

# FCC UNII REPORT

## FCC Certification

**Applicant Name:**  
SAMSUNG Electronics Co., Ltd.

**Date of Issue:**  
December 07, 2016

**Address:**  
129, Samsung-ro, Yeongtong-gu, Suwon-si,  
Gyeonggi-do, 16677, Rep. of Korea

**Test Site/Location:**  
HCT CO., LTD., 74,Seoicheon-ro 578beon-gil,Majang-  
myeo,Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA  
**Report No.:** HCT-R-1612-F020  
**HCT FRN:** 0005866421

<b>FCC ID</b>	<b>: A3LSMA320Y</b>
<b>APPLICANT</b>	<b>: SAMSUNG Electronics Co., Ltd.</b>

According to the Evaluation report, all of the data contained herein is reused from the reference FCC ID : A3LSMA320F report.

**Model(s):** SM-A320Y/DS  
**Additional Model(s):** SM-A320Y  
**EUT Type:** Mobile Phone  
**Modulation type** OFDM  
**FCC Classification:** Unlicensed National Information Infrastructure(UNII)  
**FCC Rule Part(s):** Part 15.407

Band	Mode	Frequency Range (MHz)	Power (dBm)	Power (W)
UNII1	802.11a	5180 – 5240	15.83	0.03826
	802.11n_HT20	5180 – 5240	15.83	0.03830
	802.11n_HT40	5190 - 5230	10.64	0.01159
	802.11ac_VHT20	5180 – 5240	12.91	0.01956
	802.11ac_VHT40	5190 - 5230	10.60	0.01147
	802.11ac_VHT80	5210	9.95	0.00988
UNII2A	802.11a	5260 – 5320	16.10	0.04072
	802.11n_HT20	5260 – 5320	16.10	0.04072
	802.11n_HT40	5270 – 5310	10.91	0.01232
	802.11ac_VHT20	5260 – 5320	13.28	0.02126
	802.11ac_VHT40	5270 – 5310	10.99	0.01256
	802.11ac_VHT80	5290	9.72	0.00936
UNII2C	802.11a	5500 – 5700	16.81	0.04792
	802.11n_HT20	5500 – 5700	16.74	0.04723
	802.11n_HT40	5510 – 5670	11.41	0.01385
	802.11ac_VHT20	5500 – 5700	13.89	0.02447
	802.11ac_VHT40	5510 – 5670	11.43	0.01391
	802.11ac_VHT80	5530 – 5610	9.83	0.00963
UNII3	802.11a	5745 – 5825	16.53	0.04498
	802.11n_HT20	5745 – 5825	16.49	0.04458
	802.11n_HT40	5755 – 5795	11.36	0.01369
	802.11ac_VHT20	5745 – 5825	13.73	0.02359
	802.11ac_VHT40	5755 – 5795	11.47	0.01402
	802.11ac_VHT80	5775	9.72	0.00937

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**  
**: Seul Ki Lee**  
**Test Engineer of RF Team**



**Approved by**  
**: Jong Seok Lee**  
**Manager of RF Team**

This report only responds to the tested sample and may not be reproduced, except in full, without written approval of the HCT Co., Ltd.

## Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-R-1612-F020	December 07, 2016	- First Approval Report

---

# Table of Contents

1. GENERAL INFORMATION .....	5
2. EUT DESCRIPTION .....	5
3. TEST METHODOLOGY .....	6
3.1 EUT CONFIGURATION .....	6
3.2 EUT EXERCISE .....	6
3.3 GENERAL TEST PROCEDURES .....	6
3.4 DESCRIPTION OF TEST MODES .....	6
4. INSTRUMENT CALIBRATION.....	7
5. FACILITIES AND ACCREDITATIONS .....	7
5.1 FACILITIES .....	7
5.2 EQUIPMENT .....	7
6. ANTENNA REQUIREMENTS .....	7
7. MEASUREMENT UNCERTAINTY .....	8
8. SUMMARY OF TEST RESULTS .....	9
9. TEST RESULT .....	10
9.1 DUTY CYCLE.....	10
9.2 EMISSION BANDWIDTH AND MINIMUM EMISSION BANDWIDTH MEASUREMENT .....	13
9.3 OUTPUT POWER MEASUREMENT.....	31
9.4 POWER SPECTRAL DENSITY .....	60
9.5 FREQUENCY STABILITY .....	74
9.6 RADIATED MEASUREMENT.....	86
9.6.1 RADIATED SPURIOUS EMISSIONS.....	86
9.6.2 RADIATED RESTRICTED BAND EDGE MEASUREMENTS .....	157
9.7 POWERLINE CONDUCTED EMISSIONS .....	182
10. LIST OF TEST EQUIPMENT .....	187
10.1 LIST OF TEST EQUIPMENT(Conducted Test) .....	187
10.2 LIST OF TEST EQUIPMENT(Radiated Test).....	188

## 1. GENERAL INFORMATION

**Applicant:** SAMSUNG Electronics Co.,Ltd.  
**Address:** 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea  
**FCC ID:** A3LSMA320Y  
**EUT Type:** Mobile Phone  
**Model (s):** SM-A320Y/DS  
**Additional Model(s):** SM-A320Y  
**Date(s) of Tests:** October 17, 2016 ~ November 30, 2016  
**Place of Tests:** HCT Co., Ltd.  
 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea

## 2. EUT DESCRIPTION

<b>Model</b>	SM-A320Y/DS	
<b>Additional Model(s):</b>	SM-A320Y	
<b>EUT Type</b>	Mobile Phone	
<b>Power Supply</b>	DC 3.85 V	
<b>Battery Infomation</b>	Model: EB-BA320ABE Type: Li-ion Battery	
<b>Frequency Range</b>	TX_20 MHz BW:	5180 MHz - 5240 MHz (UNII 1)/ 5260 MHz - 5320 MHz (UNII 2A)/ 5500 MHz - 5700 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 - 5670 MHz (UNII 2C) / 5755 MHz - 5795 MHz (UNII 3)
	80 MHz BW:	5210 MHz(UNII 1)/ 5290 MHz(UNII 2A)/ 5530 MHz - 5610 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 - 5700 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 - 5670 MHz (UNII 2C) / 5755 MHz - 5795 MHz (UNII 3)
	80 MHz BW:	5210 MHz(UNII 1)/ 5290 MHz(UNII 2A)/ 5530 MHz - 5610 MHz(UNII 2C)/ 5775 MHz (UNII 3)
<b>Modulation Type</b>	OFDM(802.11a, 802.11n, 802.11ac)	
<b>Antenna Specification</b>	Manufacturer: GALTRONICS LTD. Antenna type: INTERNAL ANTENNA Peak Gain : -1.47 dBi (5180~5240 UNII1 BAND) / -1.70 dBi (5260~5320 UNII2A BAND) -2.53 dBi (5500~5700 UNII2C BAND) / -1.68 dBi (5745~5825 UNII3 BAND)	

### **3. TEST METHODOLOGY**

The measurement procedure described in FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r03 dated August 22, 2016 entitled "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part15, Subpart E" and ANSI C63.10(Version : 2013) 'the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices' 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 3.75 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 D02 v01r03)

#### **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. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2006).

## 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. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4:2014.

All measurement uncertainty values are shown with a coverage factor of  $k = 2$  to indicate a 95 % level of confidence. The measurement data shown herein meets or exceeds the  $U_{\text{CISPR}}$  measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty ( $\pm$ dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.82
Radiated Disturbance (9 kHz ~ 30 MHz)	3.40
Radiated Disturbance (30 MHz ~ 1 GHz)	4.80
Radiated Disturbance (1 GHz ~ 18 GHz)	6.07

## 8. SUMMARY OF TEST RESULTS

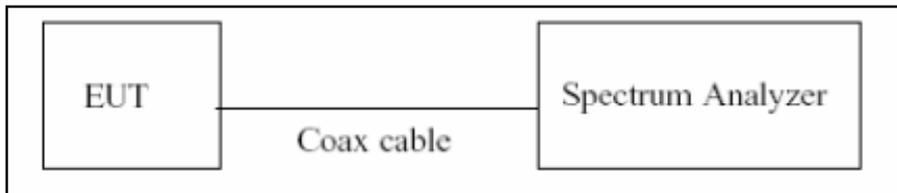
Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
26dB Bandwidth	§15.407 (for Power Measurement)	N/A	CONDUCTED	PASS
6 dB Bandwidth	§15.407(e)	>500 kHz (5725-5850 MHz)		PASS
Maximum Conducted Output Power	§15.407(a)(1)	< 250 mW (5150-5250 MHz) < 250 mW or 11+10 log log <sub>10</sub> (BW) dBm (5250-5350 MHz) < 250 mW or 11+10 log log <sub>10</sub> (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)	N/A		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

## 9. TEST RESULT

### 9.1 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  $RBW \geq EBW$  if possible; otherwise, set RBW to the largest available value. Set  $VBW \geq RBW$ . 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  $T \leq 16.7$  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 v01r03)

The largest available value of RBW is 8 MHz and VBW is 50 MHz. The zero-span method of measuring duty cycle shall not be used if  $T \leq 6.25$  microseconds. ( $50/6.25 = 8$ )

The zero-span method was used because all measured  $T$  data are  $> 6.25$  microseconds and both RBW and VBW are  $> 50/T$ .

1. RBW = 8 MHz (the largest available value)
2. VBW = 8 MHz ( $\geq$  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 =  $10 \cdot \log(1/\text{Duty Cycle})$

■ Duty Cycle Factor

Mode	Data Rate (Mbps)	T <sub>on</sub> (ms)	T <sub>total</sub> (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11a	6	1.432	1.533	0.93399986	0.297
	9	0.959	1.056	0.90802030	0.419
	12	0.730	0.831	0.87810905	0.565
	18	0.493	0.595	0.82795699	0.820
	24	0.375	0.473	0.79458366	0.999
	36	0.256	0.364	0.70362876	1.527
	48	0.200	0.302	0.66262209	1.787
	54	0.180	0.277	0.64814935	1.883
Mode	MCS INDEX	T <sub>on</sub> (ms)	T <sub>total</sub> (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11n_HT20	0	1.340	1.435	0.93375836	0.298
	1	0.688	0.796	0.86512566	0.629
	2	0.471	0.574	0.82156144	0.854
	3	0.364	0.466	0.78032021	1.077
	4	0.256	0.357	0.71641858	1.448
	5	0.200	0.303	0.66162571	1.794
	6	0.184	0.287	0.64271457	1.920
	7	0.168	0.270	0.62076271	2.071
802.11n_HT40	0	0.664	0.754	0.88110403	0.550
	1	0.353	0.443	0.79602888	0.991
	2	0.248	0.350	0.70776256	1.501
	3	0.196	0.292	0.67123288	1.731
	4	0.144	0.240	0.60000000	2.218
	5	0.116	0.213	0.54545455	2.632
	6	0.108	0.199	0.54424779	2.642
	7	0.100	0.191	0.52413793	2.806

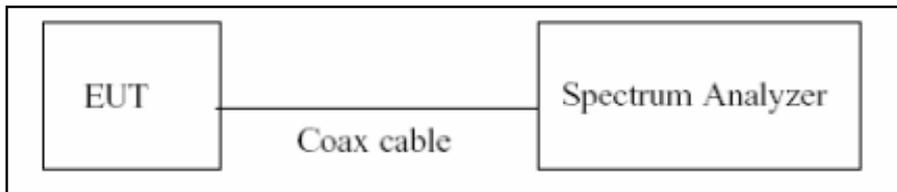
Mode	MCS INDEX	T <sub>on</sub> (ms)	T <sub>total</sub> (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11ac_VHT20	MCS 0	1.346	1.444	0.93206176	0.306
	MCS 1	0.696	0.799	0.87140037	0.598
	MCS 2	0.475	0.572	0.83109910	0.803
	MCS 3	0.368	0.465	0.79143318	1.016
	MCS 4	0.260	0.361	0.71942446	1.430
	MCS 5	0.204	0.301	0.67870722	1.683
	MCS 6	0.188	0.285	0.66064257	1.800
	MCS 7	0.172	0.275	0.62500000	2.041
	MCS 8	0.152	0.249	0.61009174	2.146
802.11ac_VHT40	MCS 0	0.672	0.762	0.88235294	0.544
	MCS 1	0.356	0.451	0.78959885	1.026
	MCS 2	0.252	0.343	0.73504371	1.337
	MCS 3	0.199	0.302	0.66019601	1.803
	MCS 4	0.148	0.239	0.62022844	2.074
	MCS 5	0.120	0.212	0.56774029	2.459
	MCS 6	0.112	0.204	0.54932976	2.602
	MCS 7	0.104	0.195	0.53271205	2.735
	MCS 8	0.096	0.188	0.51338182	2.896
	MCS 9	0.088	0.179	0.49109327	3.088
802.11ac_VHT80	MCS 0	0.332	0.421	0.78859857	1.031
	MCS 1	0.188	0.284	0.66197183	1.792
	MCS 2	0.140	0.236	0.59322034	2.268
	MCS 3	0.116	0.212	0.54716981	2.619
	MCS 4	0.092	0.182	0.50549451	2.963
	MCS 5	0.080	0.172	0.46511628	3.324
	MCS 6	0.076	0.167	0.45508982	3.419
	MCS 7	0.072	0.163	0.44171779	3.549
	MCS 8	0.068	0.158	0.43037975	3.661
	MCS 9	0.064	0.154	0.41558442	3.813

## 9.2 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 v01r03, 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 v01r03)

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.

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.

**■ 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 v01r03)

1. RBW = 100 kHz
2. VBW  $\geq$  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 level 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**

**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	19.64	N/A	Pass
5200	40	19.52	N/A	Pass
5240	48	19.44	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	19.29	N/A	Pass
5300	60	18.98	N/A	Pass
5320	64	19.18	N/A	Pass

**Conducted 26 dB Bandwidth Measurements for 802.11a**

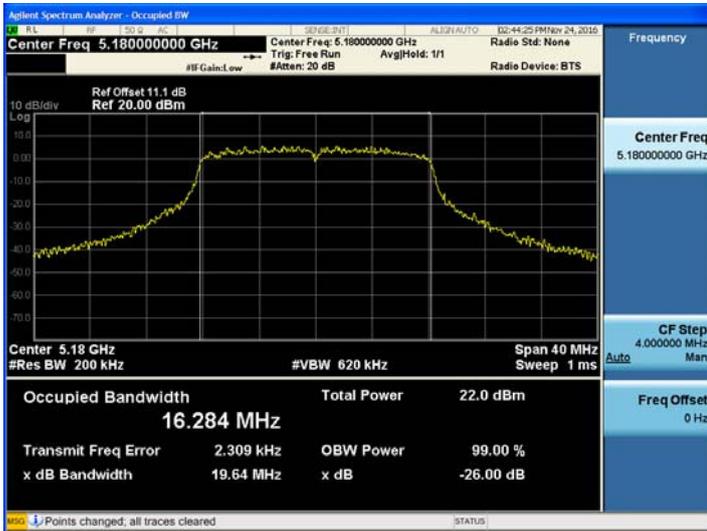
802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5500	100	19.02	N/A	Pass
5580	116	19.10	N/A	Pass
5700	140	19.74	N/A	Pass

**Conducted 26 dB Bandwidth Measurements for 802.11a**

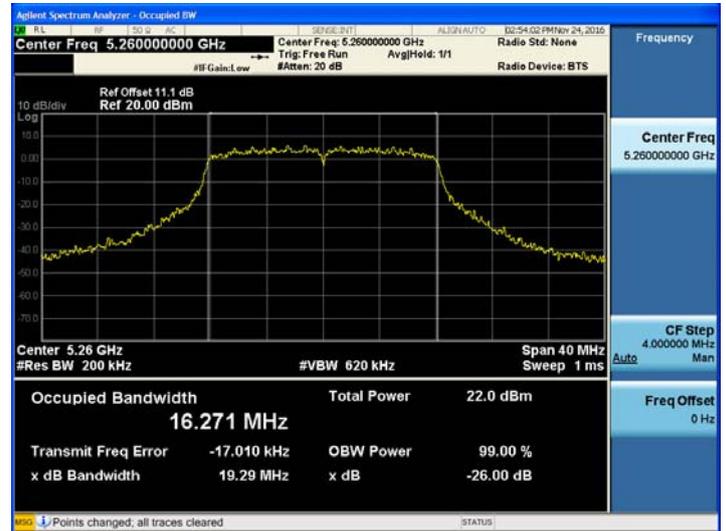
802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	19.02	N/A	Pass
5785	157	19.78	N/A	Pass
5825	165	18.92	N/A	Pass

☐ TEST Plot for 802.11a

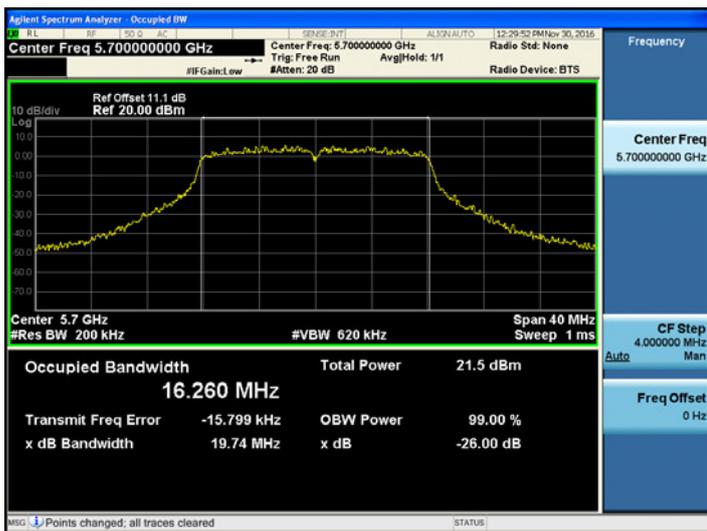
802.11a UNII 1 BAND 26dB Bandwidth (CH36)



802.11a UNII 2A BAND 26dB Bandwidth (CH 52)



802.11a UNII 2C BAND 26dB Bandwidth (CH140)



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\_HT20

Conducted 26 dB Bandwidth Measurements for 802.11n\_HT20

802.11n_HT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5180	36	19.85	N/A	Pass
5200	40	19.89	N/A	Pass
5240	48	19.90	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11n\_HT20

802.11n_HT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5260	52	20.03	N/A	Pass
5300	60	19.90	N/A	Pass
5320	64	19.72	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11n\_HT20

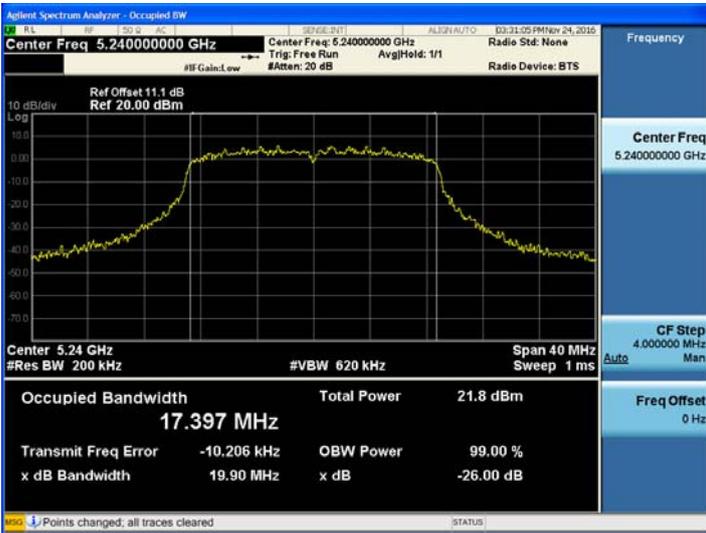
802.11n_HT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5500	100	19.89	N/A	Pass
5580	116	19.65	N/A	Pass
5700	140	19.54	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11n\_HT20

802.11n_HT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	19.89	N/A	Pass
5785	157	20.08	N/A	Pass
5825	165	20.11	N/A	Pass

**TEST Plot for 802.11n\_HT20**

**802.11n\_HT20 UNII 1 BAND 26dB Bandwidth(CH 48)**



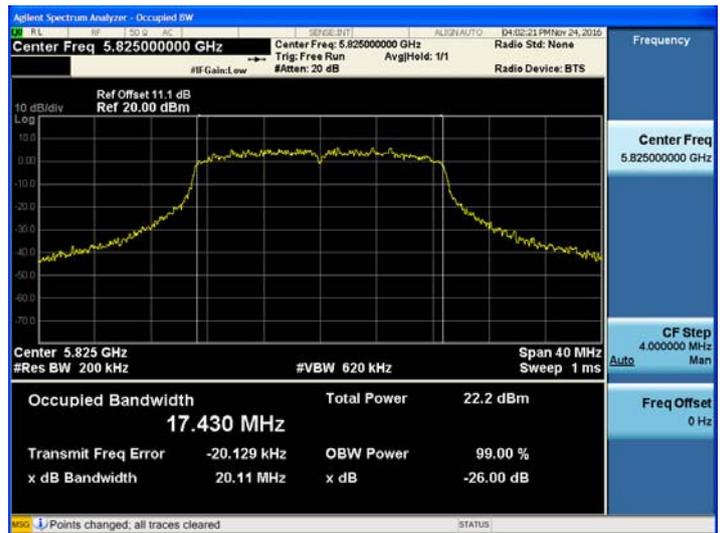
**802.11n\_HT20 UNII 2A BAND 26dB Bandwidth(CH 52)**



**802.11n\_HT20 UNII 2C BAND 26dB Bandwidth(CH 100)**



**802.11n\_HT20 UNII 3 BAND 26dB Bandwidth(CH 165)**



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

■ TEST RESULTS for 802.11ac\_VHT20

Conducted 26 dB Bandwidth Measurements for 802.11ac\_VHT20

802.11ac_VHT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5180	36	19.84	N/A	Pass
5200	40	19.69	N/A	Pass
5240	48	19.79	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac\_VHT20

802.11ac_VHT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5260	52	19.95	N/A	Pass
5300	60	19.73	N/A	Pass
5320	64	19.93	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac\_VHT20

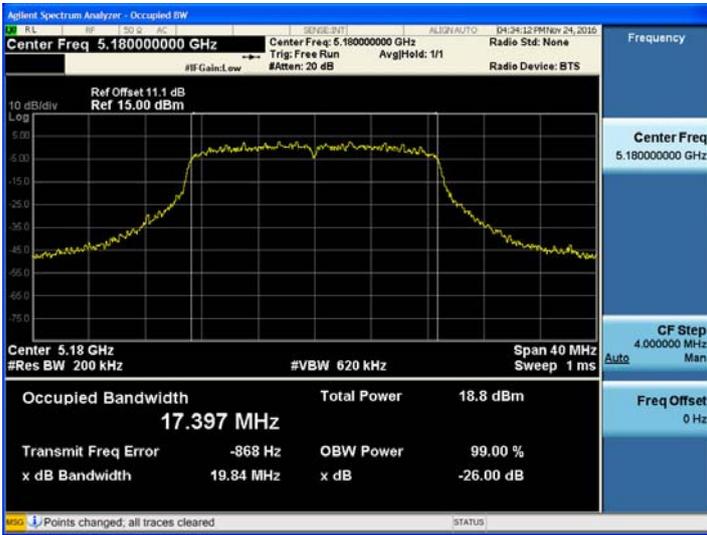
802.11ac_VHT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5500	100	19.82	N/A	Pass
5580	116	19.61	N/A	Pass
5700	140	19.94	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac\_VHT20

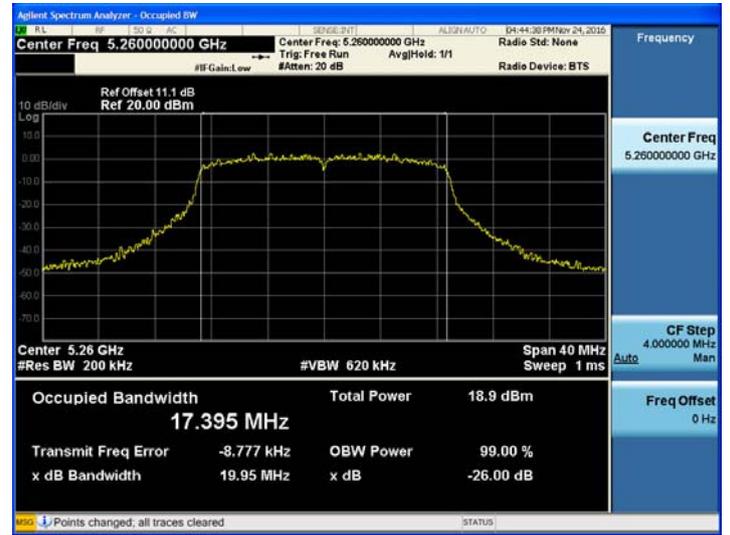
802.11ac_VHT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	20.19	N/A	Pass
5785	157	19.75	N/A	Pass
5825	165	20.04	N/A	Pass

TEST Plot for 802.11ac\_VHT20

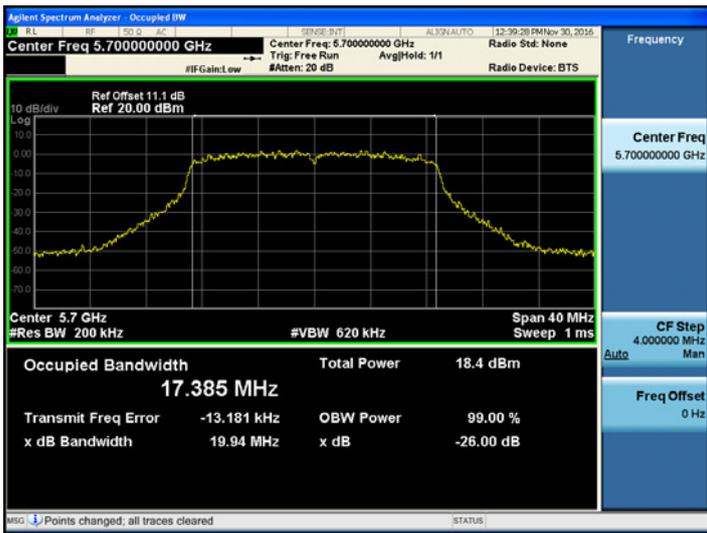
802.11ac\_VHT20 UNII 1 BAND 26dB Bandwidth(CH 36)



