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74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea
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FCC UNII REPORT

FCC 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 16, 2016
Test Site/Location:
HCT CO., LTD., 74,Seoicheon-ro 578beon-gil,Majang-myeo,Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA
Report No.: HCT-R-1605-F012-1
HCT FRN: 0005866421
IC Recognition No.: 5944A-5

FCC ID : A3LSMC5000
APPLICANT : SAMSUNG Electronics Co.,Ltd.

Model(s): SM-C5000
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	13.31	0.0214
	802.11n_HT20	5180 – 5240	11.11	0.0129
UNII2A	802.11a	5260 – 5320	13.29	0.0213
	802.11n_HT20	5260 – 5320	11.13	0.0130
UNII2C	802.11a	5500 – 5700	12.98	0.0199
	802.11n_HT20	5500 – 5700	10.71	0.0118
UNII3	802.11a	5745 – 5825	12.66	0.0185
	802.11n_HT20	5745 – 5825	10.84	0.0121

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
: Ji Eun Park
Test Engineer of RF Team

Approved by
: Jong Seok Lee
Manager of RF Team

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

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-R-1605-F012	May 16, 2016	- First Approval Report
HCT-R-1605-F012-1	May 17, 2016	- Revised the battery information page 4.

Table of Contents

1. GENERAL INFORMATION 4

2. EUT DESCRIPTION 4

3. TEST METHODOLOGY 5

3.1 EUT CONFIGURATION 5
3.2 EUT EXERCISE 5
3.3 GENERAL TEST PROCEDURES 5
3.4 DESCRIPTION OF TEST MODES 5

4. INSTRUMENT CALIBRATION 6

5. FACILITIES AND ACCREDITATIONS 6

5.1 FACILITIES 6
5.2 EQUIPMENT 6

6. ANTENNA REQUIREMENTS 6

7. MEASUREMENT UNCERTAINTY 7

8. SUMMARY OF TEST RESULTS 8

9. TEST RESULT 9

9.1 DUTY CYCLE 9
9.2 EMISSION BANDWIDTH AND MINIMUM EMISSION BANDWIDTH MEASUREMENT 11
9.3 OUTPUT POWER MEASUREMENT 18
9.4 POWER SPECTRAL DENSITY 28
9.5 FREQUENCY STABILITY. 34
9.6 RADIATED MEASUREMENT 38
9.6.1 RADIATED SPURIOUS EMISSIONS. 38
9.6.2 RADIATED RESTRICTED BAND EDGE MEASUREMENTS 70
9.7 POWERLINE CONDUCTED EMISSIONS 79

10. LIST OF TEST EQUIPMENT 84

10.1 LIST OF TEST EQUIPMENT(Conducted Test) 84
10.2 LIST OF TEST EQUIPMENT(Radiated Test) 85

1. GENERAL INFORMATION

Applicant:	SAMSUNG Electronics Co.,Ltd.
Address:	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
FCC ID:	A3LSMC5000
EUT Type:	Mobile Phone
Model (s):	SM-C5000
Date(s) of Tests:	April 19, 2016 ~ May 10, 2016
Place of Tests:	HCT Co., Ltd. 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea

2. EUT DESCRIPTION

Model	SM-C5000	
EUT Type	Mobile Phone	
Power Supply	DC 3.85 V	
Battery Infomation	Model: EB-BC500ABE Type: Secondary Li-ion Battery	
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), Not supported 5600 MHz – 5650 MHz
	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) Not supported 5600 MHz – 5650 MHz
Modulation Type	OFDM(802.11a, 802.11n_HT20)	
Antenna Specification	Manufacturer: BYD Company Limited. Guangdong Antenna type: INTERNAL ANTENNA Peak Gain : 2.87 dBi (5180~5240 UNII1 BAND) / 2.83 dBi (5260~5320 UNII2A BAND) 2.72 dBi (5500~5700 UNII2C BAND) / 1.69 dBi (5745~5825 UNII3 BAND)	

3. TEST METHODOLOGY

The measurement procedure described in FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02 dated April 08, 2016 entitled "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part15, Subpart E" and ANSI C63.10(Version : 2013) 'the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices' were used in the measurement. For 802.11ac, KDB644545 D03 v01 dated August 14, 2014.

3.1 EUT CONFIGURATION

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

3.2 EUT EXERCISE

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

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

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

Radiated Emissions

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

Conducted Antenna Terminal

See Section from 8.1 to 8.4.(KDB 789033 D02 v01r02)

3.4 DESCRIPTION OF TEST MODES

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

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

4. INSTRUMENT CALIBRATION

The. measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipments, which is traceable to recognized national standards
Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2006).

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

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

5.2 EQUIPMENT

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

6. ANTENNA REQUIREMENTS

According to FCC 47 CFR §15.203, §15.407

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

* The antennas of this E.U.T are permanently attached.
* The E.U.T Complies with the requirement of §15.203, §15.407

7. MEASUREMENT UNCERTAINTY

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

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

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

8. SUMMARY OF TEST RESULTS

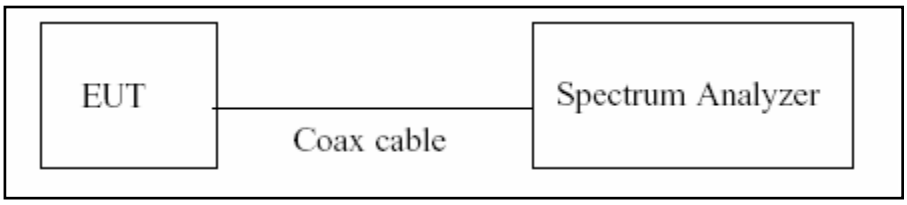
Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
26dB Bandwidth	§15.407 (for Power Measurement)	N/A	CONDUCTED	PASS
6 dB Bandwidth	§15.407(e)	>500 kHz (5725-5850 MHz)		PASS
Maximum Conducted Output Power	§15.407(a)(1)	< 250 mW (5150-5250 MHz) < 250 mW or 11+10 log $\log_{10}$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

9. TEST RESULT

9.1 DUTY CYCLE

The zero-span mode on a spectrum analyzer or EMI receiver ,if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set RBW ≥ 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 v01r02)

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

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

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

▣ Duty Cycle Factor

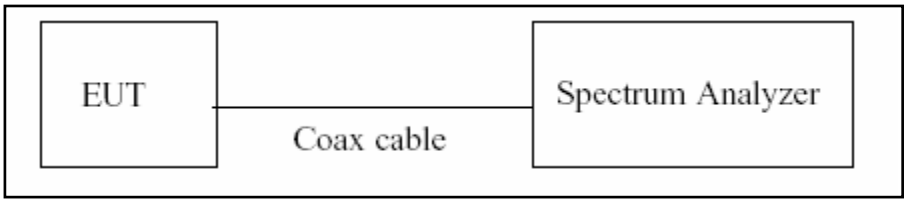
Mode	Data Rate (Mbps)	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11a	6	1.392	1.492	0.93297587	0.301
	9	0.941	1.033	0.91093901	0.405
	12	0.708	0.808	0.87623762	0.574
	18	0.480	0.579	0.82901554	0.814
	24	0.363	0.462	0.78571429	1.047
	36	0.252	0.351	0.71794872	1.439
	48	0.192	0.291	0.65979381	1.806
	54	0.177	0.276	0.64130435	1.929
Mode	**MCS INDEX**	**T_{on} (ms)**	**T_{total} (ms)**	**Duty Cycle**	**Duty Cycle Factor (dB)**
802.11n_HT20	0	1.296	1.394	0.92969871	0.317
	1	0.662	0.760	0.87105263	0.600
	2	0.444	0.542	0.81918819	0.866
	3	0.344	0.442	0.77828054	1.089
	4	0.236	0.334	0.70658683	1.508
	5	0.184	0.282	0.65248227	1.854
	6	0.168	0.266	0.63157895	1.996
	7	0.152	0.250	0.60800000	2.161

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 v01r02, 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 v01r02)

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 v01r02)

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	21.70	N/A	Pass
5200	40	21.76	N/A	Pass
5240	48	22.07	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11a

802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5260	52	21.90	N/A	Pass
5300	60	21.85	N/A	Pass
5320	64	21.45	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11a

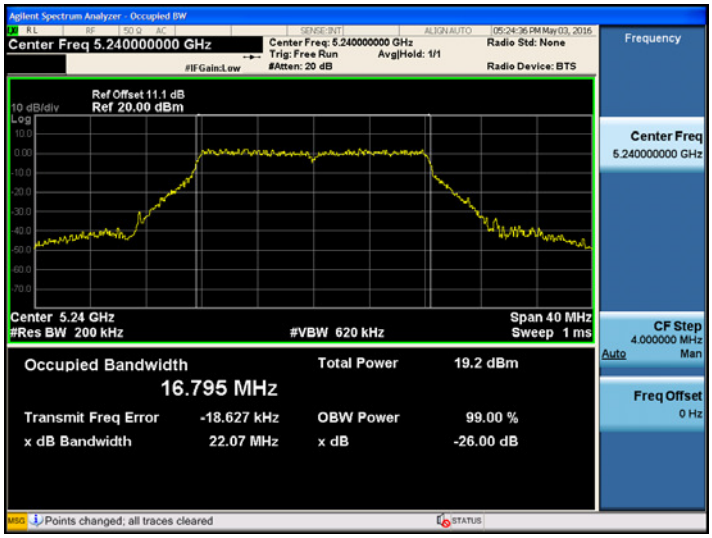
802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5500	100	21.27	N/A	Pass
5580	116	21.89	N/A	Pass
5700	140	21.88	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11a

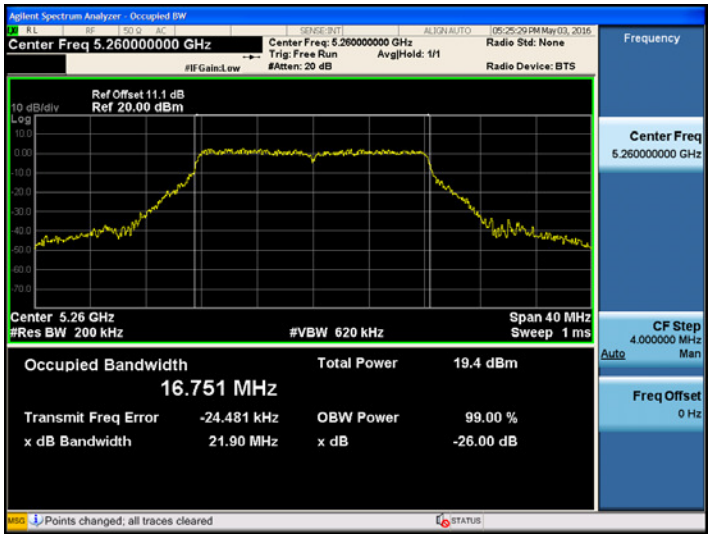
802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	21.94	N/A	Pass
5785	157	21.59	N/A	Pass
5825	165	21.78	N/A	Pass

