FCC 47 CFR PART 15 SUBPART E

Product Type	:	AC1750 Ceiling Mount AP
Applicant	:	Edimax Technology Co Ltd
Address	:	No.3, Wu-Chuan 3rd Road, Wu-Gu, New Taipei City 24891, Taiwan
Trade Name	:	EDIMAX
Model Number	:	EW-7679CAP, GAP-679CAP, CAP1750
Test Specification	:	FCC 47 CFR PART 15 SUBPART E ANSI C63.10:2013
Application Purpose	:	Original
Receive Date	:	Jan. 04, 2016
Test Period	:	Jan. 15 ~ Feb. 17, 2016
Issue Date	:	Mar. 01, 2016

Issue by

A Test Lab Techno Corp.
No. 140-1, Changan Street, Bade District,
Taoyuan City 33465, Taiwan (R.O.C)
Tel：+86-3-2710188 / Fax：+86-3-2710190

Taiwan Accreditation Foundation accreditation number: 1330

Note: *This report shall not be reproduced except in full, without the written approval of A Test Lab Techno Corp. This document may be altered or revised by A Test Lab Techno Corp. personnel only, and shall be noted in the revision section of the document. The client should not use it to claim product endorsement by TAF, or any government agencies. The test results in the report only apply to the tested sample.*

Revision History

Rev.	Issue Date	Revisions	Revised By
00	Mar. 01, 2016	Initial Issue	

Verification of Compliance

Issued Date: Mar. 01, 2016

Product Type	:	AC1750 Ceiling Mount AP
Applicant	:	Edimax Technology Co Ltd
Address	:	No.3, Wu-Chuan 3rd Road, Wu-Gu, New Taipei City 24891, Taiwan
Trade Name	:	EDIMAX
Model Number	:	EW-7679CAP, GAP-679CAP, CAP1750
FCC ID	:	NDD9576791507
EUT Rated Voltage	:	DC 12V, 2A
Test Voltage	:	120 Vac / 60 Hz
Applicable Standard	:	FCC 47 CFR PART 15 SUBPART E ANSI C63.10:2013
Test Result	:	Complied
Application Purpose	:	Original
Performing Lab.	:	A Test Lab Techno Corp. No. 140-1, Changan Street, Bade District, Taoyuan City 33465, Taiwan (R.O.C) Tel：+86-3-2710188 / Fax：+86-3-2710190 Taiwan Accreditation Foundation accreditation number: 1330 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	Reviewed By :	Eric Ou Yang
(Manager)	(Fly Lu)	(Testing Engineer)	(Eric Ou Yang)

TABLE OF CONTENTS

1 General Information 6
1.1. Summary of Test Result 6
1.2. Measurement Uncertainty 6
2 EUT Description 7
3 Test Methodology 9
3.1. Mode of Operation 9
3.2. EUT Exercise Software 13
3.3. Configuration of Test System Details 14
3.4. Test Site Environment 15
4 AC Power Conducted Emission Measurement 16
4.1. Limit 16
4.2. Test Instruments 16
4.3. Test Setup 16
4.4. Test Procedure 17
4.5. Test Result 18
5 Radiated Emission Measurement 20
5.1. Limit 20
5.2. Test Instruments 20
5.3. Setup 21
5.4. Test Procedure 23
5.5. Test Result 25
6 Maximum Conducted Output Power Measurement 53
6.1. Limit 53
6.2. Test Setup 53
6.3. Test Instruments 53
6.4. Test Procedure 53
6.5. Test Result 54
7 26dB RF Bandwidth & 99 % Occupied Bandwidth Measurement 57
7.1. Limit 57
7.2. Test Setup 57
7.3. Test Instruments 57
7.4. Test Procedure 57
7.5. Test Result 58
7.6. Test Graphs 60

8 6dB RF Bandwidth Measurement 67
8.1. Limit 67
8.2. Test Setup 67
8.3. Test Instruments 67
8.4. Test Procedure 67
8.5. Test Result 68
8.6. Test Graphs 69
9 Peak Power Spectral Density Measurement 76
9.1. Limit 76
9.2. Test Setup 76
9.3. Test Instruments 76
9.4. Test Procedure 77
9.5. Test Result 77
9.6. Test Graphs 84
10 Frequency Stability Measurement 101
10.1. Limit 101
10.2. Test Setup 101
10.3. Test Instruments 101
10.4. Test Procedure 102
10.5. Test Result 103
11 Antenna Requirement 104
11.1. Limit 104
11.2. Antenna Connector Construction 104

1 General Information

1.1. Summary of Test Result

Standard FCC	Item	Result	Remark
15.407(b)(6) 15.207	AC Power Conducted Emission	PASS	---
15.407(b) 15.205 / 15.209	Transmitter Radiated Emissions	PASS	---
15.407(a)	Maximum Conducted Output Power	PASS	---
15.407(a)	26dB RF Bandwidth	Reference	---
15.407(a)	6dB RF Bandwidth	PASS	-----
15.407(a)	Peak Power Spectral Density	PASS	---
15.407(g)	Frequency Stability	PASS	---
15.407(a) 15.203	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

Test Item	Frequency Range	Uncertainty (dB)
Conducted Emission	9kHz ~ 150KHz	2.7
	150kHz ~ 30MHz	2.8
Radiated Emission	9kHz ~ 30MHz	1.457
	30MHz ~ 1000MHz	6.300
	1000MHz ~ 18000MHz	5.474
	18000MHz ~ 26500MHz	5.630
	26500MHz ~ 40000MHz	5.054

2 EUT Description

Product Type	AC1750 Ceiling Mount AP
Trade Name	EDIMAX
Model No.	EW-7679CAP, GAP-679CAP, CAP1750
Model Number Different Description	Those model numbers differ from each other in selling region.
Applicant	Edimax Technology Co Ltd No.3, Wu-Chuan 3rd Road, Wu-Gu, New Taipei City 24891, Taiwan
Manufacturer	Edimax Technology Co Ltd No.3, Wu-Chuan 3rd Road, Wu-Gu, New Taipei City 24891, Taiwan
FCC ID	NDD9576791507

Frequency Range	Mode	Band	Frequency Range (MHz)	Number of Channels
	IEEE 802.11a	U-NII Band I	5180 – 5240	4 Channels
		U-NII Band III	5745 – 5825	5 Channels
	IEEE 802.11n 20 MHz / IEEE 802.11ac 20 MHz	U-NII Band I	5180 – 5240	4 Channels
		U-NII Band III	5745 – 5825	5 Channels
	IEEE 802.11n 40 MHz / IEEE 802.11ac 40 MHz	U-NII Band I	5190 – 5230	2 Channels
		U-NII Band III	5755 – 5795	2 Channels
	IEEE 802.11ac 80 MHz	U-NII Band I	5210	1 Channel
		U-NII Band III	5775	1 Channel

Modulation Type	OFDM

Antenna information	Item	Model	Type	Max. Gain (dBi)
	Ant-0	RFMTA130800NN5B001	PIFA Antenna	5.24
	Ant-1	RFMTA150719IM5B701	PIFA Antenna	6.27
	Ant-2	RFMTA100800NN5B002	PIFA Antenna	5.96

Antenna Delivery	IEEE 802.11a : 1TX + 1RX IEEE 802.11ac 20 MHz / 40 MHz / 80 MHz : 3TX + 3RX
RF Output Power	IEEE 802.11a U-NII Band I: 0.109 W / 20.36 dBm IEEE 802.11a U-NII Band III: 0.229 W / 23.60 dBm IEEE 802.11ac 20 MHz U-NII Band I: 0.249 W / 23.97 dBm IEEE 802.11ac 20 MHz U-NII Band III: 0.865 W / 29.37 dBm IEEE 802.11ac 40 MHz U-NII Band I: 0.400 W / 26.02 dBm IEEE 802.11ac 40 MHz U-NII Band III: 0.223 W / 23.49 dBm IEEE 802.11ac 80 MHz U-NII Band I: 0.037 W / 15.73 dBm IEEE 802.11ac 80 MHz U-NII Band III: 0.052 W / 17.16 dBm
Frequency stability specification	± 20 ppm

Power adapter List				
Power adapter(1)	Trade Name	APD	Model Number	WA-30J12R
	I/P: 100-240VAC, 50-60Hz, 0.9A Max. O/P: 12VDC, 2.5A Cable out: Non-Shielded, 1.4m, Detachable at Power Adapter			
Power adapter(2)	Trade Name	APD	Model Number	WA-24Q12R
	I/P: 100-240VAC, 50-60Hz, 0.7A Max. O/P: 12VDC, 2A Cable out: Non-Shielded, 1.4m, Detachable at Power Adapter			

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 802.11ac 20MHz Link Mode
Mode 4: IEEE 802.11ac 40MHz Link Mode
Mode 5: IEEE 802.11ac 80MHz 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.
The device used two models of adapter, adapter number: WA-24Q12R is worst case to perform testing.

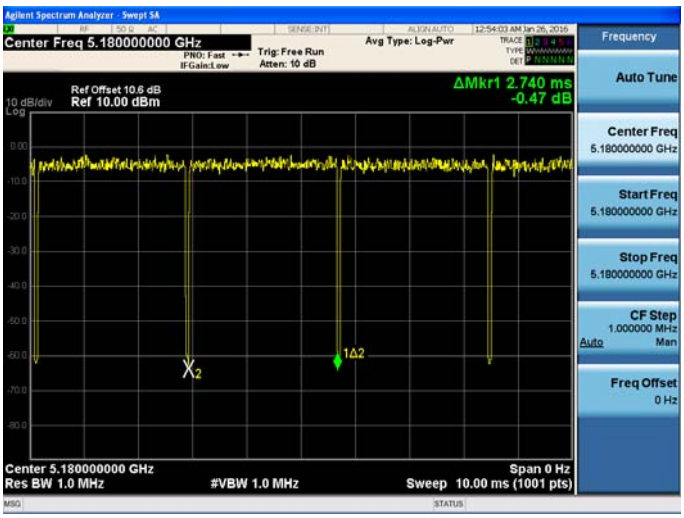
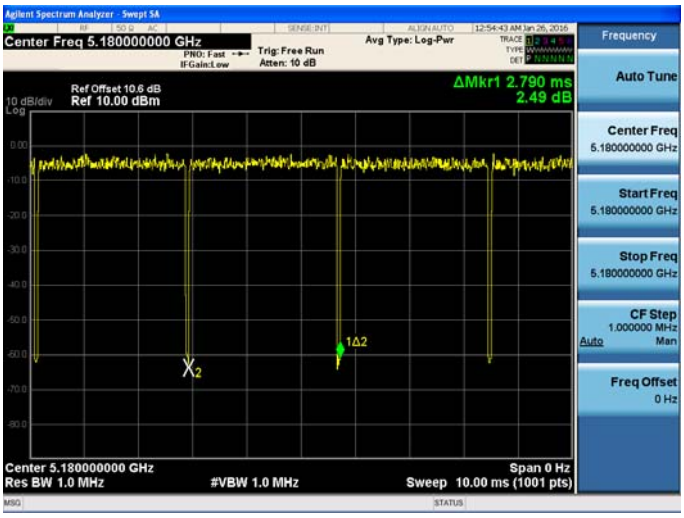
Test Mode	ANT-0	ANT-1	ANT-2	ANT-0+1+2
Mode 2: IEEE 802.11a link mode	V	---	---	---
Mode 3: IEEE 802.11ac 20MHz link mode	V	---	---	---
Mode 4: IEEE 802.11ac 40MHz link mode	V	V	V	V
Mode 5: IEEE 802.11ac 80MHz link mode	V	V	V	V

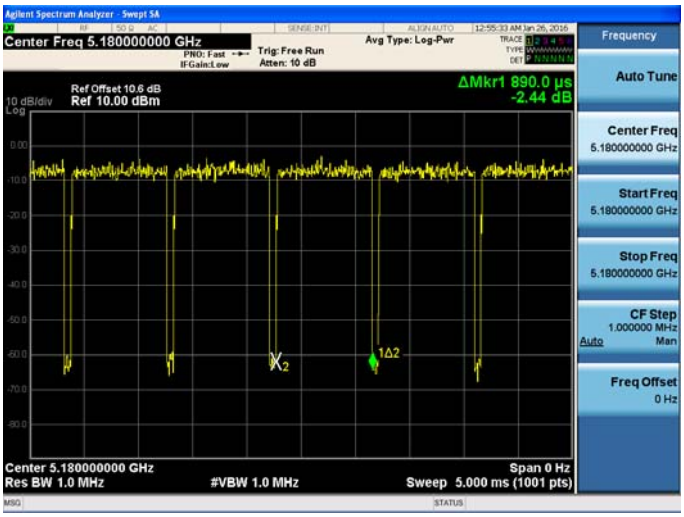
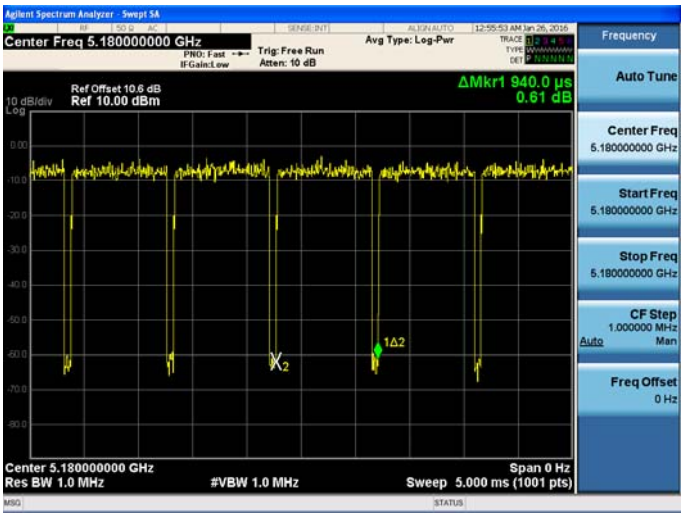
Test Mode	Band	Data Rate	Test Channel
IEEE 802.11a Link Mode	U-NII Band I	6M	36, 40, 44, 48
	U-NII Band III		149,153,157,161,165
IEEE 802.11ac 20MHz Link Mode	U-NII Band I	19.5M	36, 40, 44, 48
	U-NII Band III		149,153,157,161,165
IEEE 802.11ac 40MHz Link Mode	U-NII Band I	40.5M	38, 46
	U-NII Band III		151,159
IEEE 802.11ac 80MHz Link Mode	U-NII Band I	87.9M	42
	U-NII Band III		155

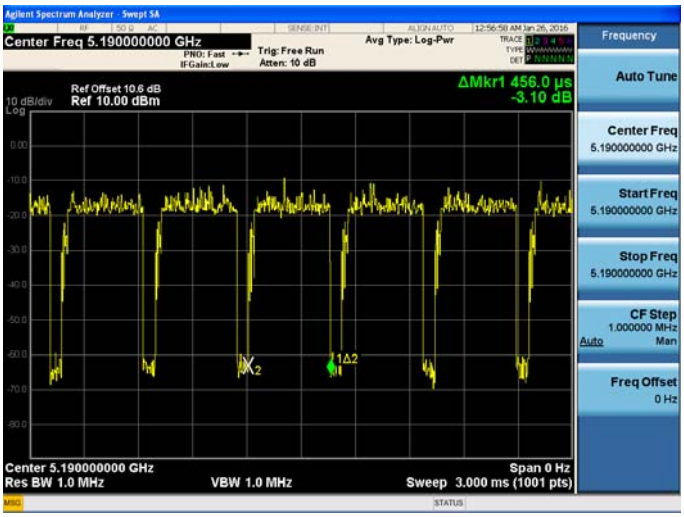
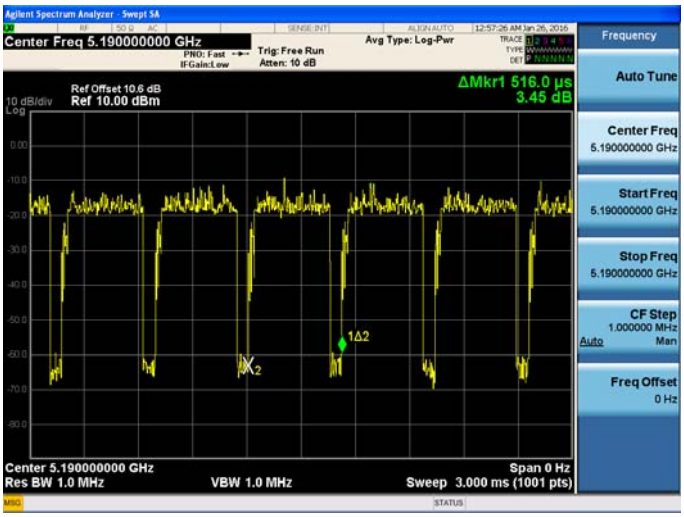
Duty cycle

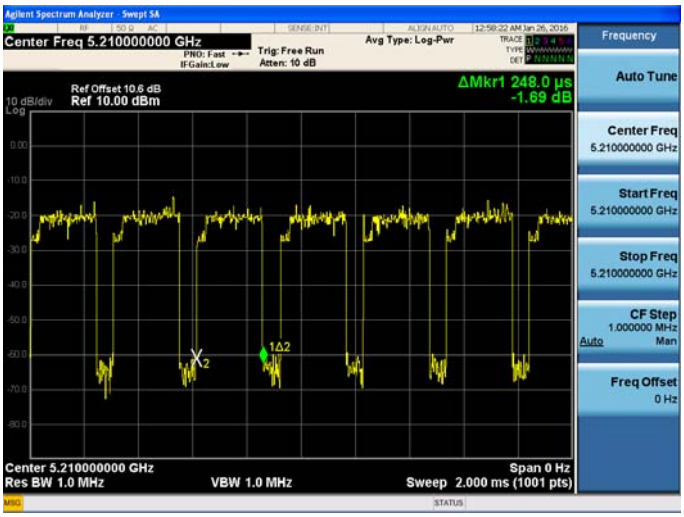
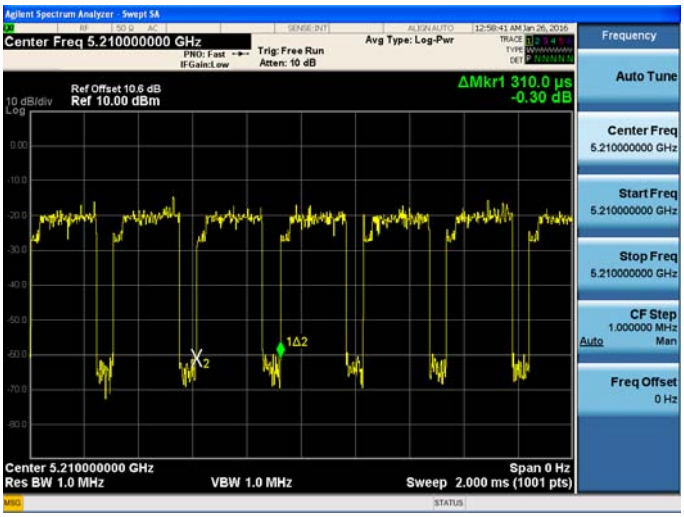
Test Mode	Frequency (MHz)	on time (ms)	on+off time (ms)	Duty cycle	Duty Factor (dB)	1/T Minimum VBW (kHz)
Mode 2: IEEE 802.11a Link Mode	5180.0	2.740	2.790	0.982	0.079	0.010
Mode 3: IEEE 802.11ac 20MHz Link Mode	5180.0	0.890	0.940	0.947	0.237	1.124
Mode 4: IEEE 802.11ac 40MHz Link Mode	5190.0	0.456	0.516	0.884	0.537	2.193
Mode 5: IEEE 802.11ac 80MHz Link Mode	5210.0	0.248	0.310	0.800	0.969	4.032