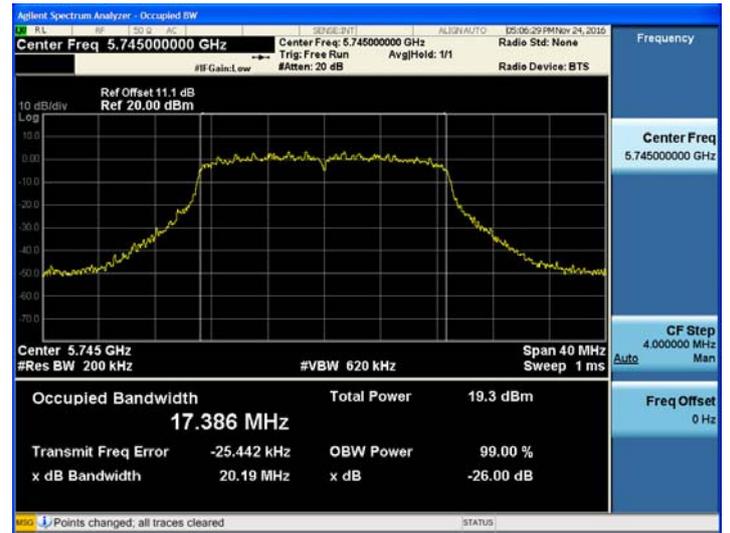
802.11ac\_VHT20 UNII 2A BAND 26dB Bandwidth(CH 52)



802.11ac\_VHT20 UNII 2C BAND 26dB Bandwidth(CH 140)



802.11ac\_VHT20 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\_HT40

Conducted 26 dB Bandwidth Measurements for 802.11n\_HT40

802.11n_HT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5190	38	40.80	N/A	Pass
5230	46	40.57	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11n\_HT40

802.11n_HT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5270	54	40.03	N/A	Pass
5310	62	39.99	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11n\_HT40

802.11n_HT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5510	102	40.49	N/A	Pass
5590	118	40.10	N/A	Pass
5670	134	40.24	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11n\_HT40

802.11n_HT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	40.09	N/A	Pass
5795	159	40.61	N/A	Pass

**TEST Plot for 802.11n\_HT40**

**802.11n\_HT40 UNII 1 BAND 26dB Bandwidth(CH 38)**



**802.11n\_HT40 UNII 2A BAND 26dB Bandwidth (CH 54)**



**802.11n\_HT40 UNII 2C BAND 26dB Bandwidth(CH 102)**



**802.11n\_HT40 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\_VHT40

Conducted 26 dB Bandwidth Measurements for 802.11ac\_VHT40

802.11ac_VHT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5190	38	40.38	N/A	Pass
5230	46	39.88	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac\_VHT40

802.11ac_VHT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5270	54	40.07	N/A	Pass
5310	62	40.01	N/A	Pass

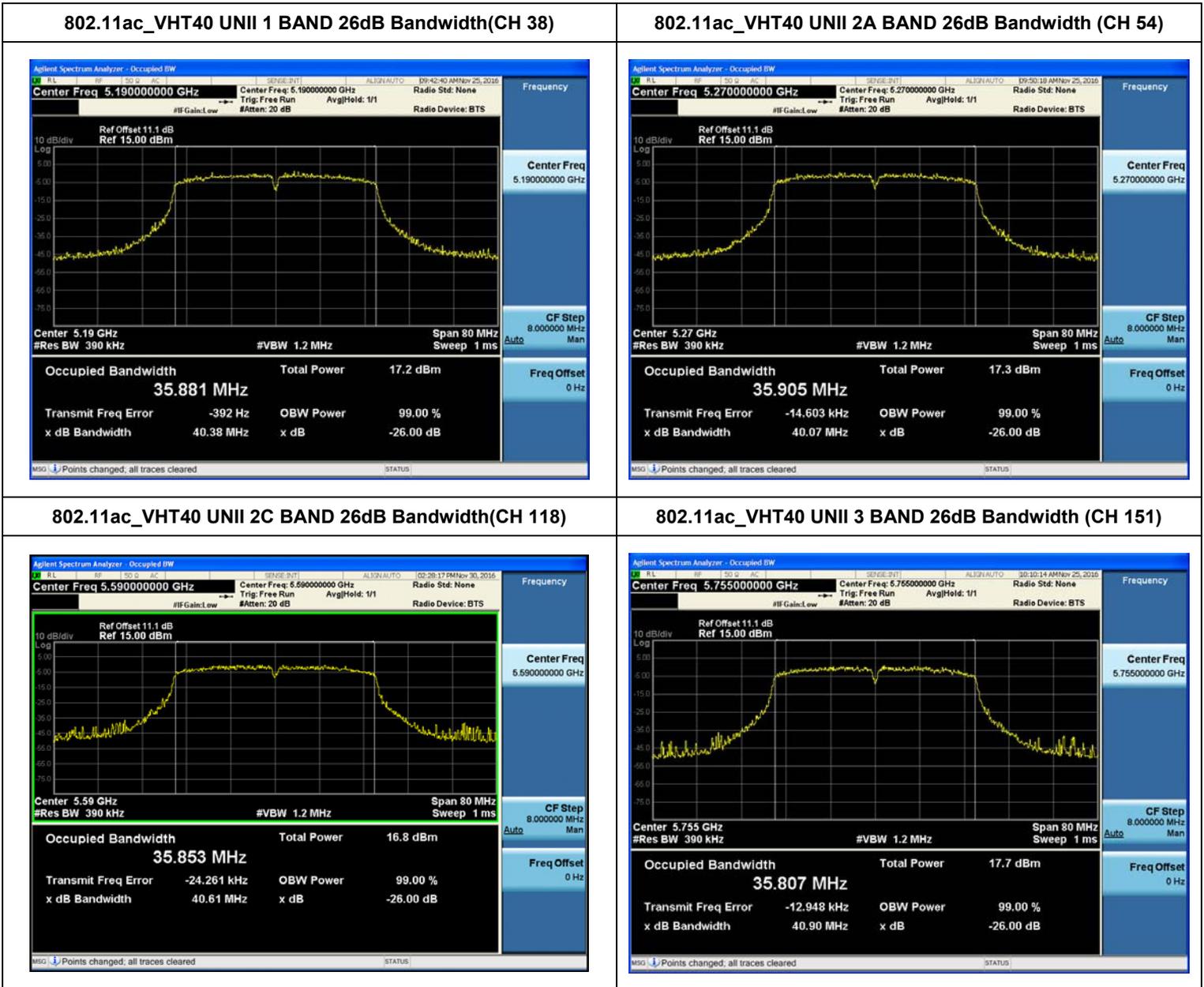
Conducted 26 dB Bandwidth Measurements for 802.11ac\_VHT40

802.11ac_VHT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5510	102	40.45	N/A	Pass
5590	118	40.61	N/A	Pass
5670	134	40.14	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac\_VHT40

802.11ac_VHT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	40.90	N/A	Pass
5795	159	40.51	N/A	Pass

**TEST Plot for 802.11ac\_VHT40**



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

■ **TEST RESULTS for 802.11ac\_VHT80**

Conducted 26 dB Bandwidth Measurements for 802.11ac\_VHT80

802.11ac_VHT80 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5210	42	83.35	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac\_VHT80

802.11ac_VHT80 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5290	58	83.17	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac\_VHT80

802.11ac_VHT80 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5530	106	83.57	N/A	Pass
5610	122	82.90	N/A	Pass

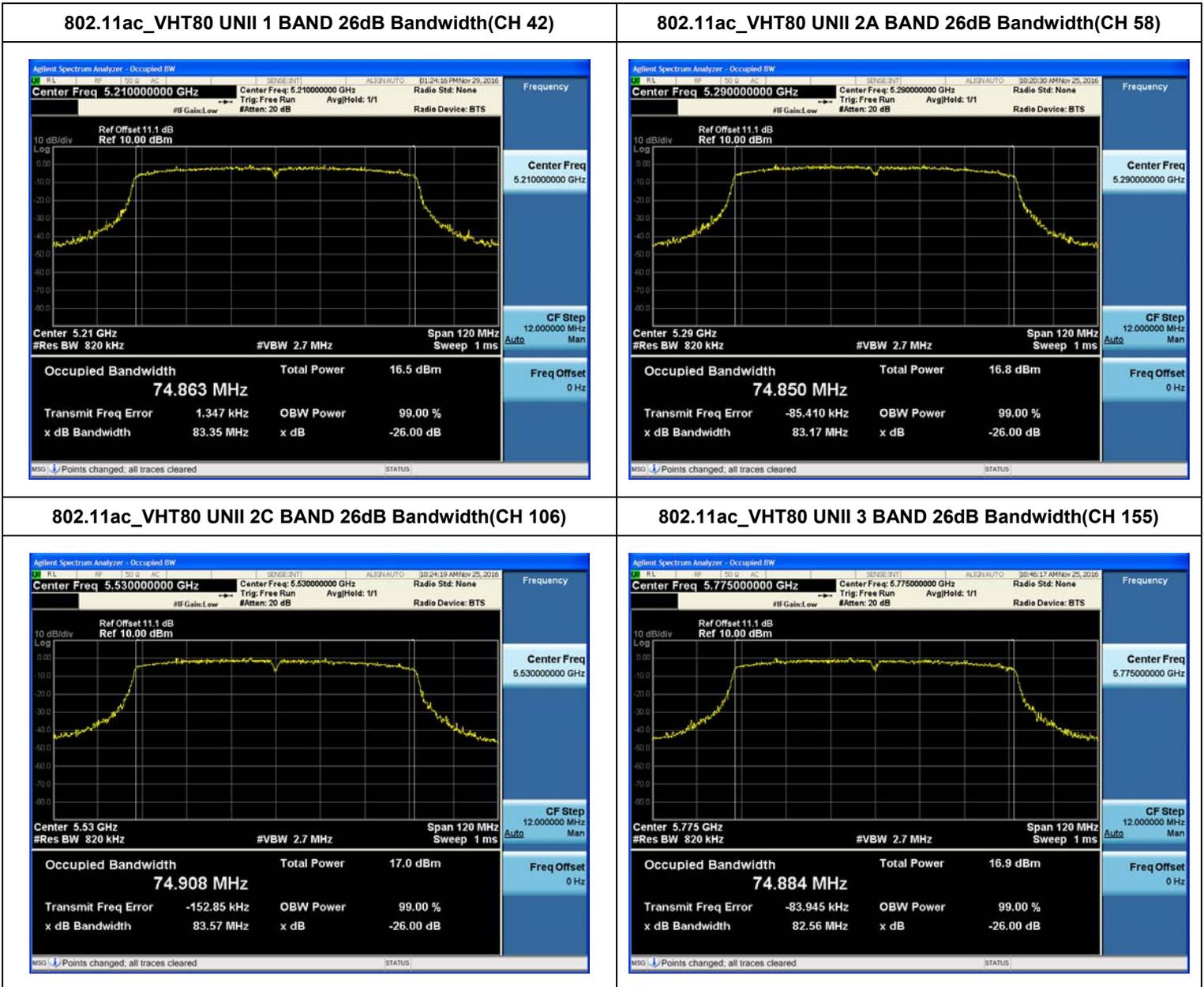
Conducted 26 dB Bandwidth Measurements for 802.11ac\_VHT80

802.11ac_VHT80 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	82.56	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.

**TEST Plot for 802.11ac\_VHT80**



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

■ TEST RESULTS for 802.11a/n\_HT20/ac\_VHT20

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	15.32	0.5	Pass
5785	157	15.14	0.5	Pass
5825	165	15.11	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11n\_HT20

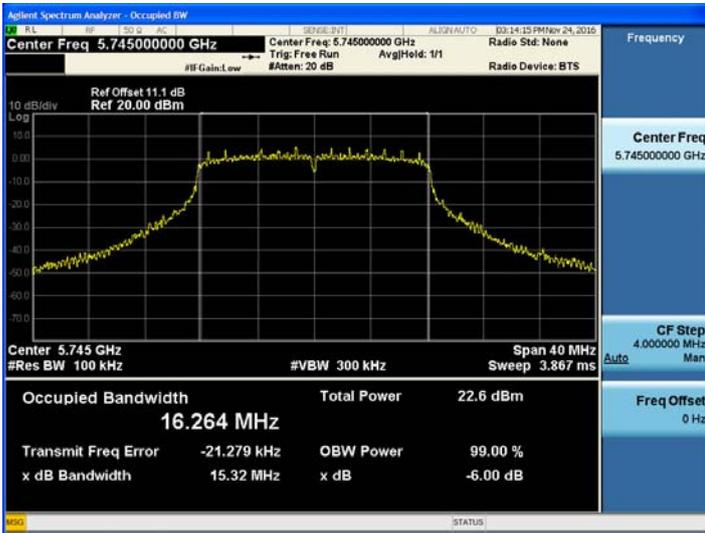
802.11n_HT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	15.18	0.5	Pass
5785	157	15.12	0.5	Pass
5825	165	15.09	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11ac\_VHT20

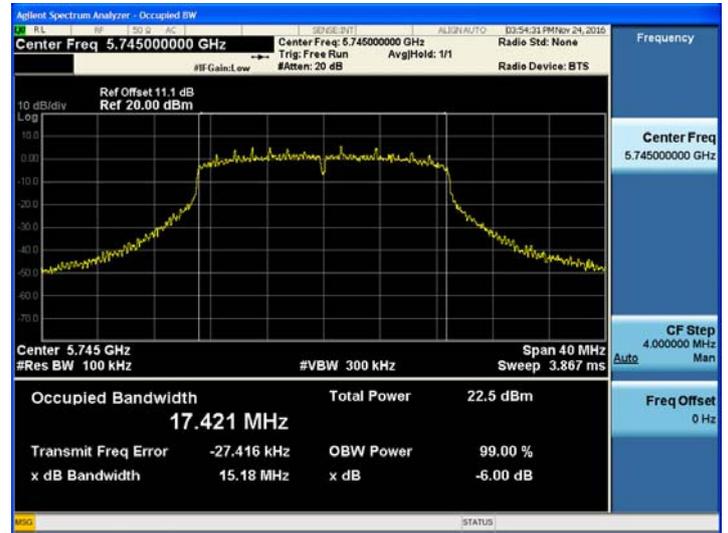
802.11ac_VHT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	15.06	0.5	Pass
5785	157	15.14	0.5	Pass
5825	165	15.15	0.5	Pass

**TEST Plot for 802.11a/n\_HT20/ac\_VHT20**

**802.11a UNII 3 BAND 6dB Bandwidth (CH.149)**



**802.11n\_HT20 UNII 3 BAND 6dB Bandwidth(CH.149)**



**802.11ac\_VHT20 UNII 3 BAND 6dB Bandwidth(CH.165)**



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

■ **TEST RESULTS for 802.11n\_HT40/ac\_VHT40**

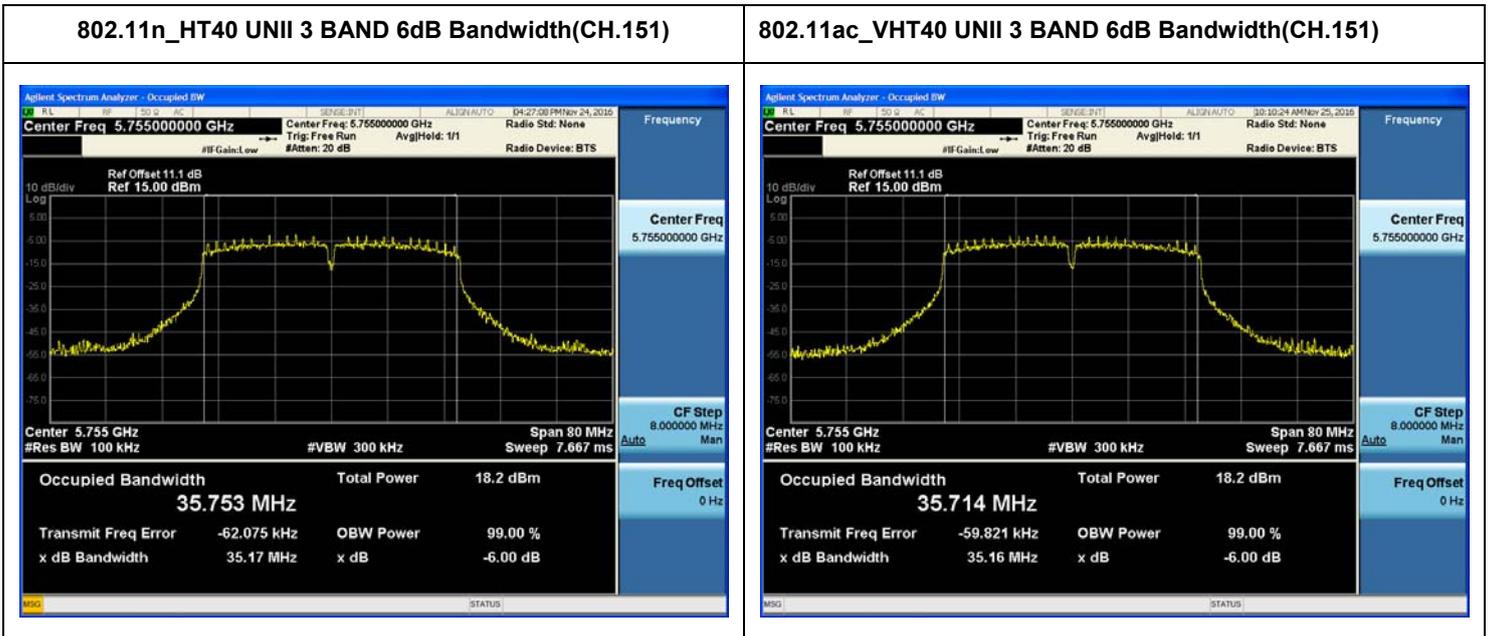
Conducted 6 dB Bandwidth Measurements for 802.11n\_HT40

802.11n_HT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.17	0.5	Pass
5795	159	35.17	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11ac\_VHT40

802.11ac_VHT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.16	0.5	Pass
5795	159	35.16	0.5	Pass

■ **TEST Plot for 802.11n\_HT40/ac\_VHT40**



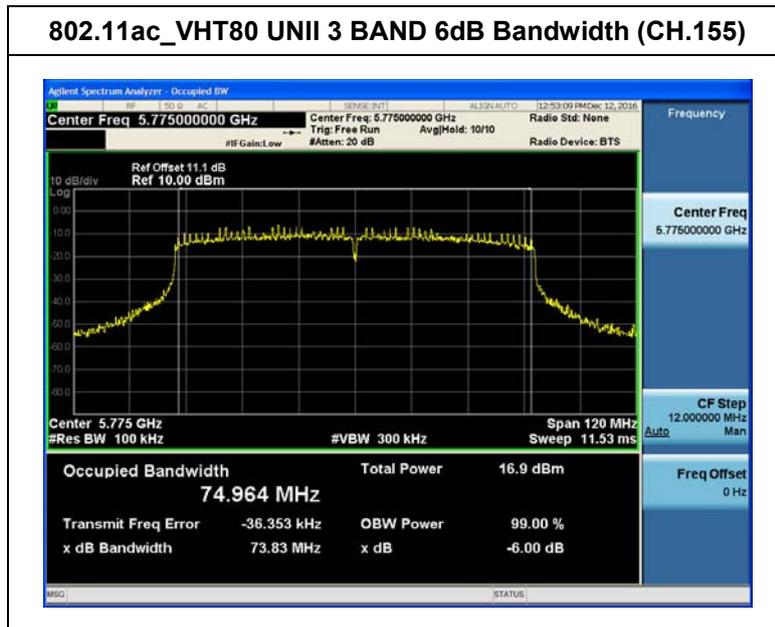
Note : In order to simplify the report, attached plots were only the most wide channel.

■ **TEST RESULTS for 802.11ac\_VHT80**

Conducted 6 dB Bandwidth Measurements for 802.11ac\_VHT80

802.11ac_VHT80 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	73.83	0.5	Pass

■ **TEST Plot for 802.11ac\_VHT80**



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

### 9.3 OUTPUT POWER MEASUREMENT

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

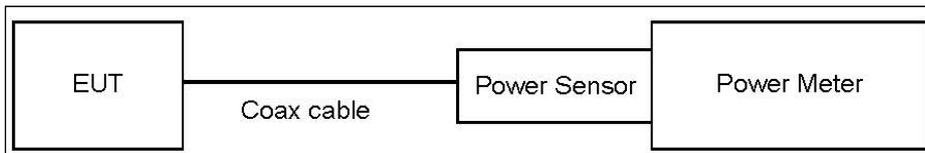
A transmitter antenna terminal of EUT is connected to the input of a Power meter or Spectrum Analyzer .Measurement is made while the EUT is operating in transmission mode at the appropriate frequencies.

#### ■ Limit

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

Note : According to KDB644545 D03 v01, the limit on maximum conducted output power in each U-NII band for straddle channel is computed based on the portion of the emission bandwidth contained within that band.

#### ■ TEST CONFIGURATION(20 MHz BW)



#### ■ TEST PROCEDURE(20 MHz BW)

- Average Power (Procedure E.3.a in KDB 789033 D02 v01r03).
  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.

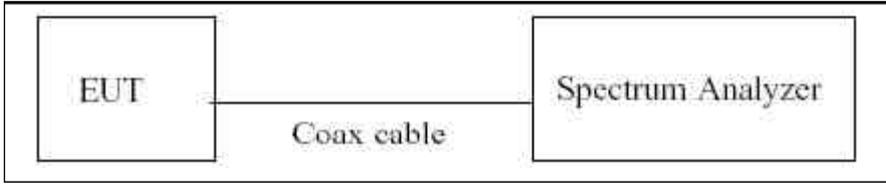
Note :

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

Band	Loss(dB)
UNII 1, 2A, 2C, 3	11.1

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

■ **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 D02 v01r03.

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  $10\log(1/x)$ , where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

■ **Sample Calculation (Conducted)**

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

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	11.1

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

**802.11a (UNII 1)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11a Mode: 5180~5240)**

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.					
5180	36	6	14.93	0.30	15.23	23.98
		9	14.80	0.42	15.22	23.98
		12	14.65	0.56	15.22	23.98
		18	14.46	0.82	15.28	23.98
		24	14.67	1.00	15.67	23.98
		36	14.23	1.53	15.75	23.98
		48	14.04	1.79	15.83	23.98
		54	13.88	1.88	15.76	23.98
5200	40	6	14.79	0.30	15.09	23.98
		9	14.61	0.42	15.03	23.98
		12	14.55	0.56	15.11	23.98
		18	14.37	0.82	15.19	23.98
		24	14.56	1.00	15.55	23.98
		36	14.13	1.53	15.65	23.98
		48	13.83	1.79	15.62	23.98
		54	13.67	1.88	15.56	23.98
5240	48	6	14.86	0.30	15.16	23.98
		9	14.78	0.42	15.20	23.98
		12	14.63	0.56	15.20	23.98
		18	14.39	0.82	15.21	23.98
		24	14.60	1.00	15.60	23.98
		36	14.23	1.53	15.75	23.98
		48	13.95	1.79	15.74	23.98
		54	13.80	1.88	15.68	23.98

**802.11a (UNII 2A)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11a 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	15.05	0.30	15.35	23.98
		9	14.90	0.42	15.32	23.98
		12	14.78	0.56	15.34	23.98
		18	14.64	0.82	15.46	23.98
		24	14.84	1.00	15.84	23.98
		36	14.46	1.53	15.98	23.98
		48	14.05	1.79	15.83	23.98
		54	13.97	1.88	15.86	23.98
5300	60	6	15.09	0.30	15.38	23.98
		9	14.97	0.42	15.39	23.98
		12	14.84	0.56	15.40	23.98
		18	14.64	0.82	15.46	23.98
		24	14.91	1.00	15.91	23.98
		36	14.53	1.53	16.06	23.98
		48	14.15	1.79	15.94	23.98
		54	14.05	1.88	15.93	23.98
5320	64	6	15.11	0.30	15.40	23.98
		9	14.98	0.42	15.40	23.98
		12	14.92	0.56	15.49	23.98
		18	14.69	0.82	15.51	23.98
		24	14.92	1.00	15.92	23.98
		36	14.57	1.53	16.10	23.98
		48	14.17	1.79	15.95	23.98
		54	14.12	1.88	16.01	23.98

**802.11a (UNII 2C)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11a Mode: 5500~5700)**

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	15.68	0.30	15.98	23.98
		9	15.58	0.42	15.99	23.98
		12	15.41	0.56	15.98	23.98
		18	15.22	0.82	16.04	23.98
		24	15.49	1.00	16.49	23.98
		36	15.12	1.53	16.65	23.98
		48	14.84	1.79	16.63	23.98
		54	14.71	1.88	16.60	23.98
5580	116	6	15.79	0.30	16.08	23.98
		9	15.70	0.42	16.12	23.98
		12	15.57	0.56	16.13	23.98
		18	15.39	0.82	16.21	23.98
		24	15.57	1.00	16.57	23.98
		36	15.20	1.53	16.72	23.98
		48	15.02	1.79	16.81	23.98
		54	14.73	1.88	16.61	23.98
5700	140	6	14.49	0.30	14.78	23.98
		9	14.33	0.42	14.75	23.98
		12	14.24	0.56	14.81	23.98
		18	14.04	0.82	14.86	23.98
		24	14.25	1.00	15.25	23.98
		36	13.84	1.53	15.37	23.98
		48	13.56	1.79	15.35	23.98
		54	13.35	1.88	15.23	23.98

