FCC 47 CFR PART 15 SUBPART E

Applicant	:	Ubiquiti Networks,Inc.
Address	:	2580 Orchard Parkway,San Jose,California,United States,95131
Product Type	:	Access Point
Trade Name	:	UBIQUITI
Model Number	:	UAP-AC-LR
Applicable Standard	:	FCC 47 CFR PART 15 SUBPART E: Oct., 2014 ANSI C63.10:2013
Receive Date	:	Apr. 20, 2015
Test Period	:	Jun. 20 ~ Jun. 26, 2015
Issue Date	:	Mar. 08, 2016

Issue by

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Taiwan Accreditation Foundation accreditation number: 1330

Revision History

Rev.	Issue Date	Revisions	Revised By
00	Nov. 04, 2015	Initial Issue	
01	Mar. 08, 2016	Revised report information.	Peggy Chang

Verification of Compliance

Issued Date: 03/08/2016

Applicant	:	Ubiquiti Networks,Inc.
Address	:	2580 Orchard Parkway,San Jose,California,United States,95131
Product Type	:	Access Point
Trade Name	:	UBIQUITI
Model Number	:	UAP-AC-LR
FCC ID	:	SWX-UAPACLR
EUT Rated Voltage	:	DC 24V, 0.5A
Test Voltage	:	120 Vac / 60 Hz
Applicable Standard	:	FCC 47 CFR PART 15 SUBPART E: Oct., 2014 ANSI C63.10:2013
Test Result	:	Complied
Application Purpose	:	Class II permissive change
Performing Lab.	:	A Test Lab Techno Corp. No. 140-1, Changan Street, Bade City, Taoyuan County 334, 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)

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1 General Information

1.1. Summary of Test Result

Standard	Item	Result	Remark
15.407(b)(6) 15.207	AC Power Conducted Emission	N/A	---
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)	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	30MHz ~ 1000MHz	6.300
	1000MHz ~ 18000MHz	5.474
	18000MHz ~ 26500MHz	5.630
	26500MHz ~ 40000MHz	5.054

2 EUT Description

Applicant	Ubiquiti Networks,Inc. 2580 Orchard Parkway,San Jose,California,United States,95131			
Manufacturer	Ubiquiti Networks,Inc. 2580 Orchard Parkway,San Jose,California,United States,95131			
Product Type	Access Point			
Trade Name	UBIQUITI			
Model Number	UAP-AC-LR			
FCC ID	SWX-UAPACLR			
Class II Permissive Change	Add U-NII Band II function by software control. The change reference Class II Permissive Change Letter in detail.			
Operate Frequency	Frequency Band		Frequency Range (MHz)	Number of Channels
	IEEE 802.11a	U-NII Band II-A	5260 – 5320	4
		U-NII Band II-C	5500 – 5700	11
	IEEE 802.11n 5GHz 20 MHz	U-NII Band II-A	5260 – 5320	4
		U-NII Band II-C	5500 – 5700	11
	IEEE 802.11n 5GHz 40 MHz	U-NII Band II-A	5270 – 5310	2
		U-NII Band II-C	5510 – 5670	5
	IEEE 802.11ac 80 MHz	U-NII Band II-A	5290	1
		U-NII Band II-C	5530 – 5610	2
Modulation Type	OFDM			
Equipment Type	Master			
Antenna Type	Dual band tri pol antenna			
Max. Antenna Gain	3 dBi			
Antenna Delivery	2TX + 2RX			
Frequency Stability Specification	± 30 ppm			
Operate Temp. Range	-10 ~ 70 ℃			

Frequency Band		RF Output Power (W)
IEEE 802.11a	U-NII Band II-A	0.103
	U-NII Band II-C	0.124
IEEE 802.11n 5GHz 20 MHz	U-NII Band II-A	0.134
	U-NII Band II-C	0.160
IEEE 802.11n 5GHz 40 MHz	U-NII Band II-A	0.098
	U-NII Band II-C	0.113
IEEE 802.11ac 80 MHz	U-NII Band II-A	0.084
	U-NII Band II-C	0.098

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:

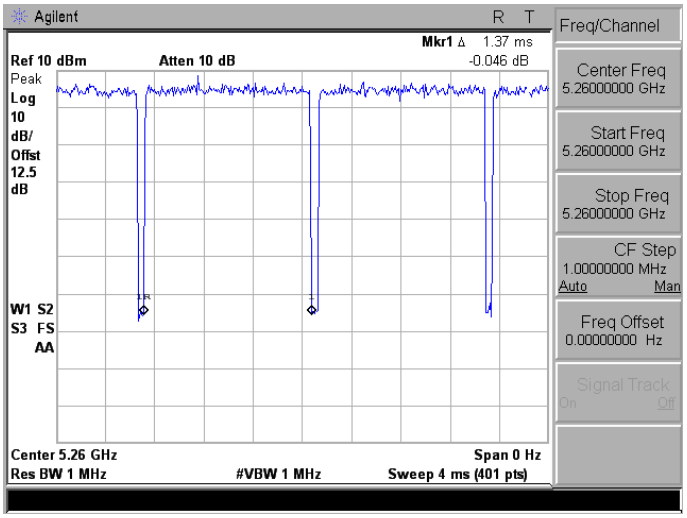
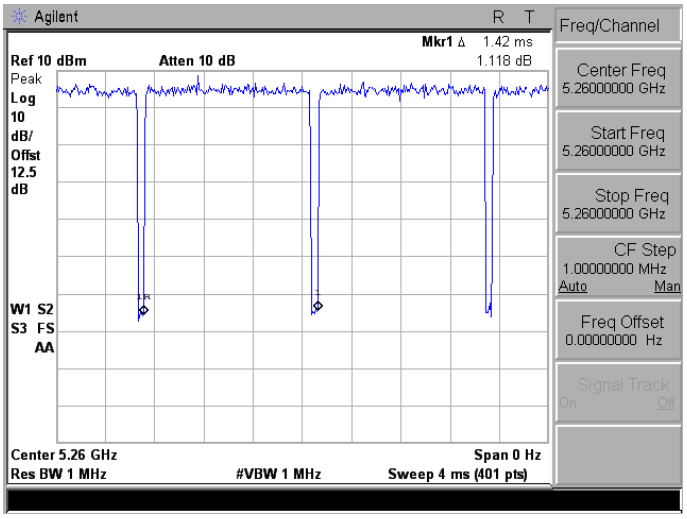
Test Mode
Mode 1: Normal Operation Mode
Mode 2: IEEE 802.11a Link Mode
Mode 3: IEEE 802.11n 5GHz 20MHz link mode
Mode 4: IEEE 802.11n 5GHz 40MHz link mode
Mode 5: IEEE 802.11ac 80MHz Link Mode

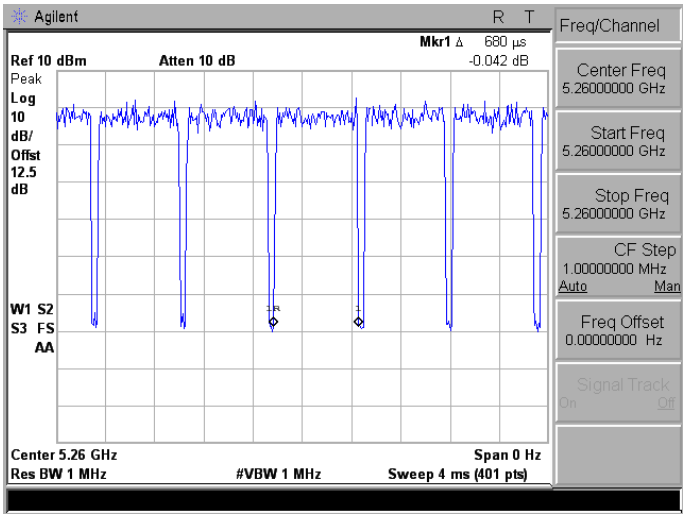
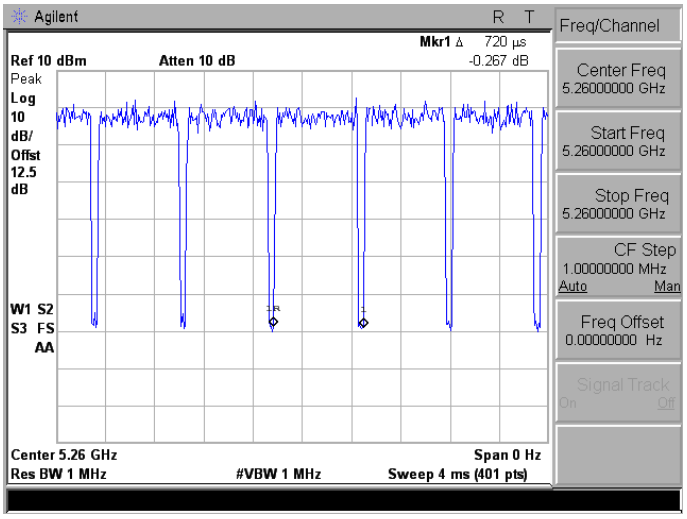
Software used to control the EUT for staying in continuous transmitting mode was programmed.
After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.

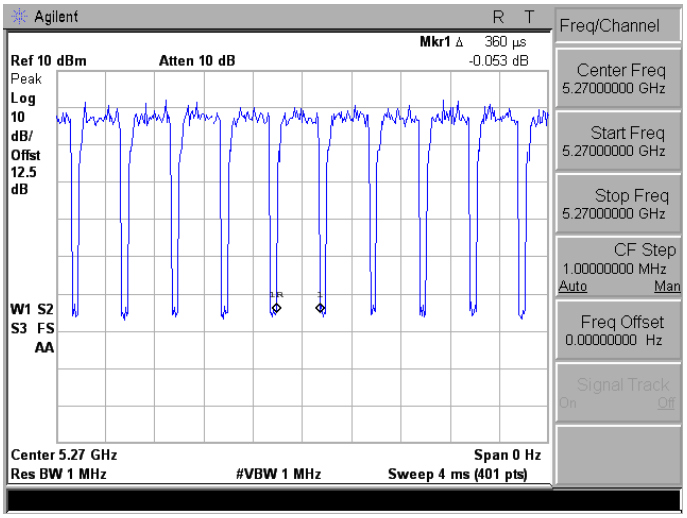
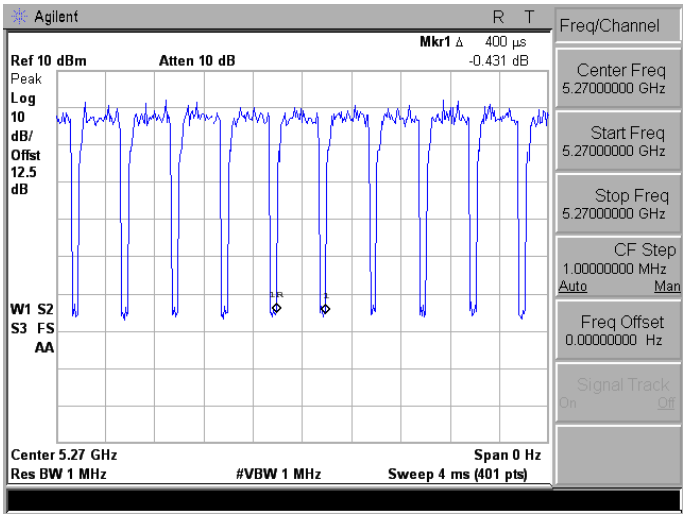
Test Mode	Band	Data Rate	Test Channel
Mode 2	U-NII Band II-A	6M	52, 56, 64
	U-NII Band II-C		100, 112, 140
Mode 3	U-NII Band II-A	13M	52, 56, 64
	U-NII Band II-C		100, 112, 140
Mode 4	U-NII Band II-A	27M	54, 62
	U-NII Band II-C		102, 110, 134
Mode 5	U-NII Band II-A	58.6M	58
	U-NII Band II-C		106, 122

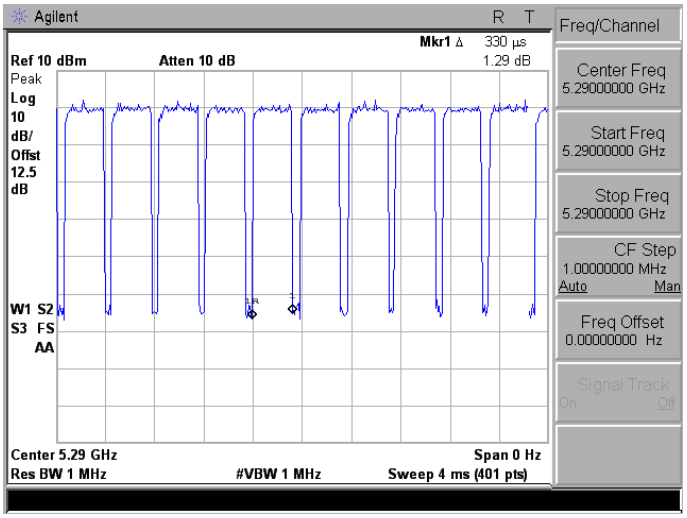
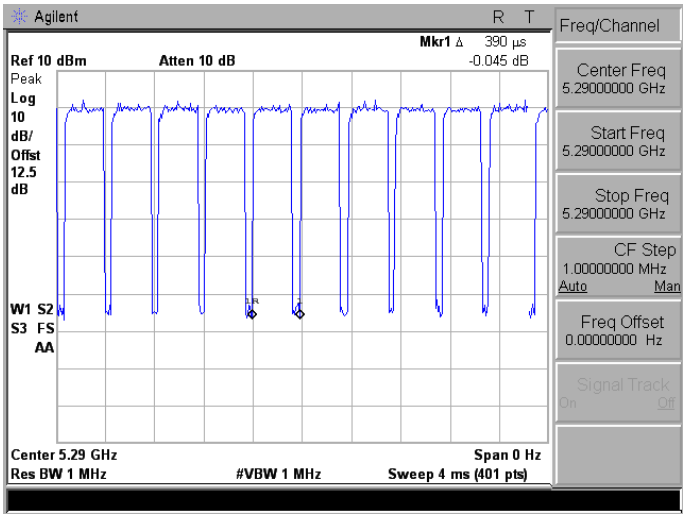
Duty cycle

Test Mode	Frequency (MHz)	on time (ms)	on+off time (ms)	Duty cycle	Duty Factor (dB)	1/T Minimum VBW (kHz)
Mode 2	5260.0	1.370	1.420	0.965	0.156	0.730
Mode 3	5260.0	0.680	0.720	0.944	0.248	1.471
Mode 4	5270.0	0.360	0.400	0.900	0.458	2.778
Mode 5	5290.0	0.330	0.390	0.846	0.726	3.030

