

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:

June 22, 2016

Test Site/Location:

HCT CO., LTD., 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA

Report No.: HCT-R-1606-F041-1

HCT FRN: 0005866421

IC Recognition No.: 5944A-5

FCC ID	: A3LWEA403i
APPLICANT	: SAMSUNG Electronics Co.,Ltd.

FCC Model(s): WEA403i

Modulation type: OFDM

FCC Classification: Unlicensed National Information Infrastructure(UNII)

FCC Rule Part(s): Part 15.407

Port	Band	Mode	Frequency Range (MHz)	Ant.0 (SISO) (dBm)	Ant.1 (SISO) (dBm)	Ant.2 (SISO) (dBm)	Ant. 0 & 1&2 (MIMO) (dBm)
Monitoring	UNII3	802.11a	5745 – 5825	8.61	8.81	9.08	13.54
Service	UNII3	802.11a	5745 – 5825	11.04	10.42	10.86	15.51
		802.11n_HT20	5745 – 5825	10.64	10.06	10.48	15.15
		802.11n_HT40	5755 – 5795	10.41	9.63	10.24	14.80
		802.11ac_VHT20	5745 – 5825	10.34	9.88	10.40	14.98
		802.11ac_VHT40	5755 – 5795	11.93	11.14	11.73	16.32
		802.11ac_VHT80	5775	6.95	6.04	6.65	11.32

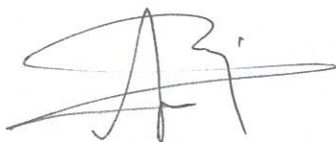
Engineering Statement:

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
: Seoul Ki Lee
Test engineer of RF Team



Approved by
: Jong Seok Lee
Manager of RF Team

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Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-R-1606-F041	June 17, 2016	- First Approval Report
HCT-R-1606-F041-1	June 22, 2016	- Revised the test plot for 26 dB bandwidth on the page 17 - Revised the test plot and title for output power on the page 81

Table of Contents

1. GENERAL INFORMATION	4
2. EUT DESCRIPTION	4
2.1 EUT OPERATING MODE	5
3. TEST METHODOLOGY	6
3.1 EUT CONFIGURATION	6
3.2 EUT EXERCISE	6
3.3 GENERAL TEST PROCEDURES	6
3.4 DESCRIPTION OF TEST MODES	6
4. INSTRUMENT CALIBRATION.....	7
5. FACILITIES AND ACCREDITATIONS	7
5.1 FACILITIES	7
5.2 EQUIPMENT	7
6. ANTENNA REQUIREMENTS	8
7. SUMMARY OF TEST RESULTS	9
8. TEST RESULT	10
8.1 DUTY CYCLE.....	10
8.2 EMISSION BANDWIDTH AND MINIMUM EMISSION BANDWIDTH MEASUREMENT	14
8.3 OUTPUT POWER MEASUREMENT	51
8.4 POWER SPECTRAL DENSITY	88
8.5 FREQUENCY STABILITY.	118
8.6 RADIATED MEASUREMENT.....	122
8.6.1 RADIATED SPURIOUS EMISSIONS.....	122
8.6.2 RADIATED RESTRICTED BAND EDGE MEASUREMENTS	150
8.7 POWERLINE CONDUCTED EMISSIONS	158
9. LIST OF TEST EQUIPMENT	163
9.1 LIST OF TEST EQUIPMENT(Conducted Test)	163
9.2 LIST OF TEST EQUIPMENT(Radiated Test).....	164

1. GENERAL INFORMATION

Applicant: SAMSUNG Electronics Co.,Ltd.

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

FCC ID: A3LWEA403I

EUT Type: WLAN Access Point

FCC Model name(s): WEA403i

Date(s) of Tests: January 18, 2016 ~ February 22, 2016,
June 14, 2016 ~ June 16, 2016

Place of Tests: HCT Co., Ltd.
74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea
(IC Recognition No. : 5944A-5)

2. EUT DESCRIPTION

FCC Model Name	WEA403i	
EUT Type	WLAN Access Point	
Power Supply	AC adaptor : 100 V ~ 240 V, POE : DC 48 V	
Frequency Range	TX_20 MHz BW:	5745 MHz - 5825 MHz (UNII 3)
	TX_40 MHz BW:	5755 MHz - 5795 MHz (UNII 3)
	TX_80 MHz BW:	5775 MHz (UNII 3)
	RX_20 MHz BW:	5745 MHz - 5825 MHz (UNII 3)
	RX_40 MHz BW:	5755 MHz - 5795 MHz (UNII 3)
	RX_80 MHz BW:	5775 MHz (UNII 3)
Modulation Type	OFDM(802.11a, 802.11n, 802.11ac)	
Antenna Specification	Manufacturer: ACE Technology Antenna type: Internal Antenna Peak Gain : cf. Section 6	

2.1 EUT OPERATING MODE

■ Operating mode

Port	Mode	Operating Mode	Operating Ant.
Monitoring	802.11a	MIMO	Ant 0 & 1 & 2
Service	802.11a,n,ac	SISO	Ant 0
			Ant 1
			Ant 2
		MIMO	Ant 0 & 1
			Ant 0 & 1 & 2

Note :

1. This EUT is supported the AC adaptor and POE. Because worst case is AC adaptor, so we attached only the results for AC adaptor.
2. In case of radiation test, we have done all test case. Worst case is Ant 0 & 1 & 2 for monitoring and Ant 0 & 1 & 2 for service. So, we attached the results of only worst case.

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

Conducted Antenna Terminal

See Section from 8.1 to 8.4.(KDB 789033)

3.4 DESCRIPTION OF TEST MODES

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

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

4. INSTRUMENT CALIBRATION

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

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, RSS-GEN 7.1.2

“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, RSS-GEN 7.1.2

■ Directional Gain Calculations

▪ If any transmit signals are correlated with each other(802.11a,n,ac),

$$\text{Directional gain} = 10 \cdot \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N] \text{ dBi}$$

▪ If all transmit signals are completely uncorrelated with each other(802.11n,ac)

$$\text{Directional gain} = 10 \cdot \log[(10^{G1/10} + 10^{G2/10} + \dots + 10^{GN/10}) / N] \text{ dBi}$$

■ Antenna Gain

CDD mode(UNII 3)

Service	Antenna Gain	Ant 0	6.17 dBi
		Ant 1	5.46 dBi
		Ant 2	4.78 dBi
	Directional Antenna Gain	Ant 0 & 1	8.83 dBi(802.11a,n,ac)
		Ant 0 & 1 & 2	10.26 dBi(802.11a,n,ac)
Monitor	Antenna Gain	Ant 0	7 dBi
		Ant 1	6.53 dBi
		Ant 2	5.82 dBi
	Directional Antenna Gain	Ant 0 & 1 & 2	11.23 dBi(802.11a)

Note : This EUT is supported CDD and SDM for 802.11n, ac. So, we applied the CDD mode for antenna gain.
Because highest gain is CDD mode and worst case is CDD mode.

7. SUMMARY OF TEST RESULTS

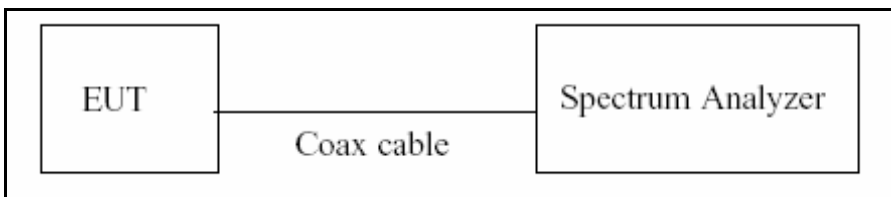
Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
26dB Bandwidth	§15.407 (for Power Measurement)	N/A	CONDUCTED	PASS
6 dB Bandwidth	§15.407(e)	>500 kHz (5725-5850 MHz)		PASS
Maximum Conducted Output Power,	§15.407(a)(1)	<1 W (5725-5850 MHz)		PASS
Peak Power Spectral Density	§15.407(a)(1), (5)	<30 dBm/500 kHz(5725-5850 MHz)		PASS
Frequency Stability	§15.407(g)	N/A		N/A
AC Conducted Emissions 150 kHz-30 MHz	§15.207	<FCC 15.207 limits		N/A
Undesirable Emissions	§15.407(b)	<-17 dBm/MHz EIRP within 5715-5725 MHz and 5850-5860 MHz, <-27 dBm/MHz EIRP outside 5715-5850 MHz(UNII3)	RADIATED	PASS
General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	§15.205, 15.407(b) (5), (6)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		PASS

8. TEST RESULT

8.1 DUTY CYCLE

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

■ TEST CONFIGURATION



■ TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer. We tested according to the zero-span measurement method, (B.2 in KDB 789033 D02 v01r02)

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

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

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

☒ Duty Cycle Factor

Monitoring Port

Mode	Data Rate (Mbps)	T _{on} (ms)	T _{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11a	6	2.065	2.170	0.95161290	0.215
	9	1.385	1.455	0.95189003	0.214
	12	1.045	1.095	0.95433790	0.203
	18	0.705	0.740	0.95270270	0.210
	24	0.530	0.560	0.94642857	0.239
	36	0.366	0.390	0.93846154	0.276
	48	0.276	0.299	0.92307692	0.348
	54	0.248	0.271	0.91512915	0.385

☒ Duty Cycle Factor

Service Port

Mode	Data Rate (Mbps)	T _{on} (ms)	T _{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11a	6	2.064	2.170	0.95115207	0.218
	9	1.386	1.454	0.95323246	0.208
	12	1.047	1.100	0.95181818	0.214
	18	0.700	0.738	0.94850949	0.230
	24	0.532	0.558	0.95340502	0.207
	36	0.364	0.387	0.94056848	0.266
	48	0.276	0.299	0.92307692	0.348
	54	0.248	0.271	0.91512915	0.385
802.11n_HT20	MCS 0	1.913	2.011	0.95126803	0.217
	MCS 1	0.979	1.025	0.95512195	0.199
	MCS 2	0.665	0.695	0.95683453	0.192
	MCS 3	0.508	0.532	0.95488722	0.200
	MCS 4	0.352	0.376	0.93617021	0.286
	MCS 5	0.272	0.296	0.91891892	0.367
	MCS 6	0.248	0.272	0.91176471	0.401
	MCS 7	0.228	0.250	0.91200000	0.400
802.11n_HT40	MCS 0	0.944	1.042	0.90595010	0.429
	MCS 1	0.492	0.540	0.91111111	0.404
	MCS 2	0.340	0.374	0.90909091	0.414
	MCS 3	0.264	0.286	0.92307692	0.348
	MCS 4	0.188	0.211	0.89099526	0.501
	MCS 5	0.152	0.175	0.86857143	0.612
	MCS 6	0.140	0.163	0.85889571	0.661
	MCS 7	0.128	0.151	0.84768212	0.718

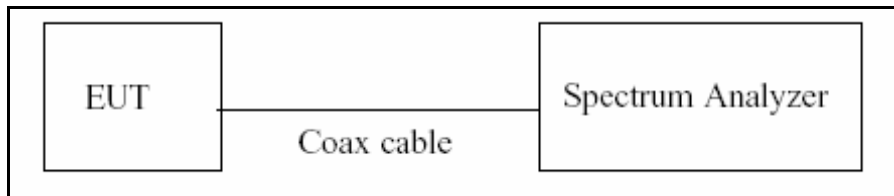
Mode	Data Rate (Mbps)	T _{on} (ms)	T _{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11ac_VHT20	MCS 0	1.930	1.960	0.98469388	0.067
	MCS 1	0.985	1.010	0.97524752	0.109
	MCS 2	0.675	0.700	0.96428571	0.158
	MCS 3	0.512	0.539	0.94990724	0.223
	MCS 4	0.355	0.383	0.92689295	0.330
	MCS 5	0.276	0.303	0.91089109	0.405
	MCS 6	0.251	0.280	0.89642857	0.475
	MCS 7	0.231	0.260	0.88846154	0.514
	MCS 8	0.199	0.228	0.87280702	0.591
802.11ac_VHT40	MCS 0	0.954	0.981	0.97247706	0.121
	MCS 1	0.498	0.525	0.94857143	0.229
	MCS 2	0.345	0.372	0.92741935	0.327
	MCS 3	0.268	0.297	0.90235690	0.446
	MCS 4	0.191	0.220	0.86818182	0.614
	MCS 5	0.154	0.184	0.83695652	0.773
	MCS 6	0.144	0.172	0.83720930	0.772
	MCS 7	0.132	0.160	0.82500000	0.835
	MCS 8	0.116	0.144	0.80555556	0.939
	MCS 9	0.112	0.140	0.80000000	0.969
802.11ac_VHT80	MCS 0	0.460	0.489	0.94069530	0.266
	MCS 1	0.253	0.280	0.90357143	0.440
	MCS 2	0.179	0.207	0.86473430	0.631
	MCS 3	0.148	0.176	0.84090909	0.753
	MCS 4	0.112	0.140	0.80000000	0.969
	MCS 5	0.096	0.124	0.77419355	1.112
	MCS 6	0.088	0.116	0.75862069	1.200
	MCS 7	0.084	0.112	0.75000000	1.249
	MCS 8	0.076	0.104	0.73076923	1.362
	MCS 9	0.072	0.100	0.72000000	1.427

8.2 EMISSION BANDWIDTH AND MINIMUM EMISSION BANDWIDTH MEASUREMENT

The bandwidth at 26 dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating at its maximum power control level, as defined in KDB 789033 D02 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.

■ 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 $\geq$ 3*RBW
3. Detector = Peak
4. Trace mode = max hold
5. Allow the trace to stabilize
6. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points(upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

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

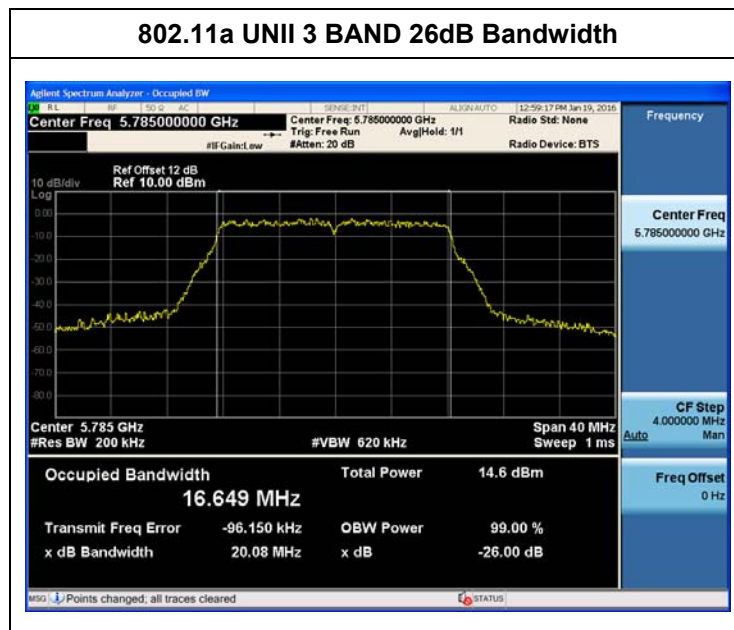
Conducted 26 dB Bandwidth _Monitoring Port Ant.0

■ 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.			
5745	149	19.948	N/A	Pass
5785	157	20.082	N/A	Pass
5825	165	19.939	N/A	Pass

■ TEST Plot for 802.11a_Monitoring Port Ant.0



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

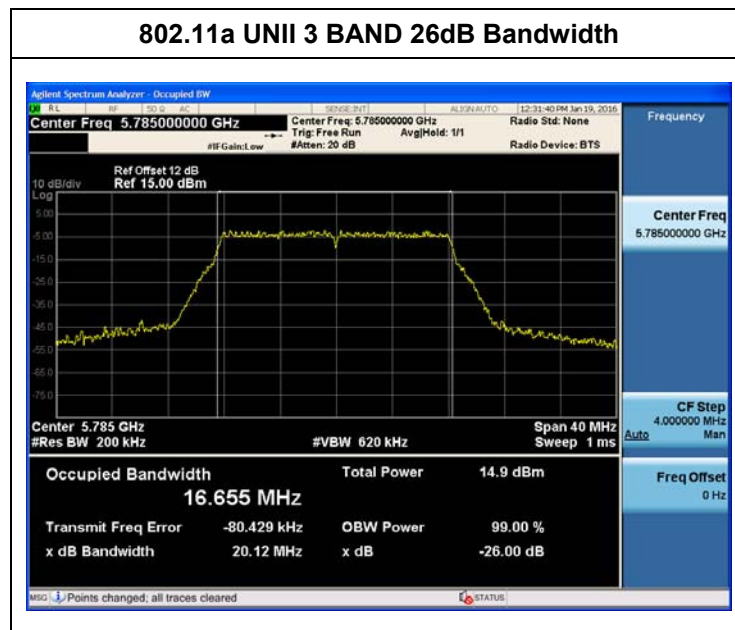
Conducted 26 dB Bandwidth _Monitoring Port Ant.1

■ 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.			
5745	149	19.828	N/A	Pass
5785	157	20.120	N/A	Pass
5825	165	19.975	N/A	Pass

■ TEST Plot for 802.11a_Monitoring Port Ant.1



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

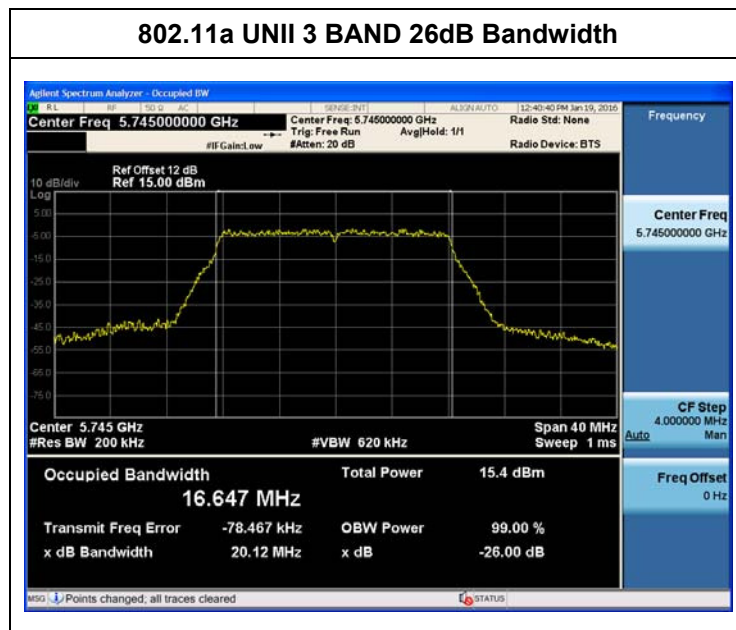
Conducted 26 dB Bandwidth _Monitoring Port Ant.2

■ 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.			
5745	149	20.116	N/A	Pass
5785	157	20.103	N/A	Pass
5825	165	19.882	N/A	Pass

■ TEST Plot for 802.11a_Monitoring Port Ant.2



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

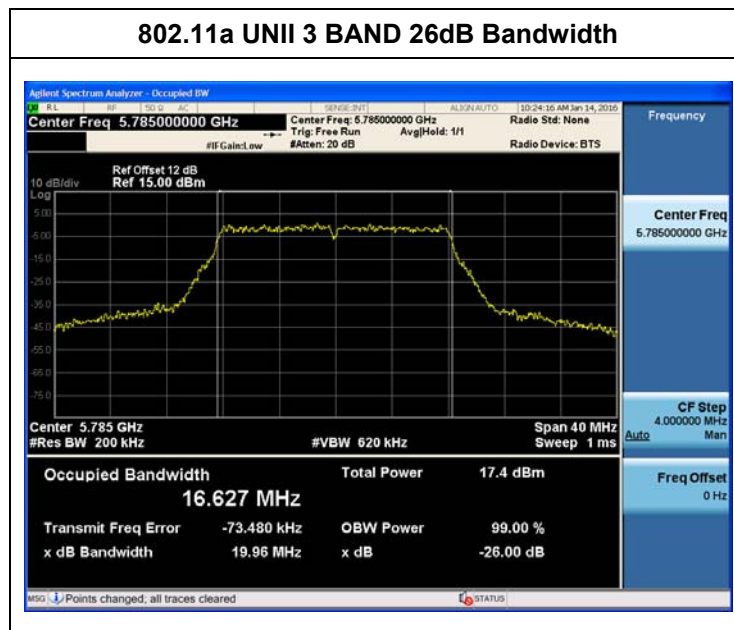
Conducted 26 dB Bandwidth _Service Port_Ant.0

■ 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.			
5745	149	19.929	N/A	Pass
5785	157	19.956	N/A	Pass
5825	165	19.912	N/A	Pass

■ TEST Plot for 802.11a_Service Port_Ant.0



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

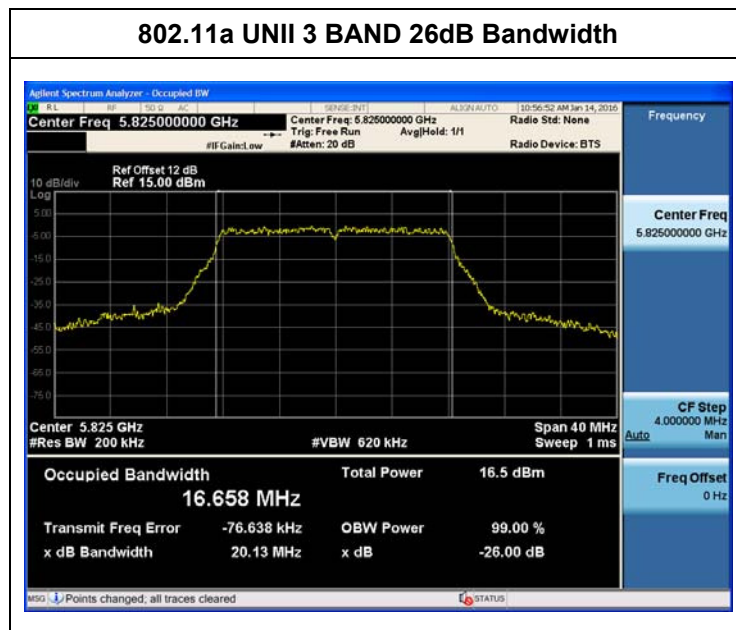
Conducted 26 dB Bandwidth_Service Port_Ant.1

■ 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.			
5745	149	20.056	N/A	Pass
5785	157	20.064	N/A	Pass
5825	165	20.132	N/A	Pass

■ TEST Plot for 802.11a_Service Port_Ant.1we



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

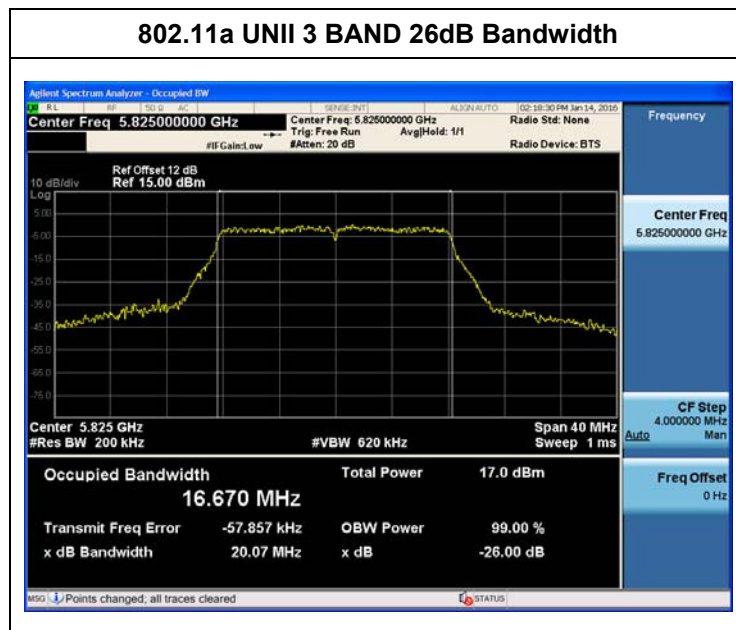
Conducted 26 dB Bandwidth _Service Port_Ant.2

■ 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.			
5745	149	19.966	N/A	Pass
5785	157	20.061	N/A	Pass
5825	165	20.074	N/A	Pass

■ TEST Plot for 802.11a_Service Port_Ant.2



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

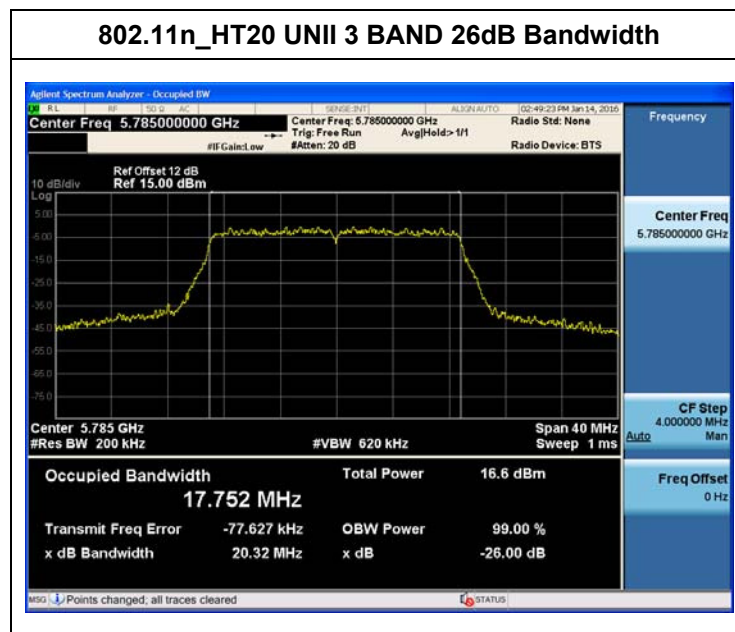
Conducted 26 dB Bandwidth _Service Port_Ant.0

■ 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.			
5745	149	20.286	N/A	Pass
5785	157	20.322	N/A	Pass
5825	165	20.190	N/A	Pass

■ TEST Plot for 802.11n_HT20_Service Port_Ant.0



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

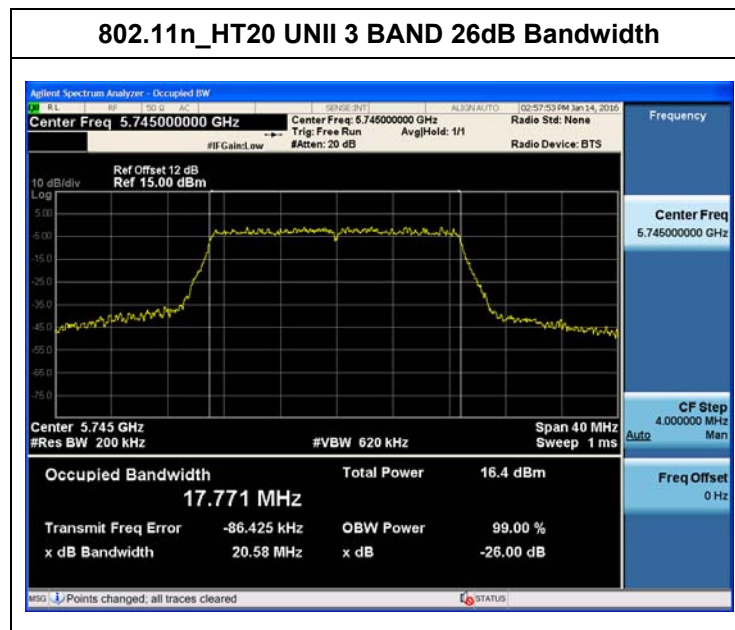
Conducted 26 dB Bandwidth _Service Port_Ant.1

■ 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.			
5745	149	20.583	N/A	Pass
5785	157	20.343	N/A	Pass
5825	165	20.388	N/A	Pass

■ TEST Plot for 802.11n_HT20_Service Port_Ant.1



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

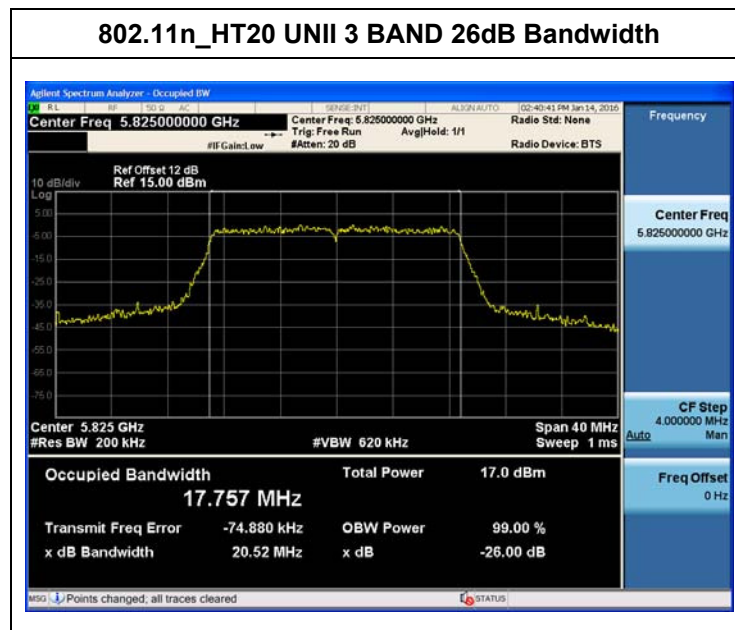
Conducted 26 dB Bandwidth _Service Port_Ant.2

