.47	30
		36	13.24	0.25	13.49	30
		48	12.40	0.32	12.72	30
		54	12.17	0.34	12.51	30
5785	157	6	13.47	0.05	13.52	30
		9	13.29	0.07	13.36	30
		12	13.30	0.09	13.39	30
		18	13.37	0.14	13.51	30
		24	13.35	0.17	13.52	30
		36	13.22	0.25	13.47	30
		48	12.26	0.32	12.58	30
		54	12.15	0.34	12.49	30
5825	165	6	13.35	0.05	13.40	30
		9	13.31	0.07	13.38	30
		12	13.24	0.09	13.33	30
		18	13.25	0.14	13.39	30
		24	13.20	0.17	13.37	30
		36	13.16	0.25	13.41	30
		48	12.18	0.32	12.50	30
		54	12.04	0.34	12.38	30

802.11n _20MHz BW (UNII 1)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_20M BW Mode: 5180~5240)

802.11n(20MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5180	36	6.5	12.19	0.01	12.20	23.98
		13	12.15	0.04	12.19	23.98
		19.5	12.23	0.04	12.27	23.98
		26	12.15	0.07	12.22	23.98
		39	12.18	0.08	12.26	23.98
		52	10.92	0.15	11.07	23.98
		58.5	10.90	0.15	11.05	23.98
		65	10.88	0.17	11.05	23.98
5200	40	6.5	14.06	0.01	14.07	23.98
		13	14.03	0.04	14.07	23.98
		19.5	14.13	0.04	14.17	23.98
		26	14.05	0.07	14.12	23.98
		39	14.05	0.08	14.13	23.98
		52	13.03	0.15	13.18	23.98
		58.5	13.09	0.15	13.24	23.98
		65	13.08	0.17	13.25	23.98
5240	48	6.5	14.00	0.01	14.01	23.98
		13	13.95	0.04	13.99	23.98
		19.5	13.99	0.04	14.03	23.98
		26	13.99	0.07	14.06	23.98
		39	13.93	0.08	14.01	23.98
		52	12.98	0.15	13.13	23.98
		58.5	12.96	0.15	13.11	23.98
		65	12.88	0.17	13.05	23.98

802.11n _20MHz BW (UNII 2A)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_20M BW Mode: 5260~5320)

802.11n(20MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5260	52	6.5	14.29	0.01	14.30	23.98
		13	14.21	0.04	14.25	23.98
		19.5	14.20	0.04	14.24	23.98
		26	14.21	0.07	14.28	23.98
		39	14.11	0.08	14.19	23.98
		52	13.13	0.15	13.28	23.98
		58.5	13.17	0.15	13.32	23.98
		65	13.14	0.17	13.31	23.98
5300	60	6.5	14.17	0.01	14.18	23.98
		13	14.24	0.04	14.28	23.98
		19.5	14.07	0.04	14.11	23.98
		26	14.12	0.07	14.19	23.98
		39	14.11	0.08	14.19	23.98
		52	13.16	0.15	13.31	23.98
		58.5	13.06	0.15	13.21	23.98
		65	12.97	0.17	13.14	23.98
5320	64	6.5	12.12	0.01	12.13	23.98
		13	12.11	0.04	12.15	23.98
		19.5	12.26	0.04	12.30	23.98
		26	12.24	0.07	12.31	23.98
		39	12.10	0.08	12.18	23.98
		52	11.07	0.15	11.22	23.98
		58.5	11.23	0.15	11.38	23.98
		65	11.19	0.17	11.36	23.98

802.11n _20MHz BW (UNII 2C)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_20M BW Mode: 5500~5720)

802.11n(20MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5500	100	6.5	11.42	0.01	11.43	23.98
		13	11.40	0.04	11.44	23.98
		19.5	11.37	0.04	11.41	23.98
		26	11.26	0.07	11.33	23.98
		39	11.18	0.08	11.26	23.98
		52	10.36	0.15	10.51	23.98
		58.5	10.29	0.15	10.44	23.98
		65	10.33	0.17	10.50	23.98
5580	116	6.5	13.42	0.01	13.43	23.98
		13	13.36	0.04	13.40	23.98
		19.5	13.33	0.04	13.37	23.98
		26	13.29	0.07	13.36	23.98
		39	13.29	0.08	13.37	23.98
		52	12.34	0.15	12.49	23.98
		58.5	12.48	0.15	12.63	23.98
		65	12.30	0.17	12.47	23.98
5720	144	6.5	13.49	0.01	13.50	23.98
		13	13.45	0.04	13.49	23.98
		19.5	13.47	0.04	13.51	23.98
		26	13.39	0.07	13.46	23.98
		39	13.38	0.08	13.46	23.98
		52	13.44	0.15	13.59	23.98
		58.5	13.42	0.15	13.57	23.98
		65	13.32	0.17	13.49	23.98

802.11n _20MHz BW (UNII 3)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_20M BW Mode: 5745~5825)

802.11n(20MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	6.5	13.13	0.01	13.14	30
		13	13.09	0.04	13.13	30
		19.5	13.08	0.04	13.12	30
		26	13.05	0.07	13.12	30
		39	13.13	0.08	13.21	30
		52	12.13	0.15	12.28	30
		58.5	12.22	0.15	12.37	30
		65	12.00	0.17	12.17	30
5785	157	6.5	13.10	0.01	13.11	30
		13	13.11	0.04	13.15	30
		19.5	13.13	0.04	13.17	30
		26	13.12	0.07	13.19	30
		39	13.09	0.08	13.17	30
		52	12.11	0.15	12.26	30
		58.5	12.08	0.15	12.23	30
		65	12.00	0.17	12.17	30
5825	165	6.5	12.04	0.01	12.05	30
		13	12.05	0.04	12.09	30
		19.5	12.11	0.04	12.15	30
		26	12.06	0.07	12.13	30
		39	12.07	0.08	12.15	30
		52	11.02	0.15	11.17	30
		58.5	10.97	0.15	11.12	30
		65	11.00	0.17	11.17	30

802.11ac _20MHz BW (UNII 1)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_20M BW Mode: 5180~5240)

802.11ac(20MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5180	36	6.5	13.23	0.02	13.25	23.98
		13	13.17	0.05	13.22	23.98
		19.5	13.13	0.05	13.18	23.98
		26	13.12	0.07	13.19	23.98
		39	13.17	0.10	13.27	23.98
		52	12.11	0.14	12.25	23.98
		58.5	12.02	0.14	12.16	23.98
		65	12.09	0.17	12.26	23.98
		78	10.86	0.20	11.06	23.98
5200	40	6.5	15.08	0.02	15.10	23.98
		13	15.05	0.05	15.10	23.98
		19.5	15.04	0.05	15.09	23.98
		26	14.88	0.07	14.95	23.98
		39	15.03	0.10	15.13	23.98
		52	13.99	0.14	14.13	23.98
		58.5	13.92	0.14	14.06	23.98
		65	13.94	0.17	14.11	23.98
		78	12.95	0.20	13.15	23.98
5240	48	6.5	15.09	0.02	15.11	23.98
		13	14.86	0.05	14.91	23.98
		19.5	14.83	0.05	14.88	23.98
		26	14.82	0.07	14.89	23.98
		39	14.85	0.10	14.95	23.98
		52	13.98	0.14	14.12	23.98
		58.5	13.84	0.14	13.98	23.98
		65	13.91	0.17	14.08	23.98
		78	12.86	0.20	13.06	23.98

802.11ac _20MHz BW (UNII 2A)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_20M BW Mode: 5260~5320)

802.11ac(20MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5260	52	6.5	15.11	0.02	15.13	23.98
		13	14.97	0.05	15.02	23.98
		19.5	15.09	0.05	15.14	23.98
		26	15.06	0.07	15.13	23.98
		39	15.03	0.10	15.13	23.98
		52	14.15	0.14	14.29	23.98
		58.5	14.14	0.14	14.28	23.98
		65	14.11	0.17	14.28	23.98
		78	13.30	0.20	13.50	23.98
5300	60	6.5	15.00	0.02	15.02	23.98
		13	15.00	0.05	15.05	23.98
		19.5	14.98	0.05	15.03	23.98
		26	14.98	0.07	15.05	23.98
		39	14.94	0.10	15.04	23.98
		52	14.13	0.14	14.27	23.98
		58.5	14.05	0.14	14.19	23.98
		65	14.04	0.17	14.21	23.98
		78	13.02	0.20	13.22	23.98
5320	64	6.5	12.29	0.02	12.31	23.98
		13	12.25	0.05	12.30	23.98
		19.5	12.25	0.05	12.30	23.98
		26	12.04	0.07	12.11	23.98
		39	12.20	0.10	12.30	23.98
		52	11.22	0.14	11.36	23.98
		58.5	11.18	0.14	11.32	23.98
		65	11.15	0.17	11.32	23.98
		78	10.43	0.20	10.63	23.98

802.11ac _20MHz BW (UNII 2C)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_20M BW Mode: 5500~5720)

802.11ac(20MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5500	100	6.5	11.38	0.02	11.40	23.98
		13	11.40	0.05	11.45	23.98
		19.5	11.39	0.05	11.44	23.98
		26	11.35	0.07	11.42	23.98
		39	11.33	0.10	11.43	23.98
		52	10.31	0.14	10.45	23.98
		58.5	10.28	0.14	10.42	23.98
		65	10.34	0.17	10.51	23.98
		78	10.30	0.20	10.50	23.98
5580	116	6.5	14.27	0.02	14.29	23.98
		13	14.40	0.05	14.45	23.98
		19.5	14.30	0.05	14.35	23.98
		26	14.26	0.07	14.33	23.98
		39	14.25	0.10	14.35	23.98
		52	13.27	0.14	13.41	23.98
		58.5	13.29	0.14	13.43	23.98
		65	13.21	0.17	13.38	23.98
		78	12.29	0.20	12.49	23.98
5720	144	6.5	14.49	0.02	14.51	23.98
		13	14.33	0.05	14.38	23.98
		19.5	14.39	0.05	14.44	23.98
		26	14.40	0.07	14.47	23.98
		39	14.33	0.10	14.43	23.98
		52	14.34	0.14	14.48	23.98
		58.5	14.34	0.14	14.48	23.98
		65	14.29	0.17	14.46	23.98
		78	14.29	0.20	14.49	23.98

802.11ac _20MHz BW (UNII 3)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_20M BW Mode: 5745~5825)

802.11ac(20MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	6.5	14.13	0.02	14.15	30
		13	14.04	0.05	14.09	30
		19.5	13.94	0.05	13.99	30
		26	14.04	0.07	14.11	30
		39	14.01	0.10	14.11	30
		52	13.20	0.14	13.34	30
		58.5	13.07	0.14	13.21	30
		65	12.99	0.17	13.16	30
		78	12.02	0.20	12.22	30
5785	157	6.5	14.08	0.02	14.10	30
		13	13.86	0.05	13.91	30
		19.5	13.89	0.05	13.94	30
		26	13.92	0.07	13.99	30
		39	13.94	0.10	14.04	30
		52	12.91	0.14	13.05	30
		58.5	12.97	0.14	13.11	30
		65	12.95	0.17	13.12	30
		78	11.94	0.20	12.14	30
5825	165	6.5	13.04	0.02	13.06	30
		13	13.04	0.05	13.09	30
		19.5	12.98	0.05	13.03	30
		26	13.03	0.07	13.10	30
		39	12.83	0.10	12.93	30
		52	11.94	0.14	12.08	30
		58.5	12.03	0.14	12.17	30
		65	11.99	0.17	12.16	30
		78	10.90	0.20	11.10	30

802.11n _40MHz BW (UNII 1)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_40M BW Mode: 5190~5230)

802.11n(40MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5190	38	13.5	11.33	0.03	11.35	23.98
		27	11.32	0.08	11.40	23.98
		40.5	11.33	0.15	11.48	23.98
		54	11.30	0.15	11.45	23.98
		81	11.28	0.21	11.49	23.98
		108	11.05	0.23	11.29	23.98
		121.5	10.23	0.27	10.51	23.98
		135	10.24	0.33	10.57	23.98
5230	46	13.5	12.52	0.03	12.54	23.98
		27	12.49	0.08	12.57	23.98
		40.5	12.48	0.15	12.63	23.98
		54	12.46	0.15	12.61	23.98
		81	12.40	0.21	12.61	23.98
		108	12.40	0.23	12.63	23.98
		121.5	11.36	0.27	11.64	23.98
		135	11.35	0.33	11.67	23.98

802.11n _40MHz BW (UNII 2A)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_40M BW Mode: 5270~5310)

802.11n(40MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5270	54	13.5	12.55	0.03	12.58	23.98
		27	12.55	0.08	12.63	23.98
		40.5	12.54	0.15	12.70	23.98
		54	12.56	0.15	12.71	23.98
		81	12.56	0.21	12.77	23.98
		108	12.42	0.23	12.65	23.98
		121.5	11.60	0.27	11.87	23.98
		135	11.57	0.33	11.89	23.98
5310	62	13.5	10.69	0.03	10.71	23.98
		27	10.70	0.08	10.78	23.98
		40.5	10.64	0.15	10.79	23.98
		54	10.63	0.15	10.78	23.98
		81	10.46	0.21	10.67	23.98
		108	10.45	0.23	10.68	23.98
		121.5	9.05	0.27	9.33	23.98
		135	8.97	0.33	9.30	23.98

802.11n _40MHz BW (UNII 2C)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_40M BW Mode: 5510~5710)

802.11n(40MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5510	102	13.5	9.77	0.03	9.80	23.98
		27	9.76	0.08	9.84	23.98
		40.5	9.78	0.15	9.93	23.98
		54	9.54	0.15	9.69	23.98
		81	9.67	0.21	9.88	23.98
		108	9.45	0.23	9.68	23.98
		121.5	8.97	0.27	9.24	23.98
		135	8.88	0.33	9.20	23.98
5550	110	13.5	12.04	0.03	12.07	23.98
		27	12.03	0.08	12.11	23.98
		40.5	11.94	0.15	12.09	23.98
		54	12.00	0.15	12.16	23.98
		81	11.88	0.21	12.09	23.98
		108	11.74	0.23	11.97	23.98
		121.5	10.97	0.27	11.24	23.98
		135	10.94	0.33	11.26	23.98
5710	142	13.5	12.44	0.03	12.46	23.98
		27	12.42	0.08	12.50	23.98
		40.5	12.33	0.15	12.48	23.98
		54	12.29	0.15	12.44	23.98
		81	12.20	0.21	12.41	23.98
		108	12.15	0.23	12.38	23.98
		121.5	12.11	0.27	12.39	23.98
		135	12.15	0.33	12.48	23.98

