

FCC 47 CFR PART 15 SUBPART E

Product Type : airGateway PRO
Applicant : Ubiquiti Networks, Inc
Address : 2580 Orchard Parkway, San Jose CA95131, USA
Trade Name : UBIQUITI
Model Number : AMG-PRO, AMG-PRO-INS
Test Specification : FCC 47 CFR PART 15 SUBPART E: Oct., 2013
ANSI C63.10-2013
Application Purpose : Original
Receive Date : Jan. 27, 2015
Test Period : Feb. 01 ~ Feb. 03, 2015
Issue Date : May 05, 2015

Issue by

A Test Lab Techno Corp.
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Taiwan Accreditation Foundation accreditation number: 1330

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Revision History

Rev.	Issue Date	Revisions	Revised By
00	Feb. 17, 2015	Initial Issue	
01	Apr. 08, 2015	Revised report information.	Peggy Chang
02	Apr. 13, 2015	Revised report information.	Snow Wang
03	Apr. 29, 2015	Revised report information.	Snow Wang
04	May 05, 2015	Revised report information.	Snow Wang

Verification of Compliance

Issued Date: 05/05/2015

Product Type : airGateway PRO
Applicant : Ubiquiti Networks, Inc
Address : 2580 Orchard Parkway, San Jose CA95131, USA
Trade Name : UBIQUITI
Model Number : AMG-PRO, AMG-PRO-INS
FCC ID : SWX-AMGPRO
EUT Rated Voltage : DC 24V, 0.5A
Test Voltage : 120 Vac / 60 Hz
Applicable Standard : FCC 47 CFR PART 15 SUBPART E: Oct., 2013
ANSI C63.10-2013

Test Result : Complied

Application Purpose : Original

Performing Lab. : A Test Lab Techno Corp.

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<http://www.atl-lab.com.tw/e-index.htm>



A Test Lab Techno Corp. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by A Test Lab Techno Corp. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Approved By : Fly Lu
(Manager) (Fly Lu)

Reviewed By : Eric Ou Yang
(Testing Engineer) (Eric Ou Yang)

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1 General Information

1.1. Summary of Test Result

Standard		Item	Result	Remark
FCC	IC			
15.407(b)(6) 15.207	RSS-Gen 8.8	AC Power Conducted Emission	PASS	---
---	RSS-Gen 7.1	Receiver Radiated Emissions	PASS	---
---	RSS-Gen 6.6	99 % Occupied Bandwidth	PASS	----
15.407(b) 15.205 / 15.209	RSS-210 A9.2	Transmitter Radiated Emissions	PASS	---
15.407(a)	RSS-210 A9.2	Maximum Conducted Output Power	PASS	---
15.407(a)	RSS-210 A9.2	26dB RF Bandwidth	Reference	---
15.215(c)	---	20dB RF Bandwidth	Reference	---
15.407(a)	RSS-A8.2 (a)	6dB RF Bandwidth	PASS	----
15.407(a)	RSS-210 A9.2	Peak Power Spectral Density	PASS	---
15.407(g)	RSS-210 A9.5	Frequency Stability	PASS	---
15.407(a) 15.203	RSS-210 A9.2	Antenna Requirement	PASS	---

The test results of this report relate only to the tested sample(s) identified in this report. Manufacturer or whom it may concern should recognize the pass or fail of the test result.

1.2. Measurement Uncertainty

Measurement Item	Frequency Range		Uncertainty (dB)
Conducted Emission	9kHz ~ 30MHz		± 2.020
Radiated Emission	30MHz ~ 1000MHz	Horizontal	± 3.960
		Vertical	± 3.570
	1000MHz ~ 18000MHz	Horizontal	± 3.072
		Vertical	± 3.028
	18000MHz ~ 40000MHz	Horizontal	± 3.622
		Vertical	± 3.506

2 EUT Description

Product Type	airGateway PRO			
Trade Name	UBIQUITI			
Model No.	AMG-PRO, AMG-PRO-INS			
Different Description	These model numbers differ from each other in selling region.			
Applicant	Ubiquiti Networks, Inc 2580 Orchard Parkway, San Jose CA95131, USA			
Manufacturer	Ubiquiti Networks, Inc 2580 Orchard Parkway, San Jose CA95131, USA			
FCC ID	SWX-AMGPRO			
Frequency Range	Band	Mode	Frequency Range (MHz)	Number of Channels
	U-NII Band I	IEEE 802.11a	5180 – 5240	4 Channels
		IEEE 802.11n 20 MHz	5180 – 5240	4 Channels
		IEEE 802.11n 40 MHz	5190 – 5230	2 Channels
		IEEE 802.11ac 80 MHz	5210	1 Channels
	U-NII Band III	IEEE 802.11a	5745 – 5825	5 Channels
		IEEE 802.11n 20 MHz	5745 – 5825	5 Channels
		IEEE 802.11n 40 MHz	5755 – 5795	2 Channels
IEEE 802.11ac 80 MHz		5775	1 Channels	
Modulation Type	OFDM			
Antenna Type	PIFA Antenna			
Antenna Max. Gain	2 dBi			
Antenna Delivery	2TX + 2X			
Equipment Type	Master (without Radar detection)			
RF Output Power	IEEE 802.11a U-NII Band I : 0.076W / 18.82 dBm IEEE 802.11a U-NII Band III : 0.078 W / 18.92 dBm IEEE 802.11n 20MHz U-NII Band I: 0.067 W / 18.24 dBm IEEE 802.11n 20MHz U-NII Band III: 0.072 W / 18.60 dBm IEEE 802.11n 40MHz U-NII Band I: 0.038 W / 15.78 dBm IEEE 802.11n 40MHz U-NII Band III: 0.046 W / 16.66 dBm			

3 Test Methodology

3.1. Mode of Operation

Decision of Test ATL has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Normal Operation Mode
Mode 2: IEEE 802.11a Link Mode
Mode 3: IEEE 802.11n 20MHz Link Mode
Mode 4: IEEE 802.11n 40MHz Link Mode

Software used to control the EUT for staying in continuous transmitting mode was programmed.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.

Test Mode	Band	Data Rate	Test Channel
IEEE 802.11a Link Mode	U-NII Band I	6M	36, 40, 44, 48
	U-NII Band III		149, 153, 157, 161, 165
IEEE 802.11n 20MHz Link Mode	U-NII Band I	13M	36, 40, 44, 48
	U-NII Band III		149, 153, 157, 161, 165
IEEE 802.11n 40MHz Link Mode	U-NII Band I	27M	38, 46
	U-NII Band III		151, 159

3.2. EUT Exercise Software

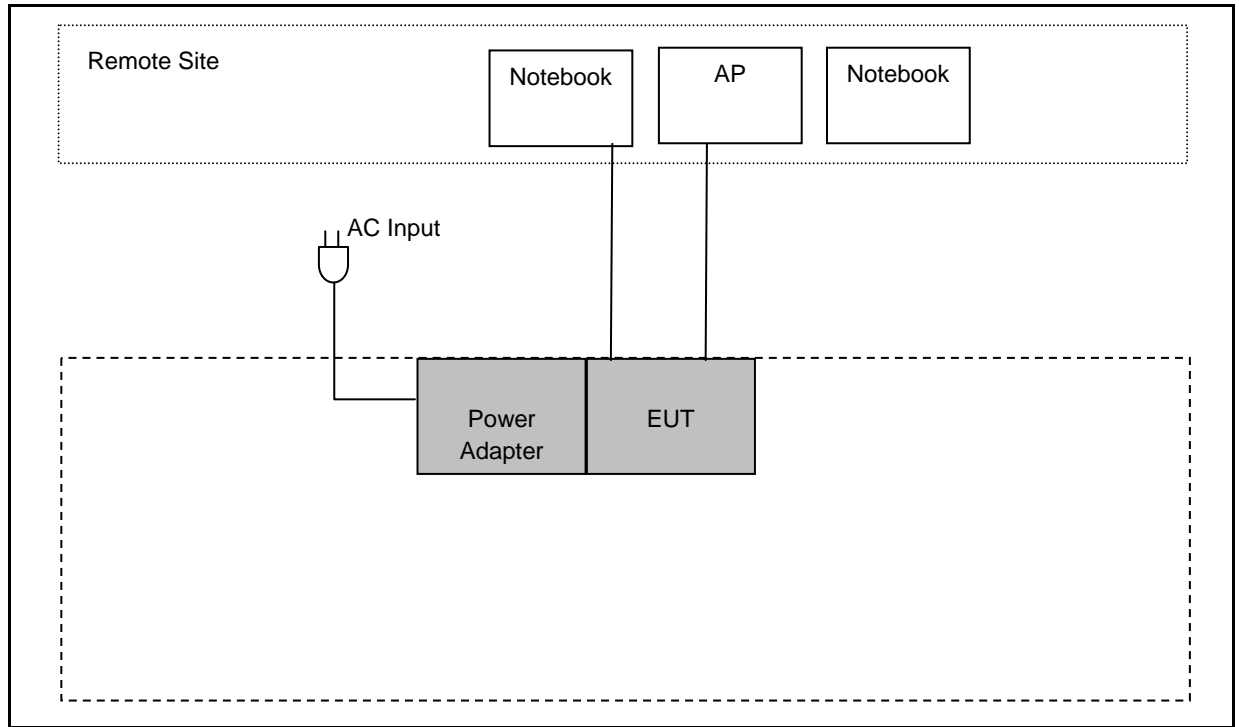
The EUT is operated in the engineering mode to fix the TX frequency for the purposes of measurement.

According to its specifications, the EUT must comply with the requirements of Section 15.407 under the FCC Rules Part 15 Subpart E.

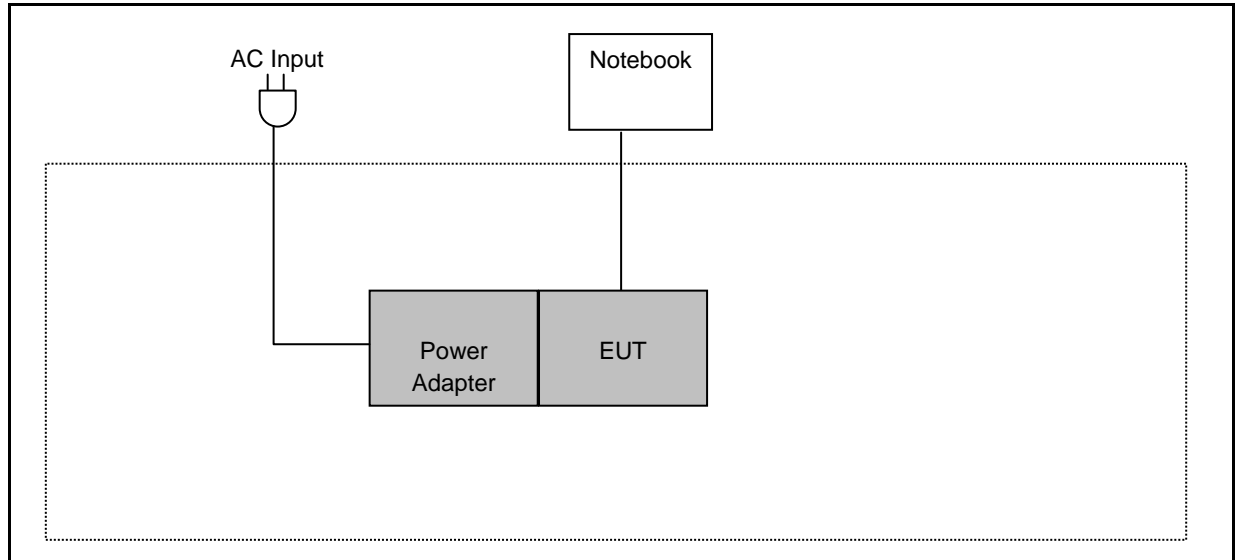
1.	Setup the EUT shown on 3.3.
2.	Turn on the power of all equipment.
3.	Turn on Wi-Fi function link to Notebook.
4.	EUT run test program.

3.3. Configuration of Test System Details

Conducted Emission



Radiated Emission



3.4. Test Site Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	26
Humidity (%RH)	25-75	60
Barometric pressure (mbar)	860-1060	950

4 AC Power Conducted Emission Measurement

4.1. Limit

Frequency (MHz)	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

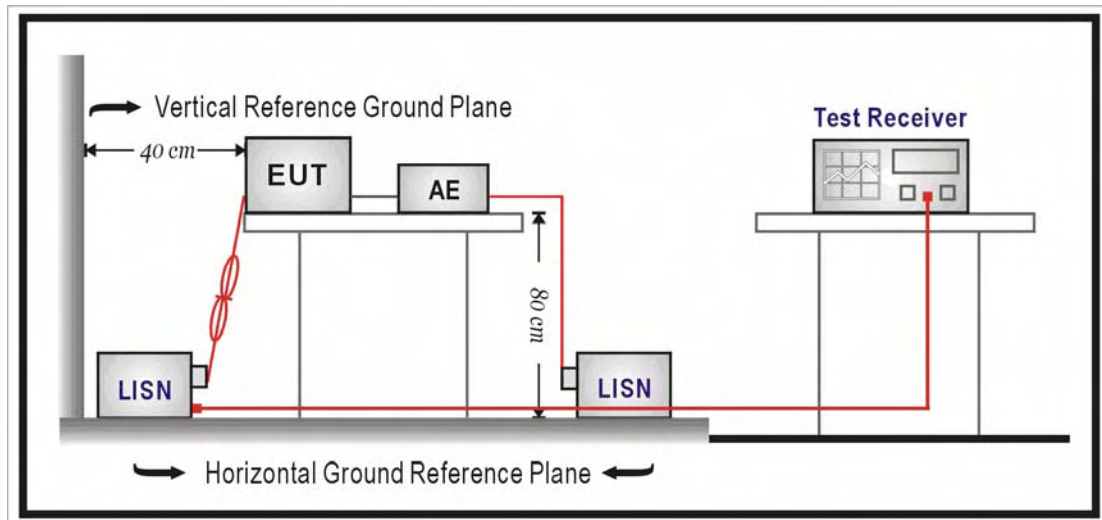
4.2. Test Instruments

Describe	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Test Receiver	R&S	ESCI	100367	06/12/2014	(1)
LISN	R&S	ENV216	101040	03/07/2014	(1)
LISN	R&S	ENV216	101041	03/07/2014	(1)
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

4.3. Test Setup



4.4. Test Procedure

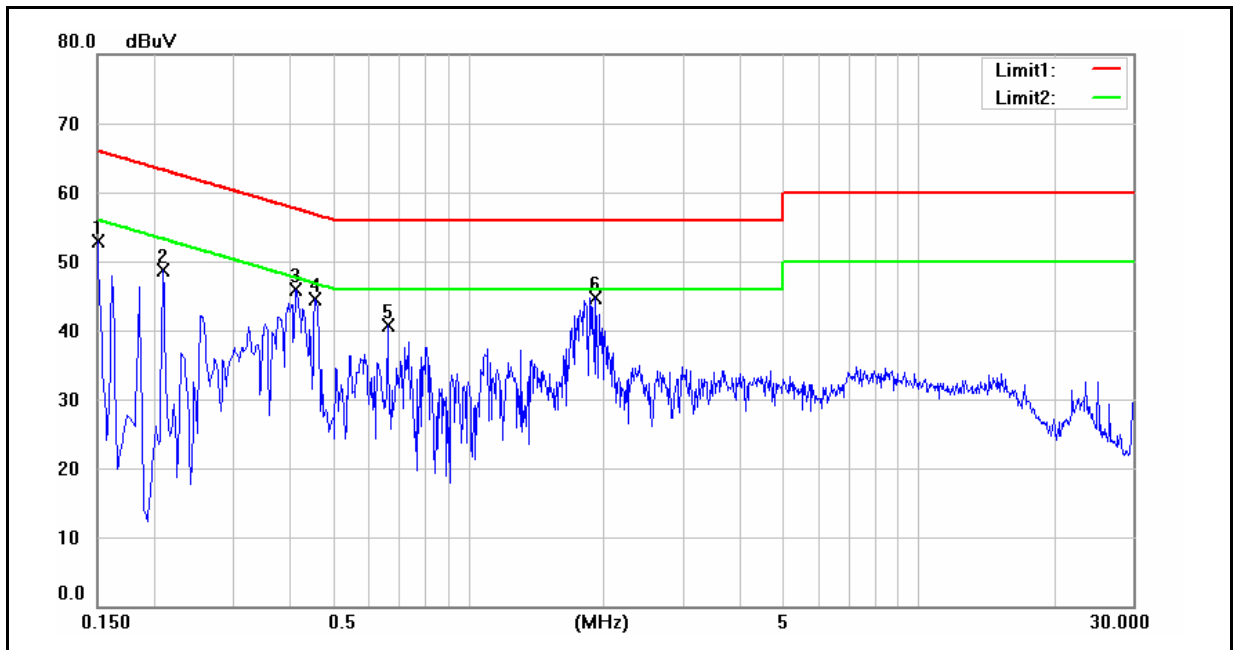
The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3162/2 SH Line Impedance Stabilization Networks (LISN). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 4.1.