■ 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.			
5745	149	20.340	N/A	Pass
5785	157	20.363	N/A	Pass
5825	165	20.515	N/A	Pass

■ TEST Plot for 802.11n_HT20_Service Port_Ant.2



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

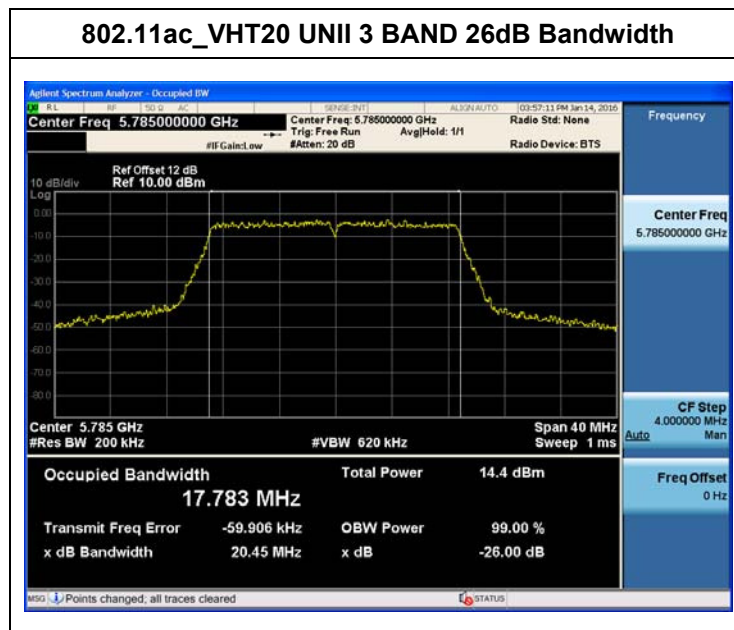
Conducted 26 dB Bandwidth _Service Port_Ant.0

■ TEST RESULTS for 802.11ac_VHT20

Conducted 26 dB Bandwidth Measurements for 802.11ac_VHT20

802.11ac_VHT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	20.294	N/A	Pass
5785	157	20.445	N/A	Pass
5825	165	20.263	N/A	Pass

■ TEST Plot for 802.11ac_VHT20 Mode_Service Port_Ant.0



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

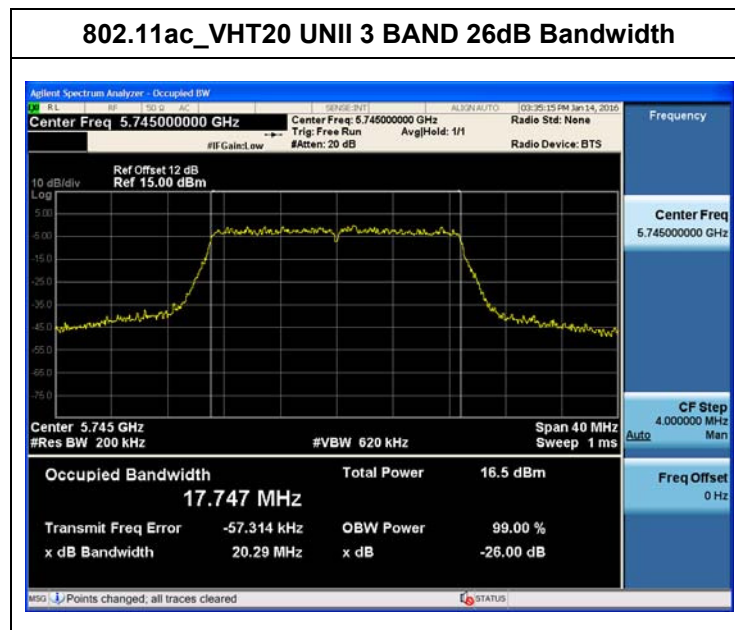
Conducted 26 dB Bandwidth _Service Port_Ant.1

■ TEST RESULTS for 802.11ac_VHT20 Mode

Conducted 26 dB Bandwidth Measurements for 802.11ac_VHT20

802.11ac_VHT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	20.583	N/A	Pass
5785	157	20.343	N/A	Pass
5825	165	20.388	N/A	Pass

■ TEST Plot for 802.11ac_VHT20 Mode_Service Port_Ant.1



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

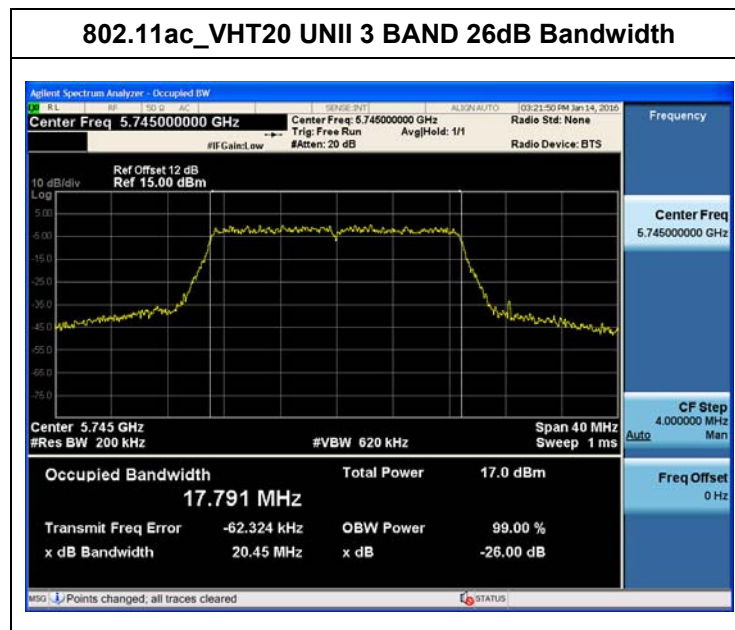
Conducted 26 dB Bandwidth _Service Port_Ant.2

■ TEST RESULTS for 802.11ac_VHT20 Mode

Conducted 26 dB Bandwidth Measurements for 802.11ac_VHT20

802.11ac_VHT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	20.445	N/A	Pass
5785	157	20.273	N/A	Pass
5825	165	20.414	N/A	Pass

■ TEST Plot for 802.11ac_VHT20 Mode_Service Port_Ant.2



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

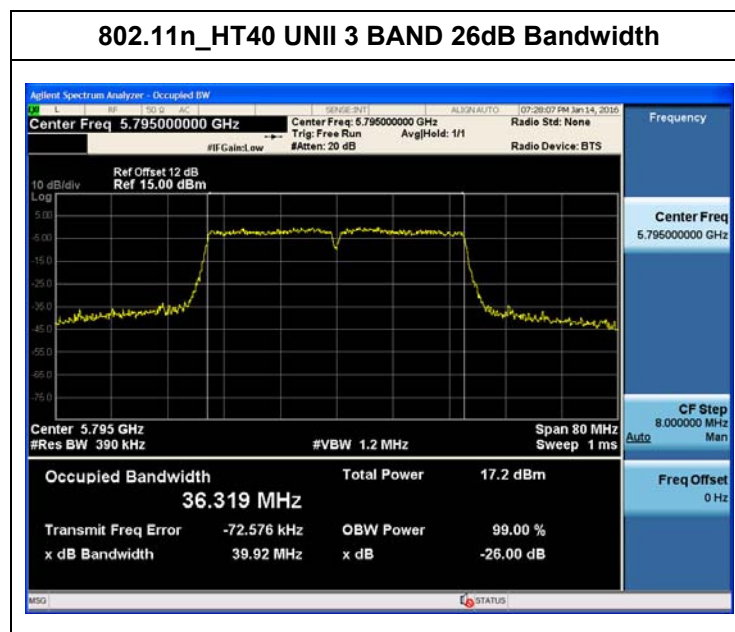
Conducted 26 dB Bandwidth _Service Port_Ant.0

■ 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.			
5755	151	39.740	N/A	Pass
5795	159	39.920	N/A	Pass

■ TEST Plot for 802.11n_HT40_Service Port_Ant.0



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

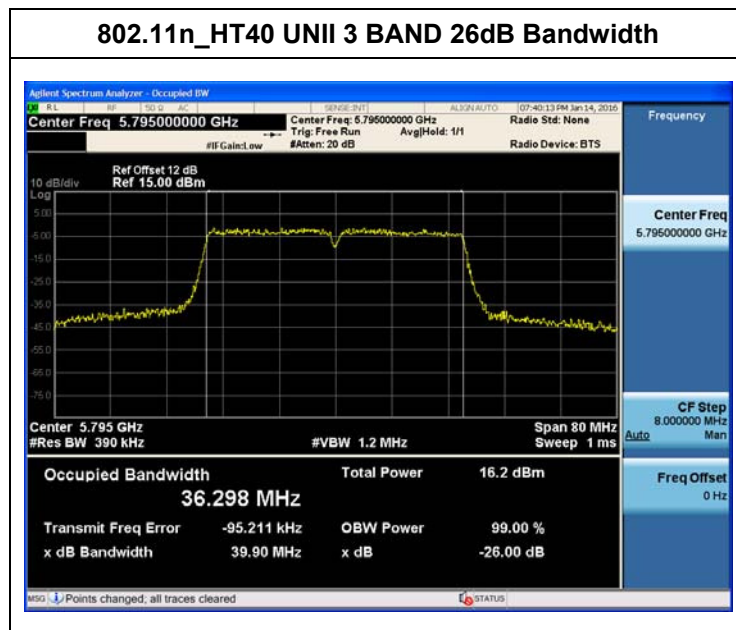
Conducted 26 dB Bandwidth _Service Port_Ant.1

■ 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.			
5755	151	39.671	N/A	Pass
5795	159	39.896	N/A	Pass

■ TEST Plot for 802.11n_HT40_Service Port_Ant.1



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

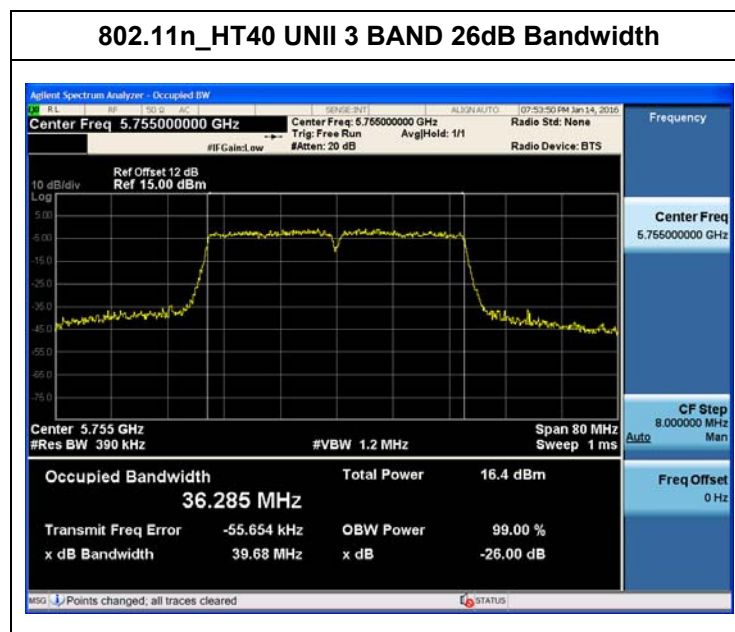
Conducted 26 dB Bandwidth _Service Port_Ant.2

■ 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.			
5755	151	39.681	N/A	Pass
5795	159	39.650	N/A	Pass

■ TEST Plot for 802.11n_HT40_Service Port_Ant.2



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

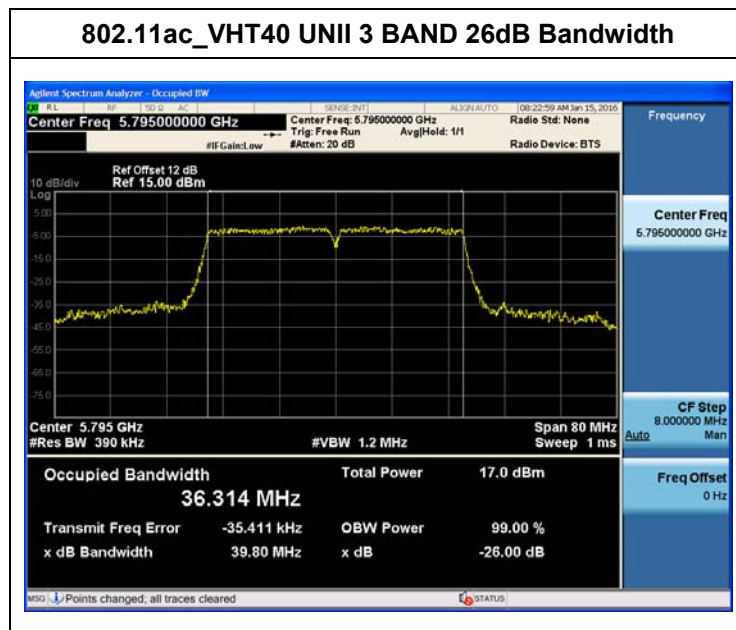
Conducted 26 dB Bandwidth _Service Port_Ant.0

■ TEST RESULTS for 802.11ac_VHT40

Conducted 26 dB Bandwidth Measurements for 802.11ac_VHT40

802.11ac_VHT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	39.691	N/A	Pass
5795	159	39.799	N/A	Pass

■ TEST Plot for 802.11ac_VHT40_Service Port_Ant.0



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

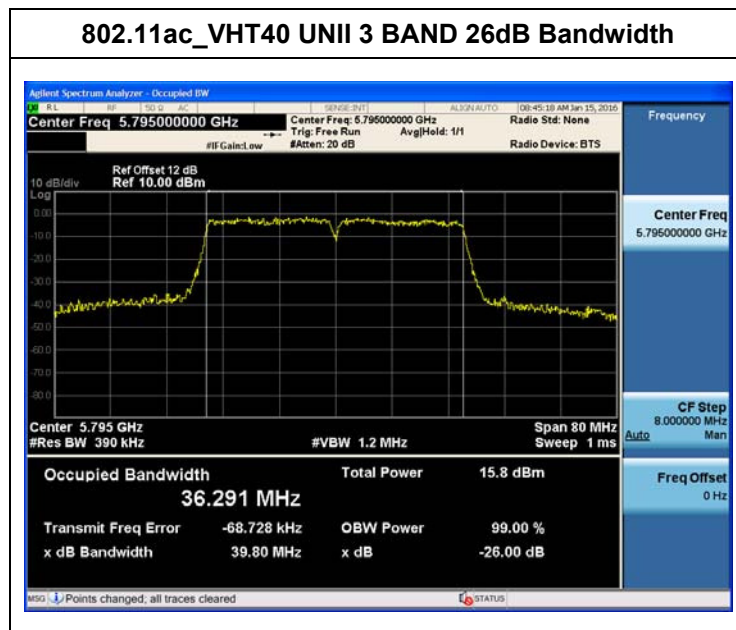
Conducted 26 dB Bandwidth _Service Port_Ant.1

■ TEST RESULTS for 802.11ac_VHT40

Conducted 26 dB Bandwidth Measurements for 802.11ac_VHT40

802.11ac_VHT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	39.620	N/A	Pass
5795	159	39.802	N/A	Pass

■ TEST Plot for 802.11ac_VHT40_Service Port_Ant.1



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

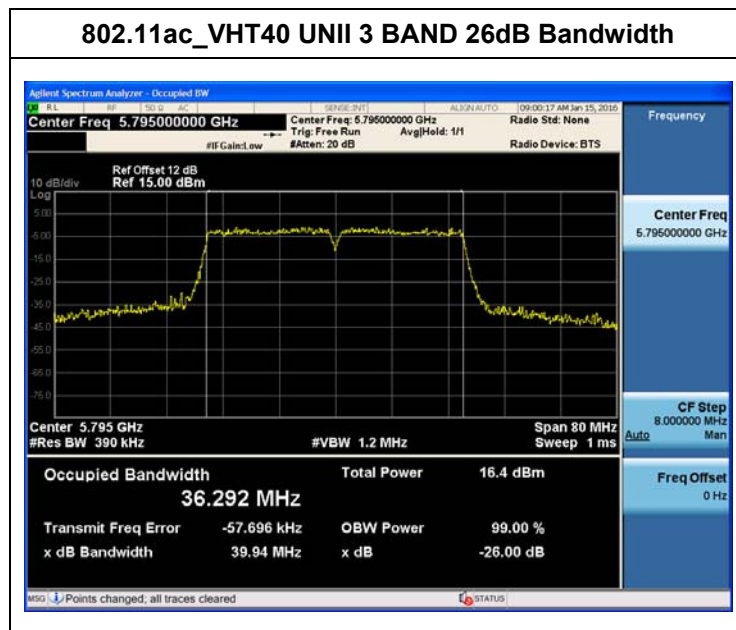
Conducted 26 dB Bandwidth _Service Port_Ant.2

■ TEST RESULTS for 802.11ac_VHT40

Conducted 26 dB Bandwidth Measurements for 802.11ac_VHT40

802.11ac_VHT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	39.625	N/A	Pass
5795	159	39.937	N/A	Pass

■ TEST Plot for 802.11ac_VHT40_Service Port_Ant.2



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

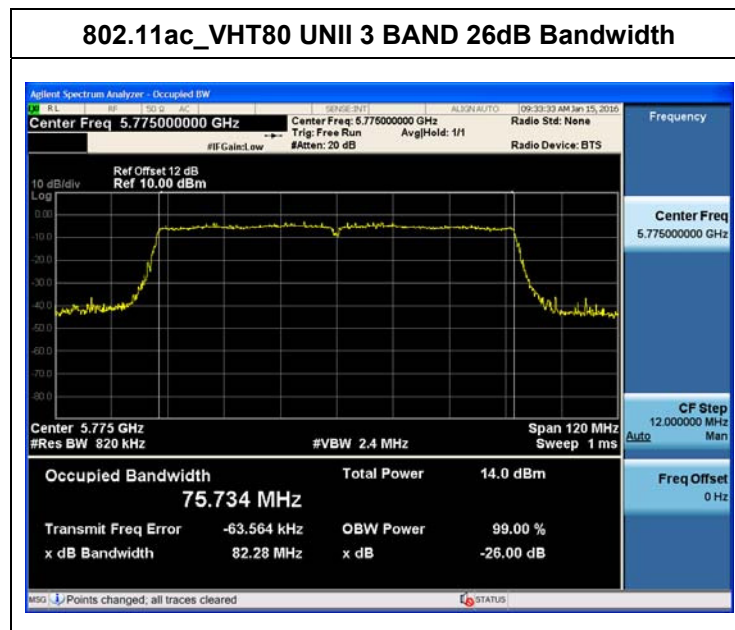
Conducted 26 dB Bandwidth _Service Port_Ant.0

■ TEST RESULTS for 802.11ac_VHT80

Conducted 26 dB Bandwidth Measurements for 802.11ac_VHT80

802.11ac_VHT80 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	82.281	N/A	Pass

■ TEST Plot for 802.11ac_VHT80_Service Port_Ant.0



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

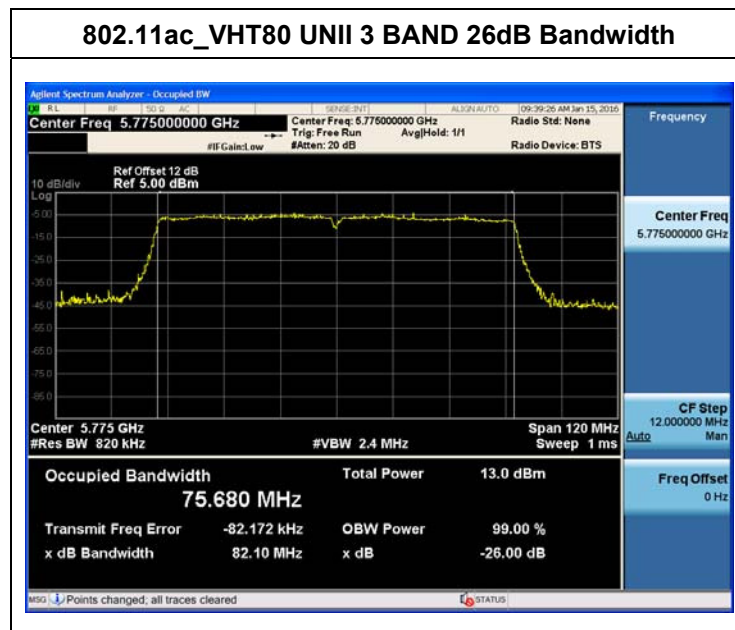
Conducted 26 dB Bandwidth _Service Port_Ant.1

■ TEST RESULTS for 802.11ac_VHT80

Conducted 26 dB Bandwidth Measurements for 802.11ac_VHT80

802.11ac_VHT80 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	82.099	N/A	Pass

■ TEST Plot for 802.11ac_VHT80_Service Port_Ant.1



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

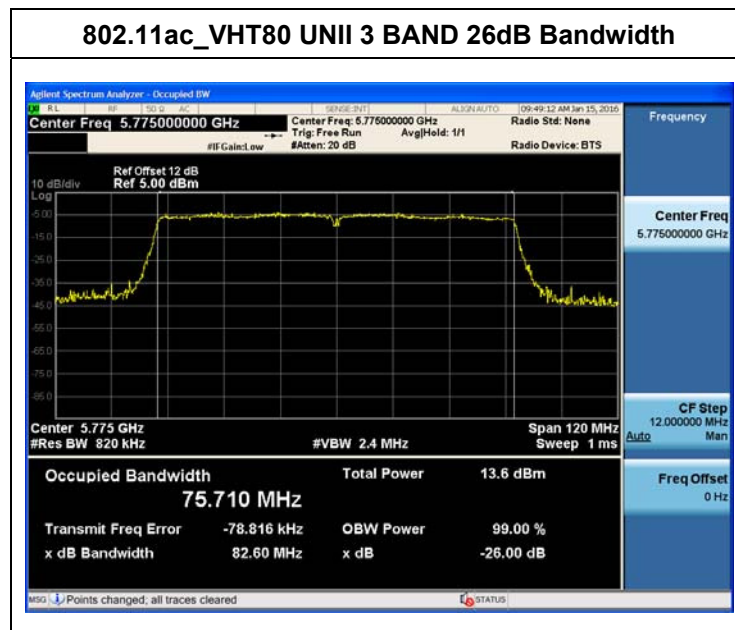
Conducted 26 dB Bandwidth _Service Port_Ant.2

■ TEST RESULTS for 802.11ac_VHT80

Conducted 26 dB Bandwidth Measurements for 802.11ac_VHT80

802.11ac_VHT80 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	82.600	N/A	Pass

■ TEST Plot for 802.11ac_VHT80_Service Port_Ant.2



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

Conducted 6 dB Bandwidth

■ TEST RESULTS for 802.11a_Monitoring Port

Conducted 6 dB Bandwidth Measurements for 802.11a_Monitoring Port Ant.0

802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.394	0.5	Pass
5785	157	16.446	0.5	Pass
5825	165	16.387	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11a_Monitoring Port Ant.1

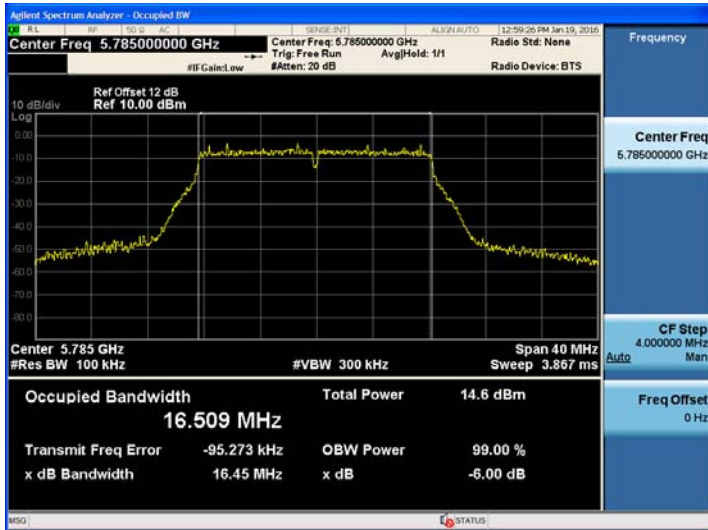
802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.413	0.5	Pass
5785	157	16.390	0.5	Pass
5825	165	16.376	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11a_Monitoring Port Ant.2

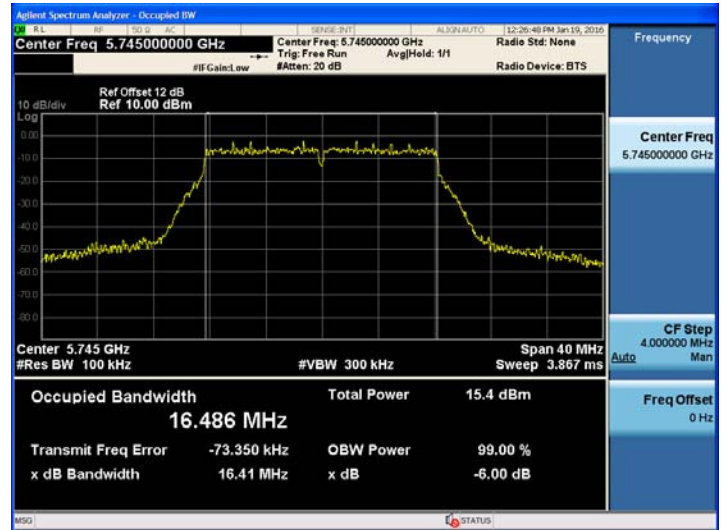
802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.417	0.5	Pass
5785	157	16.388	0.5	Pass
5825	165	16.415	0.5	Pass

■ TEST Plot for 802.11a

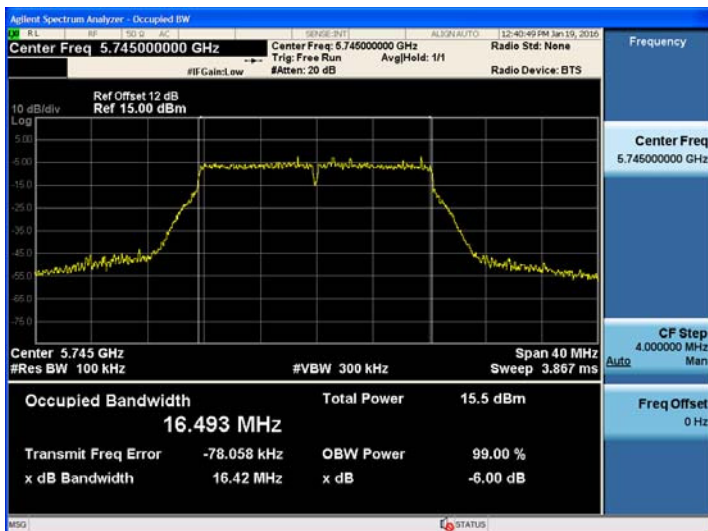
802.11a UNII 3 BAND 6dB Bandwidth
_Monitoring Port Ant.0



802.11a UNII 3 BAND 6dB Bandwidth
_Monitoring Port Ant.1



802.11a UNII 3 BAND 6dB Bandwidth
_Monitoring Port Ant.2



Note :

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

Conducted 6 dB Bandwidth

■ TEST RESULTS for 802.11a_Service Port

Conducted 6 dB Bandwidth Measurements for 802.11a_Service Port Ant.0

802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.391	0.5	Pass
5785	157	16.427	0.5	Pass
5825	165	16.420	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11a_Service Port Ant.1

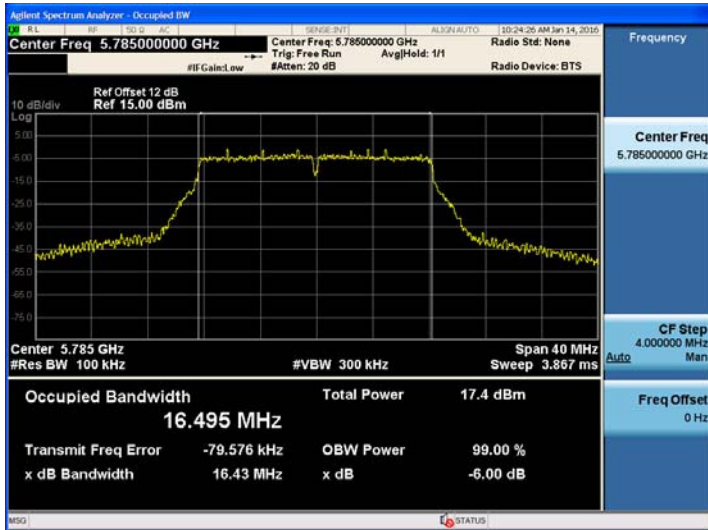
802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.384	0.5	Pass
5785	157	16.394	0.5	Pass
5825	165	16.395	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11a_Service Port Ant.2