Mode 2: IEEE 802.11a link mode	
On time	
On+off time	

Mode 3: IEEE 802.11n 5GHz 20MHz link mode	
On time	
On+off time	

Mode 4: IEEE 802.11n 5GHz 40MHz link mode	
On time	
On+off time	

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

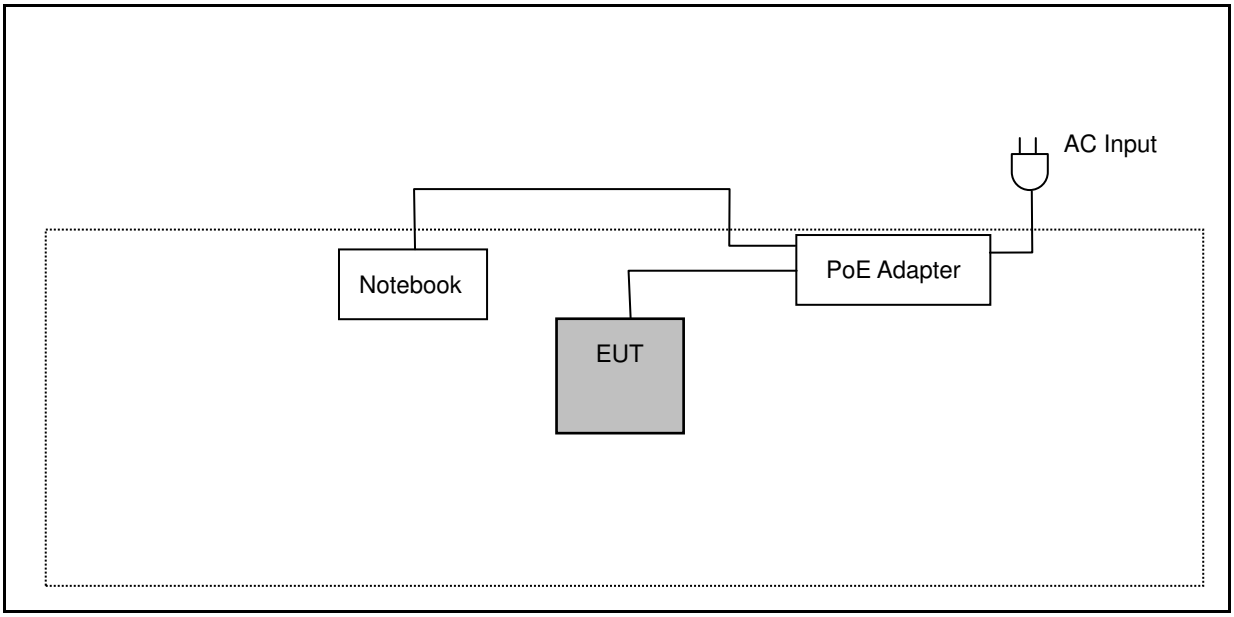
3.2. EUT Exercise Software

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.	Turn on Wi-Fi function link to Notebook.
4.	EUT run test program.

3.3. Configuration of Test System Details

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 Test Results

4.1. Transmitter Radiated Emissions Measurement

■ **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.

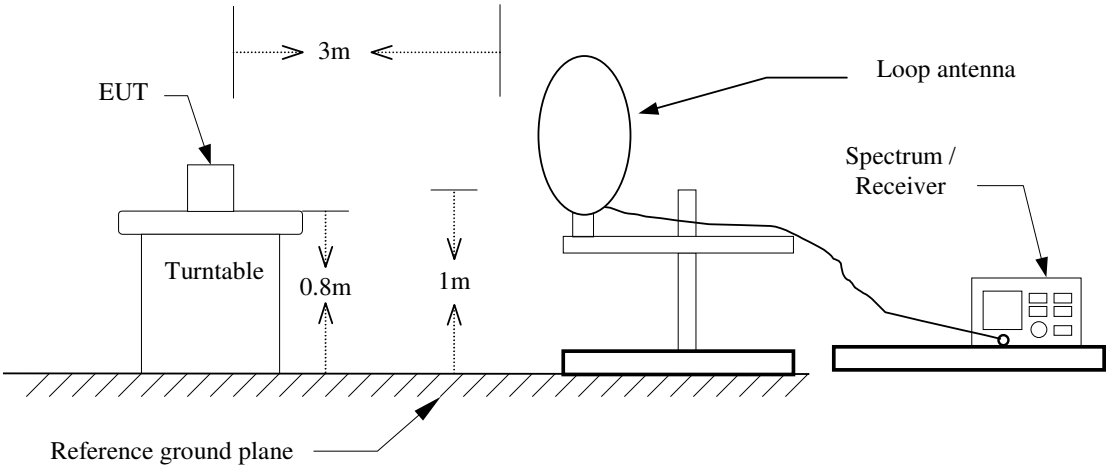
■ **Test Instruments**

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
RF Pre-selector	Agilent	N9039A	MY46520256	01/06/2015	1 year
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/06/2015	1 year
Pre Amplifier	Agilent	8449B	3008A02237	02/24/2015	1 year
Pre Amplifier	Agilent	8447D	2944A10961	02/24/2015	1 year
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRON	VULB9163	9163-270	07/18/2014	1 year
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRON	BBHA9120D	9120D-550	06/10/2015	1 year
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRON	BBHA9170	9170-320	07/02/2014	1 year
Loop Antenna	COM-POWER CORPORATION	AL-130	121014	02/02/2015	1 year
Microwave Cable	EMCI	EMC-104-SM-SM-14000	140202	02/24/2015	1 year
Microwave Cable	EMCI	EMC104-SM-SM-600	140301	02/24/2015	1 year
Test Site	ATL	TE01	888001	08/28/2014	1 year

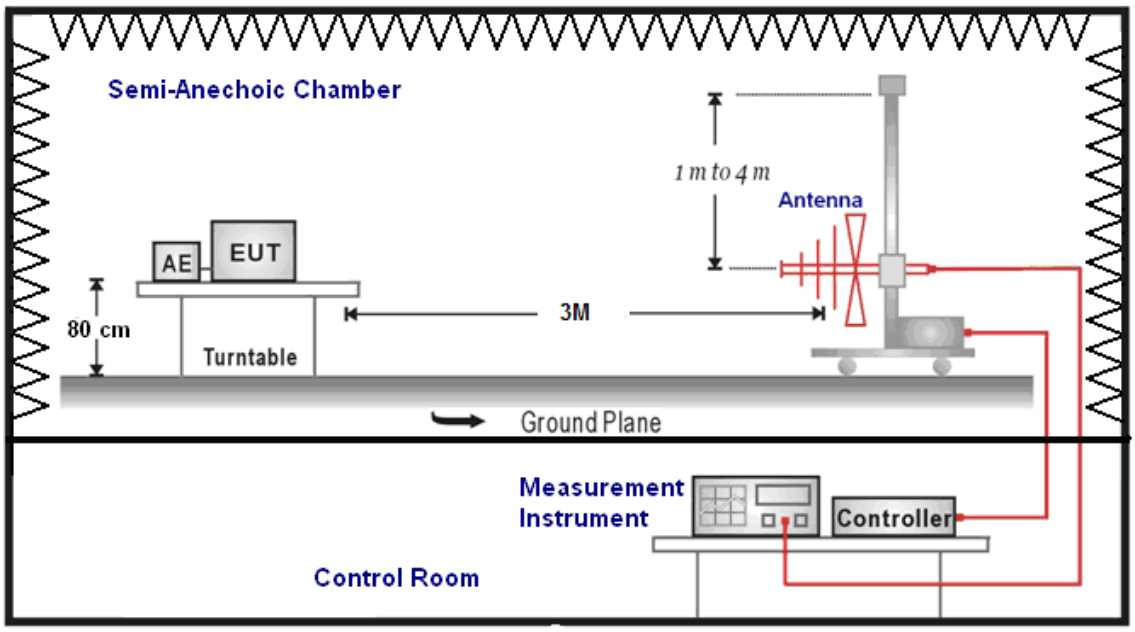
Note: N.C.R. = No Calibration Request.

■ **Setup**

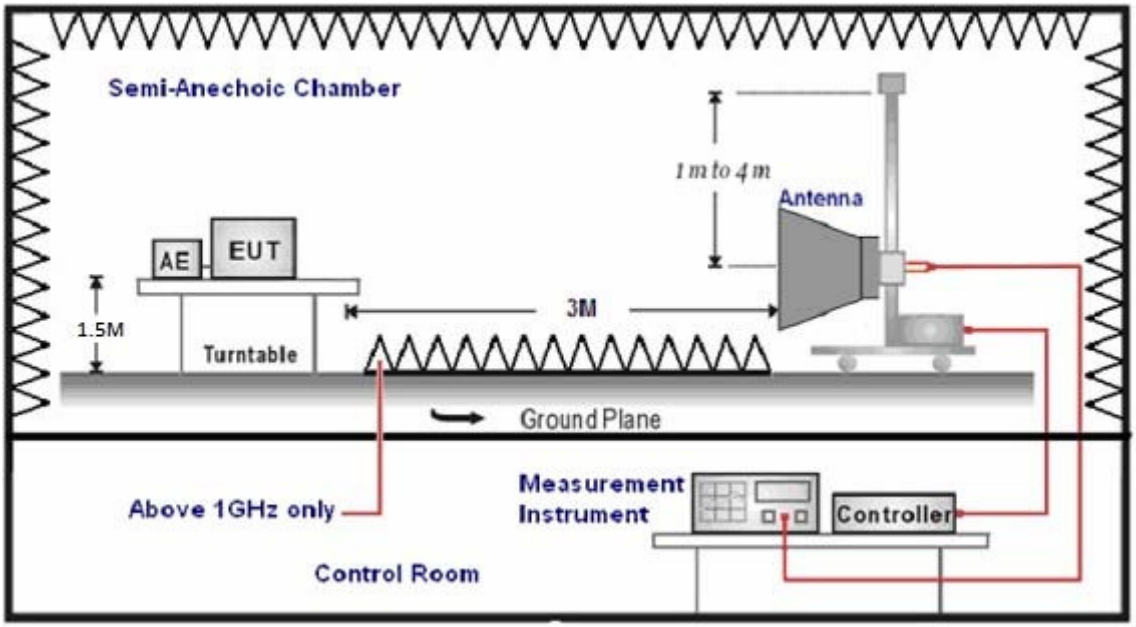
9kHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



■ **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 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 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

■ **Test Result**

Below 1GHz

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 1	Date:	06/26/2015
		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
170.5000	39.53	-11.63	27.90	43.50	-15.60	QP	H
343.5000	34.60	-8.60	26.00	46.00	-20.00	QP	H
447.5000	27.52	-6.36	21.16	46.00	-24.84	QP	H
570.0000	27.51	-3.95	23.56	46.00	-22.44	QP	H
667.0000	29.41	-2.17	27.24	46.00	-18.76	QP	H
872.0000	28.60	1.92	30.52	46.00	-15.48	QP	H
237.5000	36.61	-11.86	24.75	46.00	-21.25	QP	V
374.0000	29.21	-7.95	21.26	46.00	-24.74	QP	V
469.0000	27.67	-5.96	21.71	46.00	-24.29	QP	V
667.0000	34.64	-2.17	32.47	46.00	-13.53	QP	V
770.0000	27.22	0.02	27.24	46.00	-18.76	QP	V
872.0000	28.58	1.92	30.50	46.00	-15.50	QP	V

Note: 1. No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).
2. Result = Correction factor + Reading
3. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

Above 1GHz

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	06/26/2015
Frequency:	5260MHz	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
2827.000	37.68	1.12	38.80	74.00	-35.20	peak	H
4633.000	34.48	6.88	41.36	74.00	-32.64	peak	H
7650.000	33.05	14.26	47.31	74.00	-26.69	peak	H
2827.000	37.53	1.12	38.65	74.00	-35.35	peak	V
4570.000	33.72	6.68	40.40	74.00	-33.60	peak	V
7699.000	32.92	14.35	47.27	74.00	-26.73	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	06/26/2015
Frequency:	5280MHz	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
2827.000	37.14	1.12	38.26	74.00	-35.74	peak	H
4591.000	34.07	6.74	40.81	74.00	-33.19	peak	H
7678.000	31.82	14.31	46.13	74.00	-27.87	peak	H
2806.000	37.80	1.05	38.85	74.00	-35.15	peak	V
4577.000	34.73	6.69	41.42	74.00	-32.58	peak	V
7650.000	32.95	14.26	47.21	74.00	-26.79	peak	V

Note: 1. Result = Correction factor + Reading
2. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	06/26/2015
Frequency:	5320MHz	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
2806.000	36.03	1.05	37.08	74.00	-36.92	peak	H
4577.000	33.47	6.69	40.16	74.00	-33.84	peak	H
7678.000	32.20	14.31	46.51	74.00	-27.49	peak	H
2834.000	37.66	1.14	38.80	74.00	-35.20	peak	V
4563.000	34.38	6.66	41.04	74.00	-32.96	peak	V
7650.000	32.22	14.26	46.48	74.00	-27.52	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	06/26/2015
Frequency:	5500MHz	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
2813.000	36.67	1.07	37.74	74.00	-36.26	peak	H
4591.000	33.49	6.74	40.23	74.00	-33.77	peak	H
7678.000	30.04	14.31	44.35	74.00	-29.65	peak	H
2813.000	37.19	1.07	38.26	74.00	-35.74	peak	V
4570.000	33.27	6.68	39.95	74.00	-34.05	peak	V
7671.000	31.17	14.30	45.47	74.00	-28.53	peak	V

Note: 1. Result = Correction factor + Reading
2. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	06/26/2015
Frequency:	5560MHz	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	37.27	1.03	38.30	74.00	-35.70	peak	H
4577.000	33.37	6.69	40.06	74.00	-33.94	peak	H
7671.000	31.92	14.30	46.22	74.00	-27.78	peak	H
2778.000	37.21	0.96	38.17	74.00	-35.83	peak	V
4570.000	33.18	6.68	39.86	74.00	-34.14	peak	V
7650.000	31.78	14.26	46.04	74.00	-27.96	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	06/26/2015
Frequency:	5700MHz	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
2813.000	36.82	1.07	37.89	74.00	-36.11	peak	H
4619.000	34.90	6.83	41.73	74.00	-32.27	peak	H
7671.000	32.29	14.30	46.59	74.00	-27.41	peak	H
2806.000	37.33	1.05	38.38	74.00	-35.62	peak	V
4647.000	32.63	6.91	39.54	74.00	-34.46	peak	V
7629.000	32.10	14.23	46.33	74.00	-27.67	peak	V

Note: 1. Result = Correction factor + Reading
2. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	06/26/2015
Frequency:	5260MHz	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
2813.000	37.78	1.07	38.85	74.00	-35.15	peak	H
4563.000	35.47	6.66	42.13	74.00	-31.87	peak	H
7685.000	31.63	14.32	45.95	74.00	-28.05	peak	H
2806.000	37.31	1.05	38.36	74.00	-35.64	peak	V
4570.000	33.70	6.68	40.38	74.00	-33.62	peak	V
7629.000	31.75	14.23	45.98	74.00	-28.02	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	06/26/2015
Frequency:	5280MHz	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
2806.000	36.45	1.05	37.50	74.00	-36.50	peak	H
4549.000	33.55	6.61	40.16	74.00	-33.84	peak	H
7650.000	31.47	14.26	45.73	74.00	-28.27	peak	H
2806.000	36.36	1.05	37.41	74.00	-36.59	peak	V
4598.000	33.65	6.77	40.42	74.00	-33.58	peak	V
7650.000	31.94	14.26	46.20	74.00	-27.80	peak	V