**802.11a (UNII 3)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11a Mode: 5745~5825)**

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.					
5745	149	6	15.29	0.30	15.59	30
		9	15.16	0.42	15.58	30
		12	15.16	0.56	15.72	30
		18	14.88	0.82	15.70	30
		24	15.06	1.00	16.05	30
		36	14.17	1.53	15.69	30
		48	14.36	1.79	16.15	30
		54	14.25	1.88	16.13	30
5785	157	6	15.90	0.30	16.20	30
		9	15.51	0.42	15.93	30
		12	15.40	0.56	15.96	30
		18	15.22	0.82	16.04	30
		24	15.40	1.00	16.40	30
		36	14.97	1.53	16.49	30
		48	14.74	1.79	16.53	30
		54	14.54	1.88	16.43	30
5825	165	6	15.44	0.30	15.73	30
		9	15.37	0.42	15.79	30
		12	15.17	0.56	15.74	30
		18	14.97	0.82	15.79	30
		24	15.16	1.00	16.16	30
		36	14.77	1.53	16.30	30
		48	14.52	1.79	16.30	30
		54	14.35	1.88	16.23	30

**802.11n\_HT20 (UNII 1)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11n\_HT20 Mode: 5180~5240)**

802.11n_HT20 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5180	36	0	14.67	0.30	14.96	23.98
		1	14.45	0.63	15.08	23.98
		2	14.26	0.85	15.11	23.98
		3	14.65	1.08	15.73	23.98
		4	14.29	1.45	15.74	23.98
		5	14.04	1.79	15.83	23.98
		6	13.91	1.92	15.83	23.98
		7	13.76	2.07	15.83	23.98
5200	40	0	14.55	0.30	14.84	23.98
		1	14.37	0.63	15.00	23.98
		2	14.09	0.85	14.94	23.98
		3	14.51	1.08	15.59	23.98
		4	14.16	1.45	15.61	23.98
		5	13.77	1.79	15.56	23.98
		6	13.80	1.92	15.72	23.98
		7	13.63	2.07	15.70	23.98
5240	48	0	14.59	0.30	14.89	23.98
		1	14.38	0.63	15.00	23.98
		2	14.17	0.85	15.02	23.98
		3	14.53	1.08	15.61	23.98
		4	14.25	1.45	15.70	23.98
		5	13.96	1.79	15.75	23.98
		6	13.90	1.92	15.82	23.98
		7	13.67	2.07	15.74	23.98

**802.11n\_HT20 (UNII 2A)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11n\_HT20 Mode: 5260~5320)**

802.11n_HT20 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5260	52	0	14.87	0.30	15.17	23.98
		1	14.64	0.63	15.27	23.98
		2	14.41	0.85	15.27	23.98
		3	14.83	1.08	15.91	23.98
		4	14.44	1.45	15.89	23.98
		5	14.19	1.79	15.98	23.98
		6	14.09	1.92	16.01	23.98
		7	13.96	2.07	16.03	23.98
5300	60	0	14.88	0.30	15.17	23.98
		1	14.64	0.63	15.27	23.98
		2	14.38	0.85	15.23	23.98
		3	14.86	1.08	15.94	23.98
		4	14.52	1.45	15.97	23.98
		5	14.24	1.79	16.04	23.98
		6	14.09	1.92	16.01	23.98
		7	13.98	2.07	16.05	23.98
5320	64	0	14.90	0.30	15.20	23.98
		1	14.71	0.63	15.34	23.98
		2	14.47	0.85	15.32	23.98
		3	14.92	1.08	15.99	23.98
		4	14.52	1.45	15.96	23.98
		5	14.25	1.79	16.04	23.98
		6	14.18	1.92	16.10	23.98
		7	14.00	2.07	16.07	23.98

**802.11n\_HT20 (UNII 2C)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11n\_HT20 Mode: 5500~5700)**

802.11n_HT20 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5500	100	0	15.47	0.30	15.77	23.98
		1	15.25	0.63	15.88	23.98
		2	15.07	0.85	15.93	23.98
		3	15.47	1.08	16.55	23.98
		4	15.18	1.45	16.63	23.98
		5	14.82	1.79	16.61	23.98
		6	14.69	1.92	16.61	23.98
		7	14.60	2.07	16.67	23.98
5580	116	0	15.60	0.30	15.90	23.98
		1	15.38	0.63	16.01	23.98
		2	15.13	0.85	15.99	23.98
		3	15.57	1.08	16.64	23.98
		4	15.19	1.45	16.64	23.98
		5	14.90	1.79	16.70	23.98
		6	14.82	1.92	16.74	23.98
		7	14.67	2.07	16.74	23.98
5700	140	0	14.23	0.30	14.53	23.98
		1	13.97	0.63	14.60	23.98
		2	13.79	0.85	14.65	23.98
		3	14.21	1.08	15.28	23.98
		4	13.83	1.45	15.28	23.98
		5	13.50	1.79	15.30	23.98
		6	13.40	1.92	15.32	23.98
		7	13.33	2.07	15.40	23.98

**802.11n\_HT20 (UNII 3)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11n\_HT20 Mode: 5745~5825)**

802.11n_HT20 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	0	15.06	0.30	15.35	30
		1	14.90	0.63	15.53	30
		2	14.61	0.85	15.46	30
		3	15.03	1.08	16.10	30
		4	14.66	1.45	16.11	30
		5	14.41	1.79	16.20	30
		6	14.27	1.92	16.19	30
		7	14.10	2.07	16.17	30
5785	157	0	15.50	0.30	15.79	30
		1	15.22	0.63	15.85	30
		2	15.03	0.85	15.88	30
		3	15.33	1.08	16.40	30
		4	15.01	1.45	16.46	30
		5	14.62	1.79	16.41	30
		6	14.57	1.92	16.49	30
		7	14.41	2.07	16.48	30
5825	165	0	15.21	0.30	15.51	30
		1	14.97	0.63	15.60	30
		2	14.76	0.85	15.62	30
		3	15.15	1.08	16.23	30
		4	14.76	1.45	16.20	30
		5	14.48	1.79	16.27	30
		6	14.41	1.92	16.33	30
		7	14.27	2.07	16.34	30

**802.11ac\_VHT20 (UNII 1)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11ac\_VHT20 Mode: 5180~5240)**

802.11ac_VHT20 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5180	36	0	11.68	0.31	11.99	23.98
		1	11.48	0.60	12.08	23.98
		2	11.28	0.80	12.08	23.98
		3	11.69	1.02	12.71	23.98
		4	11.40	1.43	12.83	23.98
		5	11.08	1.68	12.76	23.98
		6	10.95	1.80	12.75	23.98
		7	10.87	2.04	12.91	23.98
		8	10.61	2.15	12.76	23.98
5200	40	0	11.71	0.31	12.01	23.98
		1	11.42	0.60	12.02	23.98
		2	11.24	0.80	12.04	23.98
		3	11.72	1.02	12.73	23.98
		4	11.45	1.43	12.88	23.98
		5	11.15	1.68	12.83	23.98
		6	10.84	1.80	12.64	23.98
		7	10.81	2.04	12.86	23.98
		8	10.59	2.15	12.73	23.98
5240	48	0	11.66	0.31	11.97	23.98
		1	11.49	0.60	12.09	23.98
		2	11.23	0.80	12.03	23.98
		3	11.79	1.02	12.80	23.98
		4	11.45	1.43	12.88	23.98
		5	11.17	1.68	12.85	23.98
		6	11.05	1.80	12.85	23.98
		7	10.87	2.04	12.91	23.98
		8	10.72	2.15	12.86	23.98

**802.11ac\_VHT20 (UNII 2A)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11ac\_VHT20 Mode: 5260~5320)**

802.11ac_VHT20 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5260	52	0	11.79	0.31	12.10	23.98
		1	11.65	0.60	12.25	23.98
		2	11.43	0.80	12.23	23.98
		3	11.91	1.02	12.92	23.98
		4	11.60	1.43	13.03	23.98
		5	11.26	1.68	12.94	23.98
		6	11.13	1.80	12.93	23.98
		7	11.02	2.04	13.06	23.98
5300	60	0	11.90	0.31	12.20	23.98
		1	11.70	0.60	12.30	23.98
		2	11.45	0.80	12.25	23.98
		3	11.98	1.02	13.00	23.98
		4	11.74	1.43	13.17	23.98
		5	11.30	1.68	12.98	23.98
		6	11.27	1.80	13.07	23.98
		7	11.06	2.04	13.10	23.98
5320	64	0	11.94	0.31	12.24	23.98
		1	11.79	0.60	12.38	23.98
		2	11.59	0.80	12.39	23.98
		3	12.11	1.02	13.12	23.98
		4	11.69	1.43	13.12	23.98
		5	11.46	1.68	13.15	23.98
		6	11.37	1.80	13.17	23.98
		7	11.23	2.04	13.28	23.98
		8	11.01	2.15	13.15	23.98

**802.11ac\_VHT20 (UNII 2C)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11ac\_VHT20 Mode: 5500~5700)**

802.11ac_VHT20 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5500	100	0	12.53	0.31	12.84	23.98
		1	12.26	0.60	12.86	23.98
		2	12.06	0.80	12.87	23.98
		3	12.59	1.02	13.61	23.98
		4	12.23	1.43	13.66	23.98
		5	11.91	1.68	13.59	23.98
		6	11.85	1.80	13.65	23.98
		7	11.68	2.04	13.72	23.98
		8	11.51	2.15	13.65	23.98
5580	116	0	12.63	0.31	12.94	23.98
		1	12.39	0.60	12.99	23.98
		2	12.18	0.80	12.98	23.98
		3	12.73	1.02	13.75	23.98
		4	12.38	1.43	13.81	23.98
		5	12.12	1.68	13.80	23.98
		6	12.00	1.80	13.80	23.98
		7	11.85	2.04	13.89	23.98
		8	11.66	2.15	13.80	23.98
5700	140	0	11.34	0.31	11.65	23.98
		1	11.13	0.60	11.73	23.98
		2	10.83	0.80	11.64	23.98
		3	11.43	1.02	12.45	23.98
		4	11.02	1.43	12.45	23.98
		5	10.79	1.68	12.48	23.98
		6	10.62	1.80	12.42	23.98
		7	10.49	2.04	12.53	23.98
		8	10.34	2.15	12.48	23.98

**802.11ac\_VHT20 (UNII 3)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11ac\_VHT20 Mode: 5745~5825)**

802.11ac_VHT20 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	0	12.11	0.31	12.42	30
		1	11.96	0.60	12.55	30
		2	11.69	0.80	12.49	30
		3	12.20	1.02	13.22	30
		4	11.78	1.43	13.21	30
		5	11.60	1.68	13.28	30
		6	11.42	1.80	13.22	30
		7	11.27	2.04	13.31	30
		8	11.06	2.15	13.20	30
5785	157	0	12.54	0.31	12.85	30
		1	12.29	0.60	12.88	30
		2	12.06	0.80	12.86	30
		3	12.58	1.02	13.60	30
		4	12.20	1.43	13.63	30
		5	11.91	1.68	13.60	30
		6	11.75	1.80	13.55	30
		7	11.69	2.04	13.73	30
		8	11.44	2.15	13.58	30
5825	165	0	12.25	0.31	12.56	30
		1	12.01	0.60	12.60	30
		2	11.78	0.80	12.59	30
		3	12.27	1.02	13.29	30
		4	11.97	1.43	13.40	30
		5	11.60	1.68	13.29	30
		6	11.55	1.80	13.35	30
		7	11.41	2.04	13.45	30
		8	11.24	2.15	13.39	30

**802.11n\_HT40 (UNII 1)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11n\_HT40 Mode: 5190~5230)**

802.11n_HT40 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5190	38	0	9.95	0.55	10.50	23.98
		1	9.51	0.99	10.50	23.98
		2	9.13	1.50	10.63	23.98
		3	8.88	1.73	10.61	23.98
		4	8.42	2.22	10.64	23.98
		5	7.98	2.63	10.62	23.98
		6	7.90	2.64	10.54	23.98
		7	7.74	2.81	10.54	23.98
5230	46	0	9.84	0.55	10.39	23.98
		1	9.31	0.99	10.30	23.98
		2	8.96	1.50	10.46	23.98
		3	8.75	1.73	10.48	23.98
		4	8.25	2.22	10.47	23.98
		5	7.80	2.63	10.43	23.98
		6	7.71	2.64	10.36	23.98
		7	7.54	2.81	10.35	23.98

**802.11n\_HT40 (UNII 2A)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11n\_HT40 Mode: 5270~5310)**

802.11n_HT40 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5270	54	0	10.24	0.55	10.79	23.98
		1	9.69	0.99	10.68	23.98
		2	9.27	1.50	10.78	23.98
		3	9.17	1.73	10.91	23.98
		4	8.68	2.22	10.90	23.98
		5	8.21	2.63	10.85	23.98
		6	8.18	2.64	10.82	23.98
		7	7.96	2.81	10.76	23.98
5310	62	0	10.11	0.55	10.66	23.98
		1	9.76	0.99	10.75	23.98
		2	9.37	1.50	10.87	23.98
		3	9.16	1.73	10.89	23.98
		4	8.68	2.22	10.90	23.98
		5	8.15	2.63	10.78	23.98
		6	8.07	2.64	10.71	23.98
		7	7.98	2.81	10.78	23.98

**802.11n\_HT40 (UNII 2C)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11n\_HT40 Mode: 5510~5670)**

802.11n_HT40 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5510	102	0	10.73	0.55	11.28	23.98
		1	10.27	0.99	11.26	23.98
		2	9.89	1.50	11.39	23.98
		3	9.68	1.73	11.41	23.98
		4	9.18	2.22	11.40	23.98
		5	8.78	2.63	11.41	23.98
		6	8.64	2.64	11.28	23.98
		7	8.50	2.81	11.30	23.98
5590	118	0	9.54	0.55	10.08	23.98
		1	9.08	0.99	10.07	23.98
		2	8.71	1.50	10.21	23.98
		3	8.49	1.73	10.22	23.98
		4	8.02	2.22	10.23	23.98
		5	7.63	2.63	10.26	23.98
		6	7.48	2.64	10.13	23.98
		7	7.30	2.81	10.11	23.98
5670	134	0	9.41	0.55	9.96	23.98
		1	9.01	0.99	10.00	23.98
		2	8.68	1.50	10.18	23.98
		3	8.41	1.73	10.14	23.98
		4	7.90	2.22	10.12	23.98
		5	7.51	2.63	10.14	23.98
		6	7.39	2.64	10.03	23.98
		7	7.24	2.81	10.05	23.98

**802.11n\_HT40 (UNII 3)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11n\_HT40 Mode: 5755~5795)**

802.11n_HT40 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5755	151	0	10.45	0.55	11.00	30
		1	9.91	0.99	10.90	30
		2	9.50	1.50	11.00	30
		3	9.24	1.73	10.97	30
		4	8.79	2.22	11.01	30
		5	8.42	2.63	11.06	30
		6	8.20	2.64	10.84	30
		7	8.08	2.81	10.89	30
5795	159	0	10.69	0.55	11.24	30
		1	10.27	0.99	11.26	30
		2	9.84	1.50	11.34	30
		3	9.61	1.73	11.34	30
		4	9.15	2.22	11.36	30
		5	8.72	2.63	11.35	30
		6	8.62	2.64	11.26	30
		7	8.42	2.81	11.23	30

■ TEST Plot \_802.11n\_HT40

**802.11n\_HT40 UNII 1 BAND Average Power  
(5190 MHz ~5230 MHz) CH 38 MCS4**



**802.11n\_HT40 UNII 2A BAND Average Power  
(5270 MHz ~5310 MHz) CH 54 MCS3**



**802.11n\_HT40 UNII 2C BAND Average Power  
(5510 MHz ~5670 MHz) CH 102 MCS5**



**802.11n\_HT40 UNII 3 BAND Average Power  
(5755 MHz ~5795 MHz) CH 159 MCS4**



**802.11ac\_VHT40 (UNII 1)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11ac\_VHT40 Mode: 5190~5230)**

802.11ac_VHT40 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5190	38	0	9.88	0.54	10.42	23.98
		1	9.42	1.03	10.45	23.98
		2	9.05	1.34	10.39	23.98
		3	8.79	1.80	10.60	23.98
		4	8.39	2.07	10.47	23.98
		5	7.95	2.46	10.41	23.98
		6	7.86	2.60	10.46	23.98
		7	7.73	2.74	10.46	23.98
		8	7.60	2.90	10.49	23.98
		9	7.36	3.09	10.45	23.98
5230	46	0	9.71	0.54	10.25	23.98
		1	9.23	1.03	10.25	23.98
		2	8.83	1.34	10.17	23.98
		3	8.58	1.80	10.38	23.98
		4	8.21	2.07	10.28	23.98
		5	7.85	2.46	10.31	23.98
		6	7.64	2.60	10.24	23.98
		7	7.50	2.74	10.23	23.98
		8	7.29	2.90	10.19	23.98
		9	7.22	3.09	10.31	23.98

**802.11ac\_VHT40 (UNII 2A)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11ac\_VHT40 Mode: 5270~5310)**

802.11ac_VHT40 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5270	54	0	10.15	0.54	10.69	23.98
		1	9.66	1.03	10.69	23.98
		2	9.32	1.34	10.66	23.98
		3	9.19	1.80	10.99	23.98
		4	8.67	2.07	10.74	23.98
		5	8.26	2.46	10.72	23.98
		6	8.08	2.60	10.68	23.98
		7	8.01	2.74	10.74	23.98
		8	7.83	2.90	10.72	23.98
		9	7.66	3.09	10.75	23.98
5310	62	0	10.15	0.54	10.69	23.98
		1	9.68	1.03	10.71	23.98
		2	9.27	1.34	10.61	23.98
		3	9.12	1.80	10.92	23.98
		4	8.63	2.07	10.70	23.98
		5	8.25	2.46	10.71	23.98
		6	8.13	2.60	10.73	23.98
		7	8.01	2.74	10.75	23.98
		8	7.84	2.90	10.73	23.98
		9	7.58	3.09	10.67	23.98

**802.11ac\_VHT40 (UNII 2C)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11ac\_VHT40 Mode: 5510~5670)**

802.11ac_VHT40 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5510	102	0	10.75	0.54	11.29	23.98
		1	10.29	1.03	11.31	23.98
		2	9.92	1.34	11.26	23.98
		3	9.63	1.80	11.43	23.98
		4	9.23	2.07	11.30	23.98
		5	8.87	2.46	11.33	23.98
		6	8.76	2.60	11.36	23.98
		7	8.59	2.74	11.33	23.98
		8	8.47	2.90	11.36	23.98
		9	8.22	3.09	11.31	23.98
5590	118	0	9.54	0.54	10.09	23.98
		1	9.07	1.03	10.09	23.98
		2	8.71	1.34	10.05	23.98
		3	8.56	1.80	10.36	23.98
		4	8.07	2.07	10.15	23.98
		5	7.72	2.46	10.17	23.98
		6	7.56	2.60	10.16	23.98
		7	7.44	2.74	10.17	23.98
		8	7.24	2.90	10.14	23.98
		9	7.07	3.09	10.15	23.98
5670	134	0	9.45	0.54	10.00	23.98
		1	8.96	1.03	9.98	23.98
		2	8.57	1.34	9.91	23.98
		3	8.37	1.80	10.18	23.98
		4	8.00	2.07	10.08	23.98
		5	7.62	2.46	10.08	23.98
		6	7.48	2.60	10.09	23.98
		7	7.34	2.74	10.08	23.98
		8	7.17	2.90	10.07	23.98
		9	7.01	3.09	10.10	23.98

**802.11ac\_VHT40 (UNII 3)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11ac\_VHT40 Mode: 5755~5795)**

802.11ac_VHT40 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5755	151	0	10.41	0.54	10.95	30
		1	9.90	1.03	10.92	30
		2	9.51	1.34	10.85	30
		3	9.28	1.80	11.08	30
		4	8.84	2.07	10.91	30
		5	8.49	2.46	10.95	30
		6	8.24	2.60	10.84	30
		7	8.17	2.74	10.90	30
		8	8.01	2.90	10.91	30
		9	7.75	3.09	10.84	30
5795	159	0	10.77	0.54	11.31	30
		1	10.29	1.03	11.32	30
		2	9.82	1.34	11.16	30
		3	9.66	1.80	11.47	30
		4	9.20	2.07	11.28	30
		5	8.79	2.46	11.25	30
		6	8.65	2.60	11.26	30
		7	8.55	2.74	11.28	30
		8	8.34	2.90	11.23	30
		9	8.21	3.09	11.30	30

■ TEST Plot \_802.11ac\_VHT40

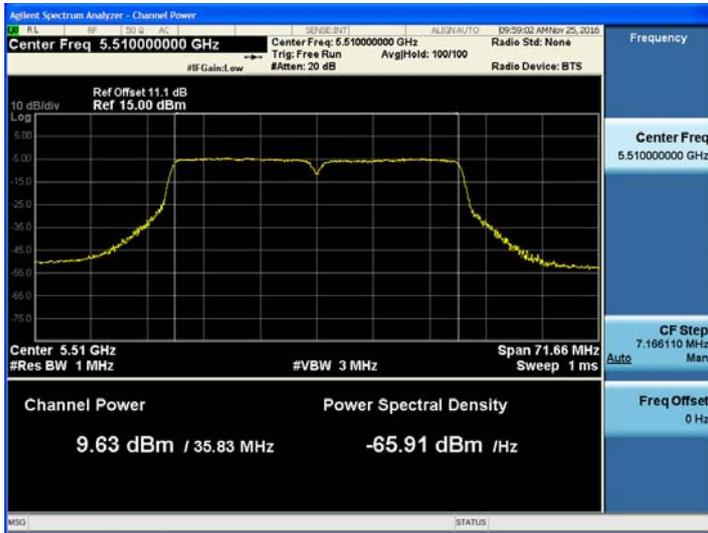
**802.11ac\_VHT40 UNII 1 BAND Average Power  
(5190 MHz ~5230 MHz) CH 38 MCS3**



**802.11ac\_VHT40 UNII 2A BAND Average Power  
(5270 MHz ~5310 MHz) CH 54 MCS3**



**802.11ac\_VHT40 UNII 2C BAND Average Power  
(5510 MHz ~5670 MHz) CH 102 MCS3**



**802.11ac\_VHT40 UNII 3 BAND Average Power  
(5755 MHz ~5795 MHz) CH 159 MCS3**



**802.11ac\_VHT80 (UNII 1)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11ac\_VHT80 Mode: 5210)**

802.11ac_VHT80 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5210	42	0	8.14	1.03	9.17	23.98
		1	7.46	1.79	9.25	23.98
		2	6.98	2.27	9.24	23.98
		3	6.86	2.62	9.48	23.98
		4	6.44	2.96	9.40	23.98
		5	6.10	3.32	9.43	23.98
		6	5.96	3.42	9.37	23.98
		7	5.92	3.55	9.47	23.98
		8	5.74	3.66	9.40	23.98
		9	5.67	3.81	9.48	23.98

**802.11ac\_VHT80 (UNII 2A)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11ac\_VHT80 Mode: 5290)**

802.11ac_VHT80 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5290	58	0	8.44	1.03	9.47	23.98
		1	7.77	1.79	9.56	23.98
		2	7.29	2.27	9.56	23.98
		3	7.10	2.62	9.72	23.98
		4	6.64	2.96	9.61	23.98
		5	6.34	3.32	9.67	23.98
		6	6.17	3.42	9.59	23.98
		7	6.09	3.55	9.64	23.98
		8	5.91	3.66	9.57	23.98
		9	5.79	3.81	9.61	23.98

**802.11ac\_VHT80 (UNII 2C)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11ac\_VHT80 Mode: 5530 ~ 5610 MHz)**

802.11ac_VHT80 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5530	106	0	8.48	1.03	9.51	23.98
		1	7.77	1.79	9.56	23.98
		2	7.40	2.27	9.67	23.98
		3	7.21	2.62	9.83	23.98
		4	6.78	2.96	9.74	23.98
		5	6.51	3.32	9.83	23.98
		6	6.31	3.42	9.73	23.98
		7	6.23	3.55	9.78	23.98
		8	6.09	3.66	9.75	23.98
		9	5.91	3.81	9.73	23.98
5610	122	0	8.15	1.03	9.18	23.98
		1	7.44	1.79	9.23	23.98
		2	7.02	2.27	9.29	23.98
		3	6.91	2.62	9.53	23.98
		4	6.44	2.96	9.40	23.98
		5	6.11	3.32	9.43	23.98
		6	5.99	3.42	9.41	23.98
		7	5.87	3.55	9.42	23.98
		8	5.65	3.66	9.31	23.98
		9	5.55	3.81	9.36	23.98

**802.11ac\_VHT80 (UNII 3)**

**■ TEST RESULTS**

**Conducted Output Power Measurements (802.11ac\_VHT80 Mode: 5775 MHz)**

802.11ac_VHT80 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5775	155	0	8.42	1.03	9.45	30
		1	7.73	1.79	9.52	30
		2	7.25	2.27	9.51	30
		3	7.10	2.62	9.72	30
		4	6.62	2.96	9.58	30
		5	6.27	3.32	9.60	30
		6	6.17	3.42	9.59	30
		7	5.97	3.55	9.52	30
		8	5.88	3.66	9.54	30
		9	5.74	3.81	9.55	30

■ TEST Plot for 802.11ac\_VHT80

**802.11ac\_VHT80 UNII 1 BAND Average Power  
(5210 MHz) CH 42 MCS3**



**802.11ac\_VHT80 UNII 2A BAND Average Power  
(5290 MHz) CH 58 MCS3**



**802.11ac\_VHT80 UNII 2C BAND Average Power  
(5530 ~ 5610 MHz) CH 106 MCS3**



**802.11ac\_VHT80 UNII 3 BAND Average Power  
(5775 MHz) CH 155 MCS3**



## 9.4 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.

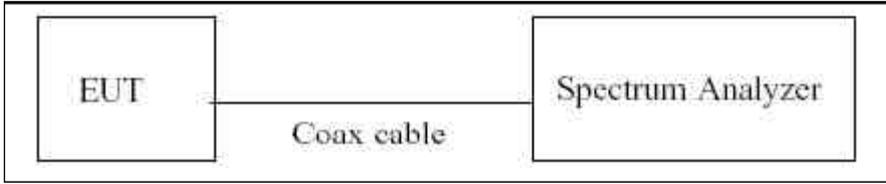
### ■ Limit

#### 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 : Note : According to KDB644545 D03 v01, emission for straddle channels in each band shall comply with the PSD limits applicable to that band under the appropriate rule section.

