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

FCC UNII REPORT

Certification

Applicant Name:
SAMSUNG Electronics Co., Ltd.

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

Date of Issue:
May 23, 2018
Test Site/Location:
HCT CO., LTD., 74,Seoicheon-ro 578beon-gil,Majang-myeo,Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA
Report No.: HCT-RF-1805-FC025-R3

FCC ID:	**A3LSMA600N**
APPLICANT:	**SAMSUNG Electronics Co., Ltd.**

Model: SM-A600N
EUT Type: Mobile Phone
Modulation type OFDM
FCC Classification: Unlicensed National Information Infrastructure(UNII)
FCC Rule Part(s): Part 15.407

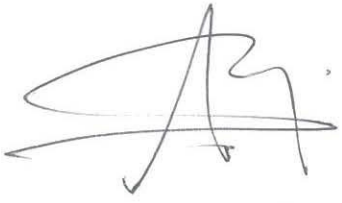
Band	Mode	Frequency Range (MHz)	Power (dBm)	Power (W)
UNII1	802.11a	5180 – 5240	16.24	0.04207
	802.11n_HT20	5180 – 5240	15.83	0.03828
	802.11n_HT40	5190 - 5230	13.72	0.02355
UNII2A	802.11a	5260 – 5320	16.11	0.04083
	802.11n_HT20	5260 – 5320	15.71	0.03724
	802.11n_HT40	5270 – 5310	13.55	0.02265
UNII2C	802.11a	5500 – 5700	15.57	0.03606
	802.11n_HT20	5500 – 5700	15.29	0.03381
	802.11n_HT40	5510 – 5670	13.12	0.02051
UNII3	802.11a	5745 – 5825	15.70	0.03715
	802.11n_HT20	5745 – 5825	15.39	0.03459
	802.11n_HT40	5755 – 5795	13.43	0.02203

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 : Jung Ki Lim
Engineer of Telecommunication testing center



Approved by : Jong Seok Lee
Manager of Telecommunication testing center

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-1805-FC025	May 10, 2018	- First Approval Report
HCT-RF-1805-FC025-R1	May 17, 2018	- Update uncertainty table - Update the frequency stability procedure and edit typo - Edit typo (Averaging -> Peak) (For radiated emission test plots shown in page 92-93) - A description of the configuration of the radiated measurement test settings has been added.
HCT-RF-1805-FC025-R2	May 18, 2018	- Added test result for frequency stability at 2,5,10 minutes.
HCT-RF-1805-FC025-R3	May 23, 2018	- Added the travel adaptor information (page 5.) - Added description the worst case of Power line Conducted emission (page 32.)

Table of Contents

1. GENERAL INFORMATION

Applicant:	SAMSUNG Electronics Co., Ltd.
Address:	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
FCC ID:	A3LSMA600N
EUT Type:	Mobile Phone
Model:	SM-A600N
Date(s) of Tests:	April 09, 2018 ~ May 09, 2018
Place of Tests:	HCT Co., Ltd. 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea

2. EUT DESCRIPTION

Model	SM-A600N	
EUT Type	Mobile Phone	
Power Supply	DC 3.85 V	
Battery Information	Model: EB-BJ800ABA Type: Li-ion Battery	
Travel Adapter Information	Model: EP-TA50EWE Input: 100 - 240V Output: 5.0V, 1.55A Manufacture: SAMSUNG	
Frequency Range	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)
	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)
Modulation Type	OFDM(802.11a, 802.11n)	
Antenna Specification	Antenna type: Metal Frame & PEA Peak Gain : -7.70 dBi (UNII 1) / -7.16 dBi(UNII 2A) / -7.82 dBi(UNII 2C) / -7.45 dBi(UNII 3)	

3. TEST METHODOLOGY

The measurement procedure described in FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 dated December 14, 2017 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.

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 v02r01)

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.

Parameter	Expanded Uncertainty (±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)	5.70
Radiated Disturbance (18 GHz ~ 40 GHz)	5.71

8. SUMMARY OF TEST RESULTS

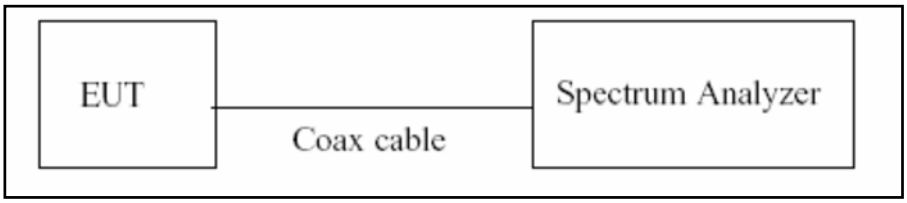
Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
26dB Bandwidth	§15.407 (for Power Measurement)	N/A	CONDUCTED	PASS
6 dB Bandwidth	§15.407(e)	>500 kHz (5725-5850 MHz)		PASS
Maximum Conducted Output Power	§15.407(a)(1)	< 250 mW (5150-5250 MHz) < 250 mW or 11+10 log log $_{10}$ (BW) dBm (5250-5350 MHz) < 250 mW or 11+10 log log $_{10}$ (BW) dBm (5470-5725 MHz) <1 W (5725-5850 MHz)		PASS
Peak Power Spectral Density	§15.407(a)(1),(5)	<11 dBm/ MHz (5150-5250 MHz) <11 dBm/ MHz (5250-5350 MHz) <11 dBm/ MHz (5470-5725 MHz) <30 dBm/500 kHz(5725-5850 MHz)		PASS
Frequency Stability	§15.407(g) §2.1055	NA		PASS
AC Conducted Emissions 150 kHz-30 MHz	15.207	<FCC 15.207 limits		PASS
Undesirable Emissions	§15.407(b)	<-27 dBm/MHz EIRP (UNII1, 2A, 2C) cf. Section 9.6.1 (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 ≥ EBW if possible; otherwise, set RBW to the largest available value. Set VBW ≥ RBW. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are > 50/*T*, where *T* is defined in section B)1)a), and the number of sweep points across duration *T* exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if *T* ≤ 16.7 microseconds.)

▣ TEST CONFIGURATION



▣ TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer. We tested according to the zero-span measurement method, (B.2 in KDB 789033 D02 v02r01)

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 ≤ 6.25 microseconds. (50/6.25 = 8)

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

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

▣ Duty Cycle Factor

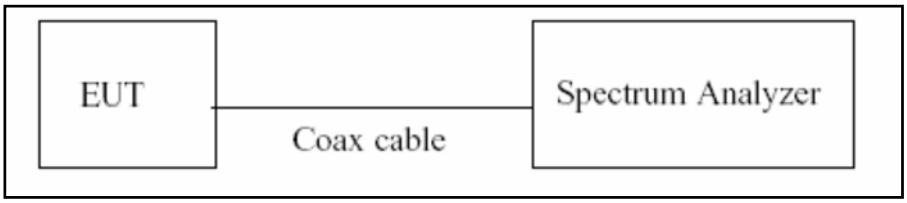
Mode	Data Rate (Mbps)	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11a	6	1.428	1.530	0.93333333	0.300
	9	0.960	1.064	0.90225564	0.447
	12	0.724	0.826	0.87651332	0.572
	18	0.491	0.593	0.82692956	0.825
	24	0.372	0.475	0.78315789	1.062
	36	0.255	0.358	0.71205357	1.475
	48	0.196	0.299	0.65551839	1.834
	54	0.181	0.283	0.63780919	1.953
Mode	**MCS INDEX**	**T_{on} (ms)**	**T_{total} (ms)**	**Duty Cycle**	**Duty Cycle Factor (dB)**
802.11n_HT20	0	1.335	1.437	0.92901879	0.320
	1	0.688	0.792	0.86868687	0.611
	2	0.472	0.575	0.82139130	0.854
	3	0.364	0.466	0.78111588	1.073
	4	0.256	0.358	0.71428571	1.461
	5	0.200	0.303	0.66006601	1.804
	6	0.184	0.287	0.64223386	1.923
	7	0.169	0.271	0.62177122	2.064
802.11n_HT40	0	0.664	0.765	0.86772971	0.616
	1	0.352	0.453	0.77704194	1.096
	2	0.248	0.350	0.70938215	1.491
	3	0.197	0.298	0.66050420	1.801
	4	0.144	0.246	0.58655804	2.317
	5	0.116	0.218	0.53379310	2.726
	6	0.108	0.209	0.51575931	2.876
	7	0.100	0.202	0.49702381	3.036

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 v02r01, 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 v02r01)

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 v02r01)

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

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

▣ TEST RESULTS for 802.11a

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	21.10	N/A	Pass
5200	40	20.95	N/A	Pass
5240	48	21.05	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	20.89	N/A	Pass
5300	60	21.11	N/A	Pass
5320	64	21.00	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11a

802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5500	100	21.01	N/A	Pass
5580	116	20.92	N/A	Pass
5700	140	20.93	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	21.04	N/A	Pass
5785	157	20.96	N/A	Pass
5825	165	21.16	N/A	Pass

▣ TEST Plot for 802.11a

802.11a UNII 1 BAND 26dB Bandwidth (CH 36)	802.11a UNII 2A BAND 26dB Bandwidth (CH 60)
	
802.11a UNII 2C BAND 26dB Bandwidth (CH100)	**802.11a 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 802.11n_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	21.15	N/A	Pass
5200	40	21.83	N/A	Pass
5240	48	21.42	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	21.52	N/A	Pass
5300	60	21.44	N/A	Pass
5320	64	21.21	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	21.26	N/A	Pass
5580	116	21.40	N/A	Pass
5700	140	21.47	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	21.41	N/A	Pass
5785	157	21.25	N/A	Pass
5825	165	21.40	N/A	Pass

▣ TEST Plot for 802.11n_HT20

802.11n_HT20 UNII 1 BAND 26dB Bandwidth(CH 40)	802.11n_HT20 UNII 2A BAND 26dB Bandwidth(CH 52)
	
802.11n_HT20 UNII 2C BAND 26dB Bandwidth(CH 140)	**802.11n_HT20 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	39.53	N/A	Pass
5230	46	39.56	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	39.68	N/A	Pass
5310	62	39.45	N/A	Pass

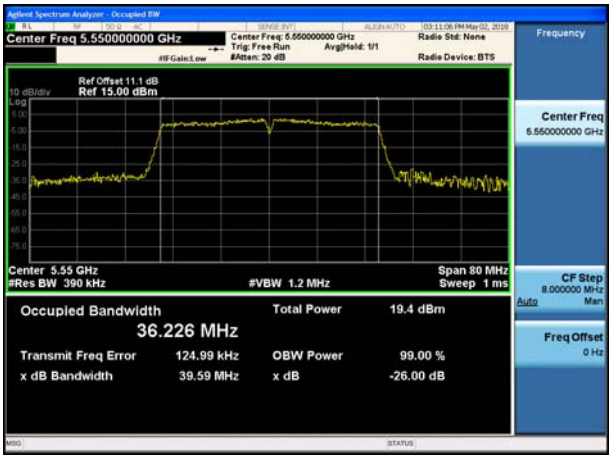
Conducted 26 dB Bandwidth Measurements for 802.11n_HT40

802.11n_HT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5510	102	39.31	N/A	Pass
5550	110	39.59	N/A	Pass
5670	134	39.58	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	39.51	N/A	Pass
5795	159	39.36	N/A	Pass

▣ TEST Plot for 802.11n_HT40

802.11n_HT40 UNII 1 BAND 26dB Bandwidth(CH 46)	802.11n_HT40 UNII 2A BAND 26dB Bandwidth (CH 54)
	
802.11n_HT40 UNII 2C BAND 26dB Bandwidth(CH 110)	**802.11n_HT40 UNII 3 BAND 26dB Bandwidth (CH 151)**
	

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

Conducted 6 dB Bandwidth

▣ TEST RESULTS for 802.11a/n_HT20

Conducted 6 dB Bandwidth Measurements for 802.11a

802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.35	0.5	Pass
5785	157	16.34	0.5	Pass
5825	165	16.30	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	17.36	0.5	Pass
5785	157	17.55	0.5	Pass
5825	165	17.35	0.5	Pass

▣ TEST PlotS for 802.11a/n_HT20

802.11a UNII 3 BAND 6dB Bandwidth (CH.165)	802.11n_HT20 UNII 3 BAND 6dB Bandwidth(CH.165)
	

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

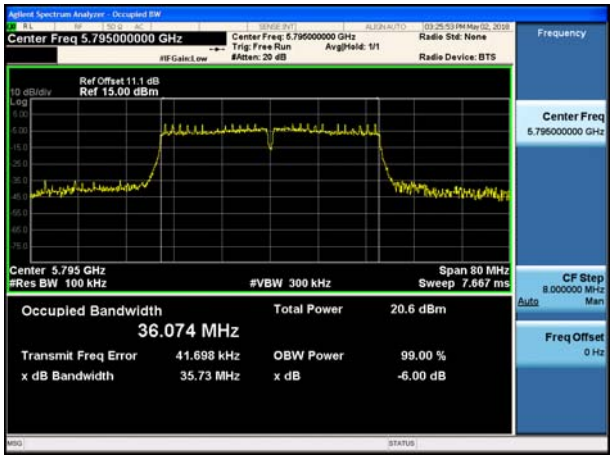
▣ TEST RESULTS for 802.11n_HT40

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	35.90	0.5	Pass
5795	159	35.73	0.5	Pass

▣ TEST Plot for 802.11n_HT40

802.11n_HT40 UNII 3 BAND 6dB Bandwidth(CH.159)



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

9.3 OUTPUT POWER MEASUREMENT

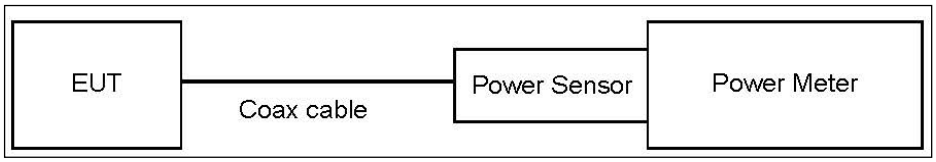
Test Requirements and limit, §15.407(a)(1)

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	23.98
UNII 3	802.11a,n	30.00

▣ TEST CONFIGURATION(20 MHz BW)



▣ TEST PROCEDURE(20 MHz BW)

▪ Average Power (Procedure E.3.a in KDB 789033 D02 v02r01).

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.

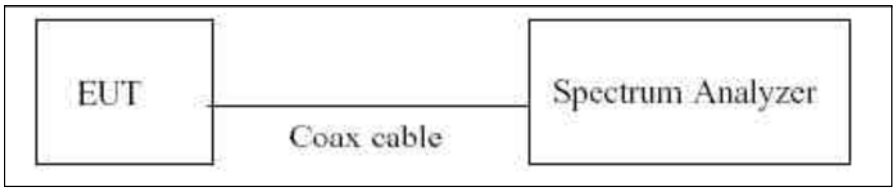
Note :

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

Mod	Loss(dB)
802.11a/ 802.11n(HT20) , 802.11n(HT40)	11.1

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

▣ TEST CONFIGURATION(40 MHz BW)



▣ TEST PROCEDURE(40 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 v02r01.