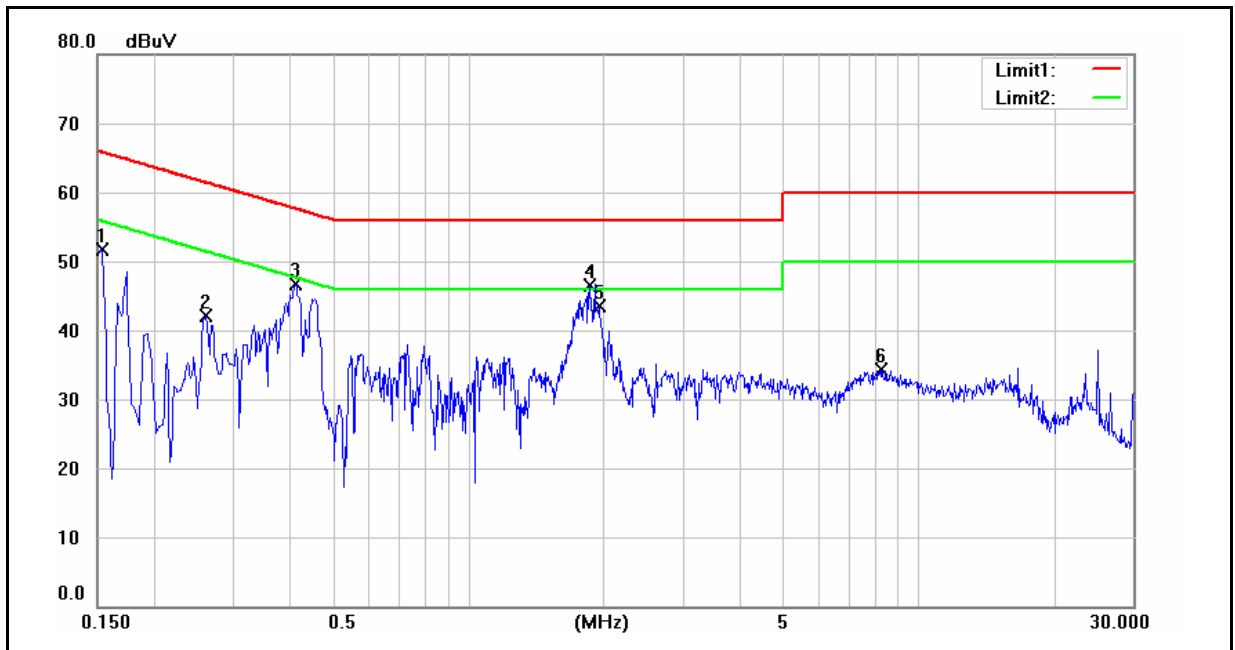
4.5. Test Result

Standard:	FCC Part 15E	Line:	L1
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 1	Date:	02/03/2015
		Test By:	Eric Ou Yang
Description:			



No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1500	41.52	26.61	9.59	51.11	36.20	66.00	56.00	-14.89	-19.80	Pass
2	0.2100	32.23	15.62	9.60	41.83	25.22	63.21	53.21	-21.38	-27.99	Pass
3	0.4140	35.44	27.76	9.61	45.05	37.37	57.57	47.57	-12.52	-10.20	Pass
4	0.4588	33.48	27.33	9.62	43.10	36.95	56.71	46.71	-13.61	-9.76	Pass
5	0.6620	24.01	15.44	9.61	33.62	25.05	56.00	46.00	-22.38	-20.95	Pass
6	1.9100	28.66	22.53	9.69	38.35	32.22	56.00	46.00	-17.65	-13.78	Pass

Standard:	FCC Part 15E	Line:	N
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 1	Date:	02/03/2015
		Test By:	Eric Ou Yang
Description:			



No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1540	39.34	23.14	9.60	48.94	32.74	65.78	55.78	-16.84	-23.04	Pass
2	0.2620	28.56	20.38	9.61	38.17	29.99	61.37	51.37	-23.20	-21.38	Pass
3	0.4140	35.42	28.50	9.61	45.03	38.11	57.57	47.57	-12.54	-9.46	Pass
4	1.8660	33.74	23.76	9.69	43.43	33.45	56.00	46.00	-12.57	-12.55	Pass
5	1.9580	32.56	21.61	9.70	42.26	31.31	56.00	46.00	-13.74	-14.69	Pass
6	8.3220	20.00	13.22	9.92	29.92	23.14	60.00	50.00	-30.08	-26.86	Pass

5 Radiated Emission Measurement

5.1. Limit

Limits of Radiated Emission Measurement

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequency Range (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	10	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Note: 1. The lower limit shall apply at the transition frequencies.

2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

5.2. Test Instruments

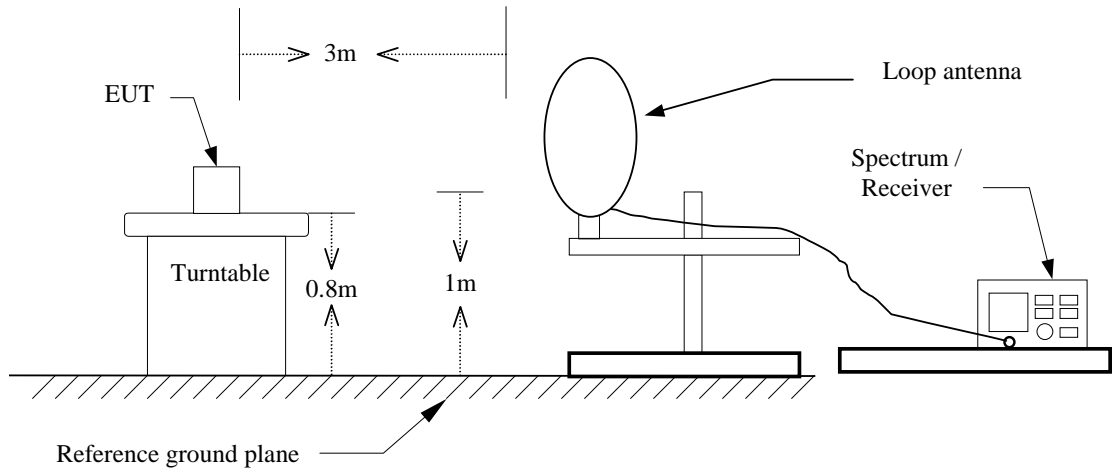
3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/06/2015	(1)
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/06/2015	(1)
Pre Amplifier	Agilent	8449B	3008A02237	02/21/2014	(1)
Pre Amplifier	Agilent	8447D	2944A10961	02/21/2014	(1)
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	07/18/2014	(1)
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/11/2014	(1)
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	06/13/2014	(1)
Test Site	ATL	TE01	888001	08/28/2014	(1)

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

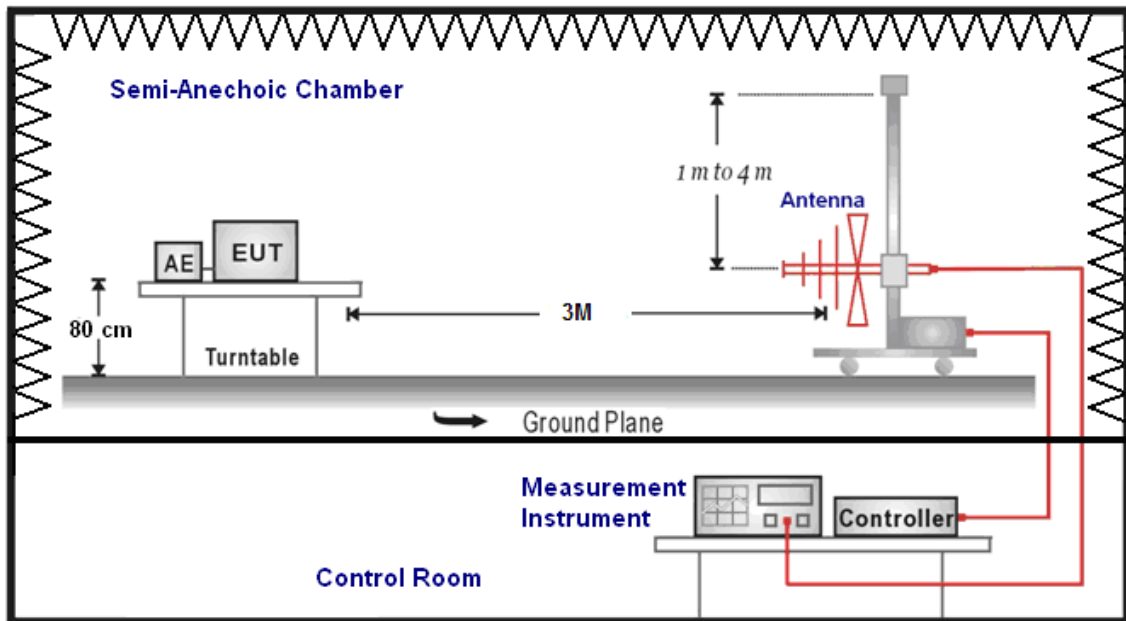
Note: N.C.R. = No Calibration Request.

5.3. Setup

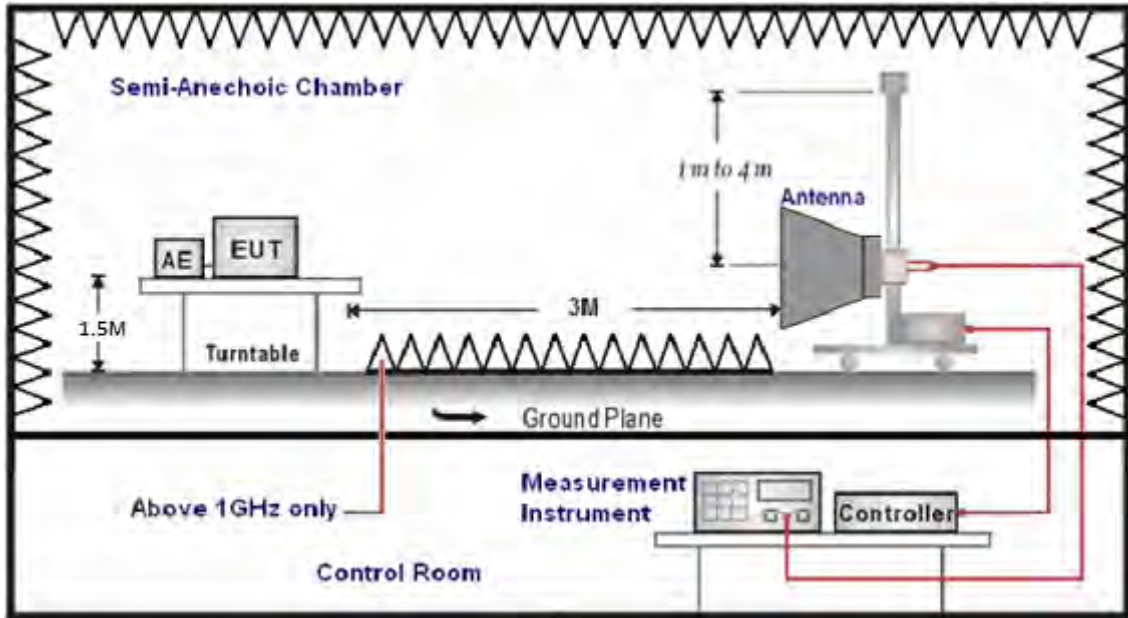
9kHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



5.4. Test Procedure

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 or 1.5 meters height (below 1GHz use 0.8m turntable / above 1GHz use 1.5m turntable). The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to transmit continuously & Measurements spectrum range from 9 kHz to 40 GHz is investigated.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 3 MHz for peak measurements and 3 MHz for average measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on three orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Trilog-Broadband Antenna (mode SB AC VULB) at 3 Meter and the ETS-Lindgren Double-Ridged Waveguide Horn antenna (model 3117) Schwarzbeck Mess-Elektronik Broadband Horn Antenna (BBHA 9170) was used in frequencies 1 – 40 GHz at a distance of 1 meter. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20dB/decade). For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts per meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro volts per meter (dBuV/m).

The actual field intensity in decibels referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

$$(1) \text{ Amplitude (dBuV/m) = FI (dBuV) + AF (dBuV) + CL (dBuV) - Gain (dB)}$$

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

$$(2) \text{ Actual Amplitude (dBuV/m) = Amplitude (dBuV) - Dis(dB)}$$

The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:

(a) For fundamental frequency : Transmitter Output < +30dBm

(b) For spurious frequency : Spurious emission limits = fundamental emission limit /10

5.5. Test Result

Below 1GHz

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 1	Date:	02/01/2015
Description:		Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
179.0000	48.63	-13.10	35.53	43.50	-7.97	QP	H
243.5000	45.97	-12.59	33.38	46.00	-12.62	QP	H
347.5000	46.63	-9.64	36.99	46.00	-9.01	QP	H
374.5000	47.53	-9.03	38.50	46.00	-7.50	QP	H
411.0000	45.83	-8.29	37.54	46.00	-8.46	QP	H
944.5000	34.12	2.46	36.58	46.00	-9.42	QP	H
171.0000	46.50	-12.43	34.07	43.50	-9.43	QP	V
250.0000	46.12	-12.39	33.73	46.00	-12.27	QP	V
382.0000	47.13	-8.88	38.25	46.00	-7.75	QP	V
459.5000	43.01	-7.28	35.73	46.00	-10.27	QP	V
871.0000	31.12	0.79	31.91	46.00	-14.09	QP	V
944.5000	34.88	2.46	37.34	46.00	-8.66	QP	V

Note: No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).