Note: 1. Result = Correction factor + Reading
2. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	06/26/2015
Frequency:	5320MHz	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
2806.000	38.25	1.05	39.30	74.00	-34.70	peak	H
4591.000	34.78	6.74	41.52	74.00	-32.48	peak	H
7643.000	32.40	14.25	46.65	74.00	-27.35	peak	H
2827.000	37.17	1.12	38.29	74.00	-35.71	peak	V
4570.000	34.78	6.68	41.46	74.00	-32.54	peak	V
7657.000	31.79	14.28	46.07	74.00	-27.93	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	06/26/2015
Frequency:	5500MHz	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	38.08	1.03	39.11	74.00	-34.89	peak	H
4654.000	32.89	6.94	39.83	74.00	-34.17	peak	H
7699.000	32.23	14.35	46.58	74.00	-27.42	peak	H
2827.000	38.02	1.12	39.14	74.00	-34.86	peak	V
4605.000	33.41	6.79	40.20	74.00	-33.80	peak	V
7657.000	32.18	14.28	46.46	74.00	-27.54	peak	V

Note: 1. Result = Correction factor + Reading
2. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	06/26/2015
Frequency:	5560MHz	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	36.58	1.03	37.61	74.00	-36.39	peak	H
4591.000	33.82	6.74	40.56	74.00	-33.44	peak	H
7650.000	32.07	14.26	46.33	74.00	-27.67	peak	H
2806.000	37.63	1.05	38.68	74.00	-35.32	peak	V
4591.000	35.20	6.74	41.94	74.00	-32.06	peak	V
7671.000	32.56	14.30	46.86	74.00	-27.14	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	06/26/2015
Frequency:	5700MHz	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
2813.000	38.02	1.07	39.09	74.00	-34.91	peak	H
4577.000	33.46	6.69	40.15	74.00	-33.85	peak	H
7678.000	31.71	14.31	46.02	74.00	-27.98	peak	H
2827.000	37.44	1.12	38.56	74.00	-35.44	peak	V
4570.000	32.97	6.68	39.65	74.00	-34.35	peak	V
7650.000	32.03	14.26	46.29	74.00	-27.71	peak	V

Note: 1. Result = Correction factor + Reading
2. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 4	Date:	06/26/2015
Frequency:	5270MHz	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
2827.000	38.06	1.12	39.18	74.00	-34.82	peak	H
4598.000	33.32	6.77	40.09	74.00	-33.91	peak	H
7671.000	32.14	14.30	46.44	74.00	-27.56	peak	H
2813.000	37.29	1.07	38.36	74.00	-35.64	peak	V
4577.000	34.16	6.69	40.85	74.00	-33.15	peak	V
7699.000	31.31	14.35	45.66	74.00	-28.34	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 4	Date:	06/26/2015
Frequency:	5310MHz	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
2827.000	37.70	1.12	38.82	74.00	-35.18	peak	H
4577.000	33.44	6.69	40.13	74.00	-33.87	peak	H
7671.000	32.83	14.30	47.13	74.00	-26.87	peak	H
2806.000	36.61	1.05	37.66	74.00	-36.34	peak	V
4598.000	33.63	6.77	40.40	74.00	-33.60	peak	V
7650.000	32.54	14.26	46.80	74.00	-27.20	peak	V

Note: 1. Result = Correction factor + Reading
2. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 4	Date:	06/26/2015
Frequency:	5510MHz	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
2813.000	38.03	1.07	39.10	74.00	-34.90	peak	H
4598.000	34.68	6.77	41.45	74.00	-32.55	peak	H
7685.000	31.23	14.32	45.55	74.00	-28.45	peak	H
2827.000	38.12	1.12	39.24	74.00	-34.76	peak	V
4563.000	34.33	6.66	40.99	74.00	-33.01	peak	V
7699.000	32.54	14.35	46.89	74.00	-27.11	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 4	Date:	06/26/2015
Frequency:	5550MHz	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
2813.000	37.27	1.07	38.34	74.00	-35.66	peak	H
4570.000	33.33	6.68	40.01	74.00	-33.99	peak	H
7650.000	33.06	14.26	47.32	74.00	-26.68	peak	H
2813.000	37.89	1.07	38.96	74.00	-35.04	peak	V
4577.000	34.80	6.69	41.49	74.00	-32.51	peak	V
7657.000	32.82	14.28	47.10	74.00	-26.90	peak	V

Note: 1. Result = Correction factor + Reading
2. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 4	Date:	06/26/2015
Frequency:	5670MHz	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
2827.000	38.46	1.12	39.58	74.00	-34.42	peak	H
4591.000	34.23	6.74	40.97	74.00	-33.03	peak	H
7685.000	32.71	14.32	47.03	74.00	-26.97	peak	H
2834.000	37.68	1.14	38.82	74.00	-35.18	peak	V
4577.000	34.54	6.69	41.23	74.00	-32.77	peak	V
7699.000	32.82	14.35	47.17	74.00	-26.83	peak	V

Note: 1. Result = Correction factor + Reading
2. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 5	Date:	06/26/2015
Frequency:	5290MHz	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
2813.000	37.61	1.07	38.68	74.00	-35.32	peak	H
4577.000	33.27	6.69	39.96	74.00	-34.04	peak	H
7615.000	30.32	14.21	44.53	74.00	-29.47	peak	H
2813.000	37.14	1.07	38.21	74.00	-35.79	peak	V
4598.000	33.27	6.77	40.04	74.00	-33.96	peak	V
7629.000	30.64	14.23	44.87	74.00	-29.13	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 5	Date:	06/26/2015
Frequency:	5530MHz	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
2806.000	36.13	1.05	37.18	74.00	-36.82	peak	H
4570.000	32.78	6.68	39.46	74.00	-34.54	peak	H
7629.000	32.41	14.23	46.64	74.00	-27.36	peak	H
2806.000	37.45	1.05	38.50	74.00	-35.50	peak	V
4591.000	33.82	6.74	40.56	74.00	-33.44	peak	V
7671.000	31.09	14.30	45.39	74.00	-28.61	peak	V

Note: 1. Result = Correction factor + Reading
2. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 5	Date:	06/26/2015
Frequency:	5610MHz	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
2813.000	37.33	1.07	38.40	74.00	-35.60	peak	H
4549.000	32.82	6.61	39.43	74.00	-34.57	peak	H
7643.000	31.33	14.25	45.58	74.00	-28.42	peak	H
2799.000	37.58	1.03	38.61	74.00	-35.39	peak	V
4549.000	33.57	6.61	40.18	74.00	-33.82	peak	V
7671.000	31.32	14.30	45.62	74.00	-28.38	peak	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Transmitter Radiated Emissions	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	2.4GHz+5GHz	Date:	06/26/2015
	Simultaneous Transmitting	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
2813.000	35.33	5.62	40.95	74.00	-33.05	peak	H
4570.000	32.94	9.87	42.81	74.00	-31.19	peak	H
7650.000	31.70	13.27	44.97	74.00	-29.03	peak	H
2834.000	36.18	5.67	41.85	74.00	-32.15	peak	V
4542.000	31.66	9.83	41.49	74.00	-32.51	peak	V
7685.000	32.80	13.30	46.10	74.00	-27.90	peak	V

Note: 1. Result = Correction factor + Reading
2. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

Band Edge

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Band Edge	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	06/25/2015
Frequency:	5320 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	42.17	8.48	50.65	74.00	-23.35	peak	H
5351.780	44.36	8.48	52.84	74.00	-21.16	peak	H
5351.780	38.09	8.48	46.57	54.00	-7.43	AVG	H
5350.000	47.20	8.48	55.68	74.00	-18.32	peak	V
5350.000	39.46	8.48	47.94	54.00	-6.06	AVG	H
5354.300	48.99	8.48	57.47	74.00	-16.53	peak	V
5354.300	37.62	8.48	46.10	54.00	-7.90	AVG	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Band Edge	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 2	Date:	06/25/2015
Frequency:	5500 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
5391.100	44.52	8.52	53.04	74.00	-20.96	peak	H
5391.100	36.23	8.52	44.75	54.00	-9.25	AVG	H
5460.000	41.78	8.62	50.40	74.00	-23.60	peak	H
5378.800	47.13	8.51	55.64	74.00	-18.36	peak	V
5378.800	35.89	8.51	44.40	54.00	-9.60	AVG	H
5460.000	42.97	8.62	51.59	74.00	-22.41	peak	V

Note: 1. Result = Correction factor + Reading
2. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Band Edge	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	06/25/2015
Frequency:	5320 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	41.60	8.48	50.08	74.00	-23.92	peak	H
5367.180	44.63	8.50	53.13	74.00	-20.87	peak	H
5367.180	35.69	8.50	44.19	54.00	-9.81	AVG	H
5350.000	46.85	8.48	55.33	74.00	-18.67	peak	V
5350.000	40.31	8.48	48.79	54.00	-5.21	AVG	V
5350.520	48.73	8.48	57.21	74.00	-16.79	peak	V
5350.520	40.13	8.48	48.61	54.00	-5.39	AVG	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Band Edge	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 3	Date:	06/25/2015
Frequency:	5500 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
5421.400	44.71	8.57	53.28	74.00	-20.72	peak	H
5421.400	37.96	8.57	46.53	54.00	-7.47	AVG	H
5460.000	41.45	8.62	50.07	74.00	-23.93	peak	H
5396.950	45.87	8.53	54.40	74.00	-19.60	peak	V
5396.950	38.49	8.53	47.02	54.00	-6.98	AVG	V
5460.000	42.63	8.62	51.25	74.00	-22.75	peak	V

Note: 1. Result = Correction factor + Reading
2. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Band Edge	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 4	Date:	06/25/2015
Frequency:	5310 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	43.00	8.48	51.48	74.00	-22.52	peak	H
5415.900	44.61	8.56	53.17	74.00	-20.83	peak	H
5415.900	37.98	8.56	46.54	54.00	-7.46	AVG	H
5350.000	51.43	8.48	59.91	74.00	-14.09	peak	V
5350.000	41.55	8.48	50.03	54.00	-3.97	AVG	V
5351.080	52.14	8.48	60.62	74.00	-13.38	peak	V
5351.080	40.70	8.48	49.18	54.00	-4.82	AVG	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Band Edge	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 4	Date:	06/25/2015
Frequency:	5510 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
5397.400	46.13	8.53	54.66	74.00	-19.34	peak	H
5397.400	37.40	8.53	45.93	54.00	-8.07	AVG	H
5460.000	43.31	8.62	51.93	74.00	-22.07	peak	H
5453.650	49.39	8.60	57.99	74.00	-16.01	peak	V
5453.650	36.69	8.60	45.29	54.00	-8.71	AVG	V
5460.000	45.38	8.62	54.00	74.00	-20.00	peak	V
5460.000	37.94	8.62	46.56	54.00	-7.44	AVG	V

Note: 1. Result = Correction factor + Reading
2. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Band Edge	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 5	Date:	06/25/2015
Frequency:	5290 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	47.32	8.48	55.80	74.00	-18.20	peak	H
5350.000	37.28	8.48	45.76	54.00	-8.24	AVG	H
5350.690	50.23	8.48	58.71	74.00	-15.29	peak	H
5350.690	37.22	8.48	45.70	54.00	-8.30	AVG	H
5350.000	55.79	8.48	64.27	74.00	-9.73	peak	V
5350.000	43.42	8.48	51.90	54.00	-2.10	AVG	V
5357.150	57.75	8.48	66.23	74.00	-7.77	peak	V
5357.150	42.80	8.48	51.28	54.00	-2.72	AVG	V

Standard:	FCC Part 15E	Test Distance:	3m
Test item:	Band Edge	Power:	AC 120V/60Hz
Model Number:	UAP-AC-LR	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Test Mode:	Mode 5	Date:	06/25/2015
Frequency:	5530 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
5446.600	45.73	8.60	54.33	74.00	-19.67	peak	H
5446.600	36.53	8.60	45.13	54.00	-8.87	AVG	H
5460.000	44.54	8.62	53.16	74.00	-20.84	peak	H
5460.000	37.14	8.62	45.76	54.00	-8.24	AVG	H
5453.500	53.91	8.60	62.51	74.00	-11.49	peak	V
5453.500	41.80	8.60	50.40	54.00	-3.60	AVG	V
5460.000	49.48	8.62	58.10	74.00	-15.90	peak	V
5460.000	40.44	8.62	49.06	54.00	-4.94	AVG	V

Note: 1. Result = Correction factor + Reading

2. Correction factor = Antenna Factor + Cable loss – Pre-Amplifier gain.

4.2. Maximum Conducted Output Power Measurement

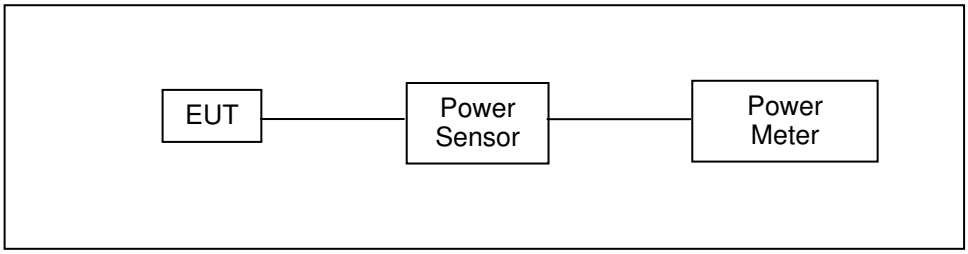
■ **Limit**

Conducted Output Power

Frequency Range (MHz)	FCC Limit
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)

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

■ **Test Setup**



■ **Test Instruments**

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Power Sensor	Anritsu	MA2411B	1126022	08/21/2014	1 year
Power Meter	Anritsu	ML2495A	1135009	08/21/2014	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

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

■ **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.