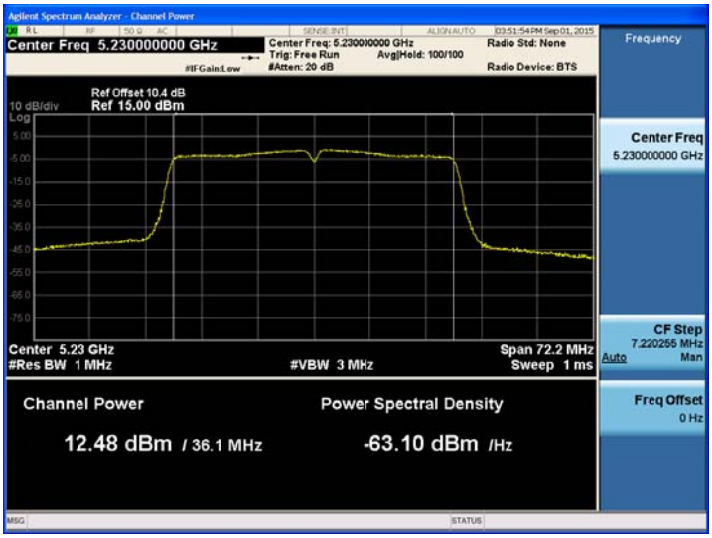
802.11n_40MHz BW (UNII 3)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_40M BW Mode: 5755~5795)

802.11n(40MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5755	151	13.5	11.76	0.03	11.79	30
		27	11.56	0.08	11.64	30
		40.5	11.49	0.15	11.64	30
		54	11.47	0.15	11.62	30
		81	11.44	0.21	11.65	30
		108	11.42	0.23	11.65	30
		121.5	10.36	0.27	10.64	30
		135	10.41	0.33	10.74	30
5795	159	13.5	11.21	0.03	11.23	30
		27	11.22	0.08	11.30	30
		40.5	11.19	0.15	11.34	30
		54	11.19	0.15	11.34	30
		81	11.10	0.21	11.31	30
		108	10.93	0.23	11.16	30
		121.5	10.08	0.27	10.36	30
		135	10.10	0.33	10.42	30

▣ TEST Plot for Ant.0_802.11n_40MHz BW

802.11n_40 MHz BW UNII 1 BAND Average Power (5190 MHz ~5230 MHz) CH 46 40.5 Mbps	802.11n_40 MHz BW UNII 2A BAND Average Power (5270 MHz ~5310 MHz) CH 54 81 Mbps
	
802.11n_40 MHz BW UNII 2C BAND Average Power (5510 MHz ~5710 MHz) CH 142 27 Mpbs	**802.11n_40 MHz BW UNII 3 BAND Average Power (5755 MHz ~5795 MHz) CH 151 13.5 Mbps**
	

802.11ac_40 MHz BW (UNII 1)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_40M BW Mode: 5190~5230)

802.11ac(40MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5190	38	13.5	11.42	0.03	11.45	23.98
		27	11.40	0.09	11.49	23.98
		40.5	11.33	0.10	11.43	23.98
		54	11.37	0.13	11.50	23.98
		81	11.38	0.21	11.58	23.98
		108	11.29	0.27	11.56	23.98
		121.5	10.32	0.30	10.61	23.98
		135	10.31	0.29	10.60	23.98
		162	10.29	0.37	10.66	23.98
		180	10.22	0.04	10.25	23.98
5230	46	13.5	12.54	0.03	12.57	23.98
		27	12.54	0.09	12.63	23.98
		40.5	12.53	0.10	12.63	23.98
		54	12.52	0.13	12.65	23.98
		81	12.48	0.21	12.69	23.98
		108	12.46	0.27	12.73	23.98
		121.5	11.45	0.30	11.75	23.98
		135	11.45	0.29	11.74	23.98
		162	11.35	0.37	11.72	23.98
		180	11.34	0.04	11.38	23.98

802.11ac _40MHz BW (UNII 2A)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_40M BW Mode: 5270~5310)

802.11ac(40MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5270	54	13.5	12.62	0.03	12.65	23.98
		27	12.72	0.09	12.80	23.98
		40.5	12.62	0.10	12.72	23.98
		54	12.54	0.13	12.67	23.98
		81	12.47	0.21	12.68	23.98
		108	12.50	0.27	12.76	23.98
		121.5	11.64	0.30	11.94	23.98
		135	11.64	0.29	11.93	23.98
		162	11.58	0.37	11.96	23.98
		180	11.50	0.04	11.53	23.98
5310	62	13.5	11.65	0.03	11.68	23.98
		27	11.60	0.09	11.69	23.98
		40.5	11.56	0.10	11.66	23.98
		54	11.58	0.13	11.71	23.98
		81	11.48	0.21	11.69	23.98
		108	11.45	0.27	11.71	23.98
		121.5	10.50	0.30	10.79	23.98
		135	10.43	0.29	10.72	23.98
		162	10.37	0.37	10.74	23.98
		180	10.35	0.04	10.38	23.98

802.11ac _40MHz BW (UNII 2C)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_40M BW Mode: 5510~5710)

802.11ac(40MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5510	102	13.5	9.84	0.03	9.88	23.98
		27	9.63	0.09	9.72	23.98
		40.5	9.83	0.10	9.93	23.98
		54	9.57	0.13	9.70	23.98
		81	9.69	0.21	9.90	23.98
		108	9.48	0.27	9.75	23.98
		121.5	8.93	0.30	9.23	23.98
		135	8.98	0.29	9.27	23.98
		162	8.87	0.37	9.24	23.98
		180	8.86	0.04	8.90	23.98
5590	118	13.5	12.14	0.03	12.18	23.98
		27	12.05	0.09	12.14	23.98
		40.5	11.95	0.10	12.05	23.98
		54	11.93	0.13	12.06	23.98
		81	11.85	0.21	12.06	23.98
		108	11.86	0.27	12.13	23.98
		121.5	11.00	0.30	11.30	23.98
		135	10.79	0.29	11.08	23.98
		162	10.95	0.37	11.33	23.98
		180	10.92	0.04	10.95	23.98
5710	142	13.5	12.43	0.03	12.46	23.98
		27	12.41	0.09	12.50	23.98
		40.5	12.39	0.10	12.49	23.98
		54	12.28	0.13	12.41	23.98
		81	12.17	0.21	12.38	23.98
		108	12.16	0.27	12.42	23.98
		121.5	12.21	0.30	12.50	23.98
		135	12.22	0.29	12.51	23.98
		162	12.13	0.37	12.51	23.98
		180	12.08	0.04	12.12	23.98

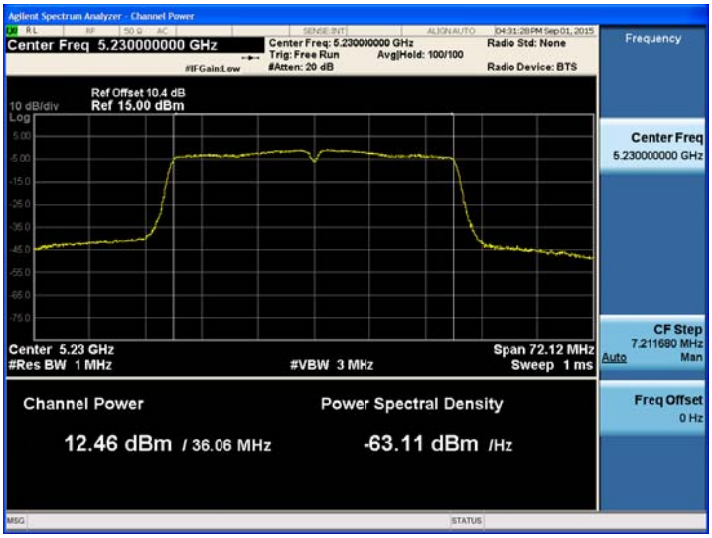
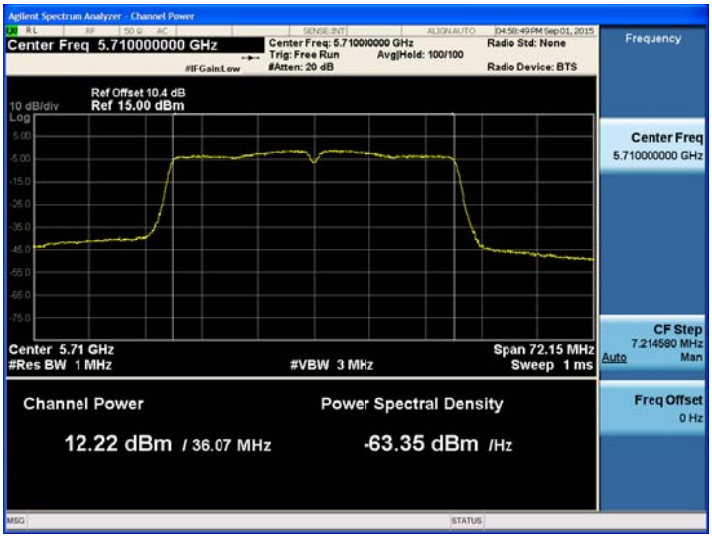
802.11ac _40MHz BW (UNII 3)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_40M BW Mode: 5755~5795)

802.11ac(40MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5755	151	13.5	11.70	0.03	11.74	30
		27	11.73	0.09	11.81	30
		40.5	11.45	0.10	11.55	30
		54	11.47	0.13	11.60	30
		81	11.45	0.21	11.66	30
		108	11.37	0.27	11.64	30
		121.5	10.44	0.30	10.73	30
		135	10.47	0.29	10.76	30
		162	10.34	0.37	10.71	30
		180	10.29	0.04	10.33	30
5795	159	13.5	11.25	0.03	11.29	30
		27	11.23	0.09	11.31	30
		40.5	11.16	0.10	11.26	30
		54	11.15	0.13	11.28	30
		81	11.15	0.21	11.36	30
		108	10.95	0.27	11.21	30
		121.5	10.08	0.30	10.38	30
		135	10.09	0.29	10.38	30
		162	10.06	0.37	10.44	30
		180	10.01	0.04	10.05	30

▣ TEST Plot for 802.11ac_40MHz BW

802.11ac_40 MHz BW UNII 1 BAND Average Power (5190 ~ 5230 MHz) CH 46 108 Mpbs	802.11ac_40 MHz BW UNII 2A BAND Average Power (5270 ~ 5310 MHz) CH 54 27 Mbps
	
802.11ac_40 MHz BW UNII 2C BAND Average Power (5510 ~ 5710 MHz) CH 142 135 Mpbs	**802.11ac_40 MHz BW UNII 3 BAND Average Power (5755 ~ 5795 MHz) CH 151 27 Mpbs**
	

▣ 802.11ac_80 MHz BW

80MHz BW(UNII 1)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_80MHz Mode: 5210)

802.11ac(80MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5210	42	29.3	10.68	0.09	10.77	22.09
		58.5	10.57	0.14	10.71	22.09
		87.8	10.52	0.20	10.72	22.09
		117	10.43	0.29	10.71	22.09
		175.5	10.38	0.40	10.78	22.09
		234	10.31	0.47	10.78	22.09
		263.3	8.67	0.51	9.18	22.09
		292.5	8.65	0.55	9.20	22.09
		351	8.56	0.66	9.22	22.09
		390	8.50	0.69	9.19	22.09

802.11ac_80MHz BW (UNII 2A)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_80MHz Mode: 5290)

802.11ac(80MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5290	58	29.3	11.90	0.09	12.00	23.98
		58.5	11.77	0.14	11.91	23.98
		87.8	11.68	0.20	11.89	23.98
		117	11.68	0.29	11.97	23.98
		175.5	11.57	0.40	11.97	23.98
		234	11.50	0.47	11.97	23.98
		263.3	10.65	0.51	11.16	23.98
		292.5	10.54	0.55	11.09	23.98
		351	10.46	0.66	11.12	23.98
		390	10.47	0.69	11.16	23.98

802.11ac _80MHz BW (UNII 2C)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_80MHz Mode: 5530 ~ 5690 MHz)

802.11ac(80MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5530	106	29.3	9.92	0.09	10.01	23.98
		58.5	9.65	0.14	9.79	23.98
		87.8	9.50	0.20	9.70	23.98
		117	9.51	0.29	9.79	23.98
		175.5	9.40	0.40	9.79	23.98
		234	9.40	0.47	9.86	23.98
		263.3	8.53	0.51	9.05	23.98
		292.5	8.56	0.55	9.11	23.98
		351	8.46	0.66	9.12	23.98
		390	8.45	0.69	9.14	23.98
5690	138	29.3	12.14	0.09	12.23	23.98
		58.5	12.10	0.14	12.24	23.98
		87.8	11.99	0.20	12.19	23.98
		117	12.02	0.29	12.30	23.98
		175.5	11.84	0.40	12.24	23.98
		234	11.75	0.47	12.22	23.98
		263.3	10.84	0.51	11.35	23.98
		292.5	10.86	0.55	11.41	23.98
		351	10.80	0.66	11.46	23.98
		390	10.69	0.69	11.38	23.98

802.11ac _80MHz BW (UNII 3)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_80MHz Mode: 5775 MHz)

802.11ac(80MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5775	155	29.3	11.72	0.09	11.81	30
		58.5	11.42	0.14	11.56	30
		87.8	11.40	0.20	11.60	30
		117	11.40	0.29	11.68	30
		175.5	11.29	0.40	11.69	30
		234	11.18	0.47	11.65	30
		263.3	10.21	0.51	10.72	30
		292.5	10.15	0.55	10.70	30
		351	10.12	0.66	10.78	30
		390	10.11	0.69	10.80	30

▣ TEST Plot for 802.11ac_80MHz BW

802.11ac_80 MHz BW UNII 1 BAND Average Power (5210 MHz) CH 42 175.5 Mpbs	802.11ac_80 MHz BW UNII 2A BAND Average Power (5290 MHz) CH 58 29.3 Mbps
	
802.11ac_80 MHz BW UNII 2C BAND Average Power (5530 ~ 5690 MHz) CH 138 117 Mpbs	**802.11ac_80 MHz BW UNII 3 BAND Average Power (5755 MHz) CH 155 29.3 Mpbs**
	

8.4 POWER SPECTRAL DENSITY

The peak power density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies. The maximum permissible peak power spectral density is 11 dBm/ MHz for UNII 1,2A, 2C and 30 dBm/500 kHz for UNII 3.