Duty Cycle Graphs

Mode 2: IEEE 802.11a Link Mode	
On time	
On+off time	

Mode 3: IEEE 802.11ac 20MHz Link Mode	
On time	
On+off time	

Mode 4: IEEE 802.11ac 40MHz Link Mode	
On time	
On+off time	

Mode 5: IEEE 802.11ac 80MHz Link Mode	
On time	
On+off time	

3.2. EUT Exercise Software

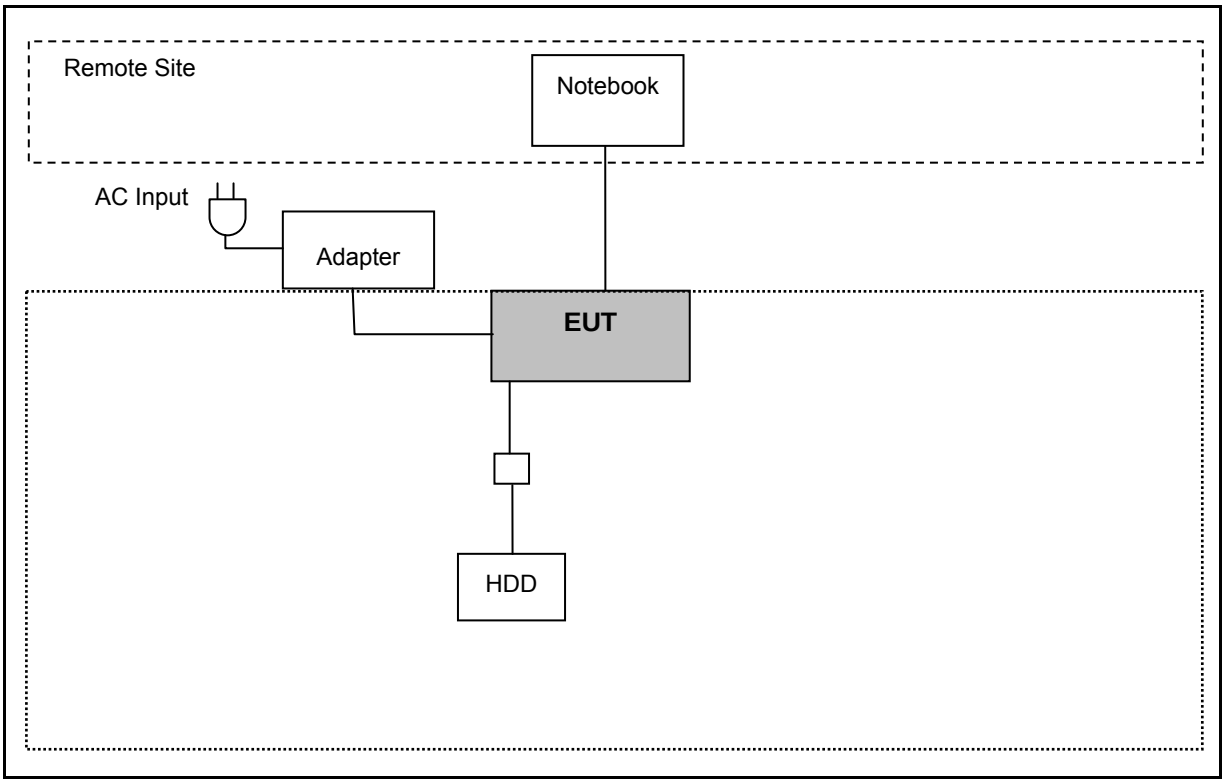
The EUT is operated in the engineering mode to fix the TX frequency for the purposes of measurement. According to its specifications, the EUT must comply with the requirements of Section 15.407 under the FCC Rules Part 15 Subpart E.

1.	Setup the EUT shown on 3.3.
2.	Turn on the power of all equipment.
3.	EUT run test program.

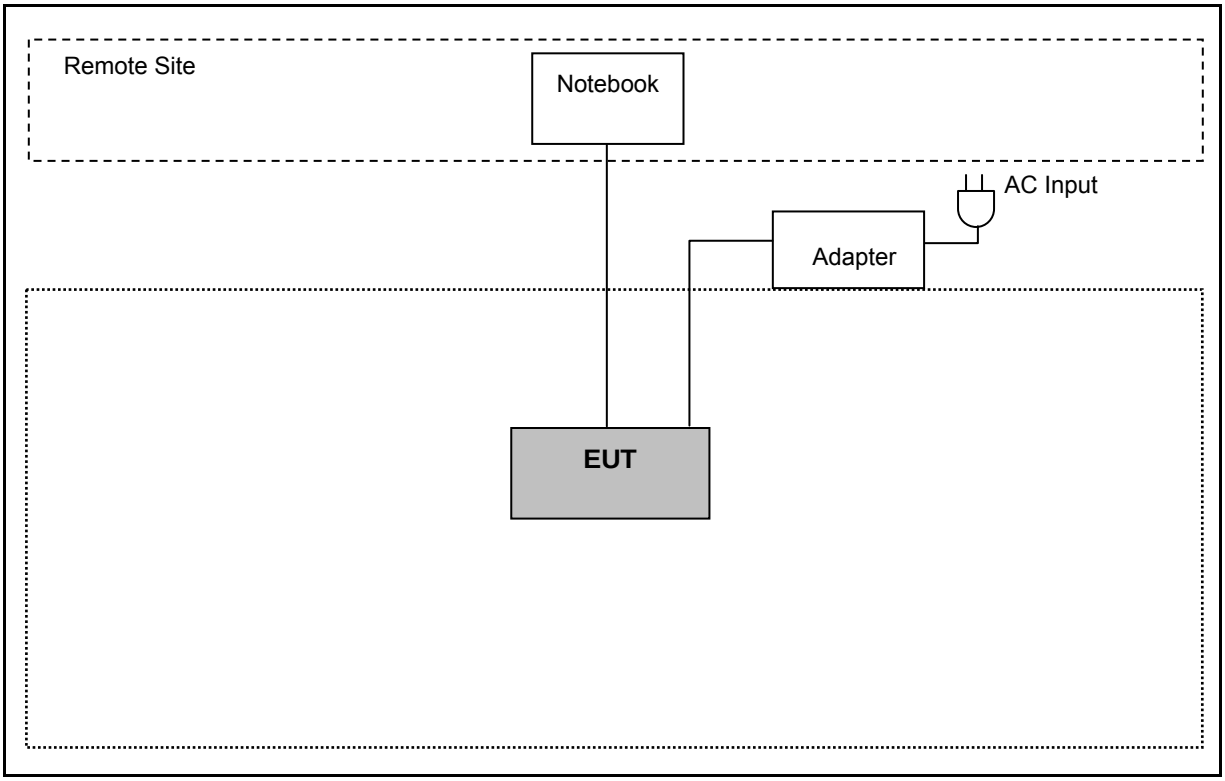
Measurement Software	
1	EZ-EMC Ver. ATL-03A1-1
2	EZ-EMC Ver ATL-ITC-3A1-1

3.3. Configuration of Test System Details

Conducted Emission



Radiated Emissions



3.4. Test Site Environment

Items	Required (IEC 60068-1)	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

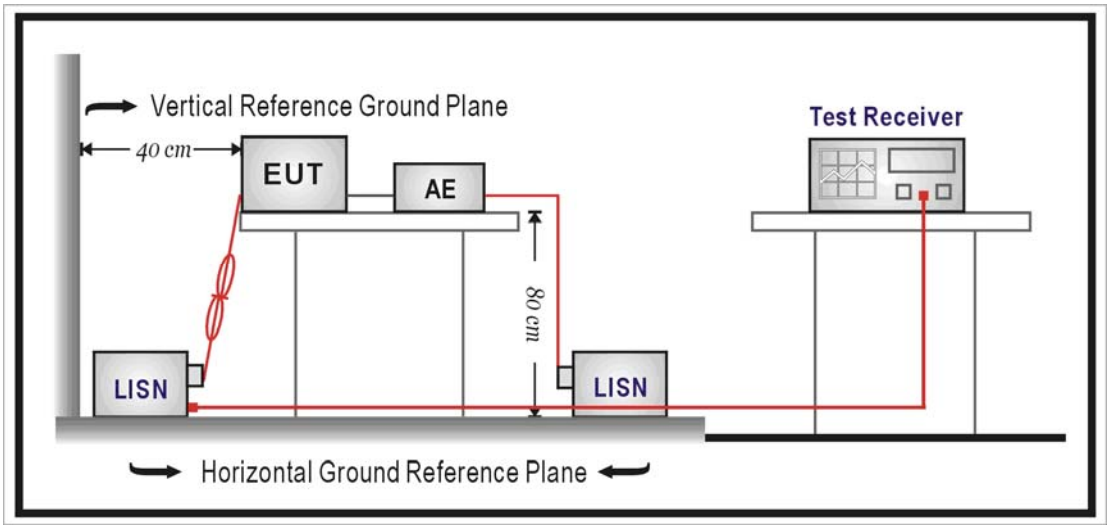
4.2. Test Instruments

Describe	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Test Receiver	R&S	ESCI	100367	06/25/2015	(1)
LISN	R&S	ENV216	101040	03/10/2015	(1)
LISN	R&S	ENV216	101041	03/06/2015	(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

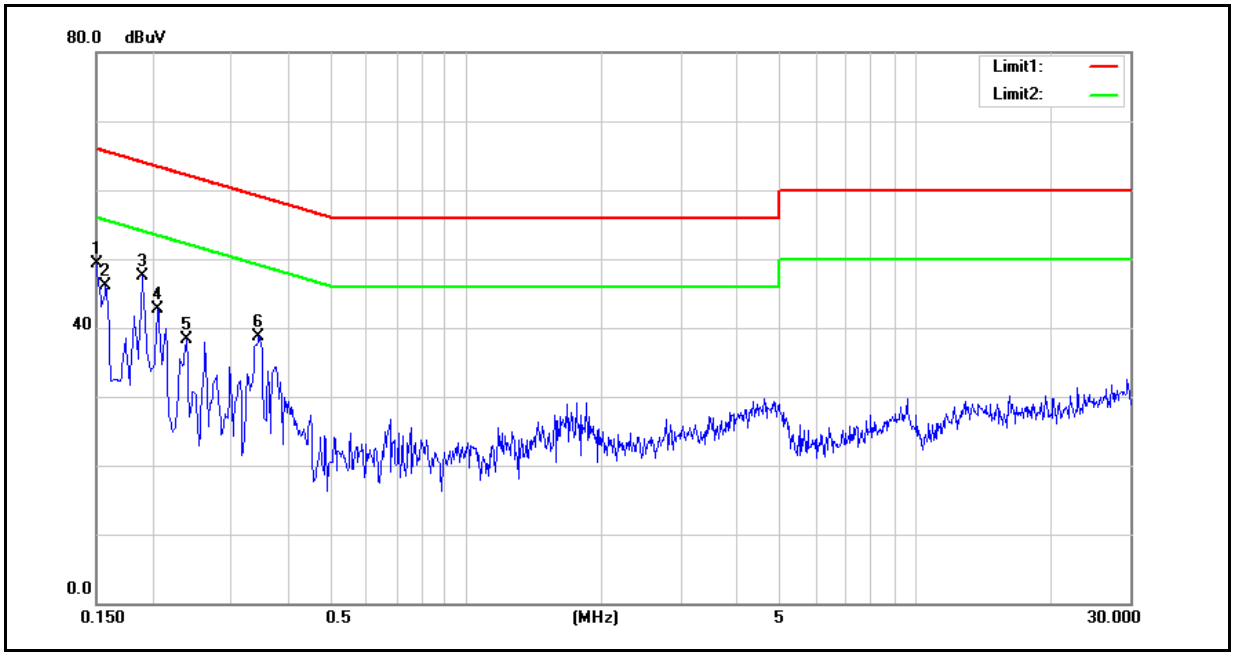
The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

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.

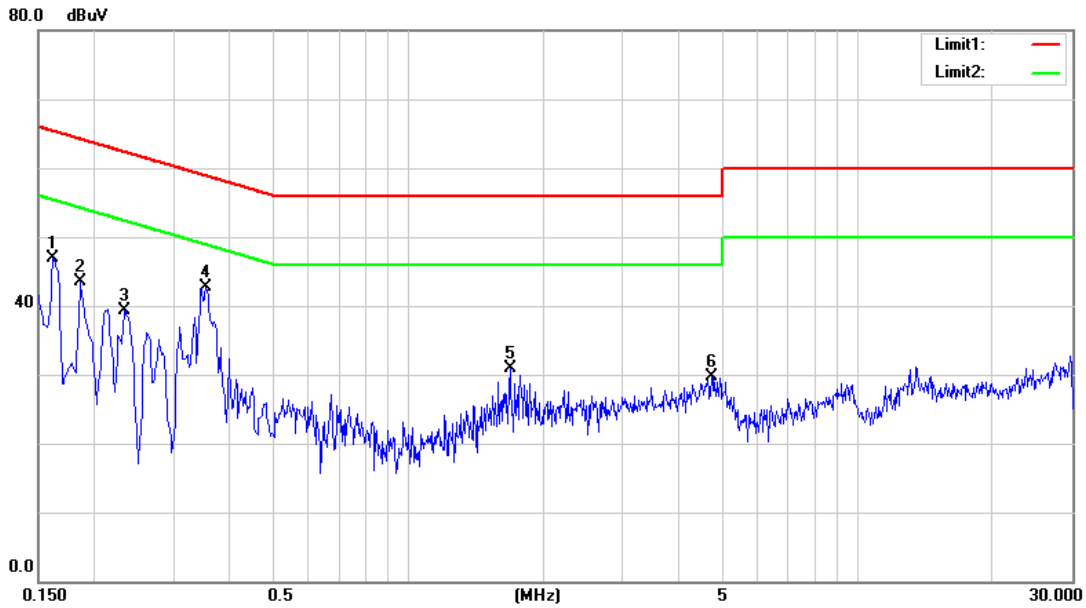
4.5. Test Result

Standard:	FCC Part 15E	Line:	L1
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 1	Date:	01/15/2016
		Test By:	Eric Ou Yang
Description:	Adapter model: WA-24Q12R (worst case)		



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	37.11	22.89	9.69	46.80	32.58	66.00	56.00	-19.20	-23.42	Pass
2	0.1580	35.32	19.89	9.69	45.01	29.58	65.57	55.57	-20.56	-25.99	Pass
3	0.1900	29.29	16.38	9.68	38.97	26.06	64.04	54.04	-25.07	-27.98	Pass
4	0.2060	27.91	16.42	9.68	37.59	26.10	63.37	53.37	-25.78	-27.27	Pass
5	0.2380	23.52	12.83	9.68	33.20	22.51	62.17	52.17	-28.97	-29.66	Pass
6	0.3460	27.83	19.79	9.69	37.52	29.48	59.06	49.06	-21.54	-19.58	Pass

Standard:	FCC Part 15E	Line:	N
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 1	Date:	05/05/2015
		Test By:	Eric Ou Yang
Description:	Adapter model: WA-24Q12R (worst case)		



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	0.1620	32.77	17.03	9.66	42.43	26.69	65.36	55.36	-22.93	-28.67	Pass
2	0.1860	31.27	17.72	9.65	40.92	27.37	64.21	54.21	-23.29	-26.84	Pass
3	0.2340	24.68	15.36	9.65	34.33	25.01	62.31	52.31	-27.98	-27.30	Pass
4	0.3540	31.24	23.85	9.66	40.90	33.51	58.87	48.87	-17.97	-15.36	Pass
5	1.6820	13.60	8.40	9.73	23.33	18.13	56.00	46.00	-32.67	-27.87	Pass
6	4.7380	15.05	7.68	9.83	24.88	17.51	56.00	46.00	-31.12	-28.49	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

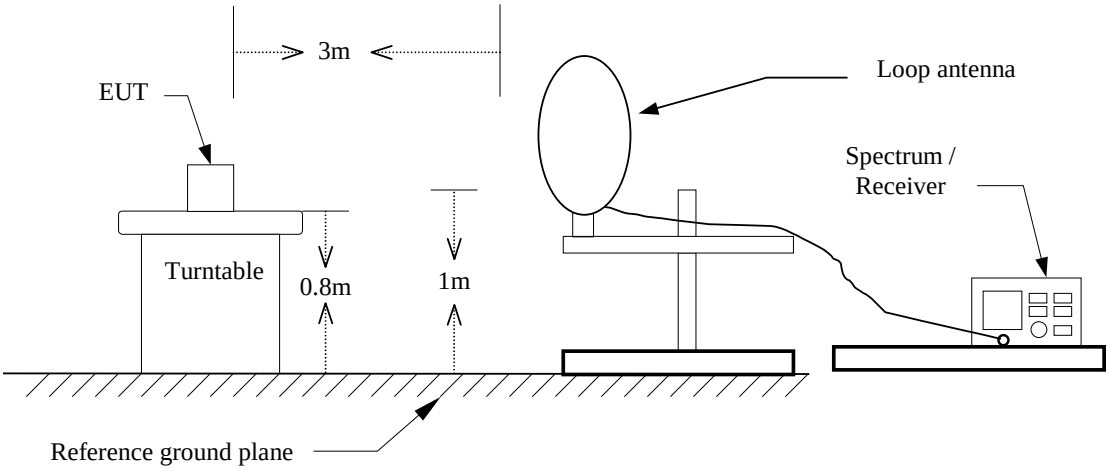
3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/08/2016	(1)
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/08/2016	(1)
Pre Amplifier	Agilent	8449B	3008A02237	02/24/2015	(1)
Pre Amplifier	Agilent	8447D	2944A10961	02/24/2015	(1)
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	08/11/2015	(1)
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/10/2015	(1)
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	07/06/2015	(1)
Test Site	ATL	TE01	888001	08/27/2015	(1)

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

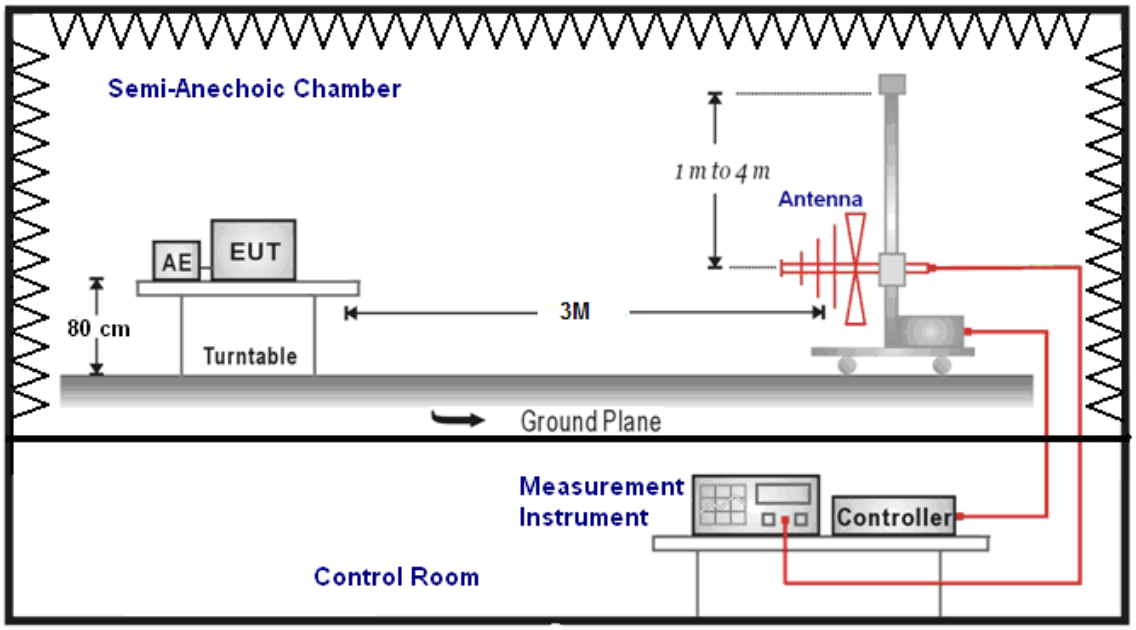
Note: N.C.R. = No Calibration Request.