Above 1GHz

Standard:	FCC Part 15E	Test Distance:	3m				
Test item:	Radiated Emission	Power:	AC 120V/60Hz				
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH				
Test Mode:	Mode 2	Date:	02/01/2015				
Frequency:	5180MHz	Test By:	Eric Ou Yang				
Description:							
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2799.000	37.48	-1.01	36.47	74.00	-37.53	peak	H
4619.000	35.11	4.10	39.21	74.00	-34.79	peak	H
5150.000	34.25	5.28	39.53	68.20	-28.67	peak	H
7685.000	34.48	11.78	46.26	74.00	-27.74	peak	H
2834.000	36.93	-0.93	36.00	74.00	-38.00	peak	V
4591.000	35.11	4.01	39.12	74.00	-34.88	peak	V
5150.000	33.98	5.28	39.26	68.20	-28.94	peak	V
7657.000	33.33	11.74	45.07	74.00	-28.93	peak	V

Standard:	FCC Part 15E	Test Distance:	3m				
Test item:	Radiated Emission	Power:	AC 120V/60Hz				
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH				
Test Mode:	Mode 2	Date:	02/01/2015				
Frequency:	5220MHz	Test By:	Eric Ou Yang				
Description:							
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2813.000	37.47	-0.98	36.49	74.00	-37.51	peak	H
4570.000	35.61	3.97	39.58	74.00	-34.42	peak	H
7685.000	35.38	11.78	47.16	74.00	-26.84	peak	H
2827.000	35.92	-0.94	34.98	74.00	-39.02	peak	V
4570.000	35.03	3.97	39.00	74.00	-35.00	peak	V
7650.000	33.44	11.74	45.18	74.00	-28.82	peak	V

Standard:	FCC Part 15E	Test Distance:	3m				
Test item:	Radiated Emission	Power:	AC 120V/60Hz				
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH				
Test Mode:	Mode 2	Date:	02/01/2015				
Frequency:	5240MHz	Test By:	Eric Ou Yang				
Description:							
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2806.000	36.72	-0.99	35.73	74.00	-38.27	peak	H
4563.000	34.39	3.95	38.34	74.00	-35.66	peak	H
5250.000	33.76	5.43	39.19	68.20	-29.01	peak	H
7671.000	32.21	11.76	43.97	74.00	-30.03	peak	H
2813.000	36.22	-0.98	35.24	74.00	-38.76	peak	V
4598.000	33.57	4.04	37.61	74.00	-36.39	peak	V
5250.000	33.01	5.43	38.44	68.20	-29.76	peak	V
7622.000	33.37	11.69	45.06	74.00	-28.94	peak	V

Standard:	FCC Part 15E	Test Distance:	3m				
Test item:	Radiated Emission	Power:	AC 120V/60Hz				
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH				
Test Mode:	Mode 2	Date:	02/01/2015				
Frequency:	5745MHz	Test By:	Eric Ou Yang				
Description:							
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2813.000	37.19	-0.98	36.21	74.00	-37.79	peak	H
4577.000	34.27	3.98	38.25	74.00	-35.75	peak	H
5715.000	33.67	6.25	39.92	68.20	-28.28	peak	H
5725.000	34.00	6.27	40.27	78.20	-37.93	peak	H
7650.000	32.63	11.74	44.37	74.00	-29.63	peak	H
2827.000	36.68	-0.94	35.74	74.00	-38.26	peak	V
4591.000	33.82	4.01	37.83	74.00	-36.17	peak	V
5715.000	34.13	6.25	40.38	68.20	-27.82	peak	V
5725.000	33.14	6.27	39.41	78.20	-38.79	peak	V
7671.000	31.62	11.76	43.38	74.00	-30.62	peak	V

Standard:	FCC Part 15E	Test Distance:	3m				
Test item:	Radiated Emission	Power:	AC 120V/60Hz				
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH				
Test Mode:	Mode 2	Date:	02/01/2015				
Frequency:	5785MHz	Test By:	Eric Ou Yang				
Description:							
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2834.000	36.97	-0.93	36.04	74.00	-37.96	peak	H
4570.000	34.62	3.97	38.59	74.00	-35.41	peak	H
7678.000	33.39	11.77	45.16	74.00	-28.84	peak	H
2778.000	38.46	-1.06	37.40	74.00	-36.60	peak	V
4619.000	34.24	4.10	38.34	74.00	-35.66	peak	V
7671.000	33.19	11.76	44.95	74.00	-29.05	peak	V

Standard:	FCC Part 15E	Test Distance:	3m				
Test item:	Radiated Emission	Power:	AC 120V/60Hz				
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH				
Test Mode:	Mode 2	Date:	02/01/2015				
Frequency:	5825MHz	Test By:	Eric Ou Yang				
Description:							
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2827.000	36.58	-0.94	35.64	74.00	-38.36	peak	H
4577.000	35.15	3.98	39.13	74.00	-34.87	peak	H
5850.000	32.46	6.53	38.99	78.20	-79.21	peak	H
5860.000	33.78	6.55	40.33	68.20	-27.87	peak	H
7671.000	33.36	11.76	45.12	74.00	-28.88	peak	H
2799.000	36.50	-1.01	35.49	74.00	-38.51	peak	V
4591.000	35.60	4.01	39.61	74.00	-34.39	peak	V
5850.000	32.81	6.53	39.34	78.20	-38.86	peak	V
5860.000	32.86	6.55	39.41	68.20	-28.79	peak	V
7685.000	33.39	11.78	45.17	74.00	-28.83	peak	V

Standard:	FCC Part 15E	Test Distance:	3m				
Test item:	Radiated Emission	Power:	AC 120V/60Hz				
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH				
Test Mode:	Mode 3	Date:	02/01/2015				
Frequency:	5180MHz	Test By:	Eric Ou Yang				
Description:							
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2806.000	36.68	-0.99	35.69	74.00	-38.31	peak	H
4591.000	34.31	4.01	38.32	74.00	-35.68	peak	H
5150.000	33.40	5.28	38.68	68.20	-29.52	peak	H
7678.000	33.38	11.77	45.15	74.00	-28.85	peak	H
2813.000	37.14	-0.98	36.16	74.00	-37.84	peak	V
4577.000	34.05	3.98	38.03	74.00	-35.97	peak	V
5150.000	33.75	5.28	39.03	68.20	-29.17	peak	V
7650.000	34.47	11.74	46.21	74.00	-27.79	peak	V

Standard:	FCC Part 15E	Test Distance:	3m				
Test item:	Radiated Emission	Power:	AC 120V/60Hz				
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH				
Test Mode:	Mode 3	Date:	02/01/2015				
Frequency:	5220MHz	Test By:	Eric Ou Yang				
Description:							
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2827.000	36.60	-0.94	35.66	74.00	-38.34	peak	H
4570.000	34.84	3.97	38.81	74.00	-35.19	peak	H
7671.000	34.42	11.76	46.18	74.00	-27.82	peak	H
2806.000	36.04	-0.99	35.05	74.00	-38.95	peak	V
4605.000	34.35	4.05	38.40	74.00	-35.60	peak	V
7650.000	33.41	11.74	45.15	74.00	-28.85	peak	V

Standard:	FCC Part 15E	Test Distance:	3m				
Test item:	Radiated Emission	Power:	AC 120V/60Hz				
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH				
Test Mode:	Mode 3	Date:	02/01/2015				
Frequency:	5240MHz	Test By:	Eric Ou Yang				
Description:							
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2813.000	36.79	-0.98	35.81	74.00	-38.19	peak	H
4591.000	34.42	4.01	38.43	74.00	-35.57	peak	H
5250.000	33.70	5.43	39.13	68.20	-29.07	peak	H
7650.000	32.87	11.74	44.61	74.00	-29.39	peak	H
2806.000	37.66	-0.99	36.67	74.00	-37.33	peak	V
4598.000	33.34	4.04	37.38	74.00	-36.62	peak	V
5250.000	32.67	5.43	38.10	68.20	-30.10	peak	V
7650.000	33.05	11.74	44.79	74.00	-29.21	peak	V

Standard:	FCC Part 15E	Test Distance:	3m				
Test item:	Radiated Emission	Power:	AC 120V/60Hz				
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH				
Test Mode:	Mode 3	Date:	02/01/2015				
Frequency:	5745MHz	Test By:	Eric Ou Yang				
Description:							
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2799.000	39.44	-1.01	38.43	74.00	-35.57	peak	H
4570.000	34.38	3.97	38.35	74.00	-35.65	peak	H
5715.000	33.80	6.25	40.05	68.20	-28.15	peak	H
5725.000	34.04	6.27	40.31	78.20	-37.89	peak	H
7699.000	34.02	11.80	45.82	74.00	-28.18	peak	H
2799.000	36.86	-1.01	35.85	74.00	-38.15	peak	V
4591.000	35.06	4.01	39.07	74.00	-34.93	peak	V
5715.000	33.70	6.25	39.95	68.20	-28.25	peak	V
5725.000	33.78	6.27	40.05	78.20	-38.15	peak	V
7671.000	33.25	11.76	45.01	74.00	-28.99	peak	V

Standard:	FCC Part 15E	Test Distance:	3m				
Test item:	Radiated Emission	Power:	AC 120V/60Hz				
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH				
Test Mode:	Mode 3	Date:	02/01/2015				
Frequency:	5785MHz	Test By:	Eric Ou Yang				
Description:							
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2827.000	37.59	-0.94	36.65	74.00	-37.35	peak	H
4542.000	34.18	3.89	38.07	74.00	-35.93	peak	H
7657.000	33.38	11.74	45.12	74.00	-28.88	peak	H
2806.000	37.28	-0.99	36.29	74.00	-37.71	peak	V
4591.000	33.92	4.01	37.93	74.00	-36.07	peak	V
7650.000	33.19	11.74	44.93	74.00	-29.07	peak	V

Standard:	FCC Part 15E	Test Distance:	3m				
Test item:	Radiated Emission	Power:	AC 120V/60Hz				
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH				
Test Mode:	Mode 2	Date:	02/01/2015				
Frequency:	5825MHz	Test By:	Eric Ou Yang				
Description:							
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2813.000	37.58	-0.98	36.60	74.00	-37.40	peak	H
4577.000	33.85	3.98	37.83	74.00	-36.17	peak	H
5850.000	32.09	6.53	38.62	78.20	-39.58	peak	H
5860.000	32.80	6.55	39.35	68.20	-28.85	peak	H
7657.000	33.82	11.74	45.56	74.00	-28.44	peak	H
2799.000	36.45	-1.01	35.44	74.00	-38.56	peak	V
4549.000	33.79	3.92	37.71	74.00	-36.29	peak	V
5850.000	33.83	6.53	40.36	78.20	-37.84	peak	V
5860.000	34.20	6.55	40.75	68.20	-27.45	peak	V
7678.000	32.70	11.77	44.47	74.00	-29.53	peak	V

Standard:	FCC Part 15E	Test Distance:	3m				
Test item:	Radiated Emission	Power:	AC 120V/60Hz				
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH				
Test Mode:	Mode 4	Date:	02/01/2015				
Frequency:	5190MHz	Test By:	Eric Ou Yang				
Description:							
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2827.000	37.06	-0.94	36.12	74.00	-37.88	peak	H
4605.000	34.84	4.05	38.89	74.00	-35.11	peak	H
5150.000	33.48	5.28	38.76	68.20	-29.44	peak	H
7643.000	33.78	11.72	45.50	74.00	-28.50	peak	H
2813.000	35.49	-0.98	34.51	74.00	-39.49	peak	V
4605.000	34.66	4.05	38.71	74.00	-35.29	peak	V
5150.000	33.09	5.28	38.37	68.20	-29.83	peak	V
7678.000	33.59	11.77	45.36	74.00	-28.64	peak	V

Standard:	FCC Part 15E	Test Distance:	3m				
Test item:	Radiated Emission	Power:	AC 120V/60Hz				
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH				
Test Mode:	Mode 4	Date:	02/01/2015				
Frequency:	5230MHz	Test By:	Eric Ou Yang				
Description:							
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2813.000	36.51	-0.98	35.53	74.00	-38.47	peak	H
4570.000	33.07	3.97	37.04	74.00	-36.96	peak	H
7671.000	33.39	11.76	45.15	74.00	-28.85	peak	H
7699.000	34.29	11.80	46.09	74.00	-27.91	peak	H
2813.000	37.05	-0.98	36.07	74.00	-37.93	peak	V
4570.000	33.65	3.97	37.62	74.00	-36.38	peak	V
7678.000	32.53	11.77	44.30	74.00	-29.70	peak	V
7671.000	33.09	11.76	44.85	74.00	-29.15	peak	V

Standard:	FCC Part 15E	Test Distance:	3m				
Test item:	Radiated Emission	Power:	AC 120V/60Hz				
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH				
Test Mode:	Mode 4	Date:	02/01/2015				
Frequency:	5755MHz	Test By:	Eric Ou Yang				
Description:							
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2813.000	36.52	-0.98	35.54	74.00	-38.46	peak	H
4563.000	34.08	3.95	38.03	74.00	-35.97	peak	H
5715.000	33.07	6.25	39.32	68.20	-28.88	peak	H
5725.000	33.11	6.27	39.38	78.20	-38.82	peak	H
7671.000	33.58	11.76	45.34	74.00	-28.66	peak	H
2827.000	36.93	-0.94	35.99	74.00	-38.01	peak	V
4619.000	33.76	4.10	37.86	74.00	-36.14	peak	V
5715.000	32.84	6.25	39.09	68.20	-29.11	peak	V
5725.000	33.31	6.27	39.58	78.20	-38.62	peak	V
7657.000	32.96	11.74	44.70	74.00	-29.30	peak	V

Standard:	FCC Part 15E	Test Distance:	3m				
Test item:	Radiated Emission	Power:	AC 120V/60Hz				
Model Number:	AMG-PRO	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH				
Test Mode:	Mode 4	Date:	02/01/2015				
Frequency:	5795MHz	Test By:	Eric Ou Yang				
Description:							
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2813.000	37.27	-0.98	36.29	74.00	-37.71	peak	H
4591.000	34.41	4.01	38.42	74.00	-35.58	peak	H
5850.000	32.93	6.53	39.46	78.20	-38.74	peak	H
5860.000	32.20	6.55	38.75	68.20	-29.45	peak	H
7643.000	32.69	11.72	44.41	74.00	-29.59	peak	H
2834.000	37.62	-0.93	36.69	74.00	-37.31	peak	V
4570.000	33.88	3.97	37.85	74.00	-36.15	peak	V
5850.000	33.11	6.53	39.64	78.20	-38.56	peak	V
5860.000	32.61	6.55	39.16	68.20	-29.04	peak	V
7671.000	32.47	11.76	44.23	74.00	-29.77	peak	V

6 Maximum Conducted Output Power

6.1. Limit

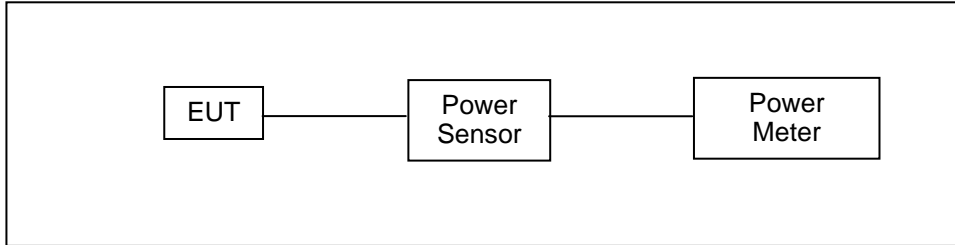
Conducted Output Power

Frequency Range (MHz)	FCC Limit
5.150 ~ 5.250 GHz	The lesser of 1W (30dBm)
5.250 ~ 5.350 GHz	The lesser of 250mW (24dBm) or 11dBm + 10log (B)
5.470 ~ 5.725 GHz	The lesser of 250mW (24dBm) or 11dBm + 10log (B)
5.725 ~ 5.850 GHz	The lesser of 1000mW (30dBm)

Frequency Range (MHz)	IC Limit
5.150 ~ 5.250 GHz	N/A
5.250 ~ 5.350 GHz	The lesser of 250mW or 11dBm+10*log (B)
5.470 ~ 5.600 GHz and 5650~5725MHz	The lesser of 250mW or 11dBm+10*log (B)
5.725 ~ 5.825 GHz	The lesser of 1W or 17dBm+10*log (B)

Note: Where B is the 26dB emission bandwidth in MHz.

6.2. Test Setup



6.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Power Sensor	Anritsu	MA2411B	1126022	08/21/2014	(1)
Power Meter	Anritsu	ML2495A	1135009	08/21/2014	(1)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

6.4. Test Procedure

The test is performed in accordance with KDB789033: D02 General UNII Test Procedures New Rules v01, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E.