▣ Limit(CDD)

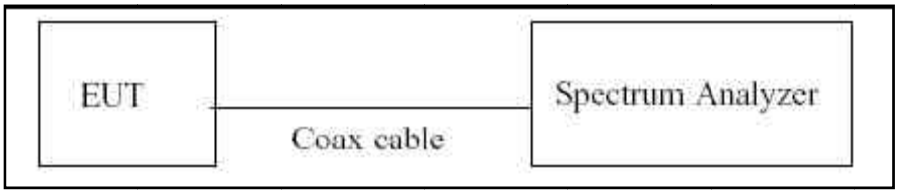
Power Spectral Density

Band	Mode	Limit
UNII 1	802.11 a,n,ac	11 dBm/MHz
UNII 2A	802.11a,n,ac	11 dBm/MHz
UNII 2C	802.11a,n,ac	11 dBm/MHz
UNII 3	802.11a,n,ac	30 dBm/500 kHz

Note :

1. The limits of conducted power spectral density were applied the antenna gain. Therefore, if conducted power is pass, e.i.r.p. is also pass. So, we attached only conducted power spectral density table.
2. In case of UNII channels 138, 142 and 144, this device is satisfied with KDB644545 D03.
   We were applied only UNII 2C requirement for channels 138, 142 and 144.
   Because UNII 2C requirement is worse than UNII 3 limit.

▣ TEST CONFIGURATION



▣ TEST PROCEDURE

We tested according to Method in KDB 789033(issued 06/06/2014).

The spectrum analyzer is set to :

1. Set span to encompass the entire emission bandwidth(EBW) of the signal.
2. RBW = 1 MHz(510 kHz for UNII 3)
3. VBW ≥ 3 MHz
4. Number of points in sweep ≥ 2*span/RBW.
5. Sweep time = auto.
6. Detector = RMS(i.e., power averaging), if available. Otherwise, use sample detector mode.
7. Do not use sweep triggering. Allow the sweep to “free run”.
8. Trace average at least 100 traces in power averaging(RMS) mode
9. Use the peak search function on the spectrum analyzer to find the peak of the spectrum.
10. If Method SA-2 was used, add 10 log(1/x), where x is the duty cycle, to the peak of the spectrum.

▣ Sample Calculation

PSD = Reading Value + ATT loss + Cable loss(1 ea) + Duty Cycle Factor

Output Power = -5 dBm + 10 dB + 0.8 dB + 0.21 dB = 16.01 dBm

Note :

1. Spectrum reading values are not plot data. The PSD results in plot is already including the actual values of loss for the attenuator and cable combination.
2. Spectrum offset = Attenuator loss + Cable loss
3. We apply to the offset in the 5.2 GHz, 5.3 GHz and 5.6 GHz range that was rounded off to the closest tenth dB. Actual value of loss for the attenuator and cable combination is below table.

Band	Loss(dB)
UNII 1, 2A , 2C, 3	10.4

(Actual value of loss for the attenuator and cable combination)

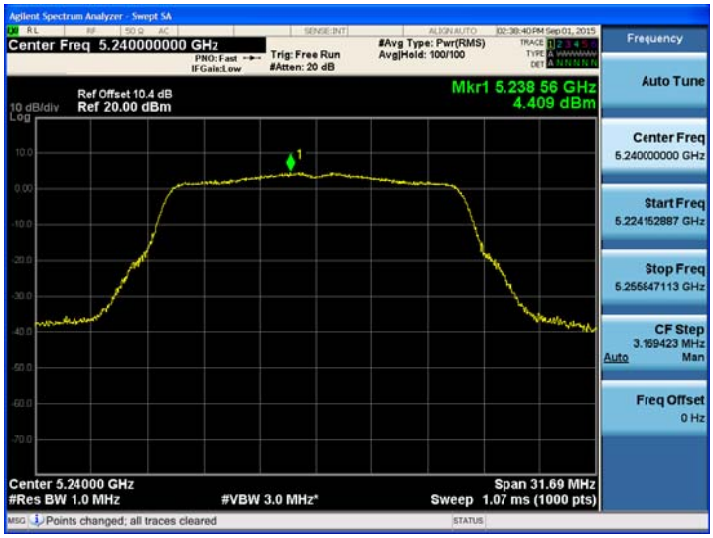
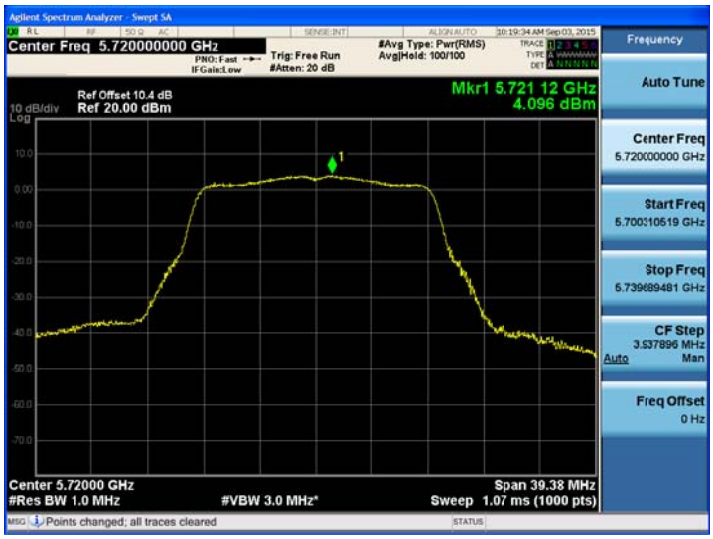
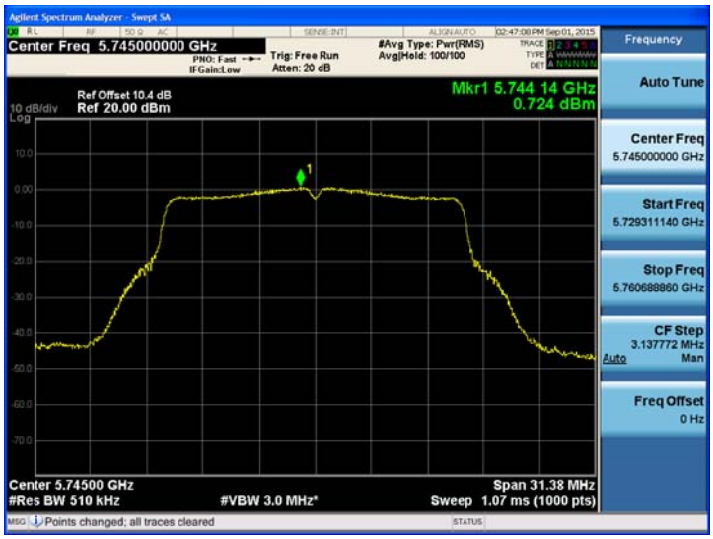
▣ 802.11a_20MHz BW

▣ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result				
			Measured Power Density (dBm)	Duty Cycle Factor (dB)	Measured Power Density(dBm) + Duty Cycle Factor	Limit (dBm)	Pass/Fail
5180	36	802.11a	3.157	0.168	3.325	11	Pass
5200	40		4.242	0.140	4.382		Pass
5240	48		4.409	0.048	4.457		Pass
5260	52		4.385	0.140	4.525	11	Pass
5300	60		4.368	0.048	4.416		Pass
5320	64		3.184	0.071	3.255		Pass
5500	100		1.525	0.071	1.596	11	Pass
5580	116		3.976	0.048	4.024		Pass
5720	144		4.096	0.071	4.167		Pass
5745	149		0.724	0.071	0.795	30	Pass
5785	157		-0.179	0.168	-0.011		Pass
5825	165		-0.185	0.255	0.070		Pass

▣ TEST Plot for 802.11a 20MHz BW

802.11a_20MHz BW UNII 1 BAND PSD CH 48	802.11a_20MHz BW UNII 2A BAND PSD CH 52
	
802.11a_20MHz BW UNII 2C BAND PSD CH 144	**802.11a_20MHz BW UNII 3 BAND PSD CH 149**
	

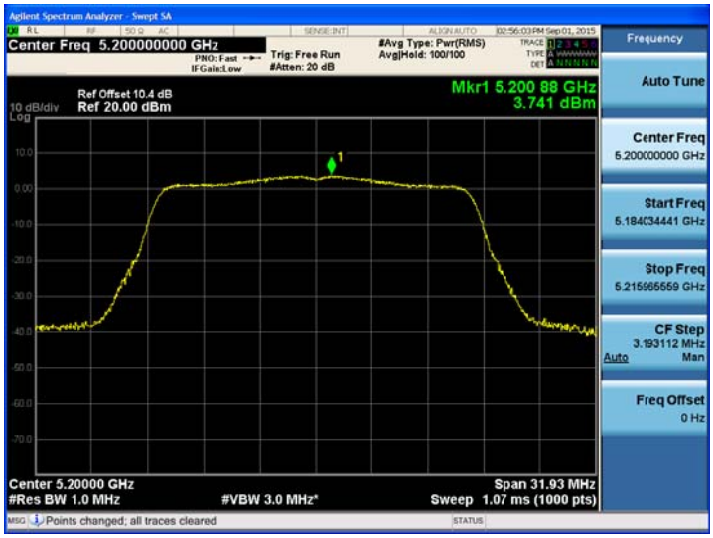
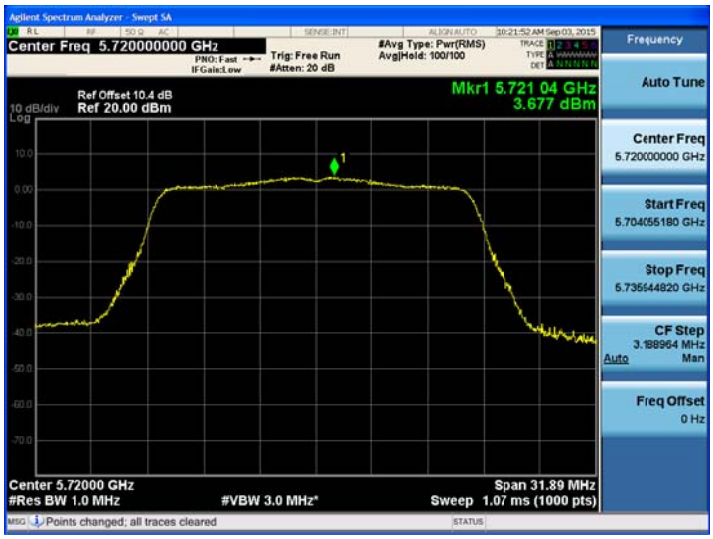
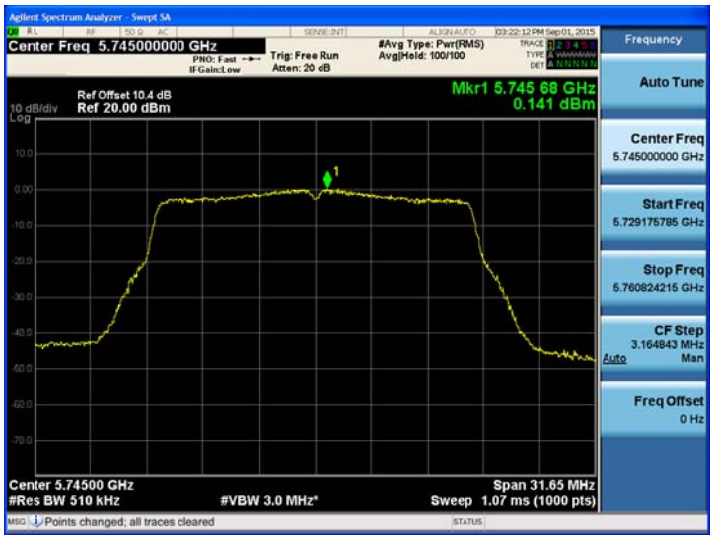
▣802.11n_20MHz BW

▣ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result				
			Measured Power Density (dBm)	Duty Cycle Factor (dB)	Measured Power Density(dBm) + Duty Cycle Factor	Limit (dBm)	Pass/Fail
5180	36	802.11n 20M BW	1.942	0.037	1.979	11	Pass
5200	40		3.741	0.037	3.778		Pass
5240	48		3.646	0.072	3.718		Pass
5260	52		4.036	0.013	4.049	11	Pass
5300	60		3.758	0.039	3.797		Pass
5320	64		1.847	0.072	1.919		Pass
5500	100		1.090	0.039	1.129	11	Pass
5580	116		3.479	0.013	3.492		Pass
5720	144		3.677	0.147	3.824		Pass
5745	149		0.141	0.078	0.219	30	Pass
5785	157		-0.182	0.072	-0.110		Pass
5825	165		-1.479	0.078	-1.401		Pass