5.3. Setup

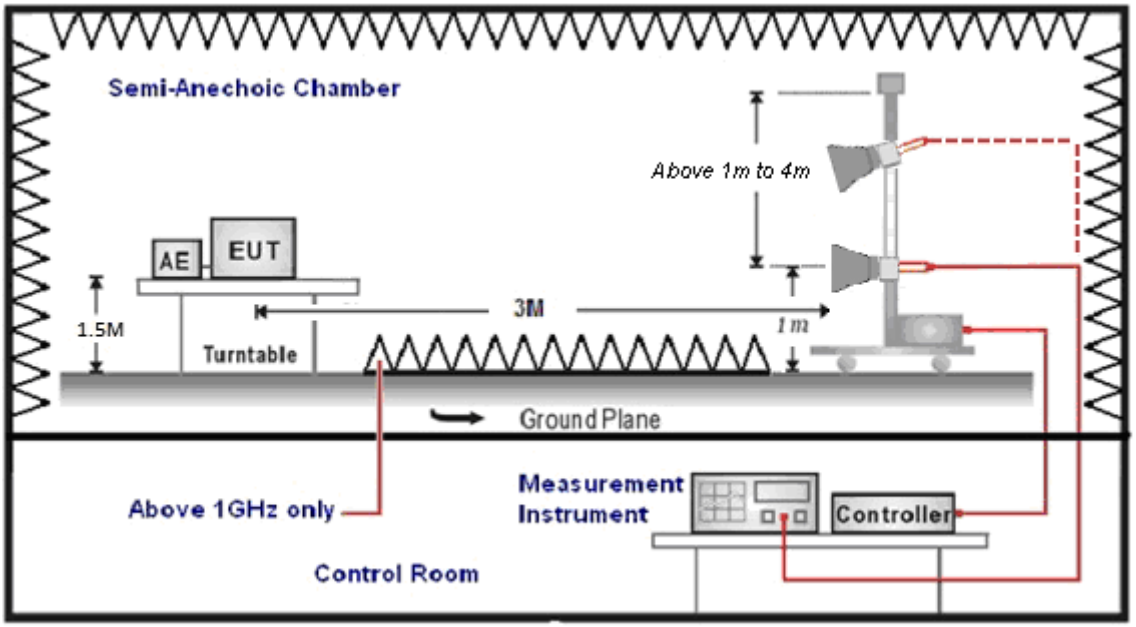
9kHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz


Semi-Anechoic Chamber
Above 1m to 4m
AE
EUT
1.5M
3M
1m
Turntable
Ground Plane
Above 1GHz only
Measurement
Instrument
Controller
Control Room

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), top surface 1.0 x 1.5 meter. 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 restricted 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 10 Hz for average measurements when Duty cycle > 0.98 / 1/T for average measurements when Duty cycle < 0.98.

For out of band 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.

A nonconductive material surrounded the EUT to supporting the EUT for standing on tree 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 antnna (model 3117) Schwarzbeck Mess-Elektronik Broadband Horn Antenna (BBHA 9170) was used in frequencies 1 – 40 GHz at a distance of 3 meter. The antenna at an angle toward the source of the emission. 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 pre meter (uV/m).

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

The actual field is intensity in 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) 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) 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:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 1	Date:	01/15/2016
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
131.8500	43.30	-16.26	27.04	43.50	-16.46	QP	H
299.6600	52.09	-14.12	37.97	46.00	-8.03	QP	H
375.3200	46.86	-11.98	34.88	46.00	-11.12	QP	H
514.0300	40.75	-8.47	32.28	46.00	-13.72	QP	H
624.6100	41.13	-6.17	34.96	46.00	-11.04	QP	H
874.8700	40.20	-1.85	38.35	46.00	-7.65	QP	H
112.4500	47.48	-17.95	29.53	43.50	-13.97	QP	V
230.7900	50.12	-16.38	33.74	46.00	-12.26	QP	V
299.6600	51.73	-14.12	37.61	46.00	-8.39	QP	V
492.6900	46.08	-8.96	37.12	46.00	-8.88	QP	V
624.6100	40.98	-6.17	34.81	46.00	-11.19	QP	V
900.0900	40.52	-1.39	39.13	46.00	-6.87	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:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	01/15/2016
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
2764.000	36.97	0.73	37.70	74.00	-36.30	peak	H
4640.000	34.62	6.81	41.43	74.00	-32.57	peak	H
7433.000	32.69	13.90	46.59	74.00	-27.41	peak	H
2848.000	36.39	0.94	37.33	74.00	-36.67	peak	V
4633.000	35.23	6.79	42.02	74.00	-31.98	peak	V
7622.000	32.13	14.27	46.40	74.00	-27.60	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	01/15/2016
Frequency:	5200MHz	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
2771.000	36.90	0.75	37.65	74.00	-36.35	peak	H
4668.000	35.15	6.91	42.06	74.00	-31.94	peak	H
7629.000	31.82	14.27	46.09	74.00	-27.91	peak	H
2799.000	36.81	0.82	37.63	74.00	-36.37	peak	V
4633.000	35.52	6.79	42.31	74.00	-31.69	peak	V
7398.000	31.88	13.81	45.69	74.00	-28.31	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	01/15/2016
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
2855.000	37.18	0.96	38.14	74.00	-35.86	peak	H
4934.000	35.50	7.84	43.34	74.00	-30.66	peak	H
7328.000	31.98	13.62	45.60	74.00	-28.40	peak	H
2862.000	36.91	0.98	37.89	74.00	-36.11	peak	V
4570.000	34.97	6.57	41.54	74.00	-32.46	peak	V
7671.000	32.61	14.34	46.95	74.00	-27.05	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	01/15/2016
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
3121.000	36.87	1.88	38.75	74.00	-35.25	peak	H
4605.000	34.60	6.69	41.29	74.00	-32.71	peak	H
6775.000	33.41	12.20	45.61	74.00	-28.39	peak	H
3128.000	37.94	1.91	39.85	74.00	-34.15	peak	V
4661.000	35.13	6.89	42.02	74.00	-31.98	peak	V
6621.000	33.45	11.84	45.29	74.00	-28.71	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	01/15/2016
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
3044.000	38.03	1.51	39.54	74.00	-34.46	peak	H
4542.000	34.61	6.47	41.08	74.00	-32.92	peak	H
6754.000	32.87	12.15	45.02	74.00	-28.98	peak	H
3072.000	39.26	1.65	40.91	74.00	-33.09	peak	V
4542.000	34.90	6.47	41.37	74.00	-32.63	peak	V
6754.000	33.31	12.15	45.46	74.00	-28.54	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	01/15/2016
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
3184.000	37.08	2.18	39.26	74.00	-34.74	peak	H
4675.000	35.02	6.93	41.95	74.00	-32.05	peak	H
6761.000	33.83	12.17	46.00	74.00	-28.00	peak	H
3128.000	38.63	1.91	40.54	74.00	-33.46	peak	V
4633.000	35.07	6.79	41.86	74.00	-32.14	peak	V
6684.000	32.92	11.99	44.91	74.00	-29.09	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	01/15/2016
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
2848.000	36.86	0.94	37.80	74.00	-36.20	peak	H
4661.000	34.09	6.89	40.98	74.00	-33.02	peak	H
7538.000	31.37	14.14	45.51	74.00	-28.49	peak	H
2799.000	36.54	0.82	37.36	74.00	-36.64	peak	V
4689.000	34.55	6.99	41.54	74.00	-32.46	peak	V
7559.000	32.12	14.17	46.29	74.00	-27.71	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	01/15/2016
Frequency:	5200MHz	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
2771.000	37.15	0.75	37.90	74.00	-36.10	peak	H
4689.000	35.28	6.99	42.27	74.00	-31.73	peak	H
7363.000	32.63	13.71	46.34	74.00	-27.66	peak	H
2799.000	37.40	0.82	38.22	74.00	-35.78	peak	V
4948.000	34.24	7.89	42.13	74.00	-31.87	peak	V
7447.000	31.97	13.94	45.91	74.00	-28.09	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	01/15/2016
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
2827.000	36.74	0.88	37.62	74.00	-36.38	peak	H
4647.000	34.68	6.83	41.51	74.00	-32.49	peak	H
7363.000	31.79	13.71	45.50	74.00	-28.50	peak	H
2855.000	36.17	0.96	37.13	74.00	-36.87	peak	V
4605.000	35.29	6.69	41.98	74.00	-32.02	peak	V
7342.000	32.25	13.65	45.90	74.00	-28.10	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	01/15/2016
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
3058.000	37.09	1.58	38.67	74.00	-35.33	peak	H
4465.000	35.86	6.24	42.10	74.00	-31.90	peak	H
6614.000	33.18	11.83	45.01	74.00	-28.99	peak	H
3114.000	38.37	1.85	40.22	74.00	-33.78	peak	V
4619.000	35.43	6.74	42.17	74.00	-31.83	peak	V
6649.000	32.77	11.90	44.67	74.00	-29.33	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	01/15/2016
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
3156.000	37.12	2.05	39.17	74.00	-34.83	peak	H
4584.000	34.37	6.61	40.98	74.00	-33.02	peak	H
6705.000	32.43	12.04	44.47	74.00	-29.53	peak	H
3051.000	38.10	1.55	39.65	74.00	-34.35	peak	V
4570.000	35.22	6.57	41.79	74.00	-32.21	peak	V
6670.000	33.53	11.96	45.49	74.00	-28.51	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	01/15/2016
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
3177.000	37.19	2.14	39.33	74.00	-34.67	peak	H
4577.000	36.78	6.59	43.37	74.00	-30.63	peak	H
6726.000	32.90	12.09	44.99	74.00	-29.01	peak	H
3065.000	38.71	1.62	40.33	74.00	-33.67	peak	V
4605.000	35.49	6.69	42.18	74.00	-31.82	peak	V
6670.000	33.02	11.96	44.98	74.00	-29.02	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 4	Date:	01/15/2016
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
2862.000	36.95	0.98	37.93	74.00	-36.07	peak	H
4654.000	35.45	6.86	42.31	74.00	-31.69	peak	H
7377.000	32.69	13.74	46.43	74.00	-27.57	peak	H
2813.000	36.46	0.85	37.31	74.00	-36.69	peak	V
4598.000	34.50	6.67	41.17	74.00	-32.83	peak	V
7342.000	32.62	13.65	46.27	74.00	-27.73	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 4	Date:	01/15/2016
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
2778.000	37.55	0.76	38.31	74.00	-35.69	peak	H
4654.000	34.61	6.86	41.47	74.00	-32.53	peak	H
7307.000	33.19	13.56	46.75	74.00	-27.25	peak	H
2834.000	36.42	0.90	37.32	74.00	-36.68	peak	V
4689.000	35.29	6.99	42.28	74.00	-31.72	peak	V
7412.000	32.85	13.84	46.69	74.00	-27.31	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 4	Date:	01/15/2016
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
3079.000	36.00	1.68	37.68	74.00	-36.32	peak	H
4633.000	34.21	6.79	41.00	74.00	-33.00	peak	H
6775.000	32.81	12.20	45.01	74.00	-28.99	peak	H
3170.000	39.46	2.10	41.56	74.00	-32.44	peak	V
4675.000	36.20	6.93	43.13	74.00	-30.87	peak	V
6579.000	34.09	11.74	45.83	74.00	-28.17	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 4	Date:	01/15/2016
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
3072.000	36.74	1.65	38.39	74.00	-35.61	peak	H
4451.000	34.44	6.21	40.65	74.00	-33.35	peak	H
6663.000	32.67	11.93	44.60	74.00	-29.40	peak	H
3093.000	37.40	1.74	39.14	74.00	-34.86	peak	V
4325.000	35.22	5.91	41.13	74.00	-32.87	peak	V
6600.000	32.47	11.79	44.26	74.00	-29.74	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 5	Date:	01/15/2016
Frequency:	5210MHz	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
2869.000	37.43	0.98	38.41	74.00	-35.59	peak	H
4689.000	34.76	6.99	41.75	74.00	-32.25	peak	H
7587.000	32.47	14.21	46.68	74.00	-27.32	peak	H
2820.000	36.19	0.87	37.06	74.00	-36.94	peak	V
4696.000	35.05	7.01	42.06	74.00	-31.94	peak	V
7419.000	32.44	13.87	46.31	74.00	-27.69	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 5	Date:	01/15/2016
Frequency:	5775MHz	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
3086.000	36.87	1.71	38.58	74.00	-35.42	peak	H
4605.000	34.32	6.69	41.01	74.00	-32.99	peak	H
6649.000	32.35	11.90	44.25	74.00	-29.75	peak	H
3128.000	37.69	1.91	39.60	74.00	-34.40	peak	V
4619.000	35.11	6.74	41.85	74.00	-32.15	peak	V
6656.000	33.34	11.92	45.26	74.00	-28.74	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Simultaneous Transmitting	Date:	02/17/2016
	(2.4GHz + 5GHz)	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
2799.000	34.06	0.82	34.88	74.00	-39.12	peak	H
4290.000	31.72	5.84	37.56	74.00	-36.44	peak	H
7615.000	29.01	14.26	43.27	74.00	-30.73	peak	H
2813.000	32.98	0.85	33.83	74.00	-40.17	peak	V
4591.000	31.63	6.64	38.27	74.00	-35.73	peak	V
7650.000	28.73	14.30	43.03	74.00	-30.97	peak	V

Band Edge

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	01/15/2016
Frequency:	5180 MHz	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
5147.500	49.93	8.25	58.18	74.00	-15.82	peak	H
5147.500	42.10	8.25	50.35	54.00	-3.65	AVG	H
5150.000	51.22	8.25	59.47	74.00	-14.53	peak	H
5150.000	43.29	8.25	51.54	54.00	-2.46	AVG	H
5146.100	51.59	8.25	59.84	74.00	-14.16	peak	V
5146.100	42.67	8.25	50.92	54.00	-3.08	AVG	V
5150.000	53.82	8.25	62.07	74.00	-11.93	peak	V
5150.000	44.07	8.25	52.32	54.00	-1.68	AVG	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	01/20/2016
Frequency:	5200 MHz	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
5081.760	48.45	8.16	56.61	74.00	-17.39	peak	H
5081.760	40.29	8.16	48.45	54.00	-5.55	AVG	H
5150.000	50.13	8.25	58.38	74.00	-15.62	peak	H
5150.000	42.26	8.25	50.51	54.00	-3.49	AVG	H
5350.000	46.12	8.49	54.61	74.00	-19.39	peak	H
5350.000	40.37	8.49	48.86	54.00	-5.14	AVG	H
5440.800	47.81	8.59	56.40	74.00	-17.60	peak	H
5440.800	40.52	8.59	49.11	54.00	-4.89	AVG	H
5133.600	60.66	8.23	68.89	74.00	-5.11	peak	V
5133.600	43.43	8.23	51.66	54.00	-2.34	AVG	V
5150.000	63.19	8.25	71.44	74.00	-2.56	peak	V
5150.000	44.21	8.25	52.46	54.00	-1.54	AVG	V
5350.000	46.62	8.49	55.11	74.00	-18.89	peak	V
5350.000	40.55	8.49	49.04	54.00	-4.96	AVG	V
5415.840	48.56	8.56	57.12	74.00	-16.88	peak	V
5415.840	40.16	8.56	48.72	54.00	-5.28	AVG	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	01/20/2016
Frequency:	5240 MHz	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
5350.000	46.30	8.49	54.79	74.00	-19.21	peak	H
5350.000	35.34	8.49	43.83	54.00	-10.17	AVG	H
5376.180	47.68	8.52	56.20	74.00	-17.80	peak	H
5376.180	36.34	8.52	44.86	54.00	-9.14	AVG	H
5350.000	48.19	8.49	56.68	74.00	-17.32	peak	V
5350.000	39.37	8.49	47.86	54.00	-6.14	AVG	V
5364.740	49.12	8.51	57.63	74.00	-16.37	peak	V
5364.740	37.87	8.51	46.38	54.00	-7.62	AVG	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	01/15/2016
Frequency:	5745 MHz	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
5714.150	52.67	9.16	61.83	68.20	-6.37	peak	H
5715.000	50.23	9.16	59.39	68.20	-8.81	peak	H
5725.000	54.87	9.19	64.06	78.20	-14.14	peak	H
5713.850	55.31	9.16	64.47	68.20	-3.73	peak	V
5715.000	55.66	9.16	64.82	68.20	-3.38	peak	V
5725.000	59.47	9.19	68.66	78.20	-9.54	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	01/20/2016
Frequency:	5785 MHz	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
5707.600	47.72	9.14	56.86	68.20	-11.34	peak	H
5715.000	48.06	9.16	57.22	68.20	-10.98	peak	H
5725.000	49.98	9.19	59.17	78.20	-19.03	peak	H
5860.000	50.33	9.48	59.81	68.20	-8.39	peak	H
5865.200	50.61	9.50	60.11	68.20	-8.09	peak	H
5712.000	55.31	9.16	64.47	68.20	-3.73	peak	V
5715.000	54.49	9.16	63.65	68.20	-4.55	peak	V
5725.000	57.24	9.19	66.43	78.20	-11.77	peak	V
5860.000	54.46	9.48	63.94	68.20	-4.26	peak	V
5862.800	55.94	9.49	65.43	68.20	-2.77	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	01/15/2016
Frequency:	5825 MHz	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
5850.000	54.53	9.46	63.99	78.20	-14.21	peak	H
5860.000	51.62	9.48	61.10	68.20	-7.10	peak	H
5863.740	50.14	9.50	59.64	68.20	-8.56	peak	H
5850.000	57.37	9.46	66.83	78.20	-11.37	peak	V
5860.000	54.52	9.48	64.00	68.20	-4.20	peak	V
5860.500	56.13	9.48	65.61	68.20	-2.59	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	01/15/2016
Frequency:	5180 MHz	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
5148.200	51.85	8.25	60.10	74.00	-13.90	peak	H
5148.200	42.34	8.25	50.59	54.00	-3.41	AVG	H
5150.000	49.72	8.25	57.97	74.00	-16.03	peak	H
5150.000	42.84	8.25	51.09	54.00	-2.91	AVG	H
5147.500	53.73	8.25	61.98	74.00	-12.02	peak	V
5147.500	43.57	8.25	51.82	54.00	-2.18	AVG	V
5150.000	53.40	8.25	61.65	74.00	-12.35	peak	V
5150.000	44.13	8.25	52.38	54.00	-1.62	AVG	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	01/19/2016
Frequency:	5200 MHz	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
5139.360	48.25	8.24	56.49	74.00	-17.51	peak	H
5139.360	40.29	8.24	48.53	54.00	-5.47	AVG	H
5150.000	48.83	8.25	57.08	74.00	-16.92	peak	H
5150.000	40.29	8.25	48.54	54.00	-5.46	AVG	H
5350.000	45.54	8.49	54.03	74.00	-19.97	peak	H
5350.000	38.42	8.49	46.91	54.00	-7.09	AVG	H
5359.200	47.44	8.50	55.94	74.00	-18.06	peak	H
5359.200	37.14	8.50	45.64	54.00	-8.36	AVG	H
5146.080	62.31	8.25	70.56	74.00	-3.44	peak	V
5146.080	43.17	8.25	51.42	54.00	-2.58	AVG	V
5150.000	60.29	8.25	68.54	74.00	-5.46	peak	V
5150.000	44.02	8.25	52.27	54.00	-1.73	AVG	V
5350.000	48.04	8.49	56.53	74.00	-17.47	peak	V
5350.000	39.04	8.49	47.53	54.00	-6.47	AVG	V
5393.760	49.43	8.54	57.97	74.00	-16.03	peak	V
5393.760	38.66	8.54	47.20	54.00	-6.80	AVG	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	01/20/2016
Frequency:	5240 MHz	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
5350.000	45.63	8.49	54.12	74.00	-19.88	peak	H
5350.000	37.48	8.49	45.97	54.00	-8.03	AVG	H
5354.400	47.53	8.49	56.02	74.00	-17.98	peak	H
5354.400	37.99	8.49	46.48	54.00	-7.52	AVG	H
5350.000	45.63	8.49	54.12	74.00	-19.88	peak	V
5350.000	37.48	8.49	45.97	54.00	-8.03	AVG	V
5354.400	47.53	8.49	56.02	74.00	-17.98	peak	V
5354.400	37.99	8.49	46.48	54.00	-7.52	AVG	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	01/15/2016
Frequency:	5745 MHz	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
5714.000	53.24	9.16	62.40	68.20	-5.80	peak	H
5715.000	48.46	9.16	57.62	68.20	-10.58	peak	H
5725.000	56.68	9.19	65.87	78.20	-12.33	peak	H
5714.000	56.36	9.16	65.52	68.20	-2.68	peak	V
5715.000	53.00	9.16	62.16	68.20	-6.04	peak	V
5725.000	60.34	9.19	69.53	78.20	-8.67	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	01/20/2016
Frequency:	5785 MHz	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
5702.800	52.10	9.13	61.23	68.20	-6.97	peak	H
5715.000	50.81	9.16	59.97	68.20	-8.23	peak	H
5725.000	56.29	9.19	65.48	78.20	-12.72	peak	H
5850.000	56.26	9.46	65.72	78.20	-12.48	peak	H
5860.000	53.03	9.48	62.51	68.20	-5.69	peak	H
5868.000	55.01	9.51	64.52	68.20	-3.68	peak	H
5706.400	57.96	9.14	67.10	68.20	-1.10	peak	V
5715.000	55.38	9.16	64.54	68.20	-3.66	peak	V
5725.000	58.56	9.19	67.75	78.20	-10.45	peak	V
5850.000	58.02	9.46	67.48	78.20	-10.72	peak	V
5860.000	55.26	9.48	64.74	68.20	-3.46	peak	V
5865.600	57.86	9.50	66.84	68.20	-1.36	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	01/15/2016
Frequency:	5825 MHz	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
5850.000	54.13	9.46	63.59	78.20	-14.61	peak	H
5860.000	48.22	9.48	57.70	68.20	-10.50	peak	H
5860.875	49.20	9.49	58.69	68.20	-9.51	peak	H
5850.000	57.45	9.46	66.91	78.20	-11.29	peak	V
5860.000	50.43	9.48	59.91	68.20	-8.29	peak	V
5861.750	52.25	9.49	61.74	68.20	-6.46	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 4	Date:	01/15/2016
Frequency:	5190 MHz	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
5144.700	50.13	8.25	58.38	74.00	-15.62	peak	H
5144.700	40.32	8.25	48.57	54.00	-5.43	AVG	H
5150.000	48.55	8.25	56.80	74.00	-17.20	peak	H
5150.000	43.43	8.25	51.68	54.00	-2.32	AVG	H
5143.300	50.32	8.25	58.57	74.00	-15.43	peak	V
5143.300	41.94	8.25	50.19	54.00	-3.81	AVG	V
5150.000	51.19	8.25	59.44	74.00	-14.56	peak	V
5150.000	43.97	8.25	52.22	54.00	-1.78	AVG	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 4	Date:	01/19/2016
Frequency:	5230 MHz	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
5350.000	47.94	8.49	56.43	74.00	-17.57	peak	H
5350.000	40.40	8.49	48.89	54.00	-5.11	AVG	H
5356.040	49.51	8.49	58.00	74.00	-16.00	Peak	H
5356.040	40.33	8.49	48.82	54.00	-5.18	AVG	H
5350.000	57.56	8.49	66.05	74.00	-7.95	peak	V
5350.000	44.15	8.49	52.64	54.00	-1.36	AVG	V
5353.050	57.61	8.49	66.10	74.00	-7.90	peak	V
5353.050	44.03	8.49	52.52	54.00	-1.48	AVG	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 4	Date:	01/15/2016
Frequency:	5755 MHz	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
5714.240	50.58	9.16	59.74	68.20	-8.46	peak	H
5715.000	49.79	9.16	58.95	68.20	-9.25	peak	H
5725.000	57.30	9.19	66.49	78.20	-11.71	peak	H
5709.600	51.80	9.15	60.95	68.20	-7.25	peak	V
5715.000	51.74	9.16	60.90	68.20	-7.30	peak	V
5725.000	56.60	9.19	65.79	78.20	-12.41	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 4	Date:	01/20/2016
Frequency:	5795 MHz	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
5850.000	57.36	9.46	66.82	78.20	-11.38	peak	H
5860.000	51.29	9.48	60.77	68.20	-7.43	peak	H
5860.560	55.70	9.48	65.18	68.20	-3.02	peak	H
5850.000	62.04	9.46	71.50	78.20	-6.70	peak	V
5860.000	55.36	9.48	64.84	68.20	-3.36	peak	V
5861.610	57.37	9.49	66.86	68.20	-1.34	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 5	Date:	01/15/2016
Frequency:	5210 MHz	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
5143.200	47.17	8.25	55.42	74.00	-18.58	peak	H
5143.200	40.78	8.25	49.03	54.00	-4.97	AVG	H
5150.000	48.79	8.25	57.04	74.00	-16.96	peak	H
5150.000	42.46	8.25	50.71	54.00	-3.29	AVG	H
5350.000	42.80	8.49	51.29	74.00	-22.71	peak	H
5450.400	43.38	8.60	51.98	74.00	-22.02	peak	H
5139.360	49.88	8.24	58.12	74.00	-15.88	peak	V
5139.360	42.59	8.24	50.83	54.00	-3.17	AVG	V
5150.000	50.81	8.25	59.06	74.00	-14.94	peak	V
5150.000	44.02	8.25	52.27	54.00	-1.73	AVG	V
5350.000	43.35	8.49	51.84	74.00	-22.16	peak	V
5376.480	42.16	8.52	50.68	74.00	-23.32	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	EW-7679CAP	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 5	Date:	01/15/2016
Frequency:	5775 MHz	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
5713.200	54.97	9.16	64.13	68.20	-4.07	peak	H
5715.000	53.22	9.16	62.38	68.20	-5.82	peak	H
5725.000	56.64	9.19	65.83	78.20	-12.37	peak	H
5860.000	44.61	9.48	54.09	68.20	-14.11	peak	H
5862.800	49.12	9.49	58.61	68.20	-9.59	peak	H
5682.800	56.20	9.08	65.28	68.20	-2.92	peak	V
5715.000	56.41	9.16	65.57	68.20	-2.63	peak	V
5725.000	60.42	9.19	69.61	78.20	-8.59	peak	V
5860.000	48.05	9.48	57.53	68.20	-10.67	peak	V
5861.200	49.33	9.49	58.82	68.20	-9.38	peak	V