The Spectrum Analyzer is set to

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

▣ Sample Calculation (Conducted)

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

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		Power Level Setting	Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.						
5180	36	16	6	15.85	0.30	16.15	23.98
			9	15.71	0.45	16.16	23.98
			12	15.47	0.57	16.04	23.98
			18	15.24	0.83	16.07	23.98
			24	14.98	1.06	16.04	23.98
			36	14.62	1.47	16.10	23.98
			48	14.40	1.83	16.24	23.98
			54	14.26	1.95	16.22	23.98
5200	40	16	6	15.72	0.30	16.02	23.98
			9	15.58	0.45	16.03	23.98
			12	15.50	0.57	16.07	23.98
			18	15.29	0.83	16.12	23.98
			24	15.05	1.06	16.11	23.98
			36	14.50	1.47	15.98	23.98
			48	14.23	1.83	16.07	23.98
			54	14.09	1.95	16.04	23.98
5240	48	16	6	15.79	0.30	16.09	23.98
			9	15.70	0.45	16.15	23.98
			12	15.39	0.57	15.96	23.98
			18	15.20	0.83	16.02	23.98
			24	14.86	1.06	15.92	23.98
			36	14.55	1.47	16.03	23.98
			48	14.31	1.83	16.14	23.98
			54	14.07	1.95	16.03	23.98

802.11a (UNII 2A)

▣ TEST RESULTS

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

802.11a Mode		Power Level Setting	Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.						
5260	52	16	6	15.81	0.30	16.11	23.98
			9	15.45	0.45	15.90	23.98
			12	15.22	0.57	15.79	23.98
			18	15.14	0.83	15.97	23.98
			24	14.86	1.06	15.92	23.98
			36	14.36	1.47	15.84	23.98
			48	14.13	1.83	15.97	23.98
			54	14.02	1.95	15.98	23.98
5300	60	16	6	15.72	0.30	16.02	23.98
			9	15.38	0.45	15.82	23.98
			12	15.30	0.57	15.87	23.98
			18	15.11	0.83	15.94	23.98
			24	14.69	1.06	15.75	23.98
			36	14.33	1.47	15.81	23.98
			48	14.14	1.83	15.97	23.98
			54	13.98	1.95	15.94	23.98
5320	64	16	6	15.80	0.30	16.10	23.98
			9	15.42	0.45	15.87	23.98
			12	15.44	0.57	16.01	23.98
			18	15.05	0.83	15.87	23.98
			24	14.74	1.06	15.81	23.98
			36	14.35	1.47	15.83	23.98
			48	14.11	1.83	15.95	23.98
			54	13.99	1.95	15.94	23.98

802.11a (UNII 2C)

▣ TEST RESULTS

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

802.11a Mode		Power Level Setting	Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.						
5500	100	16	6	15.09	0.30	15.39	23.98
			9	14.98	0.45	15.43	23.98
			12	14.91	0.57	15.49	23.98
			18	14.70	0.83	15.53	23.98
			24	14.26	1.06	15.32	23.98
			36	13.87	1.47	15.35	23.98
			48	13.67	1.83	15.50	23.98
			54	13.55	1.95	15.50	23.98
5580	116	16	6	15.17	0.30	15.46	23.98
			9	15.04	0.45	15.49	23.98
			12	14.98	0.57	15.55	23.98
			18	14.52	0.83	15.35	23.98
			24	14.29	1.06	15.35	23.98
			36	13.94	1.47	15.41	23.98
			48	13.73	1.83	15.57	23.98
			54	13.61	1.95	15.56	23.98
5700	140	16	6	15.15	0.30	15.44	23.98
			9	15.02	0.45	15.46	23.98
			12	14.91	0.57	15.48	23.98
			18	14.62	0.83	15.45	23.98
			24	14.21	1.06	15.27	23.98
			36	13.89	1.47	15.36	23.98
			48	13.70	1.83	15.53	23.98
			54	13.42	1.95	15.38	23.98

802.11a (UNII 3)

▣ TEST RESULTS

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

802.11a Mode		Power Level Setting	Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.						
5745	149	16	6	15.32	0.30	15.62	30
			9	15.15	0.45	15.60	30
			12	15.08	0.57	15.65	30
			18	14.87	0.83	15.70	30
			24	14.38	1.06	15.44	30
			36	14.02	1.47	15.50	30
			48	13.77	1.83	15.60	30
			54	13.67	1.95	15.62	30
5785	157	16	6	15.15	0.30	15.45	30
			9	15.03	0.45	15.47	30
			12	14.98	0.57	15.55	30
			18	14.78	0.83	15.61	30
			24	14.28	1.06	15.34	30
			36	13.94	1.47	15.41	30
			48	13.74	1.83	15.57	30
			54	13.64	1.95	15.59	30
5825	165	16	6	15.31	0.30	15.61	30
			9	15.12	0.45	15.57	30
			12	15.05	0.57	15.62	30
			18	14.65	0.83	15.47	30
			24	14.46	1.06	15.52	30
			36	14.11	1.47	15.58	30
			48	13.69	1.83	15.52	30
			54	13.56	1.95	15.51	30

802.11n_HT20 (UNII 1)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_HT20 Mode: 5180~5240)

802.11n_HT20 Mode		Power Level Setting	MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.						
5180	36	15	0	14.30	0.32	14.62	23.98
			1	14.09	0.61	14.70	23.98
			2	13.90	0.85	14.76	23.98
			3	13.73	1.07	14.80	23.98
			4	13.28	1.46	14.74	23.98
			5	12.97	1.80	14.77	23.98
			6	12.87	1.92	14.80	23.98
			7	12.78	2.06	14.84	23.98
5200	40	16	0	15.34	0.32	15.66	23.98
			1	15.14	0.61	15.76	23.98
			2	14.92	0.85	15.77	23.98
			3	14.60	1.07	15.67	23.98
			4	14.19	1.46	15.65	23.98
			5	13.91	1.80	15.72	23.98
			6	13.80	1.92	15.72	23.98
			7	13.69	2.06	15.75	23.98
5240	48	16	0	15.33	0.32	15.65	23.98
			1	15.07	0.61	15.69	23.98
			2	14.80	0.85	15.65	23.98
			3	14.71	1.07	15.78	23.98
			4	14.35	1.46	15.81	23.98
			5	13.84	1.80	15.64	23.98
			6	13.90	1.92	15.83	23.98
			7	13.63	2.06	15.69	23.98

802.11n_HT20 (UNII 2A)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_HT20 Mode: 5260~5320)

802.11n_HT20 Mode		Power Level Setting	MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.						
5260	52	16	0	15.34	0.32	15.66	23.98
			1	14.95	0.61	15.56	23.98
			2	14.71	0.85	15.56	23.98
			3	14.53	1.07	15.61	23.98
			4	14.20	1.46	15.67	23.98
			5	13.70	1.80	15.51	23.98
			6	13.69	1.92	15.62	23.98
			7	13.48	2.06	15.54	23.98
5300	60	16	0	15.29	0.32	15.61	23.98
			1	14.97	0.61	15.58	23.98
			2	14.80	0.85	15.66	23.98
			3	14.42	1.07	15.49	23.98
			4	14.10	1.46	15.56	23.98
			5	13.84	1.80	15.64	23.98
			6	13.77	1.92	15.70	23.98
			7	13.65	2.06	15.71	23.98
5320	64	16	0	15.26	0.32	15.58	23.98
			1	14.89	0.61	15.50	23.98
			2	14.71	0.85	15.56	23.98
			3	14.55	1.07	15.62	23.98
			4	14.02	1.46	15.49	23.98
			5	13.68	1.80	15.49	23.98
			6	13.59	1.92	15.51	23.98
			7	13.47	2.06	15.53	23.98

802.11n_HT20 (UNII 2C)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_HT20 Mode: 5500~5700)

802.11n_HT20 Mode		Power Level Setting	MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.						
5500	100	16	0	14.84	0.32	15.16	23.98
			1	14.62	0.61	15.23	23.98
			2	14.17	0.85	15.02	23.98
			3	14.01	1.07	15.08	23.98
			4	13.70	1.46	15.16	23.98
			5	13.42	1.80	15.22	23.98
			6	13.37	1.92	15.29	23.98
			7	13.07	2.06	15.13	23.98
5580	116	16	0	14.87	0.32	15.19	23.98
			1	14.63	0.61	15.24	23.98
			2	14.19	0.85	15.04	23.98
			3	14.02	1.07	15.09	23.98
			4	13.72	1.46	15.18	23.98
			5	13.44	1.80	15.24	23.98
			6	13.17	1.92	15.09	23.98
			7	13.05	2.06	15.12	23.98
5700	140	16	0	14.81	0.32	15.13	23.98
			1	14.59	0.61	15.20	23.98
			2	14.22	0.85	15.07	23.98
			3	14.00	1.07	15.07	23.98
			4	13.73	1.46	15.19	23.98
			5	13.44	1.80	15.24	23.98
			6	13.19	1.92	15.11	23.98
			7	13.02	2.06	15.09	23.98

802.11n_HT20 (UNII 3)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_HT20 Mode: 5745~5825)

802.11n_HT20 Mode		Power Level Setting	MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.						
5745	149	16	0	14.92	0.32	15.24	30
			1	14.49	0.61	15.11	30
			2	14.30	0.85	15.16	30
			3	14.20	1.07	15.28	30
			4	13.84	1.46	15.30	30
			5	13.56	1.80	15.36	30
			6	13.27	1.92	15.19	30
			7	13.13	2.06	15.19	30
5785	157	16	0	14.85	0.32	15.17	30
			1	14.45	0.61	15.06	30
			2	14.23	0.85	15.08	30
			3	14.31	1.07	15.39	30
			4	13.77	1.46	15.23	30
			5	13.50	1.80	15.30	30
			6	13.38	1.92	15.31	30
			7	13.25	2.06	15.31	30
5825	165	16	0	14.81	0.32	15.13	30
			1	14.58	0.61	15.19	30
			2	14.37	0.85	15.23	30
			3	14.20	1.07	15.28	30
			4	13.68	1.46	15.14	30
			5	13.43	1.80	15.23	30
			6	13.32	1.92	15.24	30
			7	13.26	2.06	15.32	30

802.11n_HT40 (UNII 1)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_HT40 Mode: 5190~5230)

802.11n_HT40 Mode		Power Level Setting	MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.						
5190	38	12	0	10.61	0.62	11.23	23.98
			1	10.21	1.10	11.31	23.98
			2	9.92	1.49	11.41	23.98
			3	9.59	1.80	11.39	23.98
			4	8.94	2.32	11.26	23.98
			5	8.59	2.73	11.31	23.98
			6	8.49	2.88	11.36	23.98
			7	8.35	3.04	11.39	23.98
5230	46	14	0	12.88	0.62	13.49	23.98
			1	12.54	1.10	13.64	23.98
			2	12.09	1.49	13.59	23.98
			3	11.68	1.80	13.48	23.98
			4	11.24	2.32	13.56	23.98
			5	10.94	2.73	13.67	23.98
			6	10.84	2.88	13.72	23.98
			7	10.43	3.04	13.47	23.98

802.11n_HT40 (UNII 2A)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_HT40 Mode: 5270~5310)

802.11n_HT40 Mode		Power Level Setting	MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.						
5270	54	14	0	12.78	0.62	13.40	23.98
			1	12.32	1.10	13.42	23.98
			2	11.88	1.49	13.37	23.98
			3	11.60	1.80	13.40	23.98
			4	11.04	2.32	13.35	23.98
			5	10.66	2.73	13.38	23.98
			6	10.64	2.88	13.52	23.98
			7	10.37	3.04	13.41	23.98
5310	62	14	0	12.79	0.62	13.41	23.98
			1	12.39	1.10	13.49	23.98
			2	11.89	1.49	13.38	23.98
			3	11.62	1.80	13.42	23.98
			4	11.20	2.32	13.52	23.98
			5	10.52	2.73	13.25	23.98
			6	10.68	2.88	13.55	23.98
			7	10.31	3.04	13.34	23.98

802.11n_HT40 (UNII 2C)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_HT40 Mode: 5510~5670)

802.11n_HT40 Mode		Power Level Setting	MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.						
5510	102	14	0	12.13	0.62	12.75	23.98
			1	11.82	1.10	12.92	23.98
			2	11.26	1.49	12.75	23.98
			3	11.02	1.80	12.82	23.98
			4	10.61	2.32	12.92	23.98
			5	9.99	2.73	12.72	23.98
			6	10.15	2.88	13.03	23.98
			7	9.90	3.04	12.94	23.98
5550	110	14	0	12.30	0.62	12.92	23.98
			1	11.97	1.10	13.06	23.98
			2	11.39	1.49	12.88	23.98
			3	11.06	1.80	12.86	23.98
			4	10.66	2.32	12.98	23.98
			5	10.39	2.73	13.12	23.98
			6	10.24	2.88	13.12	23.98
			7	9.91	3.04	12.95	23.98
5670	134	14	0	12.33	0.62	12.94	23.98
			1	11.70	1.10	12.79	23.98
			2	11.37	1.49	12.86	23.98
			3	11.16	1.80	12.96	23.98
			4	10.68	2.32	13.00	23.98
			5	10.14	2.73	12.87	23.98
			6	10.04	2.88	12.92	23.98
			7	9.89	3.04	12.92	23.98