▣ TEST Plot for 802.11n 20MHz BW

802.11n_20MHz BW UNII 1 BAND PSD CH 40	802.11n_20MHz BW UNII 2A BAND PSD CH 52
	
802.11n_20MHz BW UNII 2C BAND PSD CH 144	**802.11n_20MHz BW UNII 3 BAND PSD CH 149**
	

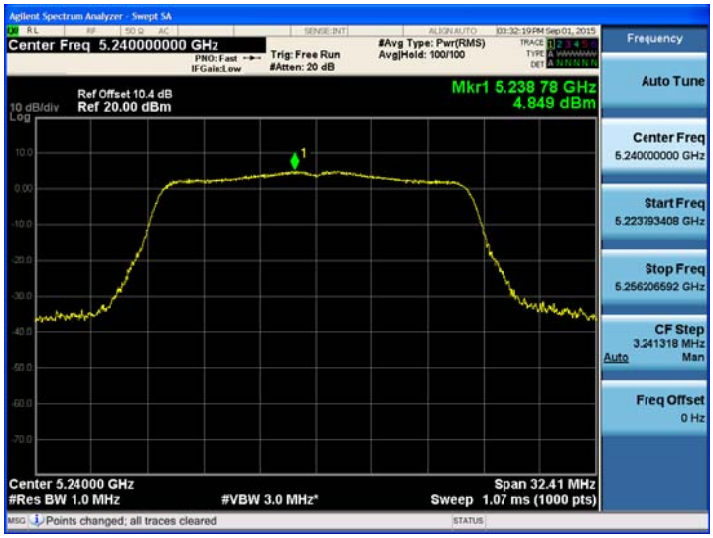
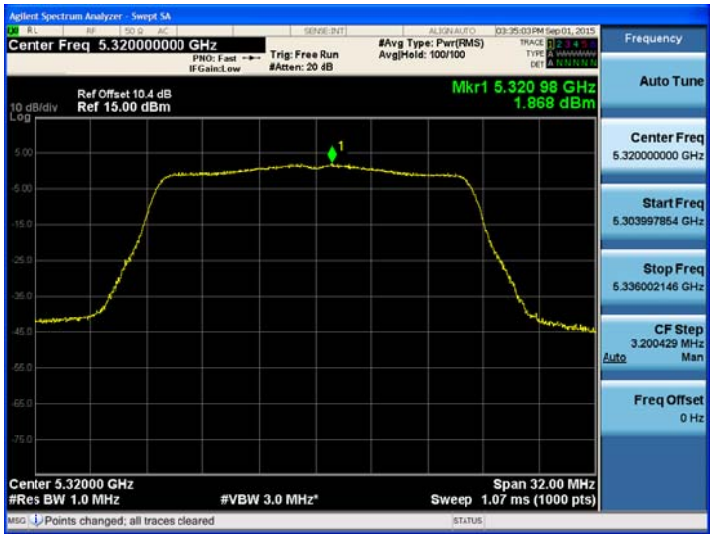
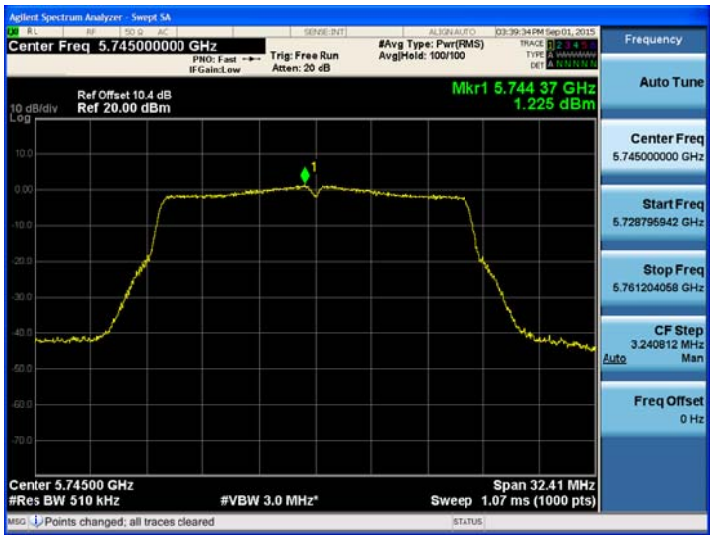
▣ 802.11ac_20MHz BW

▣ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result				
			Measured Power Density (dBm)	Duty Cycle Factor (dB)	Measured Power Density(dBm) + Duty Cycle Factor	Limit (dBm)	Pass/Fail
5180	36	802.11ac _20MHz BW	3.103	0.097	3.200	11	Pass
5200	40		4.674	0.097	4.771		Pass
5240	48		4.849	0.017	4.866		Pass
5260	52		4.658	0.050	4.708	11	Pass
5300	60		4.847	0.050	4.897		Pass
5320	64		1.868	0.017	1.885		Pass
5500	100		1.038	0.050	1.088	11	Pass
5580	116		4.675	0.050	4.725		Pass
5720	144		4.666	0.017	4.683		Pass
5745	149		1.225	0.017	1.242	30	Pass
5785	157		0.598	0.017	0.615		Pass
5825	165		-0.569	0.066	-0.503		Pass

▣ TEST Plot for 802.11ac 20MHz BW

802.11ac_20MHz BW UNII 1 BAND PSD CH 48	802.11ac _20MHz BW UNII 2A BAND PSD CH 64
	
802.11ac _20MHz BW UNII 2C BAND PSD CH 116	**802.11ac _20MHz BW UNII 3 BAND PSD CH 149**
	

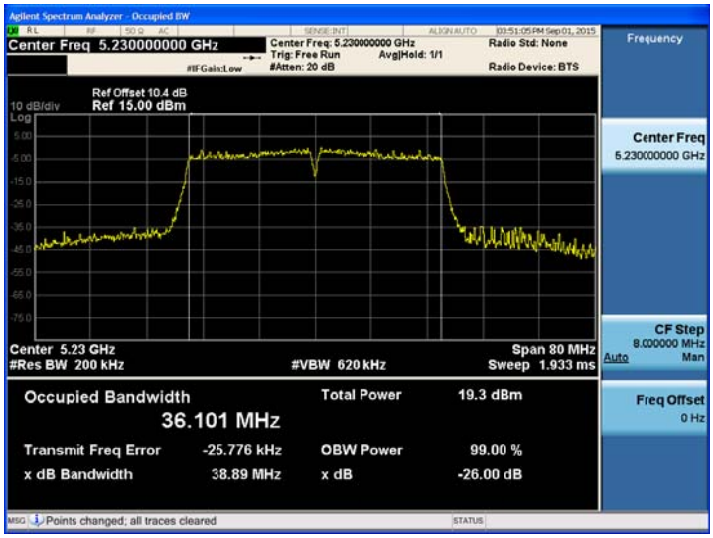
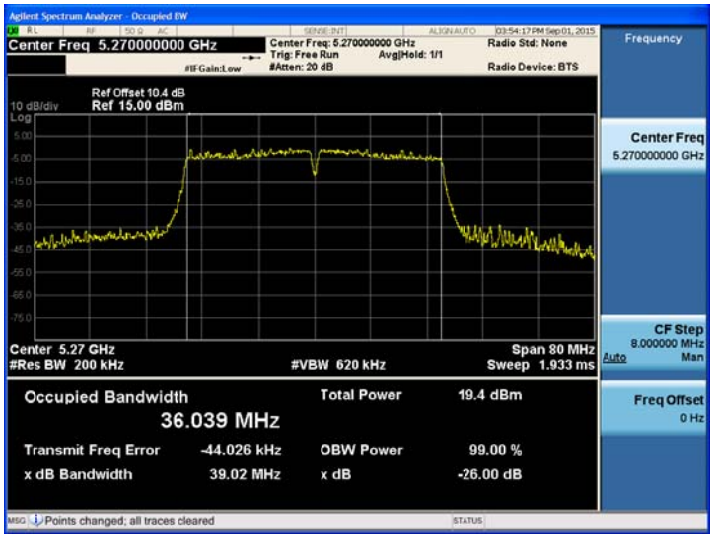
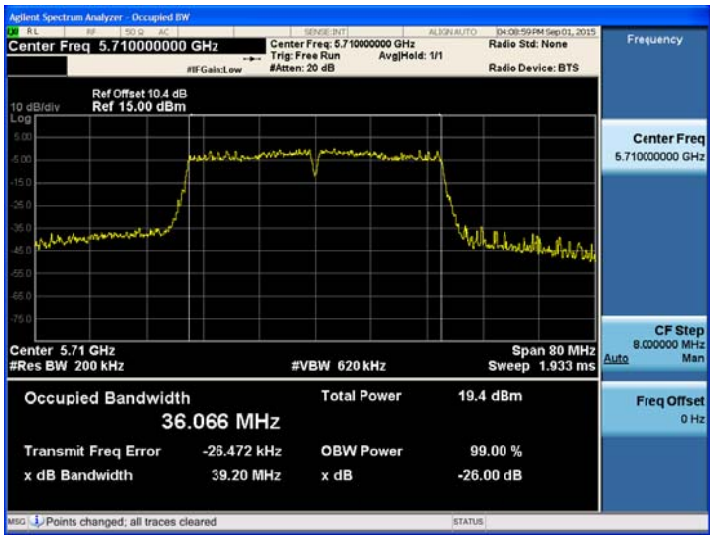
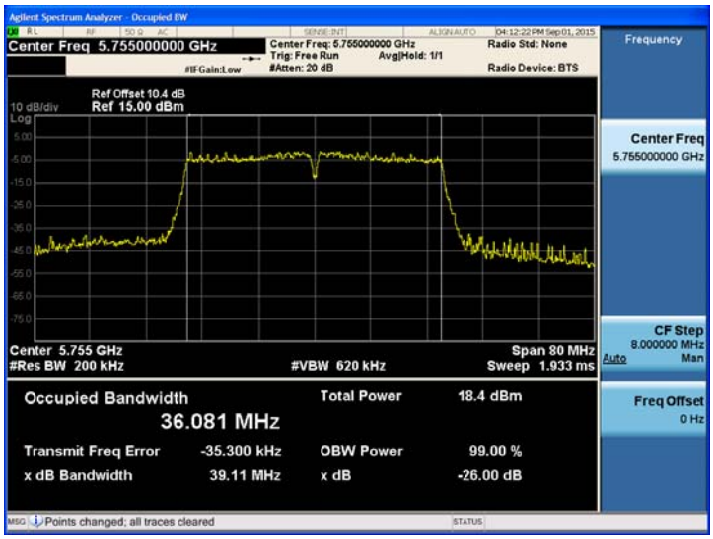
▣ 802.11n_40MHz BW

▣ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result				
			Measured Power Density (dBm)	Duty Cycle Factor (dB)	Measured Power Density(dBm) + Duty Cycle Factor	Limit (dBm)	Pass/Fail
5190	38	802.11n 40MHz BW	-1.701	0.210	-1.491	11	Pass
5230	46		-0.630	0.152	-0.478		Pass
5270	54		-0.985	0.210	-0.775	11	Pass
5310	62		-2.472	0.152	-2.320		Pass
5510	102		-3.309	0.152	-3.157	11	Pass
5550	110		-1.290	0.152	-1.138		Pass
5710	142		-1.114	0.079	-1.035		Pass
5755	151		-4.244	0.026	-4.218	30	Pass
5795	159		-4.817	0.152	-4.665		Pass

▣ TEST Plot for 802.11n 40MHz BW

802.11n_40MHz BW UNII 1 BAND PSD CH 46	802.11n_40MHz BW UNII 2A BAND PSD CH 54
	
802.11n_40MHz BW UNII 2C BAND PSD CH 142	**802.11n_40MHz BW UNII 3 BAND PSD CH 151**
	

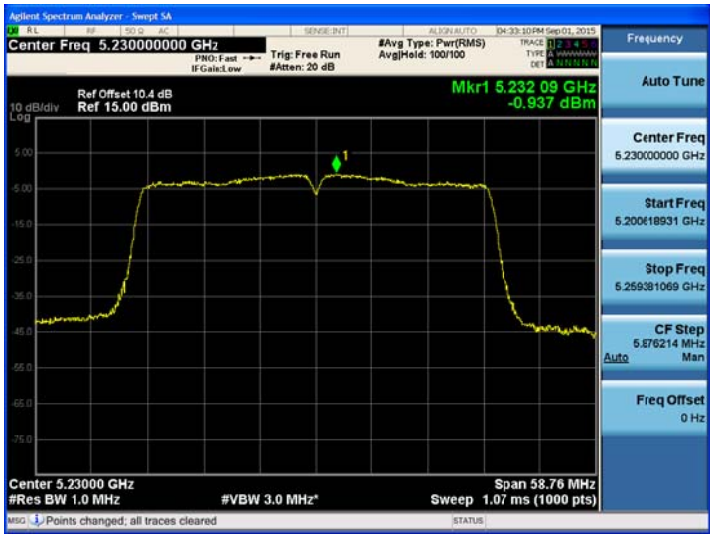
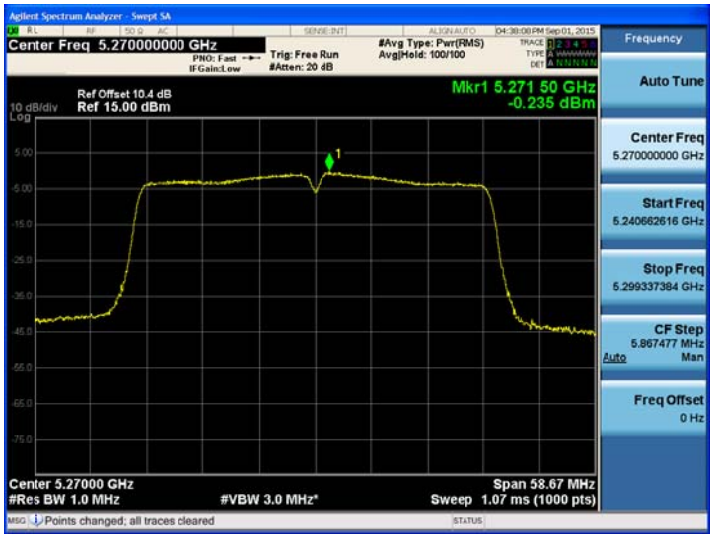
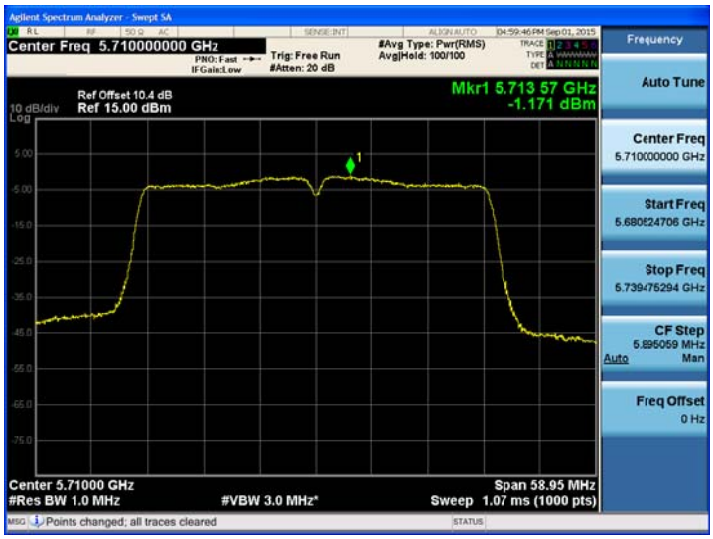
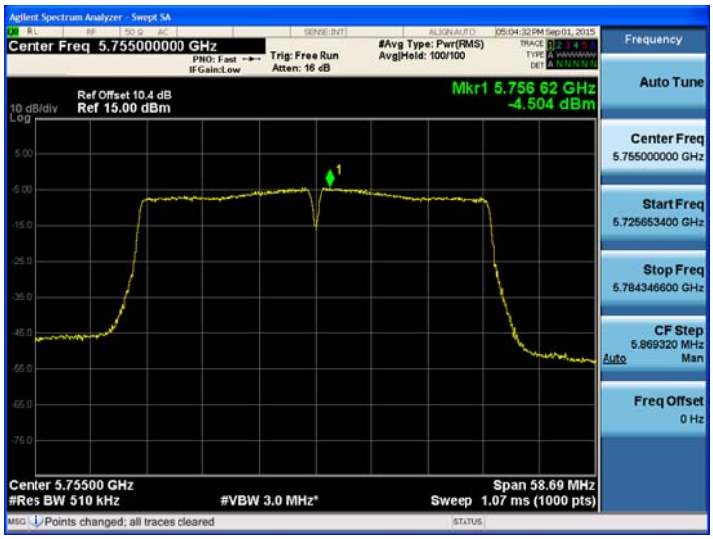
▣ 802.11ac_40MHz BW