■ **TEST CONFIGURATION**



■ **TEST PROCEDURE**

We tested according to Method in KDB 789033 D02 v01r03.

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	11.1

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

■ 802.11a

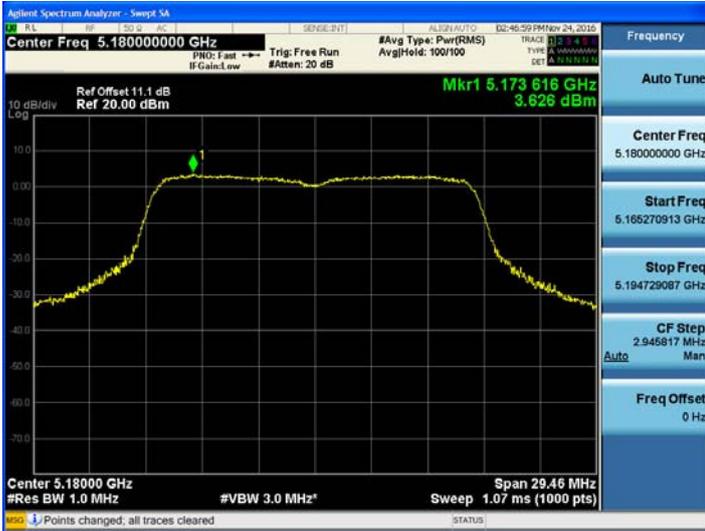
■ TEST RESULTS

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	3.626	1.787	5.413	11	Pass
5200	40		3.169	1.527	4.696		Pass
5240	48		3.505	1.527	5.032		Pass
5260	52		3.726	1.527	5.253		Pass
5300	60		4.069	1.527	5.596		Pass
5320	64		4.084	1.527	5.611		Pass
5500	100		4.509	1.527	6.036		Pass
5580	116		4.336	1.787	6.123		Pass
5700	140		3.218	1.527	4.745		Pass
5745	149		0.930	1.787	2.717		30
5785	157		1.214	1.787	3.001	Pass	
5825	165		1.075	1.787	2.862	Pass	

TEST Plot for 802.11a

802.11a UNII 1 BAND PSD CH 36



802.11a UNII 2A BAND PSD CH 64



802.11a UNII 2C BAND PSD CH 116



802.11a UNII 3 BAND PSD CH 157



■802.11n\_HT20

■ 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 _HT20	2.963	2.071	5.034	11	Pass
5200	40		3.180	1.920	5.100		Pass
5240	48		2.933	1.920	4.853		Pass
5260	52		3.055	2.071	5.126		Pass
5300	60		3.099	2.071	5.170		Pass
5320	64		3.290	1.920	5.210		Pass
5500	100		3.787	2.071	5.858		Pass
5580	116		4.094	2.071	6.165		Pass
5700	140		3.181	2.071	5.252		Pass
5745	149		0.843	1.794	2.637	30	Pass
5785	157		1.092	1.920	3.012		Pass
5825	165		0.867	2.071	2.938		Pass

TEST Plot for 802.11n\_HT20

802.11n\_HT20 UNII 1 BAND PSD CH 40



802.11n\_HT20 UNII 2A BAND PSD CH 64



802.11n\_HT20 UNII 2C BAND PSD CH 116



802.11n\_HT20 UNII 3 BAND PSD CH 157



■802.11ac\_VHT20

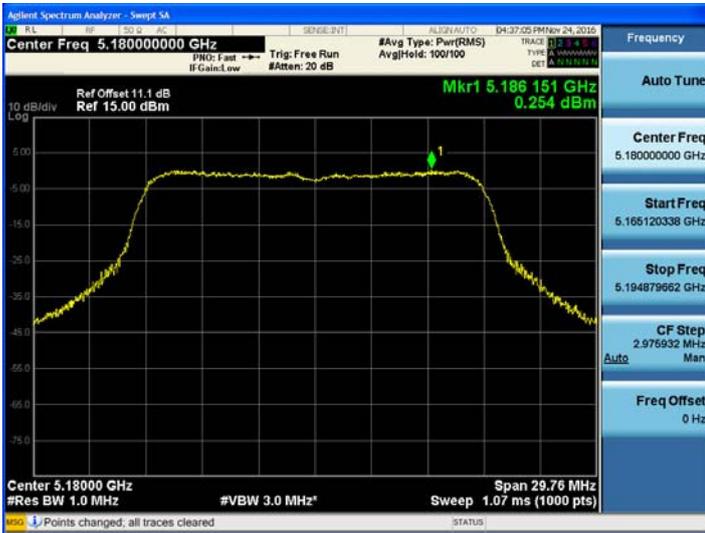
■ TEST RESULTS

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_VHT20	0.254	2.041	2.295	11	Pass
5200	40		0.279	1.430	1.709		Pass
5240	48		0.012	2.041	2.053		Pass
5260	52		0.117	2.041	2.158	11	Pass
5300	60		0.932	1.430	2.362		Pass
5320	64		0.448	2.041	2.489		Pass
5500	100		0.948	2.041	2.989	11	Pass
5580	116		0.850	2.041	2.891		Pass
5700	140		-0.048	2.041	1.993	30	Pass
5745	149		-2.323	2.041	-0.282		Pass
5785	157		-1.726	2.041	0.315		Pass
5825	165		-2.165	2.041	-0.124		Pass

TEST Plot for 802.11ac\_VHT20

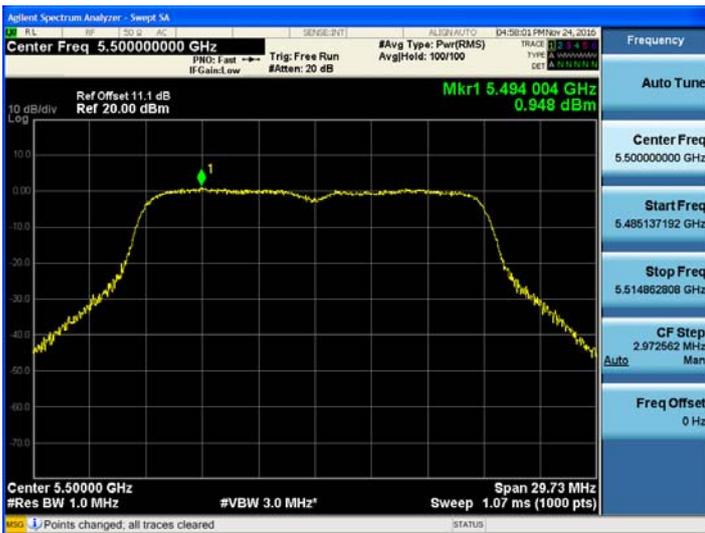
802.11ac\_VHT20 UNII 1 BAND PSD CH 36



802.11ac\_VHT20 UNII 2A BAND PSD CH 64



802.11ac\_VHT20 UNII 2C BAND PSD CH 100



802.11ac\_VHT20 UNII 3 BAND PSD CH 157



■ 802.11n\_HT40

■ 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 _HT40	-5.729	2.218	-3.511	11	Pass
5230	46		-4.981	1.731	-3.250		Pass
5270	54		-4.958	1.731	-3.227		Pass
5310	62		-4.756	2.218	-2.538		Pass
5510	102		-4.935	2.632	-2.303		Pass
5590	118		-5.805	2.632	-3.173		Pass
5670	134		-5.005	1.501	-3.504	Pass	
5755	151		-7.550	2.632	-4.918	30	Pass
5795	159		-7.061	2.218	-4.843		Pass

TEST Plot for 802.11n\_HT40

802.11n\_HT40 UNII 1 BAND PSD CH 46



802.11n\_HT40 UNII 2A BAND PSD CH 62



802.11n\_HT40 UNII 2C BAND PSD CH 102



802.11n\_HT40 UNII 3 BAND PSD CH 159



■ 802.11ac\_VHT40

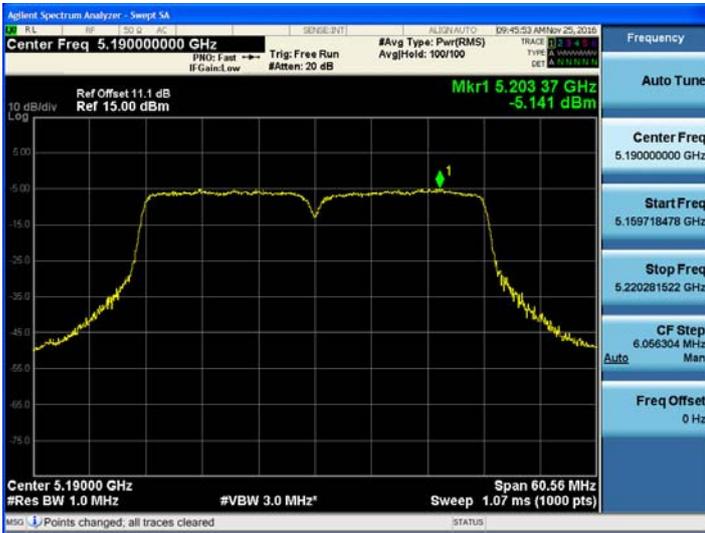
■ TEST RESULTS

Conducted Power Density Measurements

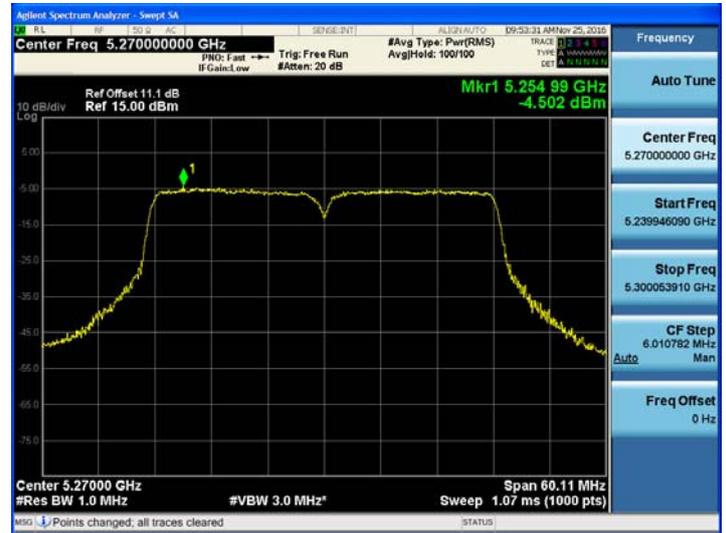
Frequency (MHz)	Channel No.	Mode	Test Result				
			Measured Power Density (dBm)	Duty Cycle Factor (dB)	Measured Power Density(dBm) + Duty Cycle Factor	Limit (dBm)	Pass/Fail
5190	38	802.11ac_VHT40	-5.141	1.803	-3.338	11	Pass
5230	46		-5.515	1.803	-3.712		Pass
5270	54		-4.502	1.803	-2.699		Pass
5310	62		-4.790	1.803	-2.987		Pass
5510	102		-3.929	1.803	-2.126		Pass
5590	118		-5.319	1.803	-3.516		Pass
5670	134		-5.319	1.803	-3.516	Pass	
5755	151		-7.230	1.803	-5.427	30	Pass
5795	159		-7.000	1.803	-5.197		Pass

■ TEST Plot for 802.11ac\_VHT40

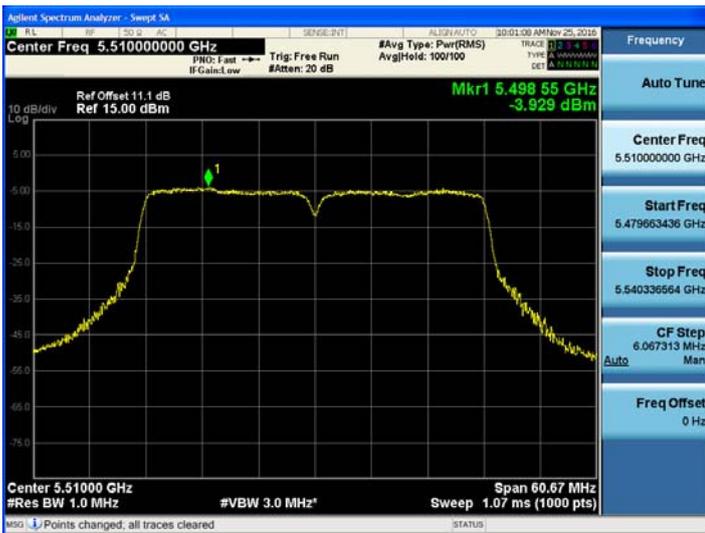
802.11ac\_VHT40 UNII 1 BAND PSD CH 38



802.11ac\_VHT40 UNII 2A BAND PSD CH 54



802.11ac\_VHT40 UNII 2C BAND PSD CH 102



802.11ac\_VHT40 UNII 3 BAND PSD CH 159



■ 802.11ac\_VHT80

■ TEST RESULTS

**Conducted Power Density Measurements**

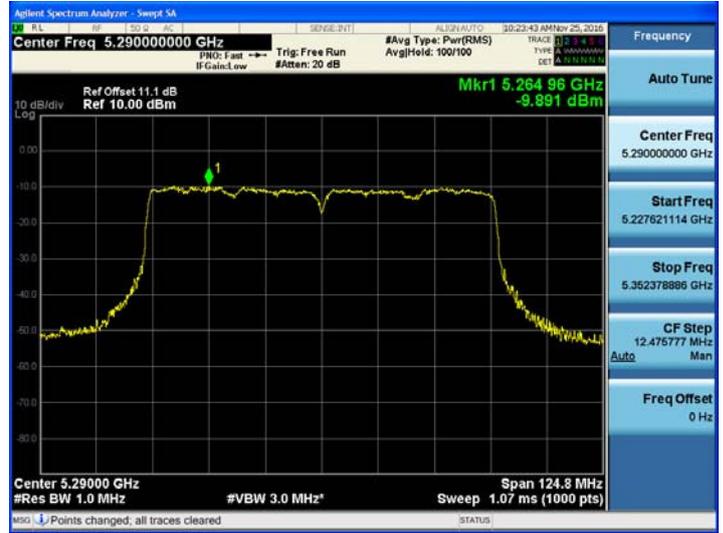
Frequency (MHz)	Channel No.	Mode	Test Result				
			Measured Power Density (dBm)	Duty Cycle Factor (dB)	Measured Power Density(dBm) + Duty Cycle Factor	Limit (dBm)	Pass/Fail
5210	42	802.11ac_VHT80	-9.788	2.619	-7.169	11	Pass
5290	58		-9.891	2.619	-7.272		Pass
5530	106		-9.609	3.324	-6.285		Pass
5610	122		-9.610	2.619	-6.991		Pass
5775	155		-12.041	2.619	-9.422	30	Pass

TEST Plot for 802.11ac\_VHT80

802.11ac\_VHT80 UNII 1 BAND PSD CH 42



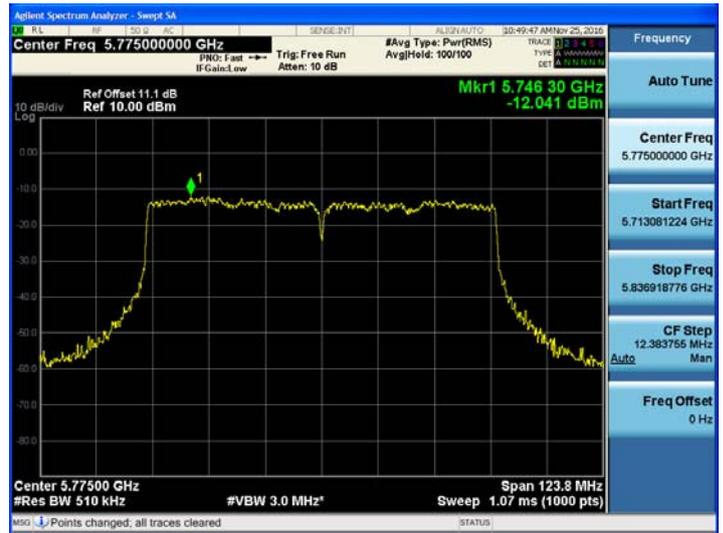
802.11ac\_VHT80 UNII 2A BAND PSD CH 58



802.11ac\_VHT80 UNII 2C BAND PSD CH 106



802.11ac\_VHT80 UNII 3 BAND PSD CH 155



### 9.5 FREQUENCY STABILITY.

The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between -30 °C and 50 °C. The temperature was incremented by 10 °C 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. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5180034.70	34.70
100%		-30	5180017.60	17.60
100%		-20	5180021.80	21.80
100%		-10	5180024.20	24.20
100%		0	5180027.60	27.60
100%		+10	5180031.00	31.00
100%		+30	5180038.10	38.10
100%		+40	5180042.30	42.30
100%		+50	5180045.70	45.70
115%	4.40	+20	5180039.40	39.40
Batt. Endpoint	3.40	+20	5180030.00	30.00

**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. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5260034.20	34.20
100%		-30	5260017.90	17.90
100%		-20	5260021.00	21.00
100%		-10	5260024.50	24.50
100%		0	5260027.60	27.60
100%		+10	5260031.10	31.10
100%		+30	5260039.12	39.12
100%		+40	5260042.90	42.90
100%		+50	5260045.60	45.60
115%	4.40	+20	5260038.00	38.00
Batt. Endpoint	3.40	+20	5260030.40	30.40

**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. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5500037.30	37.30
100%		-30	5500019.70	19.70
100%		-20	5500022.60	22.60
100%		-10	5500026.10	26.10
100%		0	5500030.80	30.80
100%		+10	5500033.50	33.50
100%		+30	5500040.20	40.20
100%		+40	5500044.80	44.80
100%		+50	5500047.30	47.30
115%		4.40	+20	5500040.00
Batt. Endpoint	3.40	+20	5500033.00	33.00

**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. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5745035.60	35.60
100%		-30	5745019.10	19.10
100%		-20	5745022.00	22.00
100%		-10	5745025.70	25.70
100%		0	5745028.90	28.90
100%		+10	5745032.40	32.40
100%		+30	5745038.50	38.50
100%		+40	5745042.10	42.10
100%		+50	5745046.90	46.90
115%	4.40	+20	5745036.10	36.10
Batt. Endpoint	3.40	+20	5745029.40	29.40

**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. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5190034.40	34.40
100%		-30	5190017.70	17.70
100%		-20	5190020.00	20.00
100%		-10	5190024.80	24.80
100%		0	5190027.90	27.90
100%		+10	5190031.50	31.50
100%		+30	5190037.60	37.60
100%		+40	5190039.10	39.10
100%		+50	5190043.80	43.80
115%	4.40	+20	5190038.00	38.00
Batt. Endpoint	3.40	+20	5190031.20	31.20

**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 2A  
 OPERATING FREQUENCY: 5,270,000,000 Hz  
 CHANNEL: 54  
 REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5270034.10	34.10
100%		-30	5270019.30	19.30
100%		-20	5270021.50	21.50
100%		-10	5270024.40	24.40
100%		0	5270027.30	27.30
100%		+10	5270030.70	30.70
100%		+30	5270037.90	37.90
100%		+40	5270040.10	40.10
100%		+50	5270044.50	44.50
115%	4.40	+20	5270038.20	38.20
Batt. Endpoint	3.40	+20	5270030.80	30.80

**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. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5510037.50	37.50
100%		-30	5510021.60	21.60
100%		-20	5510025.10	25.10
100%		-10	5510027.90	27.90
100%		0	5510031.00	31.00
100%		+10	5510034.10	34.10
100%		+30	5510040.20	40.20
100%		+40	5510044.80	44.80
100%		+50	5510047.00	47.00
115%	4.40	+20	5510041.60	41.60
Batt. Endpoint	3.40	+20	5510033.50	33.50

**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. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5755035.90	35.90
100%		-30	5755020.70	20.70
100%		-20	5755024.60	24.60
100%		-10	5755027.30	27.30
100%		0	5755030.10	30.10
100%		+10	5755032.40	32.40
100%		+30	5755039.00	39.00
100%		+40	5755042.50	42.50
100%		+50	5755045.20	45.20
115%	4.40	+20	5755038.70	38.70
Batt. Endpoint	3.40	+20	5755032.30	32.30

**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. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5210034.10	34.10
100%		-30	5210017.60	17.60
100%		-20	5210020.50	20.50
100%		-10	5210024.30	24.30
100%		0	5210027.90	27.90
100%		+10	5210030.80	30.80
100%		+30	5210037.60	37.60
100%		+40	5210040.20	40.20
100%		+50	5210044.40	44.40
115%	4.40	+20	5210038.50	38.50
Batt. Endpoint	3.40	+20	5210031.40	31.40

**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. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5290034.30	34.30
100%		-30	5290018.90	18.90
100%		-20	5290021.70	21.70
100%		-10	5290024.30	24.30
100%		0	5290027.00	27.00
100%		+10	5290031.60	31.60
100%		+30	5290038.10	38.10
100%		+40	5290042.20	42.20
100%		+50	5290045.70	45.70
115%	4.40	+20	5290038.10	38.10
Batt. Endpoint	3.40	+20	5290031.50	31.50

**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. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5530037.30	37.30
100%		-30	5530021.00	21.00
100%		-20	5530024.50	24.50
100%		-10	5530027.80	27.80
100%		0	5530030.30	30.30
100%		+10	5530033.60	33.60
100%		+30	5530039.70	39.70
100%		+40	5530043.40	43.40
100%		+50	5530046.50	46.50
115%	4.40	+20	5530040.10	40.10
Batt. Endpoint	3.40	+20	5530034.70	34.70

**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. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5775035.80	35.80
100%		-30	5775019.70	19.70
100%		-20	5775023.00	23.00
100%		-10	5775026.10	26.10
100%		0	5775028.90	28.90
100%		+10	5775032.50	32.50
100%		+30	5775037.90	37.90
100%		+40	5775040.30	40.30
100%		+50	5775044.10	44.10
115%	4.40	+20	5775038.90	38.90
Batt. Endpoint	3.40	+20	5775032.10	32.10

**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.

## 9.6 RADIATED MEASUREMENT

### 9.6.1 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.

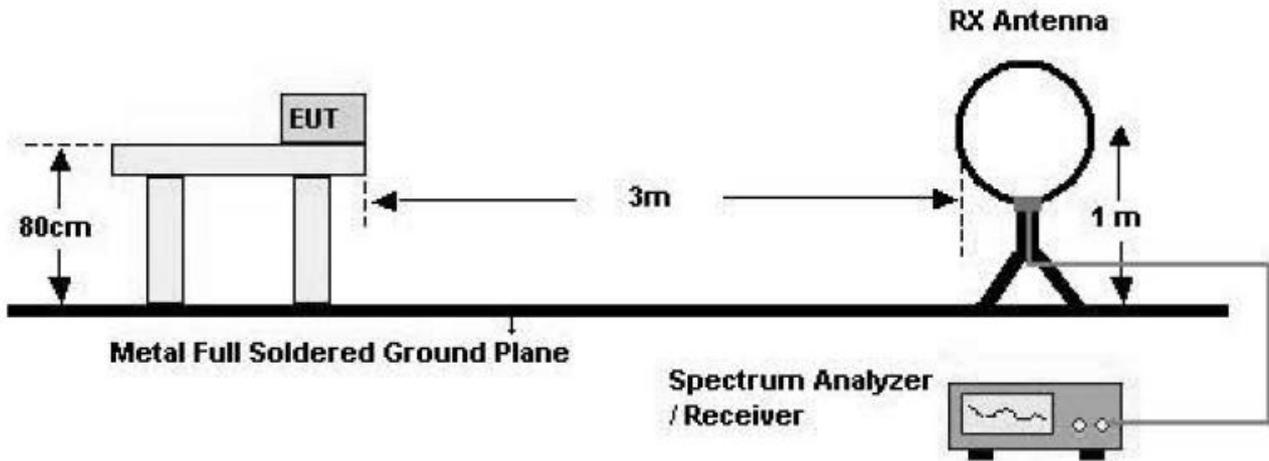
#### §15.407 (5)(b)(4)(i)

(4) For transmitters operating in the 5.725-5.85 GHz band:

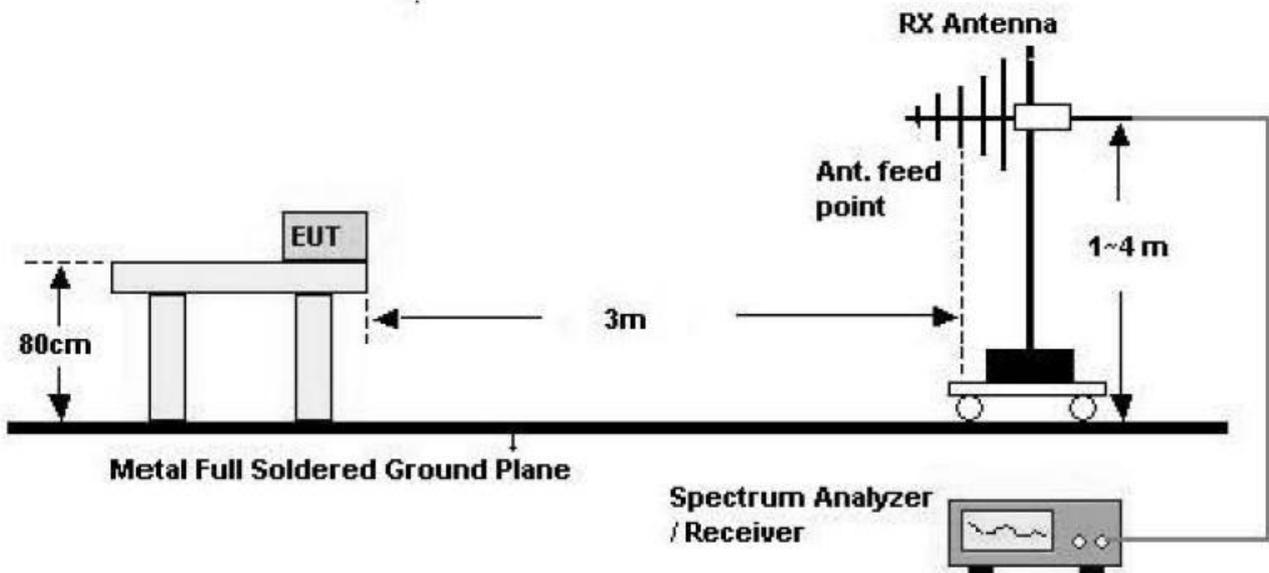
(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

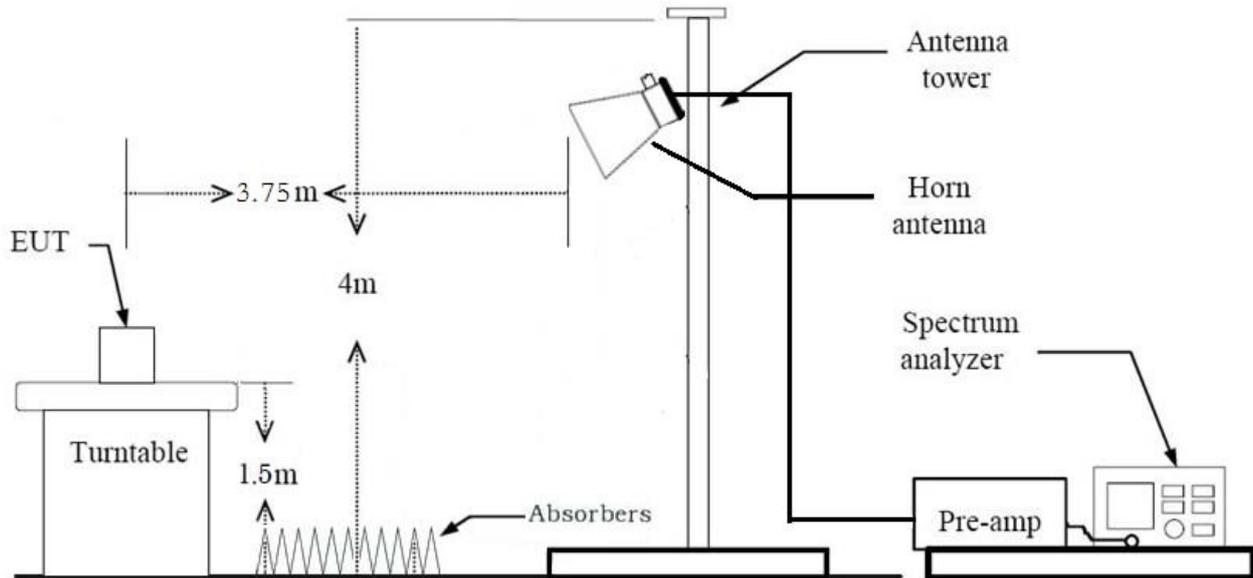
**Test Configuration**

**Below 30 MHz**



**30 MHz - 1 GHz**



**Above 1 GHz****TEST PROCEDURE USED**

ANSI C63.10:2013

Method G)5) in KDB 789033 D02 v01r03 (Peak)

Method G)6)d) in KDB 789033 D02 v01r03 (Average)

## . Spectrum setting:

- Peak.