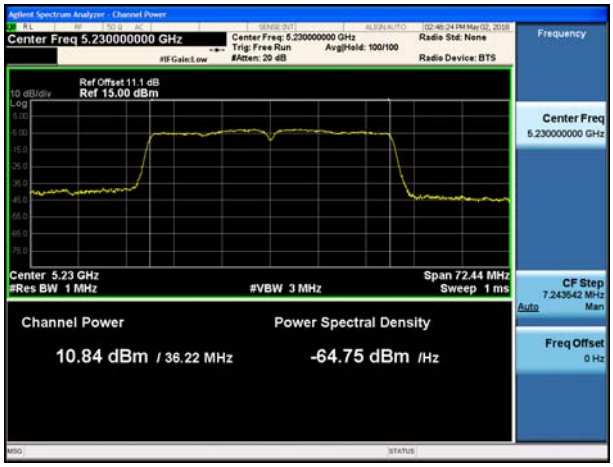
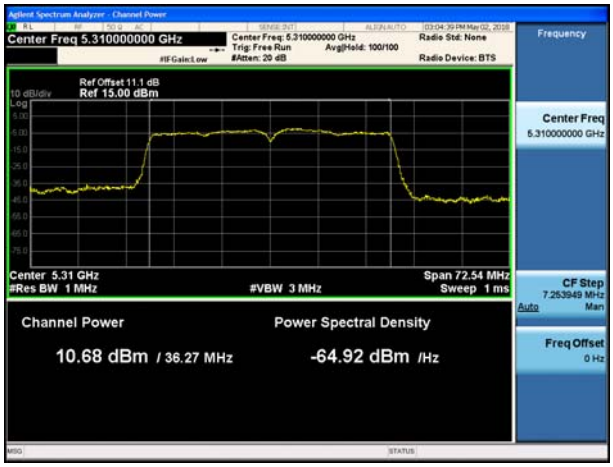
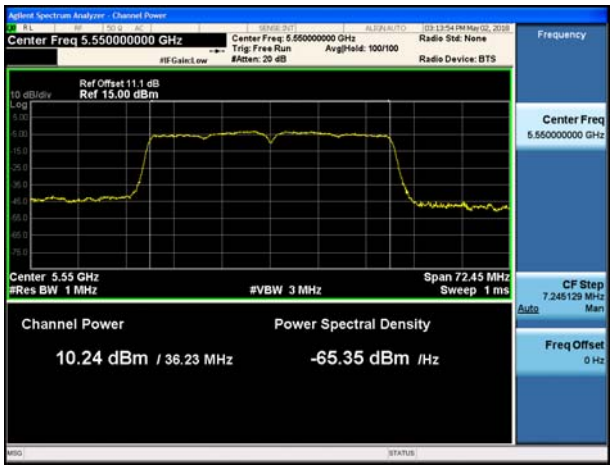
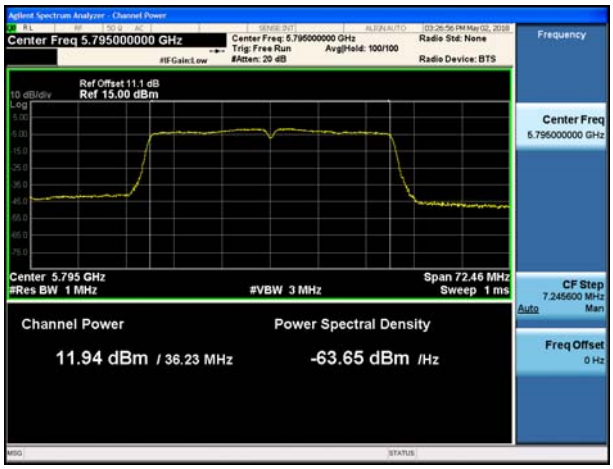
802.11n_HT40 (UNII 3)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_HT40 Mode: 5755~5795)

802.11n_HT40 Mode		Power Level Setting	MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.						
5755	151	14	0	12.71	0.62	13.33	30
			1	12.09	1.10	13.19	30
			2	11.76	1.49	13.25	30
			3	11.53	1.80	13.33	30
			4	10.86	2.32	13.18	30
			5	10.43	2.73	13.16	30
			6	10.28	2.88	13.16	30
			7	10.16	3.04	13.20	30
5795	159	14	0	12.80	0.62	13.42	30
			1	12.23	1.10	13.32	30
			2	11.94	1.49	13.43	30
			3	11.41	1.80	13.21	30
			4	11.01	2.32	13.32	30
			5	10.67	2.73	13.40	30
			6	10.45	2.88	13.33	30
			7	10.20	3.04	13.24	30

▣ TEST Plot _802.11n_HT40

802.11n_HT40 UNII 1 BAND Average Power (5190 MHz ~5230 MHz) CH 46 MCS6	802.11n_HT40 UNII 2A BAND Average Power (5270 MHz ~5310 MHz) CH 62 MCS6
	
802.11n_HT40 UNII 2C BAND Average Power (5510 MHz ~5670 MHz) CH 110 MCS6	**802.11n_HT40 UNII 3 BAND Average Power (5755 MHz ~5795 MHz) CH 159 MCS2**
	

9.4 POWER SPECTRAL DENSITY

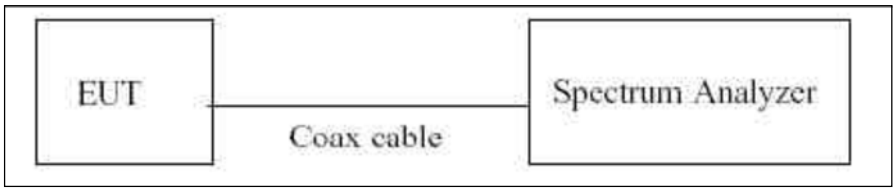
The peak power density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies. The maximum permissible peak power spectral density is 11 dBm/ MHz for UNII 1,2A, 2C and 30 dBm/500 kHz for UNII 3.

▣ Limit

Power Spectral Density

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

▣ TEST CONFIGURATION



▣ TEST PROCEDURE

We tested according to Method in KDB 789033 D02 v02r01.

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.

Mod	Loss(dB)
802.11a/ 802.11n(HT20), 802.11n(HT40)	11.1

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

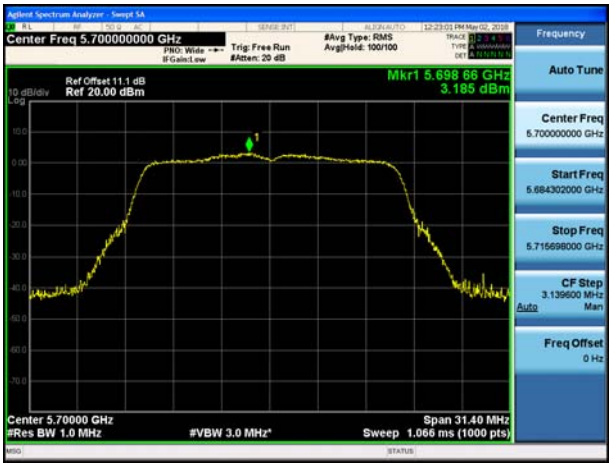
▣ 802.11a

▣ 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	3.806	1.834	5.640	11	Pass
5200	40		4.637	0.825	5.462		Pass
5240	48		5.467	0.447	5.914		Pass
5260	52		5.558	0.300	5.858	11	Pass
5300	60		5.298	0.300	5.598		Pass
5320	64		5.142	0.300	5.442		Pass
5500	100		3.989	0.825	4.814	11	Pass
5580	116		2.968	1.834	4.802		Pass
5700	140		3.185	1.834	5.019		Pass
5745	149		1.454	0.825	2.279	30	Pass
5785	157		1.773	0.825	2.598		Pass
5825	165		1.893	0.572	2.465		Pass

▣ TEST Plot for 802.11a

802.11a UNII 1 BAND PSD CH 48	802.11a UNII 2A BAND PSD CH 52
	
802.11a UNII 2C BAND PSD CH 140	**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	2.419	2.064	4.483	11	Pass
5200	40		4.135	0.854	4.989		Pass
5240	48		3.302	1.923	5.225		Pass
5260	52		3.730	1.461	5.191	11	Pass
5300	60		3.418	2.064	5.482		Pass
5320	64		4.247	1.073	5.320		Pass
5500	100		2.867	1.923	4.790	11	Pass
5580	116		2.788	1.804	4.592		Pass
5700	140		2.950	1.804	4.754		Pass
5745	149		0.779	1.804	2.583	30	Pass
5785	157		1.179	1.073	2.252		Pass
5825	165		0.294	2.064	2.358		Pass

▣ TEST Plot for 802.11n_HT20

802.11n_HT20 UNII 1 BAND PSD CH 48	802.11n_HT20 UNII 2A BAND PSD CH 60
	
802.11n_HT20 UNII 2C BAND PSD CH 100	**802.11n_HT20 UNII 3 BAND PSD CH 149**
	

▣ 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	-3.347	1.491	-1.856	11	Pass
5230	46		-2.088	2.876	0.788		Pass
5270	54		-2.897	2.876	-0.021	11	Pass
5310	62		-2.290	2.876	0.586		Pass
5510	102		-3.076	2.876	-0.200	11	Pass
5500	110		-2.803	2.876	0.073		Pass
5670	134		-2.239	2.317	0.078		Pass
5755	151		-4.364	1.801	-2.563	30	Pass
5795	159		-4.180	1.491	-2.689		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 134	**802.11n_HT40 UNII 3 BAND PSD CH 151**
	

9.5 FREQUENCY STABILITY.

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

§2.1055 Measurements required: Frequency stability.

The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battety operating end point which shall be specified by the manufacturer.

20 MHz BW_ Startup

OPERATING BAND: UNII Band 1
OPERATING FREQUENCY: 5,180,000,000 Hz
CHANNEL: 36
REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5180026.84	26.84
100%		-30	5180047.69	47.69
100%		-20	5180042.65	42.65
100%		-10	5180037.70	37.70
100%		0	5180034.38	34.38
100%		+10	5180030.99	30.99
100%		+30	5180031.65	31.65
100%		+40	5180035.34	35.34
100%		+50	5180039.05	39.05
End. Point	3.50	+20	5180042.39	42.39

Note:

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

OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,260,000,000 Hz

CHANNEL: 52

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5260031.12	31.12
100%		-30	5260047.68	47.68
100%		-20	5260043.26	43.26
100%		-10	5260038.36	38.36
100%		0	5260034.72	34.72
100%		+10	5260030.44	30.44
100%		+30	5260030.63	30.63
100%		+40	5260033.81	33.81
100%		+50	5260037.33	37.33
End. Point	3.50	+20	5260042.46	42.46

Note:

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

OPERATING BAND: UNII Band 2C

OPERATING FREQUENCY: 5,500,000,000 Hz

CHANNEL: 100

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5500028.97	28.97
100%		-30	5500048.50	48.50
100%		-20	5500044.03	44.03
100%		-10	5500039.85	39.85
100%		0	5500035.97	35.97
100%		+10	5500031.60	31.60
100%		+30	5500030.13	30.13
100%		+40	5500034.48	34.48
100%		+50	5500038.39	38.39
End. Point	3.50	+20	5500042.51	42.51

Note:

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

OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,745,000,000 Hz

CHANNEL: 149

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5745035.64	35.64
100%		-30	5745048.45	48.45
100%		-20	5745043.54	43.54
100%		-10	5745039.22	39.22
100%		0	5745035.74	35.74
100%		+10	5745031.78	31.78
100%		+30	5745030.94	30.94
100%		+40	5745035.52	35.52
100%		+50	5745039.37	39.37
End. Point	3.50	+20	5745043.00	43.00

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.

2 minutes

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,180,000,000 Hz

CHANNEL: 36

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5180021.55	21.55
100%		-30	5180015.48	15.48
100%		-20	5180020.38	20.38
100%		-10	5180027.35	27.35
100%		0	5180032.57	32.57
100%		+10	5180038.78	38.78
100%		+30	5180050.32	50.32
100%		+40	5180058.38	58.38
100%		+50	5180063.99	63.99
End. Point	3.50	+20	5180032.67	32.67

Note:

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

OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,260,000,000 Hz

CHANNEL: 52

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5260020.47	20.47
100%		-30	5260015.83	15.83
100%		-20	5260020.82	20.82
100%		-10	5260024.93	24.93
100%		0	5260031.11	31.11
100%		+10	5260038.65	38.65
100%		+30	5260050.76	50.76
100%		+40	5260055.21	55.21
100%		+50	5260060.78	60.78
End. Point	3.50	+20	5260030.69	30.69

Note:

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

OPERATING BAND: UNII Band 2C

OPERATING FREQUENCY: 5,500,000,000 Hz

CHANNEL: 100

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5500026.45	26.45
100%		-30	5500015.67	15.67
100%		-20	5500021.34	21.34
100%		-10	5500027.00	27.00
100%		0	5500033.98	33.98
100%		+10	5500039.55	39.55
100%		+30	5500049.15	49.15
100%		+40	5500054.73	54.73
100%		+50	5500061.39	61.39
End. Point	3.50	+20	5500031.15	31.15

Note:

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

OPERATING BAND: UNII Band 3
OPERATING FREQUENCY: 5,745,000,000 Hz
CHANNEL: 149
REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5745028.04	28.04
100%		-30	5745015.77	15.77
100%		-20	5745021.26	21.26
100%		-10	5745026.70	26.70
100%		0	5745032.70	32.70
100%		+10	5745037.02	37.02
100%		+30	5745050.80	50.80
100%		+40	5745057.96	57.96
100%		+50	5745065.18	65.18
End. Point	3.50	+20	5745032.50	32.50

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.

5 minutes

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,180,000,000 Hz

CHANNEL: 36

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5180020.47	20.47
100%		-30	5180013.13	13.13
100%		-20	5180019.02	19.02
100%		-10	5180023.84	23.84
100%		0	5180031.86	31.86
100%		+10	5180038.22	38.22
100%		+30	5180051.29	51.29
100%		+40	5180058.62	58.62
100%		+50	5180064.93	64.93
End. Point	3.50	+20	5180030.13	30.13

Note:

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

OPERATING BAND: UNII Band 2A
OPERATING FREQUENCY: 5,260,000,000 Hz
CHANNEL: 52
REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5260022.45	22.45
100%		-30	5260016.87	16.87
100%		-20	5260021.30	21.3
100%		-10	5260028.40	28.4
100%		0	5260033.31	33.31
100%		+10	5260039.38	39.38
100%		+30	5260050.74	50.74
100%		+40	5260058.06	58.06
100%		+50	5260062.81	62.81
End. Point	3.50	+20	5260034.14	34.14

Note:

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

OPERATING BAND: UNII Band 2C

OPERATING FREQUENCY: 5,500,000,000 Hz

CHANNEL: 100

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5500026.15	26.15
100%		-30	5500015.89	15.89
100%		-20	5500021.64	21.64
100%		-10	5500026.97	26.97
100%		0	5500031.51	31.51
100%		+10	5500038.72	38.72
100%		+30	5500050.09	50.09
100%		+40	5500058.15	58.15
100%		+50	5500063.59	63.59
End. Point	3.50	+20	5500032.06	32.06

Note:

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

OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,745,000,000 Hz

CHANNEL: 149

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5745023.37	23.37
100%		-30	5745016.61	16.61
100%		-20	5745020.86	20.86
100%		-10	5745028.11	28.11
100%		0	5745035.92	35.92
100%		+10	5745040.87	40.87
100%		+30	5745049.66	49.66
100%		+40	5745054.22	54.22
100%		+50	5745060.51	60.51
End. Point	3.50	+20	5745032.77	32.77

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.