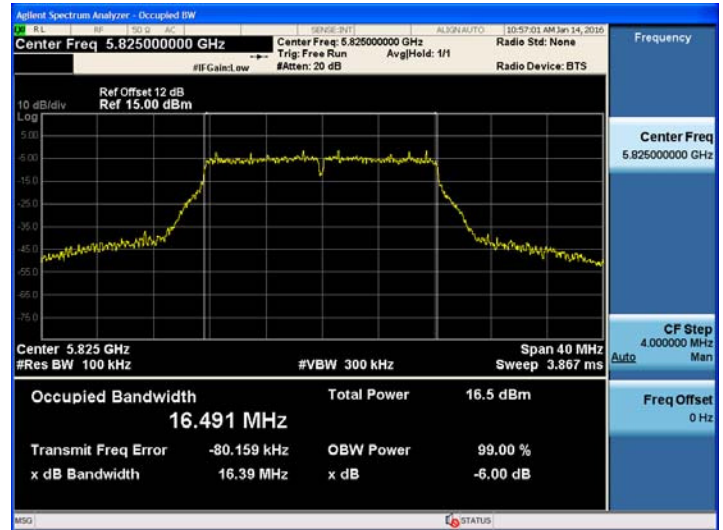
802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.415	0.5	Pass
5785	157	16.380	0.5	Pass
5825	165	16.433	0.5	Pass

■ TEST Plot for 802.11a

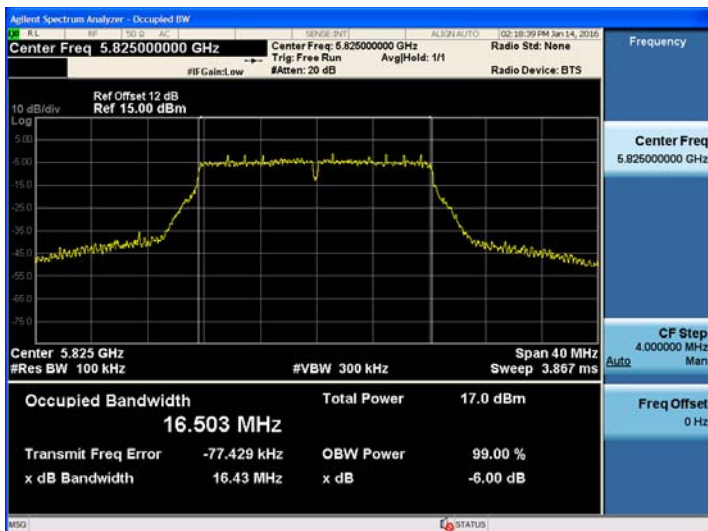
802.11a UNII 3 BAND 6dB Bandwidth
_Service Port Ant.0



802.11a UNII 3 BAND 6dB Bandwidth
_Service Port Ant.1



802.11a UNII 3 BAND 6dB Bandwidth
_Service Port Ant.2



Note :

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

Conducted 6 dB Bandwidth

■ TEST RESULTS for 802.11n_HT20_Service Port

Conducted 6 dB Bandwidth Measurements for 802.11n_HT20_Service Port Ant.0

802.11n_HT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.667	0.5	Pass
5785	157	17.569	0.5	Pass
5825	165	17.568	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11n_HT20_Service Port Ant.1

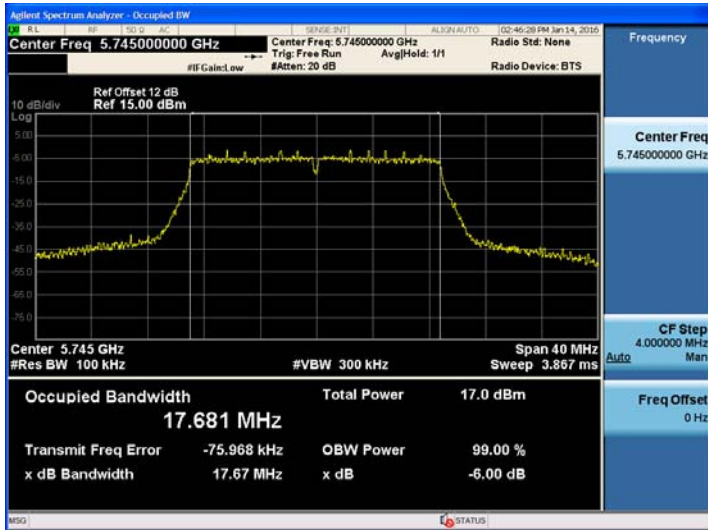
802.11n_HT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.655	0.5	Pass
5785	157	17.565	0.5	Pass
5825	165	17.580	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11n_HT20_Service Port Ant.2

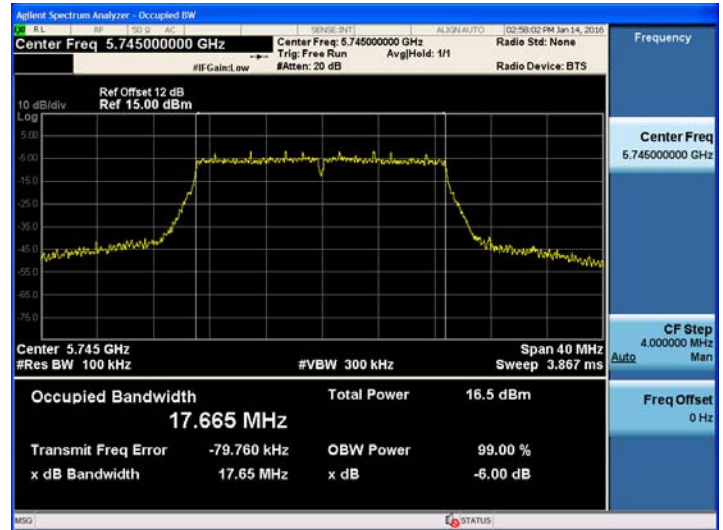
802.11n_HT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.592	0.5	Pass
5785	157	17.657	0.5	Pass
5825	165	17.644	0.5	Pass

■ TEST Plot for 802.11n_HT20

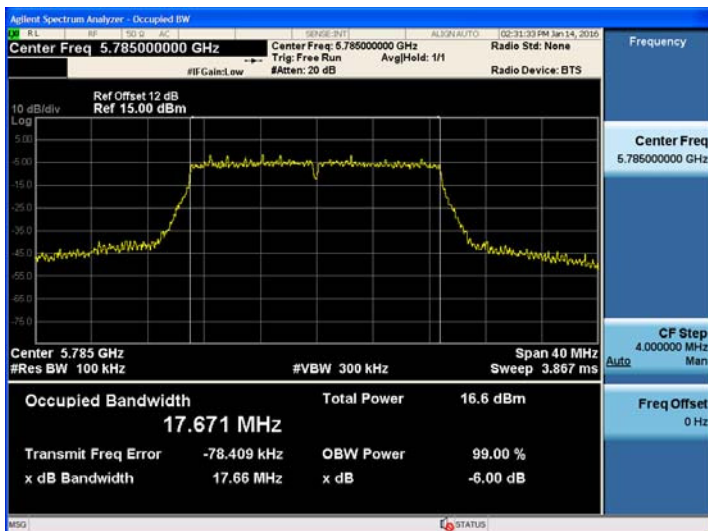
802.11n_HT20 UNII 3 BAND 6dB Bandwidth
_Service Port Ant.0



802.11n_HT20 BW UNII 3 BAND 6dB Bandwidth
_Service Port Ant.1



802.11n_HT20 UNII 3 BAND 6dB Bandwidth
_Service Port Ant.2



Note :

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

Conducted 6 dB Bandwidth

■ TEST RESULTS for 802.11ac_VHT20_Service Port

Conducted 6 dB Bandwidth Measurements for 802.11ac_VHT20_Service Port Ant.0

802.11ac_VHT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.621	0.5	Pass
5785	157	17.582	0.5	Pass
5825	165	17.634	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11ac_VHT20_Service Port Ant.1

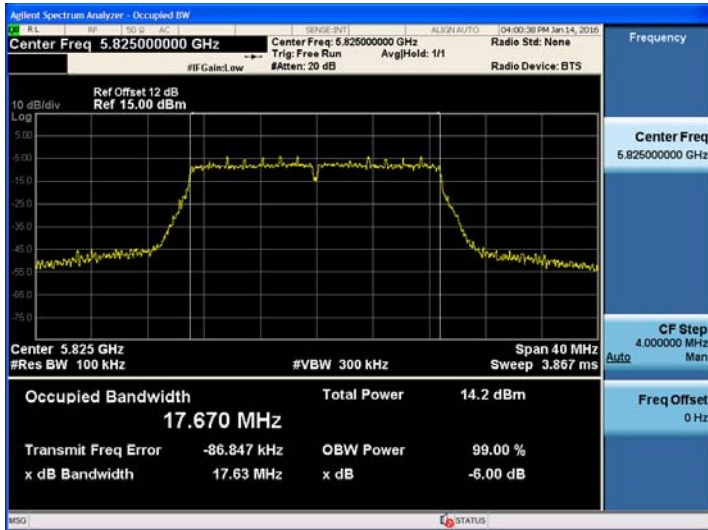
802.11ac_VHT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.609	0.5	Pass
5785	157	17.560	0.5	Pass
5825	165	17.657	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11ac_VHT20_Service Port Ant.2

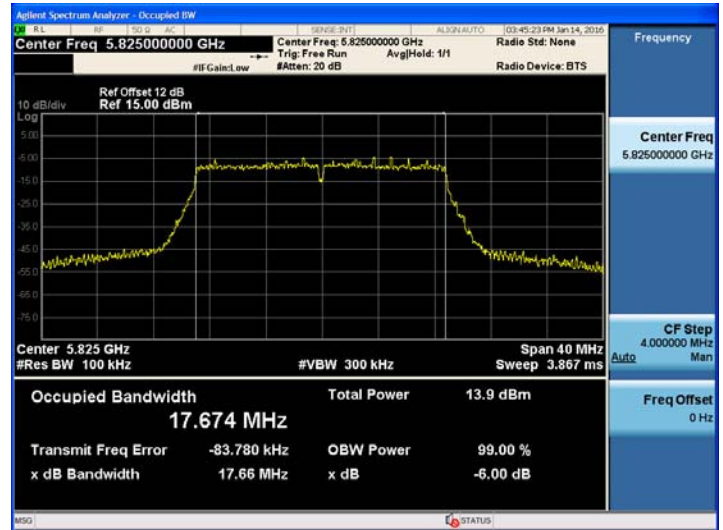
802.11ac_VHT20 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.648	0.5	Pass
5785	157	17.539	0.5	Pass
5825	165	17.582	0.5	Pass

■ TEST Plot for 802.11ac_VHT20 Mode

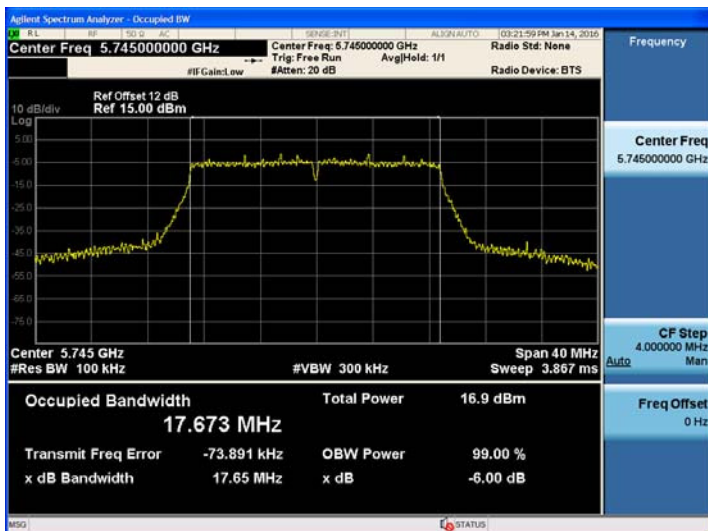
802.11ac_VHT20 UNII 3 BAND 6dB Bandwidth
_Service Port Ant.0



802.11ac_VHT20 UNII 3 BAND 6dB Bandwidth
_Service Port Ant.1



802.11ac_VHT20 UNII 3 BAND 6dB Bandwidth
_Service Port Ant.2



Note :

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

Conducted 6 dB Bandwidth

■ TEST RESULTS for 802.11n_HT40_Service Port

Conducted 6 dB Bandwidth Measurements for 802.11n_HT40_Service Port Ant.0

802.11n_HT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	36.030	0.5	Pass
5795	159	36.070	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11n_HT40_Service Port Ant.1

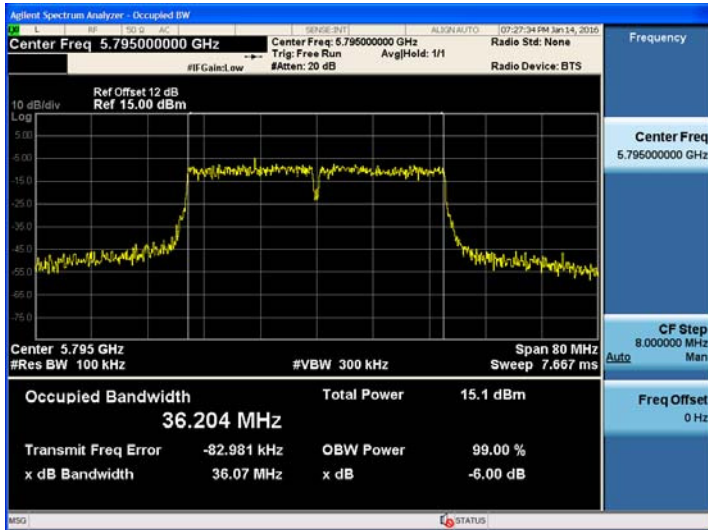
802.11n_HT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	36.140	0.5	Pass
5795	159	36.180	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11n_HT40_Service Port Ant.2

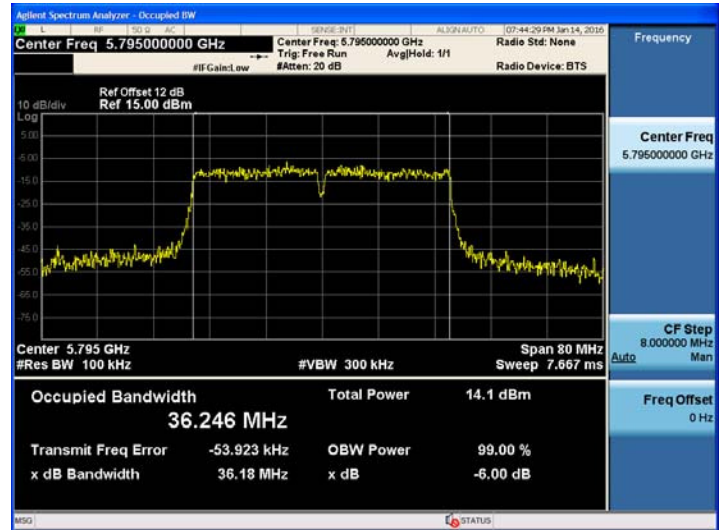
802.11n_HT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.960	0.5	Pass
5795	159	36.170	0.5	Pass

■ TEST Plot for 802.11n_HT40

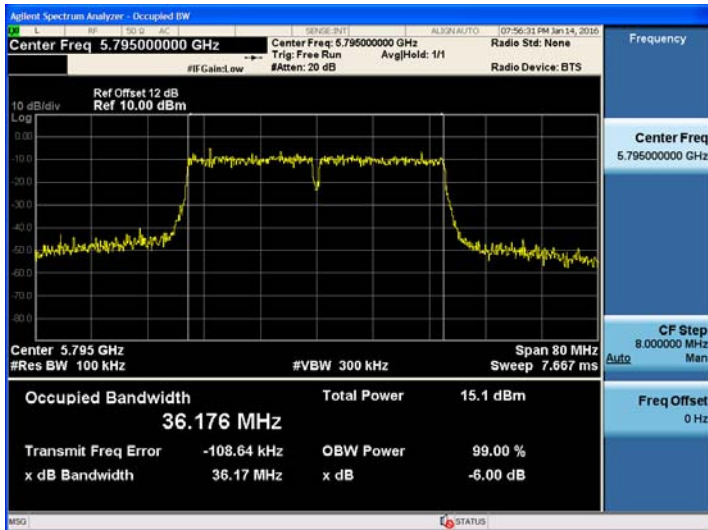
802.11n_HT40 UNII 3 BAND 6dB Bandwidth
_Service Port Ant.0



802.11n_HT40 UNII 3 BAND 6dB Bandwidth
_Service Port Ant.1



802.11n_HT40 UNII 3 BAND 6dB Bandwidth
_Service Port Ant.2



Note :

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

Conducted 6 dB Bandwidth

■ TEST RESULTS for 802.11ac_VHT40_Service Port

Conducted 6 dB Bandwidth Measurements for 802.11ac_VHT40_Service Port Ant.0

802.11ac_VHT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	36.130	0.5	Pass
5795	159	36.110	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11ac_VHT40_Service Port Ant.1

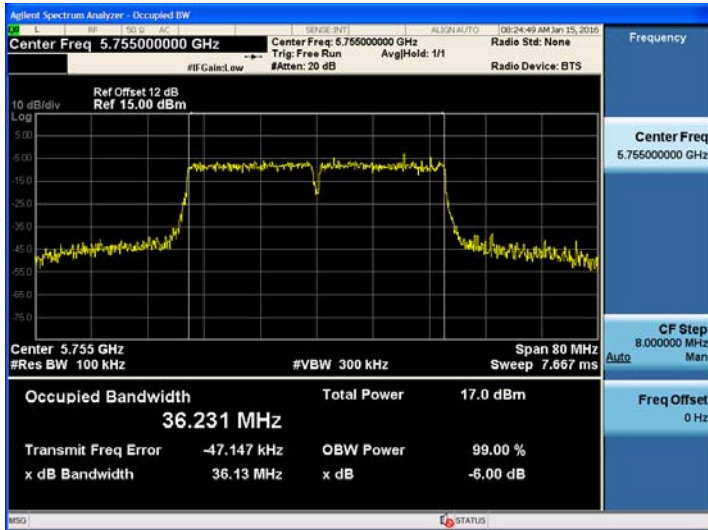
802.11ac_VHT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	36.120	0.5	Pass
5795	159	36.080	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11ac_VHT40_Service Port Ant.2

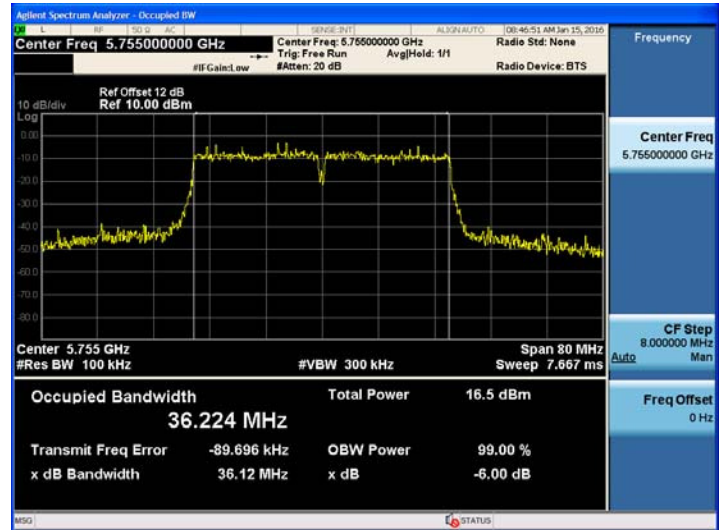
802.11ac_VHT40 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	36.120	0.5	Pass
5795	159	36.140	0.5	Pass

■ TEST Plot for 802.11ac_VHT40

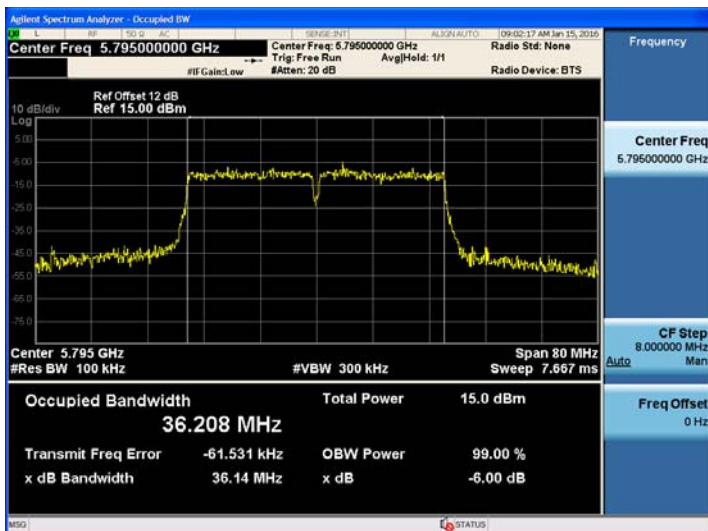
802.11ac_VHT40 UNII 3 BAND 6dB Bandwidth
_Service Port Ant.0



802.11ac_VHT40 UNII 3 BAND 6dB Bandwidth
_Service Port Ant.1



802.11ac_VHT40 UNII 3 BAND 6dB Bandwidth
_Service Port Ant.2



Note :

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

Conducted 6 dB Bandwidth

■ TEST RESULTS for 802.11ac_VHT80_Service Port

Conducted 6 dB Bandwidth Measurements for 802.11ac_VHT80_Service Port Ant.0

802.11ac_VHT80 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	75.401	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11ac_VHT80_Service Port Ant.1

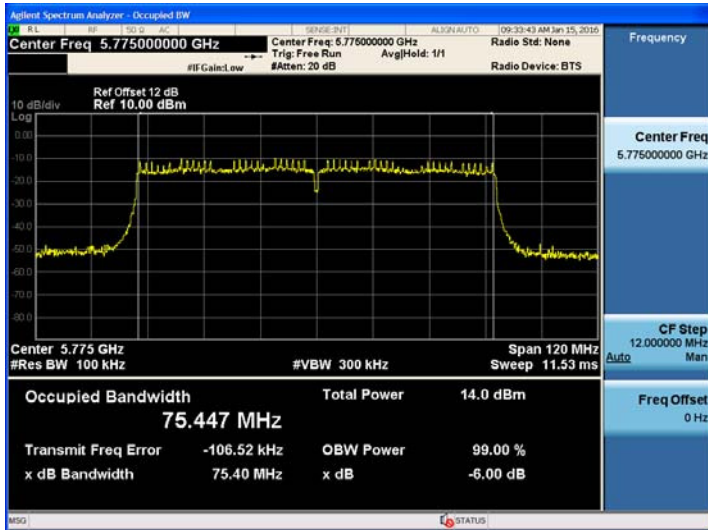
802.11ac_VHT80 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	75.460	0.5	Pass

Conducted 6 dB Bandwidth Measurements for 802.11ac_VHT80_Service Port Ant.2

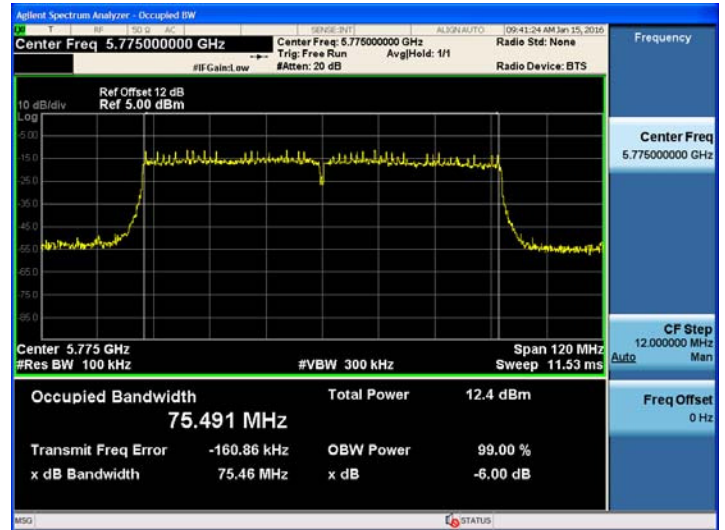
802.11ac_VHT80 Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	75.450	0.5	Pass

■ TEST Plot for 802.11ac_VHT80

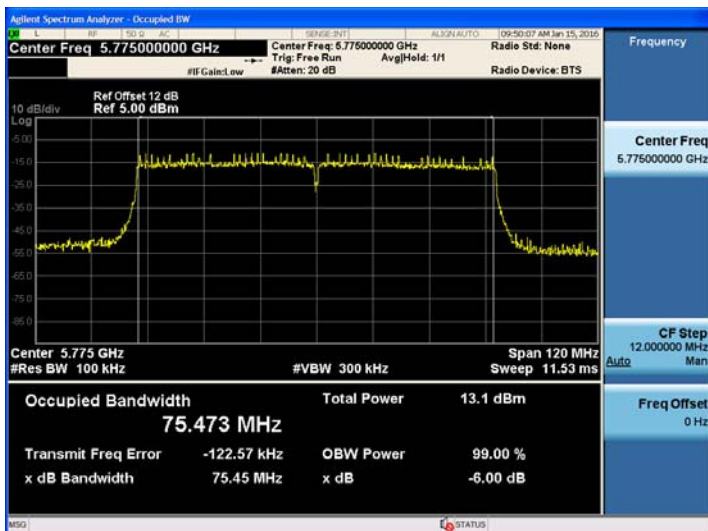
802.11ac_VHT80 UNII 3 BAND 6dB Bandwidth
_Service Port Ant.0



802.11ac_VHT80 UNII 3 BAND 6dB Bandwidth
_Service Port Ant.1



802.11ac_VHT80 UNII 3 BAND 6dB Bandwidth
_Service Port Ant.2



Note :

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

8.3 OUTPUT POWER MEASUREMENT

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

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

■ Limit

Service Port

Operating Mode	Band	Mode	Ant. Port	Ant. Gain (dBi)	Limit (dBm)
SISO	UNII 3	802.11a,n,ac	0	6.17	29.83
			1	5.46	30.00
			2	4.78	30.00
MIMO(2 TX)	UNII 3	802.11a,n,ac	0 & 1	8.83	27.17
MIMO(3 TX)	UNII 3	802.11a,n,ac	0 & 1 & 2	10.26	25.74

Monitoring Port

Operating Mode	Band	Mode	Ant. Port	Ant. Gain (dBi)	Limit (dBm)
MIMO(3 TX)	UNII 3	802.11a	0 & 1 & 2	10.26	25.74

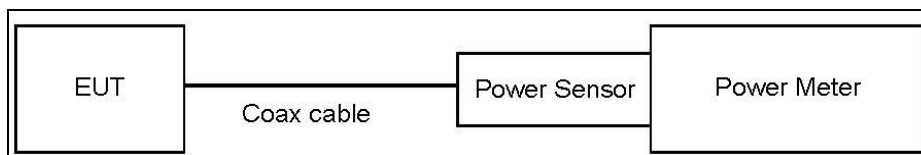
Note :1. If all antenna gains are not equal,

$$\text{Directional gain} = 10 \cdot \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N] \text{ dBi}$$

(according to KDB662911 D01 v02r01)

- Above the limits is calculated according to antenna gain. Because antenna gain is higher than 6 dBi.

■ TEST CONFIGURATION(20 MHz BW)



■ TEST PROCEDURE(20 MHz BW)

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

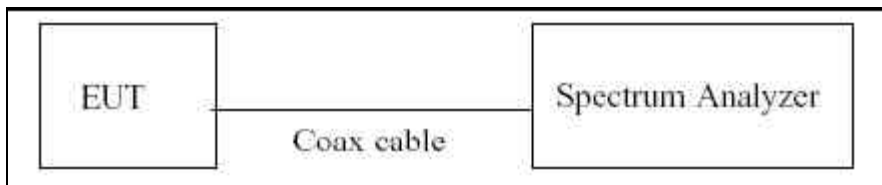
Note :

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

Band	Loss(dB)
UNII 3	12.0

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

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



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

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 v01r02

The Spectrum Analyzer is set to

- Average Power
 1. Measure the duty cycle.
 2. Set span to encompass the 26 dB EBW of the signal.
 3. RBW = 1 MHz.
 4. VBW $\geq$ 3 MHz.
 5. Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$.
 6. Sweep time = auto.
 7. Detector = RMS.
 8. Do not use sweep triggering. Allow the sweep to "free run".

9. Trace average at least 100 traces in power averaging(RMS) mode
10. Integrated bandwidth = OBW
11. Add $10\log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

Note :

1. We apply to the offset in the UNII 2A/2C band that was rounded off to the closest tenth dB. Actual value of loss for the attenuator and cable combination is below table. We used the particular cable type that is supported by manufacture.