6.5. Test Result

Band	Data Rate	CH	Frequency (MHz)	RF power setting in Test Software		Test Software Version
				Antenna 1	Antenna 2	
IEEE 802.11a	6M	36	5180.0	13	13	Atheros Radio Test 2 ART2-GUI Version:2.2 CART Version:2.54
		40	5200.0	13	13	
		44	5220.0	13	13	
		48	5240.0	13	13	
		149	5745.0	13	13	
		153	5765.0	13	13	
		157	5785.0	13	13	
		161	5805.0	13	13	
165	5825.0	13	13			
IEEE 802.11n 20MHz	13M	36	5180.0	12.5	12.5	
		40	5200.0	12.5	12.5	
		44	5220.0	12.5	12.5	
		48	5240.0	12.5	12.5	
		149	5745.0	12.5	12.5	
		153	5765.0	12.5	12.5	
		157	5785.0	12.5	12.5	
		161	5805.0	12.5	12.5	
165	5825.0	12.5	12.5			
IEEE 802.11n 40MHz	27M	38	5190.0	10.5	10.5	
		46	5230.0	10.5	10.5	
		151	5755.0	10.5	10.5	
		159	5795.0	10.5	10.5	

Model Number		AMG-PRO							
Test Item		Maximum Conducted Output Power							
Test Mode		Mode 2: IEEE 802.11a Link Mode							
Date of Test		02/01/2015				Test Site		TE02	
Frequency (MHz)	Data Rate	Antenna 1		Antenna 2		Antenna 1+2		FCC Limit (dBm)	IC Limit (dBm)
		Average Power		Average Power		Average Power			
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)		
5180.0	6M	16.16	0.041	14.62	0.029	18.47	0.070	< 30	N/A
5200.0		16.43	0.044	15.09	0.032	18.82	0.076		
5220.0		16.02	0.040	14.56	0.029	18.36	0.069		
5240.0		15.96	0.039	14.68	0.029	18.38	0.069	< 30	< 30
5745.0		15.48	0.035	15.07	0.032	18.29	0.067		
5765.0		15.40	0.035	15.25	0.033	18.34	0.068		
5785.0		15.73	0.037	16.08	0.041	18.92	0.078		
5805.0		15.76	0.038	15.86	0.039	18.82	0.076		
5825.0		15.66	0.037	15.80	0.038	18.74	0.075		
5180.0	54M	15.97	0.040	14.43	0.028	18.28	0.067	< 30	N/A
5200.0		16.20	0.042	14.86	0.031	18.59	0.072		
5220.0		15.80	0.038	14.34	0.027	18.14	0.065		
5240.0		15.81	0.038	14.53	0.028	18.23	0.066	< 30	< 30
5745.0		15.28	0.034	14.87	0.031	18.09	0.064		
5765.0		15.17	0.033	15.02	0.032	18.11	0.065		
5785.0		15.52	0.036	15.87	0.039	18.71	0.074		
5805.0		15.39	0.035	15.49	0.035	18.45	0.070		
5825.0		15.51	0.036	15.65	0.037	18.59	0.072		

Model Number		AMG-PRO							
Test Item		Maximum Conducted Output Power							
Test Mode		Mode 3: IEEE 802.11n 20MHz Link Mode							
Date of Test		02/01/2015				Test Site		TE02	
Frequency (MHz)	Data Rate	Antenna 1		Antenna 2		Antenna 1+2		FCC Limit (dBm)	IC Limit (dBm)
		Average Power		Average Power		Average Power			
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)		
5180.0	13M	15.27	0.034	14.16	0.026	17.76	0.060	< 30	N/A
5200.0		15.81	0.038	14.57	0.029	18.24	0.067		
5220.0		14.98	0.031	14.50	0.028	17.76	0.060		
5240.0		15.58	0.036	14.54	0.028	18.10	0.065	< 30	< 30
5745.0		14.92	0.031	14.25	0.027	17.61	0.058		
5765.0		14.81	0.030	14.71	0.030	17.77	0.060		
5785.0		15.18	0.033	15.58	0.036	18.39	0.069	< 30	< 30
5805.0		15.30	0.034	15.86	0.039	18.60	0.072		
5825.0		14.75	0.030	15.79	0.038	18.31	0.068		
5180.0	130M	15.16	0.033	14.05	0.025	17.65	0.058	< 30	N/A
5200.0		15.66	0.037	14.42	0.028	18.09	0.064		
5220.0		14.81	0.030	14.33	0.027	17.59	0.057		
5240.0		15.43	0.035	14.39	0.027	17.95	0.062	< 30	< 30
5745.0		14.73	0.030	14.06	0.025	17.42	0.055		
5765.0		14.57	0.029	14.47	0.028	17.53	0.057		
5785.0		15.01	0.032	15.41	0.035	18.22	0.066	< 30	< 30
5805.0		15.09	0.032	15.65	0.037	18.39	0.069		
5825.0		14.60	0.029	15.64	0.037	18.16	0.065		

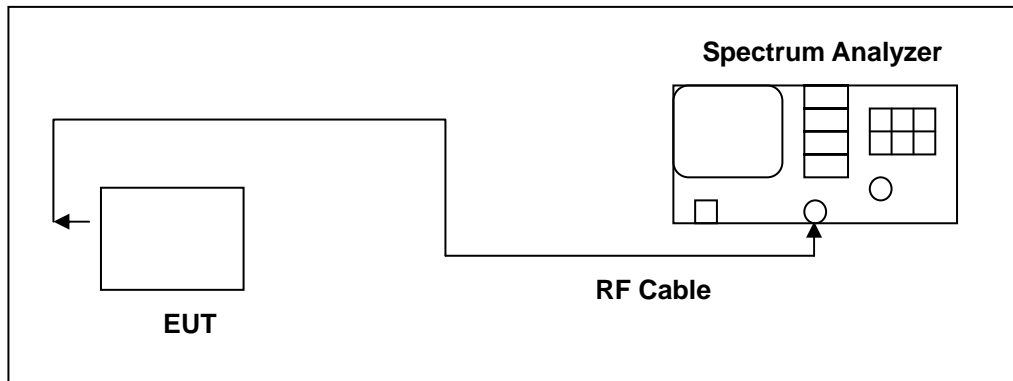
Model Number		AMG-PRO							
Test Item		Maximum Conducted Output Power							
Test Mode		Mode 4: IEEE 802.11n 40MHz Link Mode							
Date of Test		02/01/2015				Test Site		TE02	
Frequency (MHz)	Data Rate	Antenna 1		Antenna 2		Antenna 1+2		FCC Limit (dBm)	IC Limit (dBm)
		Average Power		Average Power		Average Power			
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)		
5190.0	27M	12.96	0.020	12.58	0.018	15.78	0.038	< 30	N/A
5230.0		12.66	0.018	12.33	0.017	15.51	0.036		
5755.0		13.57	0.023	13.20	0.021	16.40	0.044	< 30	< 30
5795.0		13.84	0.024	13.45	0.022	16.66	0.046		
5190.0	270M	12.73	0.019	12.35	0.017	15.55	0.036	< 30	N/A
5230.0		12.44	0.018	12.11	0.016	15.29	0.034		
5755.0		13.39	0.022	13.02	0.020	16.22	0.042	< 30	< 30
5795.0		13.60	0.023	13.21	0.021	16.42	0.044		

7 26dB RF Bandwidth Measurement

7.1. Limit

N/A

7.2. Test Setup



7.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/16/2014	(1)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

7.4. Test Procedure

The test is performed in accordance with KDB789033: D02 General UNII Test Procedures New Rules v01, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E.

7.5. Test Result

Model Number	AMG-PRO			
Test Item	26dB RF Bandwidth			
Test Mode	Mode 2: IEEE 802.11a Link Mode			
Date of Test	02/03/2015	Test Site	TE02	
Frequency (MHz)	Antenna 1		Antenna 2	
	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
5180	27.760	16.4640	24.970	16.6490
5220	25.910	16.6290	23.520	16.5810
5240	25.480	16.7080	23.880	16.5880

Model Number	AMG-PRO			
Test Item	26dB RF Bandwidth			
Test Mode	Mode 3: IEEE 802.11n 20MHz Link Mode			
Date of Test	02/03/2015	Test Site	TE02	
Frequency (MHz)	Antenna 1		Antenna 2	
	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
5180	25.400	17.8400	25.290	17.7350
5220	24.300	17.7800	25.750	17.7240
5240	25.670	17.7880	25.160	17.7750

Model Number	AMG-PRO			
Test Item	26dB RF Bandwidth			
Test Mode	Mode 4: IEEE 802.11n 40MHz Link Mode			
Date of Test	02/03/2015	Test Site	TE02	
Frequency (MHz)	Antenna 1		Antenna 2	
	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
5190	46.430	36.7370	45.750	36.6690
5230	47.390	36.7890	47.820	36.6360

7.6. Test Graphs

Mode 2: IEEE 802.11a Link Mode_ Antenna 1	
5180	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.18000000 GHz Center Freq: 5.180000000 GHz Radio Std: None Trig: Free Run AvgHold: 10/10 #IFGain: 1.0 #Aver: 20 dB Radio Device: BTS</p> <p>Ref Offset: 12.3 dB Ref 20.00 dBm</p> <p>Center 5.18 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 18.033 MHz Total Power 23.3 dBm Transmit Freq Error -207.70 kHz OBW Power 99.00 % x dB Bandwidth 27.76 MHz x dB -26.00 dB</p>
5220	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.22000000 GHz Center Freq: 5.220000000 GHz Radio Std: None Trig: Free Run AvgHold: 10/10 #IFGain: 1.0 #Aver: 20 dB Radio Device: BTS</p> <p>Ref Offset: 12.3 dB Ref 20.00 dBm</p> <p>Center 5.22 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 17.715 MHz Total Power 22.3 dBm Transmit Freq Error -181.05 kHz OBW Power 99.00 % x dB Bandwidth 25.91 MHz x dB -26.00 dB</p>
5240	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.24000000 GHz Center Freq: 5.240000000 GHz Radio Std: None Trig: Free Run AvgHold: 10/10 #IFGain: 1.0 #Aver: 20 dB Radio Device: BTS</p> <p>Ref Offset: 12.3 dB Ref 20.00 dBm</p> <p>Center 5.24 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 17.717 MHz Total Power 22.6 dBm Transmit Freq Error -254.39 kHz OBW Power 99.00 % x dB Bandwidth 25.48 MHz x dB -26.00 dB</p>

Mode 3: IEEE 802.11n 20MHz Link Mode _ Antenna 1	
5180	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.18000000 GHz Center Freq: 5.180000000 GHz Radio Std: None Trig: Free Run AvgHold: 10/10 #IFGain: 1.0 #Aver: 20 dB</p> <p>Ref Offset: 12.3 dB Ref 20.00 dBm</p> <p>Center 5.18 GHz #Res BW 1 MHz #VBW 3 MHz Span 50 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 18.700 MHz Total Power 22.5 dBm Transmit Freq Error -158.43 kHz OBW Power 99.00 % x dB Bandwidth 25.40 MHz x dB -26.00 dB</p> <p>Center Freq 5.18000000 GHz CF Step 6.000000 MHz Freq Offset 0 Hz</p>
5220	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.22000000 GHz Center Freq: 5.220000000 GHz Radio Std: None Trig: Free Run AvgHold: 10/10 #IFGain: 1.0 #Aver: 20 dB</p> <p>Ref Offset: 12.3 dB Ref 20.00 dBm</p> <p>Center 5.22 GHz #Res BW 1 MHz #VBW 3 MHz Span 50 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 18.674 MHz Total Power 22.7 dBm Transmit Freq Error -245.64 kHz OBW Power 99.00 % x dB Bandwidth 24.30 MHz x dB -26.00 dB</p> <p>Center Freq 5.22000000 GHz CF Step 6.000000 MHz Freq Offset 0 Hz</p>
5240	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.24000000 GHz Center Freq: 5.240000000 GHz Radio Std: None Trig: Free Run AvgHold: 10/10 #IFGain: 1.0 #Aver: 20 dB</p> <p>Ref Offset: 12.3 dB Ref 20.00 dBm</p> <p>Center 5.24 GHz #Res BW 1 MHz #VBW 3 MHz Span 50 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 18.714 MHz Total Power 22.5 dBm Transmit Freq Error -237.86 kHz OBW Power 99.00 % x dB Bandwidth 25.67 MHz x dB -26.00 dB</p> <p>Center Freq 5.24000000 GHz CF Step 6.000000 MHz Freq Offset 0 Hz</p>

Mode 4: IEEE 802.11n 40MHz Link Mode_ Antenna 1	
5190	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 5.19000000 GHz</p> <p>Ref Offset: 12.3 dB Ref: 30.00 dBm</p> <p>Center 5.19 GHz #Res BW 1 MHz</p> <p>Span 80 MHz Sweep 1 ms</p> <p>Occupied Bandwidth: 36.891 MHz</p> <p>Total Power: 21.0 dBm</p> <p>Transmit Freq Error: -225.88 kHz</p> <p>OBW Power: 99.00 %</p> <p>x dB Bandwidth: 46.43 MHz</p> <p>x dB: -26.00 dB</p>
5230	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 5.23000000 GHz</p> <p>Ref Offset: 12.3 dB Ref: 30.00 dBm</p> <p>Center 5.23 GHz #Res BW 1 MHz</p> <p>Span 80 MHz Sweep 1 ms</p> <p>Occupied Bandwidth: 36.819 MHz</p> <p>Total Power: 21.0 dBm</p> <p>Transmit Freq Error: -202.80 kHz</p> <p>OBW Power: 99.00 %</p> <p>x dB Bandwidth: 47.39 MHz</p> <p>x dB: -26.00 dB</p>

Mode 2: IEEE 802.11a Link Mode_ Antenna 2	
5180	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.18000000 GHz Center Freq: 5.180000000 GHz Radio Std: None Trig: Free Run AvgHold: 10/10 #IFGain: 1.0 #Aver: 20 dB Radio Device: BTS</p> <p>Ref Offset: 12.3 dB Ref 20.00 dBm</p> <p>Center 5.18 GHz Span 40 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 17.978 MHz Total Power 20.8 dBm Transmit Freq Error -170.80 kHz OBW Power 99.00 % x dB Bandwidth 24.97 MHz x dB -26.00 dB</p>
5220	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.22000000 GHz Center Freq: 5.220000000 GHz Radio Std: None Trig: Free Run AvgHold: 10/10 #IFGain: 1.0 #Aver: 20 dB Radio Device: BTS</p> <p>Ref Offset: 12.3 dB Ref 20.00 dBm</p> <p>Center 5.22 GHz Span 40 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 17.554 MHz Total Power 19.1 dBm Transmit Freq Error -190.63 kHz OBW Power 99.00 % x dB Bandwidth 23.52 MHz x dB -26.00 dB</p>
5240	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.24000000 GHz Center Freq: 5.240000000 GHz Radio Std: None Trig: Free Run AvgHold: 10/10 #IFGain: 1.0 #Aver: 20 dB Radio Device: BTS</p> <p>Ref Offset: 12.3 dB Ref 20.00 dBm</p> <p>Center 5.24 GHz Span 40 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 17.595 MHz Total Power 18.9 dBm Transmit Freq Error -197.45 kHz OBW Power 99.00 % x dB Bandwidth 23.88 MHz x dB -26.00 dB</p>