▣ TEST Plot for 802.11a

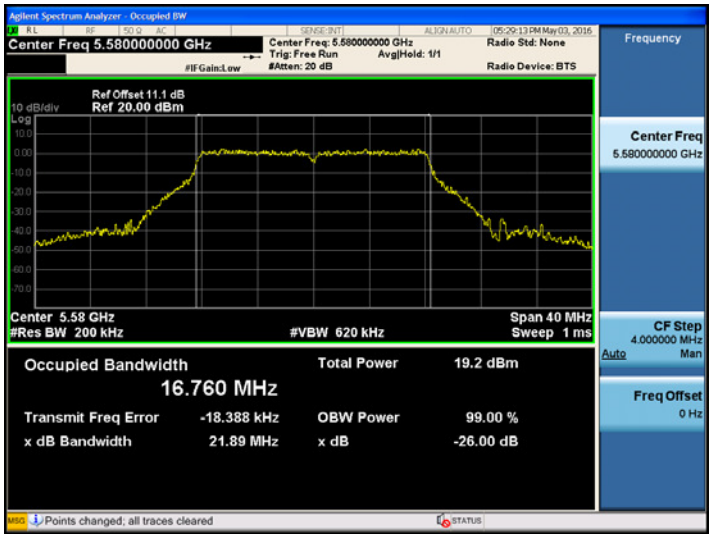
802.11a UNII 1 BAND 26dB Bandwidth (CH48)



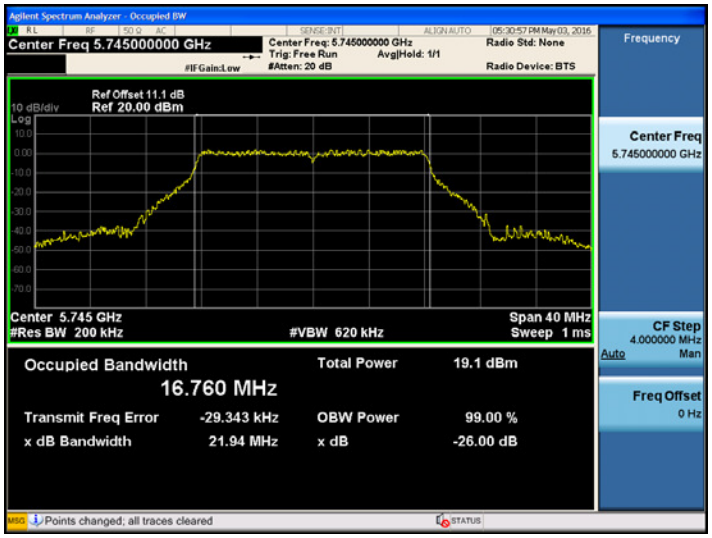
802.11a UNII 2A BAND 26dB Bandwidth (CH 52)



802.11a UNII 2C BAND 26dB Bandwidth (CH116)



802.11a 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_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	21.92	N/A	Pass
5200	40	22.48	N/A	Pass
5240	48	21.73	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	22.10	N/A	Pass
5300	60	22.27	N/A	Pass
5320	64	21.82	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11n_HT20

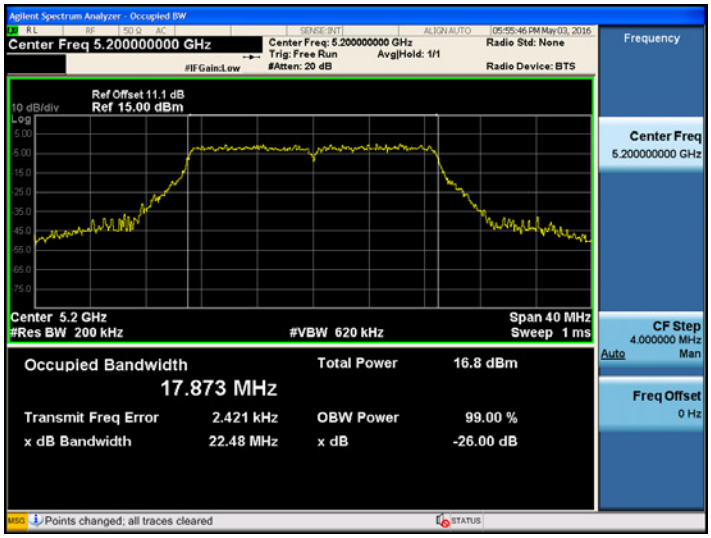
802.11n_HT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5500	100	21.87	N/A	Pass
5580	116	21.83	N/A	Pass
5700	140	22.04	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11n_HT20

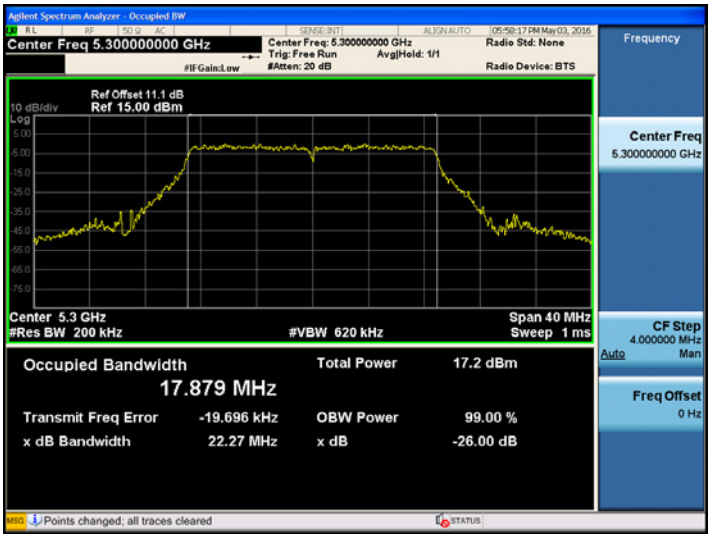
802.11n_HT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	22.04	N/A	Pass
5785	157	21.96	N/A	Pass
5825	165	21.96	N/A	Pass

▣ TEST Plot for 802.11n _HT20

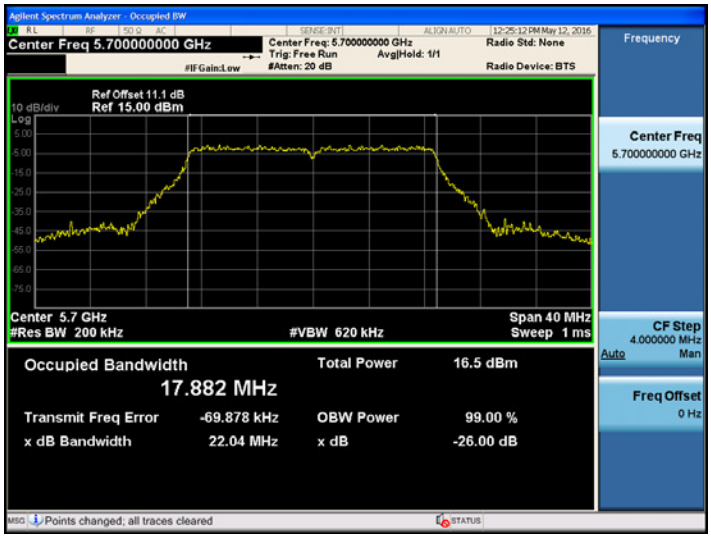
802.11n_HT20 UNII 1 BAND 26dB Bandwidth(CH 40)



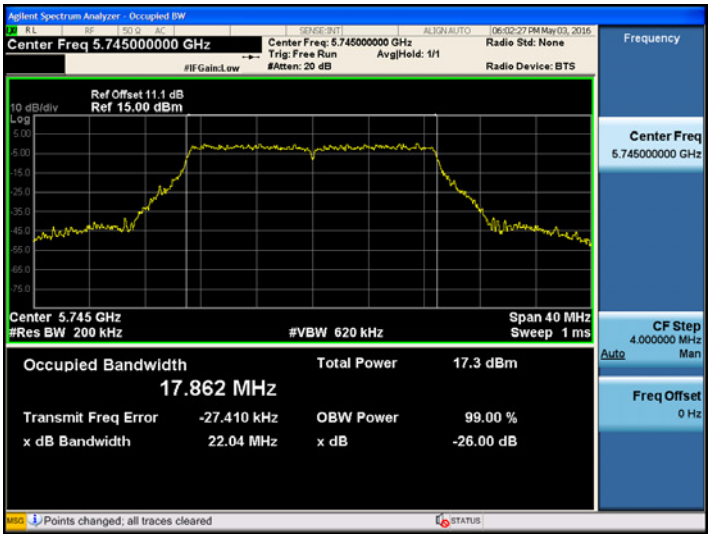
802.11n_HT20 UNII 2A BAND 26dB Bandwidth(CH 60)



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 802.11a, 802.11n_HT20

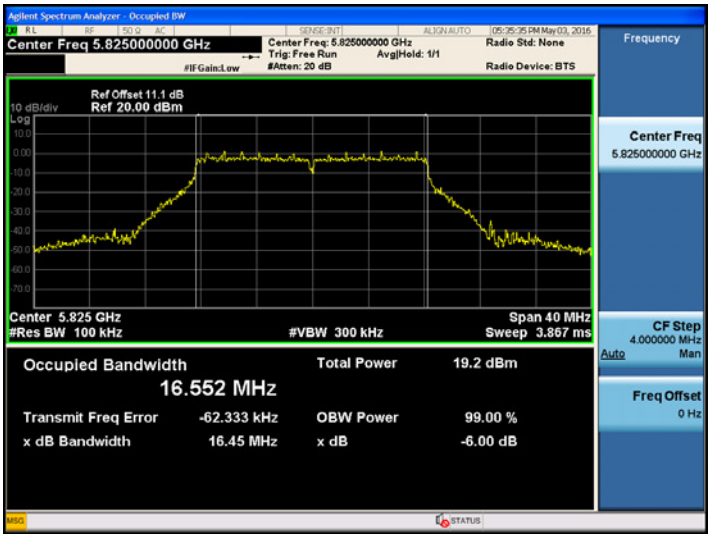
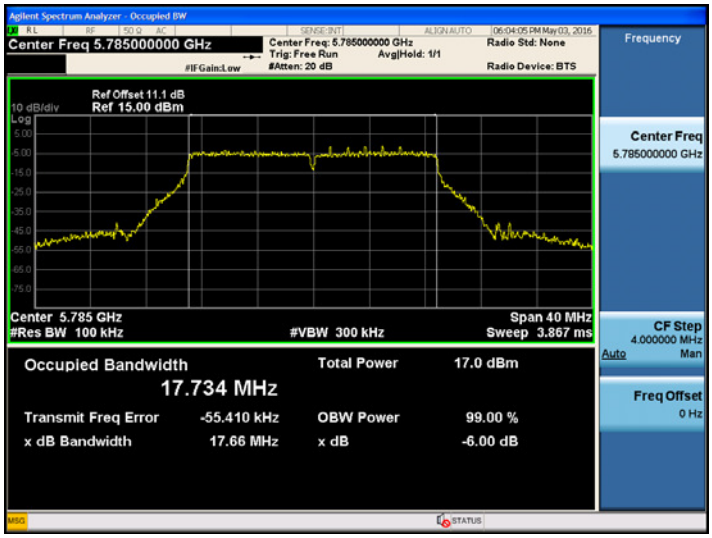
Conducted 6 dB Bandwidth Measurements for 802.11a

802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.43	0.5	Pass
5785	157	16.42	0.5	Pass
5825	165	16.45	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	17.64	0.5	Pass
5785	157	17.66	0.5	Pass
5825	165	17.65	0.5	Pass

▣ TEST Plot for 802.11a, 802.11n_HT20

802.11a UNII 3 BAND 6dB Bandwidth (CH.165)	802.11n_HT20 UNII 3 BAND 6dB Bandwidth(CH.157)
	

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

9.3 OUTPUT POWER MEASUREMENT

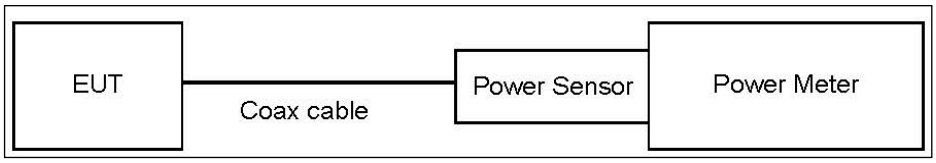
Test Requirements and limit, §15.407(a)(1)

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

▣ Limit

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

▣ TEST CONFIGURATION(20 MHz BW)



▣ TEST PROCEDURE(20 MHz BW)

▪ Average Power (Procedure E.3.a in KDB 789033 D02 v01r02).