■ **Test Result**

Model Number	UAP-AC-LR						
Test Item	Maximum Conducted Output Power						
Test Mode	Mode 2: IEEE 802.11a Link Mode						
Date of Test	06/20/2015						
Frequency (MHz)	Data Rate	Antenna 0		Antenna 1		Antenna 0+1		FCC Limit (dBm)
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
5260.0	6M	16.10	0.041	17.11	0.051	19.64	0.092	< 24
5280.0		16.43	0.044	17.31	0.054	19.90	0.098	
5300.0		16.65	0.046	17.49	0.056	20.10	0.102	
5320.0		16.62	0.046	17.58	0.057	**20.14**	**0.103**	
5500.0		17.44	0.055	18.34	0.068	**20.92**	**0.124**	< 24
5520.0		17.17	0.052	18.09	0.064	20.66	0.117	
5540.0		17.11	0.051	18.04	0.064	20.61	0.115	
5560.0		16.83	0.048	17.90	0.062	20.41	0.110	
5580.0		16.55	0.045	17.54	0.057	20.08	0.102	
5600.0		16.41	0.044	17.66	0.058	20.09	0.102	
5620.0		16.17	0.041	17.36	0.054	19.82	0.096	
5640.0		15.95	0.039	16.87	0.049	19.44	0.088	
5660.0		16.17	0.041	17.45	0.056	19.87	0.097	
5680.0		16.42	0.044	17.57	0.057	20.04	0.101	
5700.0		16.71	0.047	17.88	0.061	20.34	0.108	
5260.0	54M	15.83	0.038	16.69	0.047	19.29	0.085	< 24
5280.0		16.14	0.041	16.84	0.048	19.51	0.089	
5300.0		16.39	0.044	17.19	0.052	19.82	0.096	
5320.0		16.33	0.043	17.40	0.055	19.91	0.098	
5500.0		17.18	0.052	18.23	0.067	20.75	0.119	< 24
5520.0		16.87	0.049	17.95	0.062	20.45	0.111	
5540.0		16.85	0.048	17.88	0.061	20.41	0.110	
5560.0		16.57	0.045	17.57	0.057	20.11	0.103	
5580.0		16.28	0.042	17.44	0.055	19.91	0.098	
5600.0		16.15	0.041	17.23	0.053	19.73	0.094	
5620.0		15.88	0.039	16.91	0.049	19.44	0.088	
5640.0		15.68	0.037	16.86	0.049	19.32	0.086	
5660.0		15.90	0.039	17.37	0.055	19.71	0.093	
5680.0		16.12	0.041	17.23	0.053	19.72	0.094	
5700.0		16.45	0.044	17.74	0.059	20.15	0.104	

Model Number	UAP-AC-LR
Test Item	Maximum Conducted Output Power
Test Mode	Mode 3: IEEE 802.11n 5GHz 20MHz link mode
Date of Test	06/20/2015

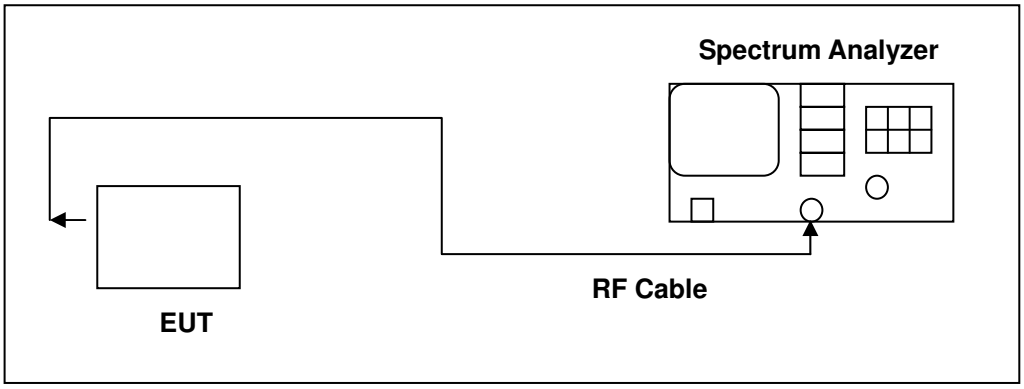
Frequency (MHz)	Data Rate	Antenna 0		Antenna 1		Antenna 0+1		FCC Limit (dBm)
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
5260.0	13M	17.04	0.051	17.98	0.063	20.55	0.113	< 24
5280.0		17.39	0.055	18.60	0.072	21.05	0.127	
5300.0		17.65	0.058	18.78	0.076	**21.26**	**0.134**	
5320.0		17.60	0.058	18.63	0.073	21.16	0.130	
5500.0		18.46	0.070	19.54	0.090	**22.04**	**0.160**	< 24
5520.0		18.17	0.066	19.13	0.082	21.69	0.147	
5540.0		17.97	0.063	19.11	0.081	21.59	0.144	
5560.0		17.65	0.058	18.59	0.072	21.16	0.130	
5580.0		17.61	0.058	18.73	0.075	21.22	0.132	
5600.0		17.37	0.055	18.41	0.069	20.93	0.124	
5620.0		17.06	0.051	18.02	0.063	20.58	0.114	
5640.0		16.87	0.049	18.10	0.065	20.54	0.113	
5660.0		17.13	0.052	18.33	0.068	20.78	0.120	
5680.0		17.47	0.056	18.27	0.067	20.90	0.123	
5700.0		17.73	0.059	18.71	0.074	21.26	0.134	
5260.0	130M	16.93	0.049	17.84	0.061	20.42	0.110	< 24
5280.0		17.26	0.053	18.53	0.071	20.95	0.124	
5300.0		17.53	0.057	18.65	0.073	21.14	0.130	
5320.0		17.45	0.056	18.54	0.071	21.04	0.127	
5500.0		18.34	0.068	19.38	0.087	21.90	0.155	< 24
5520.0		18.05	0.064	18.88	0.077	21.50	0.141	
5540.0		17.84	0.061	19.01	0.080	21.47	0.140	
5560.0		17.53	0.057	18.22	0.066	20.90	0.123	
5580.0		17.47	0.056	18.44	0.070	20.99	0.126	
5600.0		17.24	0.053	18.19	0.066	20.75	0.119	
5620.0		16.95	0.050	17.86	0.061	20.44	0.111	
5640.0		16.74	0.047	17.74	0.059	20.28	0.107	
5660.0		17.02	0.050	18.20	0.066	20.66	0.116	
5680.0		17.34	0.054	17.99	0.063	20.69	0.117	
5700.0		17.62	0.058	18.54	0.071	21.11	0.129	

Model Number	UAP-AC-LR						
Test Item	Maximum Conducted Output Power						
Test Mode	Mode 4: IEEE 802.11n 5GHz 40MHz link mode						
Date of Test	06/20/2015						
Frequency (MHz)	Data Rate	Antenna 0		Antenna 1		Antenna 0+1		FCC Limit (dBm)
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
5270.0	27M	16.11	0.041	17.07	0.051	19.63	0.092	< 24
5310.0		16.31	0.043	17.42	0.055	**19.91**	**0.098**	
5510.0		17.11	0.051	17.92	0.062	**20.54**	**0.113**	< 24
5550.0		16.69	0.047	17.78	0.060	20.28	0.107	
5590.0		16.28	0.042	17.29	0.054	19.82	0.096	
5630.0		15.78	0.038	16.89	0.049	19.38	0.087	
5670.0		16.21	0.042	17.09	0.051	19.68	0.093	
5270.0	270M	15.69	0.037	16.76	0.047	19.27	0.084	< 24
5310.0		16.21	0.042	17.35	0.054	19.83	0.096	
5510.0		16.09	0.041	17.55	0.057	19.89	0.098	< 24
5550.0		15.68	0.037	17.60	0.058	19.76	0.095	
5590.0		15.18	0.033	17.20	0.052	19.32	0.085	
5630.0		15.61	0.036	16.59	0.046	19.14	0.082	
5670.0		16.12	0.041	17.04	0.051	19.61	0.092	

Model Number	UAP-AC-LR						
Test Item	Maximum Conducted Output Power						
Test Mode	Mode 5: IEEE 802.11ac 80MHz Link Mode						
Date of Test	06/20/2015						
Frequency (MHz)	Data Rate	Antenna 0		Antenna 1		Antenna 0+1		FCC Limit (dBm)
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
5290.0	58.6M	15.74	0.037	16.66	0.046	**19.23**	**0.084**	< 24
5530.0		16.45	0.044	17.30	0.054	**19.91**	**0.098**	< 24
5610.0		15.63	0.037	16.52	0.045	19.11	0.081	
5290.0	780M	15.45	0.035	16.33	0.043	18.92	0.078	< 24
5530.0		16.14	0.041	16.05	0.040	19.11	0.081	< 24
5610.0		15.29	0.034	16.33	0.043	18.85	0.077	

4.3. 26dB RF Bandwidth Measurement

■ **Test Setup**



■ **Test Instruments**

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

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

■ **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.

■ **Test Result**

Model Number	UAP-AC-LR	
Test Item	26dB RF Bandwidth	
Test Mode	Mode 2: IEEE 802.11a Link Mode	
Date of Test	06/20/2015	
Frequency (MHz)	Antenna 0 (MHz)	Antenna 1 (MHz)
5260.0	24.275	24.937
5280.0	23.842	24.552
5320.0	23.579	24.355
5500.0	23.414	23.488
5560.0	23.937	22.933
5700.0	23.572	23.037

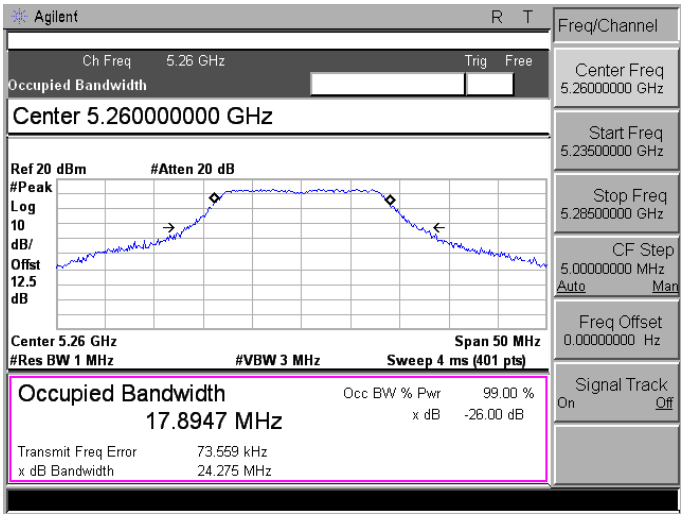
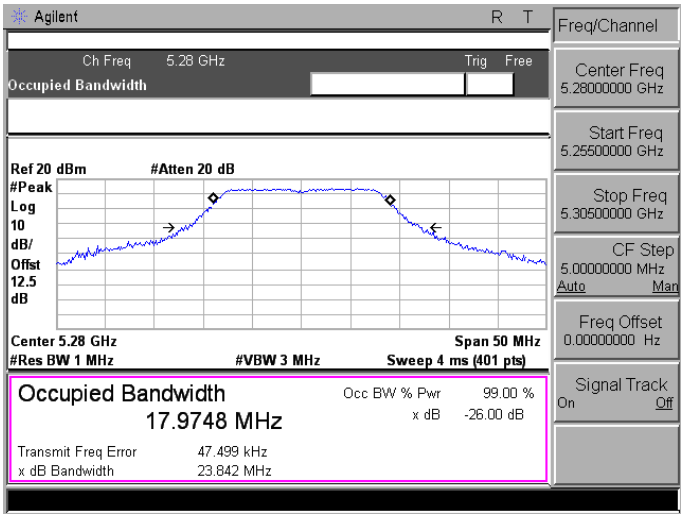
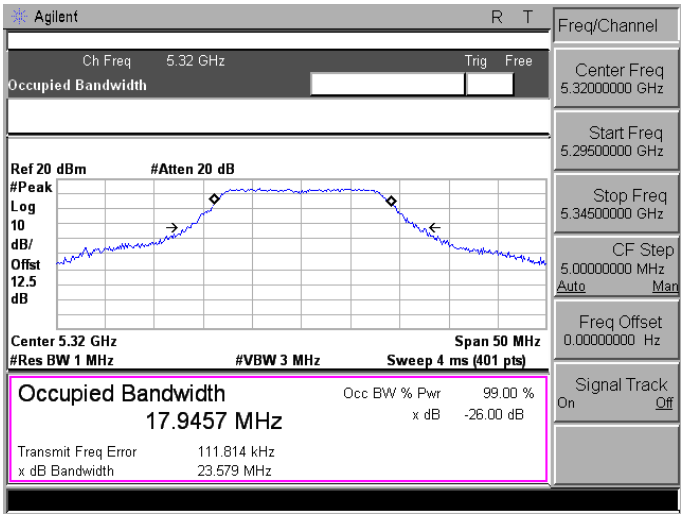
Model Number	UAP-AC-LR	
Test Item	26dB RF Bandwidth	
Test Mode	Mode 3: IEEE 802.11n 5GHz 20MHz link mode	
Date of Test	06/20/2015	
Frequency (MHz)	Antenna 0 (MHz)	Antenna 1 (MHz)
5260.0	25.239	24.855
5280.0	24.780	26.087
5320.0	24.442	25.179
5500.0	26.232	24.600
5560.0	25.105	24.343
5700.0	24.690	24.843

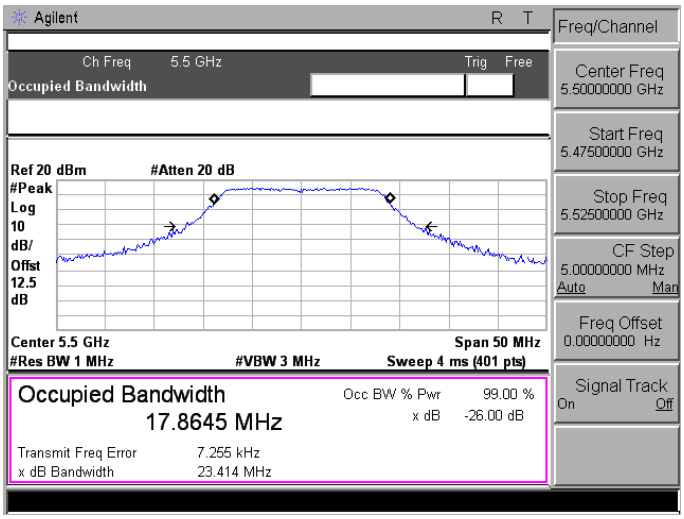
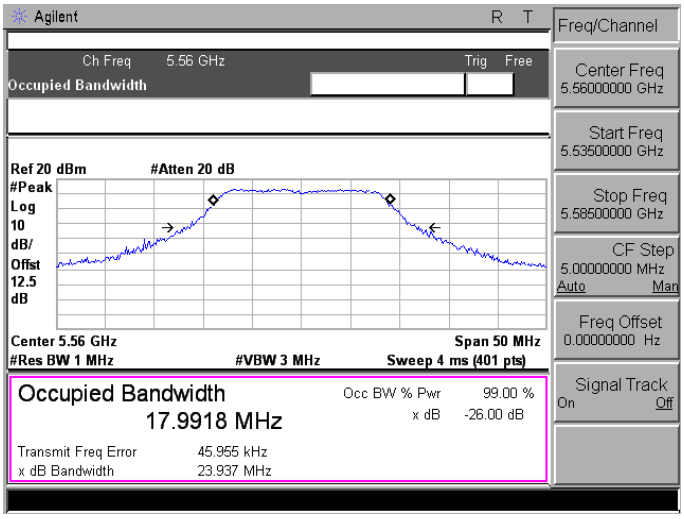
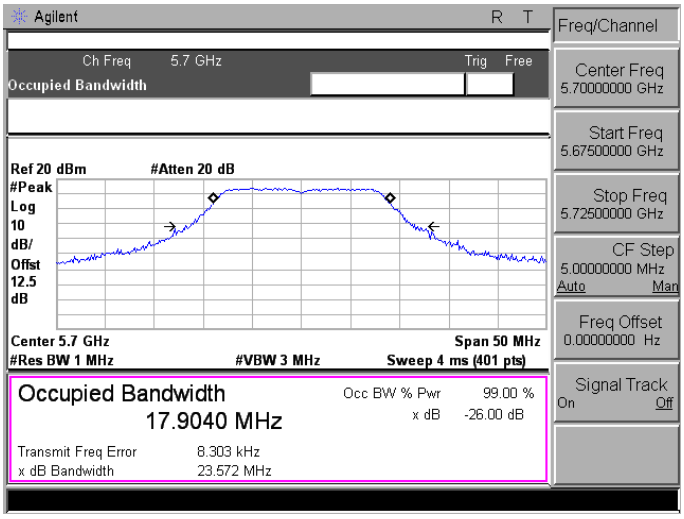
Model Number	UAP-AC-LR	
Test Item	26dB RF Bandwidth	
Test Mode	Mode 4: IEEE 802.11n 5GHz 40MHz link mode	
Date of Test	06/20/2015	
Frequency (MHz)	Antenna 0 (MHz)	Antenna 1 (MHz)
5270.0	44.912	44.611
5310.0	46.431	44.642
5510.0	45.537	43.482
5550.0	45.402	45.118
5670.0	45.217	43.458