1. RBW = 1 MHz

2. VBW  $\geq$  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  $\geq 98$  percent, set  $VBW \leq RBW/100$ (i.e., 10 kHz) but not less than 10 Hz.

2.2. If the EUT duty cycle is  $< 98$  percent, set  $VBW \geq 1/T$ , 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 minimum 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\_HT20, n\_HT40, ac\_VHT20, 40, 80 mode to perform the average filed strength measurements.

2. The actual setting value of VBW for 802.11a/n\_HT20, n\_HT40, ac\_VHT20, 40, 80

3. According to SVSWR requirement in ANSI 63.4-2014, We performed the radiated test at 3.75 m distance from center of turn table. So, we applied the distance factor( reference distance : 3 m).

4. Distance extrapolation factor =  $20 \log (\text{test distance} / \text{specific distance})$  (dB)

Mode	Worst Data rate (Mbps)	T <sub>on</sub> (ms)	T <sub>total</sub> (ms)	Duty Cycle (%)	VBW(1/T) (Hz)	The actual setting value of VBW (Hz)
<b>a</b>	<b>6</b>	<b>1.432</b>	<b>1.533</b>	<b>0.93399986</b>	<b>698</b>	<b>1000</b>
<b>n_HT20</b>	<b>MCS 0</b>	<b>1.340</b>	<b>1.435</b>	<b>0.93375836</b>	<b>746</b>	<b>1000</b>
<b>ac_VHT20</b>	<b>MCS 0</b>	<b>1.346</b>	<b>1.444</b>	<b>0.93206176</b>	<b>743</b>	<b>1000</b>
<b>n_HT40</b>	<b>MCS 0</b>	<b>0.664</b>	<b>0.754</b>	<b>0.88110403</b>	<b>1506</b>	<b>3000</b>
<b>ac_VHT40</b>	<b>MCS 0</b>	<b>0.672</b>	<b>0.762</b>	<b>0.88235294</b>	<b>1488</b>	<b>3000</b>
<b>ac_VHT80</b>	<b>MCS 0</b>	<b>0.332</b>	<b>0.421</b>	<b>0.78859857</b>	<b>3012</b>	<b>10000</b>

**TEST RESULTS****9 kHz – 30MHz****Operation Mode:** Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dB $\mu$ V	dB /m	dB	(H/V)	dB $\mu$ V/m	dB $\mu$ V/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. Distace extrapolation factor =  $40 \log (\text{specific distance} / \text{test distance})$  (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
MHz	dB $\mu$ V	dB /m	dB	(H/V)	dB $\mu$ V/m	dB $\mu$ V/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.

**Above 1 GHz**

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10360	63.45	-2.75	V	60.70	68.20	7.50	PK
15540	61.22	-1.23	V	59.99	73.98	13.99	PK
15540	45.42	-1.23	V	44.19	53.98	9.79	AV
10360	61.10	-2.75	H	58.35	68.20	9.85	PK
15540	59.68	-1.23	H	58.45	73.98	15.53	PK
15540	44.60	-1.23	H	43.37	53.98	10.61	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
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.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10400	61.08	-2.60	V	58.48	68.20	9.72	PK
15600	60.94	-2.26	V	58.68	73.98	15.30	PK
15600	45.74	-2.26	V	43.48	53.98	10.50	AV
10400	60.14	-2.60	H	57.54	68.20	10.66	PK
15600	60.35	-2.26	H	58.09	73.98	15.89	PK
15600	45.13	-2.26	H	42.87	53.98	11.11	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
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.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10480	61.34	-3.54	V	57.80	68.20	10.40	PK
15720	60.81	-2.64	V	58.17	73.98	15.81	PK
15720	46.47	-2.64	V	43.83	53.98	10.15	AV
10480	60.22	-3.54	H	56.68	68.20	11.52	PK
15720	60.17	-2.64	H	57.53	73.98	16.45	PK
15720	45.86	-2.64	H	43.22	53.98	10.76	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
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
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 1
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10360	61.96	-2.75	V	59.21	68.20	8.99	PK
15540	59.95	-1.23	V	58.72	73.98	15.26	PK
15540	44.79	-1.23	V	43.56	53.98	10.42	AV
10360	60.54	-2.75	H	57.79	68.20	10.41	PK
15540	59.28	-1.23	H	58.05	73.98	15.93	PK
15540	44.13	-1.23	H	42.90	53.98	11.08	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT20. Worst case is MCS0 in 802.11n\_HT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 1
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10400	60.21	-2.60	V	57.61	68.20	10.59	PK
15600	60.32	-2.26	V	58.06	73.98	15.92	PK
15600	45.11	-2.26	V	42.85	53.98	11.13	AV
10400	59.16	-2.60	H	56.56	68.20	11.64	PK
15600	59.64	-2.26	H	57.38	73.98	16.60	PK
15600	44.36	-2.26	H	42.10	53.98	11.88	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT20. Worst case is MCS0 in 802.11n\_HT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 1
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5240 MHz
Channel No.	48 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10480	60.49	-3.54	V	56.95	68.20	11.25	PK
15720	60.16	-2.64	V	57.52	73.98	16.46	PK
15720	45.78	-2.64	V	43.14	53.98	10.84	AV
10480	59.27	-3.54	H	55.73	68.20	12.47	PK
15720	59.20	-2.64	H	56.56	73.98	17.42	PK
15720	45.23	-2.64	H	42.59	53.98	11.39	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT20. Worst case is MCS0 in 802.11n\_HT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 1
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10360	60.39	-2.75	V	57.64	68.20	10.56	PK
15540	55.63	-1.23	V	54.40	73.98	19.58	PK
15540	41.55	-1.23	V	40.32	53.98	13.66	AV
10360	59.06	-2.75	H	56.31	68.20	11.89	PK
15540	55.11	-1.23	H	53.88	73.98	20.10	PK
15540	40.95	-1.23	H	39.72	53.98	14.26	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT20. Worst case is MCS0 in 802.11ac\_VHT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 1
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10400	58.96	-2.60	V	56.36	68.20	11.84	PK
15600	56.96	-2.26	V	54.70	73.98	19.28	PK
15600	42.05	-2.26	V	39.79	53.98	14.19	AV
10400	58.21	-2.60	H	55.61	68.20	12.59	PK
15600	56.27	-2.26	H	54.01	73.98	19.97	PK
15600	41.41	-2.26	H	39.15	53.98	14.83	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT20. Worst case is MCS0 in 802.11ac\_VHT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 1
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5240 MHz
Channel No.	48 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10480	58.43	-3.54	V	54.89	68.20	13.31	PK
15720	56.39	-2.64	V	53.75	73.98	20.23	PK
15720	42.70	-2.64	V	40.06	53.98	13.92	AV
10480	57.57	-3.54	H	54.03	68.20	14.17	PK
15720	55.83	-2.64	H	53.19	73.98	20.79	PK
15720	42.09	-2.64	H	39.45	53.98	14.53	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT20. Worst case is MCS0 in 802.11ac\_VHT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 1
Operation Mode:	802.11n_HT40
Transfer MCS Index:	0
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10380	56.54	-2.74	V	53.80	68.20	14.40	PK
15570	53.74	-1.95	V	51.79	73.98	22.19	PK
15570	39.70	-1.95	V	37.75	53.98	16.23	AV
10380	56.13	-2.74	H	53.39	68.20	14.81	PK
15570	53.03	-1.95	H	51.08	73.98	22.90	PK
15570	39.53	-1.95	H	37.58	53.98	16.40	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT40. Worst case is MCS0 in 802.11n\_HT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 1
Operation Mode:	802.11n_HT40
Transfer MCS Index:	0
Operating Frequency	5230 MHz
Channel No.	46 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10460	56.76	-3.07	V	53.69	68.20	14.51	PK
15690	54.57	-0.73	V	53.84	73.98	20.14	PK
15690	41.05	-0.73	V	40.32	53.98	13.66	AV
10460	56.32	-3.07	H	53.25	68.20	14.95	PK
15690	54.21	-0.73	H	53.48	73.98	20.50	PK
15690	40.81	-0.73	H	40.08	53.98	13.90	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT40. Worst case is MCS0 in 802.11n\_HT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 1
Operation Mode:	802.11ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10380	57.76	-2.74	V	55.02	68.20	13.18	PK
15570	53.69	-1.95	V	51.74	73.98	22.24	PK
15570	39.61	-1.95	V	37.66	53.98	16.32	AV
10380	56.90	-2.74	H	54.16	68.20	14.04	PK
15570	53.21	-1.95	H	51.26	73.98	22.72	PK
15570	39.24	-1.95	H	37.29	53.98	16.69	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT40. Worst case is MCS0 in 802.11ac\_VHT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 1
Operation Mode:	802.11ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5230 MHz
Channel No.	46 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10460	56.58	-3.07	V	53.51	68.20	14.69	PK
15690	54.36	-0.73	V	53.63	73.98	20.35	PK
15690	40.83	-0.73	V	40.10	53.98	13.88	AV
10460	56.33	-3.07	H	53.26	68.20	14.94	PK
15690	54.08	-0.73	H	53.35	73.98	20.63	PK
15690	40.57	-0.73	H	39.84	53.98	14.14	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT40. Worst case is MCS0 in 802.11ac\_VHT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 1
Operation Mode:	802.11ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5210 MHz
Channel No.	42 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10420	55.01	-2.88	V	52.13	68.20	16.07	PK
15630	53.32	-1.88	V	51.44	73.98	22.54	PK
15630	41.44	-1.88	V	39.56	53.98	14.42	AV
10420	54.87	-2.88	H	51.99	68.20	16.21	PK
15630	53.00	-1.88	H	51.12	73.98	22.86	PK
15630	41.30	-1.88	H	39.42	53.98	14.56	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT80. Worst case is MCS0 in 802.11ac\_VHT80.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer MCS Index:	6 Mbps
Operating Frequency	5260 MHz
Channel No.	52 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10520	60.61	-2.97	V	57.64	68.20	10.56	PK
15780	61.16	-1.86	V	59.30	73.98	14.68	PK
15780	45.42	-1.86	V	43.56	53.98	10.42	AV
10520	59.36	-2.97	H	56.39	68.20	11.81	PK
15780	59.86	-1.86	H	58.00	73.98	15.98	PK
15780	43.95	-1.86	H	42.09	53.98	11.89	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
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.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10600	59.53	-3.22	V	56.31	73.98	17.67	PK
10600	45.70	-3.22	V	42.48	53.98	11.50	AV
15900	59.47	-2.44	V	57.03	73.98	16.95	PK
15900	45.72	-2.44	V	43.28	53.98	10.70	AV
10600	58.37	-3.22	H	55.15	73.98	18.83	PK
10600	46.63	-3.22	H	43.41	53.98	10.57	AV
15900	58.75	-2.44	H	56.31	73.98	17.67	PK
15900	45.26	-2.44	H	42.82	53.98	11.16	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
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.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10640	59.90	-3.27	V	56.63	73.98	17.35	PK
10640	46.21	-3.27	V	42.94	53.98	11.04	AV
15960	58.87	-2.89	V	55.98	73.98	18.00	PK
15960	44.25	-2.89	V	41.36	53.98	12.62	AV
10640	58.74	-3.27	H	55.47	73.98	18.51	PK
10640	45.19	-3.27	H	41.92	53.98	12.06	AV
15960	58.31	-2.89	H	55.42	73.98	18.56	PK
15960	43.80	-2.89	H	40.91	53.98	13.07	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

#### 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 + Distance Factor
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
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2A
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5260 MHz
Channel No.	52 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10520	60.30	-2.97	V	57.33	68.20	10.87	PK
15780	59.90	-1.86	V	58.04	73.98	15.94	PK
15780	44.91	-1.86	V	43.05	53.98	10.93	AV
10520	59.15	-2.97	H	56.18	68.20	12.02	PK
15780	58.92	-1.86	H	57.06	73.98	16.92	PK
15780	43.67	-1.86	H	41.81	53.98	12.17	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT20. Worst case is MCS0 in 802.11n\_HT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2A
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5300 MHz
Channel No.	60 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10600	59.39	-3.22	V	56.17	73.98	17.81	PK
10600	45.39	-3.22	V	42.17	53.98	11.81	AV
15900	59.96	-2.44	V	57.52	73.98	16.46	PK
15900	45.28	-2.44	V	42.84	53.98	11.14	AV
10600	58.50	-3.22	H	55.28	73.98	18.70	PK
10600	44.41	-3.22	H	41.19	53.98	12.79	AV
15900	58.54	-2.44	H	56.10	73.98	17.88	PK
15900	43.80	-2.44	H	41.36	53.98	12.62	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT20. Worst case is MCS0 in 802.11n\_HT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band : UNII 2A  
 Operation Mode: 802.11 n\_HT20  
 Transfer MCS Index: 0  
 Operating Frequency 5320 MHz  
 Channel No. 64 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10640	60.32	-3.27	V	57.05	73.98	16.93	PK
10640	45.75	-3.27	V	42.48	53.98	11.50	AV
15960	58.16	-2.89	V	55.27	73.98	18.71	PK
15960	44.22	-2.89	V	41.33	53.98	12.65	AV
10640	59.28	-3.27	H	56.01	73.98	17.97	PK
10640	44.86	-3.27	H	41.59	53.98	12.39	AV
15960	56.39	-2.89	H	53.50	73.98	20.48	PK
15960	42.96	-2.89	H	40.07	53.98	13.91	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT20. Worst case is MCS0 in 802.11n\_HT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2A
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5260MHz
Channel No.	52 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10520	57.55	-2.97	V	54.58	68.20	13.62	PK
15780	55.82	-1.86	V	53.96	73.98	20.02	PK
15780	41.83	-1.86	V	39.97	53.98	14.01	AV
10520	56.59	-2.97	H	53.62	68.20	14.58	PK
15780	54.60	-1.86	H	52.74	73.98	21.24	PK
15780	40.63	-1.86	H	38.77	53.98	15.21	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT20. Worst case is MCS0 in 802.11ac\_VHT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2A
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5300 MHz
Channel No.	60 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10600	56.31	-3.22	V	53.09	73.98	20.89	PK
10600	42.78	-3.22	V	39.56	53.98	14.42	AV
15900	56.52	-2.44	V	54.08	73.98	19.90	PK
15900	42.40	-2.44	V	39.96	53.98	14.02	AV
10600	55.24	-3.22	H	52.02	73.98	21.96	PK
10600	41.81	-3.22	H	38.59	53.98	15.39	AV
15900	55.47	-2.44	H	53.03	73.98	20.95	PK
15900	41.34	-2.44	H	38.90	53.98	15.08	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT20. Worst case is MCS0 in 802.11ac\_VHT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2A
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10640	57.43	-3.27	V	54.16	73.98	19.82	PK
10640	43.62	-3.27	V	40.35	53.98	13.63	AV
15960	55.81	-2.89	V	52.92	73.98	21.06	PK
15960	41.20	-2.89	V	38.31	53.98	15.67	AV
10640	56.29	-3.27	H	53.02	73.98	20.96	PK
10640	42.60	-3.27	H	39.33	53.98	14.65	AV
15960	54.11	-2.89	H	51.22	73.98	22.76	PK
15960	40.03	-2.89	H	37.14	53.98	16.84	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT20. Worst case is MCS0 in 802.11ac\_VHT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2A
Operation Mode:	802.11n_HT40
Transfer MCS Index:	0
Operating Frequency	5270 MHz
Channel No.	54 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10540	54.86	-2.73	V	52.13	68.20	16.07	PK
15810	54.69	-2.52	V	52.17	73.98	21.81	PK
15810	41.22	-2.52	V	38.70	53.98	15.28	AV
10540	54.33	-2.73	H	51.60	68.20	16.60	PK
15810	54.14	-2.52	H	51.62	73.98	22.36	PK
15810	40.65	-2.52	H	38.13	53.98	15.85	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT40. Worst case is MCS0 in 802.11n\_HT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2A
Operation Mode:	802.11n_HT40
Transfer MCS Index:	0
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10620	54.34	-3.38	V	50.96	73.98	23.02	PK
10620	41.80	-3.38	V	38.42	53.98	15.56	AV
15930	54.29	-2.78	V	51.51	73.98	22.47	PK
15930	40.50	-2.78	V	37.72	53.98	16.26	AV
10620	53.91	-3.38	H	50.53	73.98	23.45	PK
10620	41.36	-3.38	H	37.98	53.98	16.00	AV
15930	53.68	-2.78	H	50.90	73.98	23.08	PK
15930	40.11	-2.78	H	37.33	53.98	16.65	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT40. Worst case is MCS0 in 802.11n\_HT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2A
Operation Mode:	802.11ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5270 MHz
Channel No.	54 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10540	54.75	-2.73	V	52.02	68.20	16.18	PK
15810	54.45	-2.52	V	51.93	73.98	22.05	PK
15810	41.55	-2.52	V	39.03	53.98	14.95	AV
10540	54.39	-2.73	H	51.66	68.20	16.54	PK
15810	54.11	-2.52	H	51.59	73.98	22.39	PK
15810	41.24	-2.52	H	38.72	53.98	15.26	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT40. Worst case is MCS0 in 802.11ac\_VHT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2A
Operation Mode:	802.11ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10620	54.17	-3.38	V	50.79	73.98	23.19	PK
10620	41.52	-3.38	V	38.14	53.98	15.84	AV
15930	55.16	-2.78	V	52.38	73.98	21.60	PK
15930	41.04	-2.78	V	38.26	53.98	15.72	AV
10620	53.67	-3.38	H	50.29	73.98	23.69	PK
10620	41.28	-3.38	H	37.90	53.98	16.08	AV
15930	54.29	-2.78	H	51.51	73.98	22.47	PK
15930	40.69	-2.78	H	37.91	53.98	16.07	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT40. Worst case is MCS0 in 802.11ac\_VHT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2A
Operation Mode:	802.11ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5290 MHz
Channel No.	58 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10580	54.48	-3.21	V	51.27	68.20	16.93	PK
15870	52.51	-2.62	V	49.89	73.98	24.09	PK
15870	41.00	-2.62	V	38.38	53.98	15.60	AV
10580	54.01	-3.21	H	50.80	68.20	17.40	PK
15870	52.19	-2.62	H	49.57	73.98	24.41	PK
15870	40.84	-2.62	H	38.22	53.98	15.76	AV