6 Maximum Conducted Output Power Measurement

6.1. Limit

Frequency Range (MHz)	FCC Limit
5.150 ~ 5.250 GHz	The lesser of 1000mW (30dBm)
5.725 ~ 5.850 GHz	The lesser of 1000mW (30dBm)

According FCC KDB 662911 D01 v02r01 – for power measurements on IEEE802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};

Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

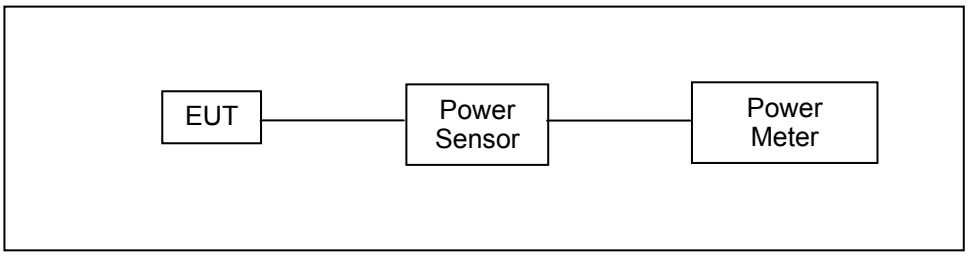
∗ SISO mode for ANT-1：Max. Gain = 6.27 dBi > 6 dBi.

SISO mode for ANT-1 power limit shall be reduced = 30 - 0.27 = 29.73 dBm.

∗ MIMO mode：Directional Gain = $10*\log [(10^{G1/20}+10^{G2/20}+10^{G3/20})^2 / N_{ANT}]$ = 5.84 dBi < 6dBi

MIMO mode power limit = 30dBm

6.2. Test Setup



6.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Power Sensor	Anritsu	MA2411B	1126022	08/24/2015	(1)
Power Meter	Anritsu	ML2495A	1135009	08/24/2015	(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

Model Number	EW-7679CAP			
Test Item	Maximum Conducted Output Power			
Test Mode	Mode 2: IEEE 802.11a Link Mode			
Date of Test	01/15/2016			
Frequency (MHz)	Data Rate	ANT-0 Max. Outup (dBm)	ANT-0 Max. Outup (W)	FCC Limit (dBm)
5180	6M	15.81	0.038	< 30
5200		19.67	0.093	
5220		19.30	0.085	
5240		20.36	0.109	
5745		20.11	0.103	< 30
5765		23.34	0.216	
5785		23.57	0.228	
5805		23.60	0.229	
5825		22.25	0.168	
5180	54M	15.66	0.037	< 30
5200		19.56	0.090	
5220		19.12	0.082	
5240		20.24	0.106	
5745		19.97	0.099	< 30
5765		23.16	0.207	
5785		23.45	0.221	
5805		23.46	0.222	
5825		22.15	0.164	

Model Number	EW-7679CAP									
Test Item	Maximum Conducted Output Power									
Test Mode	Mode 3: IEEE 802.11ac 20MHz Link Mode									
Date of Test	01/15/2016									
Frequency (MHz)	Data Rate	ANT-0		ANT-1		ANT-2		ANT-0+1+2		FCC Limit (dBm)
		Max. Outup Power								
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
5180	19.5M	14.28	0.027	17.71	0.059	15.51	0.036	20.84	0.121	ANT-0, 2 < 30 ANT-1 < 29.73 ANT-0+1+2< 30
5200		18.36	0.069	20.44	0.111	18.45	0.070	23.97	0.249	
5220		18.08	0.064	19.65	0.092	17.97	0.063	23.41	0.219	
5240		18.38	0.069	19.75	0.094	18.43	0.070	23.67	0.233	
5745		17.84	0.061	19.37	0.086	18.29	0.067	23.32	0.215	ANT-0, 2 < 30 ANT-1 < 29.73 ANT-0+1+2< 30
5765		23.68	0.233	25.00	0.316	24.81	0.303	29.31	0.852	
5785		23.74	0.237	25.02	0.318	24.92	0.310	29.37	0.865	
5805		22.41	0.174	25.19	0.330	24.81	0.303	29.07	0.807	
5825		17.40	0.055	18.87	0.077	17.82	0.061	22.85	0.193	
5180	234M	14.21	0.026	17.42	0.055	15.27	0.034	20.62	0.115	ANT-0, 2 < 30 ANT-1 < 29.73 ANT-0+1+2< 30
5200		18.13	0.065	20.09	0.102	18.16	0.065	23.67	0.233	
5220		17.73	0.059	19.35	0.086	17.67	0.058	23.09	0.204	
5240		18.18	0.066	19.53	0.090	18.22	0.066	23.46	0.222	
5745		17.55	0.057	19.15	0.082	18.04	0.064	23.07	0.203	ANT-0, 2 < 30 ANT-1 < 29.73 ANT-0+1+2< 30
5765		23.41	0.219	24.72	0.296	24.58	0.287	29.05	0.803	
5785		23.46	0.222	24.78	0.301	24.66	0.292	29.11	0.815	
5805		22.20	0.166	24.99	0.316	24.56	0.286	28.85	0.767	
5825		17.15	0.052	18.67	0.074	17.58	0.057	22.62	0.183	

Model Number	EW-7679CAP									
Test Item	Maximum Conducted Output Power									
Test Mode	Mode 4: IEEE 802.11ac 40MHz Link Mode									
Date of Test	01/15/2016									
Frequency (MHz)	Data Rate	ANT-0		ANT-1		ANT-2		ANT-0+1+2		FCC Limit (dBm)
		Max. Outup Power								
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
5190	40.5M	11.87	0.015	15.08	0.032	12.51	0.018	18.16	0.065	ANT-0, 2 < 30 ANT-1 < 29.73 ANT-0+1+2< 30
5230		18.90	0.078	22.66	0.185	21.40	0.138	26.02	0.400	
5755		13.18	0.021	15.91	0.039	15.47	0.035	19.78	0.095	A ANT-0, 2 < 30 ANT-1 < 29.73 ANT-0+1+2< 30
5795		17.44	0.055	20.56	0.114	17.33	0.054	23.49	0.223	
5190	540M	11.54	0.014	14.72	0.030	12.12	0.016	17.80	0.060	ANT-0, 2 < 30 ANT-1 < 29.73 ANT-0+1+2< 30
5230		18.59	0.072	22.33	0.171	21.07	0.128	25.70	0.371	
5755		11.87	0.015	15.08	0.032	12.51	0.018	18.16	0.065	ANT-0, 2 < 30 ANT-1 < 29.73 ANT-0+1+2< 30
5755		18.90	0.078	22.66	0.185	21.40	0.138	26.02	0.400	

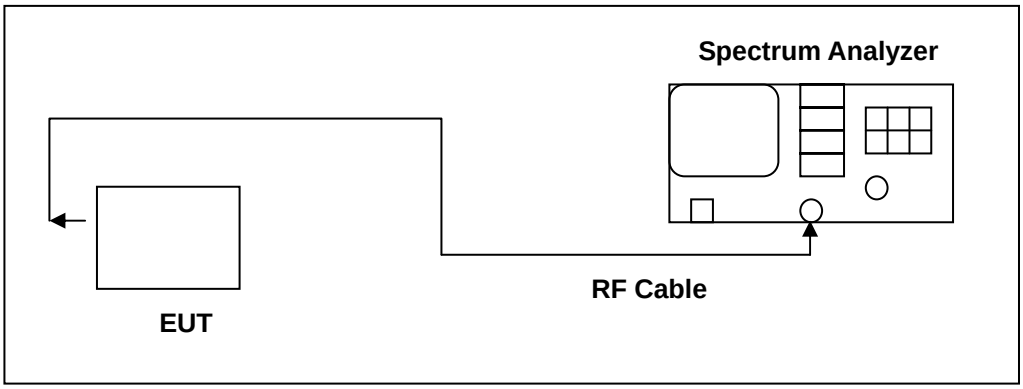
Model Number	EW-7679CAP									
Test Item	Maximum Conducted Output Power									
Test Mode	Mode 5: IEEE 802.11ac 80MHz Link Mode									
Date of Test	01/15/2016									
Frequency (MHz)	Data Rate	ANT-0		ANT-1		ANT-2		ANT-0+1+2		FCC Limit (dBm)
		Max. Outup Power								
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
5210	87.9M	12.91	0.020	15.62	0.036	15.25	0.033	19.52	0.090	ANT-0, 2 < 30 ANT-1 < 29.73 ANT-0+1+2< 30
5775		17.20	0.052	20.28	0.107	17.13	0.052	23.24	0.211	ANT-0, 2 < 30 ANT-1 < 29.73 ANT-0+1+2< 30
5210	1170M	9.90	0.010	12.39	0.017	10.12	0.010	15.73	0.037	ANT-0, 2 < 30 ANT-1 < 29.73 ANT-0+1+2< 30
5775		13.00	0.020	12.50	0.018	11.54	0.014	17.16	0.052	ANT-0, 2 < 30 ANT-1 < 29.73 ANT-0+1+2< 30

7 26dB RF Bandwidth & 99 % Occupied 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	12/15/2015	(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	EW-7679CAP	
Test Item	26dB RF Bandwidth & 99 % Occupied Bandwidth Measurement	
Test Mode	Mode 2: IEEE 802.11a Link Mode	
Date of Test	01/15/2016	
Frequency (MHz)	Ant-0	
	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
5180	23.29	16.817
5200	21.77	16.782
5240	23.30	16.788

Model Number	EW-7679CAP					
Test Item	26dB RF Bandwidth & 99 % Occupied Bandwidth Measurement					
Test Mode	Mode 3: IEEE 802.11ac 20MHz Link Mode					
Date of Test	01/15/2016					
Frequency (MHz)	Ant-0		Ant-1		Ant-2	
	26dB Bandwidth (MHz)	99 % Occupied Bandwidth	26dB Bandwidth (MHz)	99 % Occupied Bandwidth	26dB Bandwidth (MHz)	99 % Occupied Bandwidth
5180	23.000	17.880	22.12	17.828	22.50	17.805
5200	22.96	17.907	22.98	17.763	22.53	17.794
5240	24.90	17.926	24.99	17.882	22.33	17.801

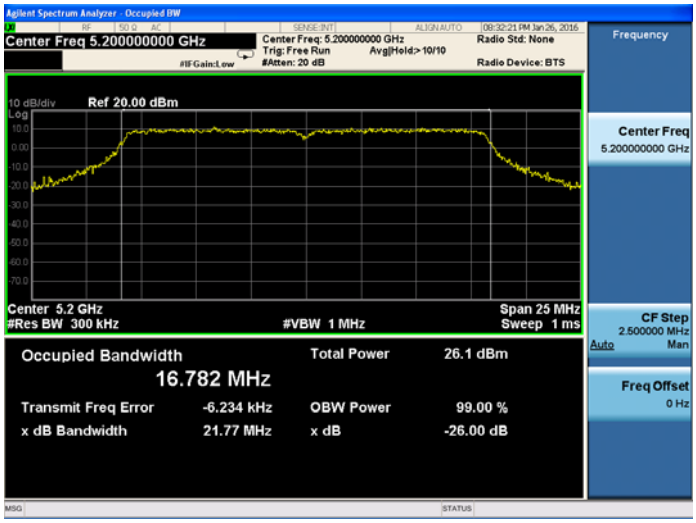
Model Number	EW-7679CAP					
Test Item	26dB RF Bandwidth & 99 % Occupied Bandwidth Measurement					
Test Mode	Mode 4: IEEE 802.11ac 40MHz Link Mode					
Date of Test	01/15/2016					
Frequency (MHz)	Ant-0		Ant-1		Ant-2	
	26dB Bandwidth (MHz)	99 % Occupied Bandwidth	26dB Bandwidth (MHz)	99 % Occupied Bandwidth	26dB Bandwidth (MHz)	99 % Occupied Bandwidth
5190	45.50	36.984	44.00	36.748	45.28	36.720
5230	48.46	36.844	44.99	36.748	45.19	36.771

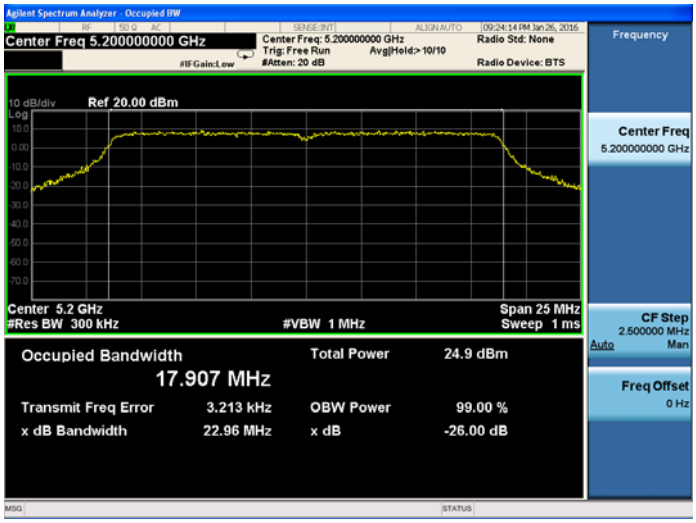
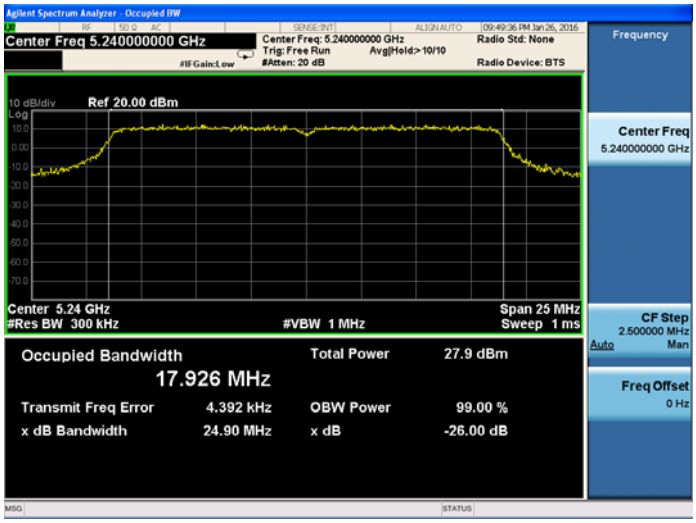
Note: The 99% occupied bandwidth not crossed 5250MHz.