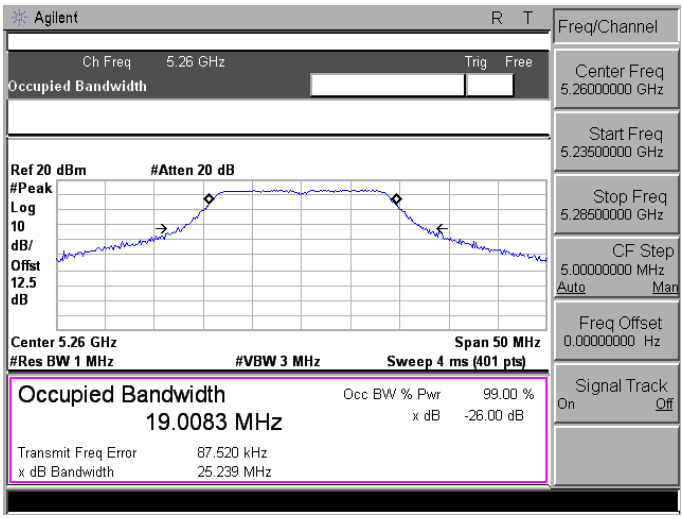
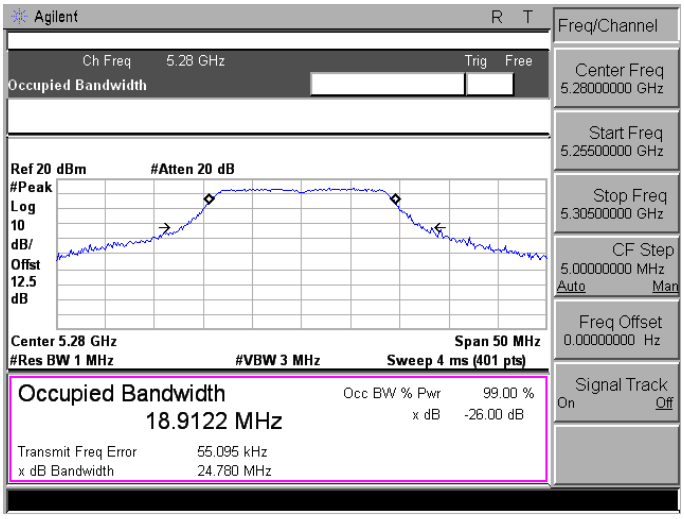
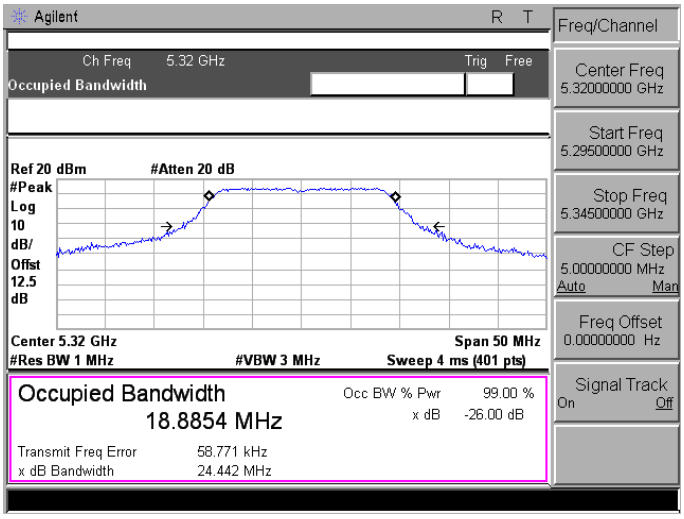
Model Number	UAP-AC-LR	
Test Item	26dB RF Bandwidth	
Test Mode	Mode 5: IEEE 802.11ac 80MHz Link Mode	
Date of Test	06/20/2015	
Frequency (MHz)	Antenna 0 (MHz)	Antenna 1 (MHz)
5290.0	87.820	87.248
5530.0	86.618	86.455
5610.0	86.867	86.907

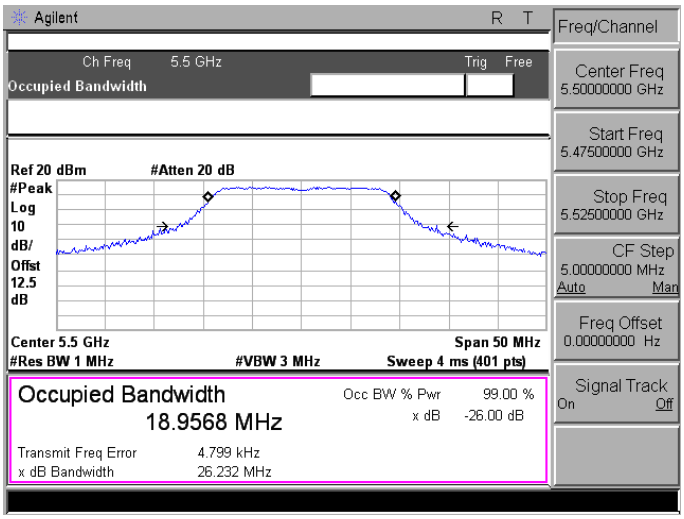
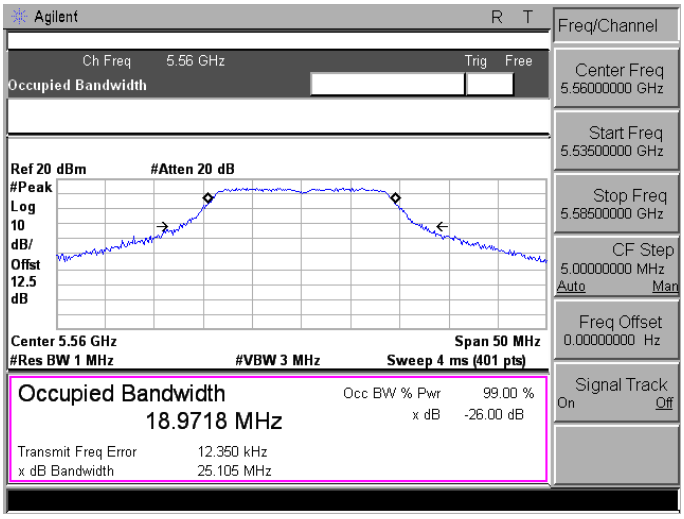
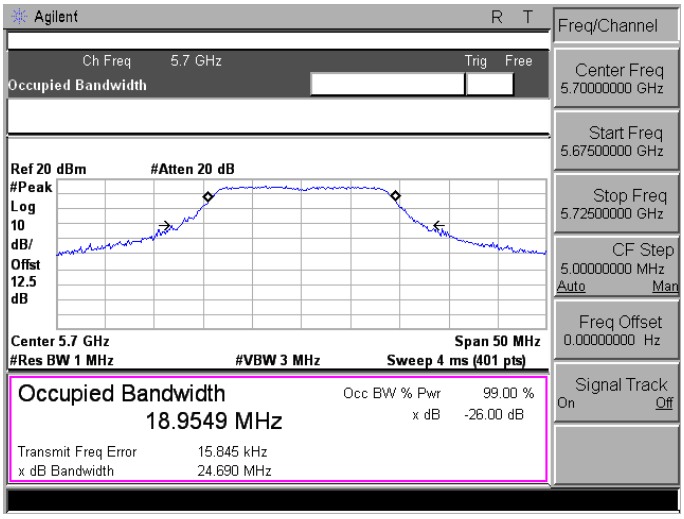
■ **Test Graphs**

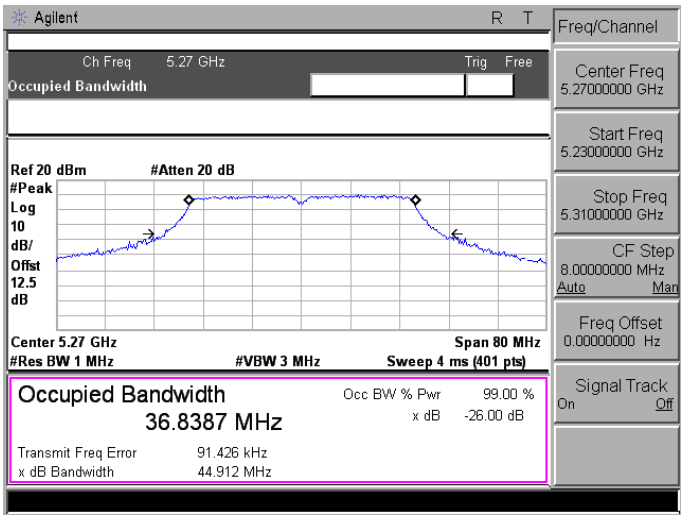
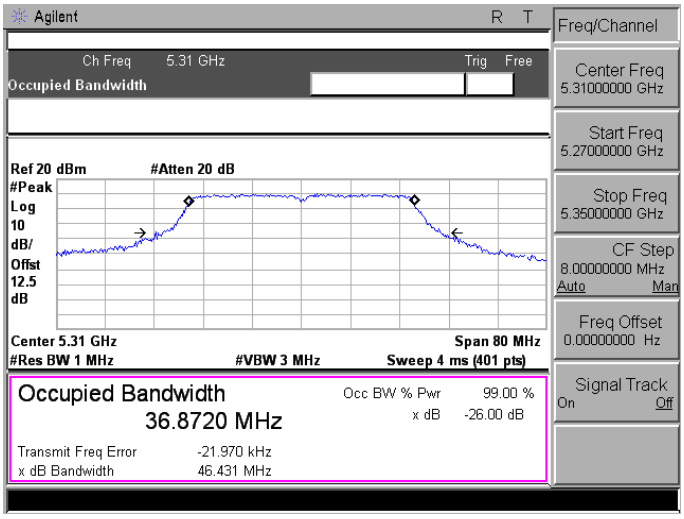
Antenna 0

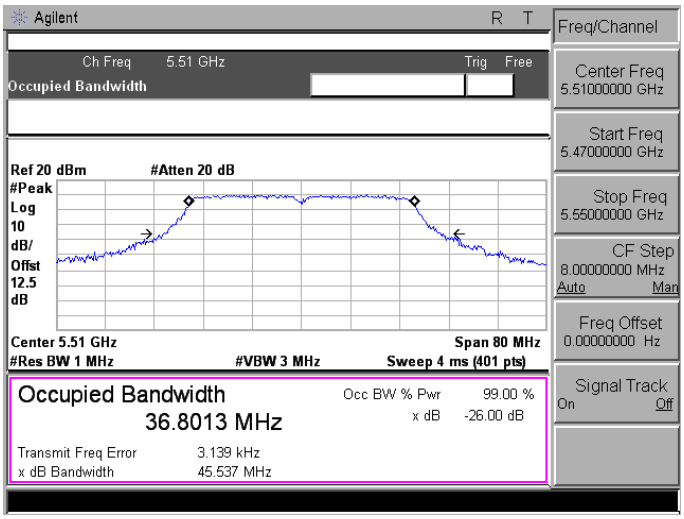
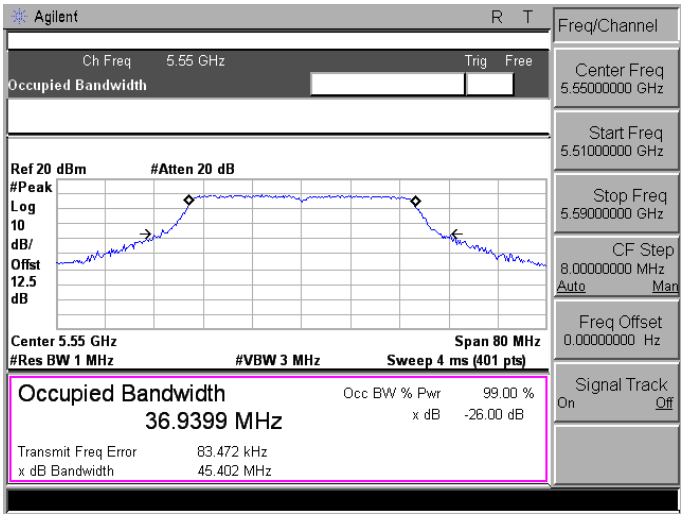
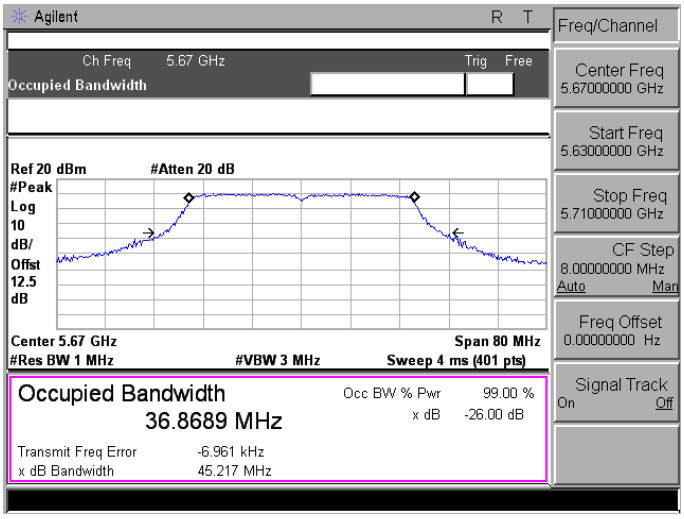
Mode 2: IEEE 802.11a Link Mode	
5260 MHz	
5280 MHz	
5320 MHz	