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT80. Worst case is MCS0 in 802.11ac\_VHT80.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11000	63.88	-1.60	V	62.28	73.98	11.70	PK
11000	48.22	-1.60	V	46.62	53.98	7.36	AV
16500	56.39	-0.86	V	55.53	68.20	12.67	PK
11000	64.45	-1.60	H	62.85	73.98	11.13	PK
11000	48.63	-1.60	H	47.03	53.98	6.95	AV
16500	57.58	-0.86	H	56.72	68.20	11.48	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
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.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11160	61.79	-2.03	V	59.76	73.98	14.22	PK
11160	47.31	-2.03	V	45.28	53.98	8.70	AV
16740	59.05	0.18	V	59.23	68.20	8.97	PK
11160	62.20	-2.03	H	60.17	73.98	13.81	PK
11160	47.50	-2.03	H	45.47	53.98	8.51	AV
16740	60.18	0.18	H	60.36	68.20	7.84	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
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.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5700 MHz
Channel No.	140 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11400	56.23	-1.92	V	54.31	73.98	19.67	PK
11400	41.24	-1.92	V	39.32	53.98	14.66	AV
17100	55.15	2.19	V	57.34	68.20	10.86	PK
11400	57.45	-1.92	H	55.53	73.98	18.45	PK
11400	42.31	-1.92	H	40.39	53.98	13.59	AV
17100	56.64	2.19	H	58.83	68.20	9.37	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
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
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2C
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11000	63.91	-1.60	V	62.31	73.98	11.67	PK
11000	47.64	-1.60	V	46.04	53.98	7.94	AV
16500	57.13	-0.86	V	56.27	68.20	11.93	PK
11000	64.36	-1.60	H	62.76	73.98	11.22	PK
11000	48.06	-1.60	H	46.46	53.98	7.52	AV
16500	58.09	-0.86	H	57.23	68.20	10.97	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT20. Worst case is MCS0 in 802.11n\_HT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2C
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5580 MHz
Channel No.	116 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11160	62.87	-2.03	V	60.84	73.98	13.14	PK
11160	46.62	-2.03	V	44.59	53.98	9.39	AV
16740	58.56	0.18	V	58.74	68.20	9.46	PK
11160	63.13	-2.03	H	61.10	73.98	12.88	PK
11160	46.90	-2.03	H	44.87	53.98	9.11	AV
16740	59.78	0.18	H	59.96	68.20	8.24	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT20. Worst case is MCS0 in 802.11n\_HT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2C
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5700 MHz
Channel No.	140 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11400	57.00	-1.92	V	55.08	73.98	18.90	PK
11400	41.54	-1.92	V	39.62	53.98	14.36	AV
17100	54.31	2.19	V	56.50	68.20	11.70	PK
11400	57.53	-1.92	H	55.61	73.98	18.37	PK
11400	41.85	-1.92	H	39.93	53.98	14.05	AV
17100	55.23	2.19	H	57.42	68.20	10.78	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT20. Worst case is MCS0 in 802.11n\_HT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5500MHz
Channel No.	100 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11000	58.32	-1.60	V	56.72	73.98	17.26	PK
11000	43.16	-1.60	V	41.56	53.98	12.42	AV
16500	53.17	-0.86	V	52.31	68.20	15.89	PK
11000	58.46	-1.60	H	56.86	73.98	17.12	PK
11000	43.31	-1.60	H	41.71	53.98	12.27	AV
16500	54.37	-0.86	H	53.51	68.20	14.69	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT20. Worst case is MCS0 in 802.11ac\_VHT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5580 MHz
Channel No.	116 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11160	55.38	-2.03	V	53.35	73.98	20.63	PK
11160	42.51	-2.03	V	40.48	53.98	13.50	AV
16740	52.92	0.18	V	53.10	68.20	15.10	PK
11160	55.90	-2.03	H	53.87	73.98	20.11	PK
11160	42.72	-2.03	H	40.69	53.98	13.29	AV
16740	53.87	0.18	H	54.05	68.20	14.15	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT20. Worst case is MCS0 in 802.11ac\_VHT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5700 MHz
Channel No.	140 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11400	53.16	-1.92	V	51.24	73.98	22.74	PK
11400	39.69	-1.92	V	37.77	53.98	16.21	AV
17100	51.46	2.19	V	53.65	68.20	14.55	PK
11400	53.29	-1.92	H	51.37	73.98	22.61	PK
11400	39.95	-1.92	H	38.03	53.98	15.95	AV
17100	52.63	2.19	H	54.82	68.20	13.38	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT20. Worst case is MCS0 in 802.11ac\_VHT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2C
Operation Mode:	802.11n_HT40
Transfer MCS Index:	0
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11020	54.99	-1.98	V	53.01	73.98	20.97	PK
11020	42.09	-1.98	V	40.11	53.98	13.87	AV
16530	53.14	-1.57	V	51.57	68.20	16.63	PK
11020	55.43	-1.98	H	53.45	73.98	20.53	PK
11020	42.43	-1.98	H	40.45	53.98	13.53	AV
16530	53.25	-1.57	H	51.68	68.20	16.52	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT40. Worst case is MCS0 in 802.11n\_HT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2C
Operation Mode:	802.11n_HT40
Transfer MCS Index:	0
Operating Frequency	5590 MHz
Channel No.	118 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11180	54.83	-2.32	V	52.51	73.98	21.47	PK
11180	41.46	-2.32	V	39.14	53.98	14.84	AV
16770	52.76	-1.17	V	51.59	68.20	16.61	PK
11180	55.12	-2.32	H	52.80	73.98	21.18	PK
11180	41.69	-2.32	H	39.37	53.98	14.61	AV
16770	53.24	-1.17	H	52.07	68.20	16.13	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT40. Worst case is MCS0 in 802.11n\_HT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2C
Operation Mode:	802.11n_HT40
Transfer MCS Index:	0
Operating Frequency	5670 MHz
Channel No.	134 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11340	53.11	-2.23	V	50.88	73.98	23.10	PK
11340	40.94	-2.23	V	38.71	53.98	15.27	AV
17010	52.39	1.75	V	54.14	68.20	14.06	PK
11340	53.38	-2.23	H	51.15	73.98	22.83	PK
11340	41.25	-2.23	H	39.02	53.98	14.96	AV
17010	52.61	1.75	H	54.36	68.20	13.84	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT40. Worst case is MCS0 in 802.11n\_HT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2C
Operation Mode:	802.11ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11020	55.69	-1.98	V	53.71	73.98	20.27	PK
11020	41.83	-1.98	V	39.85	53.98	14.13	AV
16530	52.80	-1.57	V	51.23	68.20	16.97	PK
11020	56.26	-1.98	H	54.28	73.98	19.70	PK
11020	42.19	-1.98	H	40.21	53.98	13.77	AV
16530	53.14	-1.57	H	51.57	68.20	16.63	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT40. Worst case is MCS0 in 802.11ac\_VHT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2C
Operation Mode:	802.11ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5590 MHz
Channel No.	118 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11180	54.91	-2.32	V	52.59	73.98	21.39	PK
11180	41.44	-2.32	V	39.12	53.98	14.86	AV
16770	53.24	-1.17	V	52.07	68.20	16.13	PK
11180	55.06	-2.32	H	52.74	73.98	21.24	PK
11180	41.53	-2.32	H	39.21	53.98	14.77	AV
16770	53.55	-1.17	H	52.38	68.20	15.82	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT40. Worst case is MCS0 in 802.11ac\_VHT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2C
Operation Mode:	802.11ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5670 MHz
Channel No.	134 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11340	53.16	-2.23	V	50.93	73.98	23.05	PK
11340	41.24	-2.23	V	39.01	53.98	14.97	AV
17010	52.40	1.75	V	54.15	68.20	14.05	PK
11340	53.59	-2.23	H	51.36	73.98	22.62	PK
11340	41.12	-2.23	H	38.89	53.98	15.09	AV
17010	52.58	1.75	H	54.33	68.20	13.87	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT40. Worst case is MCS0 in 802.11ac\_VHT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2C
Operation Mode:	802.11ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5530 MHz
Channel No.	106 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11060	52.68	-2.21	V	50.47	73.98	23.51	PK
11060	42.06	-2.21	V	39.85	53.98	14.13	AV
16590	51.89	-0.60	V	51.29	68.20	16.91	PK
11060	53.08	-2.21	H	50.87	73.98	23.11	PK
11060	42.20	-2.21	H	39.99	53.98	13.99	AV
16590	52.48	-0.60	H	51.88	68.20	16.32	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT80. Worst case is MCS0 in 802.11ac\_VHT80.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 2C
Operation Mode:	802.11ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5610 MHz
Channel No.	122 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11220	52.67	-2.08	V	50.59	73.98	23.39	PK
11220	41.23	-2.08	V	39.15	53.98	14.83	AV
16830	51.89	1.67	V	53.56	68.20	14.64	PK
11220	52.95	-2.08	H	50.87	73.98	23.11	PK
11220	41.46	-2.08	H	39.38	53.98	14.60	AV
16830	52.09	1.67	H	53.76	68.20	14.44	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT80. Worst case is MCS0 in 802.11ac\_VHT80.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	56.54	-2.50	V	54.04	73.98	19.94	PK
11490	43.05	-2.50	V	40.55	53.98	13.43	AV
17235	53.31	3.09	V	56.40	68.20	11.80	PK
11490	56.19	-2.50	H	53.69	73.98	20.29	PK
11490	42.79	-2.50	H	40.29	53.98	13.69	AV
17235	53.14	3.09	H	56.23	68.20	11.97	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
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.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11570	57.33	-2.87	V	54.46	73.98	19.52	PK
11570	43.45	-2.87	V	40.58	53.98	13.40	AV
17355	52.29	3.45	V	55.74	68.20	12.46	PK
11570	56.91	-2.87	H	54.04	73.98	19.94	PK
11570	43.10	-2.87	H	40.23	53.98	13.75	AV
17355	51.92	3.45	H	55.37	68.20	12.83	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

#### 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 + Distance Factor
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.
7. Distance extrapolation factor =  $20 \log (\text{test distance} / \text{specific distance})$  (dB)

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	58.88	-2.84	V	56.04	73.98	17.94	PK
11650	45.32	-2.84	V	42.48	53.98	11.50	AV
17475	52.81	5.68	V	58.49	68.20	9.71	PK
11650	58.34	-2.84	H	55.50	73.98	18.48	PK
11650	44.86	-2.84	H	42.02	53.98	11.96	AV
17475	52.19	5.68	H	57.87	68.20	10.33	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
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
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 3
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5745 MHz
Channel No.	149 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	56.04	-2.50	V	53.54	73.98	20.44	PK
11490	43.00	-2.50	V	40.50	53.98	13.48	AV
17235	53.19	3.09	V	56.28	68.20	11.92	PK
11490	55.77	-2.50	H	53.27	73.98	20.71	PK
11490	42.56	-2.50	H	40.06	53.98	13.92	AV
17235	53.03	3.09	H	56.12	68.20	12.08	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT20. Worst case is MCS0 in 802.11n\_HT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 3
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11570	56.45	-2.87	V	53.58	73.98	20.40	PK
11570	43.22	-2.87	V	40.35	53.98	13.63	AV
17355	52.14	3.45	V	55.59	68.20	12.61	PK
11570	56.25	-2.87	H	53.38	73.98	20.60	PK
11570	42.84	-2.87	H	39.97	53.98	14.01	AV
17355	51.87	3.45	H	55.32	68.20	12.88	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT20. Worst case is MCS0 in 802.11n\_HT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 3
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	58.09	-2.84	V	55.25	73.98	18.73	PK
11650	45.17	-2.84	V	42.33	53.98	11.65	AV
17475	52.13	5.68	V	57.81	68.20	10.39	PK
11650	57.36	-2.84	H	54.52	73.98	19.46	PK
11650	44.62	-2.84	H	41.78	53.98	12.20	AV
17475	51.88	5.68	H	57.56	68.20	10.64	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT20. Worst case is MCS0 in 802.11n\_HT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 3
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5745 MHz
Channel No.	149 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	56.00	-2.50	V	53.50	73.98	20.48	PK
11490	42.38	-2.50	V	39.88	53.98	14.10	AV
17235	52.89	3.09	V	55.98	68.20	12.22	PK
11490	55.31	-2.50	H	52.81	73.98	21.17	PK
11490	41.67	-2.50	H	39.17	53.98	14.81	AV
17235	52.64	3.09	H	55.73	68.20	12.47	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT20. Worst case is MCS0 in 802.11ac\_VHT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 3
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11570	56.18	-2.87	V	53.31	73.98	20.67	PK
11570	42.59	-2.87	V	39.72	53.98	14.26	AV
17355	51.96	3.45	V	55.41	68.20	12.79	PK
11570	55.48	-2.87	H	52.61	73.98	21.37	PK
11570	42.04	-2.87	H	39.17	53.98	14.81	AV
17355	51.78	3.45	H	55.23	68.20	12.97	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT20. Worst case is MCS0 in 802.11ac\_VHT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 3
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	57.34	-2.84	V	54.50	73.98	19.48	PK
11650	43.97	-2.84	V	41.13	53.98	12.85	AV
17475	52.08	5.68	V	57.76	68.20	10.44	PK
11650	57.08	-2.84	H	54.24	73.98	19.74	PK
11650	46.49	-2.84	H	43.65	53.98	10.33	AV
17475	51.99	5.68	H	57.67	68.20	10.53	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT20. Worst case is MCS0 in 802.11ac\_VHT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII3
Operation Mode:	802.11n_HT40
Transfer MCS Index:	0
Operating Frequency	5755 MHz
Channel No.	151 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11510	55.14	-2.55	V	52.59	73.98	21.39	PK
11510	42.36	-2.55	V	39.81	53.98	14.17	AV
17265	51.28	3.10	V	54.38	68.20	13.82	PK
11510	54.62	-2.55	H	52.07	73.98	21.91	PK
11510	42.12	-2.55	H	39.57	53.98	14.41	AV
17265	51.65	3.10	H	54.75	68.20	13.45	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT40. Worst case is MCS0 in 802.11n\_HT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 3
Operation Mode:	802.11n_HT40
Transfer MCS Index:	0
Operating Frequency	5795 MHz
Channel No.	159 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11590	55.39	-3.29	V	52.10	73.98	21.88	PK
11590	42.24	-3.29	V	38.95	53.98	15.03	AV
17385	51.35	4.19	V	55.54	68.20	12.66	PK
11590	55.18	-3.29	H	51.89	73.98	22.09	PK
11590	42.05	-3.29	H	38.76	53.98	15.22	AV
17385	51.67	4.19	H	55.86	68.20	12.34	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11n\_HT40. Worst case is MCS0 in 802.11n\_HT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 3
Operation Mode:	802.11ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5755 MHz
Channel No.	151 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11510	55.12	-2.55	V	52.57	73.98	21.41	PK
11510	41.91	-2.55	V	39.36	53.98	14.62	AV
17265	51.34	3.10	V	54.44	68.20	13.76	PK
11510	54.78	-2.55	H	52.23	73.98	21.75	PK
11510	41.69	-2.55	H	39.14	53.98	14.84	AV
17265	51.73	3.10	H	54.83	68.20	13.37	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT40. Worst case is MCS0 in 802.11ac\_VHT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 3
Operation Mode:	802.11ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5795 MHz
Channel No.	159 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11590	55.00	-3.29	V	51.71	73.98	22.27	PK
11590	42.22	-3.29	V	38.93	53.98	15.05	AV
17385	51.42	4.19	V	55.61	68.20	12.59	PK
11590	54.38	-3.29	H	51.09	73.98	22.89	PK
11590	42.06	-3.29	H	38.77	53.98	15.21	AV
17385	51.64	4.19	H	55.83	68.20	12.37	PK

\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT40. Worst case is MCS0 in 802.11ac\_VHT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

Band :	UNII 3
Operation Mode:	802.11ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5775 MHz
Channel No.	155 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G.+D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11550	53.33	-2.71	V	50.62	73.98	23.36	PK
11550	42.19	-2.71	V	39.48	53.98	14.50	AV
17325	52.58	3.44	V	56.02	68.20	12.18	PK
11550	53.18	-2.71	H	50.47	73.98	23.51	PK
11550	41.83	-2.71	H	39.12	53.98	14.86	AV
17325	52.33	3.44	H	55.77	68.20	12.43	PK

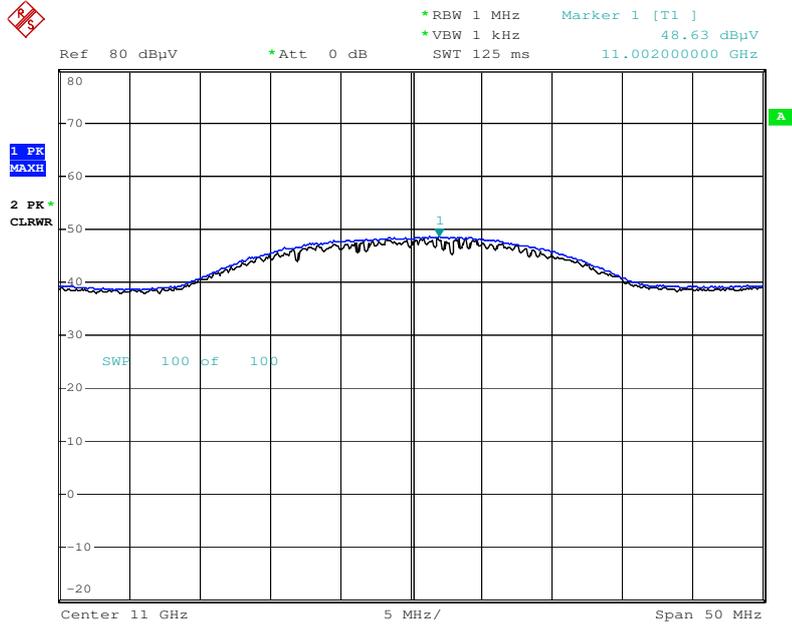
\*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

**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 + Distance Factor
5. We have done all data rate in 802.11ac\_VHT80. Worst case is MCS0 in 802.11ac\_VHT80.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
7. Distance extrapolation factor = 20 log (test distance / specific distance) (dB)

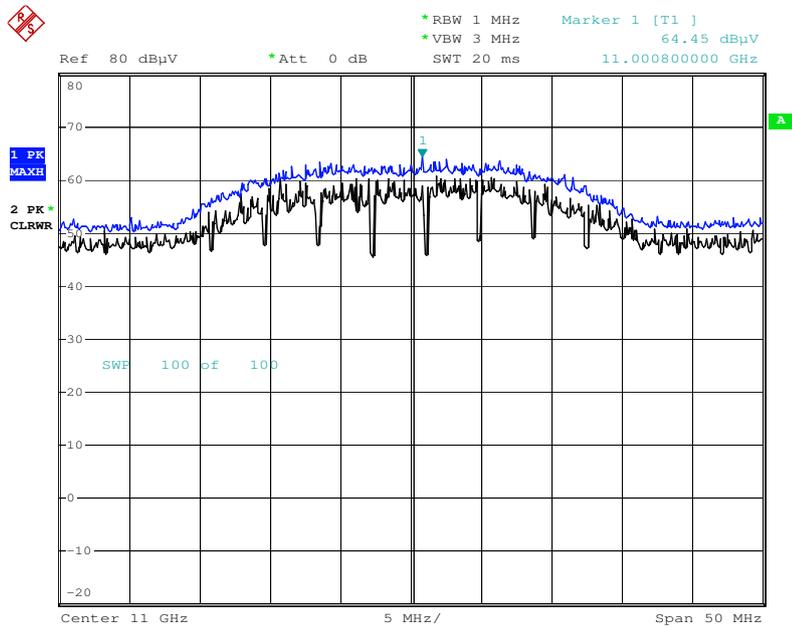
■ **RESULT PLOTS**

**Radiated Spurious Emissions plot –Average Reading (802.11a, Ch.100 2nd Harmonic, Z-H)**



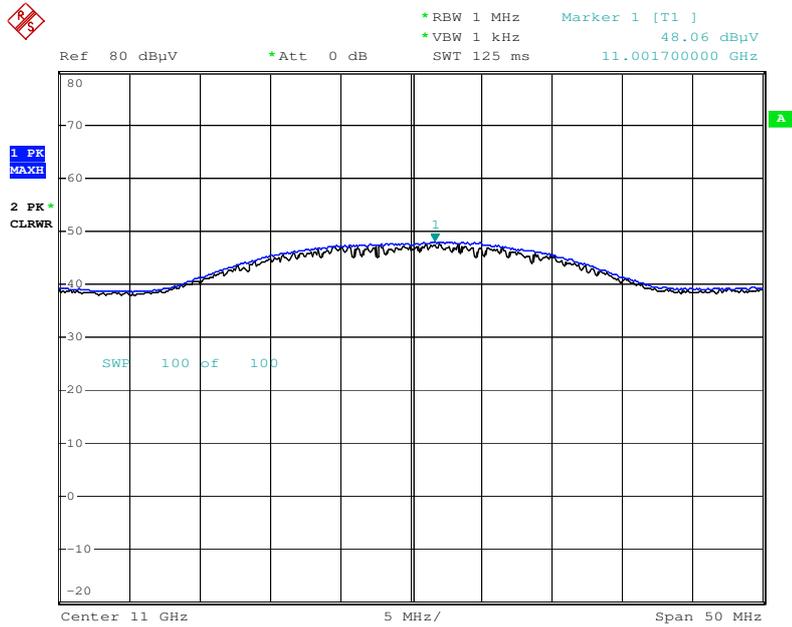
Date: 23.NOV.2016 15:35:31

**Radiated Spurious Emissions plot –Peak Reading (802.11a, Ch.100 2nd Harmonic, Z-H)**



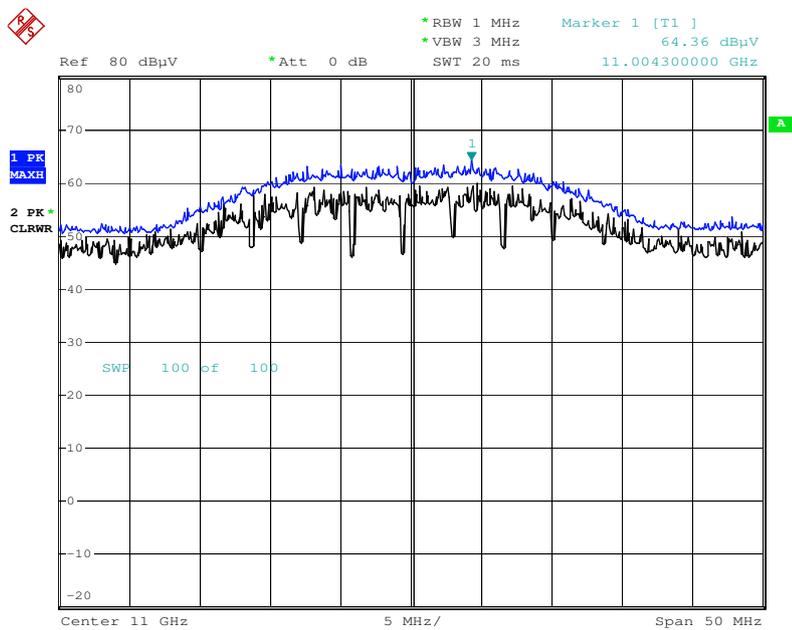
Date: 23.NOV.2016 15:33:35

**Radiated Spurious Emissions plot – Average Reading(802.11n\_HT20, Ch.100 2nd Harmonic, Z-H)**



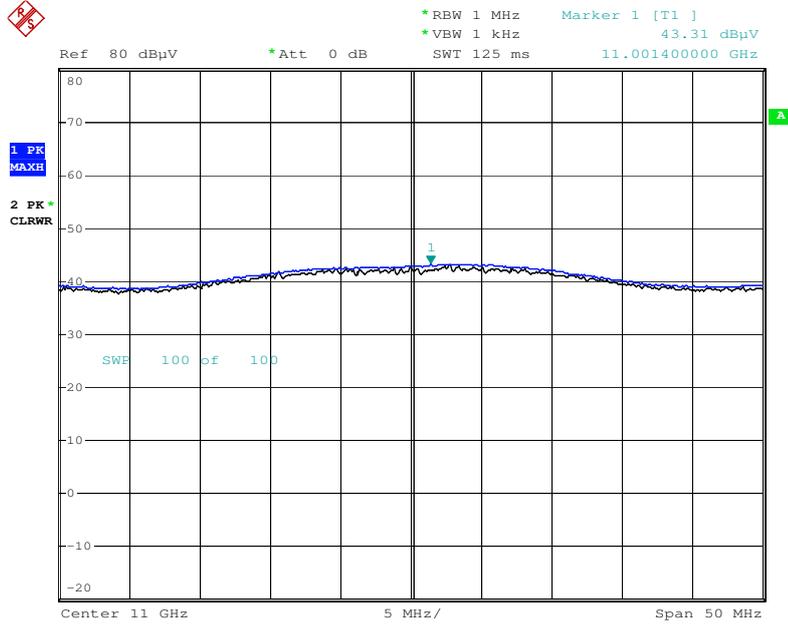
Date: 23.NOV.2016 15:36:26

**Radiated Spurious Emissions plot – Peak Reading(802.11n\_HT20, Ch.100 2nd Harmonic, Z-H)**



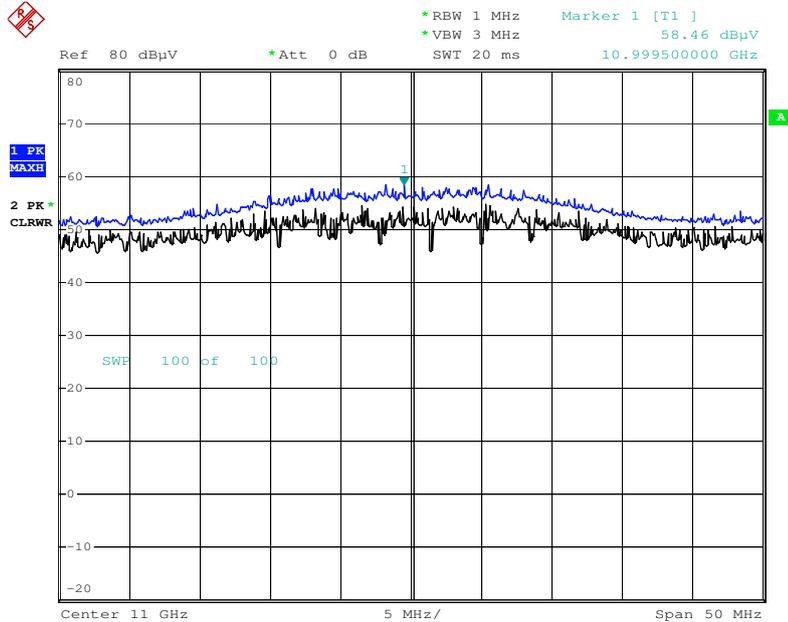
Date: 23.NOV.2016 15:37:34

**Radiated Spurious Emissions plot – Average Reading (802.11ac\_VHT20, Ch.100 2nd Harmonic, Z-H)**



Date: 23.NOV.2016 15:42:00

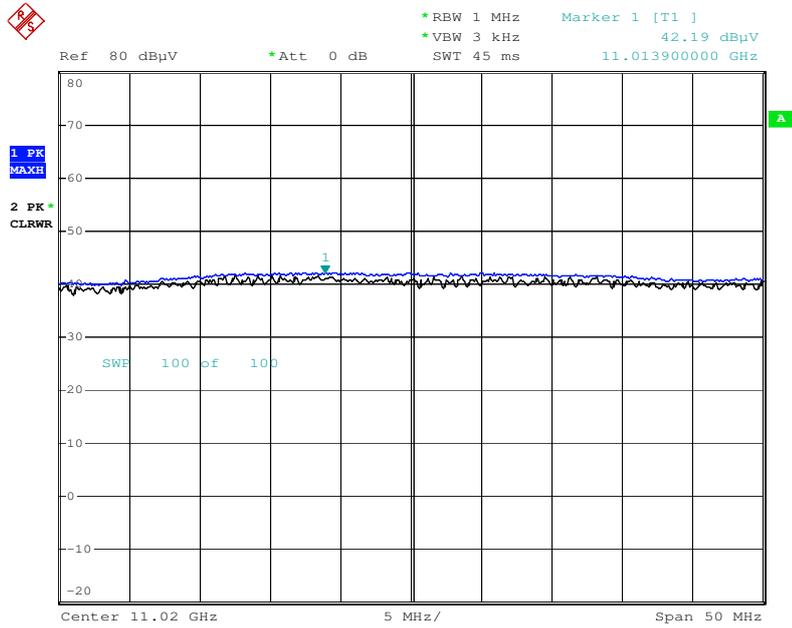
**Radiated Spurious Emissions plot –Peak Reading (802.11ac\_VHT20, Ch.100 2nd Harmonic, Z-H)**



Date: 23.NOV.2016 15:41:02

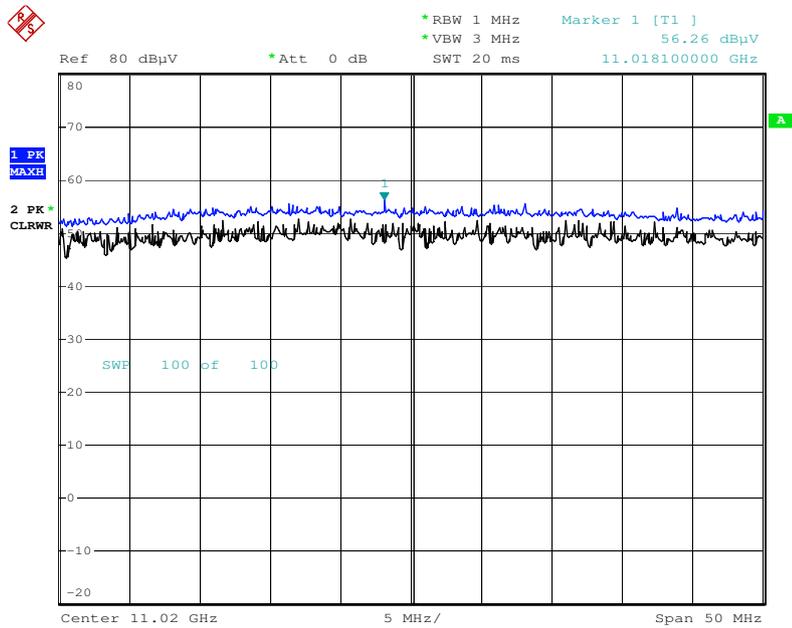


**Radiated Spurious Emissions plot – Average Reading (802.11ac\_VHT40, Ch.102 2nd Harmonic, Z-H)**



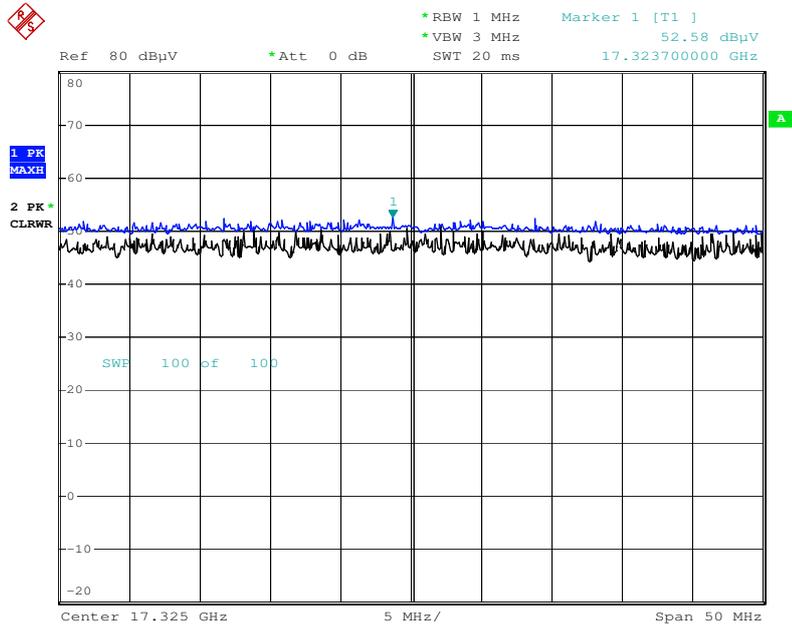
Date: 23.NOV.2016 15:52:25

**Radiated Spurious Emissions plot –Peak Reading (802.11ac\_VHT40, Ch.102 2nd Harmonic, Z-H)**



Date: 23.NOV.2016 15:53:12

**Radiated Spurious Emissions plot –Peak Reading (802.11ac\_VHT80, Ch.155 3rd Harmonic, X-V)**



Date: 23.NOV.2016 15:50:05

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

## 9.6.2 RADIATED RESTRICTED BAND EDGE MEASUREMENTS

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

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in section 15.209(a) (See section 15.205(c)).