10 minutes

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,180,000,000 Hz

CHANNEL: 36

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5180025.07	25.07
100%		-30	5180014.59	14.59
100%		-20	5180021.41	21.41
100%		-10	5180029.39	29.39
100%		0	5180034.62	34.62
100%		+10	5180039.43	39.43
100%		+30	5180049.37	49.37
100%		+40	5180053.76	53.76
100%		+50	5180058.21	58.21
End. Point	3.50	+20	5180033.76	33.76

Note:

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

OPERATING BAND: UNII Band 2A
OPERATING FREQUENCY: 5,260,000,000 Hz
CHANNEL: 52
REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5260024.44	24.44
100%		-30	5260017.44	17.44
100%		-20	5260021.68	21.68
100%		-10	5260026.41	26.41
100%		0	5260033.23	33.23
100%		+10	5260037.84	37.84
100%		+30	5260049.12	49.12
100%		+40	5260057.10	57.1
100%		+50	5260063.55	63.55
End. Point	3.50	+20	5260030.53	30.53

Note:

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

OPERATING BAND: UNII Band 2C

OPERATING FREQUENCY: 5,500,000,000 Hz

CHANNEL: 100

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5500027.58	27.58
100%		-30	5500015.89	15.89
100%		-20	5500022.42	22.42
100%		-10	5500027.42	27.42
100%		0	5500033.14	33.14
100%		+10	5500039.24	39.24
100%		+30	5500050.81	50.81
100%		+40	5500056.57	56.57
100%		+50	5500063.62	63.62
End. Point	3.50	+20	5500033.23	33.23

Note:

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

OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,745,000,000 Hz

CHANNEL: 149

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5745022.61	22.61
100%		-30	5745013.44	13.44
100%		-20	5745021.20	21.20
100%		-10	5745027.14	27.14
100%		0	5745032.87	32.87
100%		+10	5745039.68	39.68
100%		+30	5745052.35	52.35
100%		+40	5745058.05	58.05
100%		+50	5745065.92	65.92
End. Point	3.50	+20	5745034.49	34.49

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_ Startup

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,190,000,000 Hz

CHANNEL: 38

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5190029.91	29.91
100%		-30	5190045.24	45.24
100%		-20	5190042.12	42.12
100%		-10	5190038.98	38.98
100%		0	5190035.11	35.11
100%		+10	5190031.17	31.17
100%		+30	5190031.36	31.36
100%		+40	5190036.28	36.28
100%		+50	5190040.34	40.34
End. Point	3.50	+20	5190044.33	44.33

Note:

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

OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,270,000,000 Hz

CHANNEL: 54

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5270032.44	32.44
100%		-30	5270046.44	46.44
100%		-20	5270042.87	42.87
100%		-10	5270038.66	38.66
100%		0	5270035.22	35.22
100%		+10	5270030.76	30.76
100%		+30	5270029.98	29.98
100%		+40	5270033.64	33.64
100%		+50	5270038.10	38.10
End. Point	3.50	+20	5270043.20	43.20

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 2C

OPERATING FREQUENCY: 5,510,000,000 Hz

CHANNEL: 102

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5510033.27	33.27
100%		-30	5510049.52	49.52
100%		-20	5510044.47	44.47
100%		-10	5510039.47	39.47
100%		0	5510035.20	35.20
100%		+10	5510030.19	30.19
100%		+30	5510031.42	31.42
100%		+40	5510035.34	35.34
100%		+50	5510039.78	39.78
End. Point	3.50	+20	5510044.30	44.30

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.

OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,755,000,000 Hz

CHANNEL: 151

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5755036.08	36.08
100%		-30	5755047.04	47.04
100%		-20	5755042.73	42.73
100%		-10	5755039.48	39.48
100%		0	5755034.67	34.67
100%		+10	5755030.03	30.03
100%		+30	5755030.90	30.90
100%		+40	5755035.31	35.31
100%		+50	5755038.89	38.89
End. Point	3.50	+20	5755042.95	42.95

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.

2 minutes

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,190,000,000 Hz

CHANNEL: 38

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5190023.17	23.17
100%		-30	5190016.28	16.28
100%		-20	5190021.88	21.88
100%		-10	5190028.87	28.87
100%		0	5190033.57	33.57
100%		+10	5190039.57	39.57
100%		+30	5190049.74	49.74
100%		+40	5190055.90	55.90
100%		+50	5190060.43	60.43
End. Point	3.50	+20	5190033.61	33.61

Note:

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

OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,270,000,000 Hz

CHANNEL: 54

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5270022.98	22.98
100%		-30	5270017.20	17.20
100%		-20	5270022.00	22.00
100%		-10	5270026.96	26.96
100%		0	5270034.96	34.96
100%		+10	5270040.01	40.01
100%		+30	5270052.94	52.94
100%		+40	5270058.09	58.09
100%		+50	5270065.58	65.58
End. Point	3.50	+20	5270034.90	34.90

Note:

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

OPERATING BAND: UNII Band 2C

OPERATING FREQUENCY: 5,510,000,000 Hz

CHANNEL: 102

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5510028.44	28.44
100%		-30	5510016.58	16.58
100%		-20	5510022.20	22.20
100%		-10	5510027.03	27.03
100%		0	5510033.23	33.23
100%		+10	5510038.21	38.21
100%		+30	5510053.05	53.05
100%		+40	5510058.95	58.95
100%		+50	5510066.77	66.77
End. Point	3.50	+20	5510035.08	35.08

Note:

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

OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,755,000,000 Hz

CHANNEL: 151

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5755025.17	25.17
100%		-30	5755015.64	15.64
100%		-20	5755021.39	21.39
100%		-10	5755027.65	27.65
100%		0	5755035.42	35.42
100%		+10	5755040.80	40.80
100%		+30	5755049.68	49.68
100%		+40	5755055.78	55.78
100%		+50	5755063.24	63.24
End. Point	3.50	+20	5755032.33	32.33

Note:

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

5 minutes

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,190,000,000 Hz

CHANNEL: 38

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5190024.85	24.85
100%		-30	5190013.74	13.74
100%		-20	5190019.41	19.41
100%		-10	5190025.44	25.44
100%		0	5190033.41	33.41
100%		+10	5190038.35	38.35
100%		+30	5190052.75	52.75
100%		+40	5190058.53	58.53
100%		+50	5190063.29	63.29
End. Point	3.50	+20	5190033.19	33.19

Note:

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

OPERATING BAND: UNII Band 2A

OPERATING FREQUENCY: 5,270,000,000 Hz

CHANNEL: 54

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5270021.57	21.57
100%		-30	5270015.35	15.35
100%		-20	5270022.23	22.23
100%		-10	5270029.42	29.42
100%		0	5270036.56	36.56
100%		+10	5270040.69	40.69
100%		+30	5270050.42	50.42
100%		+40	5270058.41	58.41
100%		+50	5270064.69	64.69
End. Point	3.50	+20	5270034.84	34.84

Note:

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

OPERATING BAND: UNII Band 2C

OPERATING FREQUENCY: 5,510,000,000 Hz

CHANNEL: 102

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5510030.45	30.45
100%		-30	5510015.52	15.52
100%		-20	5510021.25	21.25
100%		-10	5510028.37	28.37
100%		0	5510034.23	34.23
100%		+10	5510038.34	38.34
100%		+30	5510050.18	50.18
100%		+40	5510054.54	54.54
100%		+50	5510060.20	60.20
End. Point	3.50	+20	5510033.55	33.55

Note:

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

OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,755,000,000 Hz

CHANNEL: 151

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5755026.47	26.47
100%		-30	5755015.33	15.33
100%		-20	5755022.92	22.92
100%		-10	5755027.66	27.66
100%		0	5755033.27	33.27
100%		+10	5755038.93	38.93
100%		+30	5755051.52	51.52
100%		+40	5755058.57	58.57
100%		+50	5755063.78	63.78
End. Point	3.50	+20	5755034.18	34.18

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.

10 minutes

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,190,000,000 Hz

CHANNEL: 38

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5190028.43	28.43
100%		-30	5190012.47	12.47
100%		-20	5190020.54	20.54
100%		-10	5190025.06	25.06
100%		0	5190031.62	31.62
100%		+10	5190038.00	38.00
100%		+30	5190049.59	49.59
100%		+40	5190056.87	56.87
100%		+50	5190062.23	62.23
End. Point	3.50	+20	5190029.65	29.65

Note:

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

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

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5270021.19	21.19
100%		-30	5270015.86	15.86
100%		-20	5270021.71	21.71
100%		-10	5270026.07	26.07
100%		0	5270033.07	33.07
100%		+10	5270038.72	38.72
100%		+30	5270052.56	52.56
100%		+40	5270060.29	60.29
100%		+50	5270064.82	64.82
End. Point	3.50	+20	5270033.63	33.63

Note:

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

OPERATING BAND: UNII Band 2C
OPERATING FREQUENCY: 5,510,000,000 Hz
CHANNEL: 102
REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5510020.74	20.74
100%		-30	5510012.71	12.71
100%		-20	5510019.56	19.56
100%		-10	5510026.48	26.48
100%		0	5510032.86	32.86
100%		+10	5510039.64	39.64
100%		+30	5510051.00	51.00
100%		+40	5510058.46	58.46
100%		+50	5510064.29	64.29
End. Point	3.50	+20	5510032.48	32.48

Note:

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

OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,755,000,000 Hz

CHANNEL: 151

REFERENCE VOLTAGE: 3.85 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5755025.18	25.18
100%		-30	5755012.24	12.24
100%		-20	5755016.70	16.70
100%		-10	5755023.04	23.04
100%		0	5755031.05	31.05
100%		+10	5755037.78	37.78
100%		+30	5755051.34	51.34
100%		+40	5755057.79	57.79
100%		+50	5755064.83	64.83
End. Point	3.50	+20	5755029.38	29.38

Note:

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

9.6 RADIATED MEASUREMENT

9.6.1 RADIATED SPURIOUS EMISSIONS.

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

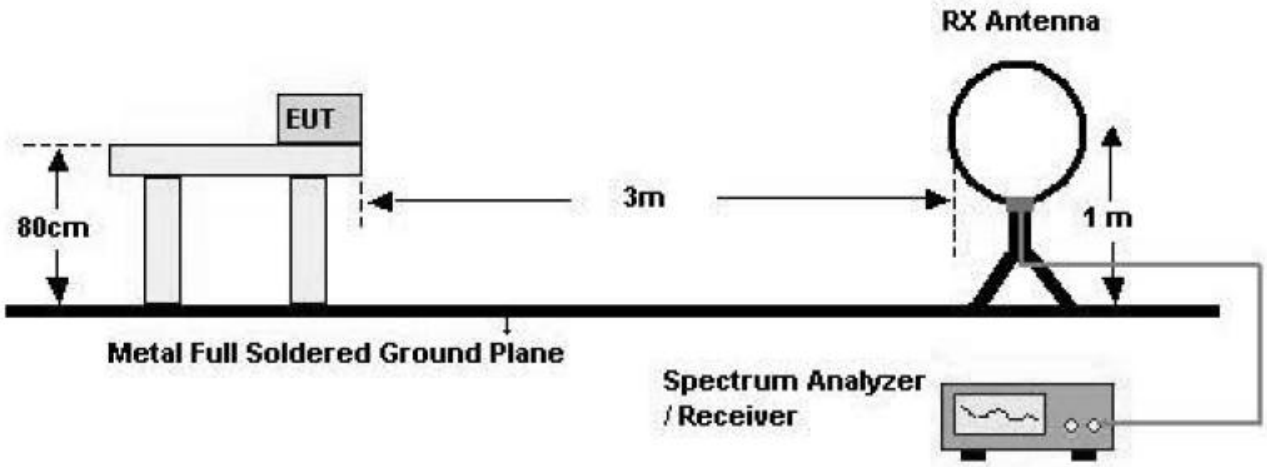
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

▣ §15.407, KDB 789033 D02v02r01

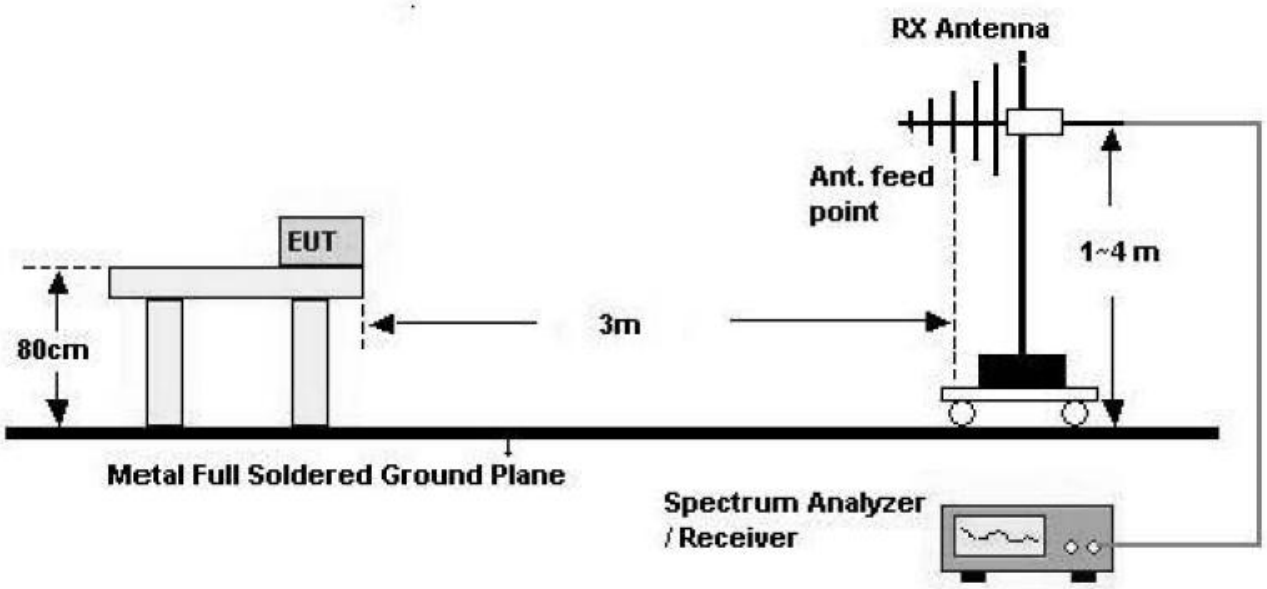
All harmonics that do not lie in a restricted band are subject to a peak limit of -27 dBm/MHz. At a distance of 3 meters the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2 dB to the EIRP limit of -27 dBm/MHz to obtain the limit for out of band spurious emissions of 68.2 dBμV/m. Espectally, for transmitter operating in the 5725 Mhz – 5850 MHz : All emissions 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

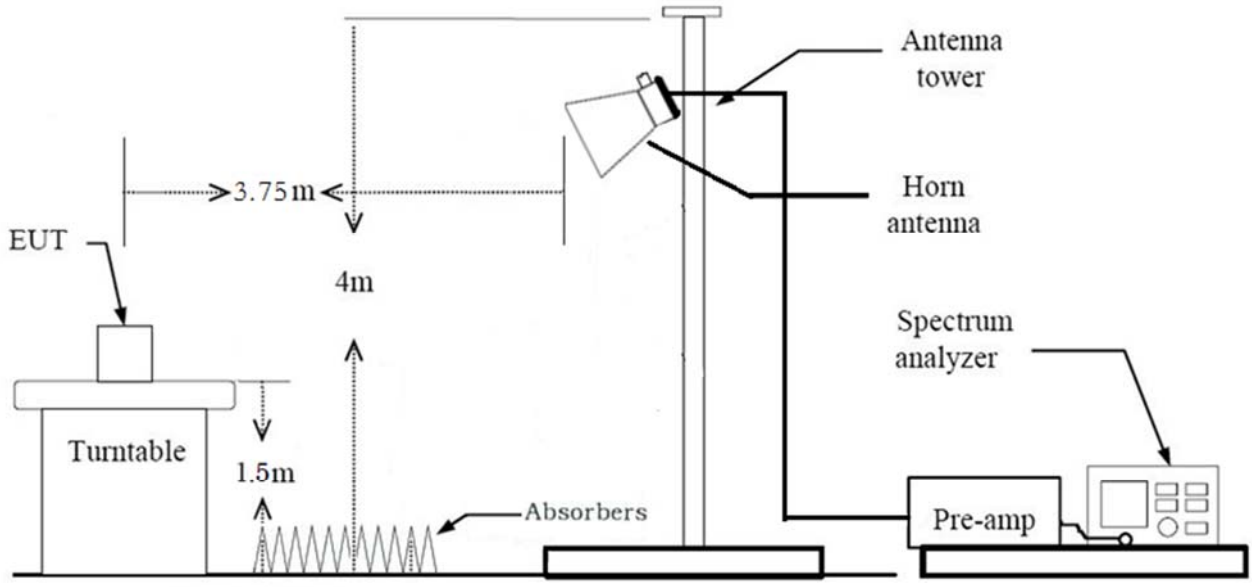
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



TEST PROCEDURE USED

ANSI C63.10:2013

Method G)5) in KDB 789033 D02 v02r01 (Peak)

Method G)6)d) in KDB 789033 D02 v02r01 (Average)

. Spectrum setting:

- Peak.