Mode 3: IEEE 802.11n 20MHz Link Mode _ Antenna 2	
5180	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.18000000 GHz Center Freq: 5.180000000 GHz Radio Std: None Trig: Free Run AvgHold: 10/10 #IFGain: 1.0 #Aver: 20 Radio Device: BTS</p> <p>Ref Offset: 12.3 dB Ref 20.00 dBm</p> <p>Center 5.18 GHz Span 40 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms</p> <p>Occupied Bandwidth Total Power 20.8 dBm 18.671 MHz</p> <p>Transmit Freq Error OBW Power 99.00 % -191.29 kHz</p> <p>x dB Bandwidth x dB -26.00 dB 25.29 MHz</p> <p>Frequency: 5.18000000 GHz CF Step: 4.000000 MHz Freq Offset: 0 Hz</p>
5220	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.22000000 GHz Center Freq: 5.220000000 GHz Radio Std: None Trig: Free Run AvgHold: 10/10 #IFGain: 1.0 #Aver: 20 Radio Device: BTS</p> <p>Ref Offset: 12.3 dB Ref 20.00 dBm</p> <p>Center 5.22 GHz Span 40 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms</p> <p>Occupied Bandwidth Total Power 19.4 dBm 18.534 MHz</p> <p>Transmit Freq Error OBW Power 99.00 % -175.41 kHz</p> <p>x dB Bandwidth x dB -26.00 dB 25.75 MHz</p> <p>Frequency: 5.22000000 GHz CF Step: 4.000000 MHz Freq Offset: 0 Hz</p>
5240	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.24000000 GHz Center Freq: 5.240000000 GHz Radio Std: None Trig: Free Run AvgHold: 10/10 #IFGain: 1.0 #Aver: 20 Radio Device: BTS</p> <p>Ref Offset: 12.3 dB Ref 20.00 dBm</p> <p>Center 5.24 GHz Span 40 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 1 ms</p> <p>Occupied Bandwidth Total Power 19.7 dBm 18.606 MHz</p> <p>Transmit Freq Error OBW Power 99.00 % -183.93 kHz</p> <p>x dB Bandwidth x dB -26.00 dB 25.16 MHz</p> <p>Frequency: 5.24000000 GHz CF Step: 4.000000 MHz Freq Offset: 0 Hz</p>

Mode 4: IEEE 802.11n 40MHz Link Mode_ Antenna 2	
5190	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.19000000 GHz</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>Center 5.19 GHz #Res BW 1 MHz</p> <p>Occupied Bandwidth 36.674 MHz</p> <p>Total Power 18.7 dBm</p> <p>Transmit Freq Error -211.50 kHz</p> <p>x dB Bandwidth 45.75 MHz</p>
5230	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.23000000 GHz</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>Center 5.23 GHz #Res BW 1 MHz</p> <p>Occupied Bandwidth 36.778 MHz</p> <p>Total Power 18.4 dBm</p> <p>Transmit Freq Error -312.14 kHz</p> <p>x dB Bandwidth 47.82 MHz</p>

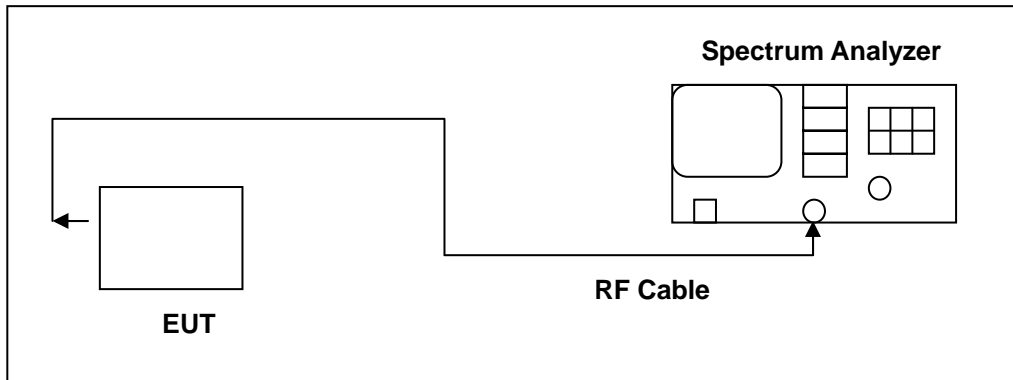
8 20dB RF Bandwidth Measurement

8.1. Limit

N/A

If the device grant is changed to show operation in the 5.15-5.25 GHz band please ensure that the test data show that the 20dB BW remains in the band.

8.2. Test Setup



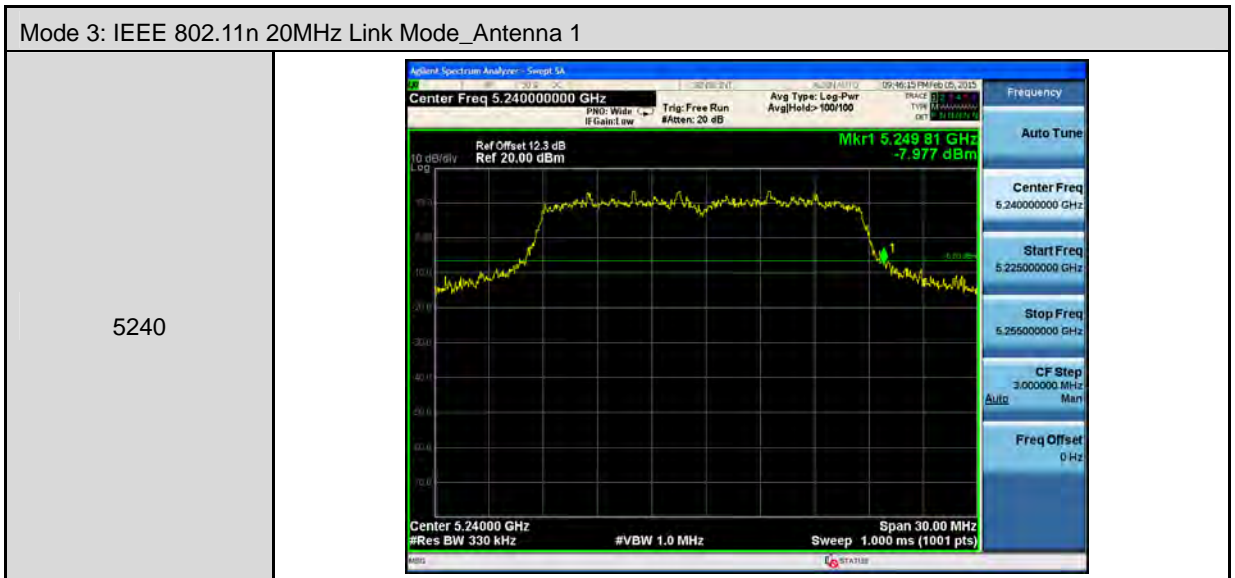
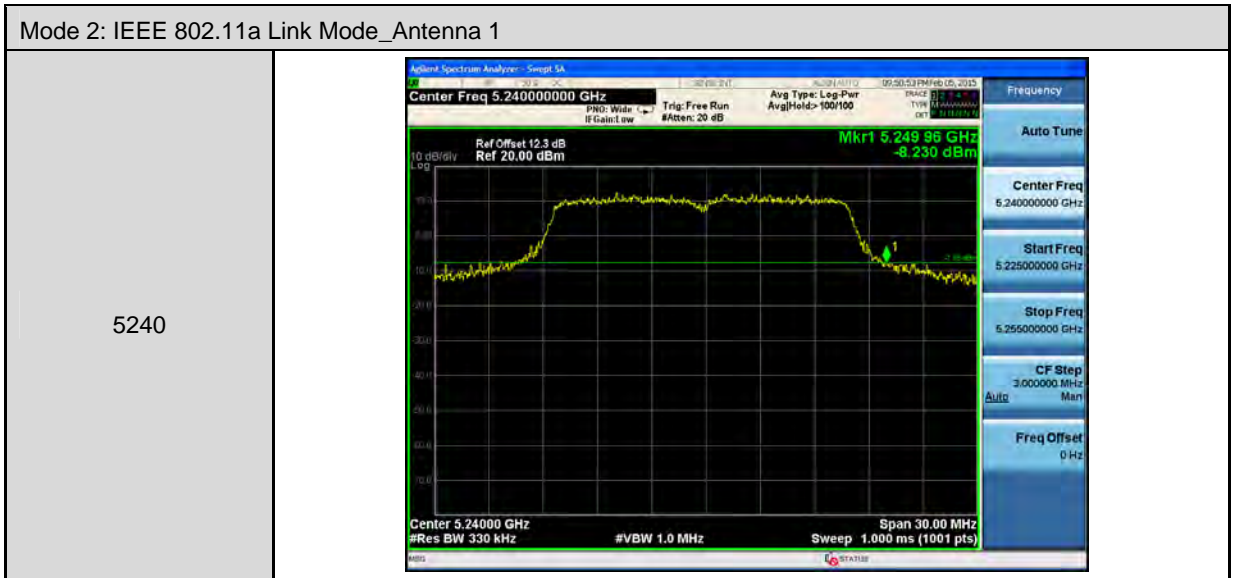
8.3. Test Instruments

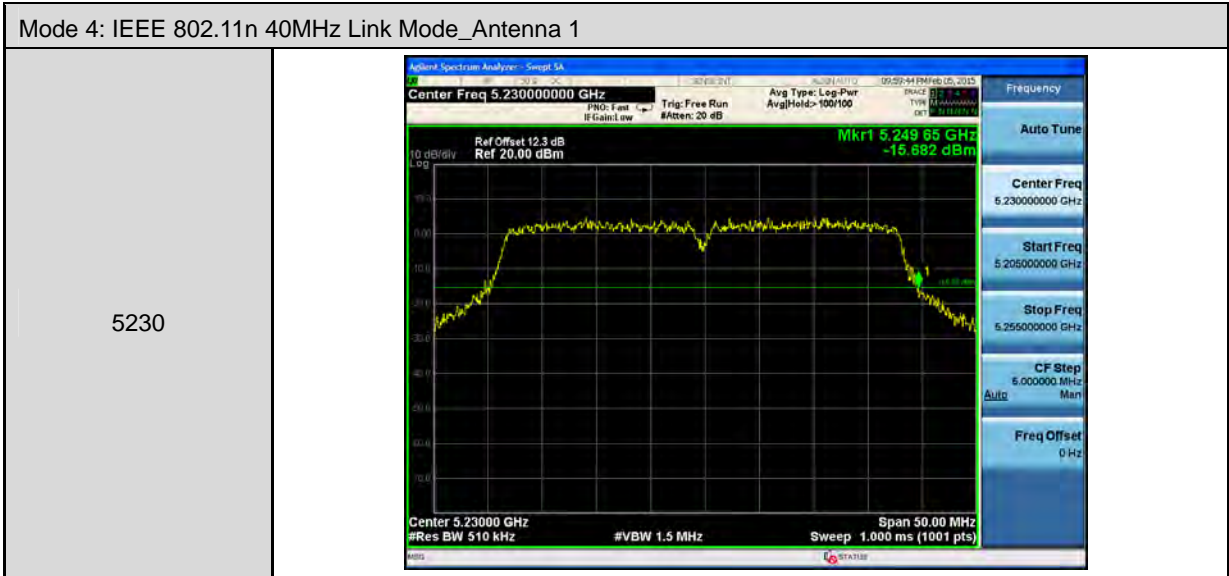
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/16/2014	(1)
Test Site	ATL	TE02	TE02	N.C.R.	-----

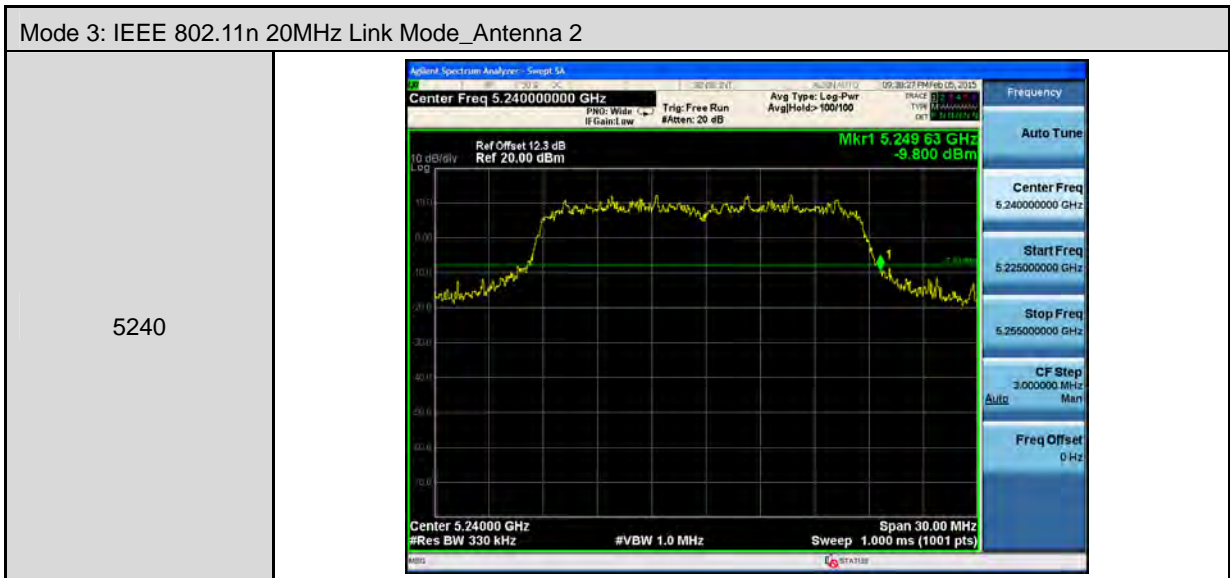
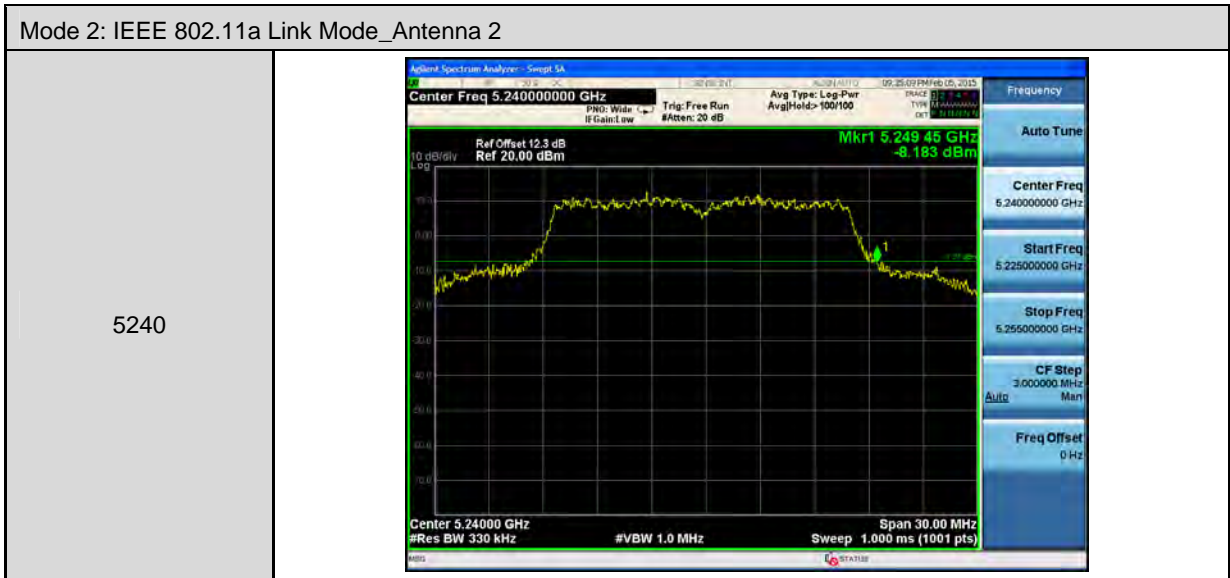
Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

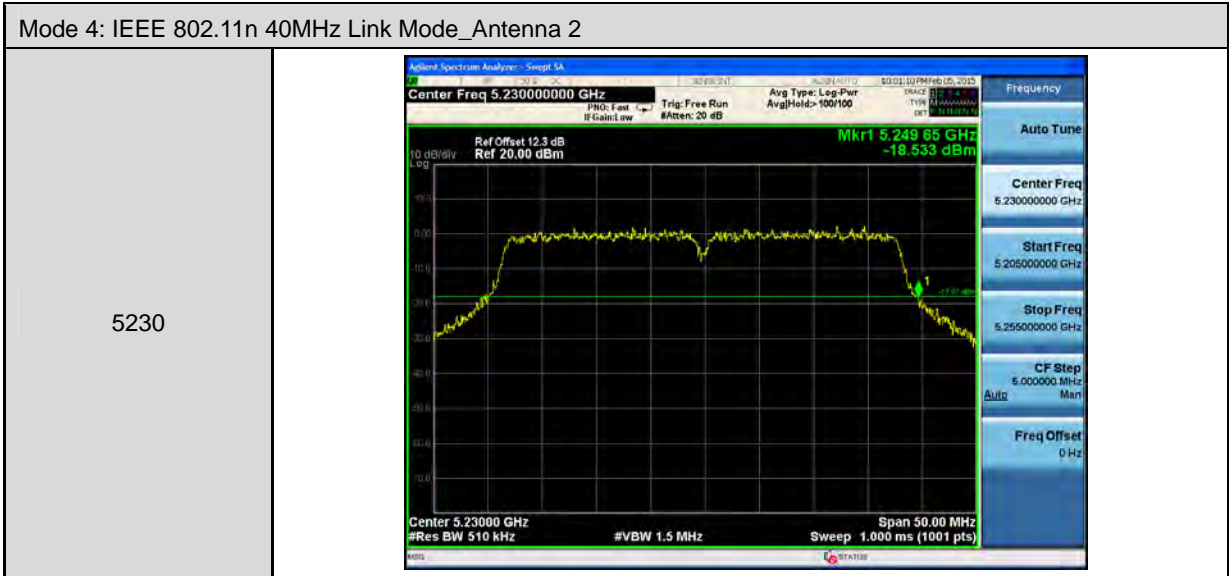
Note: N.C.R. = No Calibration Request.