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

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	53.49	2.81	H	56.30	73.98	17.68	PK
5150	40.05	2.81	H	42.86	53.98	11.12	AV
5150	52.71	2.81	V	55.52	73.98	18.46	PK
5150	39.87	2.81	V	42.68	53.98	11.30	AV

Band : UNII 1  
 Operation Mode: 802.11 n\_HT20  
 Transfer MCS Index: 0  
 Operating Frequency 5180 MHz  
 Channel No. 36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	54.19	2.81	H	57.00	73.98	16.98	PK
5150	40.40	2.81	H	43.21	53.98	10.77	AV
5150	52.87	2.81	V	55.68	73.98	18.30	PK
5150	39.96	2.81	V	42.77	53.98	11.21	AV

Band : UNII 1  
 Operation Mode: 802.11 ac\_VHT20  
 Transfer MCS Index: 0  
 Operating Frequency 5180 MHz  
 Channel No. 36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	52.97	2.81	H	55.78	73.98	18.20	PK
5150	39.83	2.81	H	42.64	53.98	11.34	AV
5150	52.29	2.81	V	55.1	73.98	18.88	PK
5150	39.46	2.81	V	42.27	53.98	11.71	AV

Band : UNII 1  
 Operation Mode: 802.11 n\_HT40  
 Transfer MCS Index: 0  
 Operating Frequency 5190 MHz  
 Channel No. 38 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	53.78	2.81	H	56.59	73.98	17.39	PK
5150	41.85	2.81	H	44.66	53.98	9.32	AV
5150	53.30	2.81	V	56.11	73.98	17.87	PK
5150	41.31	2.81	V	44.12	53.98	9.86	AV

Band : UNII 1  
 Operation Mode: 802.11 ac\_VHT40  
 Transfer MCS Index: 0  
 Operating Frequency 5190 MHz  
 Channel No. 38 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	60.79	2.81	H	63.60	73.98	10.38	PK
5150	41.68	2.81	H	44.49	53.98	9.49	AV
5150	59.88	2.81	V	62.69	73.98	11.29	PK
5150	41.11	2.81	V	43.92	53.98	10.06	AV

Band : UNII 1  
 Operation Mode: 802.11 ac\_VHT80  
 Transfer MCS Index: 0  
 Operating Frequency 5210 MHz  
 Channel No. 42 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	54.93	2.81	H	57.74	73.98	16.24	PK
5150	43.21	2.81	H	46.02	53.98	7.96	AV
5150	53.70	2.81	V	56.51	73.98	17.47	PK
5150	42.56	2.81	V	45.37	53.98	8.61	AV

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

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5350	51.82	3.86	H	55.68	73.98	18.30	PK
5350	38.61	3.86	H	42.47	53.98	11.51	AV
5350	51.55	3.86	V	55.41	73.98	18.57	PK
5350	38.04	3.86	V	41.9	53.98	12.08	AV

Band : UNII 2A  
 Operation Mode: 802.11 n\_HT20  
 Transfer MCS Index: 0  
 Operating Frequency 5320 MHz  
 Channel No. 64 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5350	50.96	3.86	H	54.82	73.98	19.16	PK
5350	38.58	3.86	H	42.44	53.98	11.54	AV
5350	50.44	3.86	V	54.3	73.98	19.68	PK
5350	38.31	3.86	V	42.17	53.98	11.81	AV

Band : UNII 2A  
 Operation Mode: 802.11 ac\_VHT20  
 Transfer MCS Index: 0  
 Operating Frequency 5320 MHz  
 Channel No. 64 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5350	51.18	3.86	H	55.04	73.98	18.94	PK
5350	38.05	3.86	H	41.91	53.98	12.07	AV
5350	50.43	3.86	V	54.29	73.98	19.69	PK
5350	37.86	3.86	V	41.72	53.98	12.26	AV

Band : UNII 2A  
 Operation Mode: 802.11 n\_HT40  
 Transfer MCS Index: 0  
 Operating Frequency 5310 MHz  
 Channel No. 62 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5350	53.76	3.86	H	57.62	73.98	16.36	PK
5350	39.04	3.86	H	42.9	53.98	11.08	AV
5350	52.84	3.86	V	56.7	73.98	17.28	PK
5350	38.77	3.86	V	42.63	53.98	11.35	AV

Band : UNII 2A  
 Operation Mode: 802.11 ac\_VHT40  
 Transfer MCS Index: 0  
 Operating Frequency 5310 MHz  
 Channel No. 62 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5350	54.12	3.86	H	57.98	73.98	16.00	PK
5350	39.05	3.86	H	42.91	53.98	11.07	AV
5350	53.24	3.86	V	57.1	73.98	16.88	PK
5350	38.76	3.86	V	42.62	53.98	11.36	AV

Band : UNII 2A  
 Operation Mode: 802.11 ac\_VHT80  
 Transfer MCS Index: 0  
 Operating Frequency 5290 MHz  
 Channel No. 58 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5350	51.41	3.86	H	55.27	73.98	18.71	PK
5350	40.04	3.86	H	43.9	53.98	10.08	AV
5350	50.88	3.86	V	54.74	73.98	19.24	PK
5350	39.61	3.86	V	43.47	53.98	10.51	AV

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

Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5460	50.19	5.10	H	55.29	73.98	18.69	PK
5460	37.26	5.10	H	42.36	53.98	11.62	AV
*5470	52.25	5.18	H	57.43	68.20	10.77	PK
5460	50.12	5.10	V	55.22	73.98	18.76	PK
5460	37.11	5.10	V	42.21	53.98	11.77	AV
*5470	51.88	5.18	V	57.06	68.20	11.14	PK

Band : UNII 2C  
 Operation Mode: 802.11 n\_HT20  
 Transfer MCS Index: 0  
 Operating Frequency 5500 MHz  
 Channel No. 100 Ch

Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5460	50.26	5.10	H	55.36	73.98	18.62	PK
5460	37.09	5.10	H	42.19	53.98	11.79	AV
*5470	51.23	5.18	H	56.41	68.20	11.79	PK
5460	50.13	5.10	V	55.23	73.98	18.75	PK
5460	36.97	5.10	V	42.07	53.98	11.91	AV
*5470	50.85	5.18	V	56.03	68.20	12.17	PK

Band : UNII 2C  
 Operation Mode: 802.11 ac\_VHT20  
 Transfer MCS Index: 0  
 Operating Frequency 5500 MHz  
 Channel No. 100 Ch

Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5460	50.15	5.10	H	55.25	73.98	18.73	PK
5460	37.10	5.10	H	42.2	53.98	11.78	AV
*5470	51.45	5.18	H	56.63	68.20	11.57	PK
5460	49.98	5.10	V	55.08	73.98	18.90	PK
5460	37.02	5.10	V	42.12	53.98	11.86	AV
*5470	51.21	5.18	V	56.39	68.20	11.81	PK

Band : UNII 2C  
 Operation Mode: 802.11 n\_HT40  
 Transfer MCS Index: 0  
 Operating Frequency 5510 MHz  
 Channel No. 102 Ch

Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5460	56.40	5.10	H	61.50	73.98	12.48	PK
5460	37.83	5.10	H	42.93	53.98	11.05	AV
5470	60.67	5.18	H	65.85	73.98	8.13	PK
5470	38.86	5.18	H	44.04	53.98	9.94	AV
5460	54.27	5.10	V	59.37	73.98	14.61	PK
5460	37.16	5.10	V	42.26	53.98	11.72	AV
5470	60.04	5.18	V	65.22	73.98	8.76	PK
5470	38.45	5.18	V	43.63	53.98	10.35	AV

Band : UNII 2C  
 Operation Mode: 802.11 ac\_VHT40  
 Transfer MCS Index: 0  
 Operating Frequency 5510 MHz  
 Channel No. 102 Ch

Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5460	51.81	5.10	H	56.91	73.98	17.07	PK
5460	38.14	5.10	H	43.24	53.98	10.74	AV
5470	54.46	5.18	H	59.64	68.20	8.56	PK
5460	51.27	5.10	V	56.37	73.98	17.61	PK
5460	37.99	5.10	V	43.09	53.98	10.89	AV
5470	53.18	5.18	V	58.36	68.20	9.84	PK

Band : UNII 2C  
 Operation Mode: 802.11 ac\_VHT80  
 Transfer MCS Index: 0  
 Operating Frequency 5530 MHz  
 Channel No. 106 Ch

Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5460	50.85	5.10	H	55.95	73.98	18.03	PK
5460	39.20	5.10	H	44.3	53.98	9.68	AV
*5470	51.37	5.18	H	56.55	68.20	11.65	PK
5460	50.24	5.10	V	55.34	73.98	18.64	PK
5460	38.72	5.10	V	43.82	53.98	10.16	AV
*5470	50.86	5.18	V	56.04	68.20	12.16	PK

Band : UNII 2C  
 Operation Mode: 802.11 a  
 Transfer Rate: 6 Mbps  
 Operating Frequency 5700 MHz  
 Channel No. 140 Ch

Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5725	50.30	5.95	H	56.25	68.20	11.95	PK
5725	48.12	5.95	V	54.07	68.20	14.13	PK

Band : UNII 2C  
 Operation Mode: 802.11 n\_HT20  
 Transfer Rate: 0  
 Operating Frequency 5700 MHz  
 Channel No. 140 Ch

Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5725	49.45	5.95	H	55.40	68.20	12.80	PK
5725	48.07	5.95	V	54.02	68.20	14.18	PK

Band : UNII 2C  
 Operation Mode: 802.11 ac\_VHT20  
 Transfer Rate: 0  
 Operating Frequency 5700 MHz  
 Channel No. 140 Ch

Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5725	48.04	5.95	H	53.99	68.20	14.21	PK
5725	47.56	5.95	V	53.51	68.20	14.69	PK

Band : UNII 2C  
 Operation Mode: 802.11 n\_HT40  
 Transfer Rate: 0  
 Operating Frequency 5670 MHz  
 Channel No. 134 Ch

Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5725	53.35	5.95	H	59.30	68.20	8.90	PK
5725	51.44	5.95	V	57.39	68.20	10.81	PK

Band : UNII 2C  
 Operation Mode: 802.11 ac\_VHT40  
 Transfer Rate: 0  
 Operating Frequency 5670 MHz  
 Channel No. 134 Ch

Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5725	50.09	5.95	H	56.04	68.20	12.16	PK
5725	48.76	5.95	V	54.71	68.20	13.49	PK

Band : UNII 2C  
 Operation Mode: 802.11 ac\_VHT80  
 Transfer Rate: 0  
 Operating Frequency 5610 MHz  
 Channel No. 122 Ch

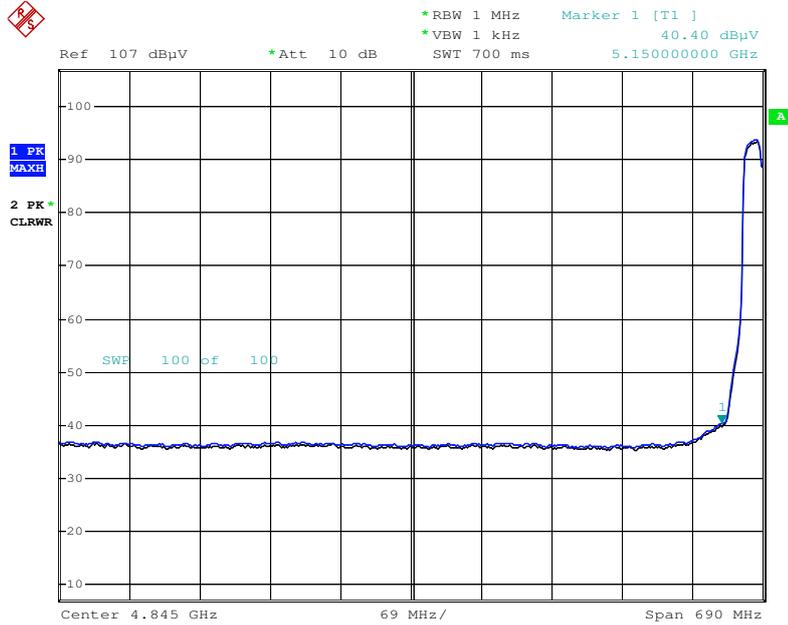
Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5725	47.55	5.95	H	53.50	68.20	14.70	PK
5725	46.45	5.95	V	52.40	68.20	15.80	PK

**Notes:**

1. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + ATT + Distance Factor
2. We have done all data rate in 802.11a/n/ac mode test. . Worst case of EUT is lowest data rate in 802.11a/n/ac.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. “\*” is radiated band edge test frequency.(not restricted band emissions)

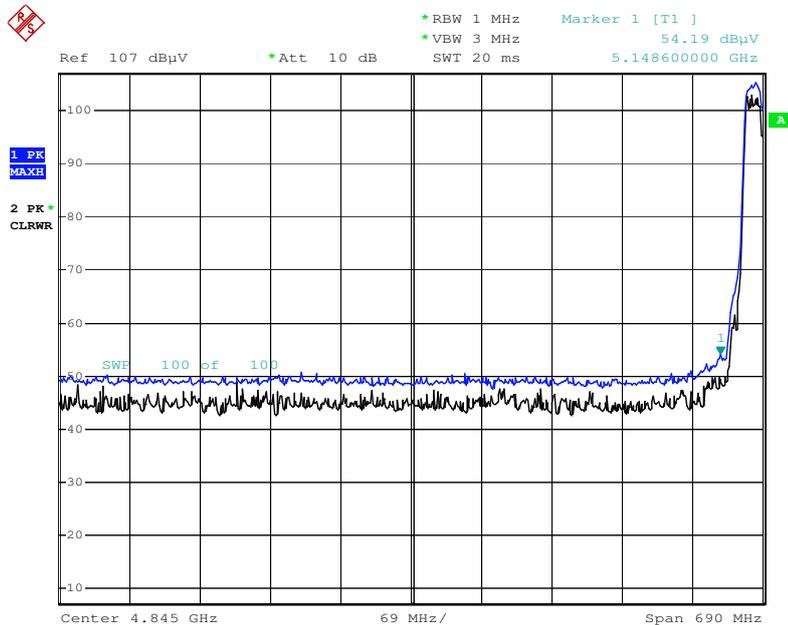


**Radiated Restricted Band Edges plot – Average Reading (802.11n\_HT20, Ch.36, Z-H)**



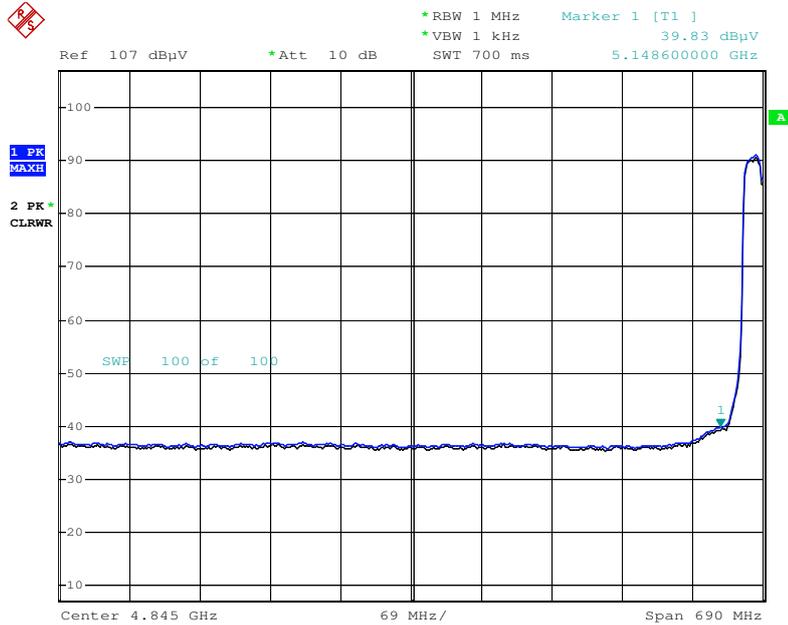
Date: 21.NOV.2016 16:11:42

**Radiated Restricted Band Edges plot – Peak Reading (802.11n\_HT20, Ch.36, Z-H)**



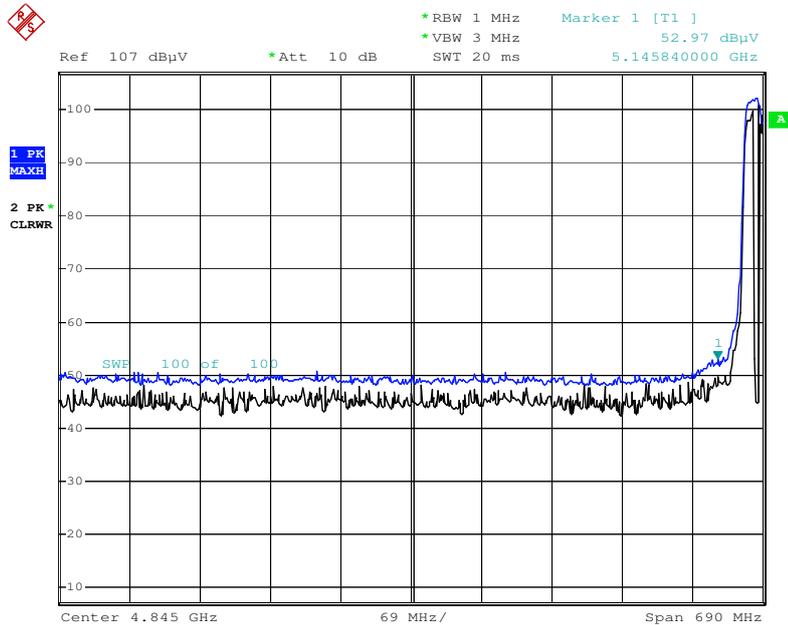
Date: 21.NOV.2016 16:15:43

**Radiated Restricted Band Edges plot – Average Reading (802.11ac\_VHT20, Ch.36, Z-H)**



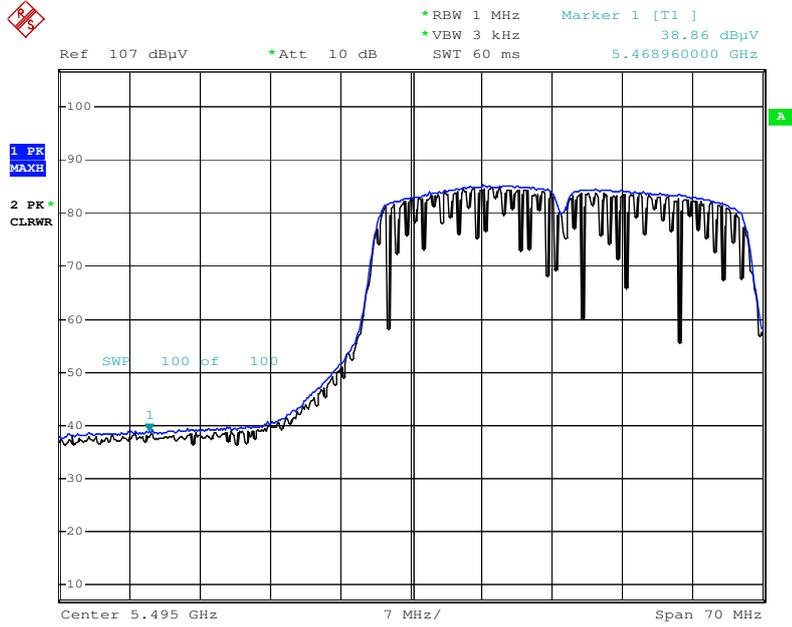
Date: 21.NOV.2016 16:22:58

**Radiated Restricted Band Edges plot – Peak Reading (802.11ac\_VHT20, Ch.36, Z-H)**



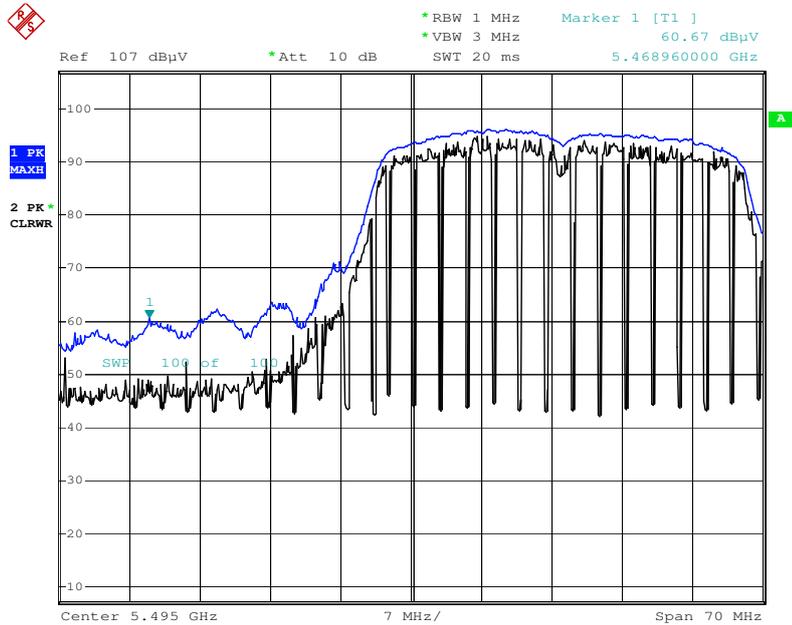
Date: 21.NOV.2016 16:19:35

**Radiated Restricted Band Edges plot – Average Reading (802.11n\_HT40, Ch.102, Y-H)**



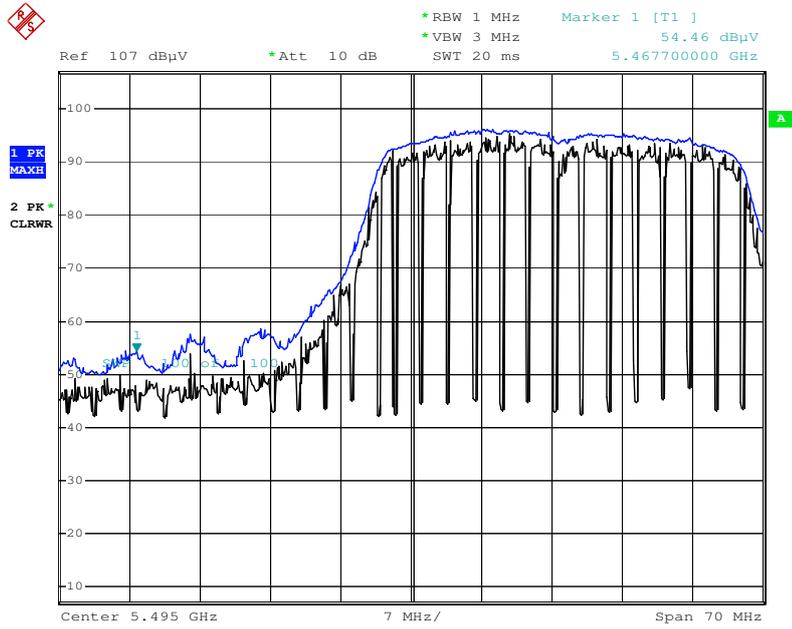
Date: 21.NOV.2016 15:41:13

**Radiated Restricted Band Edges plot – Peak Reading (802.11n\_HT40, Ch.102, Y-H)**



Date: 21.NOV.2016 15:39:33

**Radiated Restricted Band Edges plot – Peak Reading (802.11ac\_VHT40, Ch.102, Y-H)**

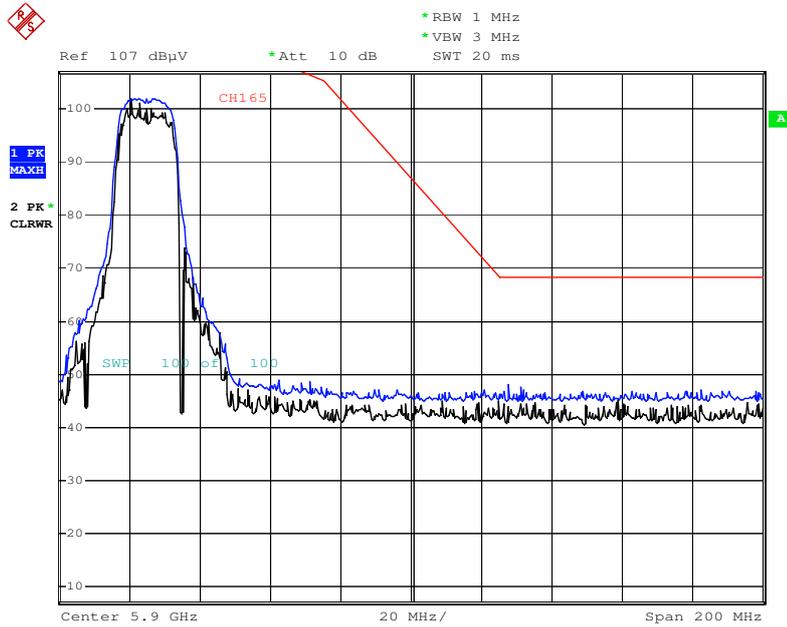


Date: 21.NOV.2016 15:49:29



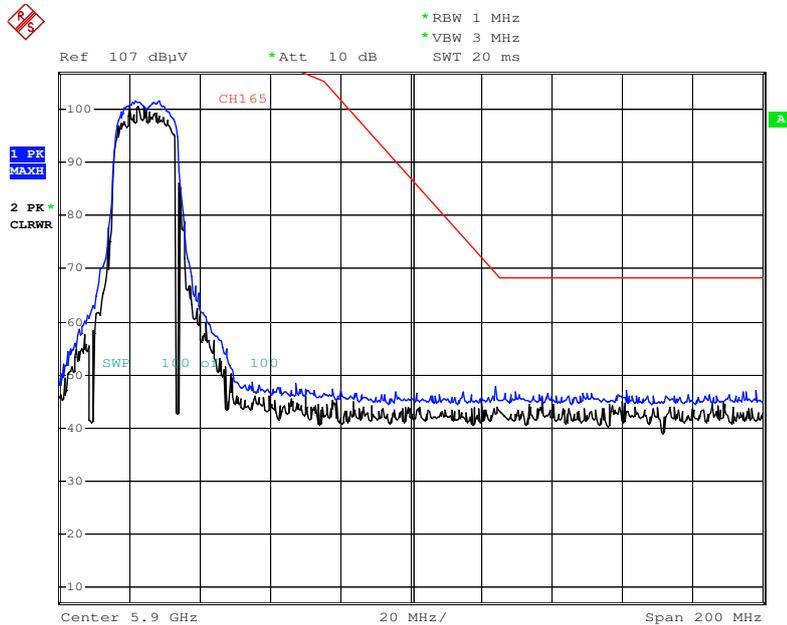
■ RESULT PLOTS (UNII 3)