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

Note :

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

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

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

▣ 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)

UNII 1 BAND

▣ TEST RESULTS

Conducted Output Power Measurements (802.11a Mode)

802.11a Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5180	36	6	12.99	0.30	13.29	23.98
		9	12.85	0.41	13.26	23.98
		12	12.74	0.57	13.31	23.98
		18	12.50	0.81	13.31	23.98
		24	12.19	1.05	13.24	23.98
		36	11.75	1.44	13.19	23.98
		48	11.37	1.81	13.18	23.98
		54	11.25	1.93	13.18	23.98
5200	40	6	12.95	0.30	13.25	23.98
		9	12.80	0.41	13.21	23.98
		12	12.70	0.57	13.27	23.98
		18	12.47	0.81	13.28	23.98
		24	12.22	1.05	13.27	23.98
		36	11.66	1.44	13.10	23.98
		48	11.32	1.81	13.13	23.98
		54	11.22	1.93	13.15	23.98
5240	48	6	12.72	0.30	13.02	23.98
		9	12.60	0.41	13.01	23.98
		12	12.49	0.57	13.06	23.98
		18	12.27	0.81	13.08	23.98
		24	11.90	1.05	12.95	23.98
		36	11.65	1.44	13.09	23.98
		48	11.25	1.81	13.06	23.98
		54	11.13	1.93	13.06	23.98

UNII 2A BAND

▣ TEST RESULTS

Conducted Output Power Measurements (802.11a Mode)

802.11a Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5260	52	6	12.95	0.30	13.25	23.98
		9	12.77	0.41	13.18	23.98
		12	12.69	0.57	13.26	23.98
		18	12.46	0.81	13.27	23.98
		24	12.20	1.05	13.25	23.98
		36	11.85	1.44	13.29	23.98
		48	11.31	1.81	13.12	23.98
		54	11.22	1.93	13.15	23.98
5300	60	6	12.88	0.30	13.18	23.98
		9	12.73	0.41	13.14	23.98
		12	12.63	0.57	13.20	23.98
		18	12.41	0.81	13.22	23.98
		24	12.15	1.05	13.20	23.98
		36	11.78	1.44	13.22	23.98
		48	11.21	1.81	13.02	23.98
		54	11.09	1.93	13.02	23.98
5320	64	6	12.78	0.30	13.08	23.98
		9	12.52	0.41	12.93	23.98
		12	12.40	0.57	12.97	23.98
		18	12.10	0.81	12.91	23.98
		24	11.89	1.05	12.94	23.98
		36	11.52	1.44	12.96	23.98
		48	11.15	1.81	12.96	23.98
		54	11.04	1.93	12.97	23.98

UNII 2C BAND

▣ TEST RESULTS

Conducted Output Power Measurements (802.11a Mode)

802.11a Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5500	100	6	12.65	0.30	12.95	23.98
		9	12.54	0.41	12.95	23.98
		12	12.28	0.57	12.85	23.98
		18	12.02	0.81	12.83	23.98
		24	11.80	1.05	12.85	23.98
		36	11.42	1.44	12.86	23.98
		48	11.07	1.81	12.88	23.98
		54	10.92	1.93	12.85	23.98
5580	116	6	12.60	0.30	12.90	23.98
		9	12.45	0.41	12.86	23.98
		12	12.38	0.57	12.95	23.98
		18	12.17	0.81	12.98	23.98
		24	11.90	1.05	12.95	23.98
		36	11.44	1.44	12.88	23.98
		48	11.01	1.81	12.82	23.98
		54	10.88	1.93	12.81	23.98
5700	140	6	12.24	0.30	12.54	23.98
		9	12.10	0.41	12.51	23.98
		12	12.00	0.57	12.57	23.98
		18	11.78	0.81	12.59	23.98
		24	11.52	1.05	12.57	23.98
		36	11.05	1.44	12.49	23.98
		48	10.69	1.81	12.50	23.98
		54	10.45	1.93	12.38	23.98

UNII 3 BAND

▣ TEST RESULTS

Conducted Output Power Measurements (802.11a Mode)

802.11a (20MHz) Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	6	12.29	0.30	12.59	30
		9	12.18	0.41	12.59	30
		12	12.06	0.57	12.63	30
		18	11.85	0.81	12.66	30
		24	11.51	1.05	12.56	30
		36	11.14	1.44	12.58	30
		48	10.78	1.81	12.59	30
		54	10.67	1.93	12.60	30
5785	157	6	12.16	0.30	12.46	30
		9	12.03	0.41	12.44	30
		12	11.94	0.57	12.51	30
		18	11.69	0.81	12.50	30
		24	11.40	1.05	12.45	30
		36	11.07	1.44	12.51	30
		48	10.71	1.81	12.52	30
		54	10.48	1.93	12.41	30
5825	165	6	12.30	0.30	12.60	30
		9	12.11	0.41	12.52	30
		12	11.93	0.57	12.50	30
		18	11.66	0.81	12.47	30
		24	11.45	1.05	12.50	30
		36	11.01	1.44	12.45	30
		48	10.63	1.81	12.44	30
		54	10.51	1.93	12.44	30

UNII 1 BAND

▣ TEST RESULTS

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

802.11n_HT20 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5180	36	0	10.77	0.32	11.09	23.98
		1	10.46	0.60	11.06	23.98
		2	10.24	0.87	11.11	23.98
		3	9.98	1.09	11.07	23.98
		4	9.50	1.51	11.01	23.98
		5	9.08	1.85	10.93	23.98
		6	8.99	2.00	10.99	23.98
		7	8.80	2.16	10.96	23.98
5200	40	0	10.69	0.32	11.01	23.98
		1	10.42	0.60	11.02	23.98
		2	10.17	0.87	11.04	23.98
		3	9.77	1.09	10.86	23.98
		4	9.42	1.51	10.93	23.98
		5	8.96	1.85	10.81	23.98
		6	8.87	2.00	10.87	23.98
		7	8.70	2.16	10.86	23.98
5240	48	0	10.67	0.32	10.99	23.98
		1	10.31	0.60	10.91	23.98
		2	10.03	0.87	10.90	23.98
		3	9.77	1.09	10.86	23.98
		4	9.38	1.51	10.89	23.98
		5	9.06	1.85	10.91	23.98
		6	8.81	2.00	10.81	23.98
		7	8.74	2.16	10.90	23.98

802.11n_HT20 BW (UNII 2A)

▣ TEST RESULTS

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

802.11n_HT20 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5260	52	0	10.78	0.32	11.10	23.98
		1	10.48	0.60	11.08	23.98
		2	10.26	0.87	11.13	23.98
		3	10.01	1.09	11.10	23.98
		4	9.62	1.51	11.13	23.98
		5	9.12	1.85	10.97	23.98
		6	8.95	2.00	10.95	23.98
		7	8.81	2.16	10.97	23.98
5300	60	0	10.65	0.32	10.97	23.98
		1	10.41	0.60	11.01	23.98
		2	10.18	0.87	11.05	23.98
		3	9.90	1.09	10.99	23.98
		4	9.34	1.51	10.85	23.98
		5	9.00	1.85	10.85	23.98
		6	8.89	2.00	10.89	23.98
		7	8.73	2.16	10.89	23.98
5320	64	0	10.52	0.32	10.84	23.98
		1	10.11	0.60	10.71	23.98
		2	9.91	0.87	10.78	23.98
		3	9.62	1.09	10.71	23.98
		4	9.25	1.51	10.76	23.98
		5	8.86	1.85	10.71	23.98
		6	8.56	2.00	10.56	23.98
		7	8.43	2.16	10.59	23.98

802.11n_HT20 BW (UNII 2C)

▣ TEST RESULTS

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

802.11n_HT20 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5500	100	0	10.32	0.32	10.64	23.98
		1	10.06	0.60	10.66	23.98
		2	9.60	0.87	10.47	23.98
		3	9.35	1.09	10.44	23.98
		4	9.00	1.51	10.51	23.98
		5	8.63	1.85	10.48	23.98
		6	8.50	2.00	10.50	23.98
		7	8.33	2.16	10.49	23.98
5580	116	0	10.39	0.32	10.71	23.98
		1	10.01	0.60	10.61	23.98
		2	9.72	0.87	10.59	23.98
		3	9.43	1.09	10.52	23.98
		4	9.06	1.51	10.57	23.98
		5	8.72	1.85	10.57	23.98
		6	8.54	2.00	10.54	23.98
		7	8.40	2.16	10.56	23.98
5700	140	0	10.29	0.32	10.61	23.98
		1	10.05	0.60	10.65	23.98
		2	9.74	0.87	10.61	23.98
		3	9.50	1.09	10.59	23.98
		4	9.12	1.51	10.63	23.98
		5	8.78	1.85	10.63	23.98
		6	8.45	2.00	10.45	23.98
		7	8.30	2.16	10.46	23.98

802.11n_HT20 BW (UNII 3)

▣ TEST RESULTS

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

802.11n_HT20 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	0	10.38	0.32	10.70	30
		1	9.93	0.60	10.53	30
		2	9.69	0.87	10.56	30
		3	9.42	1.09	10.51	30
		4	9.03	1.51	10.54	30
		5	8.68	1.85	10.53	30
		6	8.55	2.00	10.55	30
		7	8.37	2.16	10.53	30
5785	157	0	10.22	0.32	10.54	30
		1	9.95	0.60	10.55	30
		2	9.68	0.87	10.55	30
		3	9.45	1.09	10.54	30
		4	8.83	1.51	10.34	30
		5	8.49	1.85	10.34	30
		6	8.35	2.00	10.35	30
		7	8.16	2.16	10.32	30
5825	165	0	10.45	0.32	10.77	30
		1	10.20	0.60	10.80	30
		2	9.97	0.87	10.84	30
		3	9.52	1.09	10.61	30
		4	9.14	1.51	10.65	30
		5	8.79	1.85	10.64	30
		6	8.67	2.00	10.67	30
		7	8.51	2.16	10.67	30

9.4 POWER SPECTRAL DENSITY

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

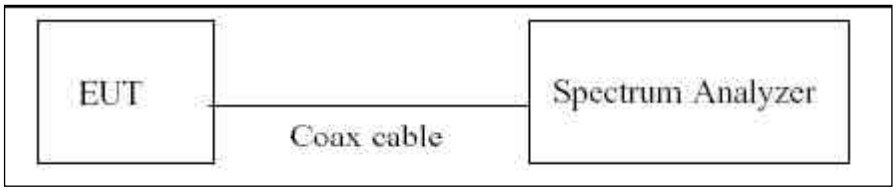
▣ Limit

Power Spectral Density

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

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

▣ TEST CONFIGURATION



▣ TEST PROCEDURE

We tested according to Method in KDB 789033 D02 v01r02

The spectrum analyzer is set to :

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

▣ Sample Calculation

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

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

Note :