8.4. Test Graphs









9 6dB RF Bandwidth & 99 % Occupied Bandwidth Measurement

9.1. Limit

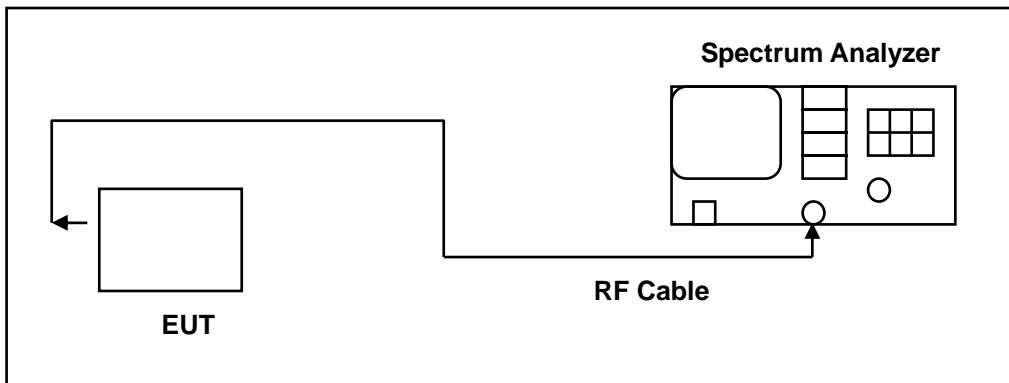
6dB RF Bandwidth

Systems using digital modulation techniques may operate in the 5725–5850MHz bands. The minimum 6 dB band-width shall be at least 500 kHz.

99 % Occupied Bandwidth

N/A

9.2. Test Setup



9.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/16/2014	(1)
Test Site	ATL	TE05	TE05	N.C.R.	-----

dRemark: (1) Calibration period 1 year. (2) Calibration period 2 years. (3) Calibration period 3 years.

Note: N.C.R. = No Calibration Request.

9.4. Test Procedure

6dB RF Bandwidth

The EUT tested to UNII test procedure of KDB789033 D02 for compliance to FCC 47CFR 15.247 requirements.

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A peak output reading was taken, a DISPLAY line was drawn 6 dB lower than peak level. The 6 dB bandwidth was determined from where the channel output spectrum intersected the display line.

The test was performed at 3 channels.

99 % Occupied Bandwidth

The transmitter shall be operated at its maximum carrier power measured under normal test conditions.

The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual.

The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded.

9.5. Test Result

Model Number	AMG-PRO				
Test Item	6dB RF Bandwidth & 99 % Occupied Bandwidth				
Test Mode	Mode 2: IEEE 802.11a Link Mode				
Date of Test	02/03/2015			Test Site	TE05
Frequency (MHz)	Antenna 1		Antenna 2		6dB Bandwidth Limit (kHz)
	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	
5745	15.110	16.6910	14.690	16.6570	> 500
5785	16.470	16.6140	11.890	16.7520	> 500
5825	16.370	16.7990	16.420	16.7070	> 500

Model Number	AMG-PRO				
Test Item	6dB RF Bandwidth & 99 % Occupied Bandwidth				
Test Mode	Mode 3: IEEE 802.11n 20MHz Link Mode				
Date of Test	02/03/2015			Test Site	TE05
Frequency (MHz)	Antenna 1		Antenna 2		6dB Bandwidth Limit (kHz)
	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	
5745	15.060	17.7630	15.980	17.7600	> 500
5785	16.660	17.8130	15.150	17.7800	> 500
5825	17.390	17.8140	13.830	17.7600	> 500

Model Number	AMG-PRO				
Test Item	6dB RF Bandwidth & 99 % Occupied Bandwidth				
Test Mode	Mode 4: IEEE 802.11n 40MHz Link Mode				
Date of Test	02/03/2015			Test Site	TE05
Frequency (MHz)	Antenna 1		Antenna 2		6dB Bandwidth Limit (kHz)
	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	
5755	35.600	36.7590	36.044	36.7010	> 500
5795	35.230	36.8540	36.046	36.5050	> 500

9.6. Test Graphs

6dB Bandwidth

Mode 2: IEEE 802.11a Link Mode_Antenna 1

<p>5745</p>	<p>Center Freq 5.745000000 GHz</p> <p>Center Freq 5.745000000 GHz</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 5.745 GHz #Res BW 100 kHz</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>#VBW 300 kHz</p> <p>Occupied Bandwidth 16.435 MHz</p> <p>Total Power 21.5 dBm</p> <p>Transmit Freq Error -293.59 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 15.11 MHz</p> <p>x dB -6.00 dB</p>
<p>5785</p>	<p>Center Freq 5.785000000 GHz</p> <p>Center Freq 5.785000000 GHz</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 5.785 GHz #Res BW 100 kHz</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>#VBW 300 kHz</p> <p>Occupied Bandwidth 16.423 MHz</p> <p>Total Power 21.1 dBm</p> <p>Transmit Freq Error -308.22 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 16.47 MHz</p> <p>x dB -6.00 dB</p>
<p>5825</p>	<p>Center Freq 5.825000000 GHz</p> <p>Center Freq 5.825000000 GHz</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 5.825 GHz #Res BW 100 kHz</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>#VBW 300 kHz</p> <p>Occupied Bandwidth 16.468 MHz</p> <p>Total Power 21.5 dBm</p> <p>Transmit Freq Error -280.04 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 16.37 MHz</p> <p>x dB -6.00 dB</p>

Mode 3: IEEE 802.11n 20MHz Link Mode_Antenna 1

<p>5745</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.745000000 GHz Center Freq: 5.745000000 GHz Radio Std: None Frequency</p> <p>Trig: Free Run Avg/Hold: 10/10 Radio Device: BTS</p> <p>Ref Offset: 12.3 dB Ref: 20.00 dBm</p> <p>Center 5.745 GHz Span 30 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 2.933 ms</p> <p>Occupied Bandwidth Total Power 22.3 dBm</p> <p>17.643 MHz</p> <p>Transmit Freq Error -278.82 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 15.06 MHz x dB -6.00 dB</p>
<p>5785</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.785000000 GHz Center Freq: 5.785000000 GHz Radio Std: None Frequency</p> <p>Trig: Free Run Avg/Hold: 10/10 Radio Device: BTS</p> <p>Ref Offset: 12.3 dB Ref: 20.00 dBm</p> <p>Center 5.785 GHz Span 30 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 2.933 ms</p> <p>Occupied Bandwidth Total Power 22.5 dBm</p> <p>17.633 MHz</p> <p>Transmit Freq Error -268.39 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.86 MHz x dB -6.00 dB</p>
<p>5825</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.825000000 GHz Center Freq: 5.825000000 GHz Radio Std: None Frequency</p> <p>Trig: Free Run Avg/Hold: 10/10 Radio Device: BTS</p> <p>Ref Offset: 12.3 dB Ref: 20.00 dBm</p> <p>Center 5.825 GHz Span 30 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 2.933 ms</p> <p>Occupied Bandwidth Total Power 22.3 dBm</p> <p>17.612 MHz</p> <p>Transmit Freq Error -278.03 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 17.39 MHz x dB -6.00 dB</p>

Mode 4: IEEE 802.11n 40MHz Link Mode_Antenna 1

5755	<p>Center Freq 5.755000000 GHz</p> <p>Center Freq 5.755000000 GHz</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 5.755 GHz #Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 50 MHz Sweep 4.8 ms</p> <p>Occupied Bandwidth 36.068 MHz</p> <p>Total Power 19.2 dBm</p> <p>Transmit Freq Error -300.35 kHz</p> <p>x dB Bandwidth 35.60 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -6.00 dB</p>
5795	<p>Center Freq 5.795000000 GHz</p> <p>Center Freq 5.795000000 GHz</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 5.795 GHz #Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 50 MHz Sweep 4.8 ms</p> <p>Occupied Bandwidth 36.087 MHz</p> <p>Total Power 19.7 dBm</p> <p>Transmit Freq Error -262.08 kHz</p> <p>x dB Bandwidth 35.23 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -6.00 dB</p>

Mode 2: IEEE 802.11a Link Mode_Antenna 2

<p>5745</p>	<p>Center Freq 5.74500000 GHz</p> <p>Center Freq: 5.745000000 GHz</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 5.745 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth 16.484 MHz</p> <p>Total Power 21.7 dBm</p> <p>Transmit Freq Error -251.91 kHz</p> <p>x dB Bandwidth 14.68 MHz</p>
<p>5785</p>	<p>Center Freq 5.78500000 GHz</p> <p>Center Freq: 5.785000000 GHz</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 5.785 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth 16.449 MHz</p> <p>Total Power 21.3 dBm</p> <p>Transmit Freq Error -256.76 kHz</p> <p>x dB Bandwidth 11.88 MHz</p>
<p>5825</p>	<p>Center Freq 5.82500000 GHz</p> <p>Center Freq: 5.825000000 GHz</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 5.825 GHz #Res BW 100 kHz</p> <p>Occupied Bandwidth 16.508 MHz</p> <p>Total Power 21.4 dBm</p> <p>Transmit Freq Error -263.76 kHz</p> <p>x dB Bandwidth 16.42 MHz</p>

Mode 3: IEEE 802.11n 20MHz Link Mode_Antenna 2

<p>5745</p>	<p>Center Freq 5.745000000 GHz</p> <p>Center Freq: 5.745000000 GHz</p> <p>Center Freq 5.745 GHz</p> <p>Res BW 100 kHz</p> <p>Span 30 MHz</p> <p>Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.625 MHz</p> <p>Total Power 23.2 dBm</p> <p>Transmit Freq Error -250.00 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 15.98 MHz</p> <p>x dB -6.00 dB</p>
<p>5785</p>	<p>Center Freq 5.785000000 GHz</p> <p>Center Freq: 5.785000000 GHz</p> <p>Center Freq 5.785 GHz</p> <p>Res BW 100 kHz</p> <p>Span 30 MHz</p> <p>Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.649 MHz</p> <p>Total Power 22.1 dBm</p> <p>Transmit Freq Error -273.49 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 15.15 MHz</p> <p>x dB -6.00 dB</p>
<p>5825</p>	<p>Center Freq 5.825000000 GHz</p> <p>Center Freq: 5.825000000 GHz</p> <p>Center Freq 5.825 GHz</p> <p>Res BW 100 kHz</p> <p>Span 30 MHz</p> <p>Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.633 MHz</p> <p>Total Power 21.8 dBm</p> <p>Transmit Freq Error -290.53 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 13.83 MHz</p> <p>x dB -6.00 dB</p>

Mode 4: IEEE 802.11n 40MHz Link Mode_Antenna 2

5755	<p>Center Freq 5.755000000 GHz</p> <p>Center Freq: 5.755000000 GHz</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>Center 5.755 GHz #Res BW 100 kHz</p> <p>Span 50 MHz Sweep 4.8 ms</p> <p>Occupied Bandwidth 36.044 MHz</p> <p>Total Power 22.8 dBm</p> <p>Transmit Freq Error -355.00 kHz</p> <p>x dB Bandwidth 35.12 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -6.00 dB</p>
5795	<p>Center Freq 5.795000000 GHz</p> <p>Center Freq: 5.795000000 GHz</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>Center 5.795 GHz #Res BW 100 kHz</p> <p>Span 50 MHz Sweep 4.8 ms</p> <p>Occupied Bandwidth 36.046 MHz</p> <p>Total Power 21.9 dBm</p> <p>Transmit Freq Error -346.49 kHz</p> <p>x dB Bandwidth 32.72 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -6.00 dB</p>

99% Occupied Bandwidth

Mode 2: IEEE 802.11a Link Mode_Antenna 1

<p>5745</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.745000000 GHz Center Freq: 5.745000000 GHz Radio Std: None Frequency</p> <p>Trig: Free Run Avg/Hold: 10/10 Radio Device: BTS</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 5.745 GHz Span 25 MHz</p> <p>Res BW 300 kHz #VBW 1 MHz Sweep 1 ms</p> <p>Occupied Bandwidth Total Power 21.1 dBm</p> <p>16.691 MHz</p> <p>Transmit Freq Error -229.23 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.28 MHz x dB -6.00 dB</p>
<p>5785</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.785000000 GHz Center Freq: 5.785000000 GHz Radio Std: None Frequency</p> <p>Trig: Free Run Avg/Hold: 10/10 Radio Device: BTS</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 5.785 GHz Span 25 MHz</p> <p>Res BW 300 kHz #VBW 1 MHz Sweep 1 ms</p> <p>Occupied Bandwidth Total Power 21.6 dBm</p> <p>16.614 MHz</p> <p>Transmit Freq Error -288.72 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 15.94 MHz x dB -6.00 dB</p>
<p>5825</p>	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.825000000 GHz Center Freq: 5.825000000 GHz Radio Std: None Frequency</p> <p>Trig: Free Run Avg/Hold: 10/10 Radio Device: BTS</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 5.825 GHz Span 25 MHz</p> <p>Res BW 300 kHz #VBW 1 MHz Sweep 1 ms</p> <p>Occupied Bandwidth Total Power 22.4 dBm</p> <p>16.799 MHz</p> <p>Transmit Freq Error -247.07 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 16.22 MHz x dB -6.00 dB</p>

Mode 3: IEEE 802.11n 20MHz Link Mode_Antenna 1

<p>5745</p>	<p>Center Freq 5.745000000 GHz</p> <p>Center Freq: 5.745000000 GHz</p> <p>Occupied Bandwidth: 17.763 MHz</p> <p>Total Power: 22.4 dBm</p> <p>Transmit Freq Error: -232.86 kHz</p> <p>OBW Power: 99.00 %</p> <p>x dB Bandwidth: 17.45 MHz</p> <p>x dB: -6.00 dB</p>
<p>5785</p>	<p>Center Freq 5.785000000 GHz</p> <p>Center Freq: 5.785000000 GHz</p> <p>Occupied Bandwidth: 17.813 MHz</p> <p>Total Power: 22.7 dBm</p> <p>Transmit Freq Error: -251.35 kHz</p> <p>OBW Power: 99.00 %</p> <p>x dB Bandwidth: 17.14 MHz</p> <p>x dB: -6.00 dB</p>
<p>5825</p>	<p>Center Freq 5.825000000 GHz</p> <p>Center Freq: 5.825000000 GHz</p> <p>Occupied Bandwidth: 17.814 MHz</p> <p>Total Power: 22.6 dBm</p> <p>Transmit Freq Error: -245.75 kHz</p> <p>OBW Power: 99.00 %</p> <p>x dB Bandwidth: 16.89 MHz</p> <p>x dB: -6.00 dB</p>