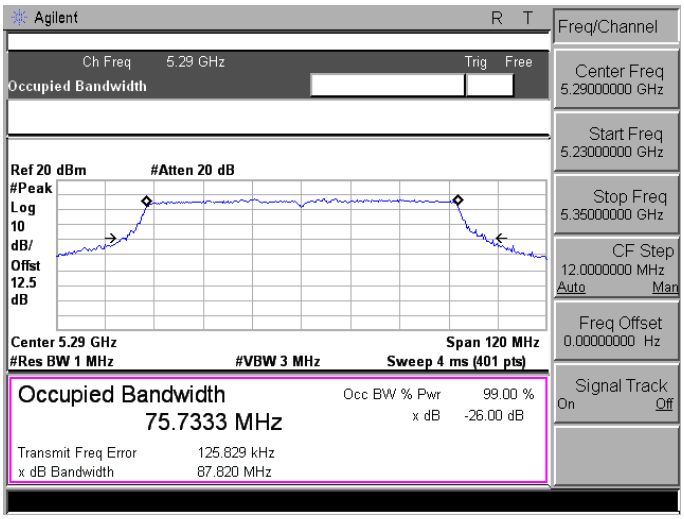
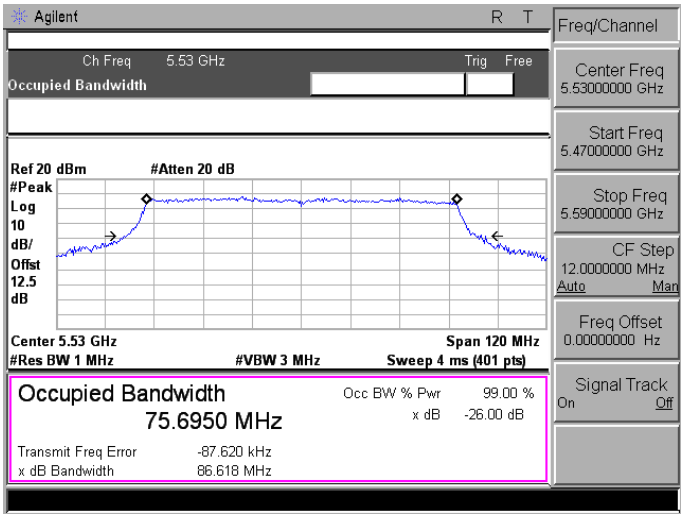
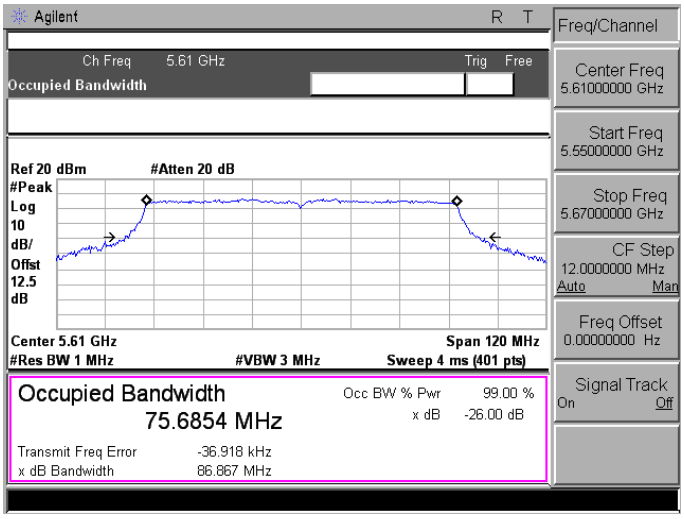
Mode 2: IEEE 802.11a Link Mode	
5500 MHz	
5560 MHz	
5700 MHz	

Mode 3: IEEE 802.11n 5GHz 20MHz link mode	
5260 MHz	
5280 MHz	
5320 MHz	

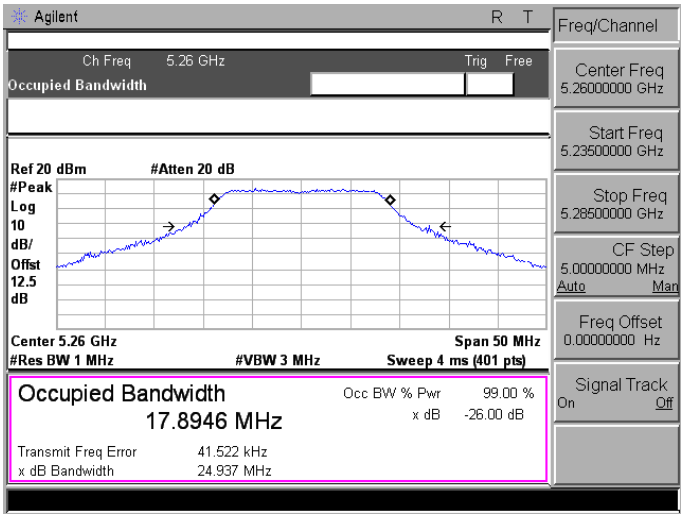
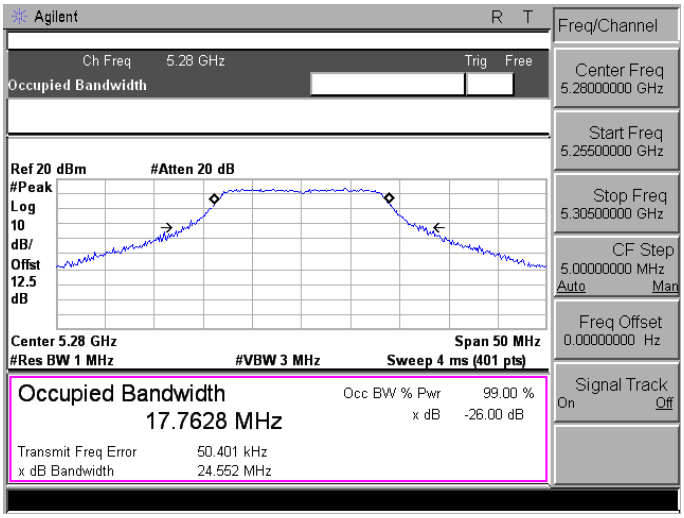
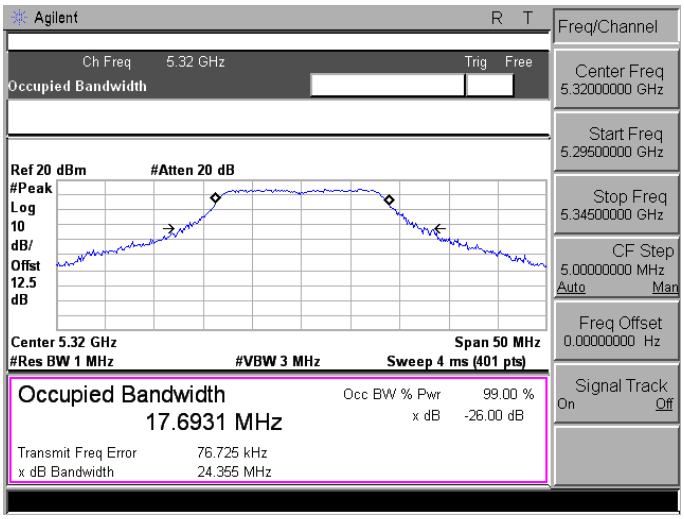
Mode 3: IEEE 802.11n 5GHz 20MHz link mode	
5500 MHz	
5560 MHz	
5700 MHz	

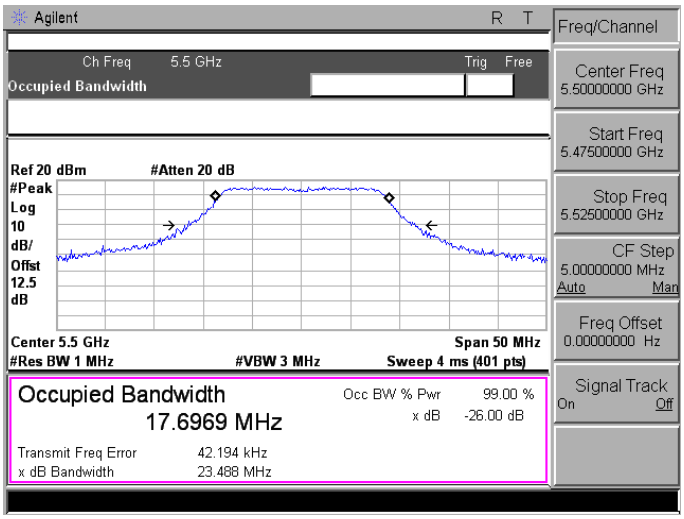
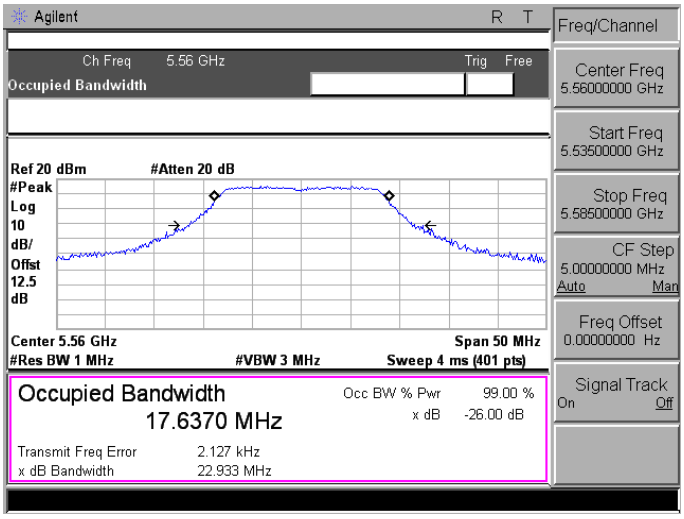
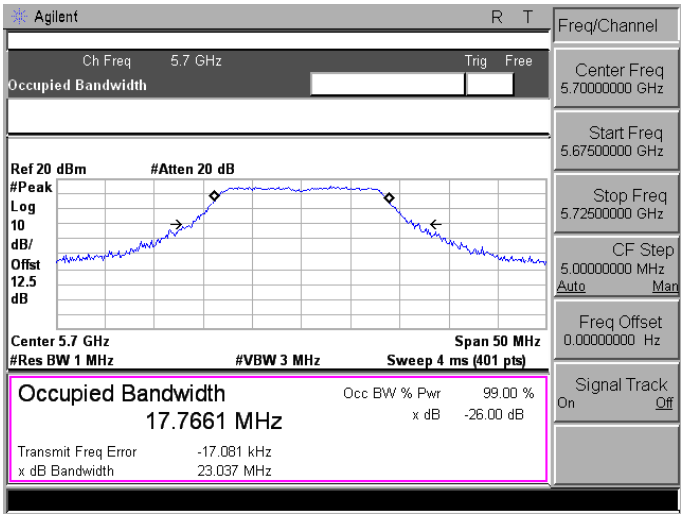
Mode 4: IEEE 802.11n 5GHz 40MHz link mode	
5270 MHz	
5310 MHz	

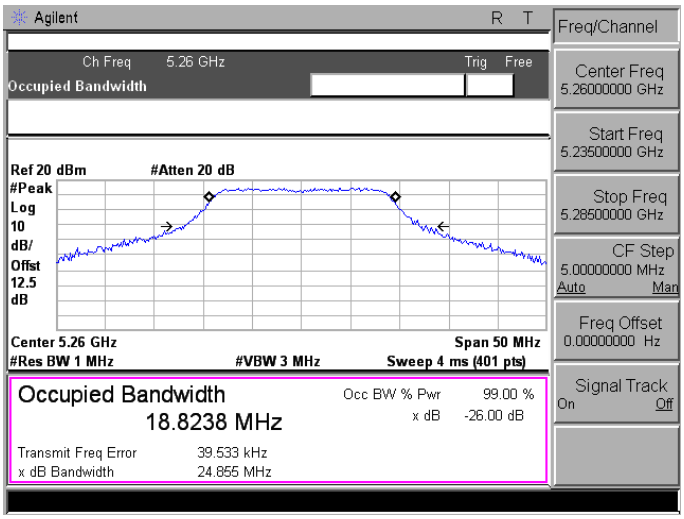
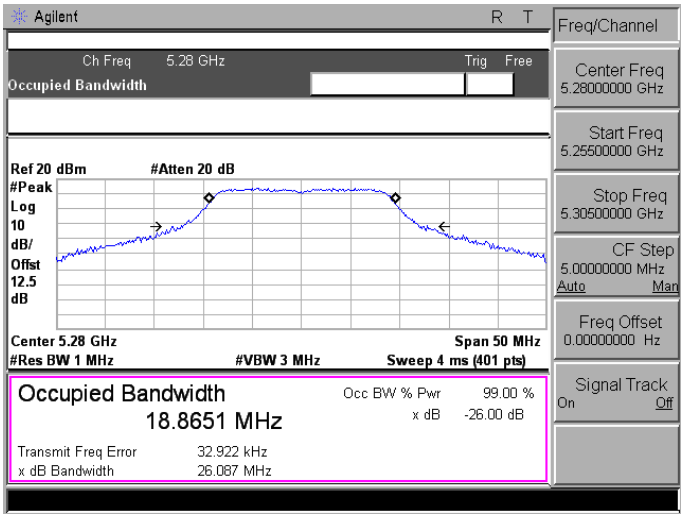
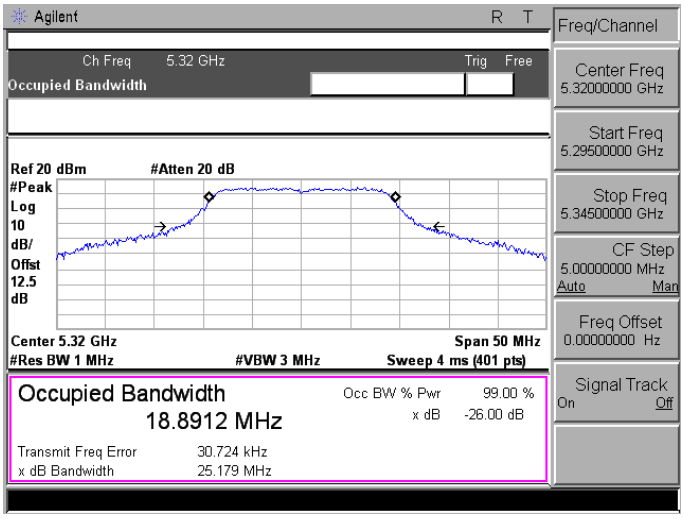
Mode 4: IEEE 802.11n 5GHz 40MHz link mode	
5510 MHz	
5550 MHz	
5670 MHz	