Model Number	EW-7679CAP					
Test Item	26dB RF Bandwidth & 99 % Occupied Bandwidth Measurement					
Test Mode	Mode 5: IEEE 802.11ac 80MHz Link Mode					
Date of Test	01/15/2016					
Frequency (MHz)	Ant-0		Ant-1		Ant-2	
	26dB Bandwidth (MHz)	99 % Occupied Bandwidth	26dB Bandwidth (MHz)	99 % Occupied Bandwidth	26dB Bandwidth (MHz)	99 % Occupied Bandwidth
5210	87.29	75.780	86.54	75.966	84.48	75.633

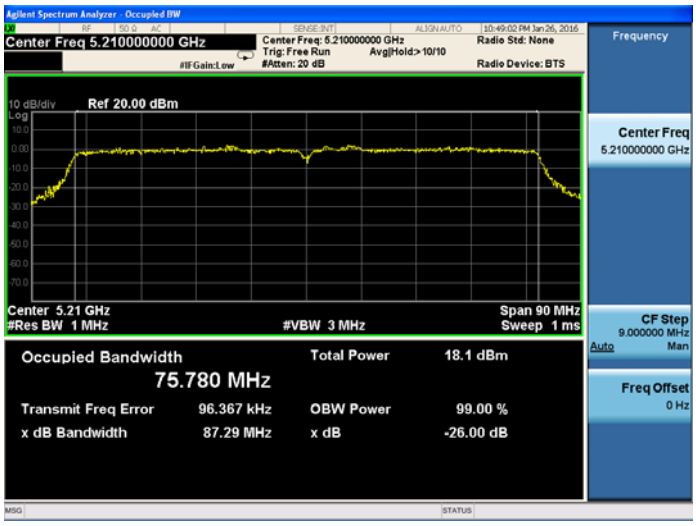
Note: The 99% occupied bandwidth not crossed 5250MHz.

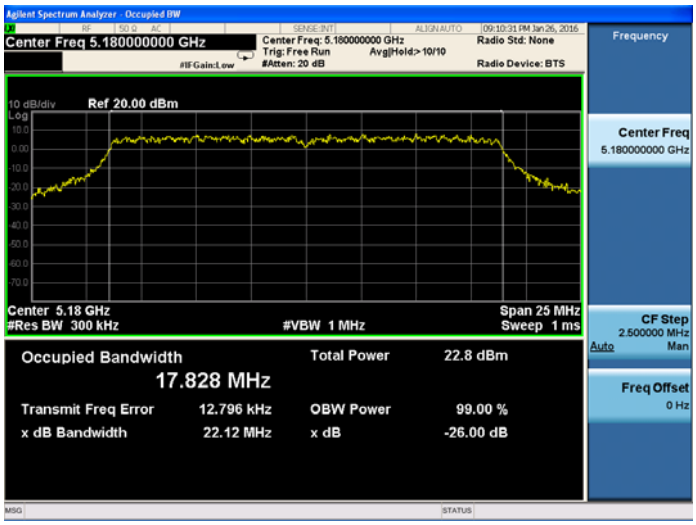
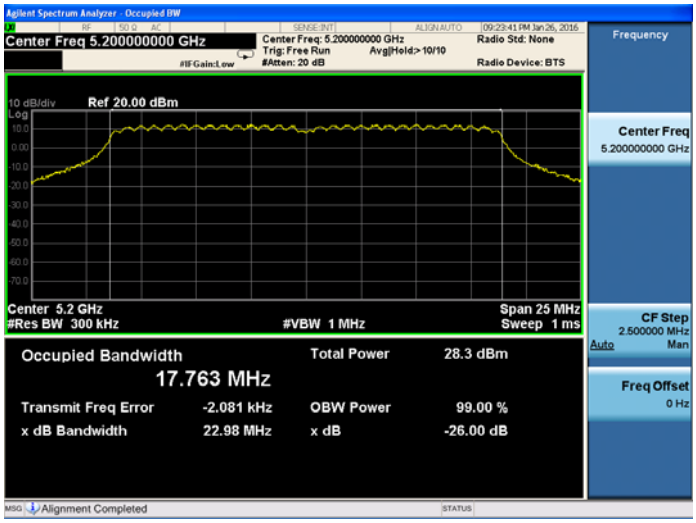
7.6. Test Graphs

Mode 2: IEEE 802.11a Link Mode_ Ant-0	
5180 MHz	
5200 MHz	
5240 MHz	

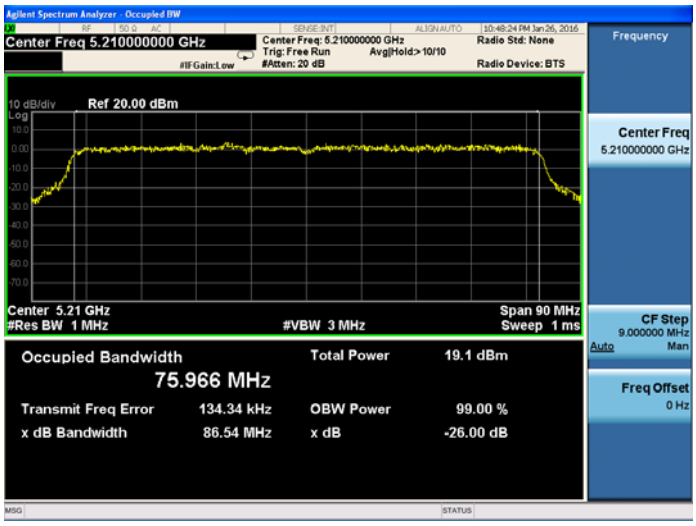
Mode 3: IEEE 802.11ac 20MHz Link Mode_ ANT-0	
5180 MHz	
5200 MHz	
5240 MHz	

Mode 4: IEEE 802.11ac 40MHz Link Mode_ ANT-0	
5190 MHz	
5230 MHz	

Mode 5: IEEE 802.11ac 80MHz Link Mode_ ANT-0	
5210 MHz	

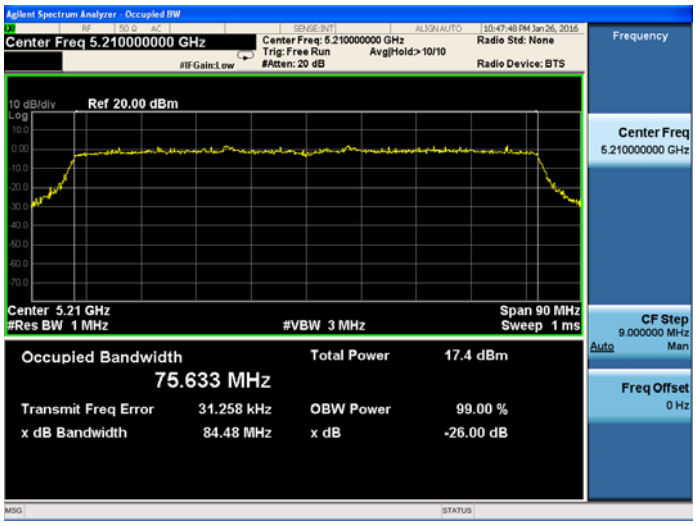
Mode 3: IEEE 802.11ac 20MHz Link Mode_ ANT-1	
5180 MHz	
5200 MHz	
5240 MHz	

Mode 4: IEEE 802.11ac 40MHz Link Mode_ ANT-1	
5190 MHz	
5230 MHz	

Mode 5: IEEE 802.11ac 80MHz Link Mode_ ANT-1	
5210 MHz	

Mode 3: IEEE 802.11ac 20MHz Link Mode_ ANT-2	
5180 MHz	
5200 MHz	
5240 MHz	

Mode 4: IEEE 802.11ac 40MHz Link Mode_ ANT-2	
5190 MHz	
5230 MHz	

Mode 5: IEEE 802.11ac 80MHz Link Mode_ ANT-2	
5210 MHz	

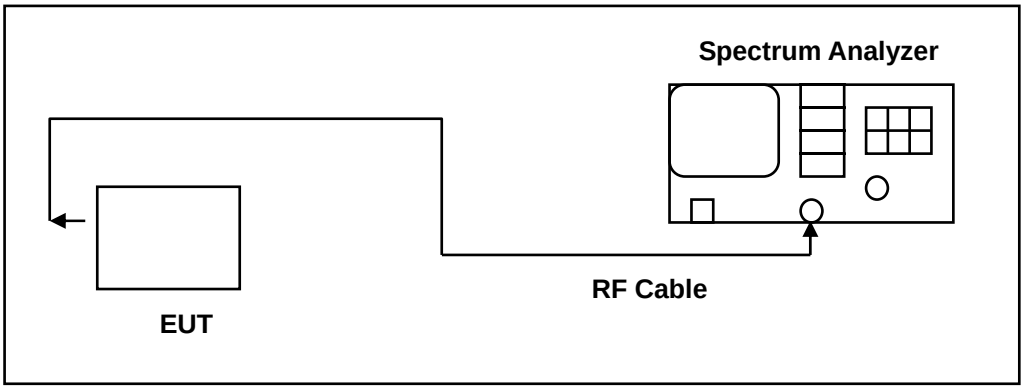
8 6dB RF Bandwidth Measurement

8.1. 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.

8.2. Test Setup



8.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/15/2015	(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.

8.4. Test Procedure

6dB RF Bandwidth

The EUT tested to UNII test procedure of KDB789033 D02 for compliance to FCC 47CFR 15.407 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.

8.5. Test Result

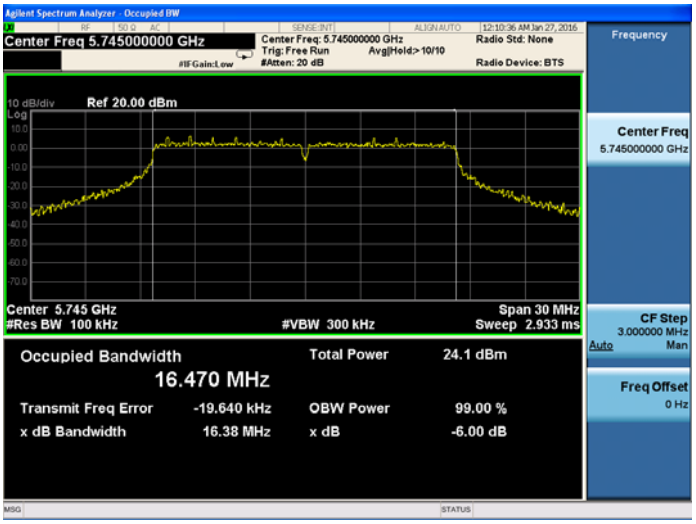
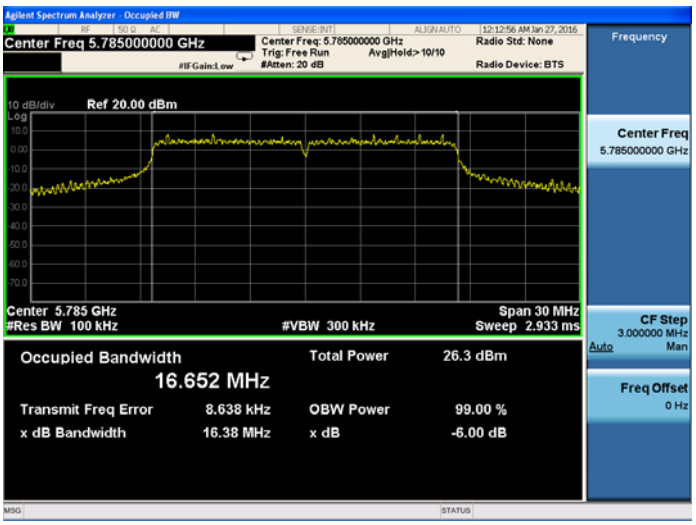
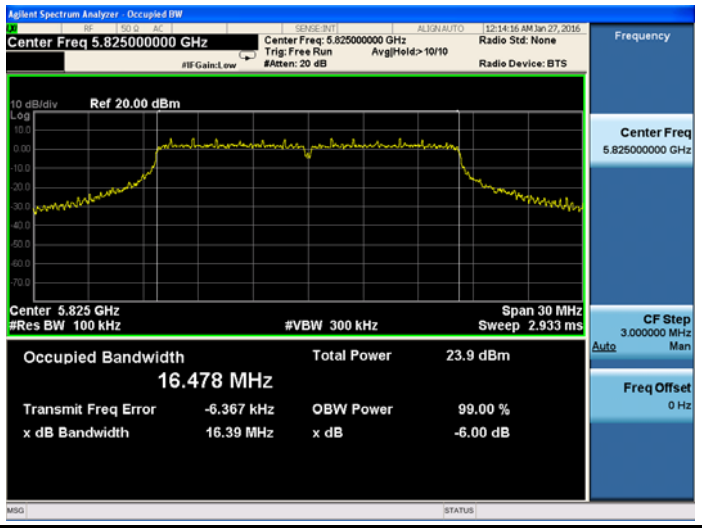
Model Number	EW-7679CAP	
Test Item	6dB RF Bandwidth	
Test Mode	Mode 2: IEEE 802.11a Link Mode	
Date of Test	01/15/2016	
Frequency (MHz)	ANT-0	Limit (kHz)
5745	16.38	> 500
5785	16.38	> 500
5825	16.39	> 500

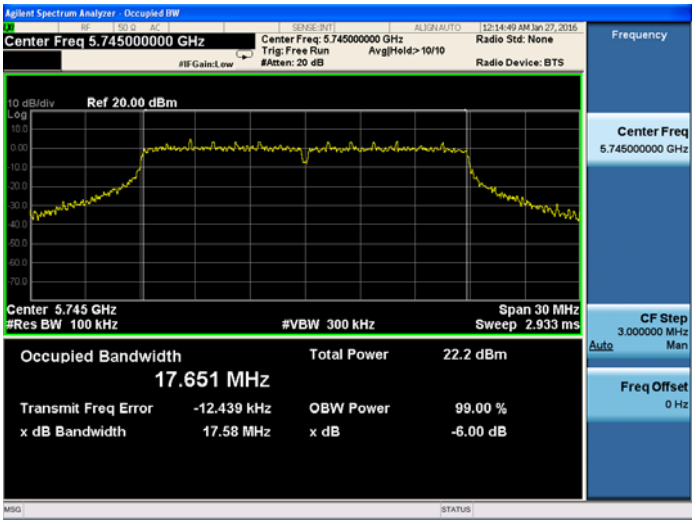
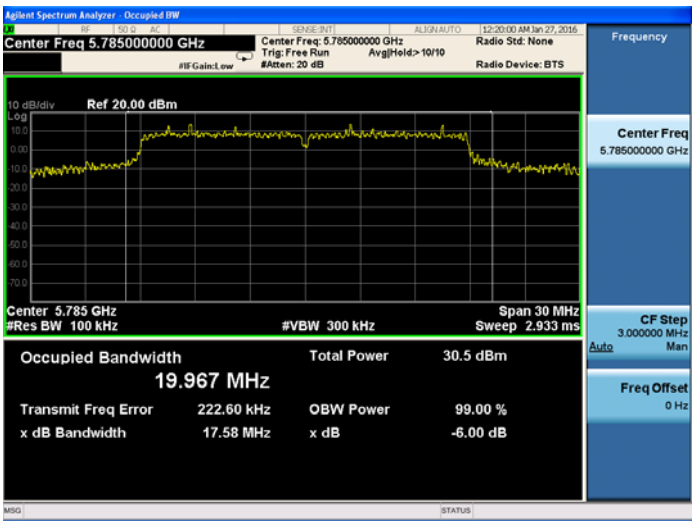
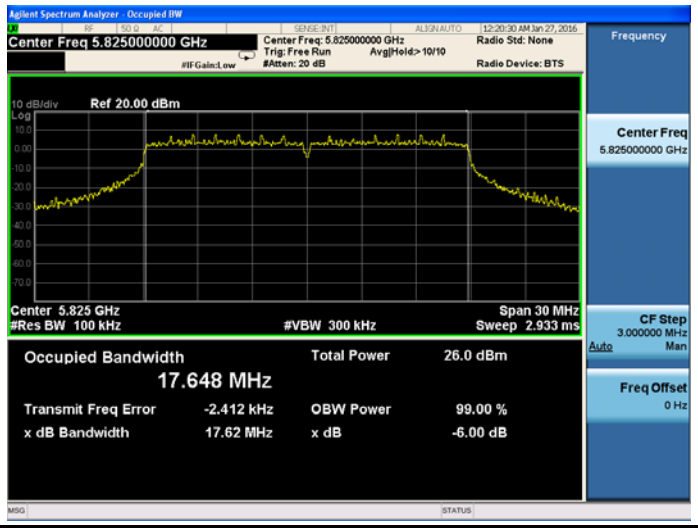
Model Number	EW-7679CAP			
Test Item	6dB RF Bandwidth			
Test Mode	Mode 3: IEEE 802.11ac 20MHz Link Mode			
Date of Test	01/15/2016			
Frequency (MHz)	ANT-0	ANT-1	ANT-2	Limit (kHz)
5745	17.58	17.61	17.63	> 500
5785	17.58	17.57	17.62	> 500
5825	17.62	17.62	17.59	> 500

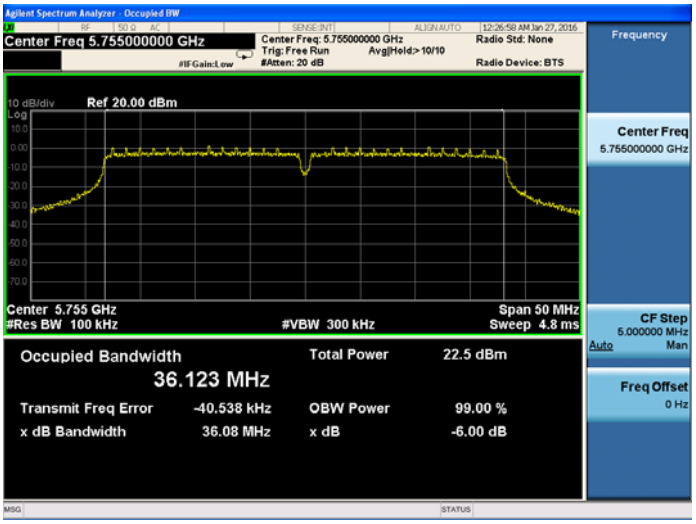
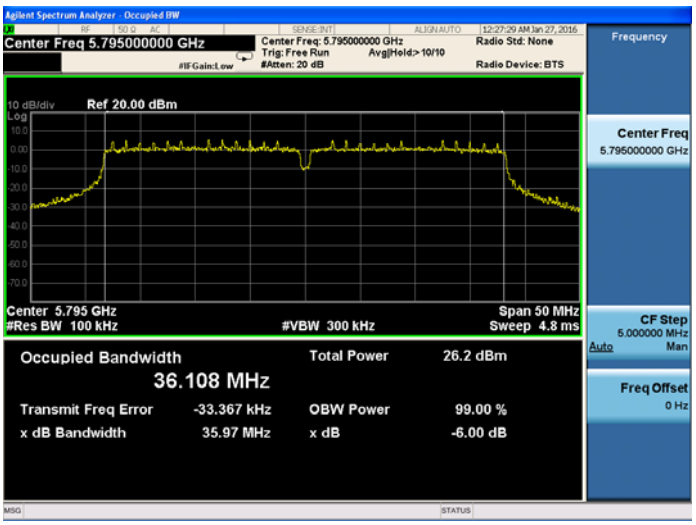
Model Number	EW-7679CAP			
Test Item	6dB RF Bandwidth			
Test Mode	Mode 4: IEEE 802.11ac 40MHz Link Mode			
Date of Test	01/15/2016			
Frequency (MHz)	ANT-0	ANT-1	ANT-2	Limit (kHz)
5755	36.08	36.35	36.36	> 500
5795	35.97	36.36	36.37	> 500