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

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

1. RBW = 1 MHz
2. VBW
   2.1. If the EUT is configured to transmit with duty cycle ≥ 98 percent, set VBW ≤ RBW/100(i.e., 10 kHz) but not less than 10 Hz.
   2.2. If the EUT duty cycle is < 98 percent, set VBW ≥ 1/T, where T is the minimum transmission duration.
3. The analyzer is set to linear detector mode.
4. Detector = Peak.
5. Sweep time = auto.
6. Trace mode = max hold.
7. Allow max hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 percent duty cycle. For lower duty cycles, increase the minimym number of traces by a factor of 1/x, where x is the duty cycle.

Note :

1. We used the Method VB for 802.11a/n_HT20, n_HT40 mode to perform the average filed strength measurements.
2. The actual setting value of VBW for 802.11a/n_HT20, n_HT40.
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 (test distance / specific distance) (dB)

Mode	Worst Data rate (Mbps)	T_{on} (ms)	T_{total} (ms)	Duty Cycle (%)	VBW(1/T) (Hz)	The actual setting value of VBW (Hz)
a	**6**	**1.428**	**1.530**	**0.93333333**	**700**	**1000**
n_HT20	**MCS 0**	**1.335**	**1.437**	**0.92901879**	**749**	**1000**
n_HT40	**MCS 0**	**0.664**	**0.765**	**0.86772971**	**1506**	**3000**

TEST RESULTS

9 kHz – 30MHz

Operation Mode: Normal Mode

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

Notes:

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

TEST RESULTS

Below 1 GHz

Operation Mode: Normal Mode

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

Notes:

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

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	57.43	-1.02	V	56.41	68.20	11.79	PK
15540	52.41	-1.27	V	51.14	73.98	22.84	PK
15540	38.05	-1.27	V	36.78	53.98	17.20	AV
10360	58.33	-1.02	H	57.31	68.20	10.89	PK
15540	52.58	-1.27	H	51.31	73.98	22.67	PK
15540	39.08	-1.27	H	37.81	53.98	16.17	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 802.11a. 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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	54.76	-0.29	V	54.47	68.20	13.73	PK
15600	51.34	-3.24	V	48.10	73.98	25.88	PK
15600	38.74	-3.24	V	35.50	53.98	18.48	AV
10400	55.53	-0.29	H	55.24	68.20	12.96	PK
15600	52.34	-3.24	H	49.10	73.98	24.88	PK
15600	39.01	-3.24	H	35.77	53.98	18.21	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 802.11a. 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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	56.13	-3.09	V	53.04	68.20	15.16	PK
15720	52.19	-3.17	V	49.02	73.98	24.96	PK
15720	38.54	-3.17	V	35.37	53.98	18.61	AV
10480	56.79	-3.09	H	53.70	68.20	14.50	PK
15720	52.84	-3.17	H	49.67	73.98	24.31	PK
15720	38.91	-3.17	H	35.74	53.98	18.24	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	56.78	-1.02	V	55.76	68.20	12.44	PK
15540	51.79	-1.27	V	50.52	73.98	23.46	PK
15540	39.54	-1.27	V	38.27	53.98	15.71	AV
10360	57.25	-1.02	H	56.23	68.20	11.97	PK
15540	52.48	-1.27	H	51.21	73.98	22.77	PK
15540	39.62	-1.27	H	38.35	53.98	15.63	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	55.36	-0.29	V	55.07	68.20	13.13	PK
15600	52.46	-3.24	V	49.22	73.98	24.76	PK
15600	39.34	-3.24	V	36.10	53.98	17.88	AV
10400	55.72	-0.29	H	55.43	68.20	12.77	PK
15600	52.82	-3.24	H	49.58	73.98	24.40	PK
15600	39.66	-3.24	H	36.42	53.98	17.56	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 802.11n_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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	55.19	-3.09	V	52.10	68.20	16.10	PK
15720	52.58	-3.17	V	49.41	73.98	24.57	PK
15720	39.38	-3.17	V	36.21	53.98	17.77	AV
10480	55.91	-3.09	H	52.82	68.20	15.38	PK
15720	52.77	-3.17	H	49.60	73.98	24.38	PK
15720	39.48	-3.17	H	36.31	53.98	17.67	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	53.76	-1.29	V	52.47	68.20	15.73	PK
15570	52.16	-1.21	V	50.95	73.98	23.03	PK
15570	39.31	-1.21	V	38.10	53.98	15.88	AV
10380	54.25	-1.29	H	52.96	68.20	15.24	PK
15570	52.55	-1.21	H	51.34	73.98	22.64	PK
15570	39.47	-1.21	H	38.26	53.98	15.72	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	54.13	-1.52	V	52.61	68.20	15.59	PK
15690	52.34	-1.90	V	50.44	73.98	23.54	PK
15690	39.46	-1.90	V	37.56	53.98	16.42	AV
10460	54.54	-1.52	H	53.02	68.20	15.18	PK
15690	52.89	-1.90	H	50.99	73.98	22.99	PK
15690	39.73	-1.90	H	37.83	53.98	16.15	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	54.67	-1.52	V	53.15	68.20	15.05	PK
15780	51.89	-2.64	V	49.25	73.98	24.73	PK
15780	38.43	-2.64	V	35.79	53.98	18.19	AV
10520	55.32	-1.52	H	53.80	68.20	14.40	PK
15780	52.44	-2.64	H	49.80	73.98	24.18	PK
15780	38.78	-2.64	H	36.14	53.98	17.84	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 802.11a. 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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	52.51	-1.32	V	51.19	73.98	22.79	PK
10600	39.44	-1.32	V	38.12	53.98	15.86	AV
15900	50.78	-1.51	V	49.27	73.98	24.71	PK
15900	37.49	-1.51	V	35.98	53.98	18.00	AV
10600	53.71	-1.32	H	52.39	73.98	21.59	PK
10600	40.03	-1.32	H	38.71	53.98	15.27	AV
15900	51.71	-1.51	H	50.20	73.98	23.78	PK
15900	38.16	-1.51	H	36.65	53.98	17.33	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	54.76	-1.01	V	53.75	73.98	20.23	PK
10640	41.01	-1.01	V	40.00	53.98	13.98	AV
15960	51.33	-2.17	V	49.16	73.98	24.82	PK
15960	38.45	-2.17	V	36.28	53.98	17.70	AV
10640	55.45	-1.01	H	54.44	73.98	19.54	PK
10640	41.43	-1.01	H	40.42	53.98	13.56	AV
15960	52.12	-2.17	H	49.95	73.98	24.03	PK
15960	38.83	-2.17	H	36.66	53.98	17.32	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	54.16	-1.52	V	52.64	68.20	15.56	PK
15780	50.78	-2.64	V	48.14	73.98	25.84	PK
15780	38.02	-2.64	V	35.38	53.98	18.60	AV
10520	54.59	-1.52	H	53.07	68.20	15.13	PK
15780	51.82	-2.64	H	49.18	73.98	24.80	PK
15780	38.22	-2.64	H	35.58	53.98	18.40	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_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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	53.56	-1.32	V	52.24	73.98	21.74	PK
10600	40.35	-1.32	V	39.03	53.98	14.95	AV
15900	49.74	-1.51	V	48.23	73.98	25.75	PK
15900	38.05	-1.51	V	36.54	53.98	17.44	AV
10600	54.05	-1.32	H	52.73	73.98	21.25	PK
10600	40.99	-1.32	H	39.67	53.98	14.31	AV
15900	50.89	-1.51	H	49.38	73.98	24.60	PK
15900	38.12	-1.51	H	36.61	53.98	17.37	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	53.88	-1.01	V	52.87	73.98	21.11	PK
10640	40.91	-1.01	V	39.90	53.98	14.08	AV
15960	51.79	-2.17	V	49.62	73.98	24.36	PK
15960	38.45	-2.17	V	36.28	53.98	17.70	AV
10640	54.69	-1.01	H	53.68	73.98	20.30	PK
10640	41.06	-1.01	H	40.05	53.98	13.93	AV
15960	52.24	-2.17	H	50.07	73.98	23.91	PK
15960	38.77	-2.17	H	36.60	53.98	17.38	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	53.86	-1.03	V	52.83	68.20	15.37	PK
15810	52.11	-2.29	V	49.82	73.98	24.16	PK
15810	39.45	-2.29	V	37.16	53.98	16.82	AV
10540	54.14	-1.03	H	53.11	68.20	15.09	PK
15810	52.35	-2.29	H	50.06	73.98	23.92	PK
15810	39.63	-2.29	H	37.34	53.98	16.64	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	51.33	-2.36	V	48.97	73.98	25.01	PK
10620	40.31	-2.36	V	37.95	53.98	16.03	AV
15930	51.06	-1.95	V	49.11	73.98	24.87	PK
15930	39.58	-1.95	V	37.63	53.98	16.35	AV
10620	52.56	-2.36	H	50.20	73.98	23.78	PK
10620	40.50	-2.36	H	38.14	53.98	15.84	AV
15930	51.80	-1.95	H	49.85	73.98	24.13	PK
15930	39.71	-1.95	H	37.76	53.98	16.22	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	51.85	0.37	V	52.22	73.98	21.76	PK
11000	39.76	0.37	V	40.13	53.98	13.85	AV
16500	51.95	0.03	V	51.98	68.20	16.22	PK
11000	52.94	0.37	H	53.31	73.98	20.67	PK
11000	40.10	0.37	H	40.47	53.98	13.51	AV
16500	52.47	0.03	H	52.50	68.20	15.70	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	52.79	-1.15	V	51.64	73.98	22.34	PK
11160	39.31	-1.15	V	38.16	53.98	15.82	AV
16740	50.84	0.18	V	51.02	68.20	17.18	PK
11160	53.19	-1.15	H	52.04	73.98	21.94	PK
11160	39.47	-1.15	H	38.32	53.98	15.66	AV
16740	51.96	0.18	H	52.14	68.20	16.06	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	51.74	0.22	V	51.96	73.98	22.02	PK
11400	39.34	0.22	V	39.56	53.98	14.42	AV
17100	51.26	1.94	V	53.20	68.20	15.00	PK
11400	52.76	0.22	H	52.98	73.98	21.00	PK
11400	39.76	0.22	H	39.98	53.98	14.00	AV
17100	51.84	1.94	H	53.78	68.20	14.42	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	52.76	0.37	V	53.13	73.98	20.85	PK
11000	39.33	0.37	V	39.70	53.98	14.28	AV
16500	52.11	0.03	V	52.14	68.20	16.06	PK
11000	53.28	0.37	H	53.65	73.98	20.33	PK
11000	39.97	0.37	H	40.34	53.98	13.64	AV
16500	52.49	0.03	H	52.52	68.20	15.68	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	52.89	-1.15	V	51.74	73.98	22.24	PK
11160	39.13	-1.15	V	37.98	53.98	16.00	AV
16740	51.74	0.18	V	51.92	68.20	16.28	PK
11160	53.28	-1.15	H	52.13	73.98	21.85	PK
11160	39.41	-1.15	H	38.26	53.98	15.72	AV
16740	51.99	0.18	H	52.17	68.20	16.03	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	53.02	0.22	V	53.24	73.98	20.74	PK
11400	39.31	0.22	V	39.53	53.98	14.45	AV
17100	51.67	1.94	V	53.61	68.20	14.59	PK
11400	53.29	0.22	H	53.51	73.98	20.47	PK
11400	39.56	0.22	H	39.78	53.98	14.20	AV
17100	51.99	1.94	H	53.93	68.20	14.27	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	53.25	0.07	V	53.32	73.98	20.66	PK
11020	40.31	0.07	V	40.38	53.98	13.60	AV
16530	51.43	-0.71	V	50.72	68.20	17.48	PK
11020	53.63	0.07	H	53.70	73.98	20.28	PK
11020	40.55	0.07	H	40.62	53.98	13.36	AV
16530	52.16	-0.71	H	51.45	68.20	16.75	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