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

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

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

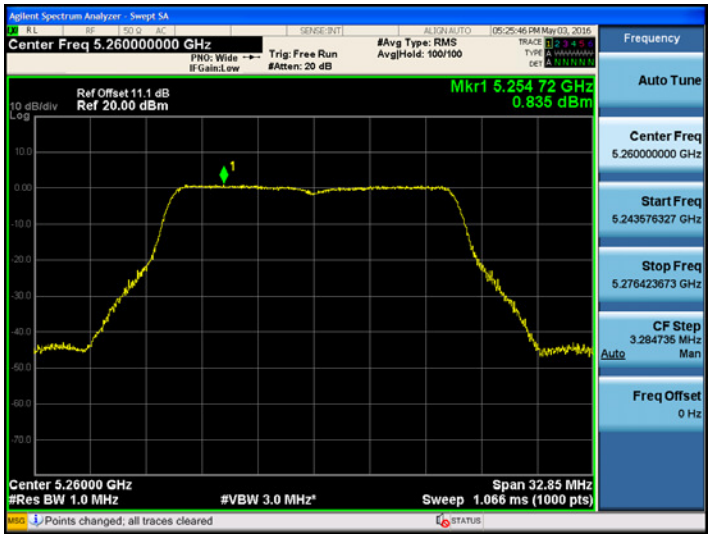
▣ 802.11a

▣ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result				
			Measured Power Density (dBm)	Duty Cycle Factor (dB)	Measured Power Density(dBm) + Duty Cycle Factor	Limit (dBm)	Pass/Fail
5180	36	802.11a	0.822	0.814	1.636	11	Pass
5200	40		0.835	0.814	1.649		Pass
5240	48		0.584	1.439	2.023		Pass
5260	52		0.835	1.439	2.274	11	Pass
5300	60		0.982	0.814	1.796		Pass
5320	64		1.302	0.301	1.603		Pass
5500	100		1.378	0.301	1.679	11	Pass
5580	116		0.733	0.814	1.547		Pass
5700	140		0.600	0.814	1.414		Pass
5745	149		-2.037	0.814	-1.223	30	Pass
5785	157		-2.933	1.806	-1.127		Pass
5825	165		-1.691	0.301	-1.390		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 100	**802.11a UNII 3 BAND PSD CH 157**

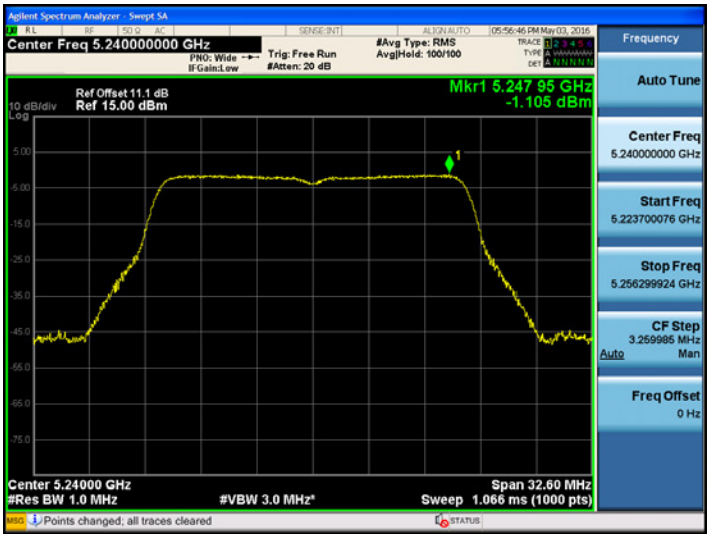
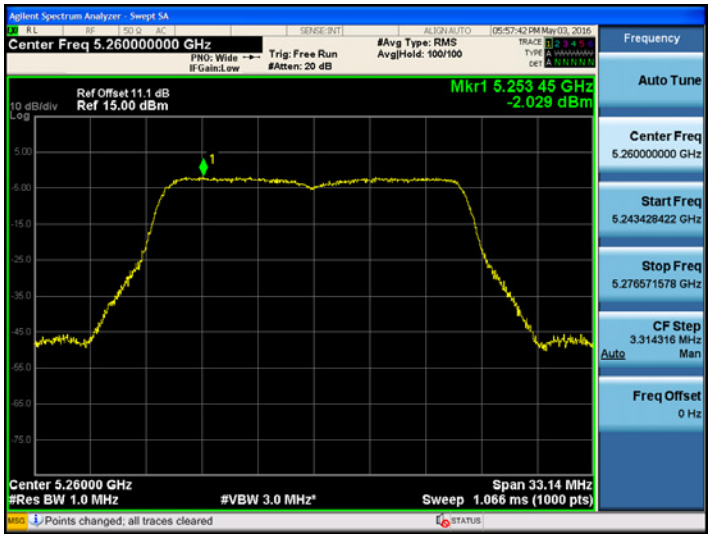
▣802.11n_HT20

▣ 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	-1.860	0.866	-0.994	11	Pass
5200	40		-1.912	0.866	-1.046		Pass
5240	48		-1.105	0.317	-0.788		Pass
5260	52		-2.029	1.508	-0.521	11	Pass
5300	60		-1.515	0.866	-0.649		Pass
5320	64		-1.365	0.317	-1.048		Pass
5500	100		-1.601	0.600	-1.001	11	Pass
5580	116		-1.180	0.317	-0.863		Pass
5700	140		-1.770	0.600	-1.170		Pass
5745	149		-3.885	0.317	-3.568	30	Pass
5785	157		-4.166	0.600	-3.566		Pass
5825	165		-4.257	0.866	-3.391		Pass

▣ TEST Plot for 802.11n_HT20

802.11n_HT20 UNII 1 BAND PSD CH 48	802.11n_HT20 UNII 2A BAND PSD CH 52
	
802.11n_HT20 BW UNII 2C BAND PSD CH 116	**802.11n_HT20 UNII 3 BAND PSD CH 165**

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.

20 MHz BW

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

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	3.85	+20(Ref)	5179942.78	-57.22
100%		-30	5179928.76	-71.24
100%		-20	5179931.56	-68.44
100%		-10	5179934.79	-65.21
100%		0	5179936.55	-63.45
100%		+10	5179939.50	-60.50
100%		+30	5179945.74	-54.26
100%		+40	5179948.67	-51.33
100%		+50	5179951.03	-48.97
115%	4.4	+20	5179944.52	-55.48
Batt. Endpoint	3.6	+20	5179943.19	-56.81

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)	5259941.29	-58.71
100%		-30	5259926.88	-73.12
100%		-20	5259930.55	-69.45
100%		-10	5259933.69	-66.31
100%		0	5259935.72	-64.28
100%		+10	5259938.67	-61.33
100%		+30	5259944.51	-55.49
100%		+40	5259947.82	-52.18
100%		+50	5259951.53	-48.47
115%	4.4	+20	5259946.73	-53.27
Batt. Endpoint	3.6	+20	5259945.82	-54.18

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.

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)	5499938.17	-61.83
100%		-30	5499924.52	-75.48
100%		-20	5499927.89	-72.11
100%		-10	5499932.58	-67.42
100%		0	5499935.71	-64.29
100%		+10	5499937.06	-62.94
100%		+30	5499941.12	-58.88
100%		+40	5499943.21	-56.79
100%		+50	5499945.18	-54.82
115%	4.4	+20	5499940.84	-59.16
Batt. Endpoint	3.6	+20	5499941.53	-58.47

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)	5744935.50	-64.50
100%		-30	5744921.51	-78.49
100%		-20	5744923.88	-76.12
100%		-10	5744928.48	-71.52
100%		0	5744931.55	-68.45
100%		+10	5744933.33	-66.67
100%		+30	5744938.82	-61.18
100%		+40	5744942.06	-57.94
100%		+50	5744944.38	-55.62
115%	4.4	+20	5744940.55	-59.45
Batt. Endpoint	3.6	+20	5744941.69	-58.31

Note:

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

9.6 RADIATED MEASUREMENT

9.6.1 RADIATED SPURIOUS EMISSIONS.

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

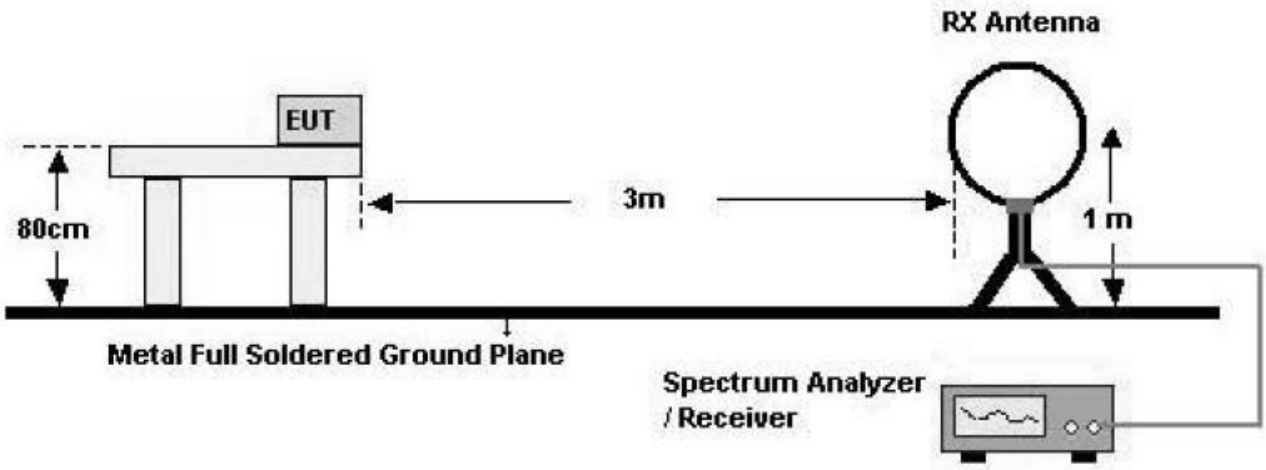
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

▣ §15.407, KDB 789033 D02 v01r02

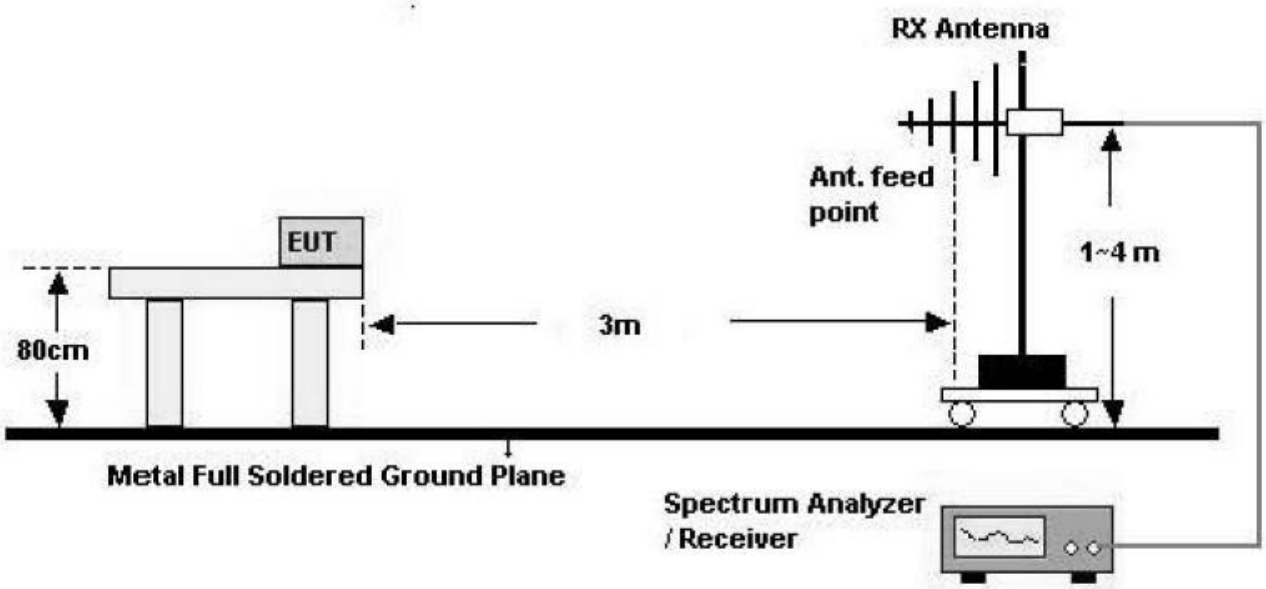
All harmonics that do not lie in a restricted band are subject to a peak limit of -27 dBm/MHz. At a distance of 3 meters the field strength limit in dBµV/m can be determined by adding a “conversion” factor of 95.2 dB to the EIRP limit of -27 dBm/MHz to obtain the limit for out of band spurious emissions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