Band	Loss(dB)
UNII 3	12.0

(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

■ **Sample Calculation (EIRP)**

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

Monitoring Port

802.11a (UNII 3) Monitoring Port Ant.0

■ TEST RESULTS

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

802.11a Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	6	8.26	0.22	8.47	25.74
		9	8.28	0.21	8.49	25.74
		12	8.25	0.20	8.45	25.74
		18	8.22	0.21	8.43	25.74
		24	8.26	0.24	8.50	25.74
		36	8.21	0.28	8.49	25.74
		48	8.23	0.35	8.57	25.74
		54	8.10	0.39	8.48	25.74
5785	157	6	7.92	0.22	8.13	25.74
		9	8.03	0.21	8.25	25.74
		12	7.95	0.20	8.15	25.74
		18	7.95	0.21	8.16	25.74
		24	7.74	0.24	7.98	25.74
		36	7.69	0.28	7.97	25.74
		48	7.98	0.35	8.33	25.74
		54	7.58	0.39	7.96	25.74
5825	165	6	8.40	0.22	8.61	25.74
		9	8.20	0.21	8.41	25.74
		12	8.31	0.20	8.52	25.74
		18	8.25	0.21	8.46	25.74
		24	8.24	0.24	8.48	25.74
		36	8.11	0.28	8.38	25.74
		48	8.25	0.35	8.59	25.74
		54	8.01	0.39	8.39	25.74

802.11a (UNII 3) Monitoring Port Ant.1

■ TEST RESULTS

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

802.11a Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	6	8.51	0.22	8.73	25.74
		9	8.40	0.21	8.62	25.74
		12	8.39	0.20	8.60	25.74
		18	8.47	0.21	8.68	25.74
		24	8.49	0.24	8.73	25.74
		36	8.26	0.28	8.54	25.74
		48	8.47	0.35	8.81	25.74
		54	8.34	0.39	8.72	25.74
5785	157	6	8.17	0.22	8.39	25.74
		9	8.02	0.21	8.23	25.74
		12	8.15	0.20	8.35	25.74
		18	8.16	0.21	8.37	25.74
		24	8.01	0.24	8.25	25.74
		36	7.98	0.28	8.26	25.74
		48	8.01	0.35	8.36	25.74
		54	7.80	0.39	8.19	25.74
5825	165	6	8.36	0.22	8.58	25.74
		9	8.42	0.21	8.63	25.74
		12	8.37	0.20	8.57	25.74
		18	8.36	0.21	8.57	25.74
		24	8.39	0.24	8.63	25.74
		36	8.35	0.28	8.62	25.74
		48	8.38	0.35	8.73	25.74
		54	8.26	0.39	8.65	25.74

802.11a (UNII 3) Monitoring Port Ant.2

■ TEST RESULTS

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

802.11a Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	6	8.69	0.22	8.91	25.74
		9	8.86	0.21	9.08	25.74
		12	8.85	0.20	9.05	25.74
		18	8.60	0.21	8.81	25.74
		24	8.82	0.24	9.06	25.74
		36	8.50	0.28	8.78	25.74
		48	8.53	0.35	8.88	25.74
		54	8.57	0.38	8.95	25.74
5785	157	6	8.20	0.22	8.41	25.74
		9	8.28	0.21	8.50	25.74
		12	8.36	0.20	8.57	25.74
		18	8.39	0.21	8.60	25.74
		24	8.31	0.24	8.55	25.74
		36	8.23	0.28	8.51	25.74
		48	8.43	0.35	8.78	25.74
		54	8.13	0.38	8.52	25.74
5825	165	6	8.70	0.22	8.92	25.74
		9	8.55	0.21	8.76	25.74
		12	8.67	0.20	8.88	25.74
		18	8.82	0.21	9.03	25.74
		24	8.71	0.24	8.95	25.74
		36	8.54	0.28	8.81	25.74
		48	8.55	0.35	8.90	25.74
		54	8.44	0.38	8.82	25.74

TEST RESULTS_Sum Data of Ant.0, Ant.1 and Ant.2_Monitoring Port

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

802.11a Mode		Rate (Mbps)	Sum Power of Ant.0 & 1&2	Limit (dBm)
Frequency[MHz]	Channel No.			
5745	149	6	13.48	25.74
		9	13.51	25.74
		12	13.48	25.74
		18	13.41	25.74
		24	13.54	25.74
		36	13.38	25.74
		48	13.53	25.74
		54	13.49	25.74
5785	157	6	13.08	25.74
		9	13.10	25.74
		12	13.13	25.74
		18	13.15	25.74
		24	13.04	25.74
		36	13.02	25.74
		48	13.27	25.74
		54	13.00	25.74
5825	165	6	13.48	25.74
		9	13.37	25.74
		12	13.43	25.74
		18	13.46	25.74
		24	13.46	25.74
		36	13.38	25.74
		48	13.51	25.74
		54	13.39	25.74

Service Port

802.11a (UNII 3) Service Port Ant.0

■ TEST RESULTS

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

802.11a Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	6	10.22	0.22	10.44	29.83
		9	10.08	0.21	10.29	29.83
		12	10.09	0.21	10.30	29.83
		18	10.05	0.23	10.28	29.83
		24	10.02	0.21	10.23	29.83
		36	10.01	0.27	10.28	29.83
		48	9.99	0.35	10.34	29.83
		54	9.99	0.39	10.37	29.83
5785	157	6	10.60	0.22	10.81	29.83
		9	10.78	0.21	10.99	29.83
		12	10.83	0.21	11.04	29.83
		18	10.79	0.23	11.02	29.83
		24	10.44	0.21	10.65	29.83
		36	10.61	0.27	10.88	29.83
		48	10.51	0.35	10.86	29.83
		54	10.31	0.39	10.70	29.83
5825	165	6	10.28	0.22	10.50	29.83
		9	10.30	0.21	10.50	29.83
		12	10.34	0.21	10.56	29.83
		18	10.35	0.23	10.58	29.83
		24	10.30	0.21	10.51	29.83
		36	10.27	0.27	10.54	29.83
		48	10.31	0.35	10.66	29.83
		54	10.17	0.39	10.55	29.83

802.11a (UNII 3) Service Port Ant.1

■ TEST RESULTS

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

802.11a Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	6	9.61	0.22	9.83	30.00
		9	9.55	0.21	9.76	30.00
		12	9.67	0.21	9.89	30.00
		18	9.67	0.23	9.90	30.00
		24	9.55	0.21	9.76	30.00
		36	9.63	0.27	9.89	30.00
		48	9.62	0.35	9.97	30.00
		54	9.54	0.39	9.92	30.00
5785	157	6	10.11	0.22	10.32	30.00
		9	10.21	0.21	10.42	30.00
		12	10.12	0.21	10.33	30.00
		18	10.12	0.23	10.35	30.00
		24	10.09	0.21	10.30	30.00
		36	9.89	0.27	10.16	30.00
		48	10.01	0.35	10.36	30.00
		54	9.85	0.39	10.23	30.00
5825	165	6	9.78	0.22	10.00	30.00
		9	9.79	0.21	10.00	30.00
		12	9.91	0.21	10.12	30.00
		18	9.88	0.23	10.11	30.00
		24	9.93	0.21	10.13	30.00
		36	9.79	0.27	10.06	30.00
		48	9.81	0.35	10.16	30.00
		54	9.70	0.39	10.09	30.00

802.11a (UNII 3) Service Port Ant.2

■ TEST RESULTS

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

802.11a Mode		Rate (Mbps)	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	6	10.24	0.22	10.45	30.00
		9	10.14	0.21	10.35	30.00
		12	10.19	0.21	10.41	30.00
		18	10.20	0.23	10.43	30.00
		24	10.10	0.21	10.31	30.00
		36	10.09	0.27	10.36	30.00
		48	10.11	0.35	10.46	30.00
		54	9.86	0.39	10.24	30.00
5785	157	6	10.55	0.22	10.76	30.00
		9	10.59	0.21	10.80	30.00
		12	10.56	0.21	10.78	30.00
		18	10.53	0.23	10.76	30.00
		24	10.51	0.21	10.72	30.00
		36	10.37	0.27	10.64	30.00
		48	10.52	0.35	10.86	30.00
		54	10.41	0.39	10.80	30.00
5825	165	6	10.32	0.22	10.54	30.00
		9	10.30	0.21	10.51	30.00
		12	10.30	0.21	10.51	30.00
		18	10.29	0.23	10.52	30.00
		24	10.21	0.21	10.42	30.00
		36	10.21	0.27	10.48	30.00
		48	10.21	0.35	10.55	30.00
		54	10.09	0.39	10.48	30.00

■ TEST RESULTS_Sum Data of Ant.0, Ant.1 and Ant.2_Service Port

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

802.11a Mode		Rate (Mbps)	Sum Power of Ant.0 & 1&2	Limit (dBm)
Frequency[MHz]	Channel No.			
5745	149	6	15.02	25.74
		9	14.91	25.74
		12	14.98	25.74
		18	14.98	25.74
		24	14.88	25.74
		36	14.95	25.74
		48	15.03	25.74
		54	14.95	25.74
5785	157	6	15.41	25.74
		9	15.51	25.74
		12	15.50	25.74
		18	15.49	25.74
		24	15.33	25.74
		36	15.34	25.74
		48	15.47	25.74
		54	15.35	25.74
5825	165	6	15.12	25.74
		9	15.11	25.74
		12	15.17	25.74
		18	15.18	25.74
		24	15.13	25.74
		36	15.14	25.74
		48	15.23	25.74
		54	15.15	25.74

802.11n_HT20(UNII 3) Service Port Ant.0

■ 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	10.24	0.22	10.46	29.83
		1	10.11	0.20	10.31	29.83
		2	10.12	0.19	10.31	29.83
		3	10.14	0.20	10.34	29.83
		4	10.08	0.29	10.37	29.83
		5	10.06	0.37	10.42	29.83
		6	9.99	0.40	10.40	29.83
		7	9.99	0.40	10.39	29.83
5785	157	0	9.70	0.22	9.92	29.83
		1	9.62	0.20	9.82	29.83
		2	9.58	0.19	9.77	29.83
		3	9.62	0.20	9.82	29.83
		4	9.49	0.29	9.78	29.83
		5	9.47	0.37	9.84	29.83
		6	9.41	0.40	9.81	29.83
		7	9.53	0.40	9.93	29.83
5825	165	0	10.29	0.22	10.51	29.83
		1	10.34	0.20	10.54	29.83
		2	10.32	0.19	10.52	29.83
		3	10.21	0.20	10.41	29.83
		4	10.33	0.29	10.62	29.83
		5	10.24	0.37	10.60	29.83
		6	10.22	0.40	10.62	29.83
		7	10.24	0.40	10.64	29.83

802.11n_HT20(UNII 3) Service Port Ant.1

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	9.64	0.22	9.85	30.00
		1	9.67	0.20	9.87	30.00
		2	9.68	0.19	9.87	30.00
		3	9.71	0.20	9.91	30.00
		4	9.64	0.29	9.92	30.00
		5	9.61	0.37	9.97	30.00
		6	9.56	0.40	9.96	30.00
		7	9.55	0.40	9.95	30.00
5785	157	0	9.12	0.22	9.33	30.00
		1	9.11	0.20	9.31	30.00
		2	9.05	0.19	9.24	30.00
		3	9.17	0.20	9.37	30.00
		4	9.12	0.29	9.41	30.00
		5	9.03	0.37	9.39	30.00
		6	8.99	0.40	9.39	30.00
		7	8.98	0.40	9.38	30.00
5825	165	0	9.76	0.22	9.98	30.00
		1	9.83	0.20	10.03	30.00
		2	9.73	0.19	9.92	30.00
		3	9.86	0.20	10.06	30.00
		4	9.69	0.29	9.98	30.00
		5	9.65	0.37	10.02	30.00
		6	9.64	0.40	10.04	30.00
		7	9.58	0.40	9.98	30.00

802.11n_HT20(UNII 3)_Service Port Ant.2

■ 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	10.16	0.22	10.38	30.00
		1	10.12	0.20	10.32	30.00
		2	10.14	0.19	10.33	30.00
		3	10.19	0.20	10.39	30.00
		4	10.10	0.29	10.39	30.00
		5	10.05	0.37	10.41	30.00
		6	10.01	0.40	10.41	30.00
		7	9.99	0.40	10.39	30.00
5785	157	0	9.69	0.22	9.90	30.00
		1	9.60	0.20	9.80	30.00
		2	9.61	0.19	9.80	30.00
		3	9.55	0.20	9.75	30.00
		4	9.49	0.29	9.78	30.00
		5	9.44	0.37	9.80	30.00
		6	9.42	0.40	9.82	30.00
		7	9.40	0.40	9.80	30.00
5825	165	0	10.11	0.22	10.33	30.00
		1	10.18	0.20	10.37	30.00
		2	10.20	0.19	10.39	30.00
		3	10.24	0.20	10.44	30.00
		4	10.13	0.29	10.42	30.00
		5	10.11	0.37	10.48	30.00
		6	10.07	0.40	10.47	30.00
		7	10.06	0.40	10.46	30.00

■ TEST RESULTS_Sum Data of Ant.0, Ant.1 and Ant.2_Service Port

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

802.11n_HT20 Mode		MCS Index	Sum Power of Ant.0 & 1&2	Limit (dBm)
Frequency[MHz]	Channel No.			
5745	149	0	15.01	25.74
		1	14.94	25.74
		2	14.95	25.74
		3	14.99	25.74
		4	15.00	25.74
		5	15.04	25.74
		6	15.03	25.74
		7	15.02	25.74
5785	157	0	14.50	25.74
		1	14.42	25.74
		2	14.38	25.74
		3	14.42	25.74
		4	14.43	25.74
		5	14.45	25.74
		6	14.45	25.74
		7	14.48	25.74
5825	165	0	15.05	25.74
		1	15.09	25.74
		2	15.06	25.74
		3	15.08	25.74
		4	15.12	25.74
		5	15.14	25.74
		6	15.15	25.74
		7	15.14	25.74

802.11ac_VHT20 Mode (UNII 3)_Service Port Ant.0

■ TEST RESULTS

Conducted Output Power Measurements (802.11ac_VHT20 Mode: 5745~5825)

802.11ac_VHT20 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	0	10.15	0.07	10.22	29.83
		1	10.10	0.11	10.21	29.83
		2	10.06	0.16	10.22	29.83
		3	10.01	0.22	10.24	29.83
		4	9.96	0.33	10.28	29.83
		5	9.88	0.41	10.28	29.83
		6	9.84	0.47	10.32	29.83
		7	9.80	0.51	10.32	29.83
		8	9.75	0.59	10.34	29.83
5785	157	0	7.84	0.07	7.91	29.83
		1	7.85	0.11	7.96	29.83
		2	7.72	0.16	7.88	29.83
		3	7.77	0.22	7.99	29.83
		4	7.70	0.33	8.03	29.83
		5	7.63	0.41	8.04	29.83
		6	7.59	0.47	8.07	29.83
		7	7.56	0.51	8.07	29.83
		8	7.48	0.59	8.07	29.83
5825	165	0	7.52	0.07	7.58	29.83
		1	7.51	0.11	7.62	29.83
		2	7.48	0.16	7.64	29.83
		3	7.45	0.22	7.67	29.83
		4	7.39	0.33	7.72	29.83
		5	7.27	0.41	7.68	29.83
		6	7.27	0.47	7.74	29.83
		7	7.23	0.51	7.75	29.83
		8	7.18	0.59	7.77	29.83

802.11ac_VHT20 Mode (UNII 3)_Service Port Ant.1

■ TEST RESULTS

Conducted Output Power Measurements (802.11ac_VHT20 Mode: 5745~5825)

802.11ac_VHT20 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	0	9.71	0.07	9.78	30.00
		1	9.67	0.11	9.78	30.00
		2	9.59	0.16	9.75	30.00
		3	9.53	0.22	9.75	30.00
		4	9.50	0.33	9.83	30.00
		5	9.44	0.41	9.84	30.00
		6	9.40	0.47	9.88	30.00
		7	9.32	0.51	9.84	30.00
		8	9.26	0.59	9.85	30.00
5785	157	0	7.50	0.07	7.57	30.00
		1	7.48	0.11	7.59	30.00
		2	7.40	0.16	7.55	30.00
		3	7.26	0.22	7.48	30.00
		4	7.26	0.33	7.59	30.00
		5	7.13	0.41	7.53	30.00
		6	7.08	0.47	7.56	30.00
		7	7.07	0.51	7.58	30.00
		8	7.04	0.59	7.64	30.00
5825	165	0	7.24	0.07	7.31	30.00
		1	7.08	0.11	7.19	30.00
		2	7.03	0.16	7.19	30.00
		3	7.05	0.22	7.27	30.00
		4	6.83	0.33	7.16	30.00
		5	6.83	0.41	7.23	30.00
		6	6.81	0.47	7.29	30.00
		7	6.80	0.51	7.31	30.00
		8	6.68	0.59	7.27	30.00

802.11ac_VHT20 Mode (UNII 3)_Service Port Ant.2

■ TEST RESULTS

Conducted Output Power Measurements (802.11ac_VHT20 Mode: 5745~5825)

802.11ac_VHT20 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	0	10.25	0.07	10.32	30.00
		1	10.18	0.11	10.29	30.00
		2	10.02	0.16	10.17	30.00
		3	10.08	0.22	10.30	30.00
		4	10.02	0.33	10.35	30.00
		5	9.94	0.41	10.35	30.00
		6	9.93	0.47	10.40	30.00
		7	9.88	0.51	10.39	30.00
		8	9.76	0.59	10.35	30.00
5785	157	0	7.89	0.07	7.96	30.00
		1	7.61	0.11	7.72	30.00
		2	7.83	0.16	7.99	30.00
		3	7.79	0.22	8.01	30.00
		4	7.68	0.33	8.01	30.00
		5	7.61	0.41	8.02	30.00
		6	7.58	0.47	8.06	30.00
		7	7.55	0.51	8.07	30.00
		8	7.40	0.59	8.00	30.00
5825	165	0	7.56	0.07	7.63	30.00
		1	7.52	0.11	7.63	30.00
		2	7.52	0.16	7.68	30.00
		3	7.43	0.22	7.66	30.00
		4	7.35	0.33	7.68	30.00
		5	7.25	0.41	7.66	30.00
		6	7.24	0.47	7.71	30.00
		7	7.18	0.51	7.69	30.00
		8	7.10	0.59	7.69	30.00

■ TEST RESULTS_Sum Data of Ant.0, Ant.1 and Ant.2_Service Port

Conducted Output Power Measurements (802.11ac_VHT20 Mode: 5745~5825)

802.11ac_VHT20 Mode		MCS Index	Sum Power of Ant.0 & 1&2	Limit (dBm)
Frequency[MHz]	Channel No.			
5745	149	0	14.88	25.74
		1	14.87	25.74
		2	14.82	25.74
		3	14.87	25.74
		4	14.93	25.74
		5	14.93	25.74
		6	14.98	25.74
		7	14.96	25.74
		8	14.96	25.74
5785	157	0	12.59	25.74
		1	12.53	25.74
		2	12.58	25.74
		3	12.60	25.74
		4	12.65	25.74
		5	12.64	25.74
		6	12.67	25.74
		7	12.68	25.74
		8	12.68	25.74
5825	165	0	12.28	25.74
		1	12.26	25.74
		2	12.28	25.74
		3	12.31	25.74
		4	12.30	25.74
		5	12.30	25.74
		6	12.36	25.74
		7	12.36	25.74
		8	12.28	25.74

802.11n_HT40 (UNII 3) Service Port Ant.0

■ TEST RESULTS

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

802.11n_HT40 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5755	151	0	9.78	0.43	10.21	29.83
		1	9.83	0.40	10.23	29.83
		2	9.90	0.41	10.31	29.83
		3	10.02	0.35	10.36	29.83
		4	9.68	0.50	10.18	29.83
		5	9.57	0.61	10.18	29.83
		6	9.50	0.66	10.16	29.83
		7	9.49	0.72	10.21	29.83
5795	159	0	9.85	0.43	10.28	29.83
		1	9.74	0.40	10.15	29.83
		2	9.79	0.41	10.20	29.83
		3	9.79	0.35	10.14	29.83
		4	9.70	0.50	10.20	29.83
		5	9.56	0.61	10.17	29.83
		6	9.75	0.66	10.41	29.83
		7	9.54	0.72	10.26	29.83

802.11n_HT40 (UNII 3) Service Port Ant.1

■ TEST RESULTS

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

802.11n_HT40 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5755	151	0	9.03	0.44	9.47	30.00
		1	9.08	0.40	9.48	30.00
		2	8.81	0.41	9.22	30.00
		3	8.92	0.35	9.27	30.00
		4	8.98	0.50	9.48	30.00
		5	8.89	0.61	9.50	30.00
		6	8.58	0.66	9.24	30.00
		7	8.77	0.72	9.49	30.00
5795	159	0	9.02	0.44	9.46	30.00
		1	9.14	0.40	9.54	30.00
		2	9.16	0.41	9.57	30.00
		3	9.25	0.35	9.59	30.00
		4	9.11	0.50	9.61	30.00
		5	9.00	0.61	9.61	30.00
		6	8.86	0.66	9.52	30.00
		7	8.91	0.72	9.63	30.00

802.11n_HT40 (UNII 3) Service Port Ant.2

■ TEST RESULTS

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

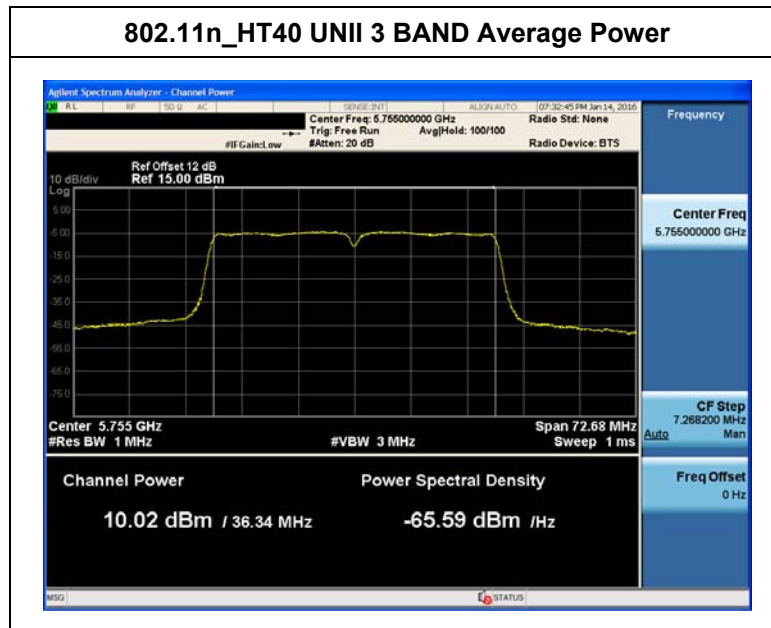
802.11n_HT40 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5755	151	0	9.51	0.43	9.94	30.00
		1	9.51	0.40	9.91	30.00
		2	9.52	0.41	9.94	30.00
		3	9.61	0.35	9.95	30.00
		4	9.49	0.50	9.99	30.00
		5	9.36	0.61	9.97	30.00
		6	9.34	0.66	10.00	30.00
		7	9.29	0.72	10.01	30.00
5795	159	0	9.81	0.43	10.24	30.00
		1	9.70	0.40	10.11	30.00
		2	9.62	0.41	10.04	30.00
		3	9.73	0.35	10.08	30.00
		4	9.58	0.50	10.08	30.00
		5	9.48	0.61	10.09	30.00
		6	9.44	0.66	10.10	30.00
		7	9.38	0.72	10.10	30.00

■ TEST RESULTS_Sum Data of Ant.0, Ant.1 and Ant.2_Service Port

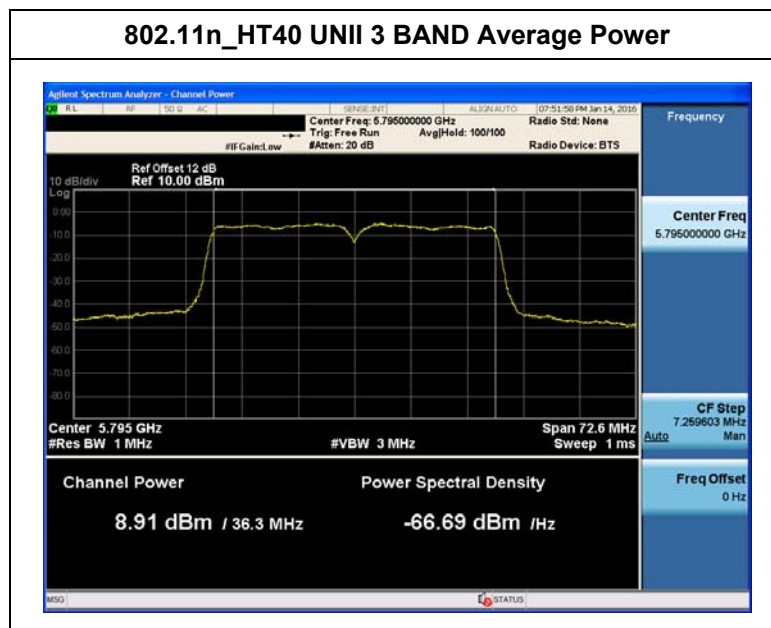
Conducted Output Power Measurements (802.11n_HT40 Mode: 5755~5795)

802.11n_HT40 Mode		MCS Index	Sum Power of Ant.0 & 1&2	Limit (dBm)
Frequency[MHz]	Channel No.			
5755	151	0	14.66	25.74
		1	14.66	25.74
		2	14.62	25.74
		3	14.65	25.74
		4	14.66	25.74
		5	14.66	25.74
		6	14.59	25.74
		7	14.69	25.74
5795	159	0	14.78	25.74
		1	14.71	25.74
		2	14.72	25.74
		3	14.71	25.74
		4	14.74	25.74
		5	14.73	25.74
		6	14.80	25.74
		7	14.78	25.74

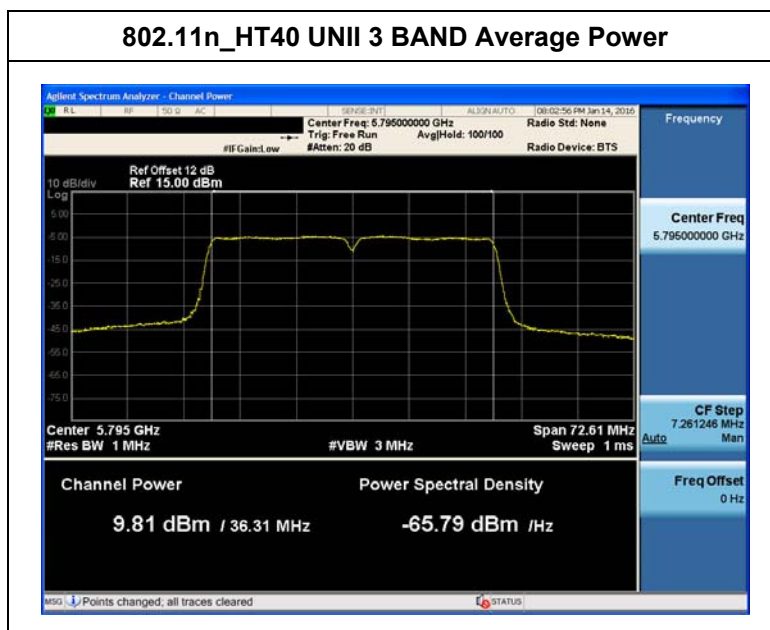
■ TEST Plot for 802.11n_HT40_Service Port Ant.0



■ TEST Plot for 802.11n_HT40_Service Port Ant.1



■ TEST Plot for 802.11n_HT40_Service Port Ant.2



802.11ac_VHT40 (UNII 3) Service Port Ant.0

■ TEST RESULTS

Conducted Output Power Measurements (802.11ac_VHT40 Mode: 5755~5795)

802.11ac_VHT40 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5755	151	0	11.67	0.12	11.79	29.83
		1	11.58	0.23	11.81	29.83
		2	11.56	0.33	11.89	29.83
		3	11.44	0.45	11.89	29.83
		4	11.30	0.61	11.92	29.83
		5	11.16	0.77	11.93	29.83
		6	11.09	0.77	11.86	29.83
		7	11.10	0.84	11.93	29.83
		8	10.90	0.94	11.83	29.83
		9	10.87	0.97	11.84	29.83
5795	159	0	9.91	0.12	10.03	29.83
		1	9.80	0.23	10.03	29.83
		2	9.68	0.33	10.01	29.83
		3	9.69	0.45	10.14	29.83
		4	9.52	0.61	10.14	29.83
		5	9.41	0.77	10.18	29.83
		6	9.24	0.77	10.01	29.83
		7	9.38	0.84	10.22	29.83
		8	9.23	0.94	10.17	29.83
		9	9.21	0.97	10.18	29.83

802.11ac_VHT40 (UNII 3) Service Port Ant.1

■ TEST RESULTS

Conducted Output Power Measurements (802.11ac_VHT40 Mode: 5755~5795)

802.11ac_VHT40 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5755	151	0	10.74	0.14	10.88	30.00
		1	10.74	0.23	10.97	30.00
		2	10.60	0.33	10.93	30.00
		3	10.54	0.45	10.98	30.00
		4	10.38	0.61	10.99	30.00
		5	10.14	0.77	10.91	30.00
		6	10.11	0.77	10.88	30.00
		7	9.98	0.84	10.82	30.00
		8	9.98	0.94	10.92	30.00
		9	10.17	0.97	11.14	30.00
5795	159	0	8.92	0.14	9.05	30.00
		1	8.99	0.23	9.22	30.00
		2	8.65	0.33	8.97	30.00
		3	8.73	0.45	9.18	30.00
		4	8.58	0.61	9.19	30.00
		5	8.37	0.77	9.14	30.00
		6	8.38	0.77	9.15	30.00
		7	8.35	0.84	9.19	30.00
		8	8.13	0.94	9.07	30.00
		9	8.30	0.97	9.27	30.00