Band :	UNII 2C
Operation Mode:	802.11n_ HT40
Transfer MCS Index:	0
Operating Frequency	5550 MHz
Channel No.	110 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
11100	52.66	-1.03	V	51.63	73.98	22.35	PK
11100	40.03	-1.03	V	39.00	53.98	14.98	AV
16650	50.77	2.85	V	53.62	68.20	14.58	PK
11100	53.19	-1.03	H	52.16	73.98	21.82	PK
11100	40.26	-1.03	H	39.23	53.98	14.75	AV
16650	51.50	2.85	H	54.35	68.20	13.85	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	52.86	-0.15	V	52.71	73.98	21.27	PK
11340	40.12	-0.15	V	39.97	53.98	14.01	AV
17010	49.85	4.39	V	54.24	68.20	13.96	PK
11340	53.23	-0.15	H	53.08	73.98	20.90	PK
11340	40.45	-0.15	H	40.30	53.98	13.68	AV
17010	50.86	4.39	H	55.25	68.20	12.95	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	52.78	-0.59	V	52.19	73.98	21.79	PK
11490	39.46	-0.59	V	38.87	53.98	15.11	AV
17235	51.11	3.63	V	54.74	68.20	13.46	PK
11490	53.80	-0.59	H	53.21	73.98	20.77	PK
11490	40.07	-0.59	H	39.48	53.98	14.50	AV
17235	51.53	3.63	H	55.16	68.20	13.04	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	52.84	-0.97	V	51.87	73.98	22.11	PK
11570	39.12	-0.97	V	38.15	53.98	15.83	AV
17355	51.45	5.02	V	56.47	68.20	11.73	PK
11570	53.00	-0.97	H	52.03	73.98	21.95	PK
11570	39.67	-0.97	H	38.70	53.98	15.28	AV
17355	52.08	5.02	H	57.10	68.20	11.10	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	54.26	-1.70	V	52.56	73.98	21.42	PK
11650	40.58	-1.70	V	38.88	53.98	15.10	AV
17475	50.78	5.75	V	56.53	68.20	11.67	PK
11650	53.58	-1.70	H	51.88	73.98	22.10	PK
11650	40.45	-1.70	H	38.75	53.98	15.23	AV
17475	50.55	5.75	H	56.30	68.20	11.90	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	53.87	-0.59	V	53.28	73.98	20.70	PK
11490	41.08	-0.59	V	40.49	53.98	13.49	AV
17235	51.89	3.63	V	55.52	68.20	12.68	PK
11490	53.13	-0.59	H	52.54	73.98	21.44	PK
11490	39.85	-0.59	H	39.26	53.98	14.72	AV
17235	51.76	3.63	H	55.39	68.20	12.81	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	53.29	-0.97	V	52.32	73.98	21.66	PK
11570	40.49	-0.97	V	39.52	53.98	14.46	AV
17355	50.57	5.02	V	55.59	68.20	12.61	PK
11570	53.01	-0.97	H	52.04	73.98	21.94	PK
11570	40.03	-0.97	H	39.06	53.98	14.92	AV
17355	50.21	5.02	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 802.11n_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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	53.25	-1.70	V	51.55	73.98	22.43	PK
11650	40.56	-1.70	V	38.86	53.98	15.12	AV
17475	52.01	5.75	V	57.76	68.20	10.44	PK
11650	53.05	-1.70	H	51.35	73.98	22.63	PK
11650	40.41	-1.70	H	38.71	53.98	15.27	AV
17475	50.45	5.75	H	56.20	68.20	12.00	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	53.32	-0.63	V	52.69	73.98	21.29	PK
11510	40.80	-0.63	V	40.17	53.98	13.81	AV
17265	52.17	4.53	V	56.70	68.20	11.50	PK
11510	52.61	-0.63	H	51.98	73.98	22.00	PK
11510	40.33	-0.63	H	39.70	53.98	14.28	AV
17265	51.45	4.53	H	55.98	68.20	12.22	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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

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	53.48	-0.53	V	52.95	73.98	21.03	PK
11590	40.64	-0.53	V	40.11	53.98	13.87	AV
17385	50.60	4.95	V	55.55	68.20	12.65	PK
11590	52.79	-0.53	H	52.26	73.98	21.72	PK
11590	40.51	-0.53	H	39.98	53.98	14.00	AV
17385	49.96	4.95	H	54.91	68.20	13.29	PK

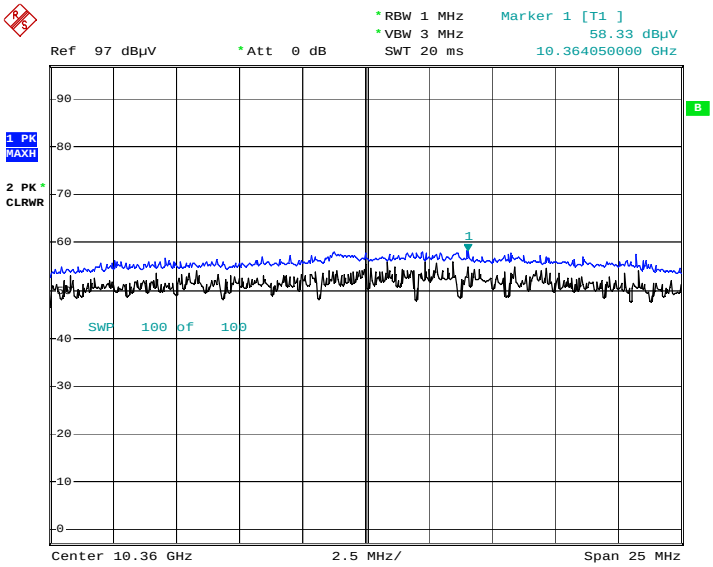
*AN. : Antenna Factor / CL : Cable Loss / Amp.G. : Amplifier Gain / D.F. : Distance Factor

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)
8. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

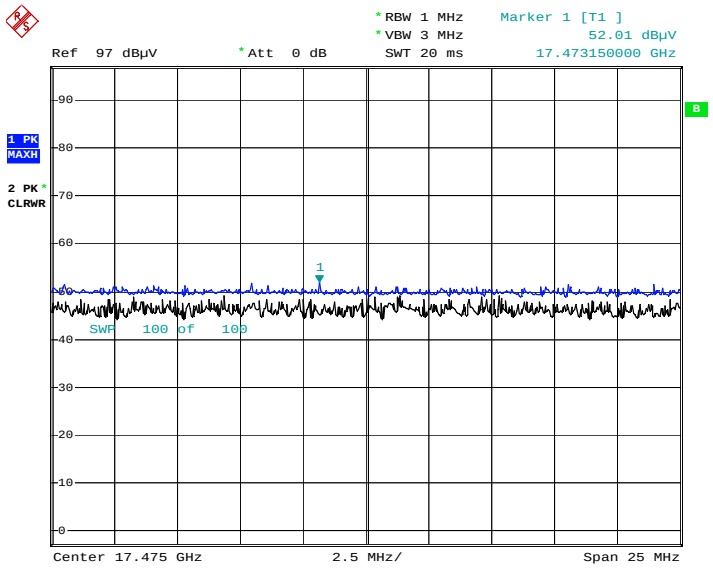
▣ RESULT PLOTS

Radiated Spurious Emissions plot –Peak Reading (802.11a, Ch.36 2nd Harmonic, Y-H)



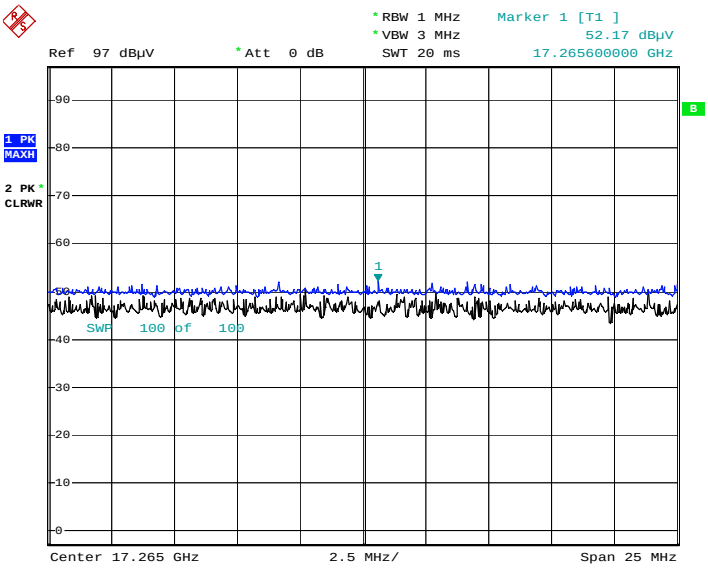
Date: 27.APR.2018 09:57:27

Radiated Spurious Emissions plot –Peak Reading (802.11n_HT20, Ch.165 3rd Harmonic, X-V)



Date: 27.APR.2018 09:59:59

Radiated Spurious Emissions plot –Peak Reading (802.11n_HT40, Ch.151 3rd Harmonic, X-V)



Date: 27.APR.2018 10:03:05

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

9.6.2 RADIATED RESTRICTED BAND EDGE MEASUREMENTS

Test Requirements and limit, §15.247(d) §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	63.86	5.07	H	68.93	73.98	5.05	PK
5150	44.04	5.07	H	49.11	53.98	4.87	AV
5150	63.30	5.07	V	68.37	73.98	5.61	PK
5150	42.34	5.07	V	47.41	53.98	6.57	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	62.70	5.07	H	67.77	73.98	6.21	PK
5150	43.69	5.07	H	48.76	53.98	5.22	AV
5150	61.54	5.07	V	66.61	73.98	7.37	PK
5150	42.97	5.07	V	48.04	53.98	5.94	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	60.73	5.07	H	65.80	73.98	8.18	PK
5150	45.90	5.07	H	50.97	53.98	3.01	AV
5150	60.49	5.07	V	65.56	73.98	8.42	PK
5150	45.61	5.07	V	50.68	53.98	3.30	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	64.47	4.42	H	68.89	73.98	5.09	PK
5350	44.99	4.42	H	49.41	53.98	4.57	AV
5350	64.32	4.42	V	68.74	73.98	5.24	PK
5350	43.34	4.42	V	47.76	53.98	6.22	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	66.41	4.42	H	70.83	73.98	3.15	PK
5350	42.36	4.42	H	46.78	53.98	7.20	AV
5350	64.95	4.42	V	69.37	73.98	4.61	PK
5350	42.01	4.42	V	46.43	53.98	7.55	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	65.99	4.42	H	70.41	73.98	3.57	PK
5350	42.54	4.42	H	46.96	53.98	7.02	AV
5350	65.28	4.42	V	69.7	73.98	4.28	PK
5350	42.11	4.42	V	46.53	53.98	7.45	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	55.95	5.72	H	61.67	73.98	12.31	PK
5460	36.80	5.72	H	42.52	53.98	11.46	AV
5470	59.51	5.26	H	64.77	68.20	3.43	PK
5460	52.26	5.72	V	57.98	73.98	16.00	PK
5460	36.22	5.72	V	41.94	53.98	12.04	AV
5470	58.31	5.26	V	63.57	68.20	4.63	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	59.98	7.43	H	67.41	73.98	6.57	PK
5725	37.83	7.43	H	45.26	53.98	8.72	AV
5725	56.93	7.43	V	64.36	73.98	9.62	PK
5725	37.74	7.43	V	45.17	53.98	8.81	AV

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	54.04	5.72	H	59.76	73.98	14.22	PK
5460	36.66	5.72	H	42.38	53.98	11.60	AV
5470	64.30	5.26	H	69.56	73.98	4.42	PK
5470	38.94	5.26	H	44.2	53.98	9.78	AV
5460	53.67	5.72	V	59.39	73.98	14.59	PK
5460	36.14	5.72	V	41.86	53.98	12.12	AV
5470	62.69	5.26	V	67.95	73.98	6.03	PK
5470	37.54	5.26	V	42.8	53.98	11.18	AV

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	61.76	7.43	H	69.19	73.98	4.79	PK
5725	37.73	7.43	H	45.16	53.98	8.82	AV
5725	59.70	7.43	V	67.13	73.98	6.85	PK
5725	37.18	7.43	V	44.61	53.98	9.37	AV

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	55.65	5.72	H	61.37	73.98	12.61	PK
5460	36.98	5.72	H	42.7	53.98	11.28	AV
5470	62.98	5.26	H	68.24	73.98	5.74	PK
5470	41.29	5.26	H	46.55	53.98	7.43	AV
5460	54.89	5.72	V	60.61	73.98	13.37	PK
5460	36.54	5.72	V	42.26	53.98	11.72	AV
5470	61.51	5.26	V	66.77	73.98	7.21	PK
5470	40.75	5.26	V	46.01	53.98	7.97	AV

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

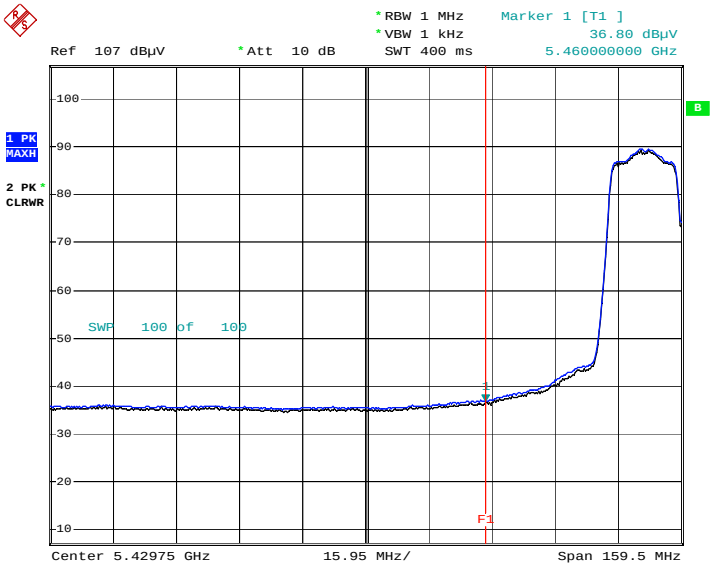
Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. +D.F. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5725	54.40	7.43	H	61.83	68.20	6.37	PK
5725	54.13	7.43	V	61.56	68.20	6.64	PK

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 mode test. . Worst case of EUT is lowest data rate in 802.11a/n.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone, Stand alone+ external accessories(earphone, etc)
   - Worstcase : Stand alone

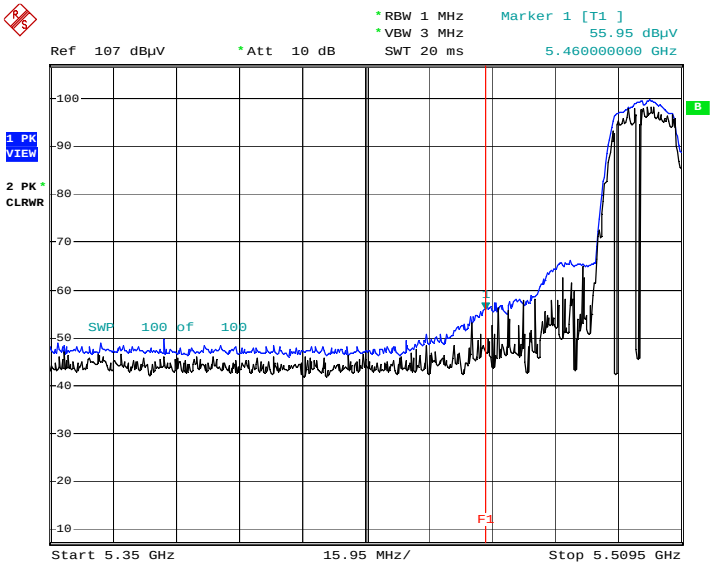
▣ RESULT PLOTS

Radiated Restricted Band Edges plot – Average Reading (802.11a, Ch.100, X-H)