Test Configuration

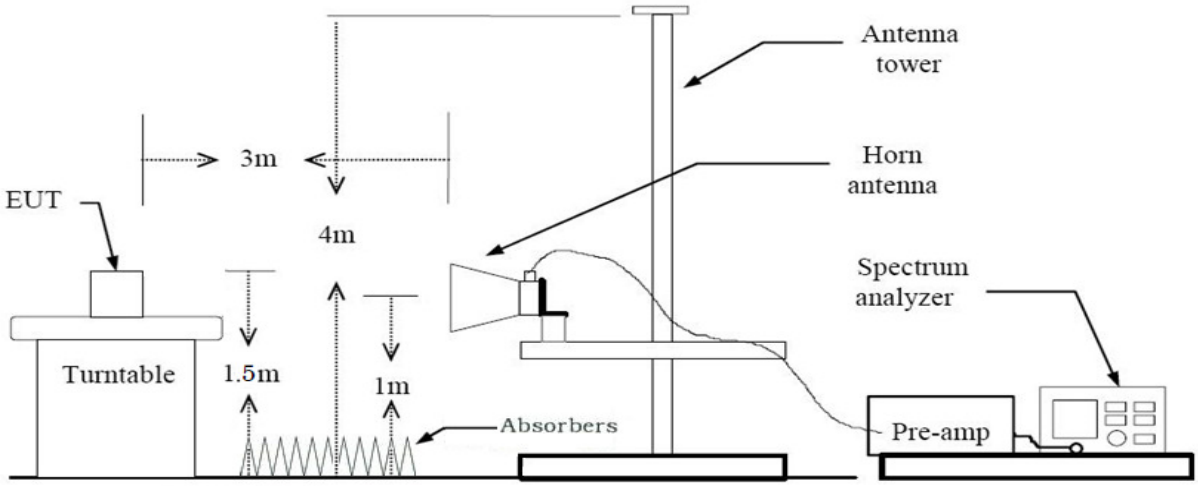
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



TEST PROCEDURE USED

ANSI C63.10:2013

Method G)5) in KDB 789033 D02 v01r02 (Peak)

Method G)6)d) in KDB 789033 D02 v01r02 (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 mode to perform the average filed strength measurements.
2. The actual setting value of VBW for 802.11a, n_HT20 mode.

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**	**1.392**	**1.492**	**93.30**	**718**	**1000**
n_HT20	**MCS 0**	**1.296**	**1.394**	**92.97**	**772**	**1000**

TEST RESULTS

9 kHz – 30MHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBuV/m	dBm/m	dBm	(H/V)	dBuV/m	dBuV/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
MHz	dBuV/m	dBm/m	dBm	(H/V)	dBuV/m	dBuV/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:	802.11a
Transfer Rate:	6 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10360	62.34	-6.00	V	56.34	68.20	11.86	PK
15540	63.32	-6.13	V	57.19	73.98	16.79	PK
15540	49.21	-6.13	V	43.08	53.98	10.90	AV
10360	62.01	-6.00	H	56.01	68.20	12.19	PK
15540	63.28	-6.13	H	57.15	73.98	16.83	PK
15540	49.18	-6.13	H	43.05	53.98	10.93	AV

Notes:

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

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10400	62.29	-6.03	V	56.26	68.20	11.94	PK
15600	65.04	-6.71	V	58.33	73.98	15.65	PK
15600	49.79	-6.71	V	43.08	53.98	10.90	AV
10400	61.94	-6.03	H	55.91	68.20	12.29	PK
15600	64.91	-6.71	H	58.20	73.98	15.78	PK
15600	49.76	-6.71	H	43.05	53.98	10.93	AV

Notes:

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

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10480	63.13	-6.20	V	56.93	68.20	11.27	PK
15720	63.88	-6.46	V	57.42	73.98	16.56	PK
15720	49.98	-6.46	V	43.52	53.98	10.46	AV
10480	62.57	-6.20	H	56.37	68.20	11.83	PK
15720	63.81	-6.46	H	57.35	73.98	16.63	PK
15720	49.96	-6.46	H	43.50	53.98	10.48	AV

Notes:

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

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10360	62.25	-6.00	V	56.25	68.20	11.95	PK
15540	63.43	-6.13	V	57.30	73.98	16.68	PK
15540	49.21	-6.13	V	43.08	53.98	10.90	AV
10360	62.14	-6.00	H	56.14	68.20	12.06	PK
15540	63.31	-6.13	H	57.18	73.98	16.80	PK
15540	49.19	-6.13	H	43.06	53.98	10.92	AV

Notes:

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

Band :	UNII 1
Operation Mode:	802.11n_ HT20
Transfer MCS Index:	0
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10400	62.11	-6.03	V	56.08	68.20	12.12	PK
15600	65.09	-6.71	V	58.38	73.98	15.60	PK
15600	49.85	-6.71	V	43.14	53.98	10.84	AV
10400	62.07	-6.03	H	56.04	68.20	12.16	PK
15600	64.90	-6.71	H	58.19	73.98	15.79	PK
15600	49.74	-6.71	H	43.03	53.98	10.95	AV

Notes:

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

Band :	UNII 1
Operation Mode:	802.11n_ HT20
Transfer MCS Index:	0
Operating Frequency	5240 MHz
Channel No.	48 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10480	62.98	-6.20	V	56.78	68.20	11.42	PK
15720	63.93	-6.46	V	57.47	73.98	16.51	PK
15720	50.04	-6.46	V	43.58	53.98	10.40	AV
10480	62.69	-6.20	H	56.49	68.20	11.71	PK
15720	63.80	-6.46	H	57.34	73.98	16.64	PK
15720	49.94	-6.46	H	43.48	53.98	10.50	AV

Notes:

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

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10520	62.49	-6.00	V	56.49	68.20	11.71	PK
15780	63.66	-6.34	V	57.32	73.98	16.66	PK
15780	49.88	-6.34	V	43.54	53.98	10.44	AV
10520	62.21	-6.52	H	55.69	68.20	12.51	PK
15780	63.57	-6.34	H	57.23	73.98	16.75	PK
15780	49.83	-6.34	H	43.49	53.98	10.49	AV

Notes:

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

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10600	62.68	-6.00	V	56.68	73.98	17.30	PK
10600	49.58	-6.00	V	43.58	53.98	10.40	AV
15900	64.68	-6.70	V	57.98	73.98	16.00	PK
15900	49.90	-6.70	V	43.20	53.98	10.78	AV
10600	62.33	-6.00	H	56.33	73.98	17.65	PK
10600	49.31	-6.00	H	43.31	53.98	10.67	AV
15900	64.59	-6.70	H	57.89	73.98	16.09	PK
15900	49.85	-6.70	H	43.15	53.98	10.83	AV

Notes:

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

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10640	63.31	-5.60	V	57.71	73.98	16.27	PK
10640	49.48	-5.60	V	43.88	53.98	10.10	AV
15960	63.01	-6.81	V	56.20	73.98	17.78	PK
15960	48.73	-6.81	V	41.92	53.98	12.06	AV
10640	63.07	-5.60	H	57.47	73.98	16.51	PK
10640	49.35	-5.60	H	43.75	53.98	10.23	AV
15960	62.89	-6.81	H	56.08	73.98	17.90	PK
15960	48.69	-6.81	H	41.88	53.98	12.10	AV

Notes:

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

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10520	62.35	-6.00	V	56.35	68.20	11.85	PK
15780	63.71	-6.34	V	57.37	73.98	16.61	PK
15780	49.94	-6.34	V	43.60	53.98	10.38	AV
10520	62.19	-6.52	H	55.67	68.20	12.53	PK
15780	63.56	-6.34	H	57.22	73.98	16.76	PK
15780	49.81	-6.34	H	43.47	53.98	10.51	AV

Notes:

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

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. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10600	63.30	-6.00	V	57.30	73.98	16.68	PK
10600	49.55	-6.00	V	43.55	53.98	10.43	AV
15900	64.73	-6.70	V	58.03	73.98	15.95	PK
15900	49.96	-6.70	V	43.26	53.98	10.72	AV
10600	63.14	-6.00	H	57.14	73.98	16.84	PK
10600	49.38	-6.00	H	43.38	53.98	10.60	AV
15900	64.58	-6.70	H	57.88	73.98	16.10	PK
15900	49.83	-6.70	H	43.13	53.98	10.85	AV

Notes:

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

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. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10640	63.16	-5.60	V	57.56	73.98	16.42	PK
10640	49.42	-5.60	V	43.82	53.98	10.16	AV
15960	63.06	-6.81	V	56.25	73.98	17.73	PK
15960	48.79	-6.81	V	41.98	53.98	12.00	AV
10640	62.99	-5.60	H	57.39	73.98	16.59	PK
10640	49.30	-5.60	H	43.70	53.98	10.28	AV
15960	62.88	-6.81	H	56.07	73.98	17.91	PK
15960	48.67	-6.81	H	41.86	53.98	12.12	AV

Notes:

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

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11000	63.14	-4.61	V	58.53	73.98	15.45	PK
11000	50.30	-4.61	V	45.69	53.98	8.29	AV
16500	62.77	-4.10	V	58.67	68.20	9.53	PK
11000	62.88	-4.61	H	58.27	73.98	15.71	PK
11000	50.07	-4.61	H	45.46	53.98	8.52	AV
16500	62.65	-4.10	H	58.55	68.20	9.65	PK

Notes:

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

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11160	62.82	-5.27	V	57.55	73.98	16.43	PK
11160	50.10	-5.27	V	44.83	53.98	9.15	AV
16740	63.74	-3.23	V	60.51	68.20	7.69	PK
11160	62.79	-5.27	H	57.52	73.98	16.46	PK
11160	49.86	-5.27	H	44.59	53.98	9.39	AV
16740	63.70	-3.23	H	60.47	68.20	7.73	PK

Notes:

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

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11400	62.61	-5.41	V	57.20	73.98	16.78	PK
11400	48.87	-5.41	V	43.46	53.98	10.52	AV
17100	63.88	-0.96	V	62.92	68.20	5.28	PK
11400	62.59	-5.41	H	57.18	73.98	16.80	PK
11400	48.73	-5.41	H	43.32	53.98	10.66	AV
17100	62.76	-0.96	H	61.80	68.20	6.40	PK

Notes:

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

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11000	63.60	-4.61	V	58.99	73.98	14.99	PK
11000	50.22	-4.61	V	45.61	53.98	8.37	AV
16500	62.82	-4.10	V	58.72	68.20	9.48	PK
11000	63.34	-4.61	H	58.73	73.98	15.25	PK
11000	50.13	-4.61	H	45.52	53.98	8.46	AV
16500	62.64	-4.10	H	58.54	68.20	9.66	PK