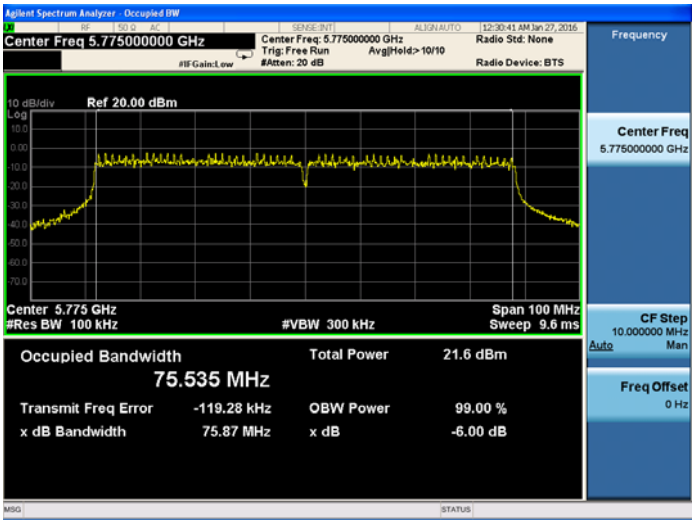
Model Number	EW-7679CAP			
Test Item	6dB RF Bandwidth			
Test Mode	Mode 5: IEEE 802.11ac 80MHz Link Mode			
Date of Test	01/15/2016			
Frequency (MHz)	ANT-0	ANT-1	ANT-2	Limit (kHz)
5775	75.87	76.24	75.84	> 500

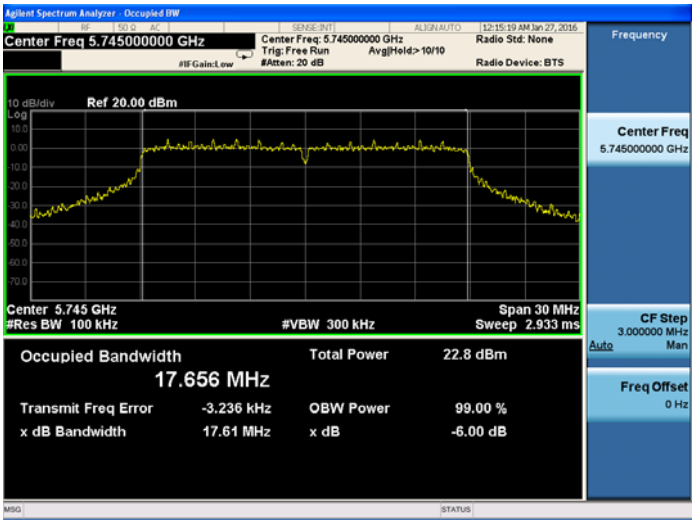
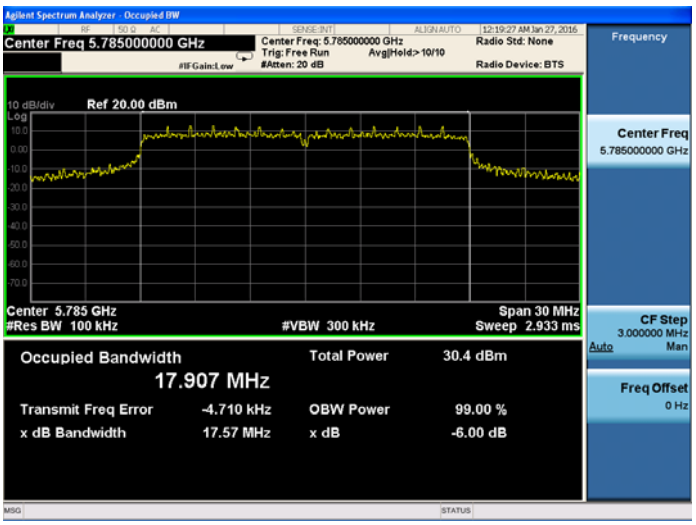
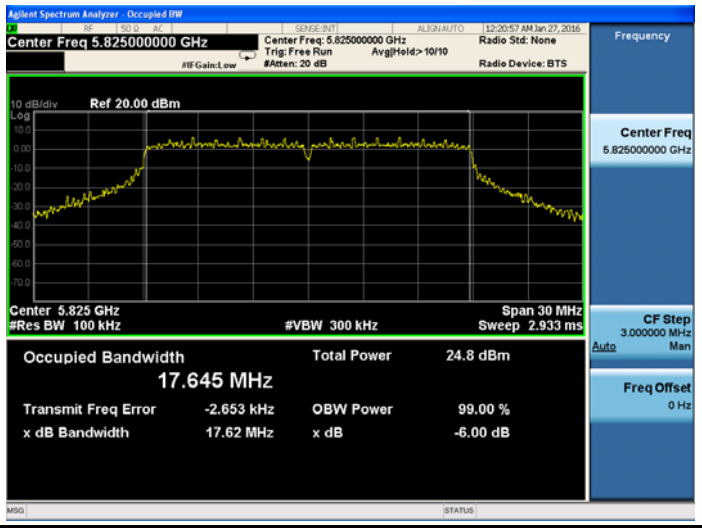
8.6. Test Graphs

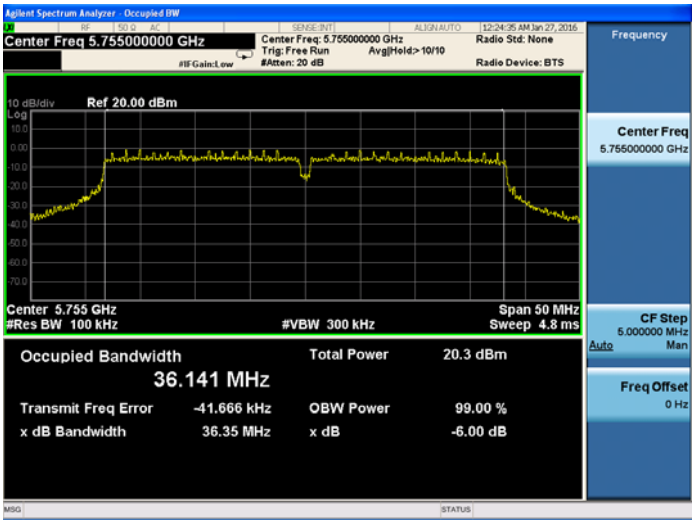
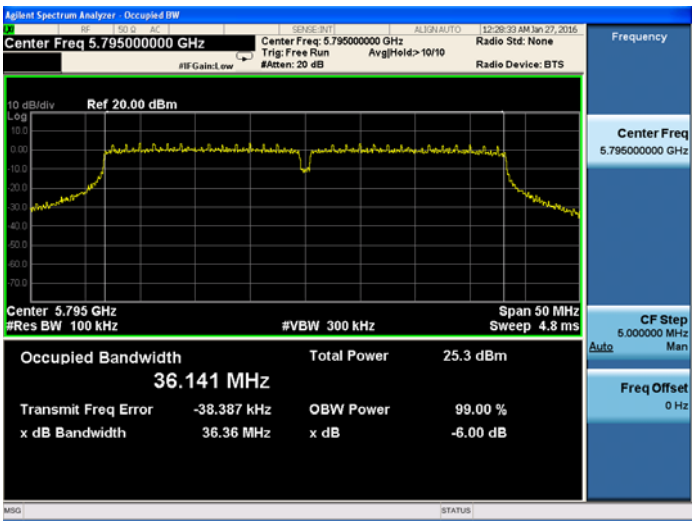
Mode 2: IEEE 802.11a Link Mode_ANT-0	
5745 MHz	
5785 MHz	
5825 MHz	

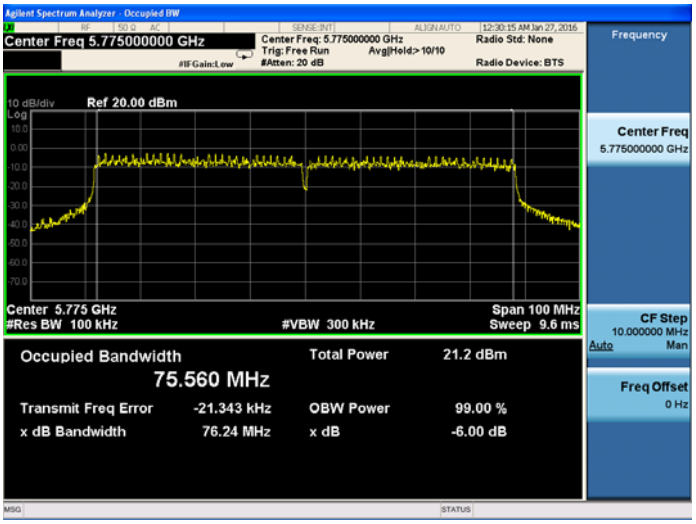
Mode 3: IEEE 802.11ac 20MHz Link Mode_ANT-0	
5745 MHz	
5785 MHz	
5825 MHz	

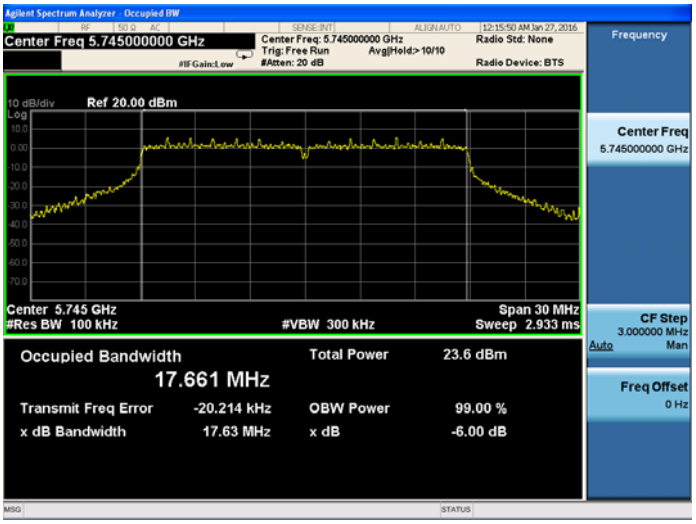
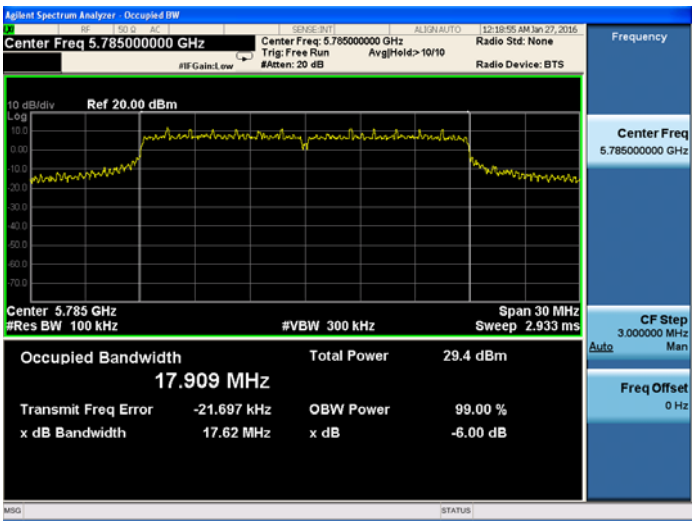
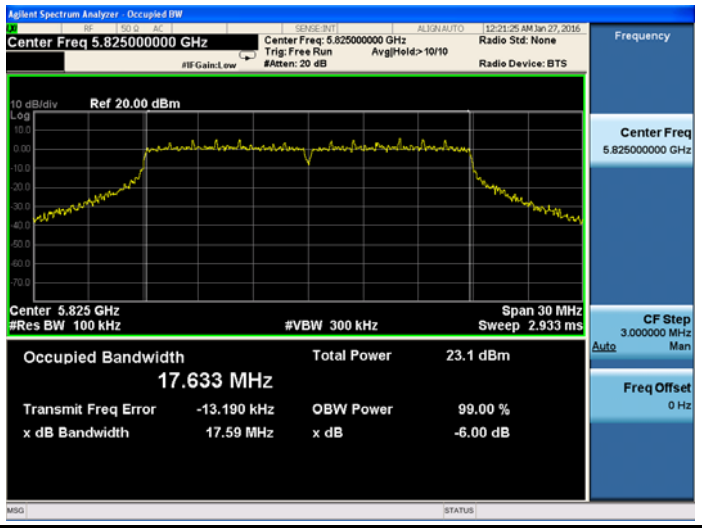
Mode 4: IEEE 802.11ac 40MHz Link Mode_ANT-0	
5755 MHz	
5795 MHz	

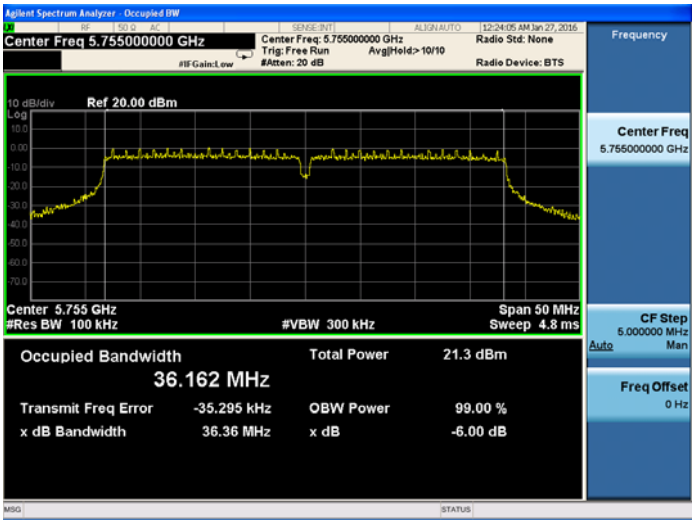
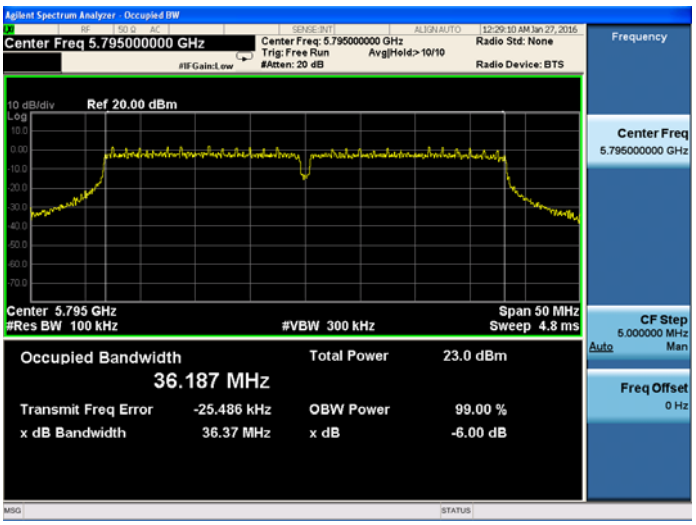
Mode 5: IEEE 802.11ac 80MHz Link Mode_ANT-0	
5775 MHz	

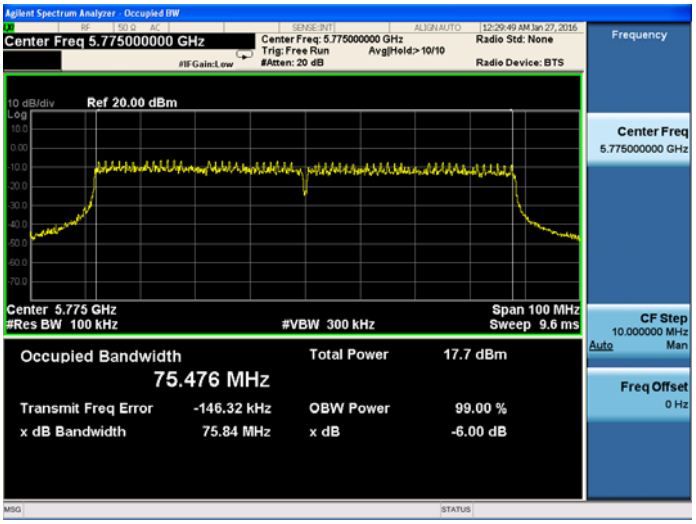
Mode 3: IEEE 802.11ac 20MHz Link Mode_ANT-1	
5745 MHz	
5785 MHz	
5825 MHz	

Mode 4: IEEE 802.11ac 40MHz Link Mode_ANT-1	
5755 MHz	
5795 MHz	

Mode 5: IEEE 802.11ac 80MHz Link Mode_ANT-1	
5775 MHz	

Mode 3: IEEE 802.11ac 20MHz Link Mode_ANT-2	
5745 MHz	
5785 MHz	
5825 MHz	

Mode 4: IEEE 802.11ac 40MHz Link Mode_ANT-2	
5755 MHz	
5795 MHz	

Mode 5: IEEE 802.11ac 80MHz Link Mode_ANT-2	
5775 MHz	

9 Peak Power Spectral Density Measurement

9.1. Limit

Conducted power spectral density

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

∗ SISO mode for ANT-1：Max. Gain = 6.27 dBi > 6 dBi.

∗ MIMO mode：Directional Gain = $10*\log [(10^{G1/20}+10^{G2/20}+10^{G3/20})^2 / N_{ANT}]$ = 10.62 dBi > 6 dBi.

5.150 ~ 5.250 GHz Limit

SISO mode for ANT-1 power limit shall be reduced = 17 - 0.27 = 16.73 dBm.

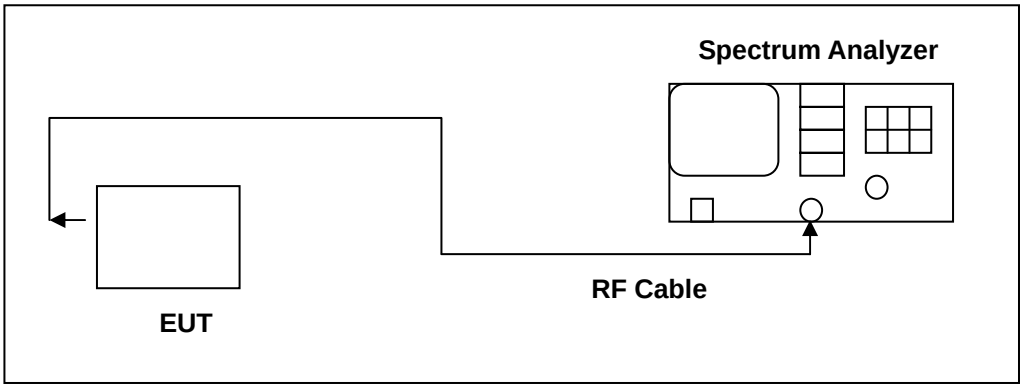
MIMO mode power limit shall be reduced = 17 - 4.62 = 12.38 dBm.

5.725 ~ 5.850 GHz Limit

SISO mode for ANT-1 power limit shall be reduced = 30 - 0.27 = 29.73 dBm.

MIMO mode power limit shall be reduced = 30 - 4.62 = 25.38 dBm.

9.2. Test Setup



9.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/15/2015	(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.

9.4. 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.