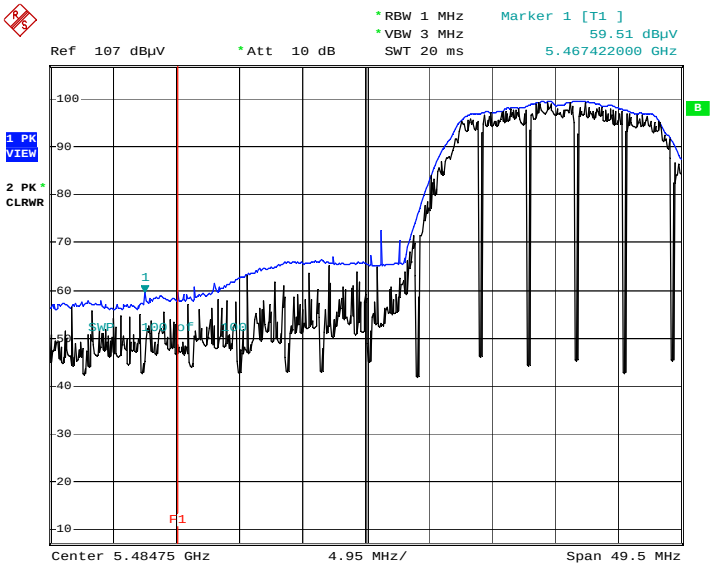
Date: 25.APR.2018 14:15:10

Radiated Restricted Band Edges plot – Peak Reading (802.11a, Ch.100, X-H)



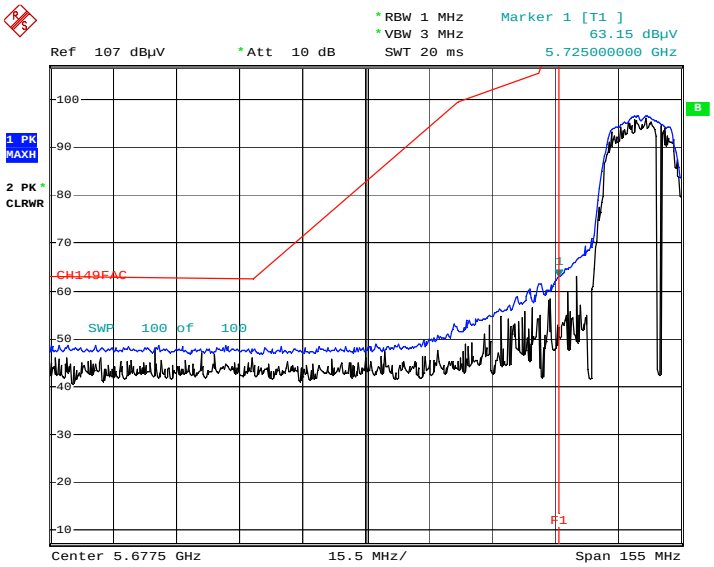
Date: 25.APR.2018 14:12:42

Radiated Restricted Band Edges plot – Peak Reading (802.11a, Ch.100, X-H)



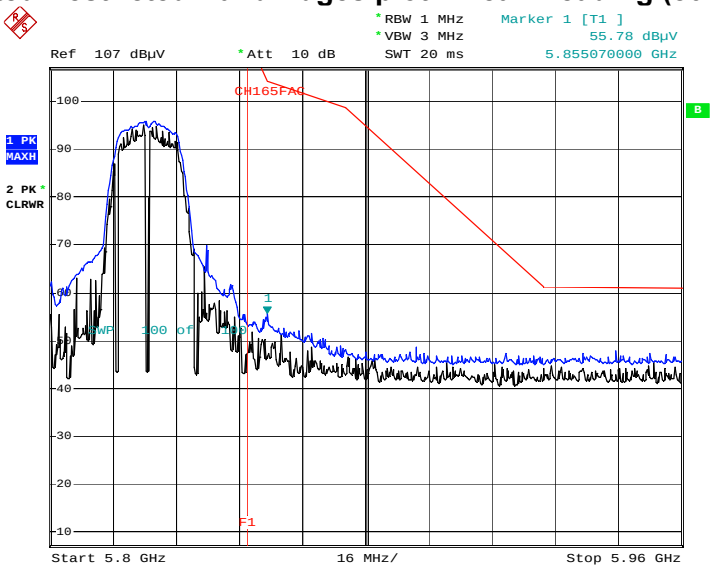
Date: 25.APR.2018 14:11:18

Radiated Restricted Band Edges plot – Peak Reading (802.11a, Ch.149)



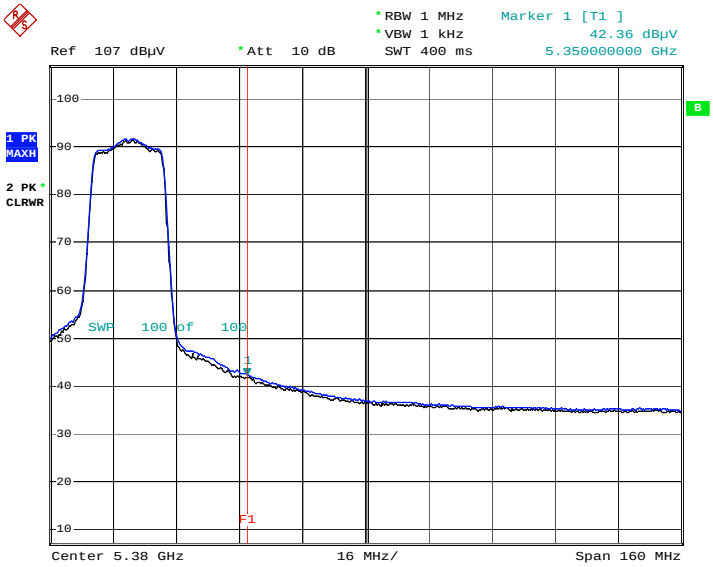
Date: 25.APR.2018 09:56:49

Radiated Restricted Band Edges plot – Peak Reading (802.11a, Ch.165)



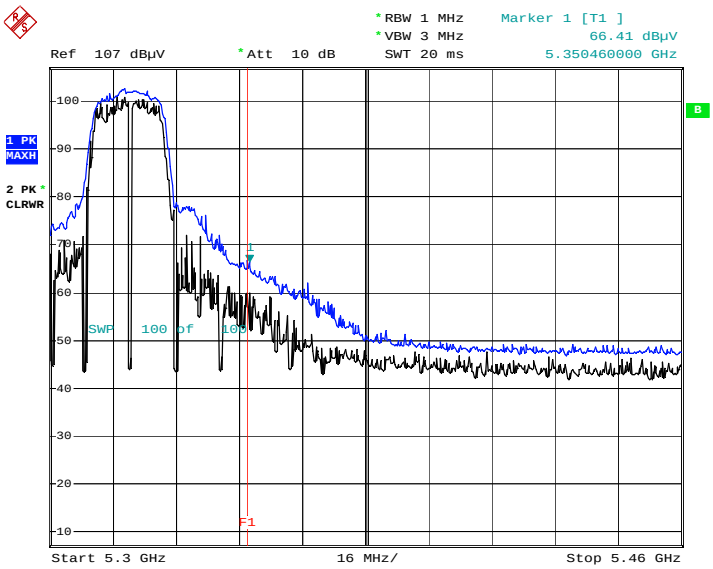
Date: 25.APR.2018 11:23:05

Radiated Restricted Band Edges plot – Average Reading (802.11n_HT20, Ch.64, X-H)



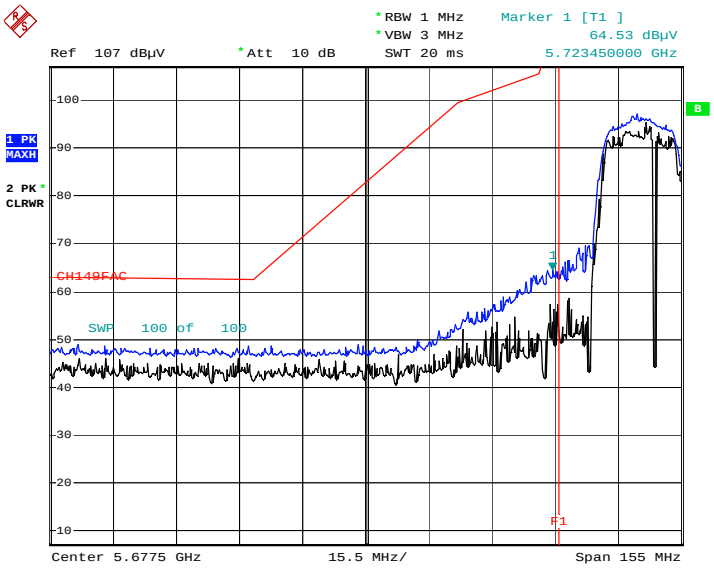
Date: 25.APR.2018 14:20:06

Radiated Restricted Band Edges plot – Peak Reading (802.11n_HT20, Ch.64, X-H)



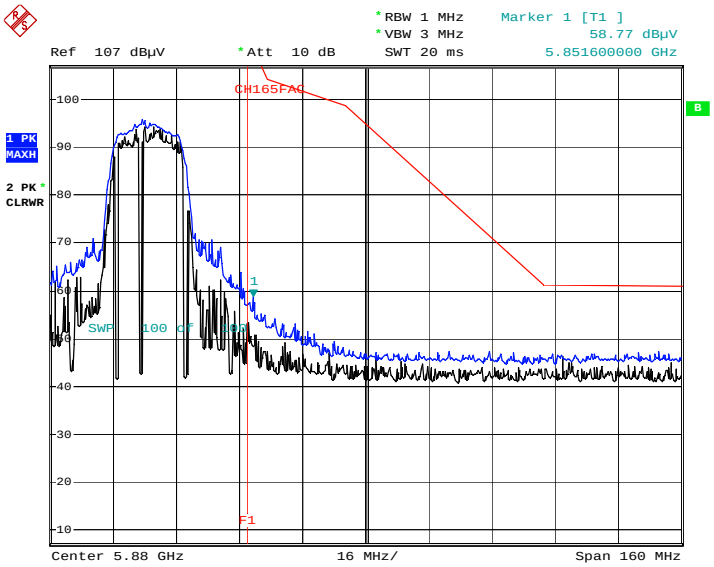
Date: 25.APR.2018 13:52:54

Radiated Restricted Band Edges plot – Peak Reading (802.11n_HT20, Ch.149)



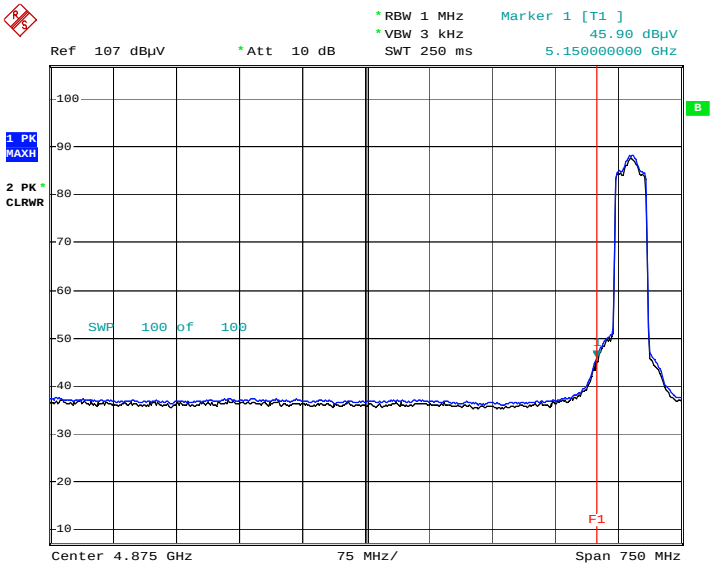
Date: 25.APR.2018 10:16:31

Radiated Restricted Band Edges plot – Peak Reading (802.11n_HT20, Ch.165)



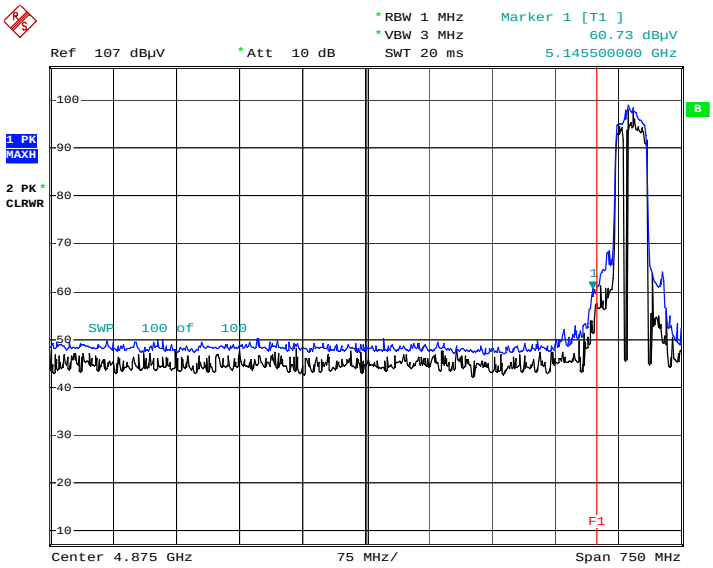
Date: 25.APR.2018 11:25:00

Radiated Restricted Band Edges plot – Average Reading (802.11n_HT40, Ch.38, X-H)



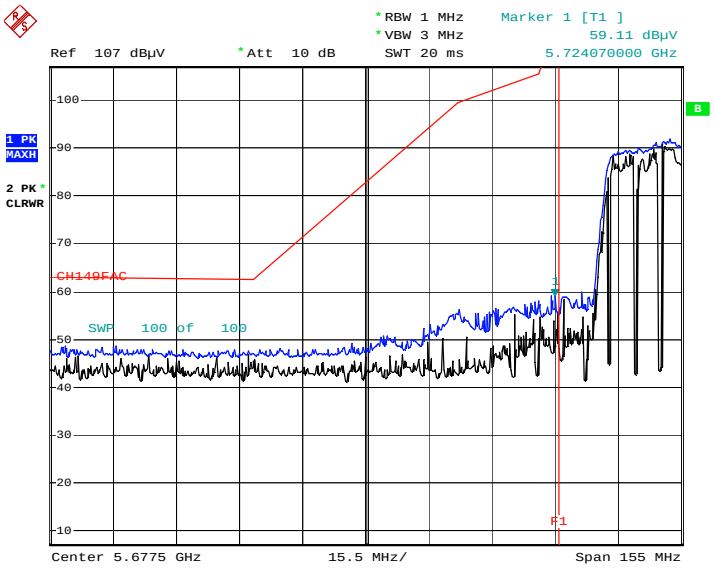
Date: 25.APR.2018 14:24:33

Radiated Restricted Band Edges plot – Peak Reading (802.11n_HT40, Ch.38, X-H)



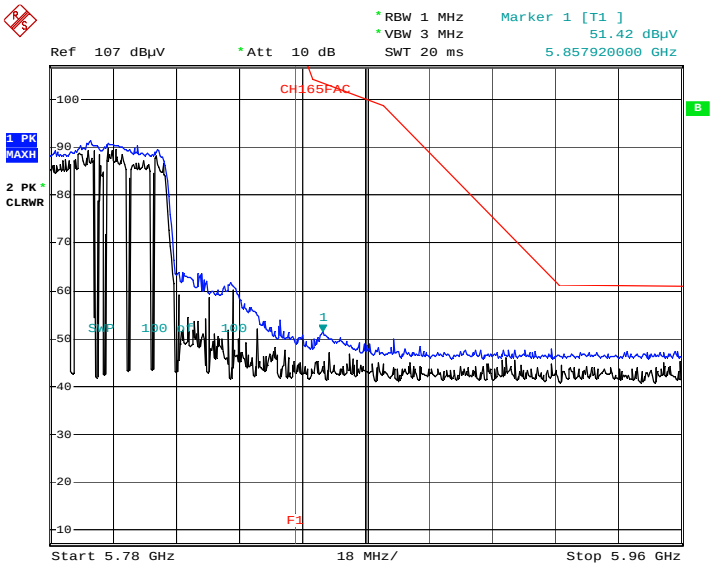
Date: 25.APR.2018 14:25:27

Radiated Restricted Band Edges plot – Peak Reading (802.11n_HT40, Ch.151)



Date: 25.APR.2018 10:22:45

Radiated Restricted Band Edges plot – Peak Reading (802.11n_HT40, Ch.159)



Date: 25.APR.2018 11:29:53

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 (dBμV)	
	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

[NOTE]

All modes of operation were investigated and the worst case configuration results are reported.