Notes:

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

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. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11160	62.75	-5.27	V	57.48	73.98	16.50	PK
11160	49.87	-5.27	V	44.60	53.98	9.38	AV
16740	63.79	-3.23	V	60.56	68.20	7.64	PK
11160	62.71	-5.27	H	57.44	73.98	16.54	PK
11160	49.80	-5.27	H	44.53	53.98	9.45	AV
16740	63.69	-3.23	H	60.46	68.20	7.74	PK

Notes:

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

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. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11400	62.58	-5.41	V	57.17	73.98	16.81	PK
11400	48.85	-5.41	V	43.44	53.98	10.54	AV
17100	62.93	-0.96	V	61.97	68.20	6.23	PK
11400	62.55	-5.41	H	57.14	73.98	16.84	PK
11400	48.74	-5.41	H	43.33	53.98	10.65	AV
17100	62.75	-0.96	H	61.79	68.20	6.41	PK

Notes:

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

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	64.28	-5.43	V	58.85	73.98	15.13	PK
11490	50.13	-5.43	V	44.70	53.98	9.28	AV
17235	62.95	-1.30	V	61.65	68.20	6.55	PK
11490	64.66	-5.43	H	59.23	73.98	14.75	PK
11490	50.38	-5.43	H	44.95	53.98	9.03	AV
17235	62.83	-1.30	H	61.53	68.20	6.67	PK

Notes:

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

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11570	64.30	-5.41	V	58.89	73.98	15.09	PK
11570	50.07	-5.41	V	44.66	53.98	9.32	AV
17355	62.86	-0.40	V	62.46	68.20	5.74	PK
11570	65.10	-5.41	H	59.69	73.98	14.29	PK
11570	50.24	-5.41	H	44.83	53.98	9.15	AV
17355	62.76	-0.40	H	62.36	68.20	5.84	PK

Notes:

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

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	64.26	-5.43	V	58.83	73.98	15.15	PK
11650	50.21	-5.43	V	44.78	53.98	9.20	AV
17475	62.17	-0.28	V	61.89	68.20	6.31	PK
11650	64.88	-5.43	H	59.45	73.98	14.53	PK
11650	50.47	-5.43	H	45.04	53.98	8.94	AV
17475	62.31	-0.28	H	62.03	68.20	6.17	PK

Notes:

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

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	64.37	-5.43	V	58.94	73.98	15.04	PK
11490	50.43	-5.43	V	45.00	53.98	8.98	AV
17235	63.00	-1.30	V	61.70	68.20	6.50	PK
11490	64.18	-5.43	H	58.75	73.98	15.23	PK
11490	50.36	-5.43	H	44.93	53.98	9.05	AV
17235	62.82	-1.30	H	61.52	68.20	6.68	PK

Notes:

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

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. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11570	64.36	-5.41	V	58.95	73.98	15.03	PK
11570	50.29	-5.41	V	44.88	53.98	9.10	AV
17355	62.91	-0.40	V	62.51	68.20	5.69	PK
11570	64.11	-5.41	H	58.70	73.98	15.28	PK
11570	50.10	-5.41	H	44.69	53.98	9.29	AV
17355	62.75	-0.40	H	62.35	68.20	5.85	PK

Notes:

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

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

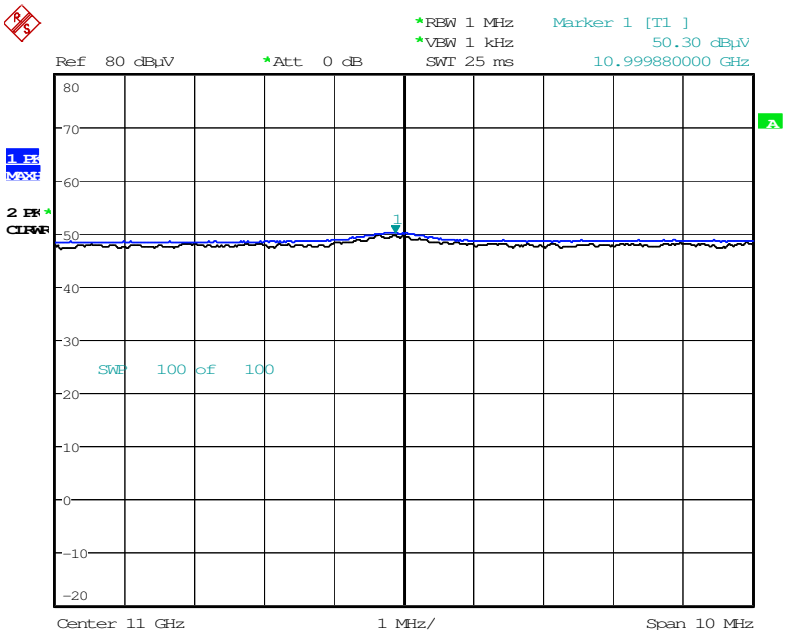
Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	64.85	-5.43	V	59.42	73.98	14.56	PK
11650	50.55	-5.43	V	45.12	53.98	8.86	AV
17475	62.22	-0.28	V	61.94	68.20	6.26	PK
11650	64.63	-5.43	H	59.20	73.98	14.78	PK
11650	50.42	-5.43	H	44.99	53.98	8.99	AV
17475	62.30	-0.28	H	62.02	68.20	6.18	PK

Notes:

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

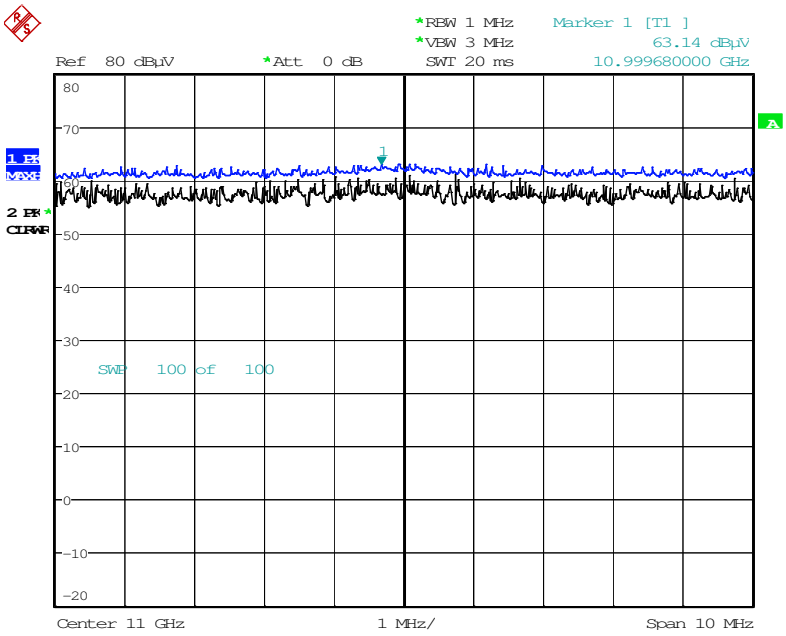
▣ RESULT PLOTS

Radiated Spurious Emissions plot –Average Reading (802.11a, Ch.100 1nd Harmonic, x-V)



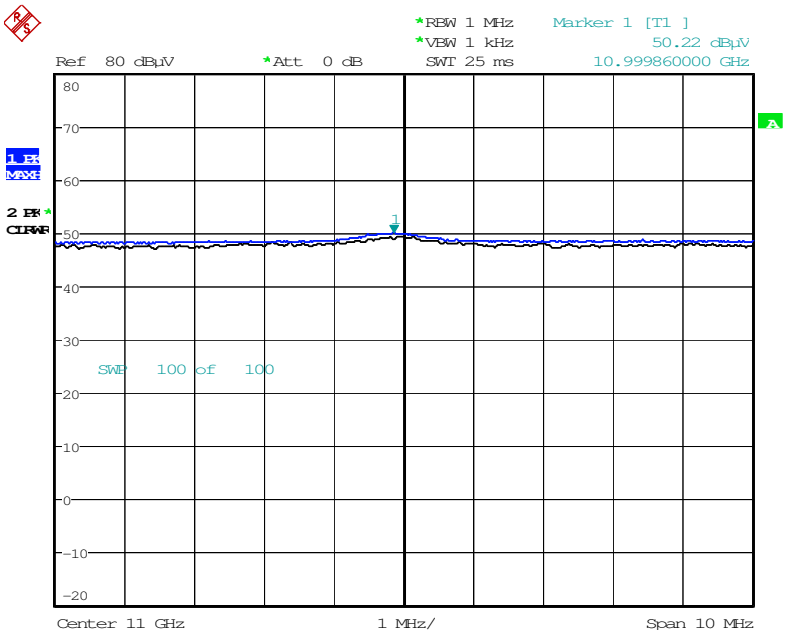
Date: 2.MAY.2016 17:01:58

Radiated Spurious Emissions plot –Peak Reading (802.11a, Ch.100 1nd Harmonic, x-V)



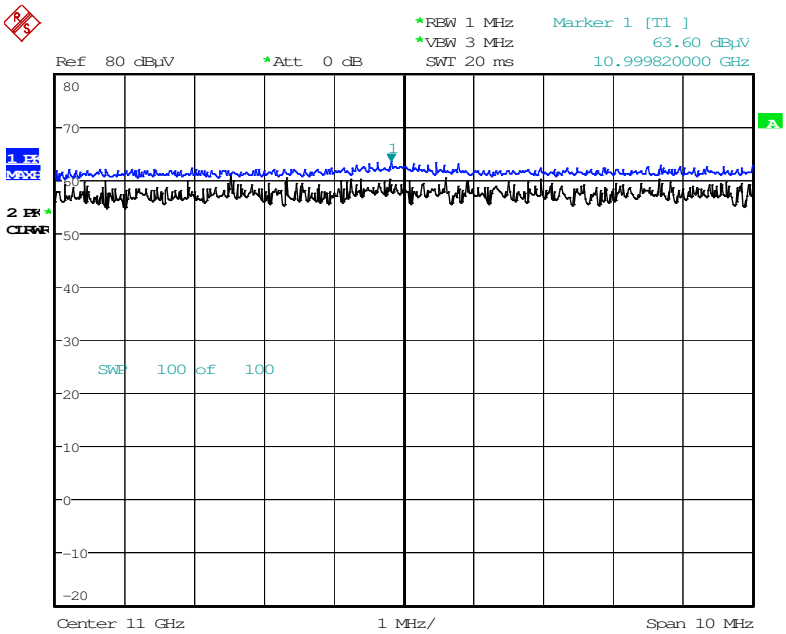
Date: 2.MAY.2016 17:02:57

Radiated Spurious Emissions plot – Average Reading(802.11n_HT20, Ch.100 1nd Harmonic, x-V)



Date: 2.MAY.2016 17:09:21

Radiated Spurious Emissions plot – Peak Reading(802.11n_HT20, Ch.100 1nd Harmonic, x-V)