▣ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result				
			Measured Power Density (dBm)	Duty Cycle Factor (dB)	Measured Power Density(dBm) + Duty Cycle Factor	Limit (dBm)	Pass/Fail
5190	38	802.11ac 40MHz BW	-1.887	0.208	-1.679	11	Pass
5230	46		-0.937	0.266	-0.671		Pass
5270	54		-0.235	0.085	-0.150	11	Pass
5310	62		-1.800	0.266	-1.534		Pass
5510	102		-3.210	0.100	-3.110	11	Pass
5550	110		-1.913	0.035	-1.878		Pass
5710	142		-1.171	0.292	-0.879		Pass
5755	151		-4.504	0.085	-4.419	30	Pass
5795	159		-5.134	0.208	-4.926		Pass

▣ TEST Plot for 802.11ac_ 40MHz BW

802.11ac_40MHz BW UNII 1 BAND PSD CH 46	802.11ac_40MHz BW UNII 2A BAND PSD CH 54
	
802.11ac_40MHz BW UNII 2C BAND PSD CH 142	**802.11ac_40MHz BW UNII 3 BAND PSD CH 151**
	

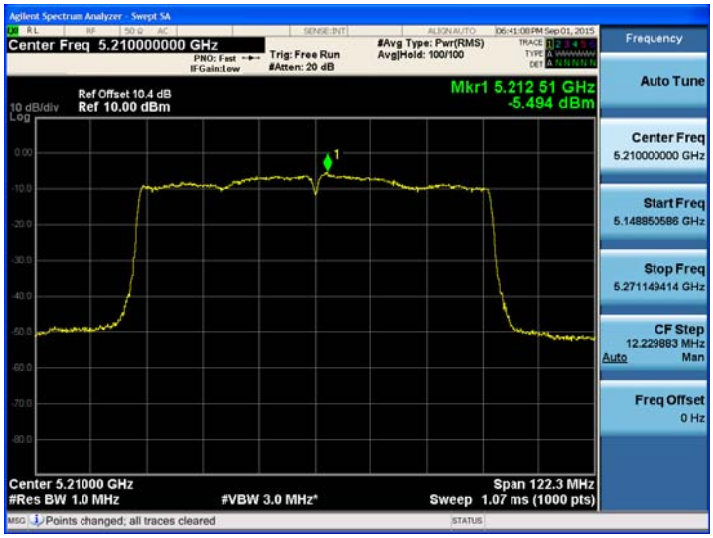
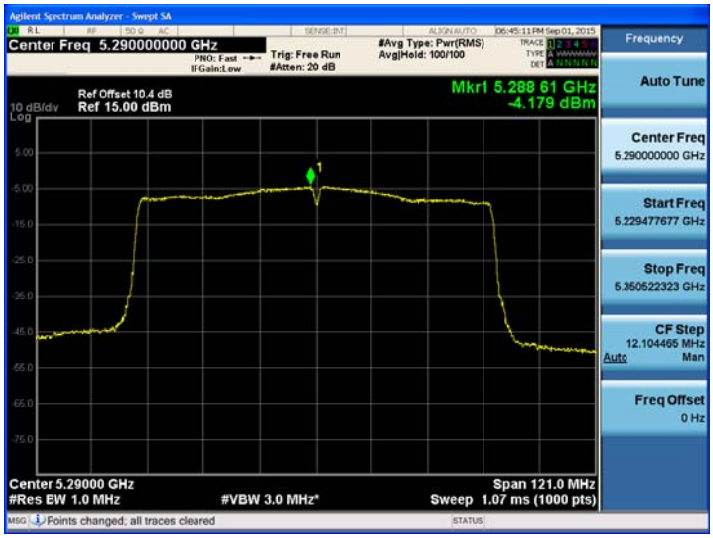
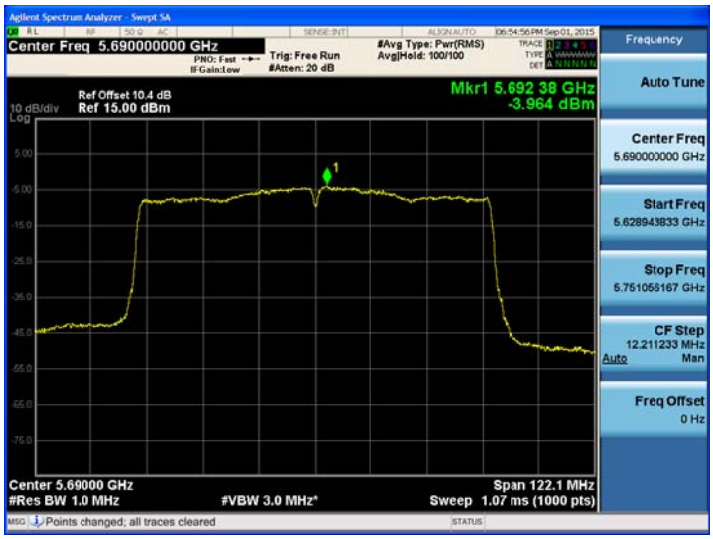
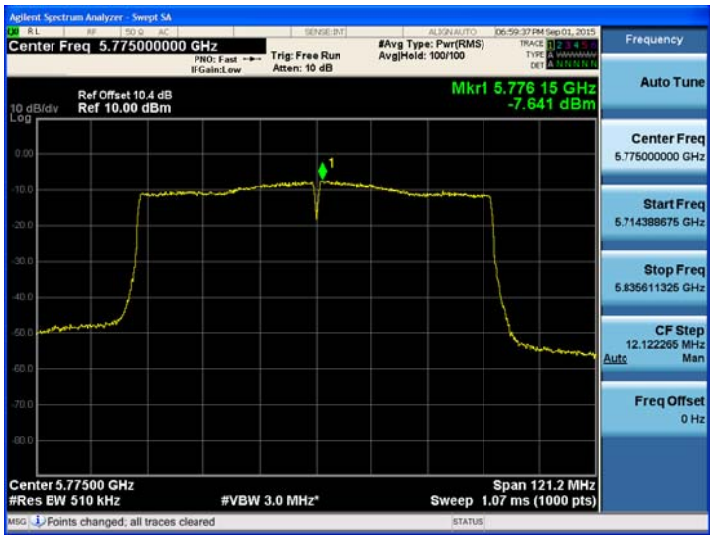
▣ 802.11ac_80MHz BW

▣ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result				
			Measured Power Density (dBm)	Duty Cycle Factor (dB)	Measured Power Density(dBm) + Duty Cycle Factor	Limit (dBm)	Pass/Fail
5210	42	802.11ac 80MHz BW	-5.494	0.395	-5.099	11	Pass
5290	58		-4.179	0.092	-4.087	11	Pass
5530	106		-6.524	0.092	-6.432	11	Pass
5690	138		-3.964	0.286	-3.678		Pass
5775	155		-7.641	0.092	-7.549	30	Pass

▣ TEST Plot for 802.11ac_80MHz BW

802.11ac_80MHz BW UNII 1 BAND PSD CH 42	802.11ac_80MHz BW UNII 2A BAND PSD CH 58
	
802.11ac_80MHz BW UNII 2C BAND PSD CH 138	**802.11ac_80MHz BW UNII 3 BAND PSD CH 155**
	

8.5 FREQUENCY STABILITY.

The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between -30 ℃ and 50 ℃. The temperature was incremented by 10 ℃ intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.

20 MHz BW

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,180,000,000 Hz

CHANNEL: 36

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5180032.32	32.32
100%		-30	5179996.98	-3.02
100%		-20	5180013.33	13.33
100%		-10	5180024.03	24.03
100%		0	5180053.61	53.61
100%		+10	5179984.37	-15.63
100%		+30	5179970.17	-29.83
100%		+40	5180006.02	6.02
100%		+50	5180013.30	13.30
115%	4.4	+20	5179994.30	-5.70
Batt. Endpoint	3.6	+20	5180021.38	21.38

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,260,000,000 Hz

CHANNEL: 52

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5260032.13	32.13
100%		-30	5260016.45	16.45
100%		-20	5259993.13	-6.87
100%		-10	5260009.30	9.30
100%		0	5259994.75	-5.25
100%		+10	5260062.38	62.38
100%		+30	5259986.43	-13.57
100%		+40	5259969.91	-30.09
100%		+50	5260023.10	23.10
115%	4.4	+20	5260000.80	0.80
Batt. Endpoint	3.6	+20	5260008.35	8.35

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND: UNII Band 2C

OPERATING FREQUENCY: 5,500,000,000 Hz

CHANNEL: 100

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5500002.69	2.69
100%		-30	5500024.95	24.95
100%		-20	5500002.38	2.38
100%		-10	5499989.37	-10.63
100%		0	5500008.38	8.38
100%		+10	5500029.94	29.94
100%		+30	5500045.08	45.08
100%		+40	5499989.02	-10.98
100%		+50	5500015.13	15.13
115%	4.4	+20	5499978.15	-21.85
Batt. Endpoint	3.6	+20	5500005.97	5.97

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,745,000,000 Hz

CHANNEL: 149

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5744990.63	-9.37
100%		-30	5744975.83	-24.17
100%		-20	5744982.55	-17.45
100%		-10	5744992.52	-7.48
100%		0	5744997.97	-2.03
100%		+10	5745005.35	5.35
100%		+30	5745014.82	14.82
100%		+40	5745022.58	22.58
100%		+50	5745029.69	29.69
115%	4.4	+20	5745009.12	9.12
Batt. Endpoint	3.6	+20	5745008.31	8.31

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

40 MHz BW

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,190,000,000 Hz

CHANNEL: 38

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5190009.34	9.34
100%		-30	5189972.09	-27.91
100%		-20	5190015.62	15.62
100%		-10	5190003.83	3.83
100%		0	5189994.38	-5.62
100%		+10	5190027.27	27.27
100%		+30	5189996.10	-3.90
100%		+40	5190014.62	14.62
100%		+50	5190034.23	34.23
115%	4.4	+20	5189981.12	-18.88
Batt. Endpoint	3.6	+20	5190005.33	5.33

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,270,000,000 Hz

CHANNEL: 54

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5270028.31	28.31
100%		-30	5270016.63	16.63
100%		-20	5270005.90	5.90
100%		-10	5270002.83	2.83
100%		0	5269982.84	-17.16
100%		+10	5269994.38	-5.62
100%		+30	5270050.05	50.05
100%		+40	5270006.52	6.52
100%		+50	5269981.66	-18.34
115%	4.4	+20	5269990.37	-9.63
Batt. Endpoint	3.6	+20	5270025.63	25.63

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND: UNII Band 2C

OPERATING FREQUENCY: 5,510,000,000 Hz

CHANNEL: 102

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5510015.80	15.80
100%		-30	5509976.88	-23.12
100%		-20	5509993.70	-6.30
100%		-10	5510003.98	3.98
100%		0	5509985.56	-14.44
100%		+10	5510015.87	15.87
100%		+30	5510005.83	5.83
100%		+40	5510016.30	16.30
100%		+50	5510028.88	28.88
115%	4.4	+20	5510015.94	15.94
Batt. Endpoint	3.6	+20	5509992.62	-7.38

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,755,000,000 Hz

CHANNEL: 151

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5755005.57	5.57
100%		-30	5755015.39	15.39
100%		-20	5755028.00	28.00
100%		-10	5754983.91	-16.09
100%		0	5755023.30	23.30
100%		+10	5755008.62	8.62
100%		+30	5755014.51	14.51
100%		+40	5754990.63	-9.37
100%		+50	5754981.66	-18.34
115%	4.4	+20	5754971.38	-28.62
Batt. Endpoint	3.6	+20	5755007.99	7.99

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

80 MHz BW

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,210,000,000 Hz

CHANNEL: 42

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5210014.68	14.68
100%		-30	5209979.64	-20.36
100%		-20	5209994.06	-5.94
100%		-10	5210003.57	3.57
100%		0	5209996.46	-3.54
100%		+10	5210015.43	15.43
100%		+30	5210022.22	22.22
100%		+40	5210034.83	34.83
100%		+50	5209970.83	-29.17
115%	4.4	+20	5209981.58	-18.42
Batt. Endpoint	3.6	+20	5210014.88	14.88

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,290,000,000 Hz

CHANNEL: 58

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5290013.62	13.62
100%		-30	5289982.27	-17.73
100%		-20	5289968.03	-31.97
100%		-10	5290004.51	4.51
100%		0	5290000.58	0.58
100%		+10	5290008.41	8.41
100%		+30	5289986.03	-13.97
100%		+40	5290024.17	24.17
100%		+50	5290032.63	32.63
115%	4.4	+20	5290014.32	14.32
Batt. Endpoint	3.6	+20	5290005.21	5.21

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND: UNII Band 2C

OPERATING FREQUENCY: 5,530,000,000 Hz

CHANNEL: 106

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5774958.62	-41.38
100%		-30	5775023.12	23.12
100%		-20	5775015.92	15.92
100%		-10	5775008.24	8.24
100%		0	5774996.02	-3.98
100%		+10	5775013.27	13.27
100%		+30	5774992.62	-7.38
100%		+40	5775031.23	31.23
100%		+50	5775040.38	40.38
115%	4.4	+20	5775009.24	9.24
Batt. Endpoint	3.6	+20	5775003.20	3.20

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,775,000,000 Hz

CHANNEL: 155

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5775004.52	4.52
100%		-30	5774969.99	-30.01
100%		-20	5774978.36	-21.64
100%		-10	5774986.33	-13.67
100%		0	5774991.48	-8.52
100%		+10	5774998.47	-1.53
100%		+30	5775009.58	9.58
100%		+40	5775017.24	17.24
100%		+50	5775026.39	26.39
115%	4.4	+20	5775005.43	5.43
Batt. Endpoint	3.6	+20	5775006.28	6.28