9.5. Test Result

Model Number	EW-7679CAP			
Test Item	Conducted power spectral density			
Test Mode	Mode 2: IEEE 802.11a link mode			
Date of Test	01/15/2016			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	4.849	0.079	4.928	< 17
5200	9.063	0.079	9.142	
5240	10.194	0.079	10.273	

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)

Model Number	EW-7679CAP			
Test Item	Conducted power spectral density			
Test Mode	Mode 2: IEEE 802.11a link mode			
Date of Test	01/15/2016			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5745	0.498	0.079	7.566	< 30
5785	3.711	0.079	10.779	
5825	1.382	0.079	8.450	

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)

Model Number	EW-7679CAP			
Test Item	Conducted power spectral density			
Test Mode	Mode 3: IEEE 802.11ac 20MHz link mode			
Date of Test	01/15/2016			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	3.627	0.237	3.864	< 17
5200	5.536	0.237	5.773	
5240	6.223	0.237	6.460	
Frequency (MHz)	ANT-1			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	4.752	0.237	4.989	< 16.73
5200	5.304	0.237	5.541	
5240	7.576	0.237	7.813	
Frequency (MHz)	ANT-2			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	4.618	0.237	4.855	< 17
5200	5.071	0.237	5.308	
5240	5.773	0.237	6.010	
Frequency (MHz)	ANT-0+1+2			
	Calculated (dBm/MHz)			Limit (dBm/MHz)
5180	9.369			< 12.38
5200	10.316			
5240	11.602			

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)

Model Number	EW-7679CAP			
Test Item	Conducted power spectral density			
Test Mode	Mode 3: IEEE 802.11ac 20MHz link mode			
Date of Test	01/15/2016			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5745	-2.079	0.237	5.148	< 30
5785	2.966	0.237	10.193	
5825	-1.073	0.237	6.154	
Frequency (MHz)	ANT-1			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5745	-4.827	0.237	2.400	< 29.73
5785	2.303	0.237	9.530	
5825	-6.287	0.237	0.940	
Frequency (MHz)	ANT-2			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5745	-5.738	0.237	1.489	< 30
5785	-0.883	0.237	6.344	
5825	-8.497	0.237	-1.270	
Frequency (MHz)	ANT-0+1+2			
	Calculated (dBm/500KHz)			Limit (dBm/500KHz)
5745	8.073			< 25.38
5785	13.755			
5825	7.863			

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)

Model Number	EW-7679CAP			
Test Item	Conducted power spectral density			
Test Mode	Mode 4: IEEE 802.11ac 40MHz link mode			
Date of Test	01/15/2016			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5190	-2.301	0.537	-1.764	<17
5230	5.760	0.537	6.297	
Frequency (MHz)	ANT-1			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5190	-1.099	0.537	-0.562	< 16.73
5230	6.546	0.537	7.083	
Frequency (MHz)	ANT-2			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5190	-3.165	0.537	-2.628	<17
5230	5.059	0.537	5.596	
Frequency (MHz)	ANT-0+1+2			
	Calculated (dBm/MHz)			Limit (dBm/MHz)
5190	3.203			< 12.38
5230	11.139			

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)

Model Number	EW-7679CAP			
Test Item	Conducted power spectral density			
Test Mode	Mode 4: IEEE 802.11ac 40MHz link mode			
Date of Test	01/15/2016			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5755	-7.555	0.537	-0.028	< 30
5795	-3.932	0.537	3.595	
Frequency (MHz)	ANT-1			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5755	-8.290	0.537	-0.763	< 29.73
5795	-3.391	0.537	4.136	
Frequency (MHz)	ANT-2			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5755	-9.474	0.537	-1.947	< 30
5795	-4.118	0.537	3.409	
Frequency (MHz)	ANT-0+1+2			
	Calculated (dBm/500KHz)			Limit (dBm/500KHz)
5755	3.929			< 25.38
5795	8.495			

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)

Model Number	EW-7679CAP			
Test Item	Conducted power spectral density			
Test Mode	Mode 5: IEEE 802.11ac 80MHz link mode			
Date of Test	01/15/2016			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5210	-8.422	0.969	-7.453	< 17
Frequency (MHz)	ANT-1			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5210	-6.574	0.969	-5.605	< 16.73
Frequency (MHz)	ANT-2			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5210	-9.052	0.969	-8.083	< 17
Frequency (MHz)	ANT-0+1+2			
	Calculated (dBm/MHz)			Limit (dBm/MHz)
5210	-2.144			< 12.38

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

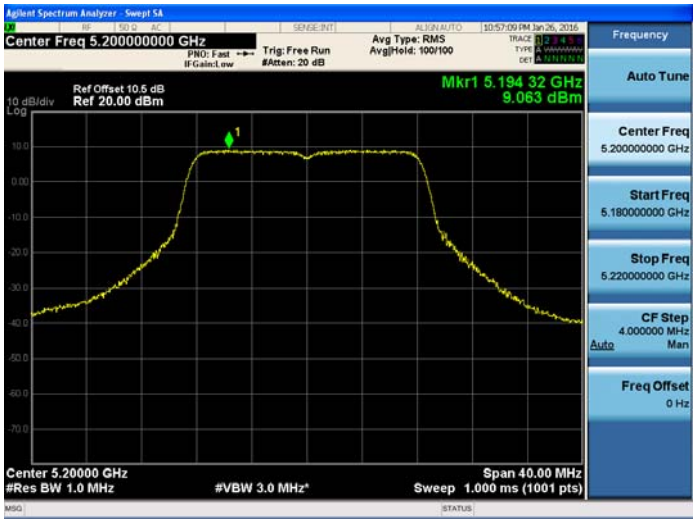
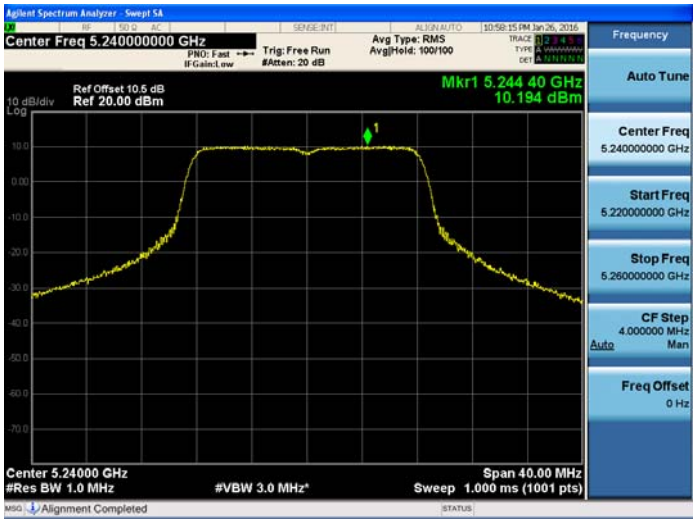
Conversion ratio = 10*Log(500k/100k)

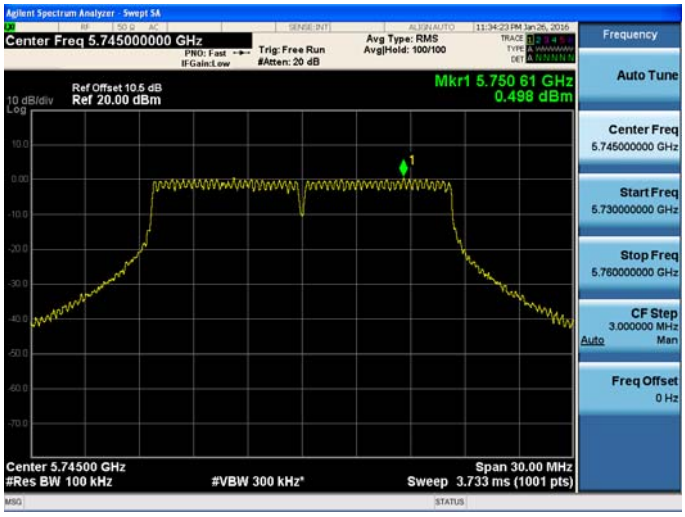
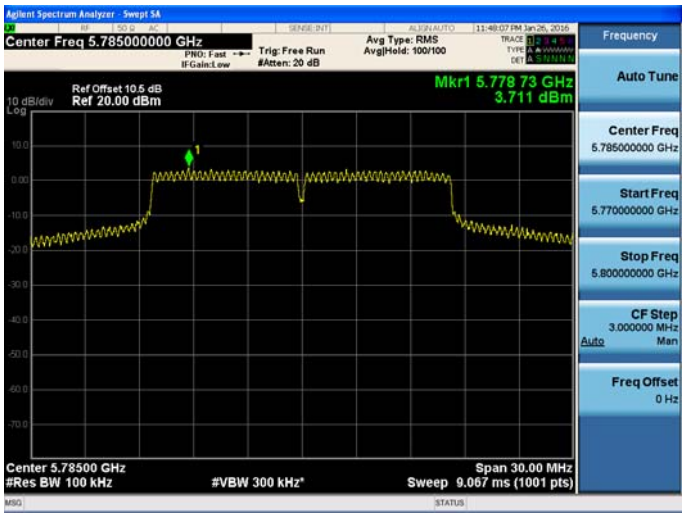
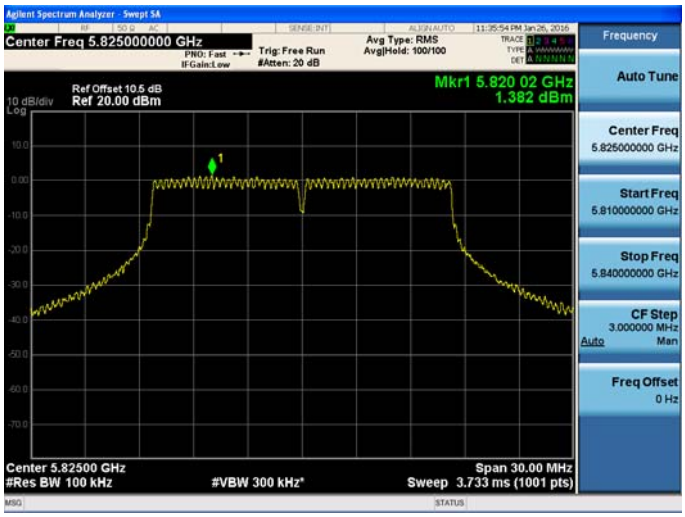
Model Number	EW-7679CAP			
Test Item	Conducted power spectral density			
Test Mode	Mode 5: IEEE 802.11ac 80MHz link mode			
Date of Test	01/15/2016			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/MHz)
5775	-14.873	0.969	-6.914	< 30
Frequency (MHz)	ANT-1			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/MHz)
5775	-11.707	0.969	-3.748	< 29.73
Frequency (MHz)	ANT-2			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/MHz)
5775	-13.170	0.969	-5.211	< 30
Frequency (MHz)	ANT-0+1+2			
	Calculated (dBm/500KHz)			Limit (dBm/MHz)
5775	-0.331			< 25.38

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

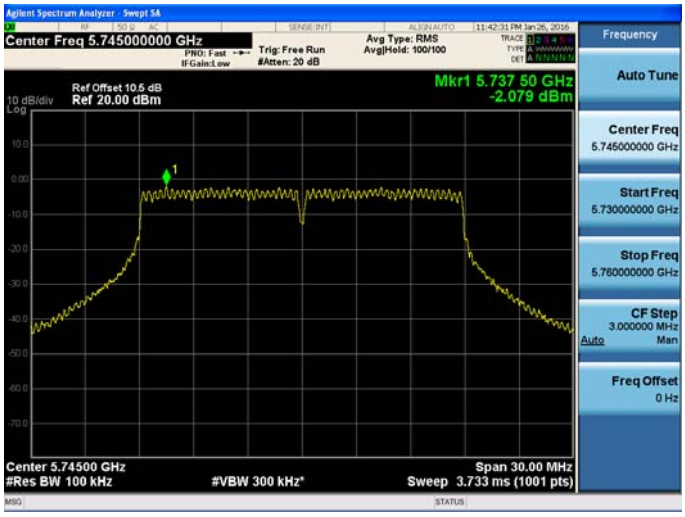
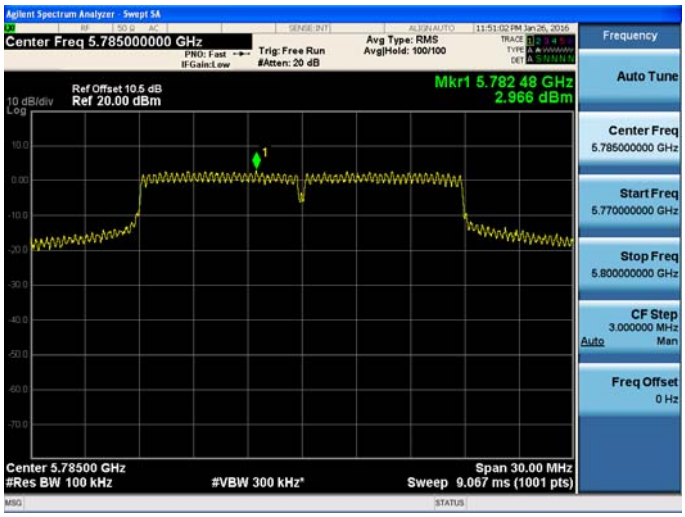
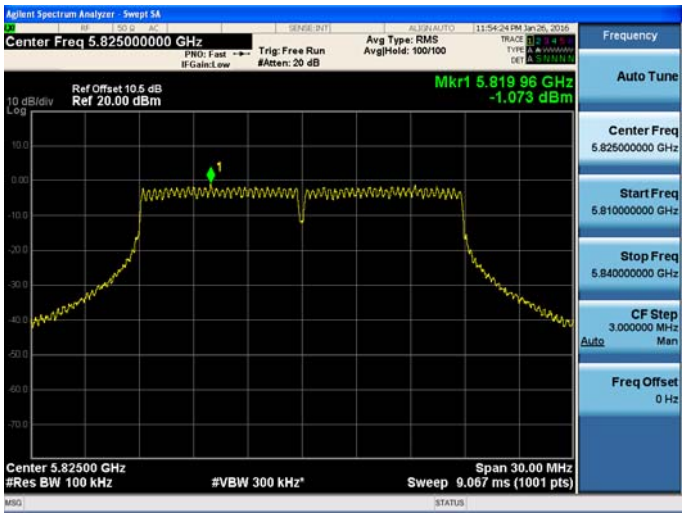
Conversion ratio = 10*Log(500k/100k)

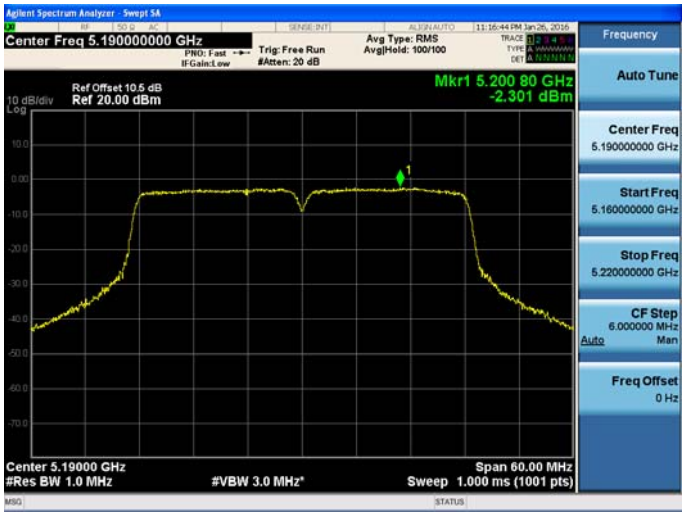
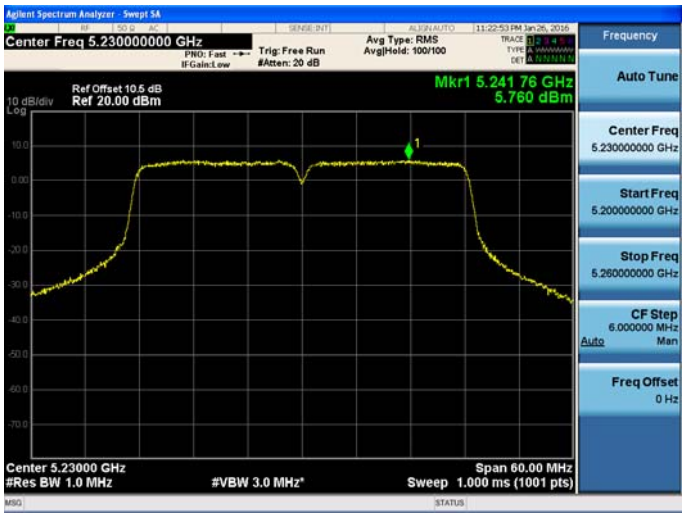
9.6. Test Graphs

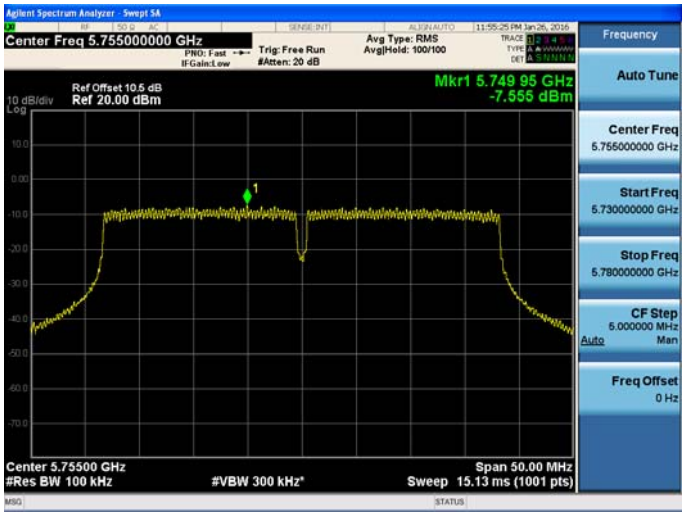
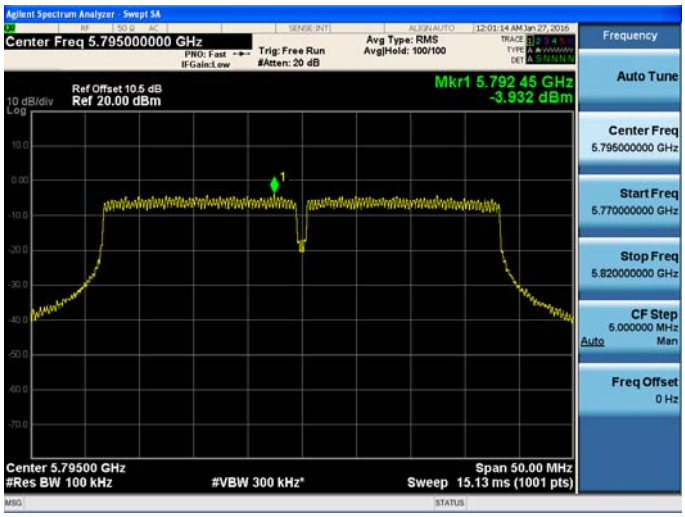
Mode 2: IEEE 802.11a Link Mode_ ANT-0	
5180 MHz	
5200 MHz	
5240 MHz	

Mode 2: IEEE 802.11a Link Mode_ ANT-0	
5745 MHz	
5785 MHz	
5825 MHz	

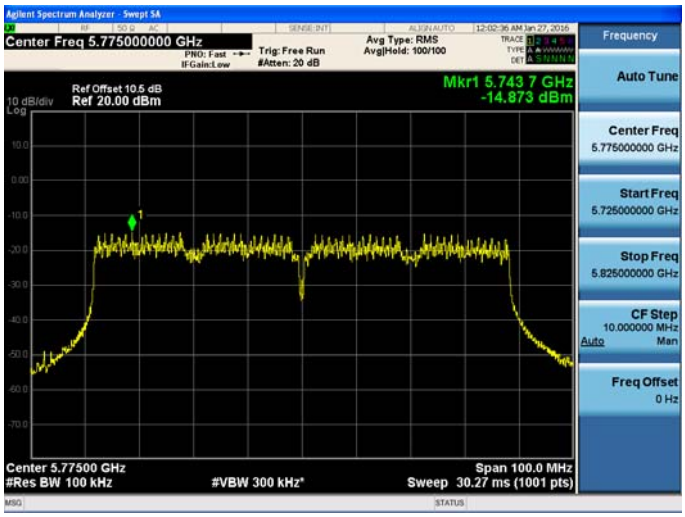
Mode 3: IEEE 802.11ac 20MHz Link Mode _ ANT-0	
5180 MHz	
5200 MHz	
5240 MHz	