Date: 2.MAY.2016 17:07:48

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. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	50.56	8.18	H	58.74	73.98	15.24	PK
5150	36.92	8.18	H	45.1	53.98	8.88	AV
5150	49.84	8.18	V	58.02	73.98	15.96	PK
5150	36.76	8.18	V	44.94	53.98	9.04	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. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	50.40	8.18	H	58.58	73.98	15.40	PK
5150	36.80	8.18	H	44.98	53.98	9.00	AV
5150	49.96	8.18	V	58.14	73.98	15.84	PK
5150	36.62	8.18	V	44.8	53.98	9.18	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. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5350	49.94	8.95	H	58.89	73.98	15.09	PK
5350	36.29	8.95	H	45.24	53.98	8.74	AV
5350	49.51	8.95	V	58.46	73.98	15.52	PK
5350	36.13	8.95	V	45.08	53.98	8.90	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. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5350	49.37	8.95	H	58.32	73.98	15.66	PK
5350	36.15	8.95	H	45.1	53.98	8.88	AV
5350	49.18	8.95	V	58.13	73.98	15.85	PK
5350	36.11	8.95	V	45.06	53.98	8.92	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. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5460	49.64	9.62	H	59.26	73.98	14.72	PK
5460	36.17	9.62	H	45.79	53.98	8.19	AV
5470	48.71	9.52	H	58.23	68.20	9.97	PK
5460	48.63	9.62	V	58.25	73.98	15.73	PK
5460	35.97	9.62	V	45.59	53.98	8.39	AV
5470	48.51	9.52	V	58.03	68.20	10.17	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. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5725	48.52	10.70	H	59.22	68.20	8.98	PK
5725	48.05	10.70	V	58.75	68.20	9.45	PK

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

Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5460	48.90	9.62	H	58.52	73.98	15.46	PK
5460	35.85	9.62	H	45.47	53.98	8.51	AV
5470	48.52	9.52	H	58.04	68.20	10.16	PK
5460	48.67	9.62	V	58.29	73.98	15.69	PK
5460	35.69	9.62	V	45.31	53.98	8.67	AV
5470	48.35	9.52	V	57.87	68.20	10.33	PK

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+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5725	48.51	10.70	H	59.21	68.20	8.99	PK
5725	48.23	10.70	V	58.93	68.20	9.27	PK

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

Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5725	53.47	10.70	H	64.17	78.20	14.03	PK
5725	52.59	10.70	V	63.29	78.20	14.91	PK
5715	48.31	10.35	H	58.66	68.20	9.54	PK
5715	47.83	10.35	V	58.18	68.20	10.02	PK

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+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5850	54.99	11.47	H	66.46	78.20	11.74	PK
5850	54.07	11.47	V	65.54	78.20	12.66	PK
5860	47.79	11.47	H	59.26	68.20	8.94	PK
5860	47.46	11.47	V	58.93	68.20	9.27	PK

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+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5725	52.49	10.70	H	63.19	78.20	15.01	PK
5725	51.15	10.70	V	61.85	78.20	16.35	PK
5715	47.96	10.35	H	58.31	68.20	9.89	PK
5715	47.41	10.35	V	57.76	68.20	10.44	PK

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+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5850	52.86	11.47	H	64.33	78.20	13.87	PK
5850	51.28	11.47	V	62.75	78.20	15.45	PK
5860	47.43	11.47	H	58.90	68.20	9.30	PK
5860	47.14	11.47	V	58.61	68.20	9.59	PK

Notes:

1. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + ATT
2. We have done all data rate in 802.11a/n/ac mode test. . Worst case of EUT is lowest data rate in 802.11a/n/ac.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. '*' is radiated band edge test frequency.(not restricted band emissions)
5. The mark '#' is testedaccording to Ⅱ.G.2.c in KDB 789033 D02 v01r02

II. MEASUREMENT PROCEDURES

G. Unwanted Emission Measurement

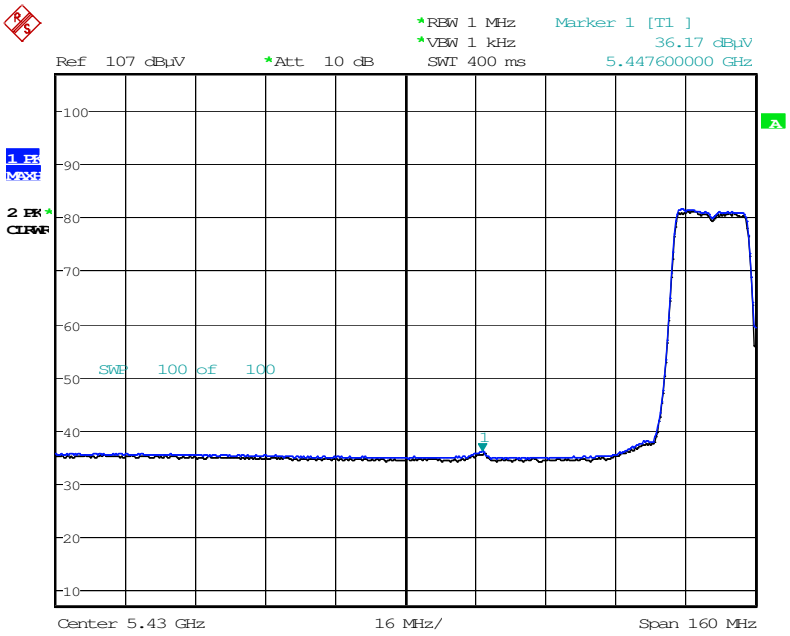
2. Unwanted Emissions that fall Outside of the Restricted Bands

c) At frequencies above 1000 MHz, use the procedure for maximum emissions described in sectionII.G.5., "Procedure for Unwanted Maximum Unwanted Emissions Measurements Above 1000 MHz".

As specified in § 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a maximum emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in § 15.407(b)(4)). However, an out-of-band emission that complies with both the peak and average limits of § 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz maximum emission limit.

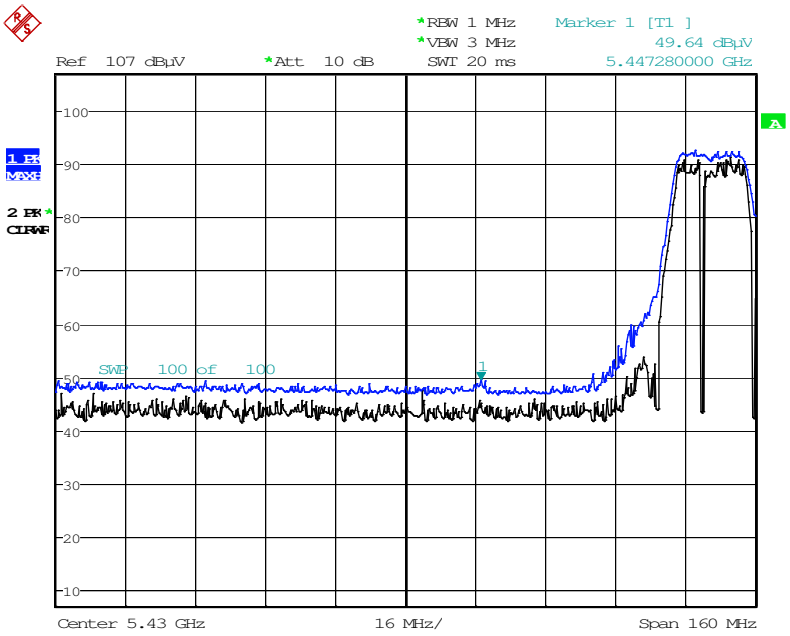
▣ RESULT PLOTS

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



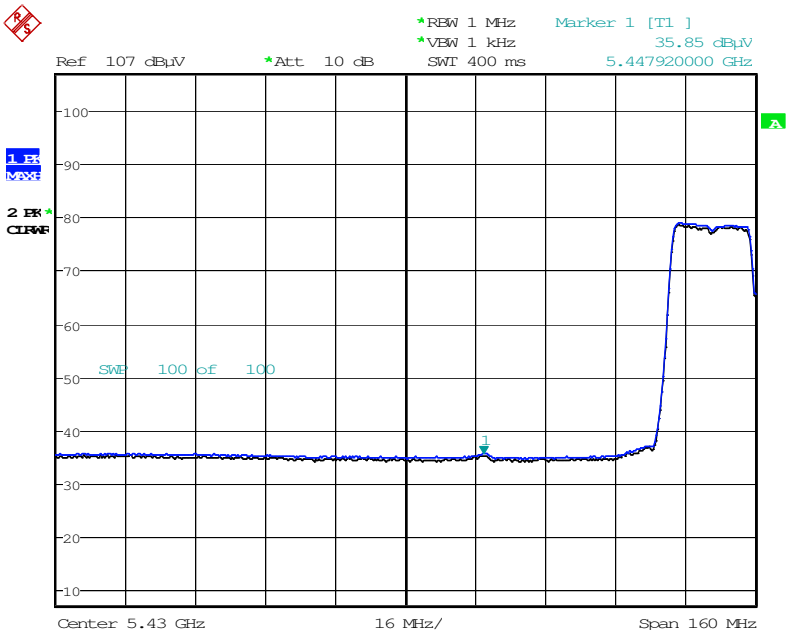
Date: 2.MAY.2016 16:25:36

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



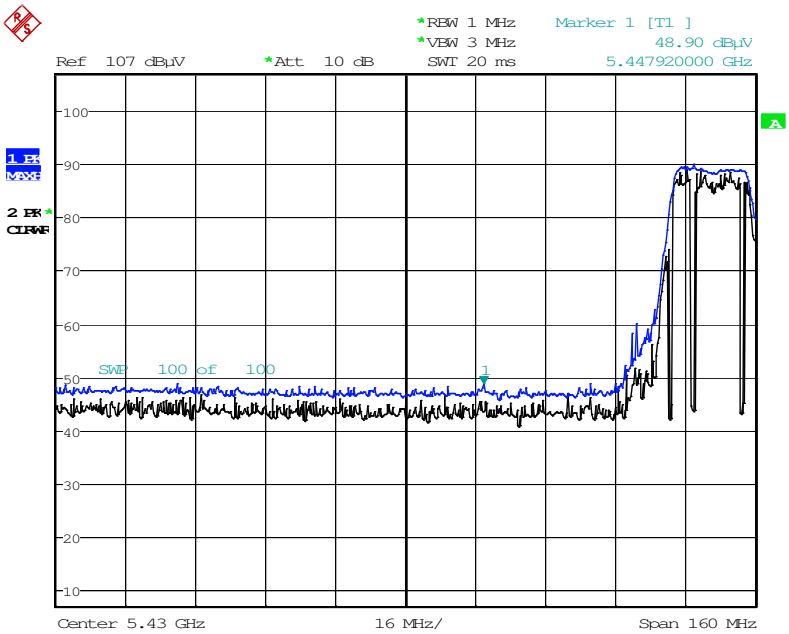
Date: 2.MAY.2016 16:33:19

Radiated Restricted Band Edges plot – Average Reading (802.11n_HT20, Ch.100, x-H)



Date: 2.MAY.2016 16:47:52

Radiated Restricted Band Edges plot – Peak Reading (802.11n_HT20, Ch.100, x-H)



Date: 2.MAY.2016 16:48:58

9.7 POWERLINE CONDUCTED EMISSIONS

Test Requirements and limit, §15.207

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

Frequency Range (MHz)	Limits (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

▣ RESULT PLOTS

Conducted Emissions (Line 1)