**Radiated Restricted Band Edges plot – Peak Reading (802.11a)**



Date: 21.NOV.2016 16:27:25

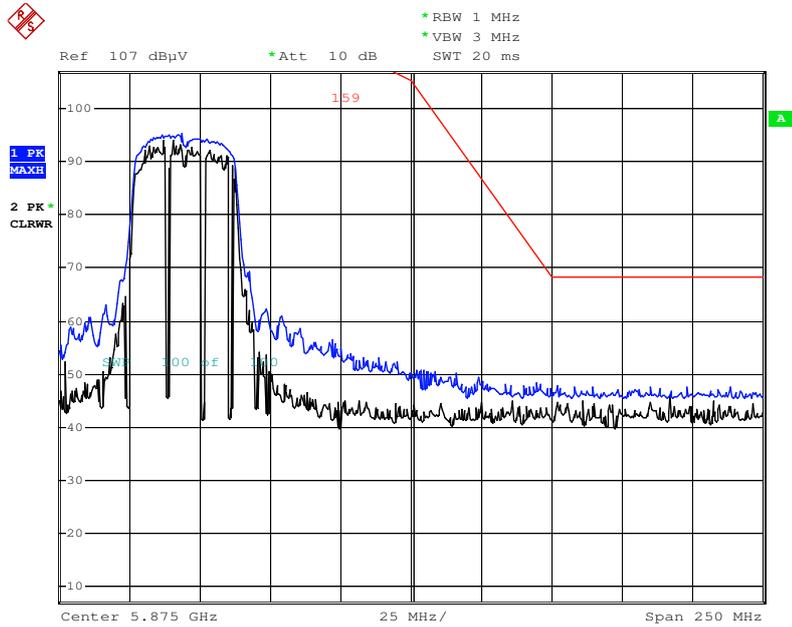
**Radiated Restricted Band Edges plot – Peak Reading (802.11n\_HT20)**



Date: 21.NOV.2016 16:28:17

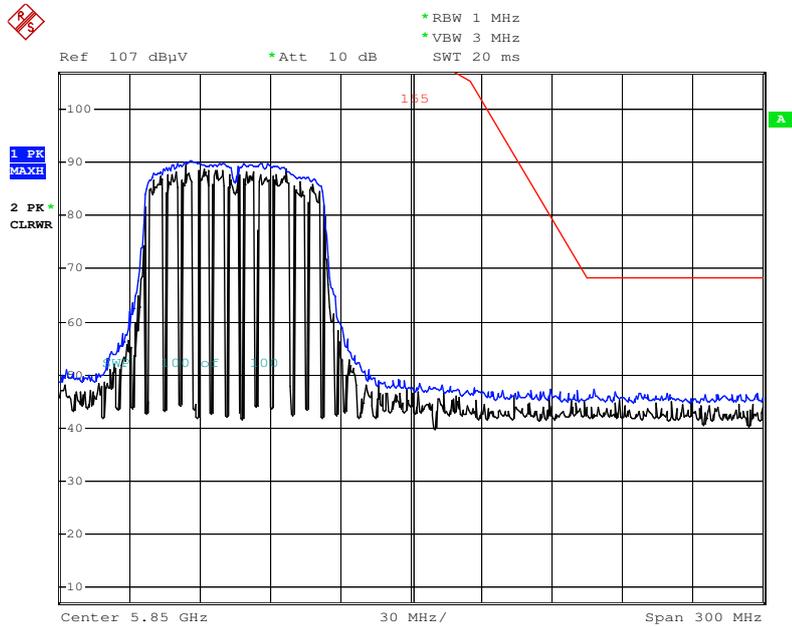


**Radiated Restricted Band Edges plot – Peak Reading (802.11ac\_VHT40)**



Date: 21.NOV.2016 16:34:31

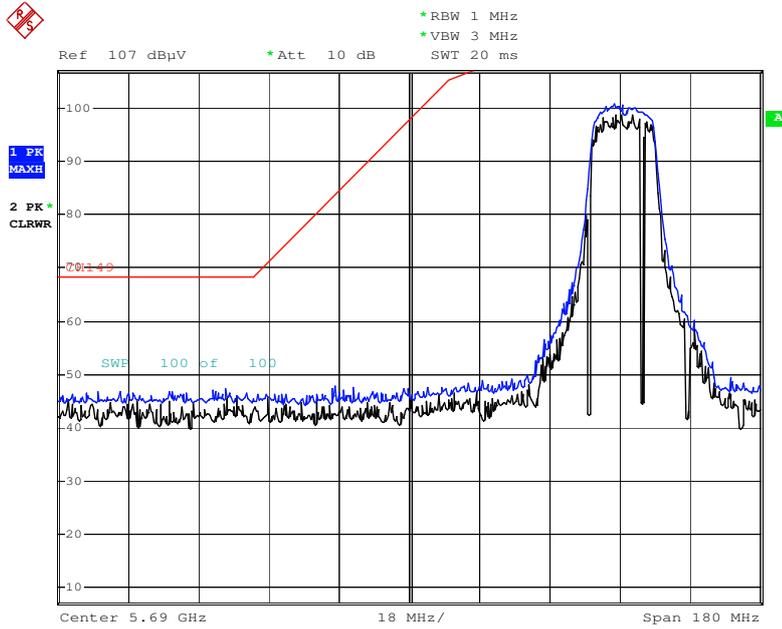
**Radiated Restricted Band Edges plot – Peak Reading (802.11ac\_VHT80)**



Date: 21.NOV.2016 16:32:25

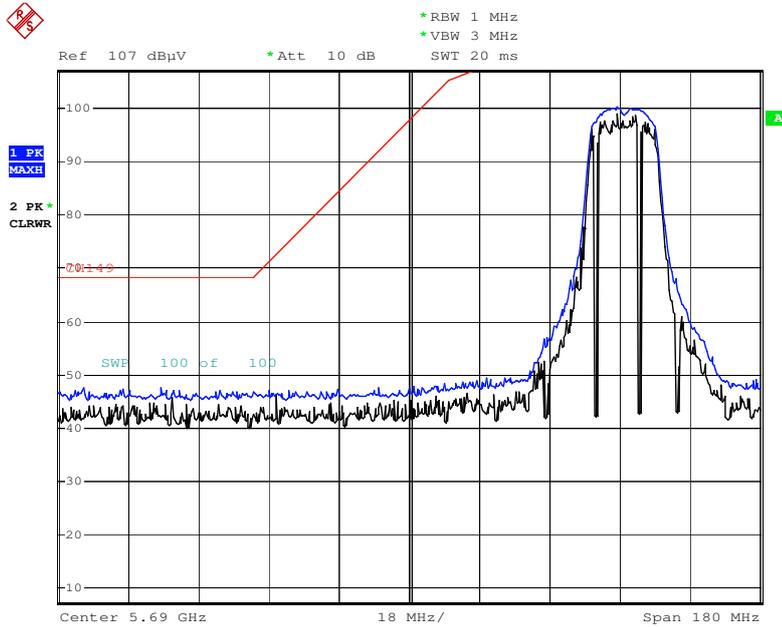
■ RESULT PLOTS (UNII 3)

**Radiated Restricted Band Edges plot – Peak Reading (802.11a) – ch.149**



Date: 30.NOV.2016 14:41:32

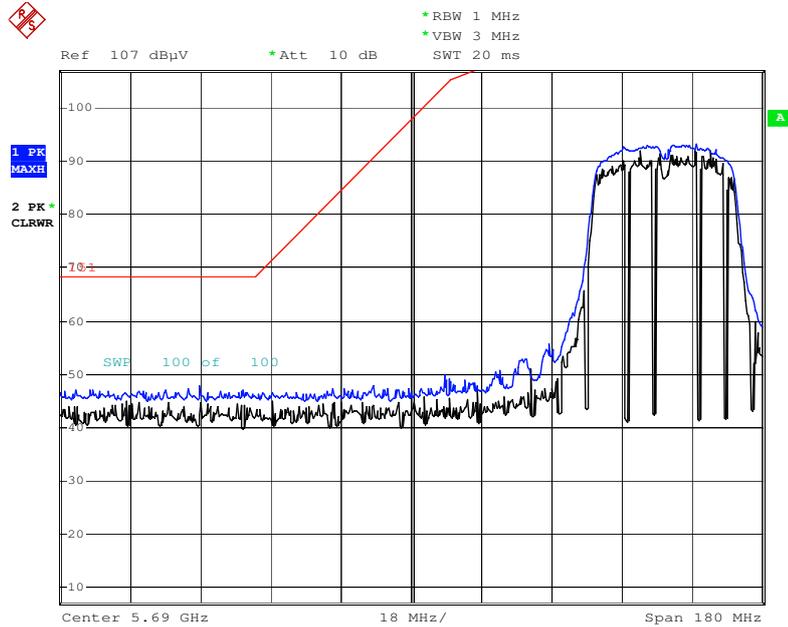
**Radiated Restricted Band Edges plot – Peak Reading (802.11n\_HT20) – ch.149**



Date: 30.NOV.2016 14:43:02

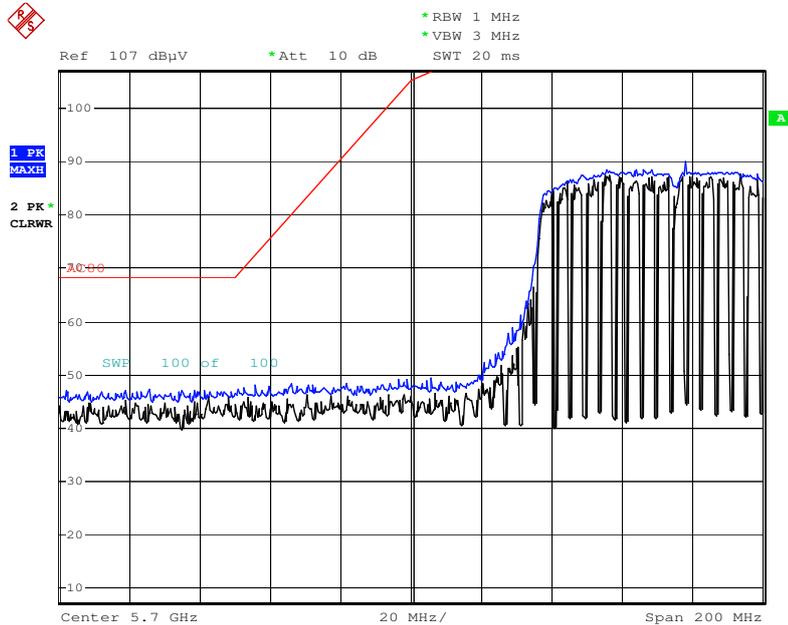


**Radiated Restricted Band Edges plot – Peak Reading (802.11ac\_VHT40) – ch.151**



Date: 30.NOV.2016 14:49:41

**Radiated Restricted Band Edges plot – Peak Reading (802.11ac\_VHT80) – ch.155**



Date: 30.NOV.2016 14:51:58

## 9.7 POWERLINE CONDUCTED EMISSIONS

### Test Requirements and limit, §15.207

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

### Test Configuration

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

### TEST PROCEDURE

1. The EUT is placed on a wooden table 80 cm above the reference groundplane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Detectors – Quasi Peak and Average Detector.

### Sample Calculation

Quasi-peak(Final Result) = Reading Value + Correction Factor

▣ **RESULT PLOTS**

**Conducted Emissions (Line 1)**

EMI Auto Test(3)

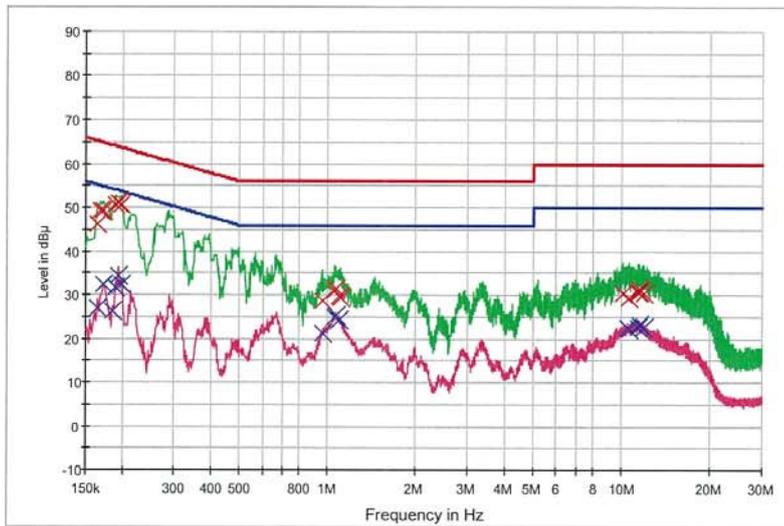
1 / 2

**HCT TEST Report**

**Common Information**

EUT: SM-A320F/DS  
 Manufacturer: SAMSUNG  
 Test Site: SHIELD ROOM  
 Operating Conditions: WLAN MODE 5G

FCC CLASS B



— FCC CLASS B\_OP      — FCC CLASS B\_AV      — Preview Result 1-PK+  
 — Preview Result 2-AVG      × Final Result 1-QPK      × Final Result 2-CAV

**Final Result 1**

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.164000	46.1	9.000	Off	L1	9.7	19.1	65.3
0.168000	49.4	9.000	Off	L1	9.7	15.6	65.1
0.172000	49.2	9.000	Off	L1	9.7	15.6	64.9
0.190000	50.5	9.000	Off	L1	9.7	13.5	64.0
0.194000	50.9	9.000	Off	L1	9.7	13.0	63.9
0.198000	50.6	9.000	Off	L1	9.7	13.1	63.7
0.958000	28.6	9.000	Off	L1	9.8	27.4	56.0
1.060000	31.1	9.000	Off	L1	9.8	24.9	56.0
1.064000	31.3	9.000	Off	L1	9.8	24.7	56.0
1.072000	31.3	9.000	Off	L1	9.8	24.7	56.0
1.096000	29.7	9.000	Off	L1	9.8	26.3	56.0
1.108000	29.4	9.000	Off	L1	9.8	26.6	56.0
10.066000	30.2	9.000	Off	L1	10.1	29.8	60.0
10.632000	29.3	9.000	Off	L1	10.1	30.7	60.0
11.384000	30.8	9.000	Off	L1	10.1	29.2	60.0
11.438000	30.8	9.000	Off	L1	10.1	29.2	60.0
11.522000	31.3	9.000	Off	L1	10.1	28.7	60.0
11.886000	30.4	9.000	Off	L1	10.1	29.6	60.0

2016-11-28

오후 2:21:23

EMI Auto Test(3)

2 / 2

**Final Result 2**

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.164000	27.0	9.000	Off	L1	9.7	28.2	55.3
0.172000	32.5	9.000	Off	L1	9.7	22.4	54.9
0.186000	26.1	9.000	Off	L1	9.7	28.1	54.2
0.190000	31.8	9.000	Off	L1	9.7	22.2	54.0
0.194000	34.4	9.000	Off	L1	9.7	19.5	53.9
0.198000	32.4	9.000	Off	L1	9.7	21.3	53.7
0.958000	21.3	9.000	Off	L1	9.8	24.7	46.0
1.060000	25.0	9.000	Off	L1	9.8	21.0	46.0
1.064000	25.1	9.000	Off	L1	9.8	20.9	46.0
1.068000	25.3	9.000	Off	L1	9.8	20.7	46.0
1.072000	25.3	9.000	Off	L1	9.8	20.7	46.0
1.096000	24.2	9.000	Off	L1	9.8	21.8	46.0
10.468000	22.5	9.000	Off	L1	10.1	27.5	50.0
10.562000	22.3	9.000	Off	L1	10.1	27.7	50.0
10.632000	22.3	9.000	Off	L1	10.1	27.7	50.0
11.384000	22.7	9.000	Off	L1	10.1	27.3	50.0
11.438000	23.1	9.000	Off	L1	10.1	26.9	50.0
11.886000	22.5	9.000	Off	L1	10.1	27.5	50.0

2016-11-28

오후 2:21:23

**Conducted Emissions (Line 2)**

EMI Auto Test(3)

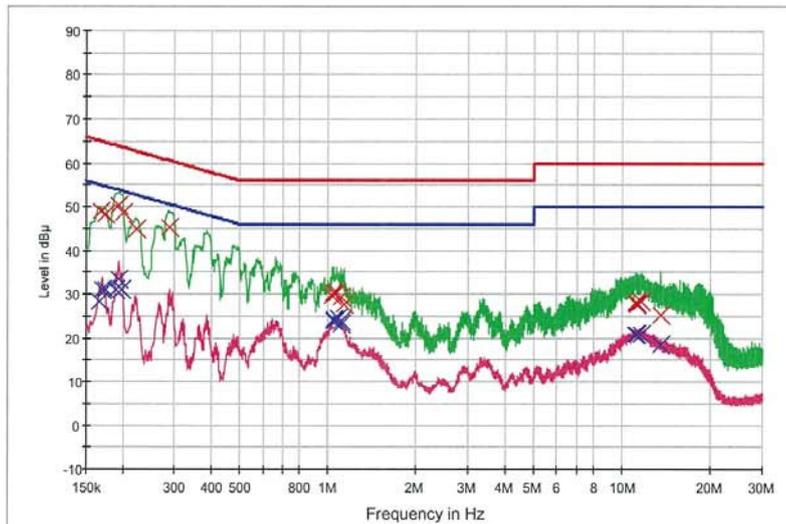
1 / 2

**HCT TEST Report**

**Common Information**

EUT: SM-A320F/DS  
 Manufacturer: SAMSUNG  
 Test Site: SHIELD ROOM  
 Operating Conditions: WLAN MODE 5G

FCC CLASS B



— FCC CLASS B\_QP      — FCC CLASS B\_AV      — Preview Result 1-PK+  
 — Preview Result 2-AVG      × Final Result 1-QPK      × Final Result 2-CAV

**Final Result 1**

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.168000	48.9	9.000	Off	N	9.7	16.1	65.1
0.174000	48.3	9.000	Off	N	9.7	16.5	64.8
0.194000	50.3	9.000	Off	N	9.7	13.6	63.9
0.200000	48.8	9.000	Off	N	9.7	14.8	63.6
0.222000	45.1	9.000	Off	N	9.7	17.7	62.7
0.288000	45.3	9.000	Off	N	9.7	15.3	60.6
1.034000	29.5	9.000	Off	N	9.7	26.5	56.0
1.046000	30.3	9.000	Off	N	9.7	25.7	56.0
1.070000	30.4	9.000	Off	N	9.7	25.6	56.0
1.074000	30.5	9.000	Off	N	9.7	25.5	56.0
1.102000	29.3	9.000	Off	N	9.7	26.7	56.0
1.130000	27.8	9.000	Off	N	9.7	28.2	56.0
11.148000	28.0	9.000	Off	N	10.1	32.0	60.0
11.176000	27.9	9.000	Off	N	10.1	32.1	60.0
11.274000	27.8	9.000	Off	N	10.1	32.2	60.0
11.622000	28.3	9.000	Off	N	10.1	31.7	60.0
11.690000	28.2	9.000	Off	N	10.1	31.8	60.0
13.518000	25.3	9.000	Off	N	10.1	34.7	60.0

2016-11-28

오후 2:12:00

EMI Auto Test(3)

2 / 2

**Final Result 2**

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.166000	28.4	9.000	Off	N	9.7	26.8	55.2
0.170000	31.2	9.000	Off	N	9.7	23.8	55.0
0.174000	31.2	9.000	Off	N	9.7	23.6	54.8
0.190000	31.0	9.000	Off	N	9.7	23.0	54.0
0.194000	33.2	9.000	Off	N	9.7	20.6	53.9
0.198000	31.1	9.000	Off	N	9.7	22.6	53.7
1.042000	23.7	9.000	Off	N	9.7	22.3	46.0
1.048000	24.3	9.000	Off	N	9.7	21.7	46.0
1.086000	24.4	9.000	Off	N	9.7	21.6	46.0
1.102000	23.8	9.000	Off	N	9.7	22.2	46.0
1.106000	23.8	9.000	Off	N	9.7	22.2	46.0
1.112000	23.1	9.000	Off	N	9.7	22.9	46.0
11.148000	21.0	9.000	Off	N	10.1	29.0	50.0
11.176000	20.7	9.000	Off	N	10.1	29.3	50.0
11.180000	20.9	9.000	Off	N	10.1	29.1	50.0
11.274000	20.9	9.000	Off	N	10.1	29.1	50.0
11.690000	21.0	9.000	Off	N	10.1	29.0	50.0
13.518000	18.5	9.000	Off	N	10.1	31.5	50.0

2016-11-28

오후 2:12:00

**10. LIST OF TEST EQUIPMENT****10.1 LIST OF TEST EQUIPMENT(Conducted Test)**

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Rohde & Schwarz	ENV216 / LISN	12/28/2015	Annual	100073
Rohde & Schwarz	ESCI / Test Receiver	12/28/2015	Annual	100584
Agilent	N9020A / Signal Analyzer	06/24/2016	Annual	MY51110085
Agilent	N1911A / Power Meter	03/11/2016	Annual	MY45100523
Agilent	N1921A / Power Sensor	03/11/2016	Annual	MY52260025
Agilent	87300B / Directional Coupler	11/23/2016	Annual	3116A03621
Hewlett Packard	11667B / Power Splitter	06/14/2016	Annual	05001
Hewlett Packard	E3632A / DC Power Supply	03/09/2016	Annual	KR75303962
Agilent	8493C / Attenuator(10 dB)	07/15/2016	Annual	07560

**10.2 LIST OF TEST EQUIPMENT(Radiated Test)**

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Audix	AM4000 / Antenna Position Tower	N/A	N/A	N/A
Audix	Turn Table	N/A	N/A	N/A
Audix	EM1000 / Controller	N/A	N/A	060520
Rohde & Schwarz	Loop Antenna	02/23/2016	Biennial	1513-175
Schwarzbeck	VULB 9168 / Hybrid Antenna	04/15/2015	Biennial	255
Schwarzbeck	BBHA 9120D / Horn Antenna	05/07/2015	Biennial	937
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	09/03/2015	Biennial	BBHA9170541
Rohde & Schwarz	FSP / Spectrum Analyzer	09/10/2016	Annual	100688
Rohde & Schwarz	FSV40-N / Spectrum Analyzer	09/23/2016	Annual	101068-SZ
Wainwright Instruments	WHK3.0/18G-10EF / High Pass Filter	06/24/2016	Annual	8
Wainwright Instruments	WHFX7.0/18G-8SS / High Pass Filter	05/13/2016	Annual	29
Wainwright Instruments	WRCJV2400/2483.5-2370/2520-60/12SS / Band Reject Filter	07/06/2016	Annual	2
Wainwright Instruments	WRCJV5100/5850-40/50-8EEK / Band Reject Filter	01/26/2016	Annual	2
Agilent	8493C-10 / Attenuator(10 dB)	08/11/2016	Annual	76649
CERNEX	CBLU1183540 / Power Amplifier	07/15/2016	Annual	22964
CERNEX	CBL06185030 / Power Amplifier	07/15/2016	Annual	22965
CERNEX	CBL18265035 / Power Amplifier	07/11/2016	Annual	22966
CERNEX	CBL26405040 / Power Amplifier	07/11/2016	Annual	25956