802.11ac_VHT40 (UNII 3) Service Port Ant.2

■ TEST RESULTS

Conducted Output Power Measurements (802.11ac_VHT40 Mode: 5755~5795)

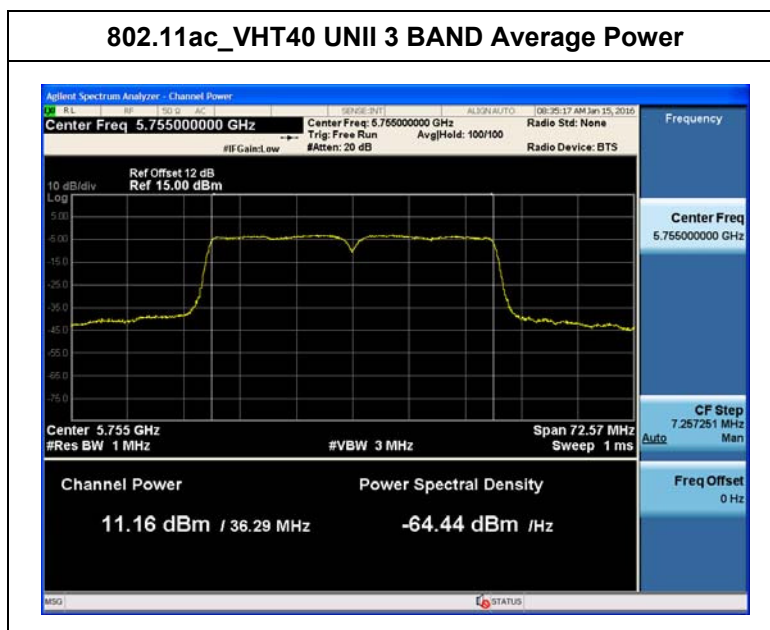
802.11ac_VHT40 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5755	151	0	11.32	0.12	11.44	30.00
		1	11.27	0.23	11.50	30.00
		2	11.24	0.33	11.57	30.00
		3	11.08	0.45	11.53	30.00
		4	11.06	0.61	11.67	30.00
		5	10.96	0.77	11.73	30.00
		6	10.79	0.77	11.56	30.00
		7	10.80	0.84	11.64	30.00
		8	10.67	0.94	11.61	30.00
		9	10.67	0.97	11.64	30.00
5795	159	0	9.67	0.12	9.79	30.00
		1	9.59	0.23	9.82	30.00
		2	9.32	0.33	9.65	30.00
		3	9.44	0.45	9.88	30.00
		4	9.25	0.61	9.86	30.00
		5	9.15	0.77	9.92	30.00
		6	9.09	0.77	9.86	30.00
		7	9.01	0.84	9.84	30.00
		8	8.90	0.94	9.84	30.00
		9	8.87	0.97	9.84	30.00

TEST RESULTS_Sum Data of Ant.0, Ant.1 and Ant.2_Service Port

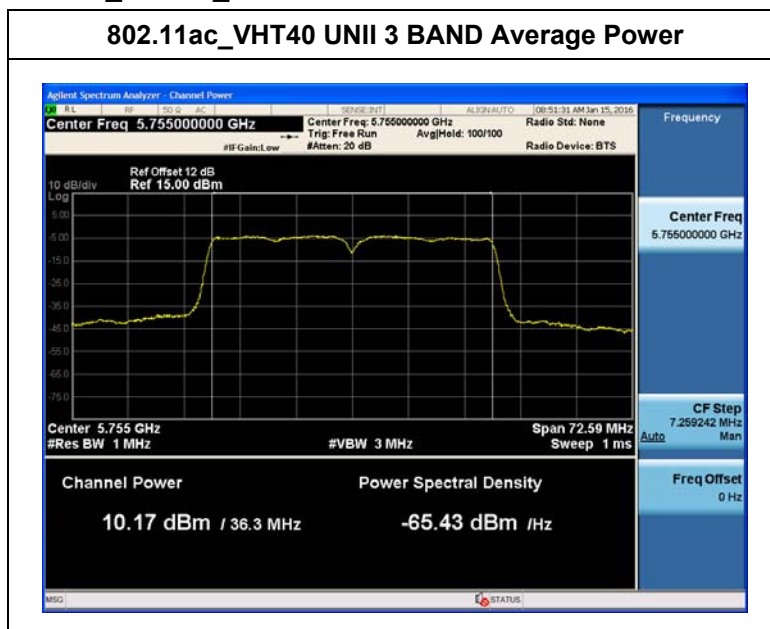
Conducted Output Power Measurements (802.11ac_VHT40 Mode: 5755~5795)

802.11ac_VHT40 Mode		MCS Index	Sum Power of Ant.0 & 1&2	Limit (dBm)
Frequency[MHz]	Channel No.			
5755	151	0	16.16	25.74
		1	16.21	25.74
		2	16.25	25.74
		3	16.25	25.74
		4	16.32	25.74
		5	16.32	25.74
		6	16.22	25.74
		7	16.26	25.74
		8	16.24	25.74
		9	16.32	25.74
5795	159	0	14.41	25.74
		1	14.47	25.74
		2	14.34	25.74
		3	14.52	25.74
		4	14.52	25.74
		5	14.54	25.74
		6	14.46	25.74
		7	14.54	25.74
		8	14.49	25.74
		9	14.55	25.74

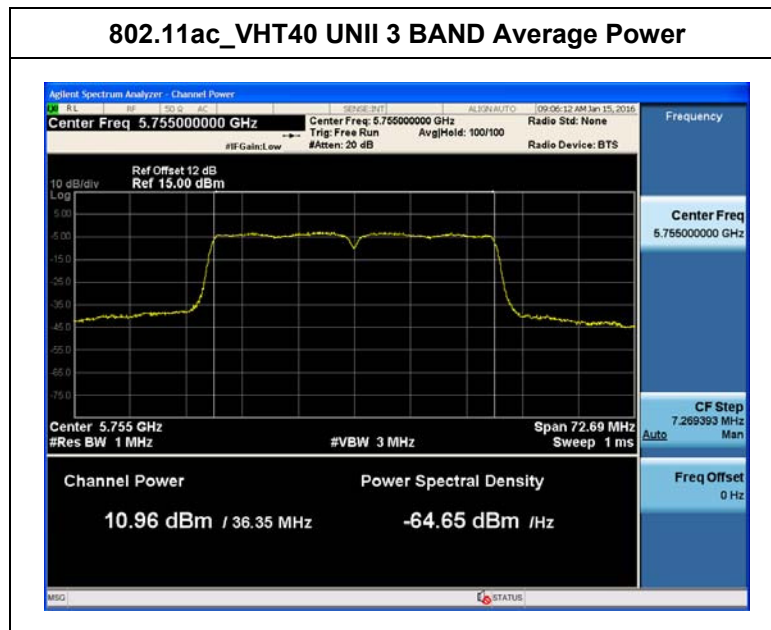
■ TEST Plot for 802.11ac_VHT40_Service Port Ant.0



■ TEST Plot for 802.11ac_VHT40_Service Port Ant.1



■ TEST Plot for 802.11ac_VHT40_Service Port Ant.2



802.11ac_VHT80 (UNII 3)_Service Port Ant.0

■ TEST RESULTS

Conducted Output Power Measurements (802.11ac_VHT80 Mode: 5775 MHz)

802.11ac_VHT80 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5775	155	0	6.52	0.27	6.79	29.83
		1	6.38	0.44	6.82	29.83
		2	6.23	0.63	6.87	29.83
		3	6.17	0.75	6.92	29.83
		4	5.96	0.97	6.93	29.83
		5	5.77	1.11	6.88	29.83
		6	5.73	1.20	6.93	29.83
		7	5.58	1.25	6.83	29.83
		8	5.58	1.36	6.94	29.83
		9	5.53	1.43	6.95	29.83

802.11ac_VHT80 (UNII 3)_Service Port Ant.1

■ TEST RESULTS

Conducted Output Power Measurements (802.11ac_VHT80 Mode: 5775 MHz)

802.11ac_VHT80 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5775	155	0	5.63	0.27	5.90	30.00
		1	5.40	0.44	5.84	30.00
		2	5.38	0.63	6.01	30.00
		3	5.29	0.75	6.04	30.00
		4	5.06	0.97	6.03	30.00
		5	4.90	1.11	6.01	30.00
		6	4.67	1.20	5.87	30.00
		7	4.74	1.25	5.99	30.00
		8	4.62	1.36	5.98	30.00
		9	4.57	1.43	6.00	30.00

802.11ac_VHT80 (UNII 3)_Service Port Ant.2

■ TEST RESULTS

Conducted Output Power Measurements (802.11ac_VHT80 Mode: 5775 MHz)

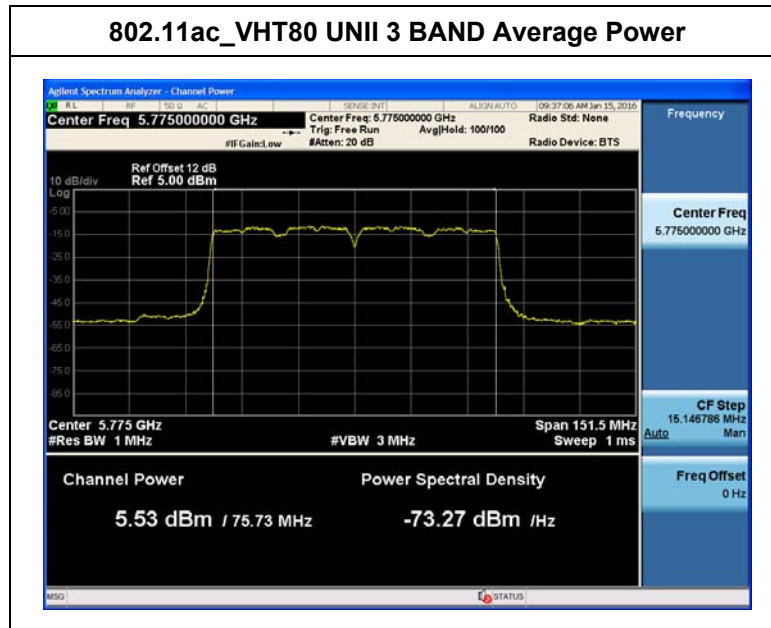
802.11ac_VHT80 Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5775	155	0	6.29	0.27	6.55	30.00
		1	6.10	0.44	6.54	30.00
		2	5.99	0.63	6.62	30.00
		3	5.81	0.75	6.56	30.00
		4	5.54	0.97	6.51	30.00
		5	5.43	1.11	6.54	30.00
		6	5.37	1.20	6.57	30.00
		7	5.28	1.25	6.53	30.00
		8	5.12	1.36	6.48	30.00
		9	5.22	1.43	6.65	30.00

■ TEST RESULTS_Sum Data of Ant.0, Ant.1 and Ant.2_Service Port

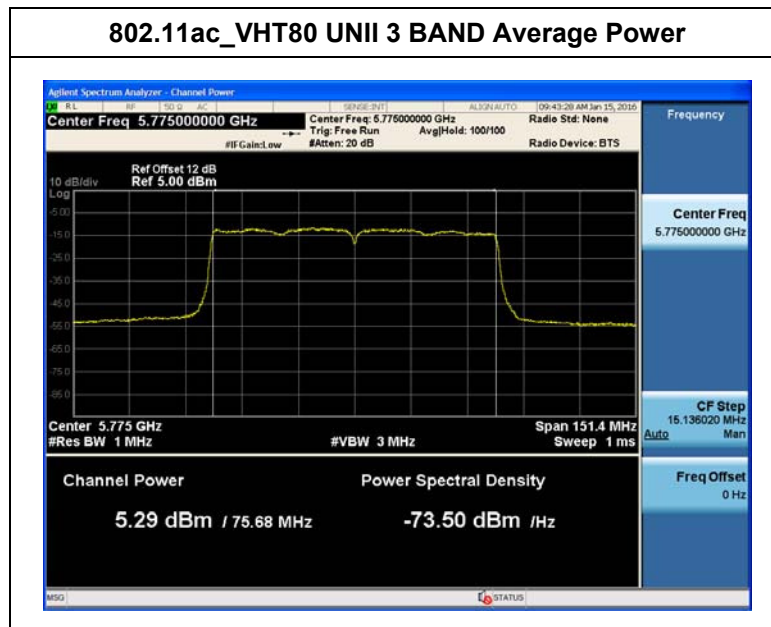
Conducted Output Power Measurements (802.11ac_VHT80 Mode: 5775 MHz)

802.11ac_VHT80 Mode		MCS Index	Sum Power of Ant.0 & 1&2	Limit (dBm)
Frequency[MHz]	Channel No.			
5775	155	0	11.20	25.74
		1	11.19	25.74
		2	11.29	25.74
		3	11.29	25.74
		4	11.28	25.74
		5	11.26	25.74
		6	11.25	25.74
		7	11.23	25.74
		8	11.26	25.74
		9	11.32	25.74

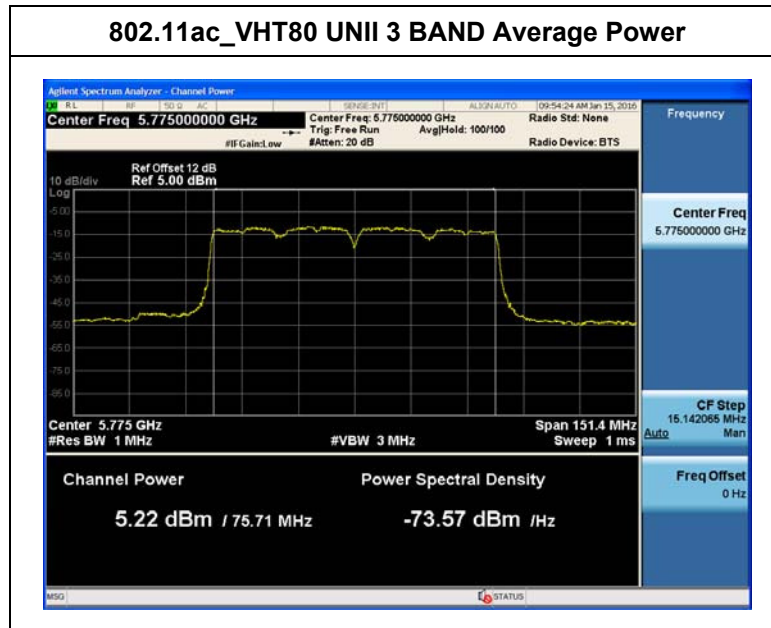
■ TEST Plot for 802.11ac_VHT80_Service port Ant.0



■ TEST Plot for 802.11ac_VHT80_Service port Ant.1



■ TEST Plot for 802.11ac_VHT80_Service port Ant.2



8.4 POWER SPECTRAL DENSITY

The peak power density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies.

Power Spectral Density

Service Port

Operating Mode	Band	Mode	Ant. Port	Ant. Gain (dBi)	Limit
SISO	UNII 3	802.11a,n,ac	0	6.17	29.83 dBm/500 kHz
			1	5.46	30 dBm/500 kHz
			2	4.78	30 dBm/500 kHz
MIMO(2 TX)	UNII 3	802.11a,n,ac	0 & 1	8.83	27.17 dBm/500 kHz
MIMO(3 TX)	UNII 3	802.11a,n,ac	0 & 1 & 2	10.26	25.74 dBm/500 kHz

Monitoring Port

Operating Mode	Band	Mode	Ant. Port	Ant. Gain (dBi)	Limit
MIMO	UNII 3	802.11a	0 & 1 & 2	11.23	24.77 dBm/500 kHz

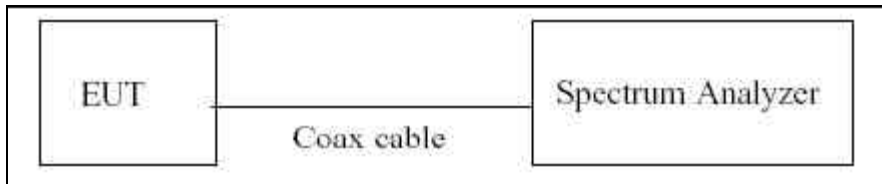
Note :1. If all antenna gains are not equal,

$$\text{Directional gain} = 10 \cdot \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N] \text{ dBi}$$

(according to KDB662911 D01 v02r01)

- Above the limits is calculated according to antenna gain. Because antenna gain is higher than 6 dBi.

■ TEST CONFIGURATION



■ TEST PROCEDURE

We tested according to Method in KDB 789033 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 $\geq$ 3 MHz
4. Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$.
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 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 3	12.0

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

Monitoring port

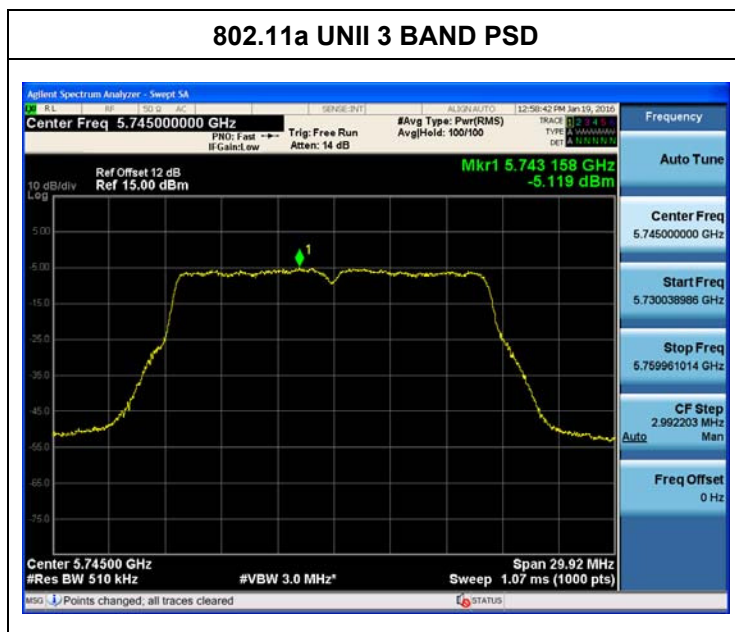
802.11a_Monitoring Port Ant.0

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(dB)	Limit (dBm)	Pass/Fail
5745	149	802.11a	-5.119	0.348	-4.771	24.77	Pass
5785	157		-5.628	0.348	-5.280		Pass
5825	165		-5.217	0.215	-5.002		Pass

TEST Plot for 802.11a Monitoring Port Ant.0



802.11a_Monitoring Port Ant.1

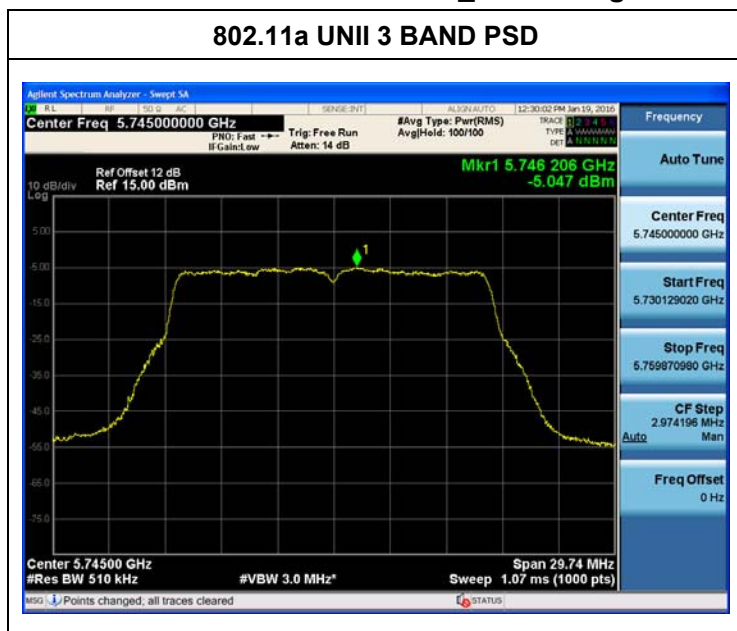
TEST RESULTS

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(dB)	Limit (dBm)	Pass/Fail
5745	149	802.11a	-5.047	0.348	-4.699	24.77	Pass
5785	157		-5.463	0.218	-5.245		Pass
5825	165		-5.323	0.348	-4.975		Pass

TEST Plot for 802.11a_Monitoring Port Ant.1

802.11a UNII 3 BAND PSD



802.11a_Monitoring Port Ant.2

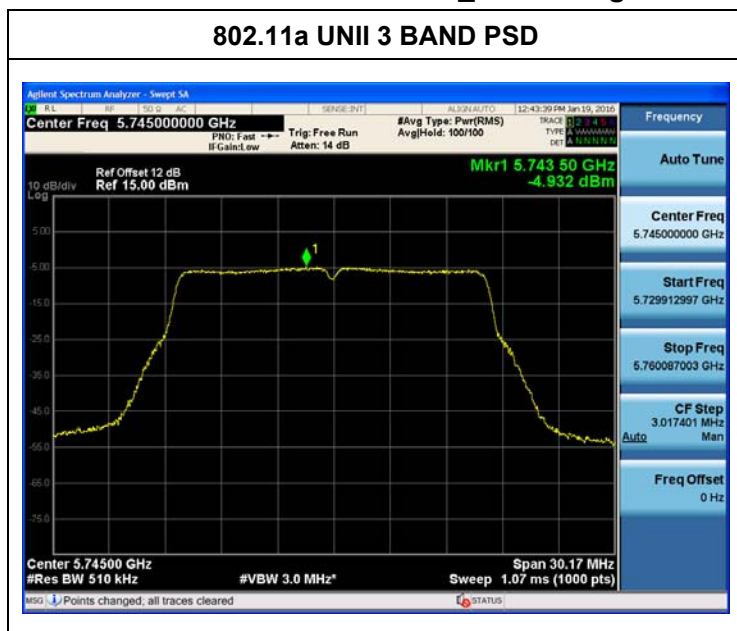
TEST RESULTS

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(dB)	Limit (dBm)	Pass/Fail
5745	149	802.11a	-4.932	0.214	-4.718	24.77	Pass
5785	157		-5.143	0.348	-4.795		Pass
5825	165		-5.007	0.210	-4.797		Pass

TEST Plot for 802.11a_Monitoring Port Ant.2

802.11a UNII 3 BAND PSD



☒ **Sum Data of Ant.0, Ant.1 and Ant.2_Monitoring Port**

☒ **TEST RESULTS**

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result		
			Measured Power Density (dBm)	Limit (dBm)	Pass/Fail
5745	149	802.11a	0.04	24.77	Pass
5785	157		-0.33		Pass
5825	165		-0.15		Pass

Service port

■ 802.11a_Service Port Ant.0

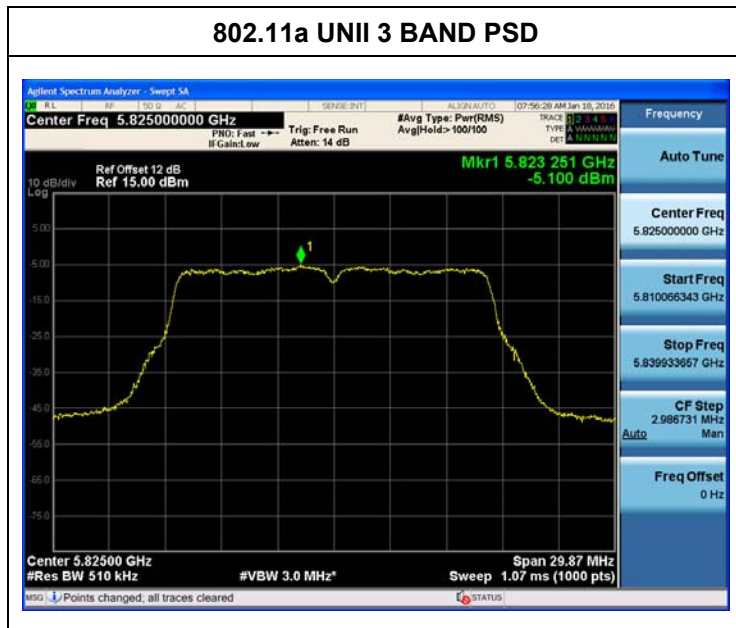
■ TEST RESULTS

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(dB)	Limit (dBm)	Pass/Fail
5745	149	802.11a	-5.832	0.218	-5.614	29.83	Pass
5785	157		-5.240	0.214	-5.026		Pass
5825	165		-5.100	0.348	-4.752		Pass

■ TEST Plot for 802.11a_Service Port Ant.0

802.11a UNII 3 BAND PSD



■ 802.11a_Service Port Ant.1

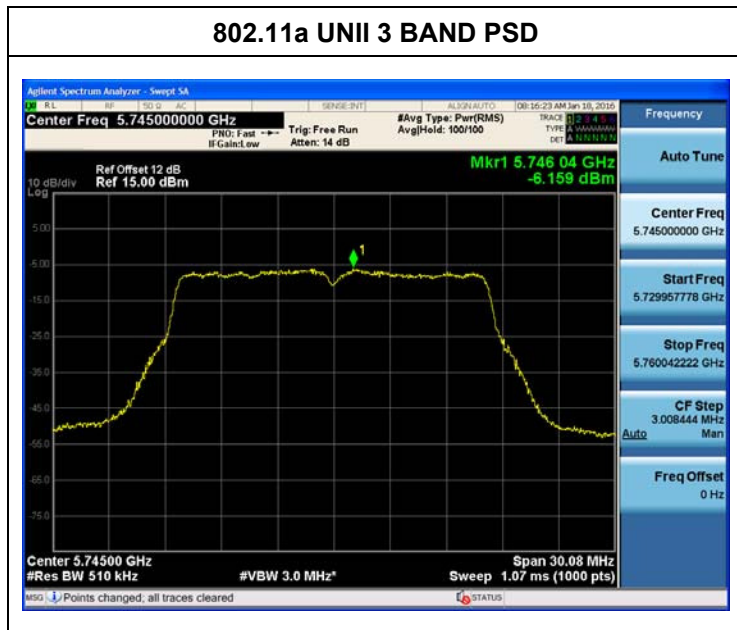
■ TEST RESULTS

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(dB)	Limit (dBm)	Pass/Fail
5745	149	802.11a	-6.159	0.348	-5.811	30.00	Pass
5785	157		-6.627	0.208	-6.419		Pass
5825	165		-7.515	0.348	-7.167		Pass

■ TEST Plot for 802.11a_Service Port Ant.1

802.11a UNII 3 BAND PSD



■ 802.11a_Service Port Ant.2

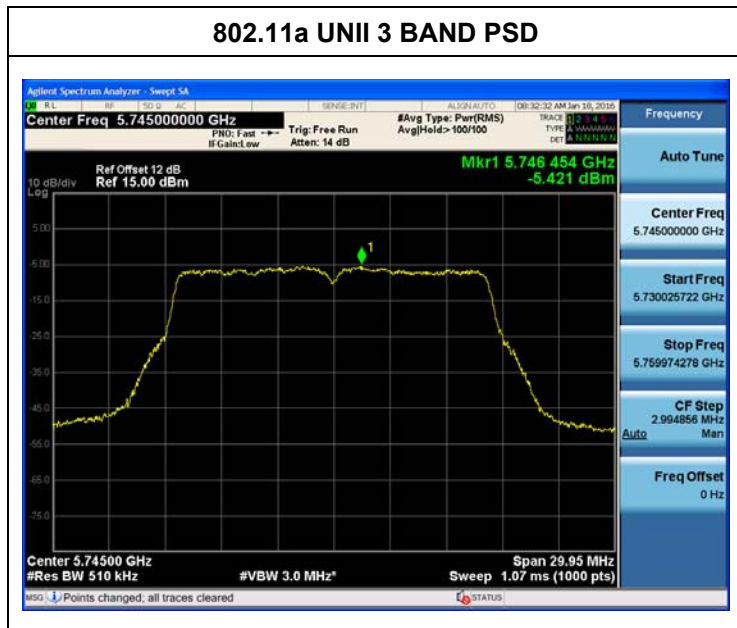
■ TEST RESULTS

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(dB)	Limit (dBm)	Pass/Fail
5745	149	802.11a	-5.421	0.348	-5.073	30.00	Pass
5785	157		-5.452	0.348	-5.104		Pass
5825	165		-5.629	0.348	-5.281		Pass

■ TEST Plot for 802.11a_Service Port Ant.2

802.11a UNII 3 BAND PSD



■ Sum Data of Ant.0, Ant.1 and Ant.2_Service Port

■ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result		
			Measured Power Density (dBm)	Limit (dBm)	Pass/Fail
5745	149	802.11a	-0.72	25.74	Pass
5785	157		-0.70		Pass
5825	165		-0.84		Pass