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

8.6 RADIATED MEASUREMENT

8.6.1 RADIATED SPURIOUS EMISSIONS.

Test Requirements and limit, §15.205, §15.209, §15.407

Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

▣ §15.407, KDB 789033 D02

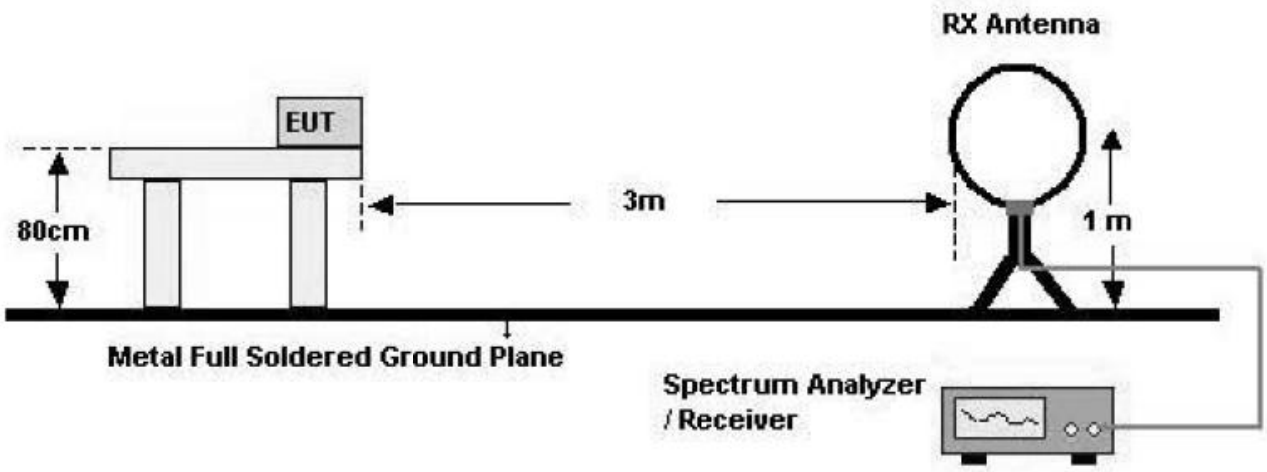
All harmonics that do not lie in a restricted band are subject to a peak limit of -27 dBm/MHz. At a distance of 3 meters the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2 dB to the EIRP limit of -27 dBm/MHz to obtain the limit for out of band spurious emissions of 68.2 dBμV/m. Espectally, for transmitter operating in the 5725 Mhz – 5850 MHz : all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequency 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

Test Mode

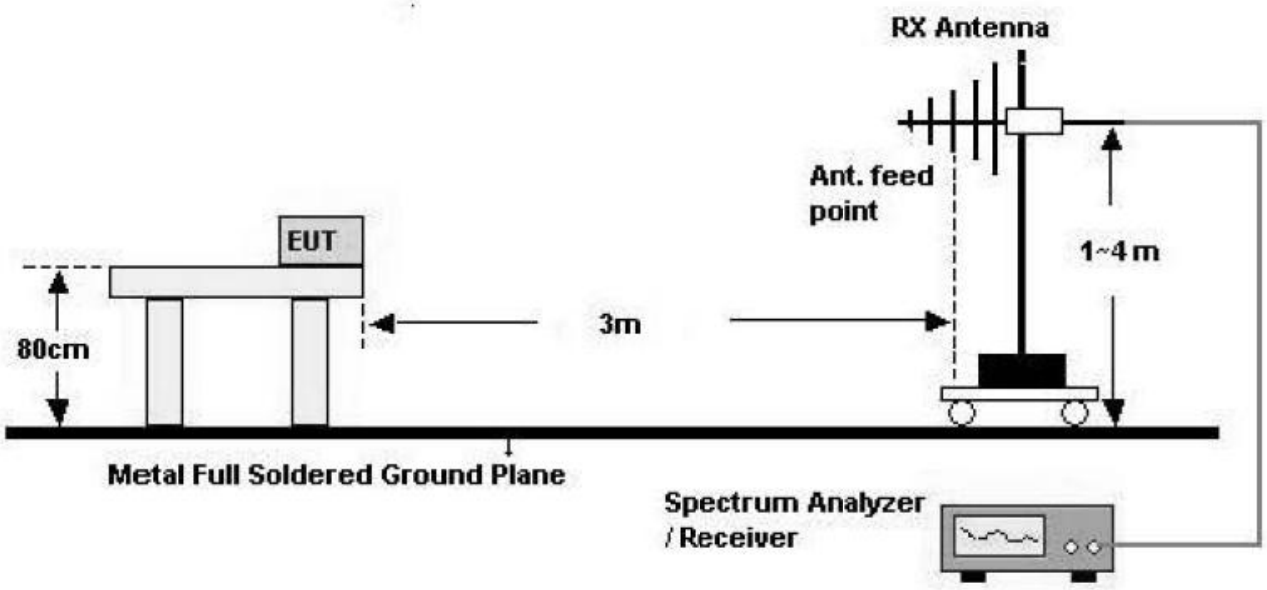
- Standalone with normal cover
- Standalone with wireless charging cover
- With wireless charging pad(WCD-110)
- With wireless charging pad(CT 06801)

Test Configuration

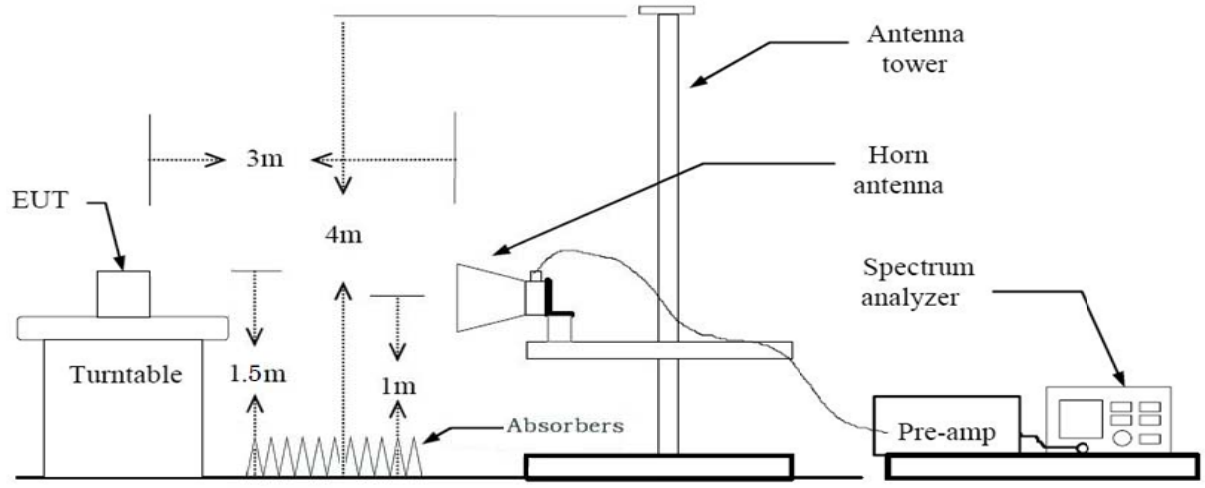
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



TEST PROCEDURE USED

ANSI C63.10:2013

Method G)5) in KDB 789033, issued 06/06/2014 (Peak)

Method G)6)d) in KDB 789033, issued 06/06/2014 (Average)

. Spectrum setting:

- Peak.

1. RBW = 1 MHz
2. VBW ≥ 3 MHz
3. Detector = Peak
4. Sweep Time = auto
5. Trace mode = max hold
6. Allow sweeps to continue until the trace stabilizes.
7. Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately 1/x, where x is the duty cycle.

- Average (Method VB :Averaging using reduced video bandwidth)

1. RBW = 1 MHz
2. VBW
   2.1. If the EUT is configured to transmit with duty cycle ≥ 98 percent, set VBW ≤ RBW/100(i.e., 10 kHz) but not less than 10 Hz.
   2.2. If the EUT duty cycle is < 98 percent, set VBW ≥ 1/T, where T is the minimum transmission duration.
3. The analyzer is set to linear detector mode.

4. Detector = Peak.
5. Sweep time = auto.
6. Trace mode = max hold.
7. Allow max hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 percent duty cycle. For lower duty cycles, increase the minimym number of traces by a factor of 1/x, where x is the duty cycle.

Note :

1. We used the Method VB for 802.11a/n/ac_20, n/ac_40, ac_80 mode to perform the average filed strength measurements.
2. The actual setting value of VBW for 802.11a/n/ac_20, n/ac_40, ac_80

Mode	Worst Data rate (Mbps)	T_{on} (ms)	T_{total} (ms)	Duty Cycle (%)	VBW(1/T) (Hz)	The actual setting value of VBW (Hz)
a	**6**	**2.064**	**2.087**	**98.90**	**484**	**1000**
n_20	**6.5**	**1.919**	**2.017**	**99.71**	**196**	**1000**
n_40	**13.5**	**0.944**	**1.043**	**99.40**	**402**	**1000**
ac_20	**6.5**	**1.920**	**1.955**	**99.61**	**195**	**1000**
ac_40	**13.5**	**0.954**	**0.982**	**99.20**	**402**	**1000**
ac_80	**29.3**	**0.460**	**0.489**	**97.91**	**855**	**1000**

TEST RESULTS

9 kHz – 30MHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
㎒	dB㎶	dB /m	dB	(H/V)	dB㎶/m	dB㎶/m	dB
No Critical peaks found							

Notes:

1. Measuring frequencies from 9 kHz to the 30MHz.
2. The reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
3. Distance extrapolation factor = 40 log (specific distance / test distance) (dB)
4. Limit line = specific Limits (dBuV) + Distance extrapolation factor
5. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

TEST RESULTS

Below 1 GHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
㎒	dB㎶	dB /m	dB	(H/V)	dB㎶/m	dB㎶/m	dB
No Critical peaks found							

Notes:

1. Measuring frequencies from 30 MHz to the 1 GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Standalone with normal cover