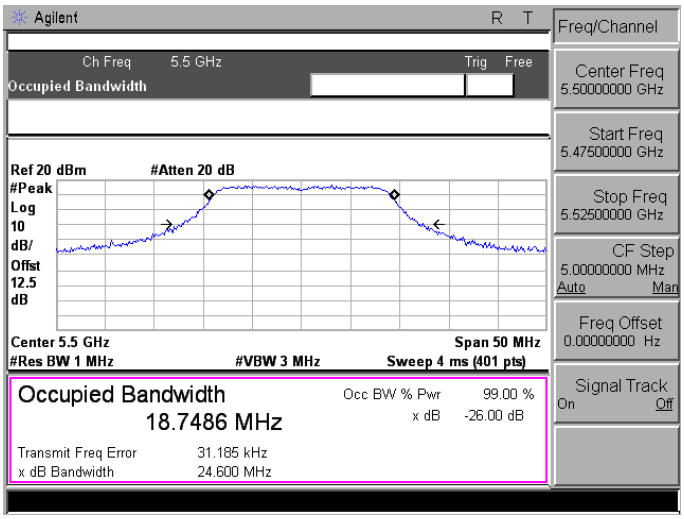
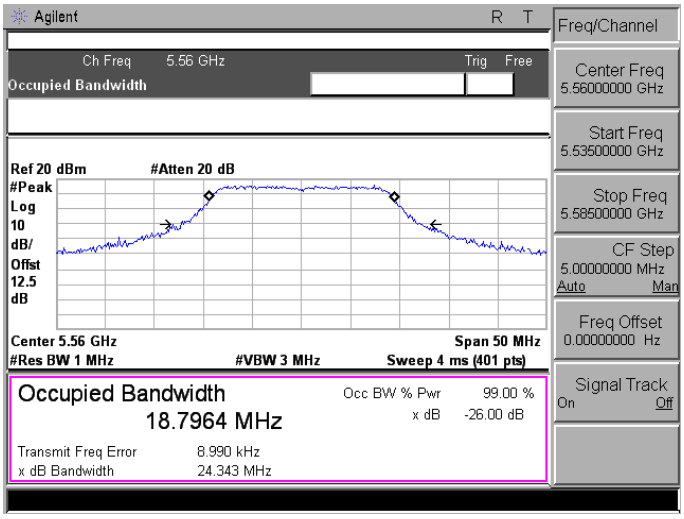
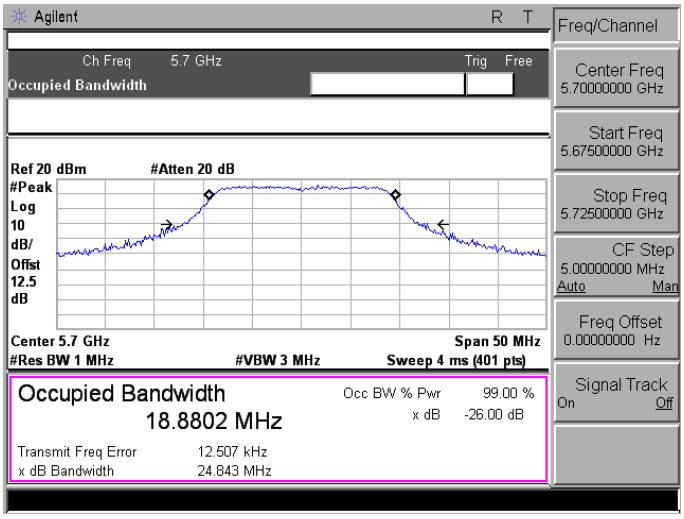
Mode 5: IEEE 802.11ac 80MHz Link Mode	
5290 MHz	
5530 MHz	
5610 MHz	

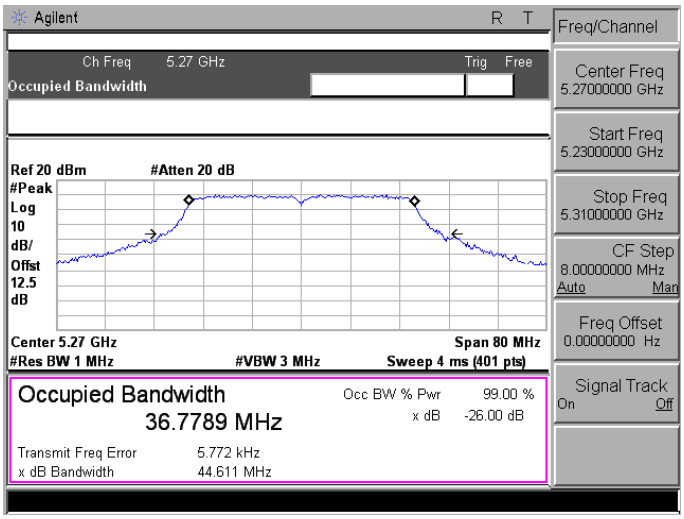
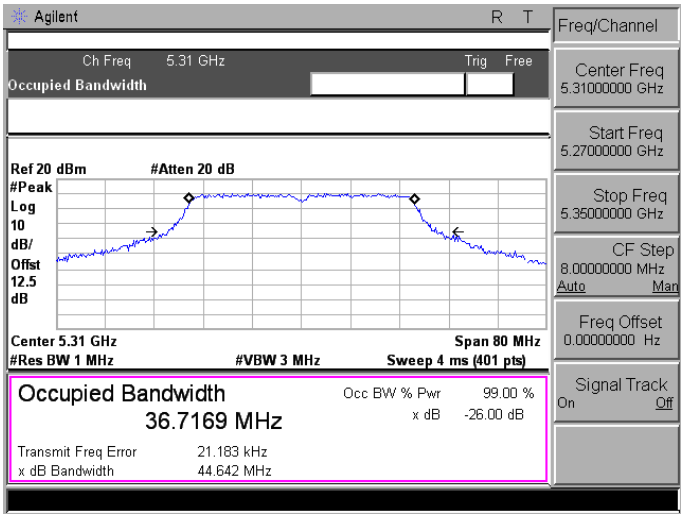
Antenna 1

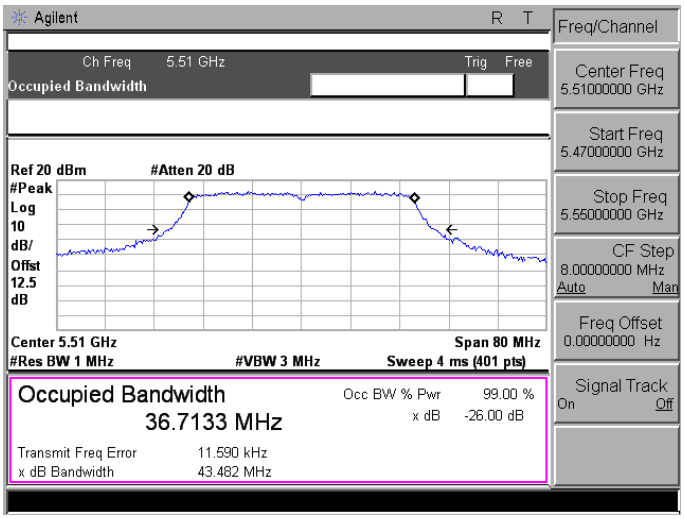
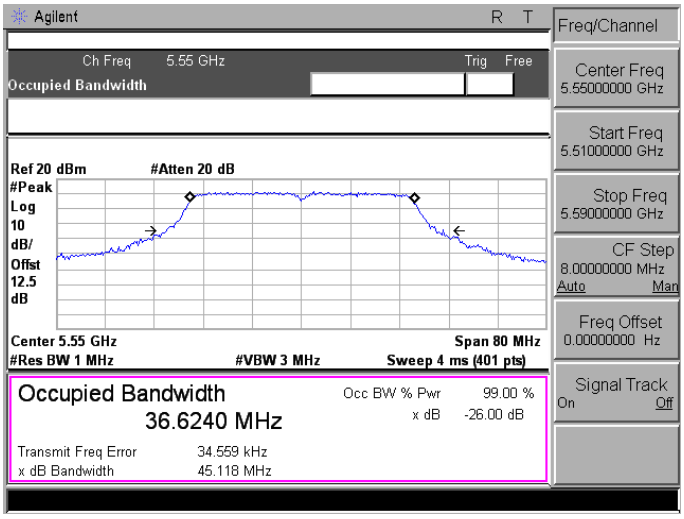
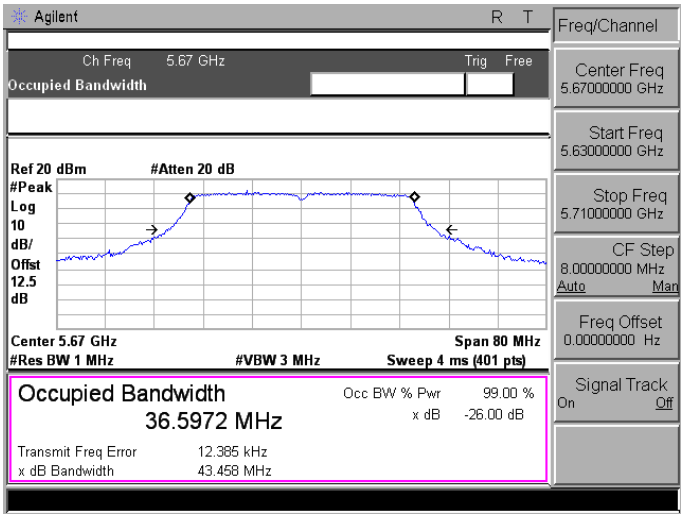
Mode 2: IEEE 802.11a Link Mode	
5260 MHz	
5280 MHz	
5320 MHz	

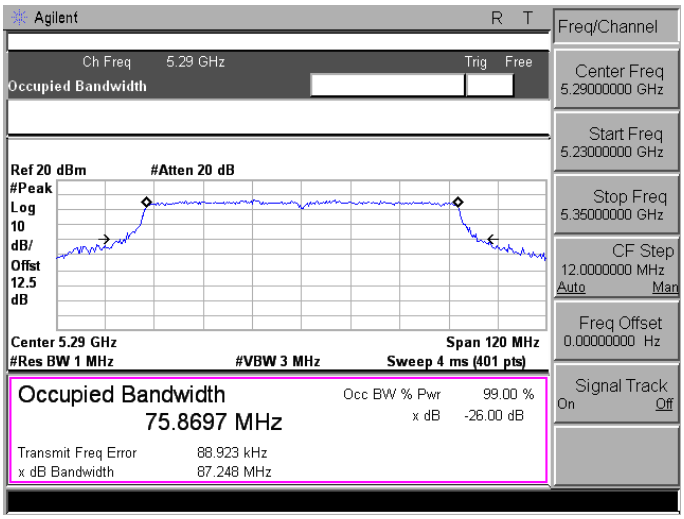
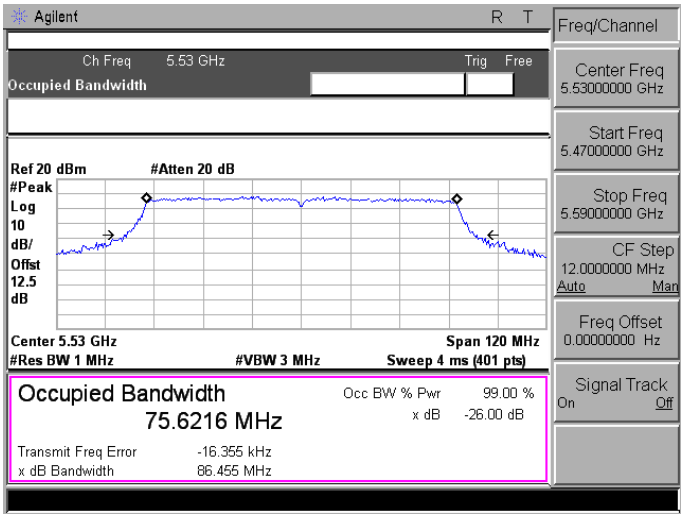
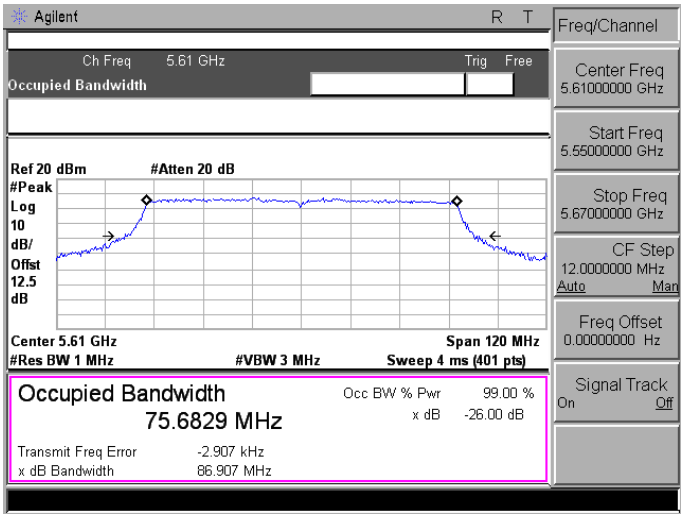
Mode 2: IEEE 802.11a Link Mode	
5500 MHz	
5560 MHz	
5700 MHz	

Mode 3: IEEE 802.11n 5GHz 20MHz link mode	
5260 MHz	
5280 MHz	
5320 MHz	

Mode 3: IEEE 802.11n 5GHz 20MHz link mode	
5500 MHz	
5560 MHz	
5700 MHz	

Mode 4: IEEE 802.11n 5GHz 40MHz link mode	
5270 MHz	
5310 MHz	

Mode 4: IEEE 802.11n 5GHz 40MHz link mode	
5510 MHz	
5550 MHz	
5670 MHz	

Mode 5: IEEE 802.11ac 80MHz Link Mode	
5290 MHz	
5530 MHz	
5610 MHz	

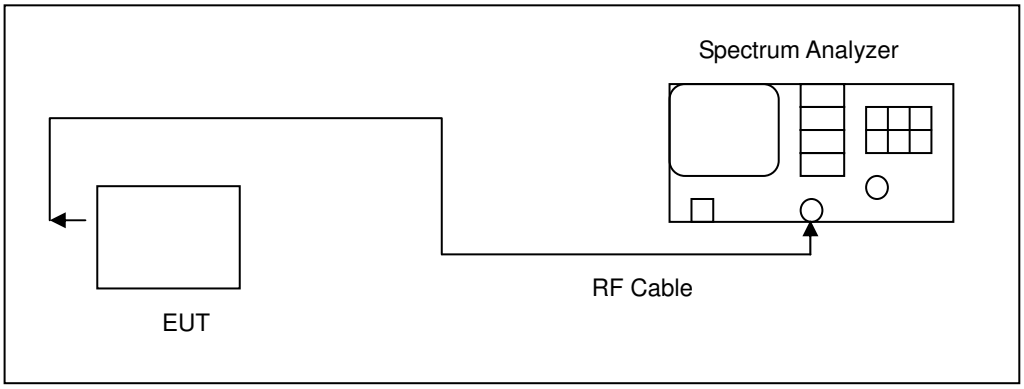
4.4. Peak Power Spectral Density Measurement

■ **Limit**

Conducted power spectral density

Frequency Range	FCC Limit
5.250 ~ 5.350 GHz	11 dBm/MHz
5.470 ~ 5.725 GHz	11 dBm/MHz

■ **Test Setup**



■ **Test Instruments**

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

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

■ **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.