802.11n_HT20_Service Port Ant.0

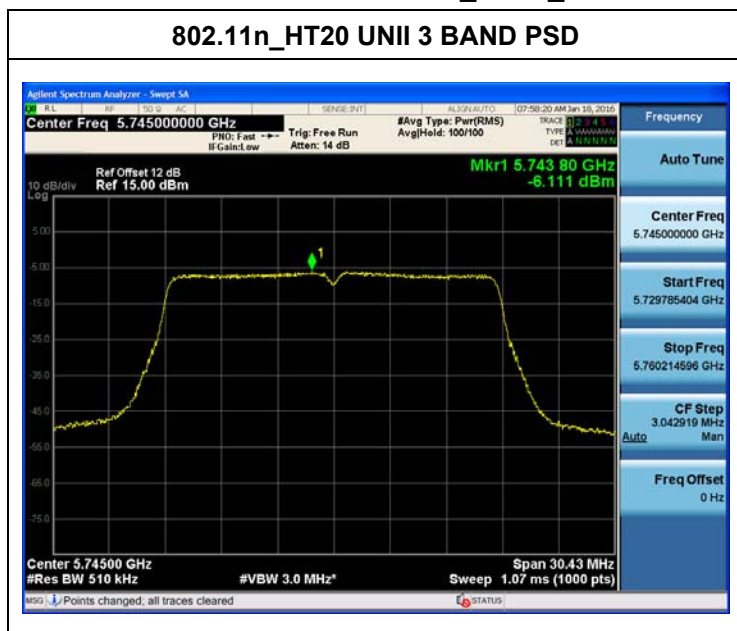
TEST RESULTS

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(dB)	Limit (dBm)	Pass/Fail
5745	149	802.11n _HT20	-6.111	0.217	-5.894	29.83	Pass
5785	157		-6.501	0.400	-6.101		Pass
5825	165		-5.706	0.400	-5.306		Pass

TEST Plot for 802.11n_HT20_Service Port Ant.0

802.11n_HT20 UNII 3 BAND PSD



■ 802.11n_HT20_Service Port Ant.1

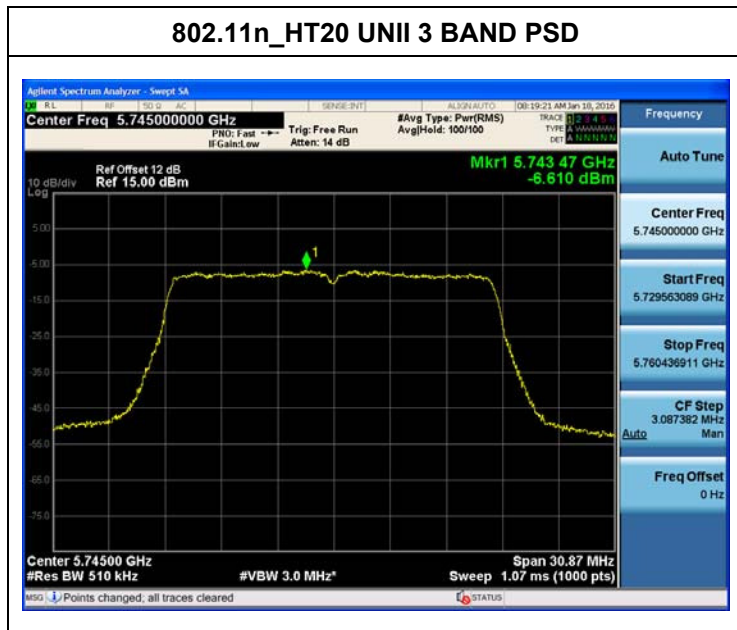
■ TEST RESULTS

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(dB)	Limit (dBm)	Pass/Fail
5745	149	802.11n _HT20	-6.610	0.367	-6.243	30.00	Pass
5785	157		-7.491	0.286	-7.205		Pass
5825	165		-7.269	0.200	-7.069		Pass

■ TEST Plot for 802.11n_HT20_Service Port Ant.1

802.11n_HT20 UNII 3 BAND PSD



802.11n_HT20_Service Port Ant.2

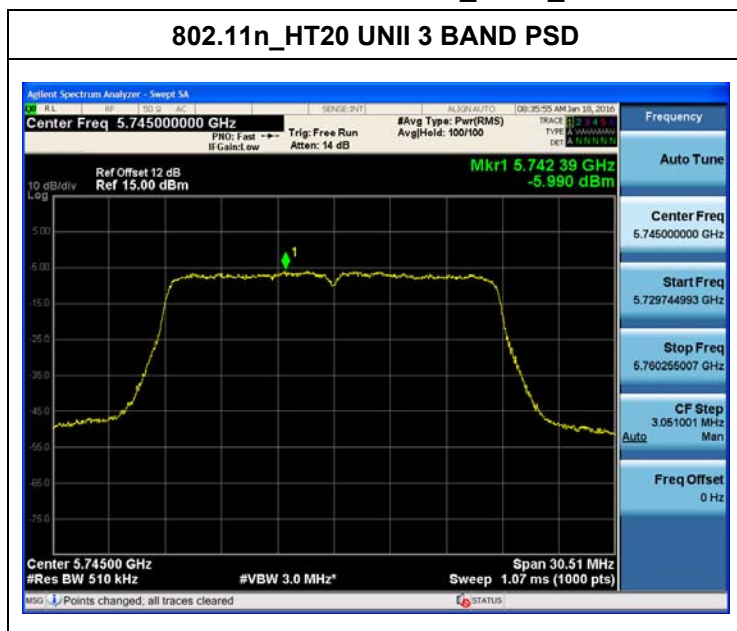
TEST RESULTS

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(dB)	Limit (dBm)	Pass/Fail
5745	149	802.11n _HT20	-5.990	0.367	-5.623	30.00	Pass
5785	157		-6.760	0.217	-6.543		Pass
5825	165		-6.146	0.367	-5.779		Pass

TEST Plot for 802.11n_HT20_Service Port Ant.2

802.11n_HT20 UNII 3 BAND PSD



■ Sum Data of Ant.0, Ant.1 and Ant.2_Service Port

■ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result		
			Measured Power Density (dBm)	Limit (dBm)	Pass/Fail
5745	149	802.11n _HT20	-1.14	25.74	Pass
5785	157		-1.82		Pass
5825	165		-1.22		Pass

802.11ac_VHT20_Service Port Ant.0

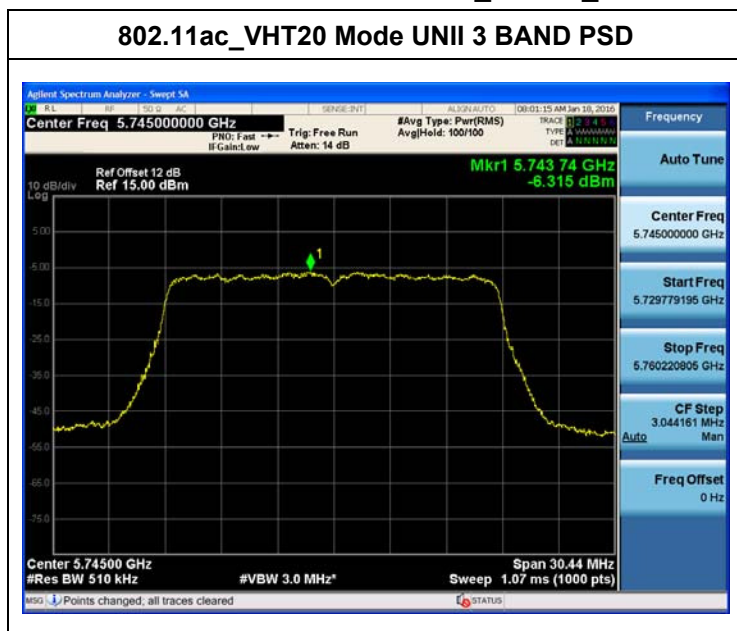
TEST RESULTS

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(dB)	Limit (dBm)	Pass/Fail
5745	149	802.11ac _VHT20	-6.315	0.591	-5.724	29.83	Pass
5785	157		-8.607	0.591	-8.016		Pass
5825	165		-8.758	0.591	-8.167		Pass

TEST Plot for 802.11ac_VHT20_Service Port Ant.0

802.11ac_VHT20 Mode UNII 3 BAND PSD



802.11ac_VHT20_Service Port Ant.1

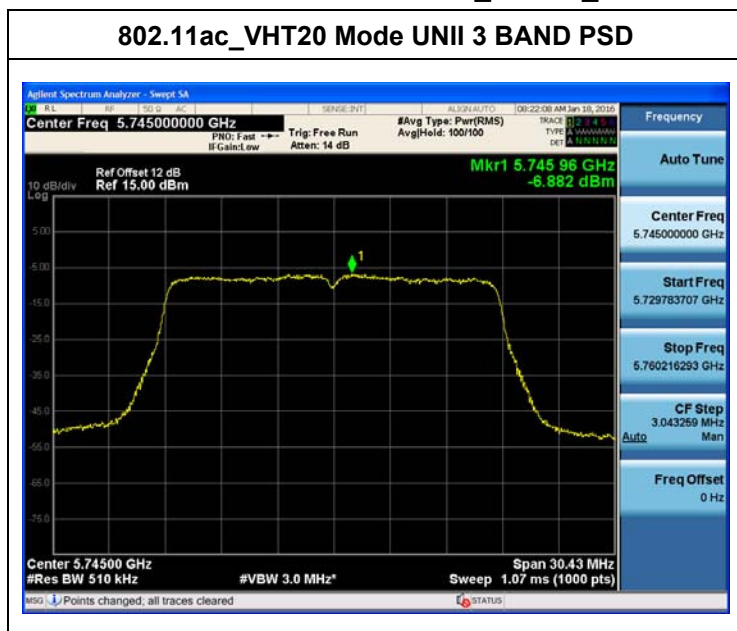
TEST RESULTS

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(dB)	Limit (dBm)	Pass/Fail
5745	149	802.11ac _VHT20	-6.882	0.475	-6.407	30.00	Pass
5785	157		-9.593	0.591	-9.002		Pass
5825	165		-10.284	0.514	-9.770		Pass

TEST Plot for 802.11ac_VHT20_Service Port Ant.1

802.11ac_VHT20 Mode UNII 3 BAND PSD



802.11ac_VHT20_Service Port Ant.2

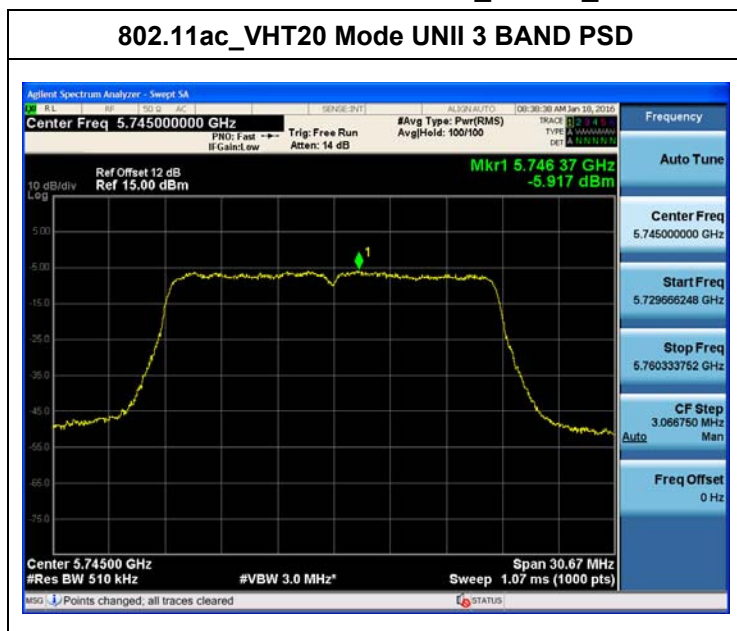
TEST RESULTS

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(dB)	Limit (dBm)	Pass/Fail
5745	149	802.11ac_VHT20	-5.917	0.475	-5.442	30.00	Pass
5785	157		-8.632	0.514	-8.118		Pass
5825	165		-9.381	0.475	-8.906		Pass

TEST Plot for 802.11ac_VHT20_Service Port Ant.2

802.11ac_VHT20 Mode UNII 3 BAND PSD



■ Sum Data of Ant.0, Ant.1 and Ant.2_Service Port

■ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result		
			Measured Power Density (dBm)	Limit (dBm)	Pass/Fail
5745	149	802.11ac _VHT20	-1.07	25.74	Pass
5785	157		-3.59		Pass
5825	165		-4.13		Pass

802.11n_HT40_Service Poart Ant.0

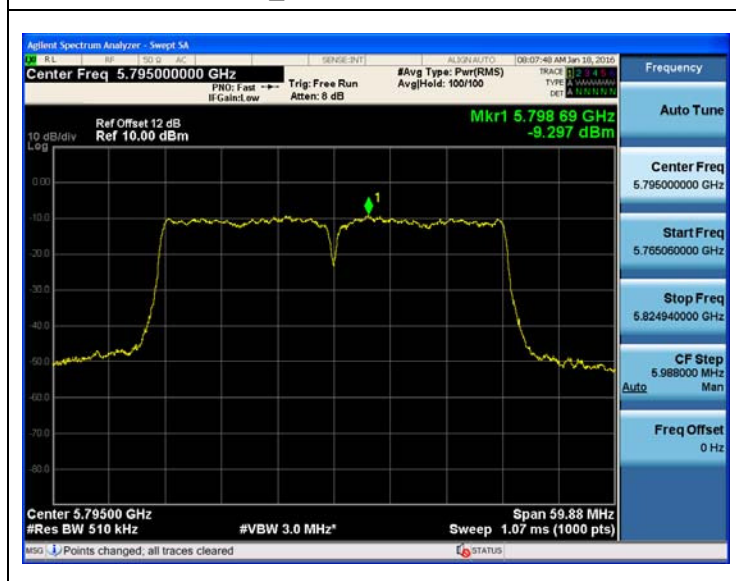
TEST RESULTS

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(dB)	Limit (dBm)	Pass/Fail
5755	151	802.11n	-9.240	0.348	-8.892	29.83	Pass
5795	159	_HT40	-9.297	0.661	-8.636		Pass

TEST Plot for 802.11n_HT40_Service Port Ant.0

802.11n_HT40 UNII 3 BAND PSD



802.11n_HT40_Service Poart Ant.1

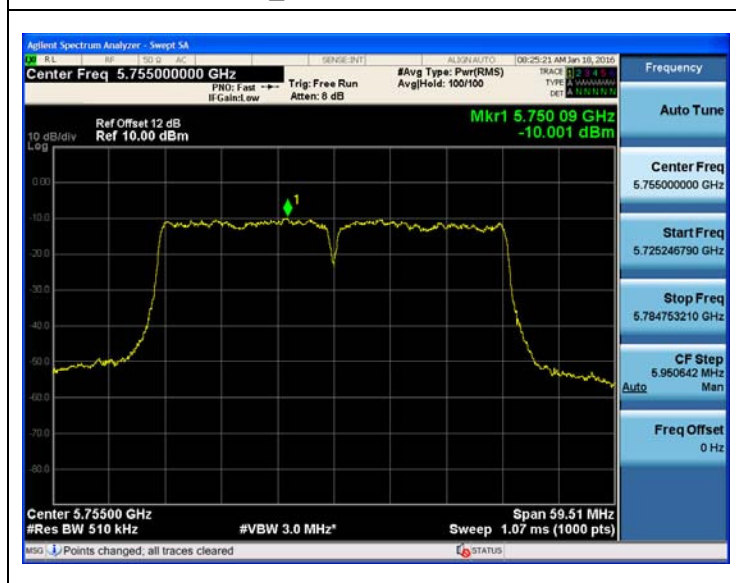
TEST RESULTS

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(dB)	Limit (dBm)	Pass/Fail
5755	151	802.11n	-10.001	0.612	-9.389	30.00	Pass
5795	159	_HT40	-10.571	0.718	-9.853		Pass

TEST Plot for 802.11n_HT40_Service Port Ant.1

802.11n_HT40 UNII 3 BAND PSD



802.11n_HT40_Service Poart Ant.2

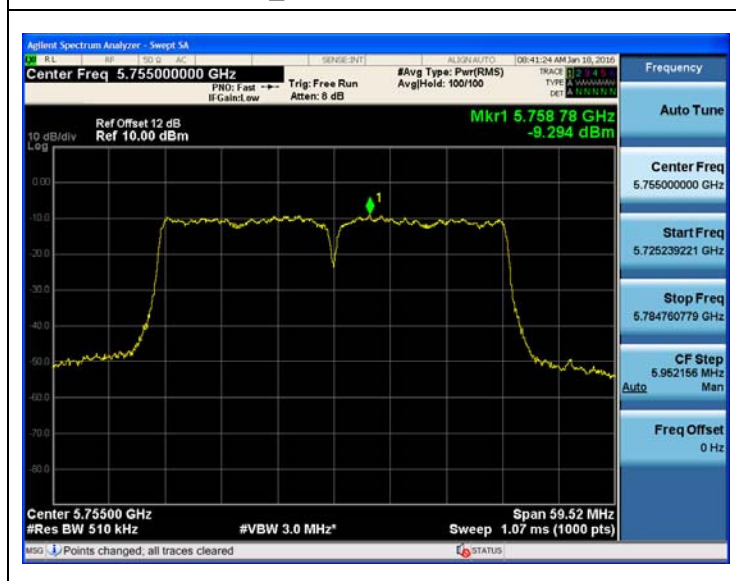
TEST RESULTS

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(dB)	Limit (dBm)	Pass/Fail
5755	151	802.11n	-9.294	0.718	-8.576	30.00	Pass
5795	159	_HT40	-9.571	0.429	-9.142		Pass

TEST Plot for 802.11n_HT40_Service Port Ant.2

802.11n_HT40 UNII 3 BAND PSD



■ Sum Data of Ant.0, Ant.1 and Ant.2_Service Port

■ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result		
			Measured Power Density (dBm)	Limit (dBm)	Pass/Fail
5755	151	802.11n _HT40	-4.17	25.74	Pass
5795	159		-4.41		Pass

802.11ac_VHT40_Service Port Ant.0

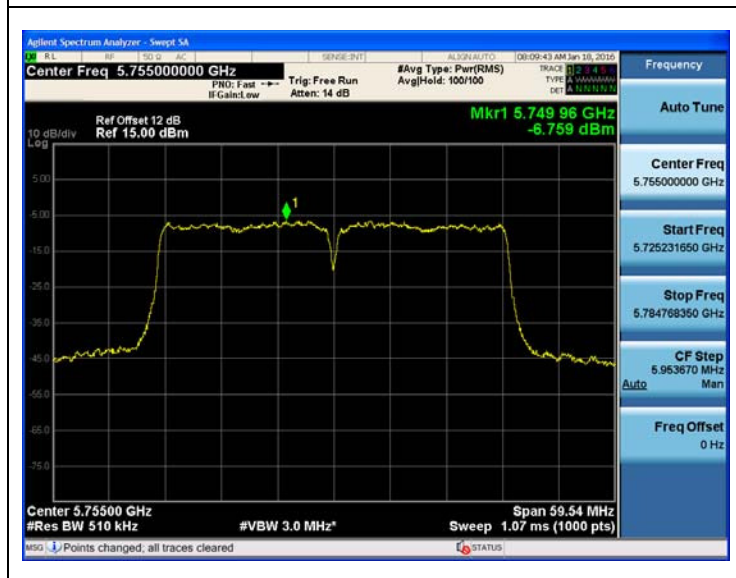
TEST RESULTS

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(dB)	Limit (dBm)	Pass/Fail
5755	151	802.11ac	-6.759	0.773	-5.986	29.83	Pass
5795	159	_VHT40	-8.665	0.835	-7.830		Pass

TEST Plot for 802.11ac_VHT40_Service Port Ant.0

802.11ac_VHT40 UNII 3 BAND PSD



802.11ac_VHT40_Service Port Ant.1

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(dB)	Limit (dBm)	Pass/Fail
5755	151	802.11ac	-7.317	0.969	-6.348	30.00	Pass
5795	159	_VHT40	-9.614	0.969	-8.645		Pass

TEST Plot for 802.11ac_VHT40_Service Port Ant.1

802.11ac_VHT40 UNII 3 BAND PSD



802.11ac_VHT40_Service Port Ant.2

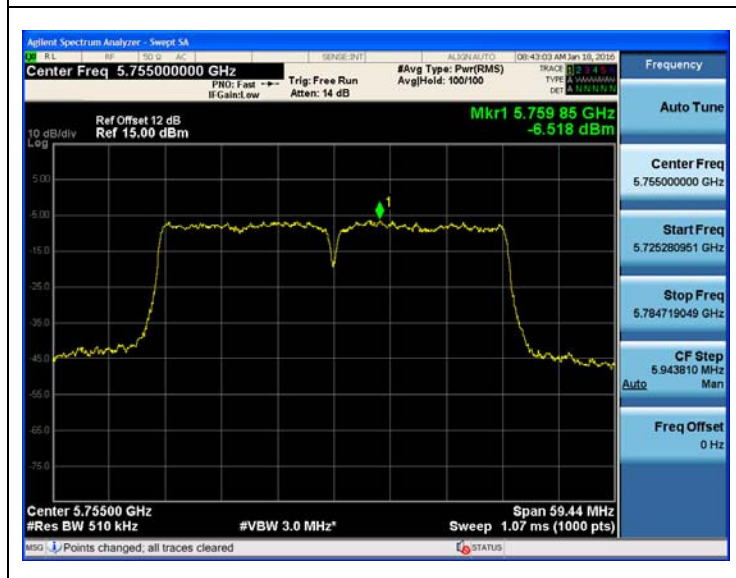
TEST RESULTS

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(dB)	Limit (dBm)	Pass/Fail
5755	151	802.11ac	-6.518	0.773	-5.745	30.00	Pass
5795	159	_VHT40	-8.275	0.773	-7.502		Pass

TEST Plot for 802.11ac_VHT40_Service Port Ant.2

802.11ac_VHT40 UNII 3 BAND PSD



■ Sum Data of Ant.0, Ant.1 and Ant.2_Service Port

■ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result		
			Measured Power Density (dBm)	Limit (dBm)	Pass/Fail
5755	151	802.11ac _VHT40	-1.25	25.74	Pass
5795	159		-3.20		Pass

802.11ac_VHT80_Service Port Ant.0

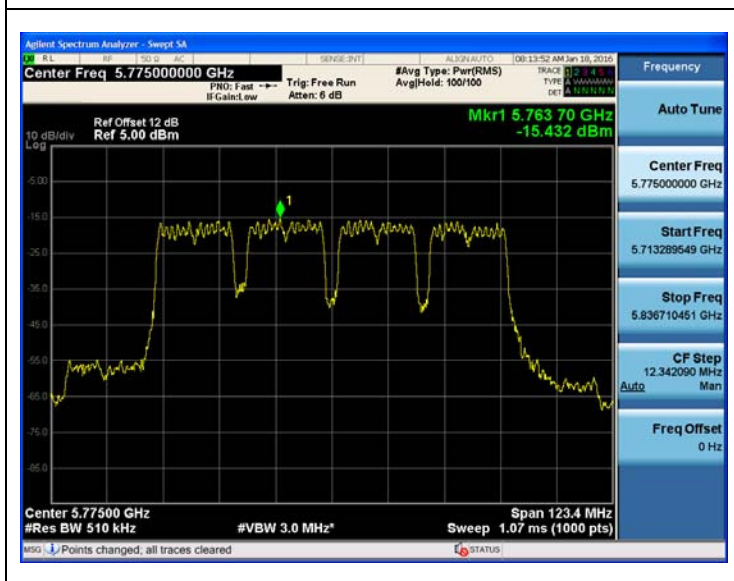
TEST RESULTS

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(dB)	Limit (dBm)	Pass/Fail
5775	155	802.11ac_VHT80	-15.432	1.427	-14.005	29.83	Pass

TEST Plot for 802.11ac_VHT80_Service Port Ant.0

802.11ac_VHT80 UNII 3 BAND PSD



802.11ac_VHT80_Service Port Ant.1

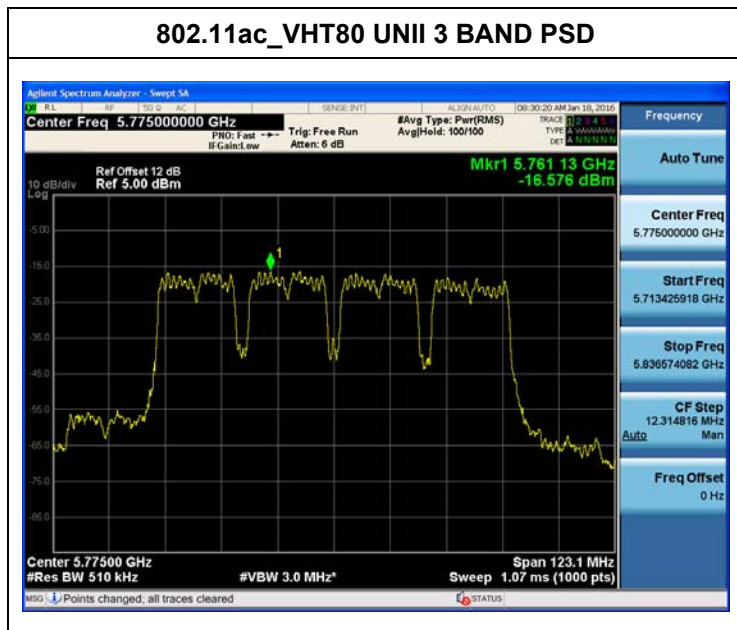
TEST RESULTS

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
5775	155	802.11ac_VHT80	-16.576	0.753	-15.823	30.00	Pass

TEST Plot for 802.11ac_VHT80_Service Port Ant.1

802.11ac_VHT80 UNII 3 BAND PSD



802.11ac_VHT80_Service Port Ant.2

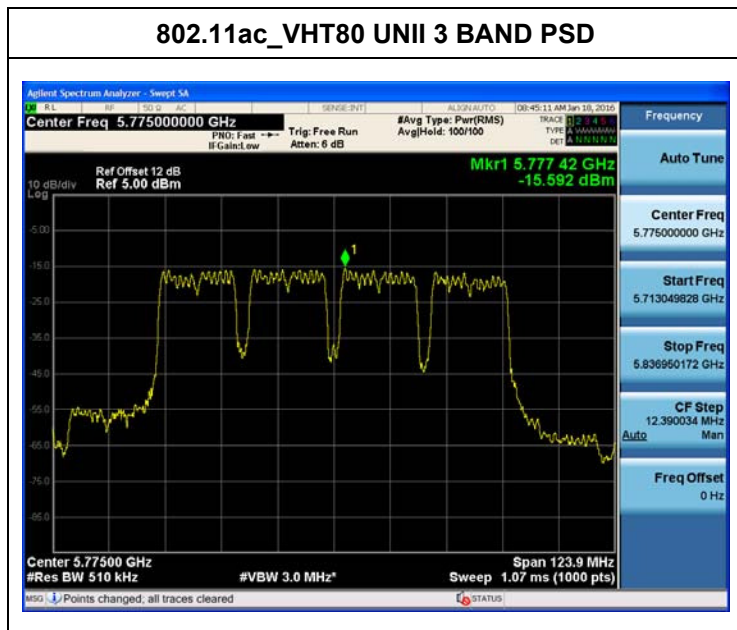
TEST RESULTS

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
5775	155	802.11ac_VHT80	-15.592	1.427	-14.165	30.00	Pass

TEST Plot for 802.11ac_VHT80_Service Port Ant.2

802.11ac_VHT80 UNII 3 BAND PSD



■ Sum Data of Ant.0, Ant.1 and Ant.2_Service Port

■ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result		
			Measured Power Density (dBm)	Limit (dBm)	Pass/Fail
5775	155	802.11ac _VHT80	-9.82	25.74	Pass

8.5 FREQUENCY STABILITY.

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

Monitoring Port

OPERATING BAND:	UNII Band 3
OPERATING FREQUENCY:	5,745,000,000 Hz
CHANNEL:	149
REFERENCE VOLTAGE:	110 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100	110.00	+20(Ref)	5744940.39	-59.61
100		-30	5744921.91	-78.09
100		-20	5744925.68	-74.32
100		-10	5744929.94	-70.06
100		0	5744932.48	-67.52
100		+10	5744937.53	-62.47
100		+30	5744944.88	-55.12
100		+40	5744948.33	-51.67
100		+50	5744951.34	-48.66
115	126.50	+20	5744946.51	-53.49
85	93.50	+20	5744942.06	-57.94

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.

Service Port

OPERATING BAND: UNII Band 3
 OPERATING FREQUENCY: 5,745,000,000 Hz
 CHANNEL: 149
 REFERENCE VOLTAGE: 110 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100	110.00	+20(Ref)	5744933.11	-66.89
100		-30	5744908.55	-91.45
100		-20	5744917.41	-82.59
100		-10	5744922.81	-77.19
100		0	5744927.19	-72.81
100		+10	5744932.91	-67.09
100		+30	5744941.36	-58.64
100		+40	5744948.69	-51.31
100		+50	5744954.82	-45.18
115	126.50	+20	5744935.85	-64.15
85	93.50	+20	5744937.22	-62.78

Note:

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

40 MHz BW

OPERATING BAND: UNII Band 3
 OPERATING FREQUENCY: 5,755,000,000 Hz
 CHANNEL: 151
 REFERENCE VOLTAGE: 110 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100	110	+20(Ref)	5754955.00	-45.00
100		-30	5754928.71	-71.29
100		-20	5754933.62	-66.38
100		-10	5754938.53	-61.47
100		0	5754945.41	-54.59
100		+10	5754951.84	-48.16
100		+30	5754959.69	-40.31
100		+40	5754964.51	-35.49
100		+50	5754971.03	-28.97
115	126.50	+20	5754956.43	-43.57
85	93.50	+20	5754959.92	-40.08

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.