Mode 3: IEEE 802.11ac 20MHz Link Mode _ ANT-0	
5745 MHz	
5785 MHz	
5825 MHz	

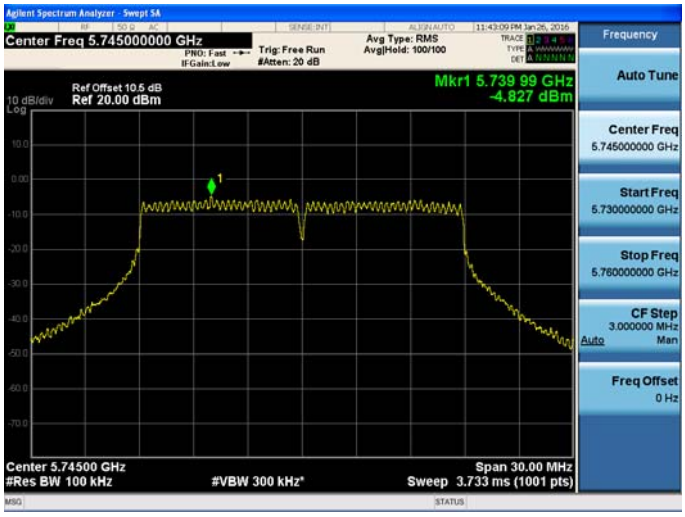
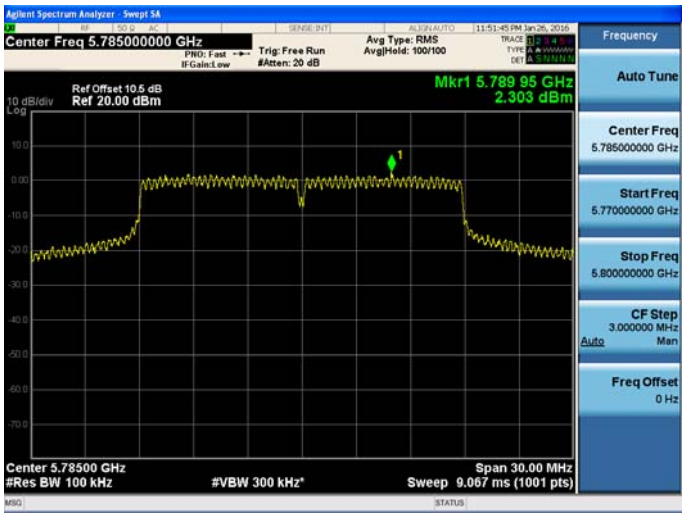
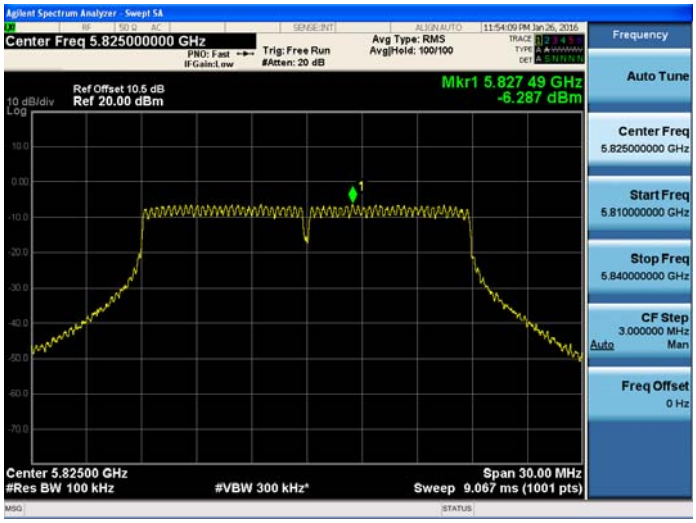
Mode 4: IEEE 802.11ac 40MHz Link Mode_ ANT-0	
5190 MHz	
5230 MHz	

Mode 4: IEEE 802.11ac 40MHz Link Mode_ ANT-0	
5755 MHz	
5795 MHz	

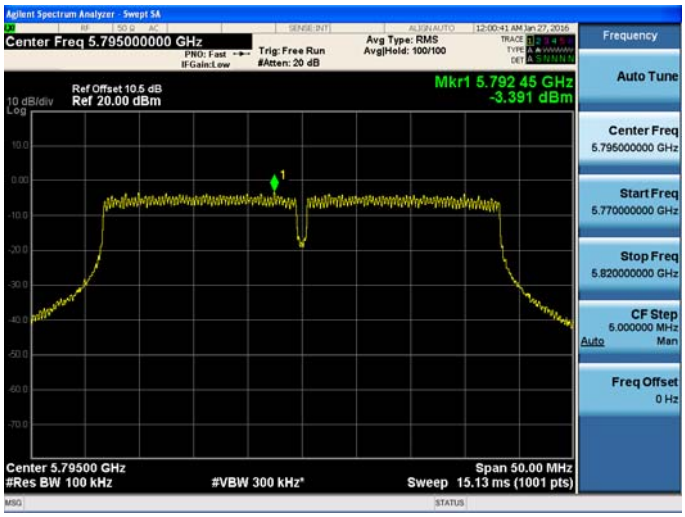
Mode 5: IEEE 802.11ac 80MHz Link Mode _ ANT-0	
5210 MHz	

Mode 5: IEEE 802.11ac 80MHz Link Mode _ ANT-0	
5775 MHz	

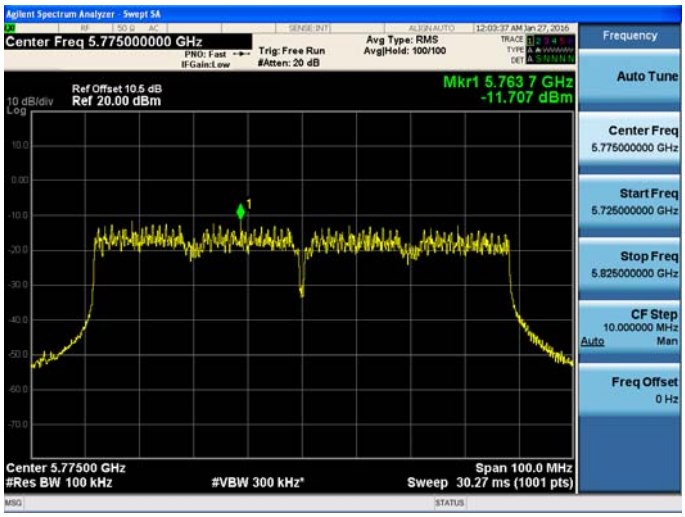
Mode 3: IEEE 802.11ac 20MHz Link Mode _ ANT-1	
5180 MHz	
5200 MHz	
5240 MHz	

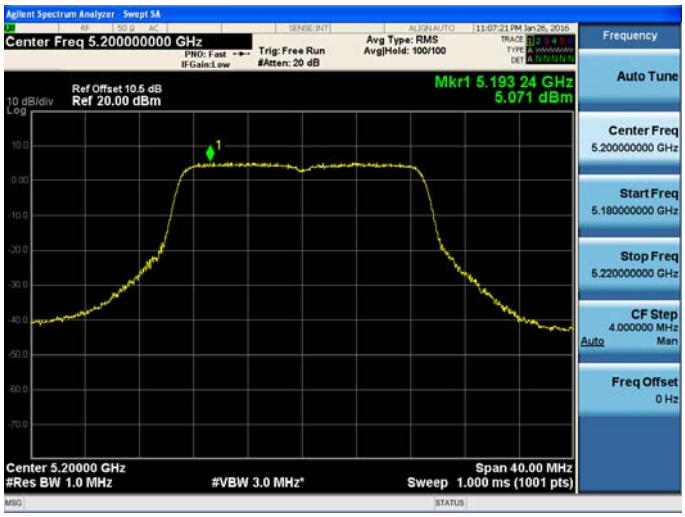
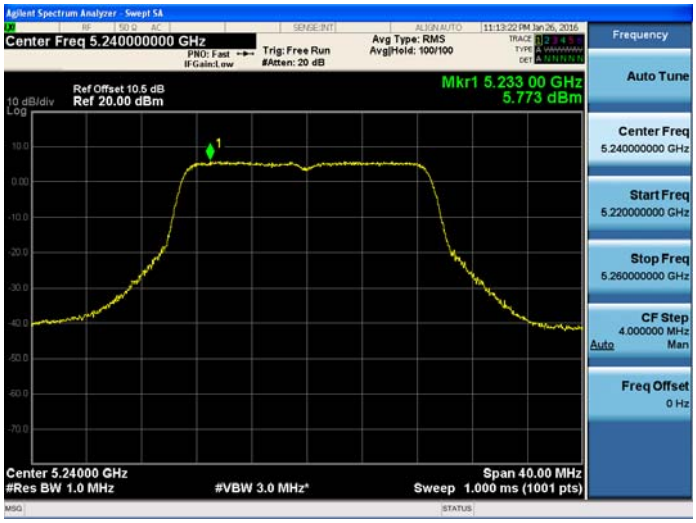
Mode 3: IEEE 802.11ac 20MHz Link Mode _ ANT-1	
5745 MHz	
5785 MHz	
5825 MHz	

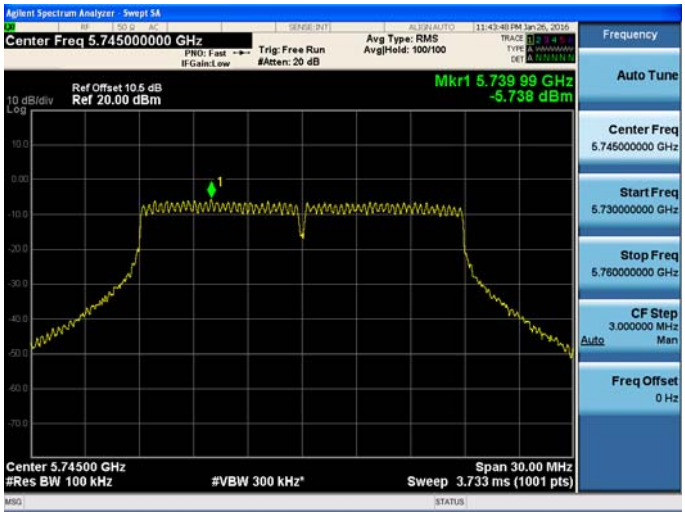
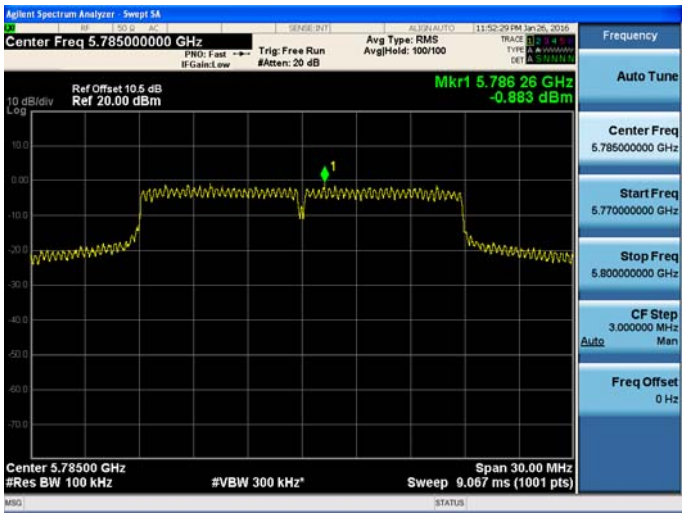
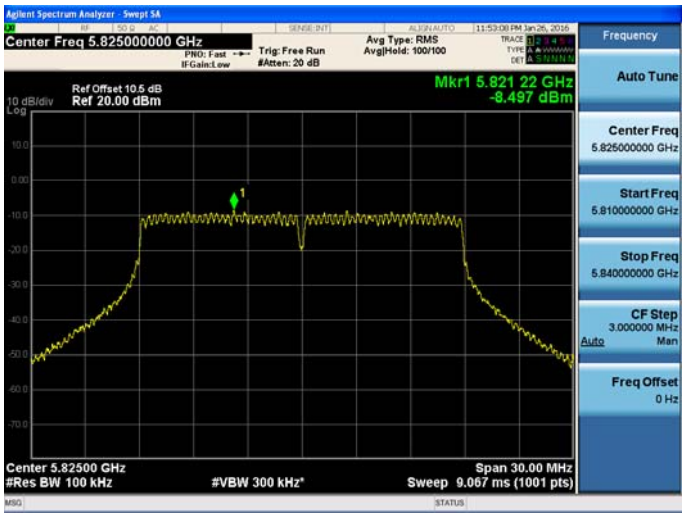
Mode 4: IEEE 802.11ac 40MHz Link Mode_ ANT-1	
5190 MHz	
5230 MHz	

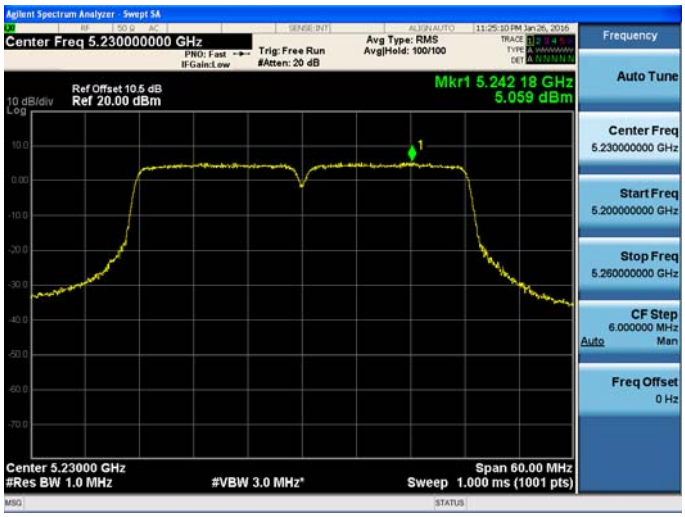
Mode 4: IEEE 802.11ac 40MHz Link Mode_ ANT-1	
5755 MHz	
5795 MHz	

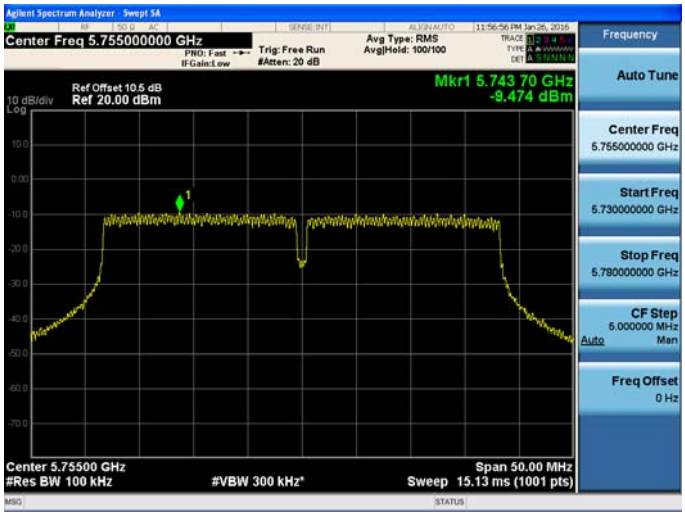
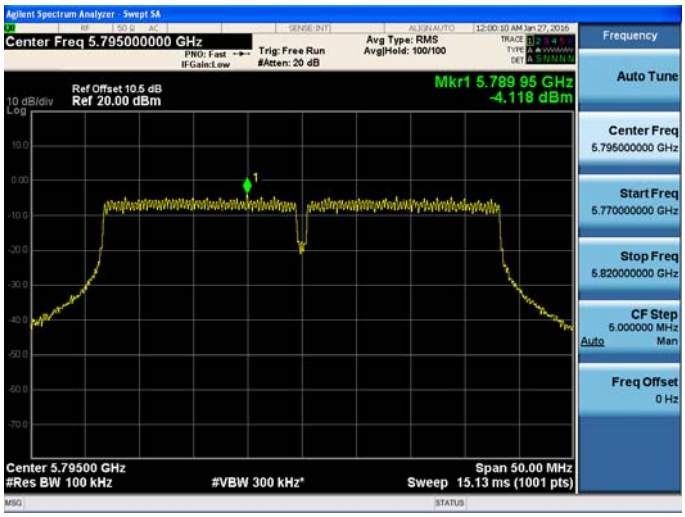
Mode 5: IEEE 802.11ac 80MHz Link Mode _ ANT-1	
5210 MHz	

Mode 5: IEEE 802.11ac 80MHz Link Mode _ ANT-1	
5775 MHz	

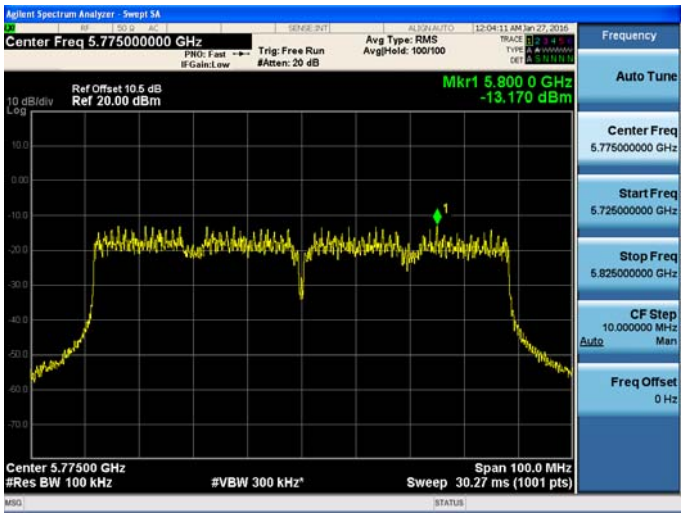
Mode 3: IEEE 802.11ac 20MHz Link Mode _ ANT-2	
5180 MHz	
5200 MHz	
5240 MHz	

Mode 3: IEEE 802.11ac 20MHz Link Mode _ ANT-2	
5745 MHz	
5785 MHz	
5825 MHz	

Mode 4: IEEE 802.11ac 40MHz Link Mode_ ANT-2	
5190 MHz	
5230 MHz	

Mode 4: IEEE 802.11ac 40MHz Link Mode_ ANT-2	
5755 MHz	
5795 MHz	

Mode 5: IEEE 802.11ac 80MHz Link Mode _ ANT-2	
5210 MHz	

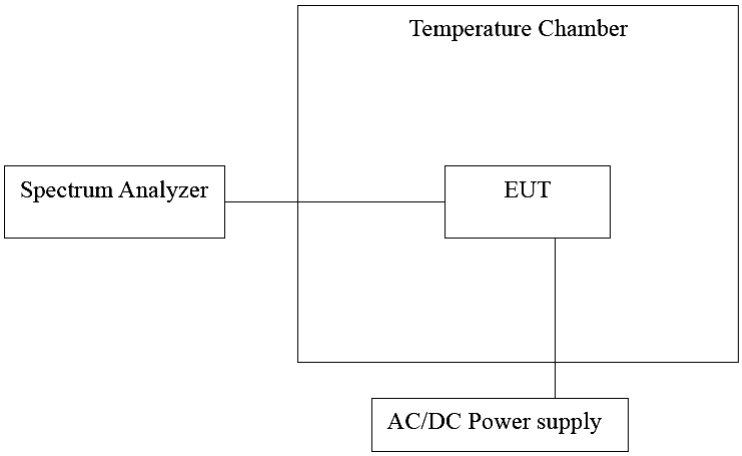
Mode 5: IEEE 802.11ac 80MHz Link Mode _ ANT-2	
5775 MHz	

10 Frequency Stability Measurement

10.1. 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.

10.2. Test Setup



10.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4408B	MY45107753	07/27/2015	(1)
Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	04/27/2015	(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

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.

10.5. Test Result

Temperature Variations

Model Number	EW-7679CAP					
Test Item	Frequency Stability					
Date of Test	02/15/2016					
Frequency	Temp. (°C)	Voltage (Vac)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5200 MHz	0	120	5200.0055	5500	1.058	Pass
	10		5200.0154	15400	2.962	Pass
	20		5200.0262	26200	5.038	Pass
	30		5200.0266	26600	5.115	Pass
	40		5200.0315	31500	6.058	Pass
	50		5200.0454	45400	8.731	Pass
5785 MHz	0	120	5784.9707	-29300	-5.065	Pass
	10		5784.9857	-14300	-2.472	Pass
	20		5785.0286	28600	4.944	Pass
	30		5785.0299	29900	5.169	Pass
	40		5785.0368	36800	6.361	Pass
	50		5785.0449	44900	7.761	Pass

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

Voltage Variations

Model Number	EW-7679CAP					
Test Item	Frequency Stability					
Date of Test	01/15/2016					
Frequency	Temp. (°C)	Voltage (Vac)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5200 MHz	20	138.00	5199.982	-18000	-3.462	Pass
		120.00	5200.0262	26200	5.038	Pass
		102.00	5200.0279	27900	5.365	Pass
5785 MHz	20	138.00	5785.0122	12200	2.109	Pass
		120.00	5785.0286	28600	4.944	Pass
		102.00	5785.0356	35600	6.154	Pass

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

11 Antenna Requirement

11.1. 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.

11.2. Antenna Connector Construction

See section 2 – antenna information.

11.3. Directional Gain Calculated

Directional Gain=10*log $[(10^{G1/20}+10^{G2/20}+10^{G3/20})^2 / N_{ANT}]$ = 10.62 dBi