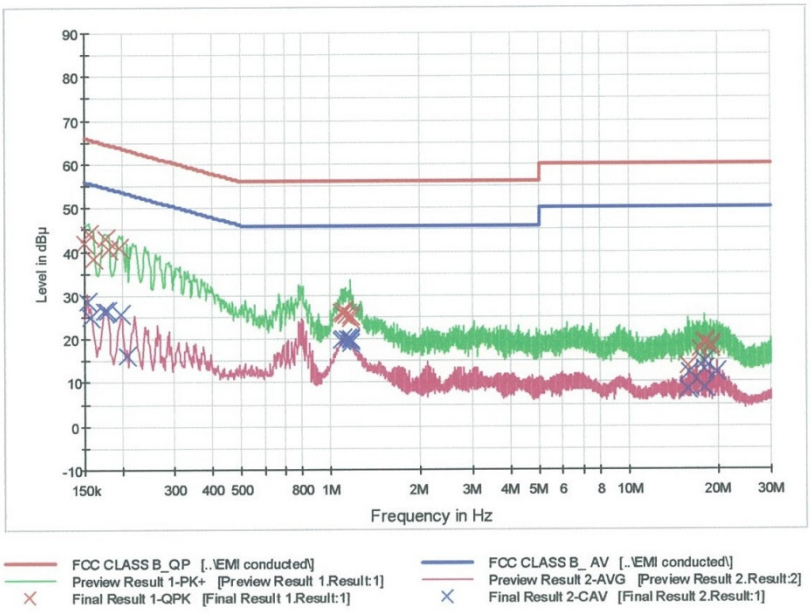
Test 1 / 2

HCT TEST Report

Common Information

EUT:	SM-C5000
Manufacturer:	SAMSUNG
Test Site:	SHIELD ROOM
Operating Conditions:	WLAN MODE _ 5G

FCC CLASS B



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	42.0	9.000	Off	N	9.6	24.0	66.0
0.156000	43.9	9.000	Off	N	9.6	21.7	65.7
0.160000	38.6	9.000	Off	N	9.6	26.9	65.5
0.176000	42.9	9.000	Off	N	9.6	21.8	64.7
0.180000	40.4	9.000	Off	N	9.6	24.1	64.5
0.196000	40.8	9.000	Off	N	9.6	22.9	63.8
1.086000	26.0	9.000	Off	N	9.7	30.0	56.0
1.094000	25.5	9.000	Off	N	9.7	30.5	56.0
1.114000	26.3	9.000	Off	N	9.7	29.7	56.0
1.122000	25.4	9.000	Off	N	9.7	30.6	56.0
1.162000	25.5	9.000	Off	N	9.7	30.5	56.0
1.168000	24.6	9.000	Off	N	9.7	31.4	56.0
15.762000	13.6	9.000	Off	N	10.2	46.4	60.0
17.284000	17.4	9.000	Off	N	10.2	42.6	60.0
17.842000	18.8	9.000	Off	N	10.2	41.2	60.0
17.870000	19.3	9.000	Off	N	10.2	40.7	60.0
18.778000	18.5	9.000	Off	N	10.2	41.5	60.0
18.828000	18.0	9.000	Off	N	10.2	42.0	60.0

Final Result 2

2016-04-29 오전 9:57:14

Test 2 / 2

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.154000	28.7	9.000	Off	N	9.6	27.1	55.8
0.158000	25.1	9.000	Off	N	9.6	30.5	55.6
0.174000	26.4	9.000	Off	N	9.6	28.4	54.8
0.178000	26.2	9.000	Off	N	9.6	28.3	54.6
0.198000	25.8	9.000	Off	N	9.6	27.9	53.7
0.208000	16.3	9.000	Off	N	9.6	37.0	53.3
1.088000	19.8	9.000	Off	N	9.7	26.2	46.0
1.098000	19.9	9.000	Off	N	9.7	26.1	46.0
1.130000	20.1	9.000	Off	N	9.7	25.9	46.0
1.156000	19.9	9.000	Off	N	9.7	26.1	46.0
1.164000	19.8	9.000	Off	N	9.7	26.2	46.0
1.168000	18.9	9.000	Off	N	9.7	27.1	46.0
15.762000	8.2	9.000	Off	N	10.2	41.8	50.0
15.978000	12.1	9.000	Off	N	10.2	37.9	50.0
17.838000	8.9	9.000	Off	N	10.2	41.1	50.0
17.842000	13.0	9.000	Off	N	10.2	37.0	50.0
17.870000	14.8	9.000	Off	N	10.2	35.2	50.0
19.784000	12.2	9.000	Off	N	10.3	37.8	50.0

2016-04-29 오전 9:57:14

Conducted Emissions (Line 2)

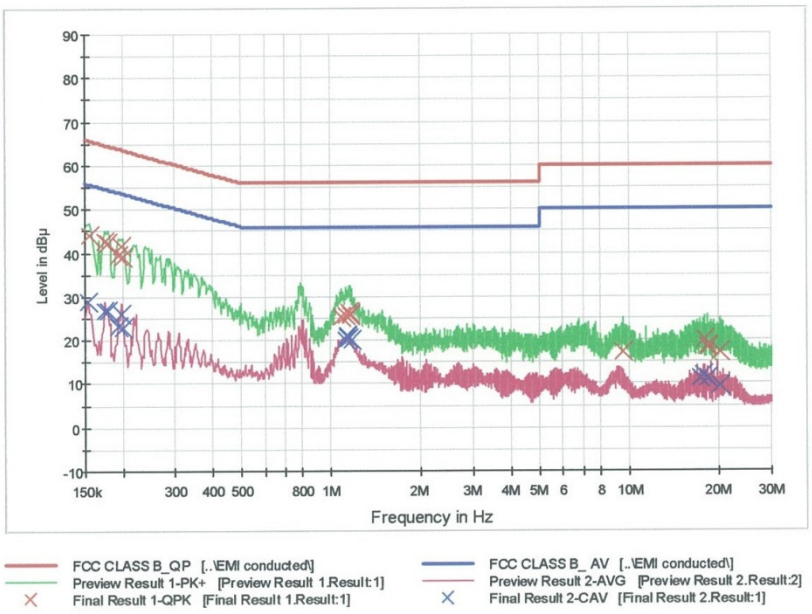
Test 1 / 2

HCT TEST Report

Common Information

EUT:	SM-C5000
Manufacturer:	SAMSUNG
Test Site:	SHIELD ROOM
Operating Conditions:	WLAN MODE _ 5G

FCC CLASS B



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.156000	44.0	9.000	Off	L1	9.6	21.7	65.7
0.174000	42.6	9.000	Off	L1	9.6	22.2	64.8
0.178000	42.4	9.000	Off	L1	9.6	22.2	64.6
0.194000	39.4	9.000	Off	L1	9.6	24.5	63.9
0.198000	41.4	9.000	Off	L1	9.6	22.3	63.7
0.202000	39.2	9.000	Off	L1	9.6	24.3	63.5
1.082000	25.4	9.000	Off	L1	9.7	30.6	56.0
1.118000	25.7	9.000	Off	L1	9.7	30.3	56.0
1.142000	26.5	9.000	Off	L1	9.7	29.5	56.0
1.154000	26.4	9.000	Off	L1	9.7	29.6	56.0
1.158000	25.7	9.000	Off	L1	9.7	30.3	56.0
1.162000	26.1	9.000	Off	L1	9.7	29.9	56.0
9.484000	17.3	9.000	Off	L1	10.0	42.7	60.0
17.846000	20.1	9.000	Off	L1	10.2	39.9	60.0
18.324000	18.6	9.000	Off	L1	10.2	41.4	60.0
18.336000	18.5	9.000	Off	L1	10.2	41.5	60.0
18.344000	18.2	9.000	Off	L1	10.2	41.8	60.0
20.084000	17.1	9.000	Off	L1	10.3	42.9	60.0

Final Result 2

2016-04-29 오전 10:08:53

Test 2 / 2

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.154000	29.0	9.000	Off	L1	9.6	26.8	55.8
0.174000	26.8	9.000	Off	L1	9.6	27.9	54.8
0.178000	26.6	9.000	Off	L1	9.6	28.0	54.6
0.194000	23.1	9.000	Off	L1	9.6	30.8	53.9
0.198000	26.1	9.000	Off	L1	9.6	27.6	53.7
0.202000	22.7	9.000	Off	L1	9.6	30.8	53.5
1.118000	20.1	9.000	Off	L1	9.7	25.9	46.0
1.132000	21.1	9.000	Off	L1	9.7	24.9	46.0
1.136000	20.9	9.000	Off	L1	9.7	25.1	46.0
1.142000	20.3	9.000	Off	L1	9.7	25.7	46.0
1.154000	20.6	9.000	Off	L1	9.7	25.4	46.0
1.176000	19.9	9.000	Off	L1	9.7	26.1	46.0
17.330000	11.2	9.000	Off	L1	10.2	38.8	50.0
17.370000	11.4	9.000	Off	L1	10.2	38.6	50.0
17.760000	11.8	9.000	Off	L1	10.2	38.2	50.0
18.330000	11.1	9.000	Off	L1	10.2	38.9	50.0
18.342000	11.1	9.000	Off	L1	10.2	38.9	50.0
20.084000	9.4	9.000	Off	L1	10.3	40.6	50.0

2016-04-29 오전 10:08:53

10. LIST OF TEST EQUIPMENT

10.1 LIST OF TEST EQUIPMENT(Conducted Test)

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Rohde & Schwarz	ENV216/ LISN	12/28/2015	Annual	100073
Agilent	N9020A / SIGNAL ANALYZER	06/30/2015	Annual	MY51110085
Agilent	N9030A / SIGNAL ANALYZER	11/24/2015	Annual	MY49431210
Agilent	N1911A / Power Meter	07/09/2015	Annual	MY45100523
Agilent	N1921A / Power Sensor	03/11/2016	Annual	MY52260025
Agilent	87300B/Directional Coupler	11/30/2015	Annual	3116A03621
Hewlett Packard	11667B / Power Splitter	06/15/2015	Annual	5001
Hewlett Packard	E3632A / DC Power Supply	03/09/2016	Annual	KR75303962
Agilent	8493C / Attenuator(10 dB)	07/23/2015	Annual	07560
ESPAC.	SH-642 / Temp & Humidity Chamber	07/23/2015	Annual	93000717

10.2 LIST OF TEST EQUIPMENT(Radiated Test)

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Audix	AM4000 / Antenna Position Tower	N/A	N/A	N/A
Audix	Turn Table	N/A	N/A	N/A
Audix	EM1000 / Controller	N/A	N/A	060520
Rohde & Schwarz	Loop Antenna	02/23/2016	Biennial	1513-175
Schwarzbeck	VULB 9168 / Hybrid Antenna	04/15/2015	Biennial	255
Schwarzbeck	BBHA 9120D / Horn Antenna	05/07/2015	Biennial	937
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	09/03/2015	Biennial	BBHA9170541
Rohde & Schwarz	FSP / Spectrum Analyzer	09/24/2015	Annual	100688
Rohde & Schwarz	FSV40-N / Spectrum Analyzer	09/23/2015	Annual	101068-SZ
Wainwright Instruments	WHK3.0/18G-10EF / High Pass Filter	06/29/2015	Annual	8
Wainwright Instruments	WHKX8-6090-7000-18000-40SS / High Pass Filter	09/11/2015	Annual	34
Wainwright Instruments	WRCJV2400/2483.5-2370/2520-60/12SS / Band Reject Filter	07/06/2015	Annual	2
Wainwright Instruments	WRCJV5100/5850-40/50-8EEK / Band Reject Filter	01/26/2016	Annual	2
Agilent	8493C-10 / Attenuator(10 dB)	08/20/2015	Annual	76649
CERNEX	CBLU1183540 / Power Amplifier	07/21/2015	Annual	22964
CERNEX	CBL06185030 / Power Amplifier	07/21/2015	Annual	22965
CERNEX	CBL18265035 / Power Amplifier	07/27/2015	Annual	22966
CERNEX	CBL26405040 / Power Amplifier	07/09/2015	Annual	25956