80 MHz BW

OPERATING BAND:	UNII Band 3
OPERATING FREQUENCY:	5,775,000,000 Hz
CHANNEL:	155
REFERENCE VOLTAGE:	110 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100	110	+20(Ref)	5774916.00	-84.00
100		-30	5774889.74	-110.26
100		-20	5774901.74	-98.26
100		-10	5774908.53	-91.47
100		0	5774909.15	-90.85
100		+10	5774912.36	-87.64
100		+30	5774920.85	-79.15
100		+40	5774929.84	-70.16
100		+50	5774935.92	-64.08
115	126.50	+20	5774921.37	-78.63
85	93.50	+20	5774923.18	-76.82

Note:

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

8.6 RADIATED MEASUREMENT

8.6.1 RADIATED SPURIOUS EMISSIONS.

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

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

■ §15.407, KDB 789033 D02

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

Especially, 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.

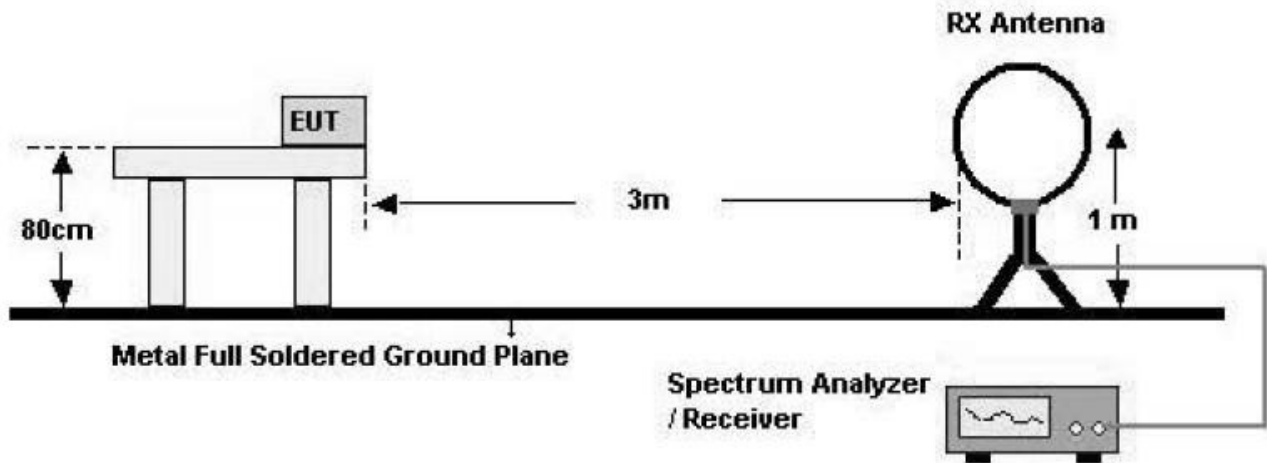
☒ Operating mode

Port	Mode	Operating Mode	Operating Ant.
Monitoring	802.11a	MIMO	Ant 0 & 1 & 2
Service	802.11a,n,ac	SISO	Ant 0
			Ant 1
			Ant 2
		MIMO	Ant 0 & 1
			Ant 0 & 1 & 2

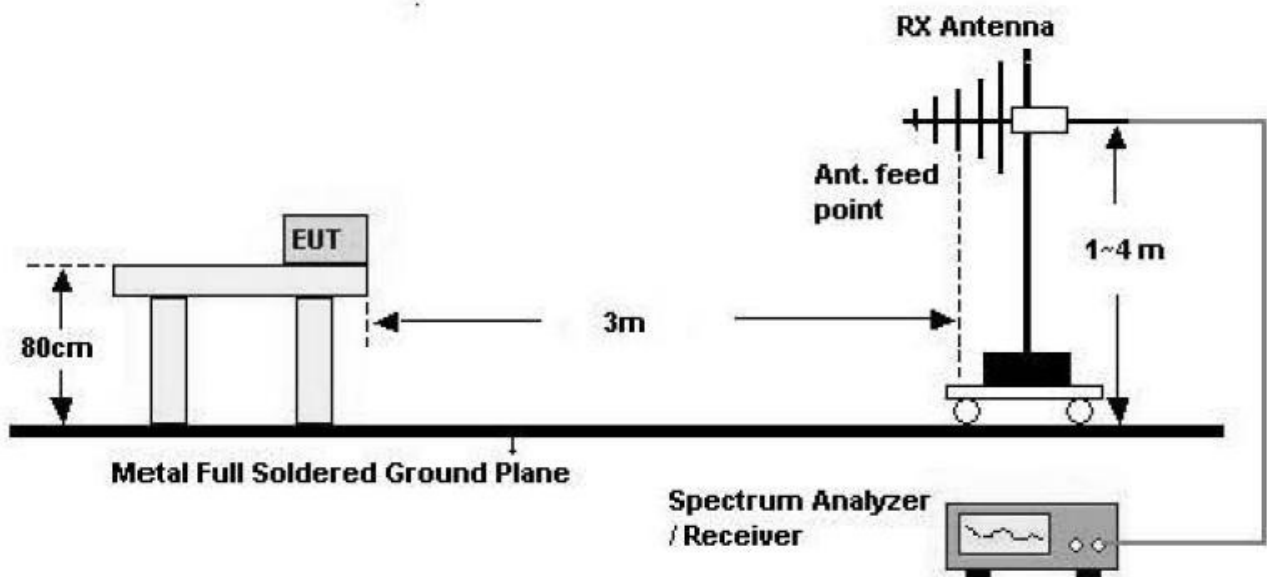
Note: In case of radiation test, we have done all test case. Worst case is Ant 0 & 1 & 2 for monitoring and Ant 0 & 1 & 2 for service. So, we attached the results of only worst case.

Test Configuration

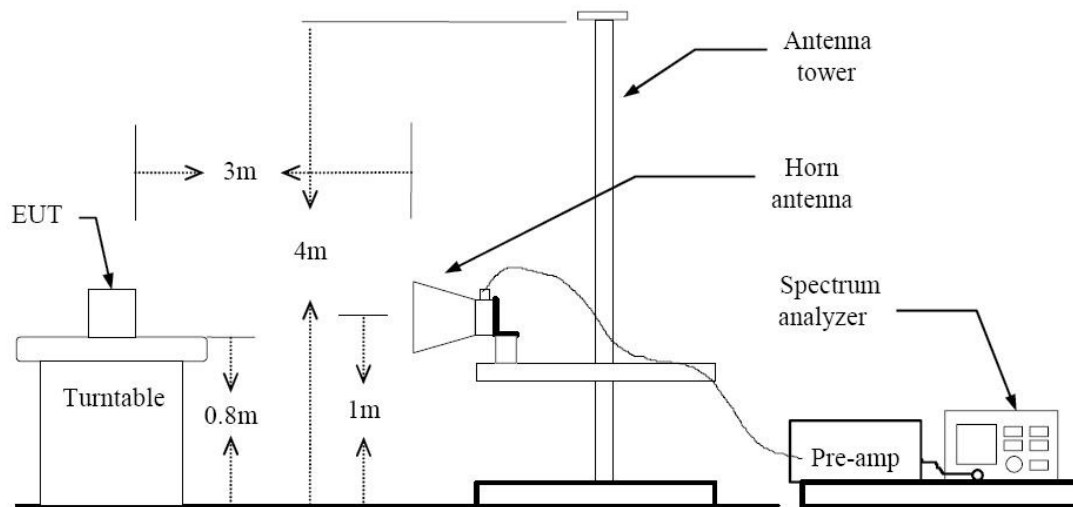
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



TEST PROCEDURE USED

ANSI C63.10:2013

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

Method G)6)d) in KDB 789033 v01r02 (Average)

. Spectrum setting:

- Peak.

1. RBW = 1 MHz

2. VBW $\geq$ 3 MHz

3. Detector = Peak

4. Sweep Time = auto

5. Trace mode = max hold

6. Allow sweeps to continue until the trace stabilizes.

7. Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately $1/x$, where x is the duty cycle.

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

1. RBW = 1 MHz

2. VBW

2.1. If the EUT is configured to transmit with duty cycle $\geq$ 98 percent, set $VBW \leq RBW/100$ (i.e., 10 kHz) but not less than 10 Hz.

2.2. If the EUT duty cycle is $<$ 98 percent, set $VBW \geq 1/T$, where T is the minimum transmission duration.

3. The analyzer is set to linear detector mode.

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

Monitoring Port

Mode	Worst Data rate (Mbps)	T_{on} (ms)	T_{total} (ms)	Duty Cycle (%)	VBW(1/T) (Hz)	The actual setting value of VBW (Hz)
a	6	2.065	2.17	95.1613	484	1000

Service Port

Mode	Worst Data rate (Mbps)	T_{on} (ms)	T_{total} (ms)	Duty Cycle (%)	VBW(1/T) (Hz)	The actual setting value of VBW (Hz)
a	6	2.064	2.17	95.1152	484	1000
n_HT20	MCS 0	1.913	2.011	95.1268	523	1000
n_HT40	MCS 0	0.944	1.042	90.595	1059	3000
ac_VHT20	MCS 0	1.93	1.96	98.4694	518	1000
ac_VHT40	MCS 0	0.954	0.981	97.2477	1048	3000
ac_VHT80	MCS 0	0.46	0.489	94.0695	2173	3000

TEST RESULTS

9 kHz – 30MHz

Operation Mode: Normal Mode

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

Notes:

1. Measuring frequencies from 9 kHz to the 30MHz.
2. The reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
3. 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	$\text{dB}\mu\text{V}$	dB /m	dB	(H/V)	$\text{dB}\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$	dB
No Critical peaks found							

Notes:

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

Above 1 GHz

Monitoring Port (MIMO)

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. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	58.24	-1.70	V	56.54	73.98	17.44	PK
11490	44.51	-1.70	V	42.81	53.98	11.17	AV
17235	58.26	2.52	V	60.78	68.20	7.42	PK
11490	58.64	-1.70	H	56.94	73.98	17.04	PK
11490	44.75	-1.70	H	43.05	53.98	10.93	AV
17235	58.87	2.52	H	61.39	68.20	6.81	PK

Notes:

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

Band :	UNII 3
Operation Mode:	802.11 a
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	57.86	-2.08	V	55.78	73.98	18.20	PK
11570	44.10	-2.08	V	42.02	53.98	11.96	AV
17355	58.11	2.67	V	60.78	68.20	7.42	PK
11570	58.12	-2.08	H	56.04	73.98	17.94	PK
11570	44.33	-2.08	H	42.25	53.98	11.73	AV
17355	58.19	2.67	H	60.86	68.20	7.34	PK

Notes:

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

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

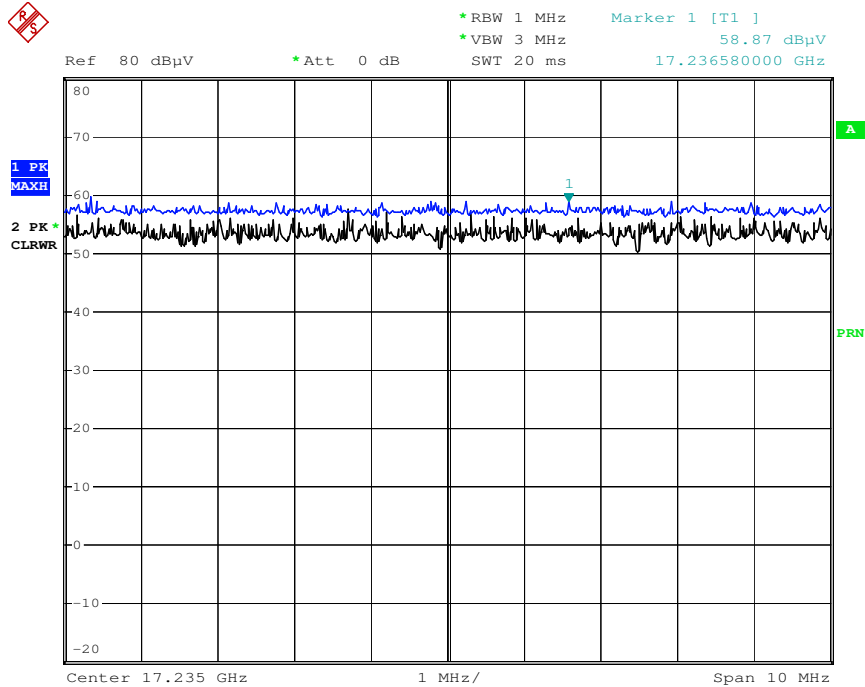
Frequency [MHz]	Reading [dBuV]	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	58.91	-2.36	V	56.55	73.98	17.43	PK
11650	44.72	-2.36	V	42.36	53.98	11.62	AV
17475	59.74	3.81	V	63.55	68.20	4.65	PK
11650	59.42	-2.36	H	57.06	73.98	16.92	PK
11650	44.89	-2.36	H	42.53	53.98	11.45	AV
17475	60.35	3.81	H	64.16	68.20	4.04	PK

Notes:

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

■ **RESULT PLOTS**

Radiated Spurious Emissions plot –Peak Reading (802.11a, Ch.149 3rd Harmonic)



Date: 22.JAN.2016 02:48:45

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

Service Port(MIMO)

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. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	58.24	-1.70	V	56.54	73.98	17.44	PK
11490	44.41	-1.70	V	42.71	53.98	11.27	AV
17235	58.73	2.52	V	61.25	68.20	6.95	PK
11490	58.19	-1.70	H	56.49	73.98	17.49	PK
11490	44.29	-1.70	H	42.59	53.98	11.39	AV
17235	58.49	2.52	H	61.01	68.20	7.19	PK

Notes:

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

Band :	UNII 3
Operation Mode:	802.11 a
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	58.31	-2.08	V	56.23	73.98	17.75	PK
11570	44.38	-2.08	V	42.30	53.98	11.68	AV
17355	58.19	2.67	V	60.86	68.20	7.34	PK
11570	58.19	-2.08	H	56.11	73.98	17.87	PK
11570	44.21	-2.08	H	42.13	53.98	11.85	AV
17355	58.13	2.67	H	60.80	68.20	7.40	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 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. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	58.57	-2.36	V	56.21	73.98	17.77	PK
11650	44.58	-2.36	V	42.22	53.98	11.76	AV
17475	59.24	3.81	V	63.05	68.20	5.15	PK
11650	58.19	-2.36	H	55.83	73.98	18.15	PK
11650	44.29	-2.36	H	41.93	53.98	12.05	AV
17475	58.78	3.81	H	62.59	68.20	5.61	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	58.14	-1.70	V	56.44	73.98	17.54	PK
11490	44.56	-1.70	V	42.86	53.98	11.12	AV
17235	59.29	2.52	V	61.81	68.20	6.39	PK
11490	58.03	-1.70	H	56.33	73.98	17.65	PK
11490	44.36	-1.70	H	42.66	53.98	11.32	AV
17235	58.93	2.52	H	61.45	68.20	6.75	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	58.29	-2.08	V	56.21	73.98	17.77	PK
11570	44.42	-2.08	V	42.34	53.98	11.64	AV
17355	58.55	2.67	V	61.22	68.20	6.98	PK
11570	58.16	-2.08	H	56.08	73.98	17.90	PK
11570	44.22	-2.08	H	42.14	53.98	11.84	AV
17355	58.42	2.67	H	61.09	68.20	7.11	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	58.99	-2.36	V	56.63	73.98	17.35	PK
11650	44.79	-2.36	V	42.43	53.98	11.55	AV
17475	59.37	3.81	V	63.18	68.20	5.02	PK
11650	58.73	-2.36	H	56.37	73.98	17.61	PK
11650	44.45	-2.36	H	42.09	53.98	11.89	AV
17475	59.16	3.81	H	62.97	68.20	5.23	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 ac_VHT20
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	58.42	-1.70	V	56.72	73.98	17.26	PK
11490	44.65	-1.70	V	42.95	53.98	11.03	AV
17235	58.48	2.52	V	61.00	68.20	7.20	PK
11490	58.21	-1.70	H	56.51	73.98	17.47	PK
11490	44.52	-1.70	H	42.82	53.98	11.16	AV
17235	58.35	2.52	H	60.87	68.20	7.33	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_VHT20. Worst case is MCS0 in 802.11ac_VHT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11570	58.66	-2.08	V	56.58	73.98	17.40	PK
11570	44.29	-2.08	V	42.21	53.98	11.77	AV
17355	58.12	2.67	V	60.79	68.20	7.41	PK
11570	58.46	-2.08	H	56.38	73.98	17.60	PK
11570	44.19	-2.08	H	42.11	53.98	11.87	AV
17355	58.10	2.67	H	60.77	68.20	7.43	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_VHT20. Worst case is MCS0 in 802.11ac_VHT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	58.68	-2.36	V	56.32	73.98	17.66	PK
11650	44.82	-2.36	V	42.46	53.98	11.52	AV
17475	59.26	3.81	V	63.07	68.20	5.13	PK
11650	58.49	-2.36	H	56.13	73.98	17.85	PK
11650	44.71	-2.36	H	42.35	53.98	11.63	AV
17475	59.10	3.81	H	62.91	68.20	5.29	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_VHT20. Worst case is MCS0 in 802.11ac_VHT20.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11510	58.43	-1.79	V	56.64	73.98	17.34	PK
11510	44.29	-1.79	V	42.50	53.98	11.48	AV
17265	58.61	3.16	V	61.77	68.20	6.43	PK
11510	58.34	-1.79	H	56.55	73.98	17.43	PK
11510	44.16	-1.79	H	42.37	53.98	11.61	AV
17265	58.53	3.16	H	61.69	68.20	6.51	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_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.

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. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11590	58.42	-2.20	V	56.22	73.98	17.76	PK
11590	44.39	-2.20	V	42.19	53.98	11.79	AV
17385	58.52	3.26	V	61.78	68.20	6.42	PK
11590	58.40	-2.20	H	56.20	73.98	17.78	PK
11590	44.21	-2.20	H	42.01	53.98	11.97	AV
17385	58.46	3.26	H	61.72	68.20	6.48	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_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.

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11510	57.75	-1.79	V	55.96	73.98	18.02	PK
11510	44.88	-1.79	V	43.09	53.98	10.89	AV
17265	58.93	3.16	V	62.09	68.20	6.11	PK
11510	57.69	-1.79	H	55.90	73.98	18.08	PK
11510	44.75	-1.79	H	42.96	53.98	11.02	AV
17265	58.78	3.16	H	61.94	68.20	6.26	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_VHT40. Worst case is MCS0 in 802.11ac_VHT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11590	58.69	-2.20	V	56.49	73.98	17.49	PK
11590	44.95	-2.20	V	42.75	53.98	11.23	AV
17385	58.15	3.26	V	61.41	68.20	6.79	PK
11590	58.58	-2.20	H	56.38	73.98	17.60	PK
11590	44.75	-2.20	H	42.55	53.98	11.43	AV
17385	58.12	3.26	H	61.38	68.20	6.82	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_VHT40. Worst case is MCS0 in 802.11ac_VHT40.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

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

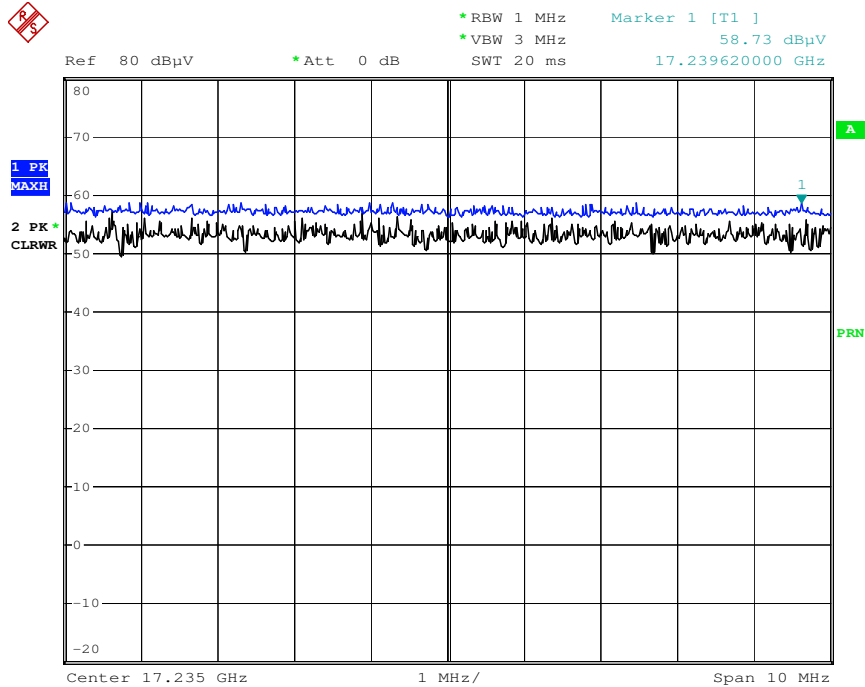
Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11550	58.08	-1.78	V	56.30	73.98	17.68	PK
11550	44.07	-1.78	V	42.29	53.98	11.69	AV
17325	58.21	2.95	V	61.16	68.20	7.04	PK
11550	57.68	-1.78	H	55.90	73.98	18.08	PK
11550	44.01	-1.78	H	42.23	53.98	11.75	AV
17325	58.10	2.95	H	61.05	68.20	7.15	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_VHT80. Worst case is MCS0 in 802.11ac_VHT80.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

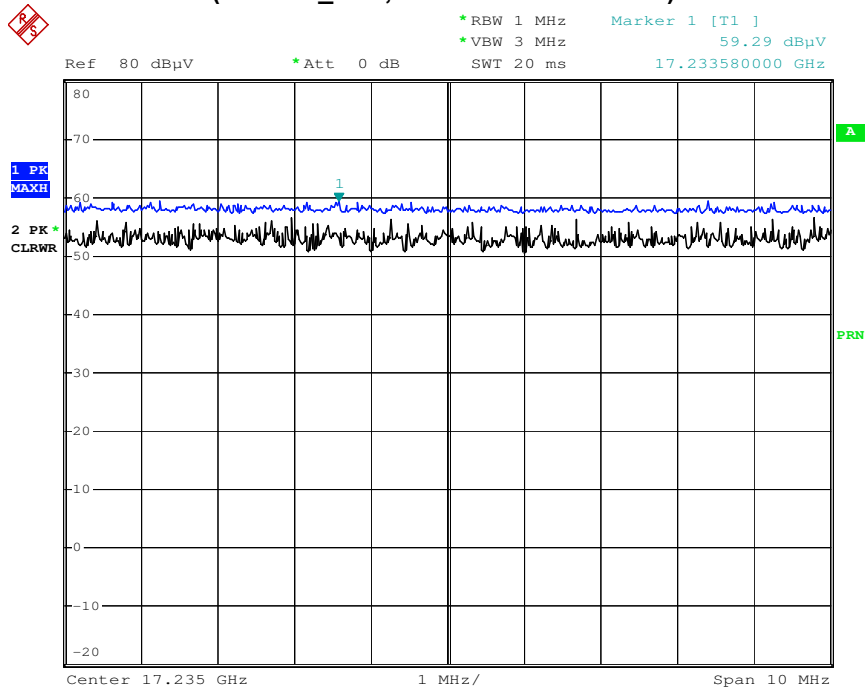
■ **RESULT PLOTS_Service Port**

Radiated Spurious Emissions plot –Peak Reading (802.11a_20M, Ch.149 3rd Harmonic)



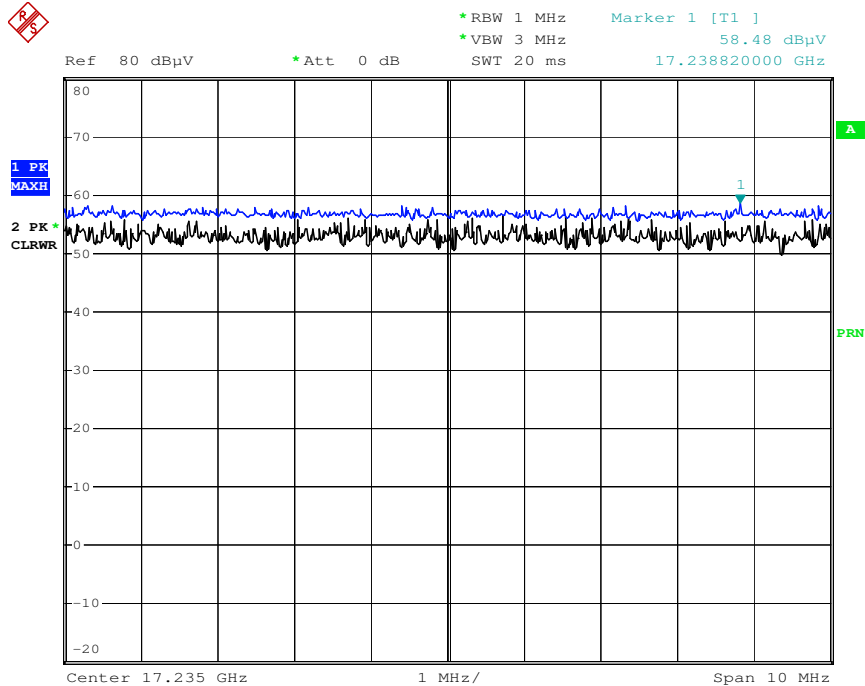
Date: 18.JAN.2016 10:58:42

**Radiated Spurious Emissions plot – Peak Reading
(802.11n_20M, Ch.149 3rd Harmonic)**



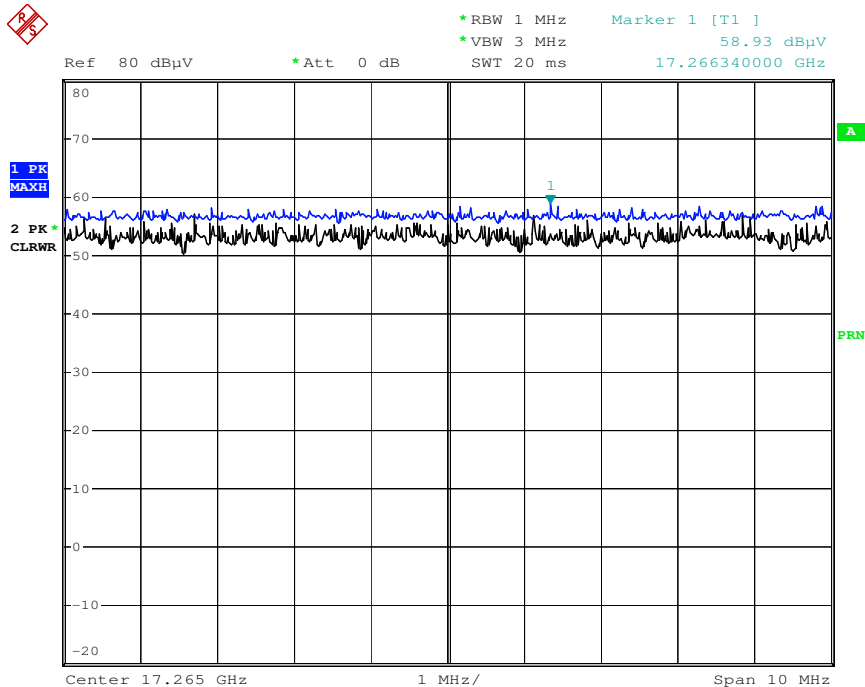
Date: 18.JAN.2016 11:05:27

Radiated Spurious Emissions plot – Peak Reading (802.11ac_20M, Ch.149 3rd Harmonic)



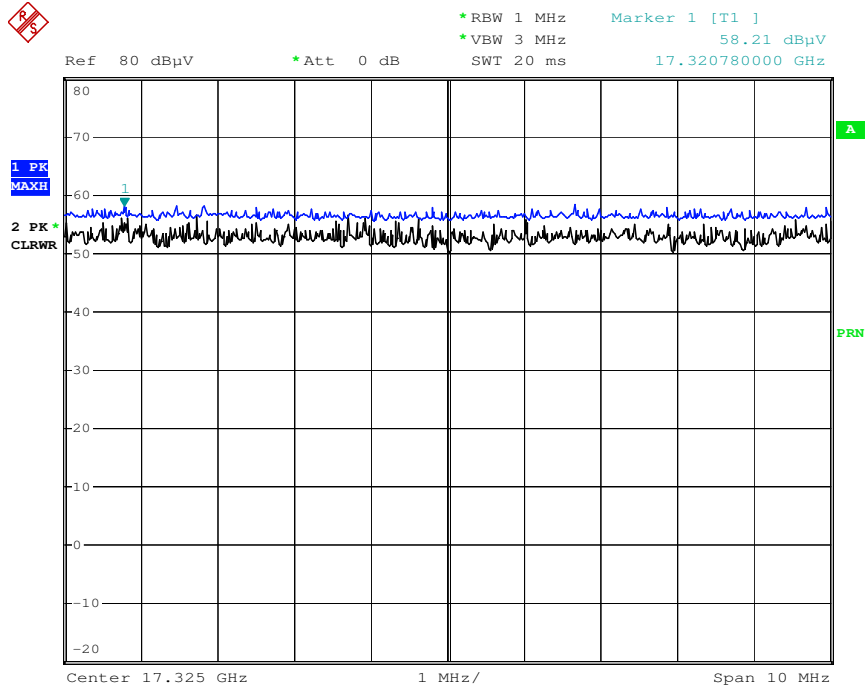
Date: 18.JAN.2016 11:40:55

Radiated Spurious Emissions plot –Peak Reading (802.11ac_40M, Ch.151 3rd Harmonic)