Above 1 GHz

Band :	UNII 1
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10360	62.69	-6.51	V	56.18	68.20	12.02	PK
15540	63.05	-6.42	V	56.63	73.98	17.35	PK
15540	49.54	-6.42	V	43.12	53.98	10.86	AV
10360	62.80	-6.51	H	56.29	68.20	11.91	PK
15540	63.21	-6.42	H	56.79	73.98	17.19	PK
15540	49.59	-6.42	H	43.17	53.98	10.81	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10400	62.87	-6.49	V	56.38	68.20	11.82	PK
15600	64.71	-7.15	V	57.56	73.98	16.42	PK
15600	50.08	-7.15	V	42.93	53.98	11.05	AV
10400	63.03	-6.49	H	56.54	68.20	11.66	PK
15600	64.80	-7.15	H	57.65	73.98	16.33	PK
15600	50.14	-7.15	H	42.99	53.98	10.99	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5240 MHz
Channel No.	48 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10480	62.91	-6.96	V	55.95	68.20	12.25	PK
15720	63.51	-6.62	V	56.89	73.98	17.09	PK
15720	50.21	-6.62	V	43.59	53.98	10.39	AV
10480	62.97	-6.96	H	56.01	68.20	12.19	PK
15720	63.61	-6.96	H	56.65	73.98	17.33	PK
15720	50.26	-6.62	H	43.64	53.98	10.34	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band :	UNII 1
Operation Mode:	802.11 n_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10360	62.67	-6.51	V	56.16	68.20	12.04	PK
15540	63.03	-6.42	V	56.61	73.98	17.37	PK
15540	49.49	-6.42	V	43.07	53.98	10.91	AV
10360	62.77	-6.51	H	56.26	68.20	11.94	PK
15540	63.18	-6.42	H	56.76	73.98	17.22	PK
15540	49.55	-6.42	H	43.13	53.98	10.85	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is 6.5 Mbps in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11 n_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10400	62.85	-6.49	V	56.36	68.20	11.84	PK
15600	64.69	-7.15	V	57.54	73.98	16.44	PK
15600	50.03	-7.15	V	42.88	53.98	11.10	AV
10400	63.00	-6.49	H	56.51	68.20	11.69	PK
15600	64.77	-7.15	H	57.62	73.98	16.36	PK
15600	50.10	-7.15	H	42.95	53.98	11.03	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is 6.5 Mbps in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11 n_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5240 MHz
Channel No.	48 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10480	62.92	-6.96	V	55.96	68.20	12.24	PK
15720	63.52	-6.62	V	56.90	73.98	17.08	PK
15720	50.23	-6.62	V	43.61	53.98	10.37	AV
10480	63.02	-6.96	H	56.06	68.20	12.14	PK
15720	63.66	-6.96	H	56.70	73.98	17.28	PK
15720	50.29	-6.62	H	43.67	53.98	10.31	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is 6.5 Mbps in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11 ac_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10360	62.71	-6.51	V	56.20	68.20	12.00	PK
15540	63.07	-6.42	V	56.65	73.98	17.33	PK
15540	49.52	-6.42	V	43.10	53.98	10.88	AV
10360	62.81	-6.51	H	56.30	68.20	11.90	PK
15540	63.22	-6.42	H	56.80	73.98	17.18	PK
15540	49.57	-6.42	H	43.15	53.98	10.83	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is 6.5 Mbps in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11 ac_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10400	62.89	-6.49	V	56.40	68.20	11.80	PK
15600	64.73	-7.15	V	57.58	73.98	16.40	PK
15600	50.06	-7.15	V	42.91	53.98	11.07	AV
10400	63.04	-6.49	H	56.55	68.20	11.65	PK
15600	64.81	-7.15	H	57.66	73.98	16.32	PK
15600	50.12	-7.15	H	42.97	53.98	11.01	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is 6.5 Mbps in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11 ac_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5240 MHz
Channel No.	48 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10480	62.91	-6.96	V	55.95	68.20	12.25	PK
15720	63.51	-6.62	V	56.89	73.98	17.09	PK
15720	50.21	-6.62	V	43.59	53.98	10.39	AV
10480	63.01	-6.96	H	56.05	68.20	12.15	PK
15720	63.65	-6.96	H	56.69	73.98	17.29	PK
15720	50.27	-6.62	H	43.65	53.98	10.33	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is 6.5 Mbps in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10380	62.21	-5.38	V	56.83	68.20	11.37	PK
15570	63.91	-6.41	V	57.50	73.98	16.48	PK
15570	50.09	-6.41	V	43.68	53.98	10.30	AV
10380	62.41	-5.38	H	57.03	68.20	11.17	PK
15570	64.01	-6.41	H	57.60	73.98	16.38	PK
15570	50.15	-6.41	H	43.74	53.98	10.24	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5230 MHz
Channel No.	46 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10460	63.88	-6.88	V	57.00	68.20	11.20	PK
15690	64.17	-6.64	V	57.53	73.98	16.45	PK
15690	50.72	-6.64	V	44.08	53.98	9.90	AV
10460	63.88	-6.88	H	57.00	68.20	11.20	PK
15690	64.25	-6.64	H	57.61	73.98	16.37	PK
15690	50.78	-6.64	H	44.14	53.98	9.84	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11ac_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10380	62.16	-5.38	V	56.78	68.20	11.42	PK
15570	63.86	-6.41	V	57.45	73.98	16.53	PK
15570	50.07	-6.41	V	43.66	53.98	10.32	AV
10380	62.34	-5.38	H	56.96	68.20	11.24	PK
15570	63.94	-6.41	H	57.53	73.98	16.45	PK
15570	50.11	-6.41	H	43.70	53.98	10.28	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_40 MHz BW. Worst case is 13.5 Mbps in 802.11ac_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11ac_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5230 MHz
Channel No.	46 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10460	63.83	-6.88	V	56.95	68.20	11.25	PK
15690	64.12	-6.64	V	57.48	73.98	16.50	PK
15690	50.70	-6.64	V	44.06	53.98	9.92	AV
10460	63.81	-6.88	H	56.93	68.20	11.27	PK
15690	64.18	-6.64	H	57.54	73.98	16.44	PK
15690	50.74	-6.64	H	44.10	53.98	9.88	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_40 MHz BW. Worst case is 13.5 Mbps in 802.11ac_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band :	UNII 1
Operation Mode:	802.11ac_80 MHz BW
Transfer Rate:	29.3 Mbps
Operating Frequency	5210 MHz
Channel No.	42 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10420	62.75	-6.32	V	56.43	68.20	11.77	PK
15630	63.28	-7.14	V	56.14	73.98	17.84	PK
15630	49.36	-7.14	V	42.22	53.98	11.76	AV
10420	62.85	-6.32	H	56.53	68.20	11.67	PK
15630	63.39	-7.14	H	56.25	73.98	17.73	PK
15630	49.44	-7.14	H	42.30	53.98	11.68	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_80 MHz BW. Worst case is 29.3 Mbps in 802.11ac_80 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2A
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5260 MHz
Channel No.	52 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10520	62.74	-6.52	V	56.22	68.20	11.98	PK
15780	63.33	-6.67	V	56.66	73.98	17.32	PK
15780	50.17	-6.67	V	43.50	53.98	10.48	AV
10520	62.83	-6.52	H	56.31	68.20	11.89	PK
15780	63.46	-6.67	H	56.79	73.98	17.19	PK
15780	50.21	-6.67	H	43.54	53.98	10.44	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2A
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5300 MHz
Channel No.	60 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10600	62.94	-6.72	V	56.22	73.98	17.76	PK
10600	49.22	-6.72	V	42.50	53.98	11.48	AV
15900	64.35	-7.00	V	57.35	73.98	16.63	PK
15900	50.19	-7.00	V	43.19	53.98	10.79	AV
10600	63.08	-6.72	H	56.36	73.98	17.62	PK
10600	49.28	-6.72	H	42.56	53.98	11.42	AV
15900	64.48	-7.00	H	57.48	73.98	16.50	PK
15900	50.23	-7.00	H	43.23	53.98	10.75	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2A
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10640	62.77	-6.43	V	56.34	73.98	17.64	PK
10640	49.22	-6.43	V	42.79	53.98	11.19	AV
15960	62.64	-6.93	V	55.71	73.98	18.27	PK
15960	48.96	-6.93	V	42.03	53.98	11.95	AV
10640	62.81	-6.43	H	56.38	73.98	17.60	PK
10640	49.24	-6.43	H	42.81	53.98	11.17	AV
15960	62.69	-6.93	H	55.76	73.98	18.22	PK
15960	48.99	-6.93	H	42.06	53.98	11.92	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band :	UNII 2A
Operation Mode:	802.11 n_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5260 MHz
Channel No.	52 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10520	62.72	-6.52	V	56.20	68.20	12.00	PK
15780	63.37	-6.67	V	56.70	73.98	17.28	PK
15780	50.14	-6.67	V	43.47	53.98	10.51	AV
10520	62.80	-6.52	H	56.28	68.20	11.92	PK
15780	63.46	-6.67	H	56.79	73.98	17.19	PK
15780	50.18	-6.67	H	43.51	53.98	10.47	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is 6.5 Mbps in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2A
Operation Mode:	802.11 n_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5300 MHz
Channel No.	60 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10600	62.92	-6.72	V	56.20	73.98	17.78	PK
10600	49.17	-6.72	V	42.45	53.98	11.53	AV
15900	64.33	-7.00	V	57.33	73.98	16.65	PK
15900	50.14	-7.00	V	43.14	53.98	10.84	AV
10600	63.05	-6.72	H	56.33	73.98	17.65	PK
10600	49.24	-6.72	H	42.52	53.98	11.46	AV
15900	64.45	-7.00	H	57.45	73.98	16.53	PK
15900	50.19	-7.00	H	43.19	53.98	10.79	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is 6.5 Mbps in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2A
Operation Mode:	802.11 n_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10640	62.78	-6.43	V	56.35	73.98	17.63	PK
10640	49.24	-6.43	V	42.81	53.98	11.17	AV
15960	62.65	-6.93	V	55.72	73.98	18.26	PK
15960	48.98	-6.93	V	42.05	53.98	11.93	AV
10640	62.86	-6.43	H	56.43	73.98	17.55	PK
10640	49.27	-6.43	H	42.84	53.98	11.14	AV
15960	62.74	-6.93	H	55.81	73.98	18.17	PK
15960	49.02	-6.93	H	42.09	53.98	11.89	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is 6.5 Mbps in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2A
Operation Mode:	802.11 ac_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5260MHz
Channel No.	52 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10520	62.76	-6.52	V	56.24	68.20	11.96	PK
15780	63.35	-6.67	V	56.68	73.98	17.30	PK
15780	50.15	-6.67	V	43.48	53.98	10.50	AV
10520	62.84	-6.52	H	56.32	68.20	11.88	PK
15780	63.47	-6.67	H	56.80	73.98	17.18	PK
15780	50.19	-6.67	H	43.52	53.98	10.46	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is 6.5 Mbps in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2A
Operation Mode:	802.11 ac_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5300 MHz
Channel No.	60 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10600	62.96	-6.72	V	56.24	73.98	17.74	PK
10600	49.20	-6.72	V	42.48	53.98	11.50	AV
15900	64.37	-7.00	V	57.37	73.98	16.61	PK
15900	50.17	-7.00	V	43.17	53.98	10.81	AV
10600	63.09	-6.72	H	56.37	73.98	17.61	PK
10600	49.26	-6.72	H	42.54	53.98	11.44	AV
15900	64.49	-7.00	H	57.49	73.98	16.49	PK
15900	50.21	-7.00	H	43.21	53.98	10.77	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is 6.5 Mbps in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2A
Operation Mode:	802.11 ac_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10640	62.77	-6.43	V	56.34	73.98	17.64	PK
10640	49.22	-6.43	V	42.79	53.98	11.19	AV
15960	62.64	-6.93	V	55.71	73.98	18.27	PK
15960	48.96	-6.93	V	42.03	53.98	11.95	AV
10640	62.85	-6.43	H	56.42	73.98	17.56	PK
10640	49.25	-6.43	H	42.82	53.98	11.16	AV
15960	62.73	-6.93	H	55.80	73.98	18.18	PK
15960	49.00	-6.93	H	42.07	53.98	11.91	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is 6.5 Mbps in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2A
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5270 MHz
Channel No.	54 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10540	62.54	-5.77	V	56.77	68.20	11.43	PK
15810	64.13	-7.47	V	56.66	73.98	17.32	PK
15810	50.13	-7.47	V	42.66	53.98	11.32	AV
10540	62.66	-5.77	H	56.89	68.20	11.31	PK
15810	64.09	-7.47	H	56.62	73.98	17.36	PK
15810	50.16	-7.47	H	42.69	53.98	11.29	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2A
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10620	62.74	-6.36	V	56.38	73.98	17.60	PK
10620	49.30	-6.36	V	42.94	53.98	11.04	AV
15930	62.89	-6.77	V	56.12	73.98	17.86	PK
15930	49.79	-6.77	V	43.02	53.98	10.96	AV
10620	62.80	-6.36	H	56.44	73.98	17.54	PK
10620	49.31	-6.36	H	42.95	53.98	11.03	AV
15930	63.04	-6.77	H	56.27	73.98	17.71	PK
15930	49.82	-6.77	H	43.05	53.98	10.93	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2A
Operation Mode:	802.11ac_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5270 MHz
Channel No.	54 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10540	62.56	-5.77	V	56.79	68.20	11.41	PK
15810	64.15	-7.47	V	56.68	73.98	17.30	PK
15810	50.13	-7.47	V	42.66	53.98	11.32	AV
10540	62.70	-5.77	H	56.93	68.20	11.27	PK
15810	64.13	-7.47	H	56.66	73.98	17.32	PK
15810	50.18	-7.47	H	42.71	53.98	11.27	AV