Mode 4: IEEE 802.11n 40MHz Link Mode_Antenna 1

5755	<p>Center Freq 5.755000000 GHz</p> <p>Center Freq 5.755000000 GHz</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>Center 5.755 GHz #Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 50 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 36.759 MHz</p> <p>Total Power 21.3 dBm</p> <p>Transmit Freq Error -317.56 kHz</p> <p>x dB Bandwidth 35.98 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -6.00 dB</p>
5795	<p>Center Freq 5.795000000 GHz</p> <p>Center Freq 5.795000000 GHz</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>Center 5.795 GHz #Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 50 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 36.854 MHz</p> <p>Total Power 22.5 dBm</p> <p>Transmit Freq Error -334.50 kHz</p> <p>x dB Bandwidth 36.50 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -6.00 dB</p>

Mode 2: IEEE 802.11a Link Mode_Antenna 2

5745	<p> Center Freq 5.74500000 GHz Center Freq 5.74500000 GHz Occupied Bandwidth 16.657 MHz Total Power 18.3 dBm Transmit Freq Error -220.06 kHz OBW Power 99.00 % x dB Bandwidth 16.15 MHz x dB -6.00 dB </p>
5785	<p> Center Freq 5.78500000 GHz Center Freq 5.78500000 GHz Occupied Bandwidth 16.752 MHz Total Power 19.3 dBm Transmit Freq Error -250.24 kHz OBW Power 99.00 % x dB Bandwidth 16.26 MHz x dB -6.00 dB </p>
5825	<p> Center Freq 5.82500000 GHz Center Freq 5.82500000 GHz Occupied Bandwidth 16.707 MHz Total Power 19.3 dBm Transmit Freq Error -242.40 kHz OBW Power 99.00 % x dB Bandwidth 16.27 MHz x dB -6.00 dB </p>

Mode 3: IEEE 802.11n 20MHz Link Mode_Antenna 2

5745	<p>Center Freq 5.74500000 GHz</p> <p>Center Freq: 5.745000000 GHz</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 5.745 GHz #Res BW 300 kHz</p> <p>Span 25 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 17.760 MHz</p> <p>Total Power 18.2 dBm</p> <p>Transmit Freq Error -267.13 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 16.33 MHz</p> <p>x dB -6.00 dB</p>
5785	<p>Center Freq 5.78500000 GHz</p> <p>Center Freq: 5.785000000 GHz</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 5.785 GHz #Res BW 300 kHz</p> <p>Span 25 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 17.780 MHz</p> <p>Total Power 19.3 dBm</p> <p>Transmit Freq Error -261.71 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 17.31 MHz</p> <p>x dB -6.00 dB</p>
5825	<p>Center Freq 5.82500000 GHz</p> <p>Center Freq: 5.825000000 GHz</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Center 5.825 GHz #Res BW 300 kHz</p> <p>Span 25 MHz Sweep 1 ms</p> <p>Occupied Bandwidth 17.760 MHz</p> <p>Total Power 19.6 dBm</p> <p>Transmit Freq Error -239.06 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 17.11 MHz</p> <p>x dB -6.00 dB</p>

Mode 4: IEEE 802.11n 40MHz Link Mode_Antenna 2

5755	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.755000000 GHz Center Freq: 5.755000000 GHz Radio Std: None</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>Center 5.755 GHz #Res BW 1 MHz #VBW 3 MHz Span 50 MHz Sweep 1 ms</p> <p>Occupied Bandwidth Total Power 22.2 dBm</p> <p>36.701 MHz</p> <p>Transmit Freq Error -312.96 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 36.47 MHz x dB -6.00 dB</p>
5795	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 5.795000000 GHz Center Freq: 5.795000000 GHz Radio Std: None</p> <p>Ref Offset 12.3 dB Ref 30.00 dBm</p> <p>Center 5.795 GHz #Res BW 1 MHz #VBW 3 MHz Span 50 MHz Sweep 1 ms</p> <p>Occupied Bandwidth Total Power 22.6 dBm</p> <p>36.505 MHz</p> <p>Transmit Freq Error -310.79 kHz OBW Power 99.00 %</p> <p>x dB Bandwidth 35.94 MHz x dB -6.00 dB</p>

10 Peak Power Spectral Density Measurement

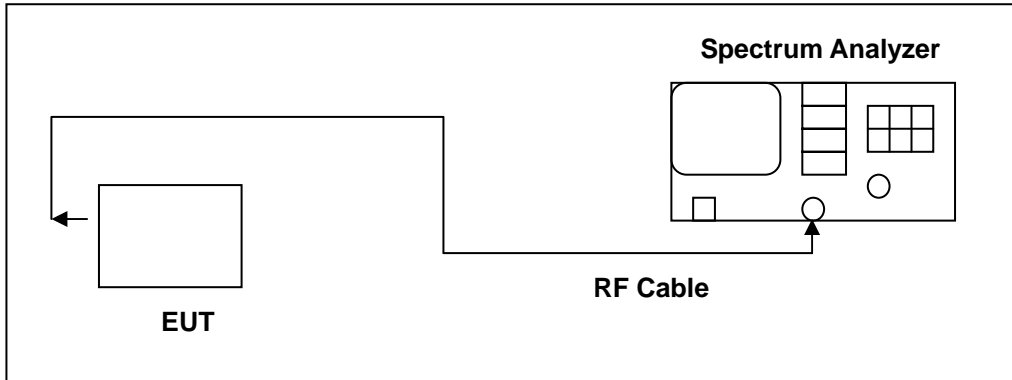
10.1. Limit

Conducted power spectral density

Frequency Range (MHz)	FCC Limit
5.150 ~ 5.250 GHz	17 dBm/MHz
5.250 ~ 5.350 GHz	11 dBm/MHz
5.470 ~ 5.725 GHz	11 dBm/MHz
5.725 ~ 5.850 GHz	30 dBm/500KHz

Frequency Range (MHz)	IC Limit
5.150 ~ 5.250 GHz	N/A
5.250 ~ 5.350 GHz	11 dBm/MHz
5.470 ~ 5.600 GHz and 5650~5725MHz	11 dBm/MHz
5.725 ~ 5.825 GHz	17 dBm/MHz

10.2. Test Setup



10.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/16/2014	(1)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

10.4. Test Procedure

The test is performed in accordance with KDB789033: D02 General UNII Test Procedures New Rules v01, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E.

10.5. Test Result

Model Number	AMG-PRO				
Test Item	Conducted power spectral density				
Test Mode	Mode 2: IEEE 802.11a Link Mode				
Date of Test	01/27/2015	Test Site	TE02		
Antenna 1					
Frequency (MHz)	Measurement (dBm/MHz)			FCC Limit (dBm/MHz)	IC Limit (dBm/MHz)
5180	5.439			< 17	N/A
5220	5.254				
5240	5.016				
Frequency (MHz)	Measurement (dBm/100KHz)	Measurement (dBm/500KHz)	Measurement (dBm/MHz)	FCC Limit (dBm/500KHz)	IC Limit (dBm/MHz)
5745	4.92	11.91	14.92	< 30	< 17
5785	2.77	9.76	12.77		
5825	4.24	11.23	14.24		

Model Number	AMG-PRO				
Test Item	Conducted power spectral density				
Test Mode	Mode 3: IEEE 802.11n 20MHz Link Mode				
Date of Test	01/27/2015	Test Site	TE02		
Antenna 1					
Frequency (MHz)	Measurement (dBm/MHz)			FCC Limit (dBm/MHz)	IC Limit (dBm/MHz)
5180	4.750			< 17	N/A
5220	4.851				
5240	4.488				
Frequency (MHz)	Measurement (dBm/100KHz)	Measurement (dBm/500KHz)	Measurement (dBm/MHz)	FCC Limit (dBm/500KHz)	IC Limit (dBm/MHz)
5745	3.80	10.79	13.80	< 30	< 17
5785	4.11	11.10	14.11		
5825	3.94	10.93	13.94		

Model Number	AMG-PRO				
Test Item	Conducted power spectral density				
Test Mode	Mode 4: IEEE 802.11n 40MHz Link Mode				
Date of Test	01/27/2015	Test Site	TE02		
Antenna 1					
Frequency (MHz)	Measurement (dBm/MHz)			FCC Limit (dBm/MHz)	IC Limit (dBm/MHz)
5190	-1.136			< 17	N/A
5230	-1.060				
Frequency (MHz)	Measurement (dBm/100KHz)	Measurement (dBm/500KHz)	Measurement (dBm/MHz)	FCC Limit (dBm/500KHz)	IC Limit (dBm/MHz)
5755	3.18	10.17	13.18	< 30	< 17
5795	3.76	10.75	13.76		

Model Number	AMG-PRO				
Test Item	Conducted power spectral density				
Test Mode	Mode 2: IEEE 802.11a Link Mode				
Date of Test	01/27/2015	Test Site	TE02		
Antenna 2					
Frequency (MHz)	Measurement (dBm/MHz)			FCC Limit (dBm/MHz)	IC Limit (dBm/MHz)
5180	3.340			< 17	N/A
5220	2.220				
5240	2.323				
Frequency (MHz)	Measurement (dBm/100KHz)	Measurement (dBm/500KHz)	Measurement (dBm/MHz)	FCC Limit (dBm/500KHz)	IC Limit (dBm/MHz)
5745	1.63	8.62	11.63	< 30	< 17
5785	2.39	9.38	12.39		
5825	3.55	10.54	13.55		

Model Number	AMG-PRO				
Test Item	Conducted power spectral density				
Test Mode	Mode 3: IEEE 802.11n 20MHz Link Mode				
Date of Test	01/27/2015	Test Site	TE02		
Antenna 2					
Frequency (MHz)	Measurement (dBm/MHz)			FCC Limit (dBm/MHz)	IC Limit (dBm/MHz)
5180	3.580			< 17	N/A
5220	1.833				
5240	1.854				
Frequency (MHz)	Measurement (dBm/100KHz)	Measurement (dBm/500KHz)	Measurement (dBm/MHz)	FCC Limit (dBm/500KHz)	IC Limit (dBm/MHz)
5745	2.95	9.94	12.95	< 30	< 17
5785	2.20	9.19	12.20		
5825	3.29	10.28	13.29		



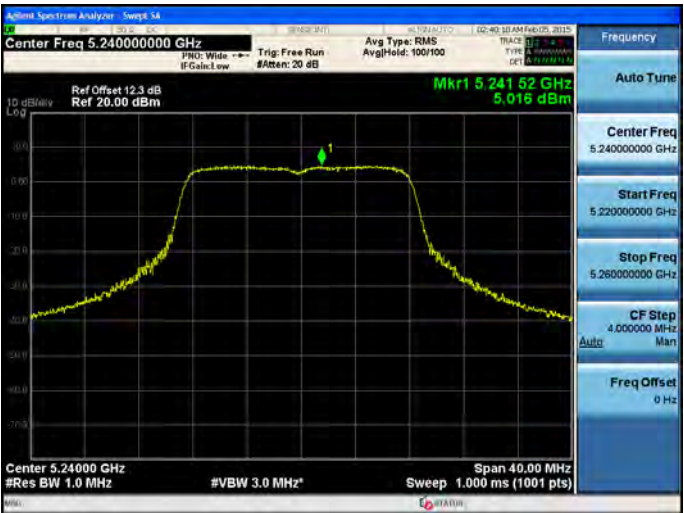
Model Number	AMG-PRO				
Test Item	Conducted power spectral density				
Test Mode	Mode 4: IEEE 802.11n 40MHz Link Mode				
Date of Test	01/27/2015	Test Site	TE02		
Antenna 2					
Frequency (MHz)	Measurement (dBm/MHz)			FCC Limit (dBm/MHz)	IC Limit (dBm/MHz)
5190	-3.499			< 17	N/A
5230	-3.861				
Frequency (MHz)	Measurement (dBm/100KHz)	Measurement (dBm/500KHz)	Measurement (dBm/MHz)	FCC Limit (dBm/500KHz)	IC Limit (dBm/MHz)
5755	3.94	10.93	13.94	< 30	< 17
5795	4.01	11.00	14.01		




Model Number	AMG-PRO			
Test Item	Conducted power spectral density			
Test Mode	Mode 2: IEEE 802.11a Link Mode			
Date of Test	01/27/2015	Test Site	TE02	
Antenna 1+2				
Frequency (MHz)	Measurement (dBm/MHz)		FCC Limit (dBm/MHz)	IC Limit (dBm/MHz)
5180	7.525		< 17	N/A
5220	7.007			
5240	6.885			
Frequency (MHz)	Measurement (dBm/500KHz)	Measurement (dBm/MHz)	FCC Limit (dBm/500KHz)	IC Limit (dBm/MHz)
5745	13.58	16.59	< 30	< 17
5785	12.59	15.60		
5825	13.26	16.27		

Model Number	AMG-PRO			
Test Item	Conducted power spectral density			
Test Mode	Mode 3: IEEE 802.11n 20MHz Link Mode			
Date of Test	01/27/2015	Test Site	TE02	
Antenna 1+2				
Frequency (MHz)	Measurement (dBm/MHz)		FCC Limit (dBm/MHz)	IC Limit (dBm/MHz)
5180	7.215		< 17	N/A
5220	6.609			
5240	6.378			
Frequency (MHz)	Measurement (dBm/500KHz)	Measurement (dBm/MHz)	FCC Limit (dBm/500KHz)	IC Limit (dBm/MHz)
5745	13.40	16.41	< 30	< 17
5785	13.26	16.27		
5825	13.58	16.59		

Model Number	AMG-PRO			
Test Item	Conducted power spectral density			
Test Mode	Mode 4: IEEE 802.11n 40MHz Link Mode			
Date of Test	01/27/2015	Test Site	TE02	
Antenna 1+2				
Frequency (MHz)	Measurement (dBm/MHz)		FCC Limit (dBm/MHz)	IC Limit (dBm/MHz)
5190	0.852		< 17	N/A
5230	0.772			
Frequency (MHz)	Measurement (dBm/500KHz)	Measurement (dBm/MHz)	FCC Limit (dBm/500KHz)	IC Limit (dBm/MHz)
5755	13.58	16.59	< 30	< 17
5795	13.89	16.90		

10.6. Test Graphs

Mode 2: IEEE 802.11a Link Mode_ Antenna 1	
5180	
5220	
5240	




Mode 2: IEEE 802.11a Link Mode_ Antenna 1	
5745	
5785	
5825	

Mode 3: IEEE 802.11n 20MHz Link Mode _ Antenna 1	
5180	<p>Agilent Spectrum Analyzer - Sweep 54 Center Freq 5.180000000 GHz Ref Offset 12.3 dB Ref 20.00 dBm Mkr1 5.18224 GHz 4.750 dBm Center 5.18000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Span 40.00 MHz Sweep 1.000 ms (1001 pts)</p>
5220	<p>Agilent Spectrum Analyzer - Sweep 54 Center Freq 5.220000000 GHz Ref Offset 12.3 dB Ref 20.00 dBm Mkr1 5.22404 GHz 4.851 dBm Center 5.22000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Span 40.00 MHz Sweep 1.000 ms (1001 pts)</p>
5240	<p>Agilent Spectrum Analyzer - Sweep 54 Center Freq 5.240000000 GHz Ref Offset 12.3 dB Ref 20.00 dBm Mkr1 5.24364 GHz 4.488 dBm Center 5.24000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Span 40.00 MHz Sweep 1.000 ms (1001 pts)</p>