Date: 19.JAN.2016 09:00:46

Radiated Spurious Emissions plot –Peak Reading (802.11ac_80M, Ch.155 3rd Harmonic)



Date: 18.JAN.2016 11:51:26

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

8.6.2 RADIATED RESTRICTED BAND EDGE MEASUREMENTS

Test Requirements and limit, §15.407(b) §15.205, §15.209

Monitoring port (MIMO)

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	64.25	4.08	H	68.33	78.20	9.87	PK
5725	64.18	4.08	V	68.26	78.20	9.94	PK
5715	54.36	3.99	H	58.35	68.20	9.86	PK
5715	54.22	3.99	V	58.21	68.20	10.00	PK

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

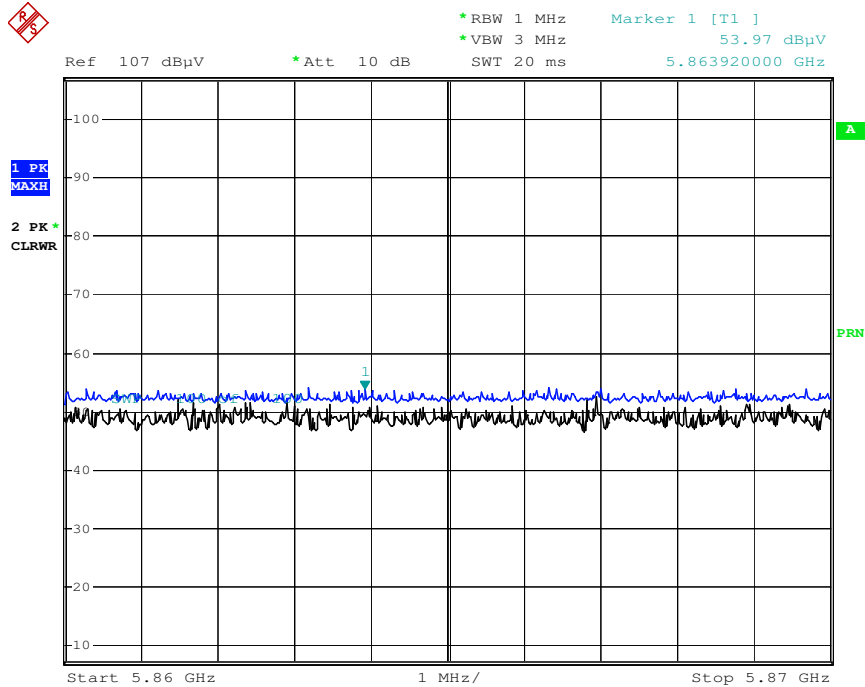
Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5850	54.41	4.40	H	58.81	78.20	19.39	PK
5850	54.12	4.40	V	58.52	78.20	19.68	PK
5860	53.97	4.42	H	58.39	68.20	9.81	PK
5860	53.79	4.42	V	58.21	68.20	9.99	PK

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)

■ **RESULT PLOTS**

Radiated Restricted Band Edges plot – Peak Reading (802.11a_20M, Ch.165)



Date: 21.JAN.2016 12:17:47

Service Port (MIMO)

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	54.64	4.40	H	59.04	78.20	19.16	PK
5850	54.73	4.40	V	59.13	78.20	19.07	PK
5860	54.19	4.42	H	58.61	68.20	9.59	PK
5860	54.53	4.42	V	58.95	68.20	9.25	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	57.93	4.40	H	62.33	78.20	15.87	PK
5850	58.58	4.40	V	62.98	78.20	15.22	PK
5860	54.16	4.42	H	58.58	68.20	9.62	PK
5860	54.48	4.42	V	58.90	68.20	9.30	PK

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

Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5850	54.59	4.40	H	58.99	78.20	19.21	PK
5850	54.74	4.40	V	59.14	78.20	19.06	AV
5860	53.86	4.42	H	58.28	68.20	9.92	PK
5860	54.01	4.42	V	58.43	68.20	9.77	AV

Band : UNII 3
 Operation Mode: 802.11 n_HT40
 Transfer MCS Index: 0
 Operating Frequency 5795 MHz
 Channel No. 159 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	56.88	4.40	H	61.28	78.20	16.92	PK
5850	57.04	4.40	V	61.44	78.20	16.76	PK
5860	58.42	4.42	H	62.84	68.20	5.36	PK
5860	58.51	4.42	V	62.93	68.20	5.27	PK

Band : UNII 3
 Operation Mode: 802.11 ac_VHT40
 Transfer MCS Index: 0
 Operating Frequency 5795 MHz
 Channel No. 159 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	57.55	4.40	H	61.95	78.20	16.25	PK
5850	58.07	4.40	V	62.47	78.20	15.73	AV
5860	58.84	4.42	H	63.26	68.20	4.94	PK
5860	59.51	4.42	V	63.93	68.20	4.27	AV

Band : UNII 3
 Operation Mode: 802.11 ac_VHT80
 Transfer MCS Index: 0
 Operating Frequency 5755 MHz
 Channel No. 155 Ch

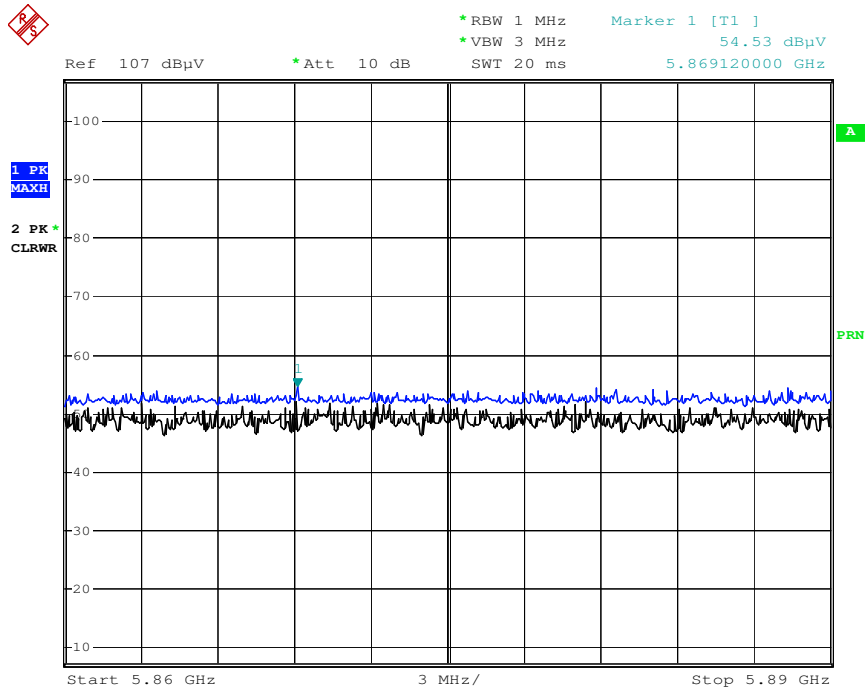
Frequency [MHz]	Reading DBuV	AN.+CL+AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5850	59.71	4.40	H	64.11	78.20	14.09	PK
5850	60.75	4.40	V	65.15	78.20	13.05	PK
5860	58.36	4.42	H	62.78	68.20	5.42	PK
5860	58.92	4.42	V	63.34	68.20	4.86	PK

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. WEA403i use the straddle channels(144, 142, 138). So, we were not performed the band edge test at 5725 MHz.

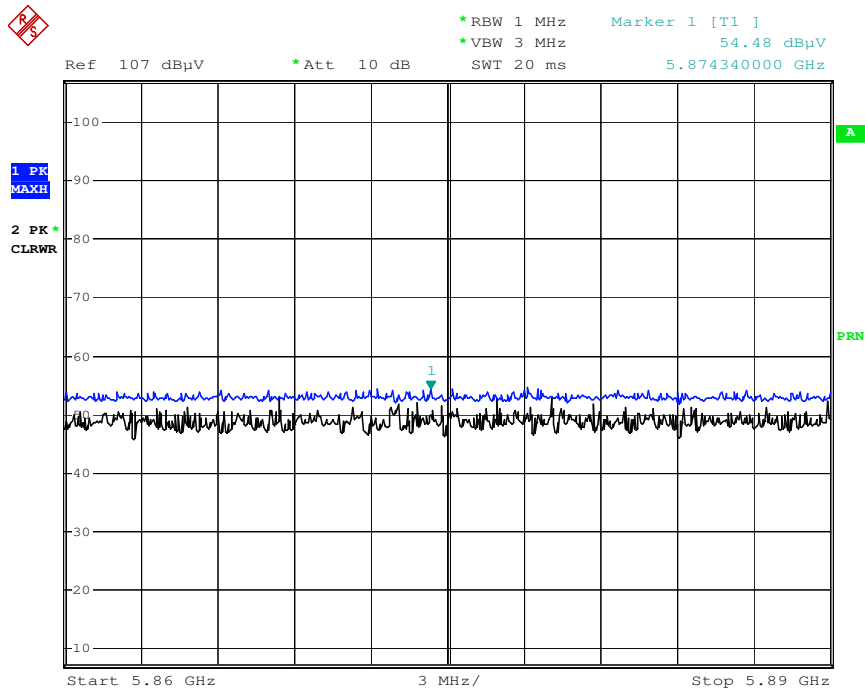
■ **RESULT PLOTS**

Radiated Restricted Band Edges plot –Peak Reading (802.11a_20M, Ch.165)



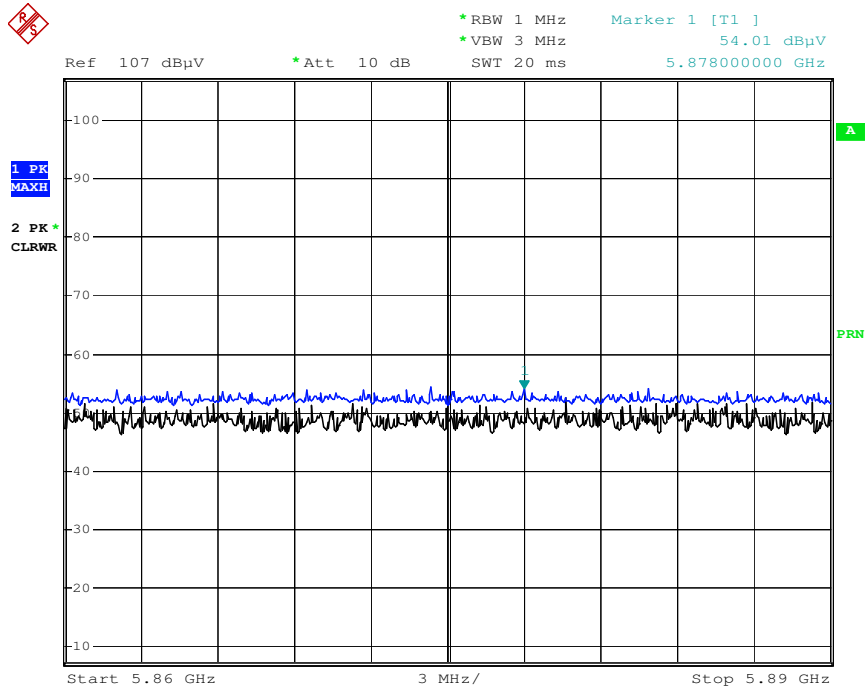
Date: 18.JAN.2016 07:33:19

Radiated Restricted Band Edges plot –Peak Reading (802.11n_20M, Ch.165)



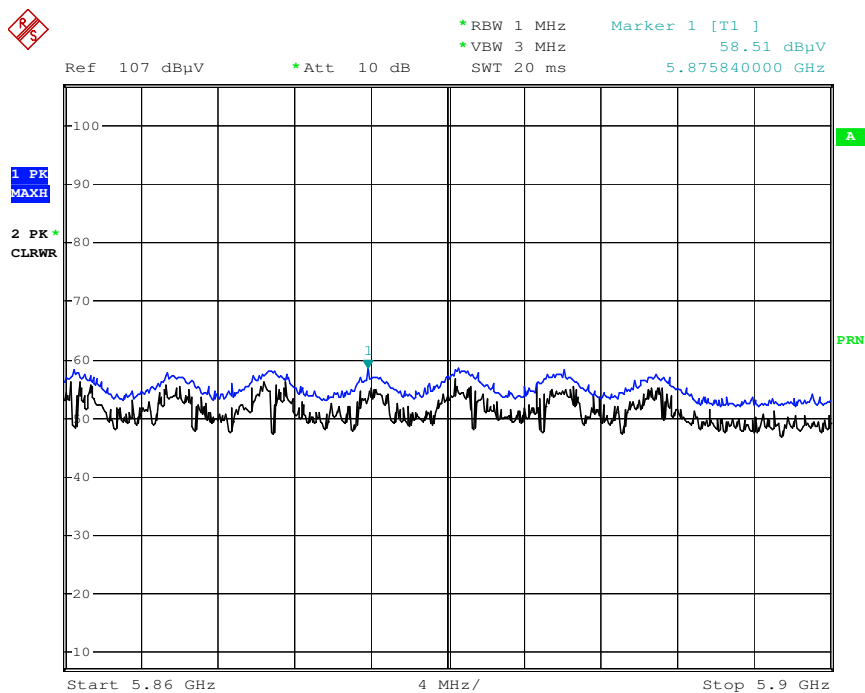
Date: 18.JAN.2016 07:31:40

Radiated Restricted Band Edges plot –Peak Reading (802.11ac_20M, Ch.165)



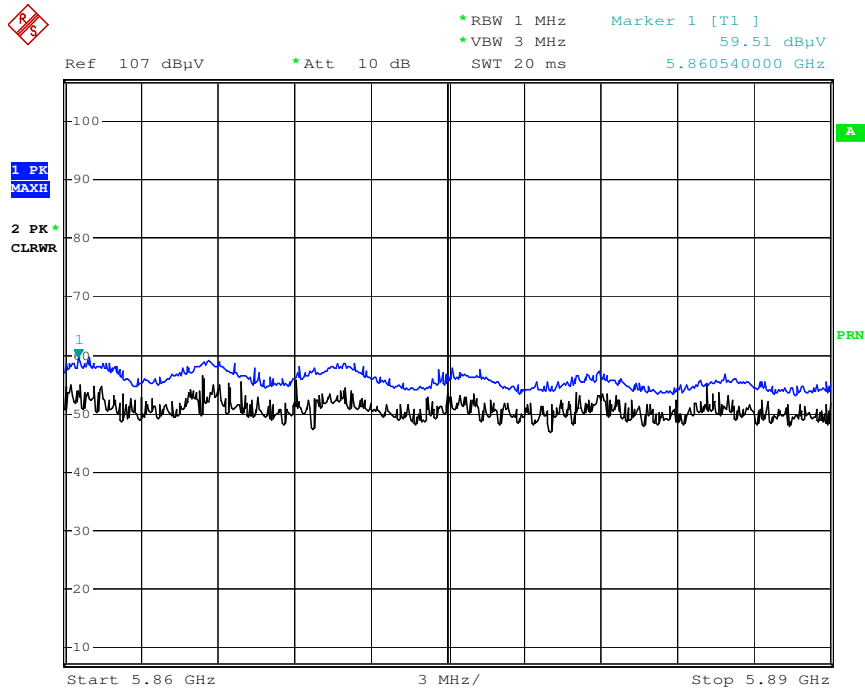
Date: 18.JAN.2016 07:30:28

Radiated Restricted Band Edges plot – Peak Reading (802.11n_40M, Ch.159)



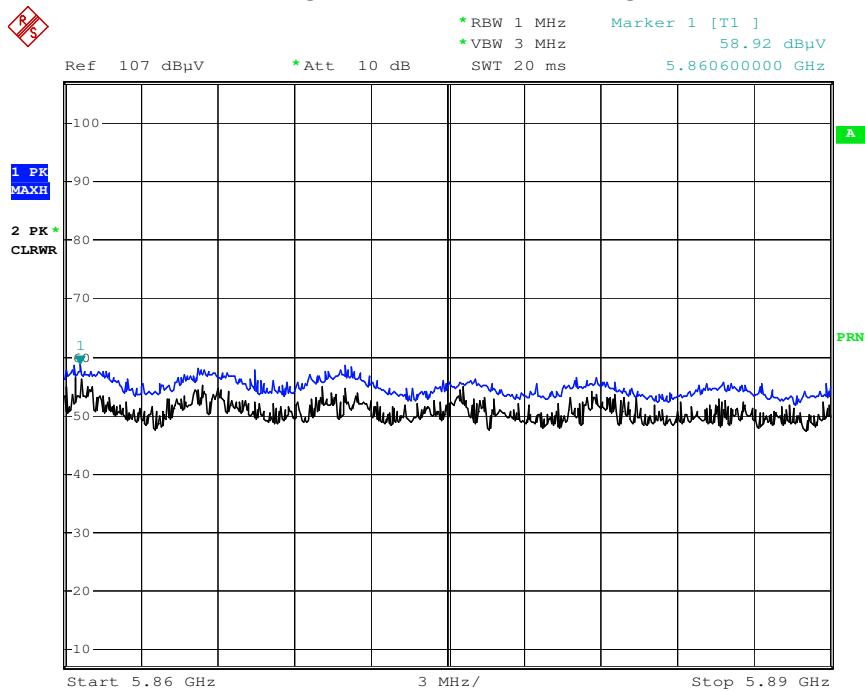
Date: 18.JAN.2016 06:30:44

Radiated Restricted Band Edges plot – Peak Reading (802.11ac_40M, Ch.159)



Date: 18.JAN.2016 07:27:18

Radiated Restricted Band Edges plot – Peak Reading (802.11ac_80M, Ch.155)



Date: 18.JAN.2016 07:24:19

8.7 POWERLINE CONDUCTED EMISSIONS

Test Requirements and limit, §15.207

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

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

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

Test Configuration

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

TEST PROCEDURE

1. The EUT is placed on a wooden table 80 cm above the reference groundplane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Detectors – Quasi Peak and Average Detector.
5. We are performed the AC Power Line Conducted Emission test for 58.5 Mbps, Ch.140 and 802.11n_HT20 mode in UNII 2C. Because the mode in UNII 2C is worst case.

RESULT PLOTS

Conducted Emissions (Line 1)

WLAN MODE 5G N

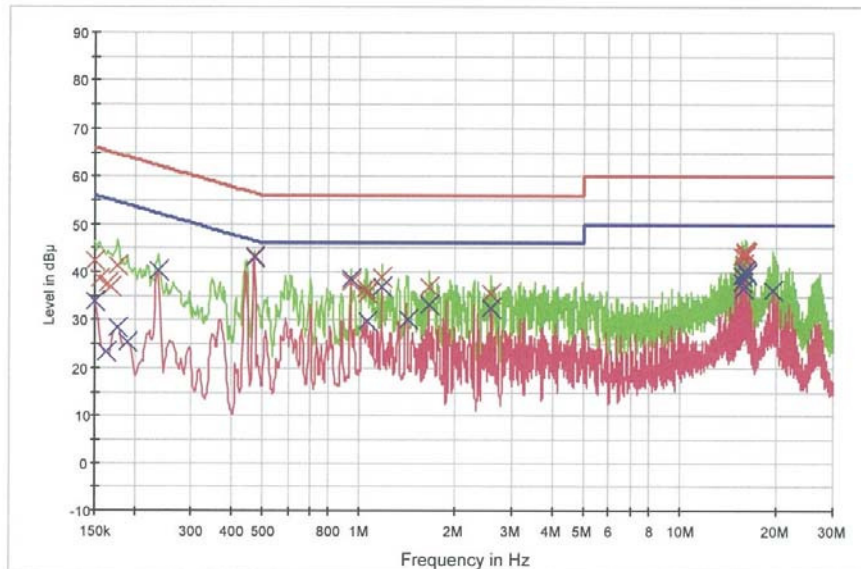
1 / 2

HCT TEST Report

Common Information

EUT: WEA403i
Manufacturer: SAMSUNG
Test Site: SHIELD ROOM
Operating Conditions: WLAN MODE _ 5G

FCC CLASS B



— FCC CLASS B_QP — FCC CLASS B_AV — Preview Result 1-PK+
— Preview Result 2-AVG — Final Result 1-QPK — Final Result 2-CAV

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	42.4	9.000	Off	N	9.6	23.6	66.0
0.156000	38.6	9.000	Off	N	9.6	27.0	65.7
0.164000	37.6	9.000	Off	N	9.6	27.6	65.3
0.168000	37.1	9.000	Off	N	9.6	28.0	65.1
0.176000	41.4	9.000	Off	N	9.6	23.2	64.7
0.470000	43.3	9.000	Off	N	9.6	13.2	56.5
0.938000	37.9	9.000	Off	N	9.7	18.1	56.0
1.050000	36.6	9.000	Off	N	9.7	19.4	56.0
1.056000	35.7	9.000	Off	N	9.7	20.3	56.0
1.174000	39.0	9.000	Off	N	9.7	17.0	56.0
1.646000	37.0	9.000	Off	N	9.7	19.0	56.0
2.584000	35.5	9.000	Off	N	9.7	20.5	56.0
15.548000	43.3	9.000	Off	N	10.2	16.7	60.0
15.698000	41.6	9.000	Off	N	10.2	18.4	60.0
15.988000	44.1	9.000	Off	N	10.2	15.9	60.0
15.992000	44.4	9.000	Off	N	10.2	15.6	60.0
15.996000	43.2	9.000	Off	N	10.2	16.8	60.0
16.136000	44.1	9.000	Off	N	10.2	15.9	60.0

2016-06-16

오전 10:00:51

WLAN MODE 5G N

2 / 2

Final Result 2

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	34.0	9.000	Off	N	9.6	22.0	56.0
0.162000	23.5	9.000	Off	N	9.6	31.9	55.4
0.176000	28.5	9.000	Off	N	9.6	26.2	54.7
0.190000	25.5	9.000	Off	N	9.6	28.6	54.0
0.236000	40.5	9.000	Off	N	9.6	11.8	52.2
0.470000	43.1	9.000	Off	N	9.6	3.4	46.5
0.940000	38.8	9.000	Off	N	9.7	7.2	46.0
1.054000	29.7	9.000	Off	N	9.7	16.3	46.0
1.176000	36.9	9.000	Off	N	9.7	9.1	46.0
1.410000	30.2	9.000	Off	N	9.7	15.8	46.0
1.646000	33.2	9.000	Off	N	9.7	12.8	46.0
2.584000	32.5	9.000	Off	N	9.7	13.5	46.0
15.544000	38.0	9.000	Off	N	10.2	12.0	50.0
15.548000	39.3	9.000	Off	N	10.2	10.7	50.0
15.696000	36.6	9.000	Off	N	10.2	13.4	50.0
15.990000	40.3	9.000	Off	N	10.2	9.7	50.0
16.138000	39.5	9.000	Off	N	10.2	10.5	50.0
19.512000	36.2	9.000	Off	N	10.3	13.8	50.0

2016-06-16

오전 10:00:51

Conducted Emissions (Line 2)

WLAN MODE 5G L1

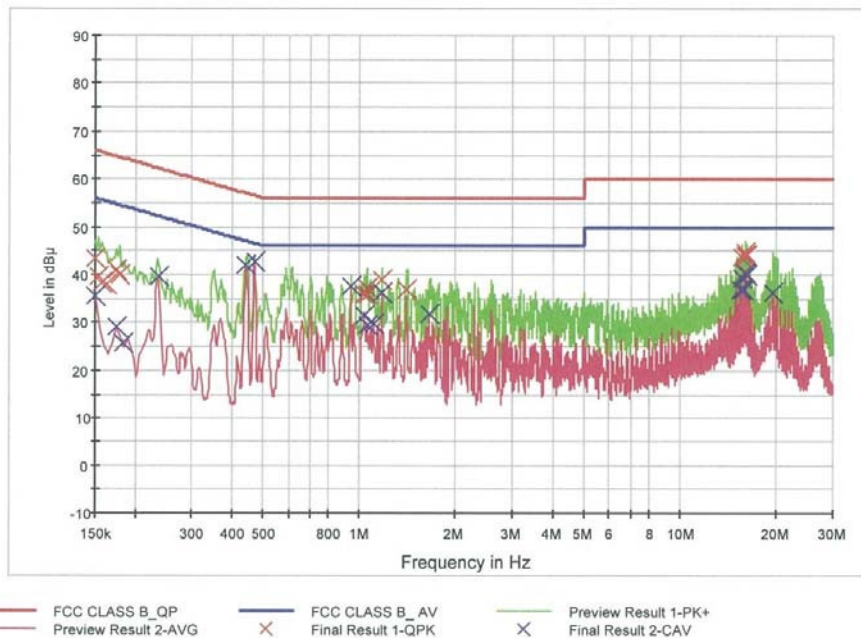
1 / 2

HCT TEST Report

Common Information

EUT: WEA403i
Manufacturer: SAMSUNG
Test Site: SHIELD ROOM
Operating Conditions: WLAN MODE _ 5G

FCC CLASS B



Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	43.4	9.000	Off	L1	9.7	22.6	66.0
0.154000	39.8	9.000	Off	L1	9.6	26.0	65.8
0.158000	38.4	9.000	Off	L1	9.6	27.2	65.6
0.162000	37.8	9.000	Off	L1	9.6	27.5	65.4
0.174000	41.1	9.000	Off	L1	9.6	23.7	64.8
0.178000	39.9	9.000	Off	L1	9.6	24.7	64.6
0.940000	37.6	9.000	Off	L1	9.7	18.4	56.0
1.030000	36.0	9.000	Off	L1	9.7	20.0	56.0
1.052000	37.3	9.000	Off	L1	9.7	18.7	56.0
1.058000	35.8	9.000	Off	L1	9.7	20.2	56.0
1.176000	38.9	9.000	Off	L1	9.7	17.1	56.0
1.408000	36.9	9.000	Off	L1	9.7	19.1	56.0
15.548000	43.6	9.000	Off	L1	10.2	16.4	60.0
15.980000	40.5	9.000	Off	L1	10.2	19.5	60.0
15.988000	44.2	9.000	Off	L1	10.2	15.8	60.0
15.992000	44.6	9.000	Off	L1	10.2	15.4	60.0
16.134000	44.2	9.000	Off	L1	10.2	15.8	60.0
16.138000	44.0	9.000	Off	L1	10.2	16.0	60.0

2016-06-16

오전 9:43:15

WLAN MODE 5G L1

2 / 2

Final Result 2

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	35.5	9.000	Off	L1	9.7	20.5	56.0
0.174000	29.2	9.000	Off	L1	9.6	25.6	54.8
0.182000	25.7	9.000	Off	L1	9.6	28.7	54.4
0.236000	39.6	9.000	Off	L1	9.6	12.6	52.2
0.442000	42.1	9.000	Off	L1	9.7	4.9	47.0
0.470000	42.8	9.000	Off	L1	9.7	3.7	46.5
0.940000	37.6	9.000	Off	L1	9.7	8.4	46.0
1.034000	31.6	9.000	Off	L1	9.7	14.4	46.0
1.054000	29.6	9.000	Off	L1	9.7	16.4	46.0
1.108000	29.9	9.000	Off	L1	9.7	16.1	46.0
1.174000	36.3	9.000	Off	L1	9.7	9.7	46.0
1.646000	32.0	9.000	Off	L1	9.7	14.0	46.0
15.406000	36.9	9.000	Off	L1	10.2	13.1	50.0
15.548000	39.5	9.000	Off	L1	10.2	10.5	50.0
15.698000	36.8	9.000	Off	L1	10.2	13.2	50.0
15.992000	40.5	9.000	Off	L1	10.2	9.5	50.0
16.136000	40.1	9.000	Off	L1	10.2	9.9	50.0
19.512000	36.3	9.000	Off	L1	10.2	13.7	50.0

2016-06-16

오전 9:43:15

9. LIST OF TEST EQUIPMENT

9.1 LIST OF TEST EQUIPMENT(Conducted Test)

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Rohde & Schwarz	ENV216 / LISN	12/28/2015	Annual	100073
Rohde & Schwarz	ESCI / Test Receiver	12/28/2015	Annual	100584
Agilent	N9020A / Signal Analyzer	06/30/2015	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	06/14/2016	Annual	05001
Hewlett Packard	E3632A / DC Power Supply	03/09/2016	Annual	KR75303962
Agilent	8493C / Attenuator(10 dB)	07/21/2015	Annual	07560

9.2 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	WHFX7.0/18G-8SS / High Pass Filter	05/13/2016	Annual	29
Wainwright Instruments	WRCJV2400/2483.5-2370/2520-60/12SS / Band Reject Filter	07/06/2015	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