- Mode : Stand alone+Earphone+Travel Adapter, Stand alone+Travel Adapter
- Worstcase : Stand alone+Travel Adapter

▣ RESULT PLOTS

Conducted Emissions (Line 1)

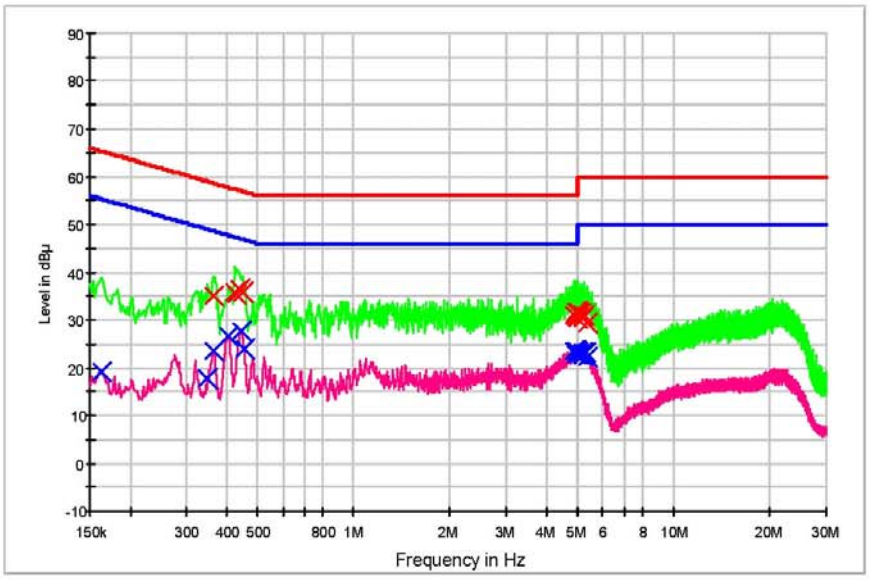
EMI Auto Test(22) 1 / 2

HCT TEST Report

Common Information

EUT:	SM-A600N
Manufacturer:	SAMSUNG
Test Site:	SHIELD ROOM
Operating Conditions:	WLAN 5G MODE

FCC CLASS B_Exten Cable



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.364000	35.1	9.000	Off	N	9.7	23.6	58.6
0.426000	35.6	9.000	Off	N	9.7	21.7	57.3
0.432000	35.5	9.000	Off	N	9.7	21.7	57.2
0.438000	36.4	9.000	Off	N	9.7	20.7	57.1
0.442000	36.3	9.000	Off	N	9.7	20.7	57.0
0.448000	35.7	9.000	Off	N	9.7	21.2	56.9
4.876000	30.9	9.000	Off	N	10.0	25.1	56.0
4.954000	31.6	9.000	Off	N	10.0	24.4	56.0
4.962000	30.8	9.000	Off	N	10.0	25.2	56.0
4.996000	31.5	9.000	Off	N	10.0	24.5	56.0
5.004000	31.6	9.000	Off	N	10.0	28.4	60.0
5.008000	30.5	9.000	Off	N	10.0	29.5	60.0
5.142000	31.2	9.000	Off	N	10.0	28.8	60.0
5.162000	30.3	9.000	Off	N	10.0	29.7	60.0
5.188000	30.7	9.000	Off	N	10.0	29.3	60.0
5.196000	30.4	9.000	Off	N	10.0	29.6	60.0
5.240000	31.0	9.000	Off	N	10.0	29.0	60.0
5.392000	29.5	9.000	Off	N	10.0	30.5	60.0

2018-04-20 오후 1:52:23

EMI Auto Test(22) 2 / 2

Final Result 2

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.162000	19.1	9.000	Off	N	9.7	36.2	55.4
0.350000	17.6	9.000	Off	N	9.7	31.3	49.0
0.366000	23.6	9.000	Off	N	9.7	25.0	48.6
0.406000	26.5	9.000	Off	N	9.7	21.2	47.7
0.444000	27.7	9.000	Off	N	9.7	19.3	47.0
0.456000	24.0	9.000	Off	N	9.7	22.8	46.8
4.876000	23.4	9.000	Off	N	10.0	22.6	46.0
4.954000	23.0	9.000	Off	N	10.0	23.0	46.0
4.962000	23.5	9.000	Off	N	10.0	22.5	46.0
4.996000	23.0	9.000	Off	N	10.0	23.0	46.0
5.004000	23.4	9.000	Off	N	10.0	26.6	50.0
5.008000	23.2	9.000	Off	N	10.0	26.8	50.0
5.158000	22.8	9.000	Off	N	10.0	27.2	50.0
5.162000	22.7	9.000	Off	N	10.0	27.3	50.0
5.194000	23.1	9.000	Off	N	10.0	26.9	50.0
5.240000	23.0	9.000	Off	N	10.0	27.0	50.0
5.286000	23.3	9.000	Off	N	10.0	26.7	50.0
5.392000	22.2	9.000	Off	N	10.0	27.8	50.0

2018-04-20 오후 1:52:23

Conducted Emissions (Line 2)

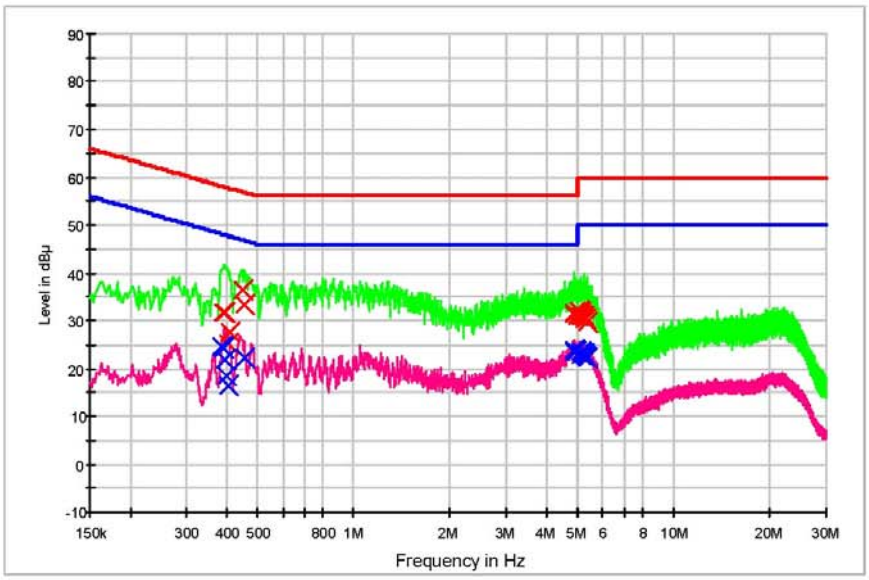
EMI Auto Test(22) 1 / 2

HCT TEST Report

Common Information

EUT:	SM-A600N
Manufacturer:	SAMSUNG
Test Site:	SHIELD ROOM
Operating Conditions:	WLAN 5G MODE

FCC CLASS B_Exten Cable



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.392000	31.8	9.000	Off	L1	9.7	26.2	58.0
0.396000	31.5	9.000	Off	L1	9.7	26.4	57.9
0.404000	25.3	9.000	Off	L1	9.7	32.4	57.8
0.410000	27.6	9.000	Off	L1	9.7	30.1	57.6
0.448000	36.3	9.000	Off	L1	9.7	20.6	56.9
0.456000	33.3	9.000	Off	L1	9.7	23.5	56.8
4.870000	31.2	9.000	Off	L1	10.0	24.8	56.0
4.922000	31.6	9.000	Off	L1	10.0	24.4	56.0
4.992000	30.9	9.000	Off	L1	10.0	25.1	56.0
5.094000	32.0	9.000	Off	L1	10.0	28.0	60.0
5.104000	31.6	9.000	Off	L1	10.0	28.4	60.0
5.140000	31.1	9.000	Off	L1	10.0	28.9	60.0
5.176000	31.1	9.000	Off	L1	10.0	28.9	60.0
5.224000	30.3	9.000	Off	L1	10.0	29.7	60.0
5.232000	30.9	9.000	Off	L1	10.0	29.1	60.0
5.330000	30.3	9.000	Off	L1	10.0	29.7	60.0
5.346000	29.6	9.000	Off	L1	10.0	30.4	60.0
5.392000	29.7	9.000	Off	L1	10.0	30.3	60.0

2018-04-20 오후 2:01:45

EMI Auto Test(22) 2 / 2

Final Result 2

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.388000	24.4	9.000	Off	L1	9.7	23.7	48.1
0.392000	24.3	9.000	Off	L1	9.7	23.7	48.0
0.396000	22.0	9.000	Off	L1	9.7	25.9	47.9
0.400000	18.6	9.000	Off	L1	9.7	29.3	47.9
0.404000	16.6	9.000	Off	L1	9.7	31.2	47.8
0.456000	22.3	9.000	Off	L1	9.7	24.5	46.8
4.870000	23.7	9.000	Off	L1	10.0	22.3	46.0
4.908000	23.7	9.000	Off	L1	10.0	22.3	46.0
4.920000	23.6	9.000	Off	L1	10.0	22.4	46.0
4.924000	23.8	9.000	Off	L1	10.0	22.2	46.0
4.962000	23.5	9.000	Off	L1	10.0	22.5	46.0
5.104000	23.6	9.000	Off	L1	10.0	26.4	50.0
5.140000	23.0	9.000	Off	L1	10.0	27.0	50.0
5.216000	23.3	9.000	Off	L1	10.0	26.7	50.0
5.224000	22.9	9.000	Off	L1	10.0	27.1	50.0
5.232000	23.3	9.000	Off	L1	10.0	26.7	50.0
5.330000	22.4	9.000	Off	L1	10.0	27.6	50.0
5.392000	22.2	9.000	Off	L1	10.0	27.8	50.0

2018-04-20 오후 2:01:45

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	12/20/2017	Annual	102245
Rohde & Schwarz	ESCI / Test Receiver	06/27/2017	Annual	100033
ESPAC	SU-642 /Temperature Chamber	03/30/2018	Annual	0093008124
Agilent	N9020A / Signal Analyzer	06/13/2017	Annual	MY51110085
Agilent	N9030A / Signal Analyzer	11/22/2017	Annual	MY49431210
Agilent	N1911A / Power Meter	04/16/2018	Annual	MY45100523
Agilent	N1921A / Power Sensor	04/16/2018	Annual	MY52260025
Agilent	87300B / Directional Coupler	11/20/2017	Annual	3116A03621
Hewlett Packard	11667B / Power Splitter	06/12/2017	Annual	05001
Hewlett Packard	E3632A / DC Power Supply	06/30/2017	Annual	KR75303960
Agilent	8493C / Attenuator(10 dB)	07/10/2017	Annual	07560
Rohde & Schwarz	EMC32 / Software	N/A	N/A	N/A
HCT CO., LTD.	FCC WLAN&BT&BLE Conducted Test Software v3.0	N/A	N/A	N/A

* [Note]_Test date using a Power Meter and Power Sensor : April 16, 2018 ~ May 09, 2018

10.2 LIST OF TEST EQUIPMENT(Radiated Test)

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Innco system	CO3000 / Controller(Antenna mast)	N/A	N/A	CO3000-4p
Innco system	MA4640/800-XP-EP / Antenna Position Tower	N/A	N/A	N/A
Audix	EM1000 / Controller	N/A	N/A	060520
Audix	Turn Table	N/A	N/A	N/A
Rohde & Schwarz	Loop Antenna	04/19/2017	Biennial	1513-175
Schwarzbeck	VULB 9168 / Hybrid Antenna	04/06/2017	Biennial	760
Schwarzbeck	BBHA 9120D / Horn Antenna	05/02/2017	Biennial	9120D-937
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	12/04/2017	Biennial	BBHA9170541
Rohde & Schwarz	FSP(9 kHz ~ 30 GHz) / Spectrum Analyzer	09/06/2017	Annual	100688
Rohde & Schwarz	FSV40-N / Spectrum Analyzer	09/27/2017	Annual	101068-SZ
Wainwright Instruments	WHK3.0/18G-10EF / High Pass Filter	06/12/2017	Annual	8
Wainwright Instruments	WHFX7.0/18G-8SS / High Pass Filter	05/15/2017	Annual	29
Wainwright Instruments	WRCJV2400/2483.5-2370/2520-60/12SS / Band Reject Filter	06/30/2017	Annual	2
Wainwright Instruments	WRCJV5100/5850-40/50-8EEK / Band Reject Filter	01/03/2018	Annual	2
Api tech.	18B-03 / Attenuator (3 dB)	06/12/2017	Annual	1
Agilent	8493C-10 / Attenuator(10 dB)	07/19/2017	Annual	08285
CERNEX	CBLU1183540 / Power Amplifier	07/11/2017	Annual	22964
CERNEX	CBL06185030 / Power Amplifier	07/11/2017	Annual	22965
CERNEX	CBL18265035 / Power Amplifier	01/10/2018	Annual	22966
CERNEX	CBL26405040 / Power Amplifier	06/30/2017	Annual	25956