Mode 3: IEEE 802.11n 20MHz Link Mode _ Antenna 1	
5745	<p>Agilent Spectrum Analyzer - Sweep 14 Center Freq 5.74500000 GHz Ref Offset 12.3 dB Ref 20.00 dBm Mkr1 5.743 44 GHz 3.893 dBm Center 5.74500 GHz #Res BW 100 kHz #VBW 300 kHz Span 30.00 MHz Sweep 2.933 ms (1001 pts)</p>
5785	<p>Agilent Spectrum Analyzer - Sweep 14 Center Freq 5.78500000 GHz Ref Offset 12.3 dB Ref 20.00 dBm Mkr1 5.783 47 GHz 4.106 dBm Center 5.78500 GHz #Res BW 100 kHz #VBW 300 kHz Span 30.00 MHz Sweep 2.933 ms (1001 pts)</p>
5825	<p>Agilent Spectrum Analyzer - Sweep 14 Center Freq 5.82500000 GHz Ref Offset 12.3 dB Ref 20.00 dBm Mkr1 5.823 47 GHz 4.693 dBm Center 5.82500 GHz #Res BW 100 kHz #VBW 300 kHz Span 30.00 MHz Sweep 2.933 ms (1001 pts)</p>




Mode 4: IEEE 802.11n 40MHz Link Mode_ Antenna 1	
5190	<p>Agilent Spectrum Analyzer Sweep 14 Center Freq 5.190000000 GHz Ref Offset 12.3 dB Ref 20.00 dBm Mkr1 5.199 00 GHz -1.136 dBm Center 5.19000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Span 60.00 MHz Sweep 1.000 ms (1001 pts)</p>
5230	<p>Agilent Spectrum Analyzer Sweep 14 Center Freq 5.230000000 GHz Ref Offset 12.3 dB Ref 20.00 dBm Mkr1 5.238 34 GHz -1.060 dBm Center 5.23000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Span 60.00 MHz Sweep 1.000 ms (1001 pts)</p>



Mode 4: IEEE 802.11n 40MHz Link Mode_ Antenna 1	
5755	<p>Agilent Spectrum Analyzer - Sweep 14 Center Freq 5.755000000 GHz Ref Offset 12.3 dB Ref 20.00 dBm Mkr1 5.74350 GHz 3.177 dBm Center 5.75500 GHz #Res BW 100 kHz #VBW 300 kHz Span 50.00 MHz Sweep 4.800 ms (1001 pts)</p>
5795	<p>Agilent Spectrum Analyzer - Sweep 14 Center Freq 5.795000000 GHz Ref Offset 12.3 dB Ref 20.00 dBm Mkr1 5.78350 GHz 3.781 dBm Center 5.79500 GHz #Res BW 100 kHz #VBW 300 kHz Span 50.00 MHz Sweep 4.800 ms (1001 pts)</p>

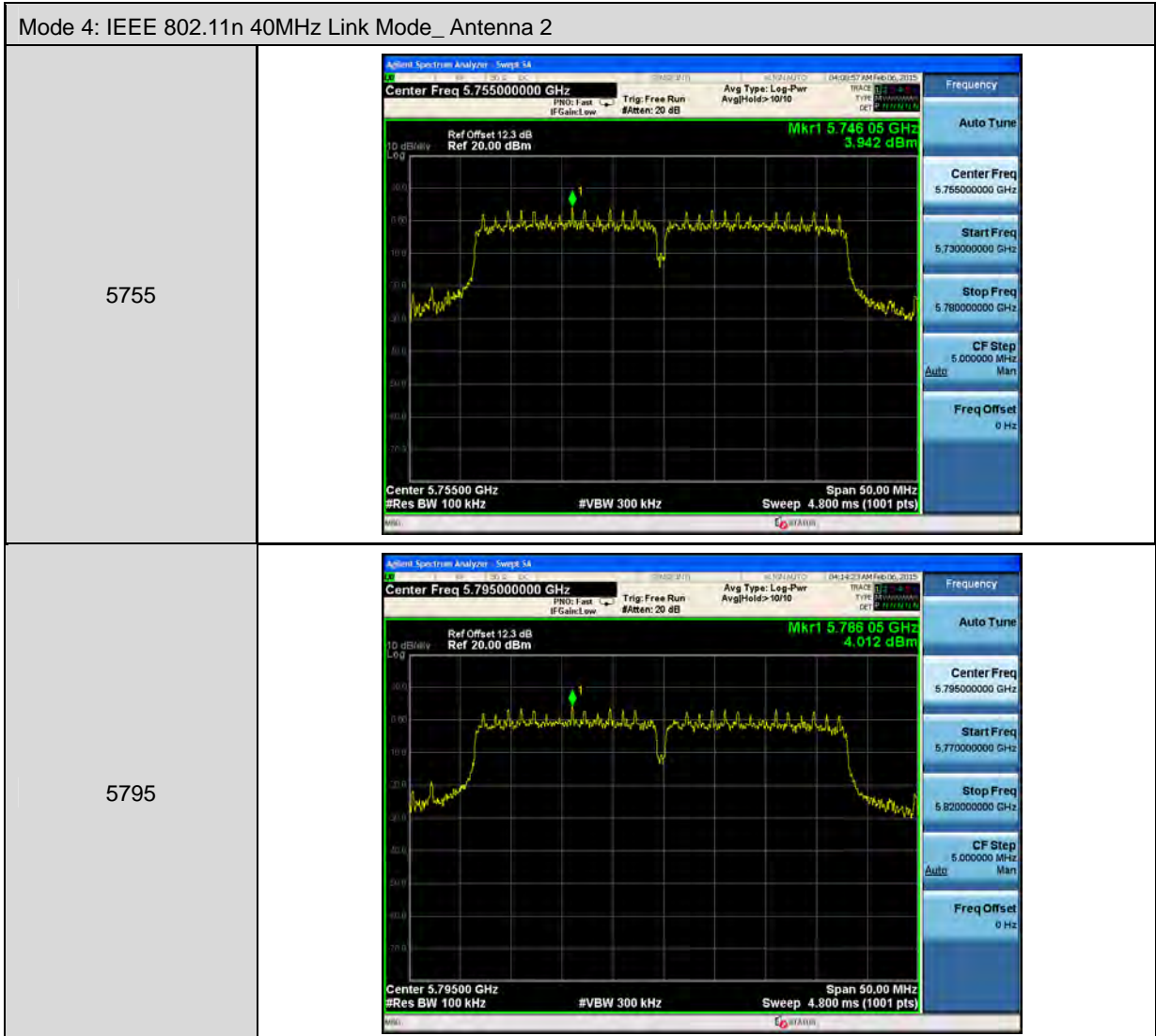
Mode 2: IEEE 802.11a Link Mode_ Antenna 2	
5180	
5220	
5240	

Mode 2: IEEE 802.11a Link Mode_ Antenna 2	
5745	<p>Agilent Spectrum Analyzer - Sweep 14</p> <p>Center Freq 5.74500000 GHz</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Mkr1 5.738 49 GHz 1.628 dBm</p> <p>Center 5.74500 GHz #Res BW 100 kHz #VBW 300 kHz Span 30.00 MHz Sweep 2.933 ms (1001 pts)</p>
5785	<p>Agilent Spectrum Analyzer - Sweep 14</p> <p>Center Freq 5.78500000 GHz</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Mkr1 5.789 74 GHz 2.394 dBm</p> <p>Center 5.78500 GHz #Res BW 100 kHz #VBW 300 kHz Span 30.00 MHz Sweep 2.933 ms (1001 pts)</p>
5825	<p>Agilent Spectrum Analyzer - Sweep 14</p> <p>Center Freq 5.82500000 GHz</p> <p>Ref Offset 12.3 dB Ref 20.00 dBm</p> <p>Mkr1 5.829 74 GHz 2.398 dBm</p> <p>Center 5.82500 GHz #Res BW 100 kHz #VBW 300 kHz Span 30.00 MHz Sweep 2.933 ms (1001 pts)</p>

Mode 3: IEEE 802.11n 20MHz Link Mode _ Antenna 2	
5180	
5220	
5240	

Mode 3: IEEE 802.11n 20MHz Link Mode _ Antenna 2	
5745	
5785	
5825	

Mode 4: IEEE 802.11n 40MHz Link Mode_ Antenna 2	
5190	 <p>Agilent Spectrum Analyzer Sweep 14 Center Freq 5.190000000 GHz Ref Offset 12.3 dB Ref 20.00 dBm Mkr1 5.20212 GHz -3.499 dBm Center 5.19000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Span 60.00 MHz Sweep 1.000 ms (1001 pts)</p>
5230	 <p>Agilent Spectrum Analyzer Sweep 14 Center Freq 5.230000000 GHz Ref Offset 12.3 dB Ref 20.00 dBm Mkr1 5.24074 GHz -3.881 dBm Center 5.23000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Span 60.00 MHz Sweep 1.000 ms (1001 pts)</p>

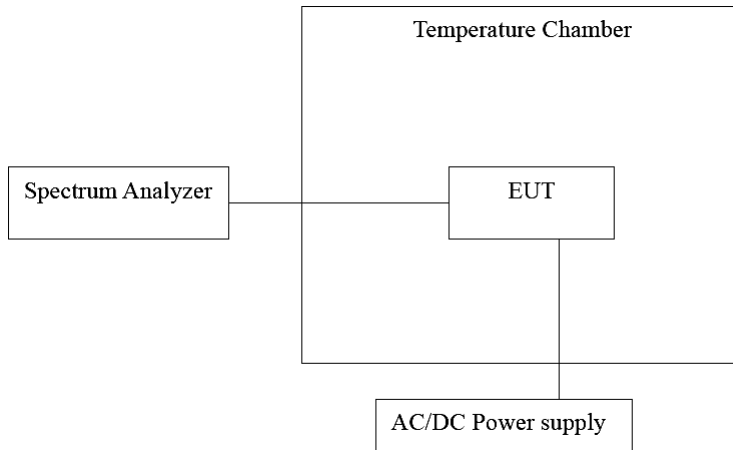


11 Frequency Stability Measurement

11.1. Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

11.2. Test Setup



11.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4408B	MY45107753	07/24/2014	(1)
Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	08/14/2014	(1)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

11.4. Test Procedure

1. The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

11.5. Test Result

Model Number	AMG-PRO				
Test Mode	Mode 2				
Frequency	5220 MHz				
Date of Test	02/01/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-10	120	5220.0000	0.0000	0.000	Pass
0		5220.0007	700.0000	0.134	Pass
10		5220.0009	900.0000	0.172	Pass
20		5219.9993	-700.0000	-0.134	Pass
30		5219.9995	-500.0000	-0.096	Pass
40		5220.0003	300.0000	0.057	Pass
50		5220.0010	1000.0000	0.192	Pass
60		5220.0000	0.0000	0.000	Pass

Model Number	AMG-PRO				
Test Mode	Mode 2				
Frequency	5220 MHz				
Date of Test	02/01/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	138.00	5220.0004	400.0000	0.077	Pass
	120.00	5219.9993	-700.0000	-0.134	Pass
	102.00	5219.9997	-300.0000	-0.057	Pass

Note: The manufacturer's frequency stability specification is better than 20ppm.

Model Number	AMG-PRO				
Test Mode	Mode 2				
Frequency	5785 MHz				
Date of Test	02/01/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-10	120	5785.0001	100.0000	0.017	Pass
0		5785.0009	900.0000	0.156	Pass
10		5785.0003	300.0000	0.052	Pass
20		5785.0003	300.0000	0.052	Pass
30		5784.9997	-300.0000	-0.052	Pass
40		5785.0009	900.0000	0.156	Pass
50		5785.0012	1200.0000	0.207	Pass
60		5785.0004	400.0000	0.069	Pass

Model Number	AMG-PRO				
Test Mode	Mode 2				
Frequency	5785 MHz				
Date of Test	02/01/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	138.00	5784.9992	-800.0000	-0.138	Pass
	120.00	5785.0003	300.0000	0.052	Pass
	102.00	5785.0010	1000.0000	0.173	Pass

Note: The manufacturer's frequency stability specification is better than 20ppm.

Model Number	AMG-PRO				
Test Mode	Mode 3				
Frequency	5220 MHz				
Date of Test	02/01/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-10	120	5220.0005	500.0000	0.096	Pass
0		5220.0003	300.0000	0.057	Pass
10		5220.0002	200.0000	0.038	Pass
20		5219.9993	-700.0000	-0.134	Pass
30		5219.9992	-800.0000	-0.153	Pass
40		5220.0006	600.0000	0.115	Pass
50		5220.0009	900.0000	0.172	Pass
60		5220.0011	1100.0000	0.211	Pass

Model Number	AMG-PRO				
Test Mode	Mode 3				
Frequency	5220 MHz				
Date of Test	02/01/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	138.00	5220.0000	0.0000	0.000	Pass
	120.00	5219.9993	-700.0000	-0.134	Pass
	102.00	5220.0001	100.0000	0.019	Pass

Note: The manufacturer's frequency stability specification is better than 20ppm.

Model Number	AMG-PRO				
Test Mode	Mode 3				
Frequency	5785 MHz				
Date of Test	02/01/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-10	120	5785.0003	300.0000	0.052	Pass
0		5785.0004	400.0000	0.069	Pass
10		5785.0008	800.0000	0.138	Pass
20		5785.0003	300.0000	0.052	Pass
30		5785.0003	300.0000	0.052	Pass
40		5785.0008	800.0000	0.138	Pass
50		5785.0007	700.0000	0.121	Pass
60		5785.0003	300.0000	0.052	Pass

Model Number	AMG-PRO				
Test Mode	Mode 3				
Frequency	5785 MHz				
Date of Test	02/01/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	138.00	5785.0004	400.0000	0.069	Pass
	120.00	5785.0003	300.0000	0.052	Pass
	102.00	5785.0007	700.0000	0.121	Pass

Note: The manufacturer's frequency stability specification is better than 20ppm.

Model Number	AMG-PRO				
Test Mode	Mode 4				
Frequency	5190 MHz				
Date of Test	02/01/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-10	120	5190.0004	400.0000	0.077	Pass
0		5189.9999	-100.0000	-0.019	Pass
10		5190.0007	700.0000	0.135	Pass
20		5190.0004	400.0000	0.077	Pass
30		5189.9990	-1000.0000	-0.193	Pass
40		5190.0009	900.0000	0.173	Pass
50		5190.0004	400.0000	0.077	Pass
60		5190.0003	300.0000	0.058	Pass

Model Number	AMG-PRO				
Test Mode	Mode 4				
Frequency	5190 MHz				
Date of Test	02/01/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	138.00	5189.9990	-1000.0000	-0.193	Pass
	120.00	5190.0004	400.0000	0.077	Pass
	102.00	5190.0003	300.0000	0.058	Pass

Note: The manufacturer's frequency stability specification is better than 20ppm.

Model Number	AMG-PRO				
Test Mode	Mode 4				
Frequency	5795 MHz				
Date of Test	02/01/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-10	120	5794.9996	-400.0000	-0.069	Pass
0		5794.9994	-600.0000	-0.104	Pass
10		5794.9995	-500.0000	-0.086	Pass
20		5794.9994	-600.0000	-0.104	Pass
30		5795.0005	500.0000	0.086	Pass
40		5795.0009	900.0000	0.155	Pass
50		5794.9998	-200.0000	-0.035	Pass
60		5794.9999	-100.0000	-0.017	Pass

Model Number	AMG-PRO				
Test Mode	Mode 4				
Frequency	5795 MHz				
Date of Test	02/01/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	138.00	5795.0008	800.0000	0.138	Pass
	120.00	5794.9940	-6000.0000	-1.035	Pass
	102.00	5794.9993	-700.0000	-0.121	Pass

Note: The manufacturer's frequency stability specification is better than 20ppm.

12 Antenna Requirement

12.1. Limit

For intentional device, according to 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And According to 15.407 (a), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

12.2. Antenna Connector Construction

The antenna used in this product is PIFA Antenna. And the maximum Gain of this antenna is only 2dBi.