Notes

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_40 MHz BW. Worst case is 13.5 Mbps in 802.11ac_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2A
Operation Mode:	802.11ac_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10620	62.76	-6.36	V	56.40	73.98	17.58	PK
10620	49.30	-6.36	V	42.94	53.98	11.04	AV
15930	62.89	-6.77	V	56.12	73.98	17.86	PK
15930	49.79	-6.77	V	43.02	53.98	10.96	AV
10620	62.84	-6.36	H	56.48	73.98	17.50	PK
10620	49.33	-6.36	H	42.97	53.98	11.01	AV
15930	63.08	-6.77	H	56.31	73.98	17.67	PK
15930	49.84	-6.77	H	43.07	53.98	10.91	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_40 MHz BW. Worst case is 13.5 Mbps in 802.11ac_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band :	UNII 2A
Operation Mode:	802.11ac_80 MHz BW
Transfer Rate:	29.3 Mbps
Operating Frequency	5290 MHz
Channel No.	58 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10580	63.22	-5.70	V	57.52	68.20	10.68	PK
15870	63.77	-7.27	V	56.50	73.98	17.48	PK
15870	49.97	-7.27	V	42.70	53.98	11.28	AV
10580	63.32	-5.70	H	57.62	68.20	10.58	PK
15870	63.84	-7.27	H	56.57	73.98	17.41	PK
15870	50.02	-7.27	H	42.75	53.98	11.23	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_80 MHz BW. Worst case is 29.3 Mbps in 802.11ac_80 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2C
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11000	63.05	-5.06	V	57.99	73.98	15.99	PK
11000	49.13	-5.06	V	44.07	53.98	9.91	AV
16500	62.44	-4.35	V	58.09	68.20	10.11	PK
11000	63.18	-5.06	H	58.12	73.98	15.86	PK
11000	49.17	-5.06	H	44.11	53.98	9.87	AV
16500	62.54	-4.35	H	58.19	68.20	10.01	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2C
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5580 MHz
Channel No.	116 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11160	63.02	-5.55	V	57.47	73.98	16.51	PK
11160	49.23	-5.55	V	43.68	53.98	10.30	AV
16740	63.41	-3.73	V	59.68	68.20	8.52	PK
11160	63.16	-5.55	H	57.61	73.98	16.37	PK
11160	49.28	-5.55	H	43.73	53.98	10.25	AV
16740	63.59	-3.73	H	59.86	68.20	8.34	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2C
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5720 MHz
Channel No.	144 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11400	62.81	-6.08	V	56.73	73.98	17.25	PK
11400	48.77	-6.08	V	42.69	53.98	11.29	AV
17100	62.55	-0.85	V	61.70	68.20	6.50	PK
11400	62.98	-6.08	H	56.90	73.98	17.08	PK
11400	48.81	-6.08	H	42.73	53.98	11.25	AV
17100	62.65	-0.85	H	61.80	68.20	6.40	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band :	UNII 2C
Operation Mode:	802.11 n_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11000	63.03	-5.06	V	57.97	73.98	16.01	PK
11000	49.08	-5.06	V	44.02	53.98	9.96	AV
16500	62.42	-4.35	V	58.07	68.20	10.13	PK
11000	63.15	-5.06	H	58.09	73.98	15.89	PK
11000	49.13	-5.06	H	44.07	53.98	9.91	AV
16500	62.51	-4.35	H	58.16	68.20	10.04	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is 6.5 Mbps in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2C
Operation Mode:	802.11 n_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5580 MHz
Channel No.	116 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11160	63.00	-5.55	V	57.45	73.98	16.53	PK
11160	49.18	-5.55	V	43.63	53.98	10.35	AV
16740	63.39	-3.73	V	59.66	68.20	8.54	PK
11160	63.13	-5.55	H	57.58	73.98	16.40	PK
11160	49.24	-5.55	H	43.69	53.98	10.29	AV
16740	63.56	-3.73	H	59.83	68.20	8.37	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is 6.5 Mbps in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2C
Operation Mode:	802.11 n_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5720 MHz
Channel No.	144 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11400	62.79	-6.08	V	56.71	73.98	17.27	PK
11400	48.72	-6.08	V	42.64	53.98	11.34	AV
17100	62.53	-0.85	V	61.68	68.20	6.52	PK
11400	62.95	-6.08	H	56.87	73.98	17.11	PK
11400	48.77	-6.08	H	42.69	53.98	11.29	AV
17100	62.62	-0.85	H	61.77	68.20	6.43	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is 6.5 Mbps in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2C
Operation Mode:	802.11 ac_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5500MHz
Channel No.	100 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11000	63.07	-5.06	V	58.01	73.98	15.97	PK
11000	49.11	-5.06	V	44.05	53.98	9.93	AV
16500	62.46	-4.35	V	58.11	68.20	10.09	PK
11000	63.19	-5.06	H	58.13	73.98	15.85	PK
11000	49.15	-5.06	H	44.09	53.98	9.89	AV
16500	62.55	-4.35	H	58.20	68.20	10.00	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is 6.5 Mbps in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2C
Operation Mode:	802.11 ac_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5580 MHz
Channel No.	116 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11160	63.04	-5.55	V	57.49	73.98	16.49	PK
11160	49.21	-5.55	V	43.66	53.98	10.32	AV
16740	63.43	-3.73	V	59.70	68.20	8.50	PK
11160	63.17	-5.55	H	57.62	73.98	16.36	PK
11160	49.26	-5.55	H	43.71	53.98	10.27	AV
16740	63.60	-3.73	H	59.87	68.20	8.33	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is 6.5 Mbps in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2C
Operation Mode:	802.11 ac_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5720 MHz
Channel No.	144 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11400	62.83	-6.08	V	56.75	73.98	17.23	PK
11400	48.75	-6.08	V	42.67	53.98	11.31	AV
17100	62.57	-0.85	V	61.72	68.20	6.48	PK
11400	62.99	-6.08	H	56.91	73.98	17.07	PK
11400	48.79	-6.08	H	42.71	53.98	11.27	AV
17100	62.66	-0.85	H	61.81	68.20	6.39	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is 6.5 Mbps in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2C
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11020	62.88	-5.86	V	57.02	73.98	16.96	PK
11020	48.69	-5.86	V	42.83	53.98	11.15	AV
16530	63.44	-3.75	V	59.69	68.20	8.51	PK
11020	63.04	-5.86	H	57.18	73.98	16.80	PK
11020	48.76	-5.86	H	42.90	53.98	11.08	AV
16530	63.58	-3.75	H	59.83	68.20	8.37	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2C
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5550 MHz
Channel No.	110 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11180	62.87	-6.14	V	56.73	73.98	17.25	PK
11180	48.68	-6.14	V	42.54	53.98	11.44	AV
16770	63.00	-3.11	V	59.89	68.20	8.31	PK
11180	62.99	-6.14	H	56.85	73.98	17.13	PK
11180	48.76	-6.14	H	42.62	53.98	11.36	AV
16770	63.10	-3.11	H	59.99	68.20	8.21	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2C
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5710 MHz
Channel No.	142 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11340	62.58	-5.10	V	57.48	73.98	16.50	PK
11340	48.79	-5.10	V	43.69	53.98	10.29	AV
17010	62.00	-1.27	V	60.73	68.20	7.47	PK
11340	62.76	-5.10	H	57.66	73.98	16.32	PK
11340	48.86	-5.10	H	43.76	53.98	10.22	AV
17010	61.98	-1.27	H	60.71	68.20	7.49	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2C
Operation Mode:	802.11ac_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11020	62.83	-5.86	V	56.97	73.98	17.01	PK
11020	48.67	-5.86	V	42.81	53.98	11.17	AV
16530	63.39	-3.75	V	59.64	68.20	8.56	PK
11020	62.97	-5.86	H	57.11	73.98	16.87	PK
11020	48.72	-5.86	H	42.86	53.98	11.12	AV
16530	63.51	-3.75	H	59.76	68.20	8.44	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_40 MHz BW. Worst case is 13.5 Mbps in 802.11ac_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2C
Operation Mode:	802.11ac_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5550 MHz
Channel No.	110 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11180	62.82	-6.14	V	56.68	73.98	17.30	PK
11180	48.66	-6.14	V	42.52	53.98	11.46	AV
16770	62.95	-3.11	V	59.84	68.20	8.36	PK
11180	62.92	-6.14	H	56.78	73.98	17.20	PK
11180	48.72	-6.14	H	42.58	53.98	11.40	AV
16770	63.03	-3.11	H	59.92	68.20	8.28	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_40 MHz BW. Worst case is 13.5 Mbps in 802.11ac_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band :	UNII 2C
Operation Mode:	802.11ac_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5710 MHz
Channel No.	142 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11420	62.53	-6.07	V	56.46	73.98	17.52	PK
11420	48.77	-6.07	V	42.70	53.98	11.28	AV
17130	61.95	-0.81	V	61.14	68.20	7.06	PK
11420	62.69	-6.07	H	56.62	73.98	17.36	PK
11420	48.82	-6.07	H	42.75	53.98	11.23	AV
17130	61.91	-0.81	H	61.10	68.20	7.10	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_40 MHz BW. Worst case is 13.5 Mbps in 802.11ac_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band :	UNII 2C
Operation Mode:	802.11ac_80 MHz BW
Transfer Rate:	29.3 Mbps
Operating Frequency	5530 MHz
Channel No.	106 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11060	61.47	-6.21	V	55.26	73.98	18.72	PK
11060	48.38	-6.21	V	42.17	53.98	11.81	AV
16590	62.16	-3.20	V	58.96	68.20	9.24	PK
11060	61.56	-6.21	H	55.35	73.98	18.63	PK
11060	48.44	-6.21	H	42.23	53.98	11.75	AV
16590	62.22	-3.20	H	59.02	68.20	9.18	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_80 MHz BW. Worst case is 29.3 Mbps in 802.11ac_80 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 2C
Operation Mode:	802.11ac_80 MHz BW
Transfer Rate:	29.3 Mbps
Operating Frequency	5690 MHz
Channel No.	138 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11380	62.12	-5.59	V	56.53	73.98	17.45	PK
11380	48.56	-5.59	V	42.97	53.98	11.01	AV
17070	62.03	-1.32	V	60.71	68.20	7.49	PK
11380	62.22	-5.59	H	56.63	73.98	17.35	PK
11380	48.63	-5.59	H	43.04	53.98	10.94	AV
17070	62.10	-1.32	H	60.78	68.20	7.42	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_80 MHz BW. Worst case is 29.3 Mbps in 802.11ac_80 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5745MHz
Channel No.	149 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	63.44	-6.10	V	57.34	73.98	16.64	PK
11490	49.53	-6.10	V	43.43	53.98	10.55	AV
17235	62.62	-1.35	V	61.27	68.20	6.93	PK
11490	63.54	-6.10	H	57.44	73.98	16.54	PK
11490	49.58	-6.10	H	43.48	53.98	10.50	AV
17235	62.72	-1.35	H	61.37	68.20	6.83	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11570	63.38	-5.57	V	57.81	73.98	16.17	PK
11570	48.99	-5.57	V	43.42	53.98	10.56	AV
17355	62.53	-0.39	V	62.14	68.20	6.06	PK
11570	63.51	-5.57	H	57.94	73.98	16.04	PK
11570	49.04	-5.57	H	43.47	53.98	10.51	AV
17355	62.65	-0.39	H	62.26	68.20	5.94	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	62.69	-6.63	V	56.06	73.98	17.92	PK
11650	49.42	-6.63	V	42.79	53.98	11.19	AV
17475	61.93	0.29	V	62.22	68.20	5.98	PK
11650	62.85	-6.63	H	56.22	73.98	17.76	PK
11650	49.46	-6.63	H	42.83	53.98	11.15	AV
17475	62.11	0.29	H	62.40	68.20	5.80	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band :	UNII 3
Operation Mode:	802.11 n_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5745 MHz
Channel No.	149 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	63.42	-6.10	V	57.32	73.98	16.66	PK
11490	49.48	-6.10	V	43.38	53.98	10.60	AV
17235	62.60	-1.35	V	61.25	68.20	6.95	PK
11490	63.51	-6.10	H	57.41	73.98	16.57	PK
11490	49.54	-6.10	H	43.44	53.98	10.54	AV
17235	62.69	-1.35	H	61.34	68.20	6.86	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is 6.5 Mbps in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 n_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11570	63.36	-5.57	V	57.79	73.98	16.19	PK
11570	48.94	-5.57	V	43.37	53.98	10.61	AV
17355	62.51	-0.39	V	62.12	68.20	6.08	PK
11570	63.48	-5.57	H	57.91	73.98	16.07	PK
11570	49.00	-5.57	H	43.43	53.98	10.55	AV
17355	62.62	-0.39	H	62.23	68.20	5.97	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is 6.5 Mbps in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 n_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	62.67	-6.63	V	56.04	73.98	17.94	PK
11650	49.37	-6.63	V	42.74	53.98	11.24	AV
17475	61.91	0.29	V	62.20	68.20	6.00	PK
11650	62.82	-6.63	H	56.19	73.98	17.79	PK
11650	49.42	-6.63	H	42.79	53.98	11.19	AV
17475	62.08	0.29	H	62.37	68.20	5.83	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is 6.5 Mbps in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 ac_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5745 MHz
Channel No.	149 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	63.46	-6.10	V	57.36	73.98	16.62	PK
11490	49.51	-6.10	V	43.41	53.98	10.57	AV
17235	62.64	-1.35	V	61.29	68.20	6.91	PK
11490	63.55	-6.10	H	57.45	73.98	16.53	PK
11490	49.56	-6.10	H	43.46	53.98	10.52	AV
17235	62.73	-1.35	H	61.38	68.20	6.82	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is 6.5 Mbps in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 ac_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11570	63.40	-5.57	V	57.83	73.98	16.15	PK
11570	48.97	-5.57	V	43.40	53.98	10.58	AV
17355	62.55	-0.39	V	62.16	68.20	6.04	PK
11570	63.52	-5.57	H	57.95	73.98	16.03	PK
11570	49.02	-5.57	H	43.45	53.98	10.53	AV
17355	62.66	-0.39	H	62.27	68.20	5.93	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is 6.5 Mbps in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 ac_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	62.71	-6.63	V	56.08	73.98	17.90	PK
11650	49.40	-6.63	V	42.77	53.98	11.21	AV
17475	61.95	0.29	V	62.24	68.20	5.96	PK
11650	62.86	-6.63	H	56.23	73.98	17.75	PK
11650	49.44	-6.63	H	42.81	53.98	11.17	AV
17475	62.12	0.29	H	62.41	68.20	5.79	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is 6.5 Mbps in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII3
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5755 MHz
Channel No.	151 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11510	63.40	-6.26	V	57.14	73.98	16.84	PK
11510	49.59	-6.26	V	43.33	53.98	10.65	AV
17265	63.27	-1.10	V	62.17	68.20	6.03	PK
11510	63.52	-6.26	H	57.26	73.98	16.72	PK
11510	49.66	-6.26	H	43.40	53.98	10.58	AV
17265	63.35	-1.10	H	62.25	68.20	5.95	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5795 MHz
Channel No.	159 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11590	62.87	-5.92	V	56.95	73.98	17.03	PK
11590	49.33	-5.92	V	43.41	53.98	10.57	AV
17385	62.68	-0.24	V	62.44	68.20	5.76	PK
11590	62.99	-5.92	H	57.07	73.98	16.91	PK
11590	49.40	-5.92	H	43.48	53.98	10.50	AV
17385	62.79	-0.24	H	62.55	68.20	5.65	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_40 MHz BW. Worst case is 13.5 Mbps in 802.11n_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11ac_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5755 MHz
Channel No.	151 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11510	63.35	-6.26	V	57.09	73.98	16.89	PK
11510	49.57	-6.26	V	43.31	53.98	10.67	AV
17265	63.22	-1.10	V	62.12	68.20	6.08	PK
11510	63.45	-6.26	H	57.19	73.98	16.79	PK
11510	49.62	-6.26	H	43.36	53.98	10.62	AV
17265	63.28	-1.10	H	62.18	68.20	6.02	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_40 MHz BW. Worst case is 13.5 Mbps in 802.11ac_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11ac_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5795 MHz
Channel No.	159 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11590	62.82	-5.92	V	56.90	73.98	17.08	PK
11590	49.31	-5.92	V	43.39	53.98	10.59	AV
17385	62.63	-0.24	V	62.39	68.20	5.81	PK
11590	62.92	-5.92	H	57.00	73.98	16.98	PK
11590	49.36	-5.92	H	43.44	53.98	10.54	AV
17385	62.61	-0.24	H	62.37	68.20	5.83	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_40 MHz BW. Worst case is 13.5 Mbps in 802.11ac_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band :	UNII 3
Operation Mode:	802.11ac_80 MHz BW
Transfer Rate:	29.3 Mbps
Operating Frequency	5775 MHz
Channel No.	155 Ch

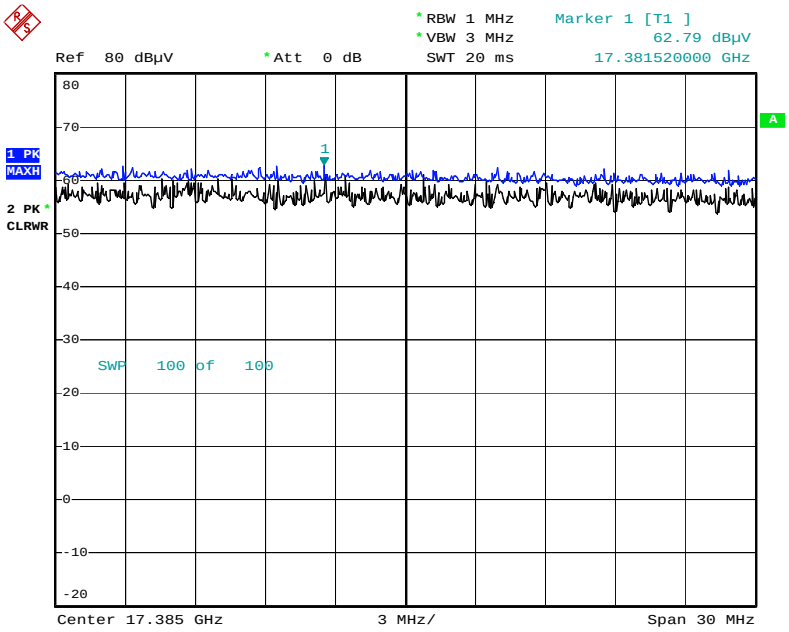
Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11550	62.56	-5.97	V	56.59	73.98	17.39	PK
11550	49.01	-5.97	V	43.04	53.98	10.94	AV
17325	62.09	-0.24	V	61.85	68.20	6.35	PK
11550	62.66	-5.97	H	56.69	73.98	17.29	PK
11550	49.09	-5.97	H	43.12	53.98	10.86	AV
17325	62.18	-0.24	H	61.94	68.20	6.26	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_80 MHz BW. Worst case is 29.3 Mbps in 802.11ac_80 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

▣ RESULT PLOTS

Radiated Spurious Emissions plot – Peak Reading (802.11n_40M, Ch.159 3rd Harmonic)



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Note : Only the worst case plots for Radiated Spurious Emissions.