■ **Test Result**

Model Number	UAP-AC-LR			
Test Item	Conducted power spectral density			
Test Mode	Mode 2: IEEE 802.11a Link Mode			
Date of Test	06/20/2015			
Frequency (MHz)	Antenna 0 (dBm/MHz)	Antenna 1 (dBm/MHz)	Antenna 0+1 (dBm/MHz)	FCC Limit (dBm/MHz)
5260.0	3.611	2.832	6.405	< 11
5280.0	3.908	3.324	6.792	
5320.0	4.485	4.177	7.500	
5500.0	4.841	5.694	8.454	< 11
5560.0	3.971	5.398	7.909	
5700.0	4.856	5.223	8.209	

Model Number	UAP-AC-LR			
Test Item	Conducted power spectral density			
Test Mode	Mode 3: IEEE 802.11n 5GHz 20MHz link mode			
Date of Test	06/20/2015			
Frequency (MHz)	Antenna 0 (dBm/MHz)	Antenna 1 (dBm/MHz)	Antenna 0+1 (dBm/MHz)	FCC Limit (dBm/MHz)
5260.0	4.754	3.715	7.524	< 11
5280.0	4.691	3.637	7.454	
5320.0	4.751	4.410	7.842	
5500.0	6.138	6.385	9.522	< 11
5560.0	4.837	5.973	8.701	
5700.0	5.601	5.449	8.784	

Note: Method SA-2, Power density=measured

Result+10log(1/duty cycle)=Measured result + duty factor

Model Number	UAP-AC-LR			
Test Item	Conducted power spectral density			
Test Mode	Mode 4: IEEE 802.11n 5GHz 40MHz link mode			
Date of Test	06/20/2015			
Frequency (MHz)	Antenna 0 (dBm/MHz)	Antenna 1 (dBm/MHz)	Antenna 0+1 (dBm/MHz)	FCC Limit (dBm/MHz)
5270.0	-0.091	-0.506	3.174	< 11
5310.0	-0.169	-1.042	2.884	
5510.0	0.997	1.067	4.500	< 11
5550.0	0.467	0.954	4.185	
5670.0	0.313	0.556	3.904	

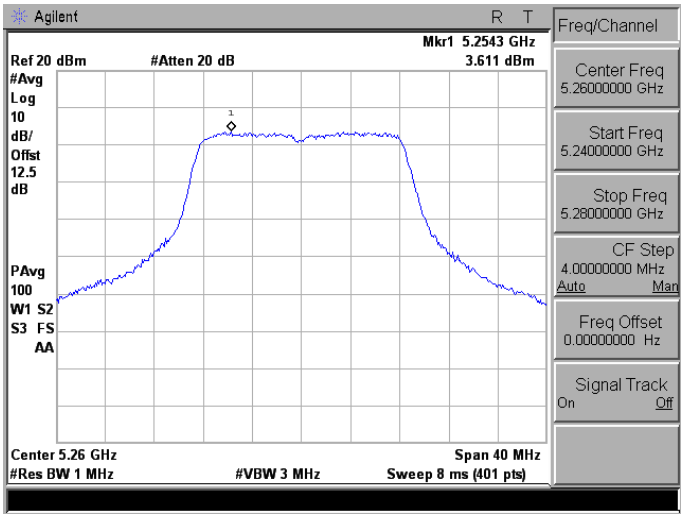
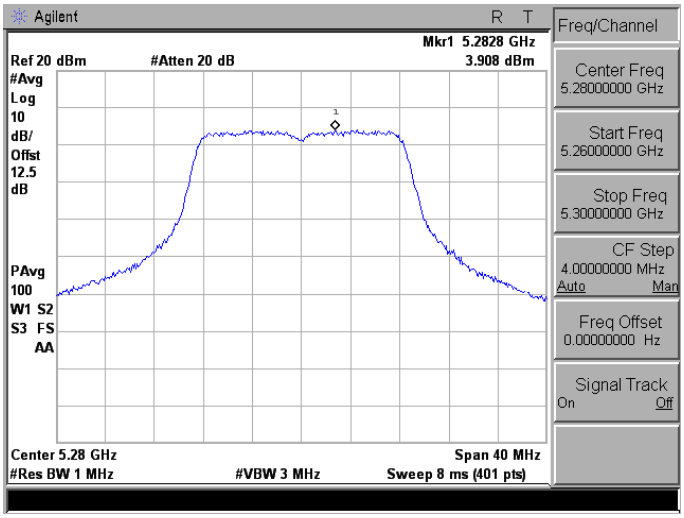
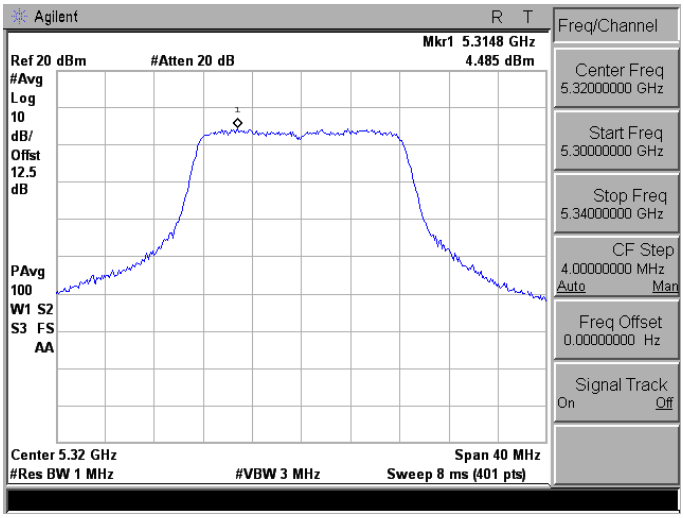
Model Number	UAP-AC-LR			
Test Item	Conducted power spectral density			
Test Mode	Mode 5: IEEE 802.11ac 80MHz Link Mode			
Date of Test	06/20/2015			
Frequency (MHz)	Antenna 0 (dBm/MHz)	Antenna 1 (dBm/MHz)	Antenna 0+1 (dBm/MHz)	FCC Limit (dBm/MHz)
5290.0	-3.539	-3.753	0.091	< 11
5530.0	-1.936	-2.165	1.687	< 11
5610.0	-2.685	-2.637	1.075	

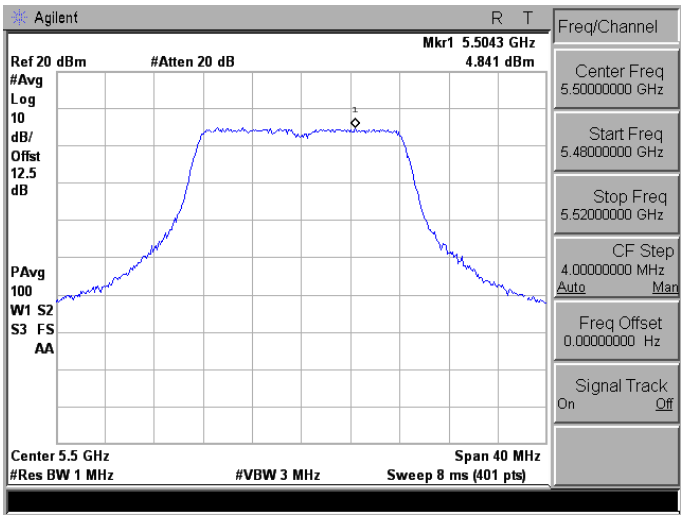
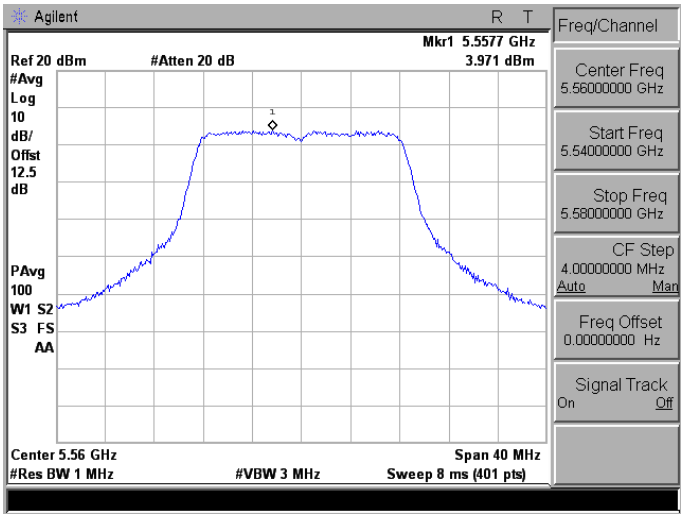
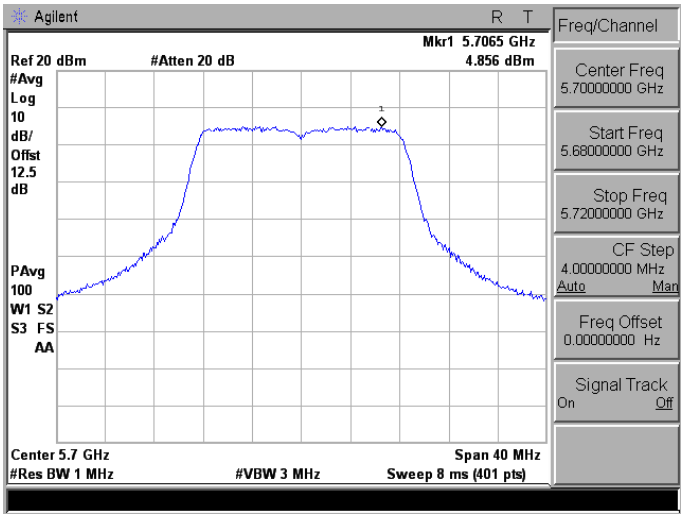
Note: Method SA-2, Power density=measured

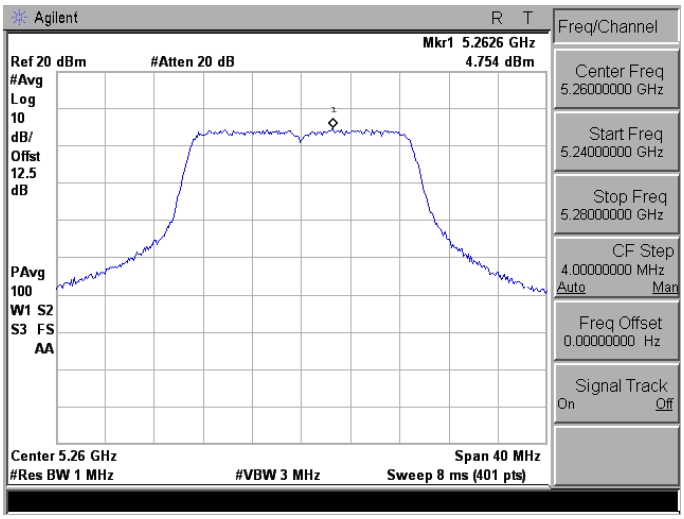
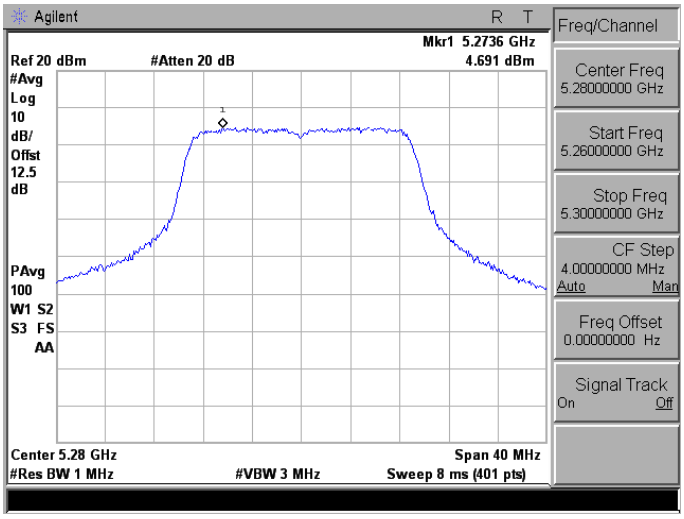
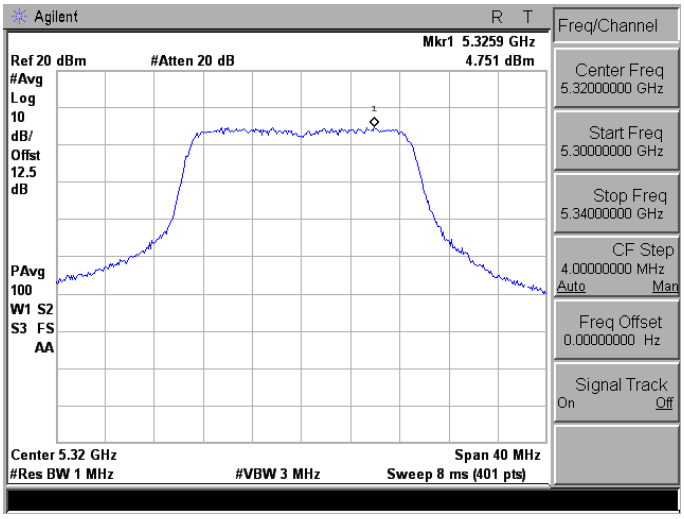
Result+10log(1/duty cycle)=Measured result + duty factor

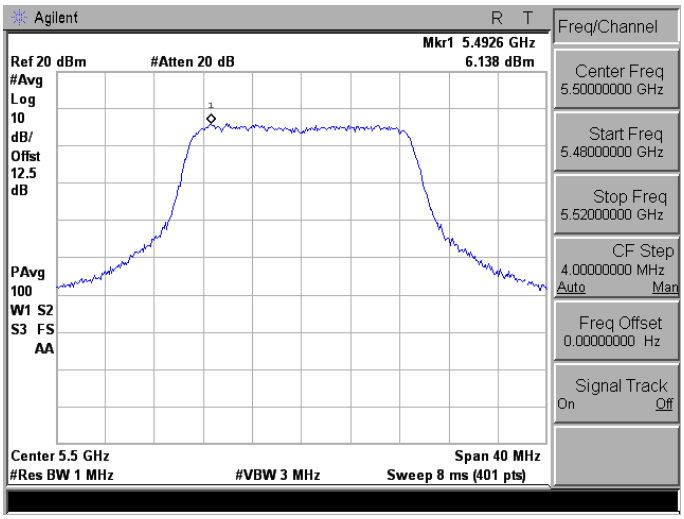
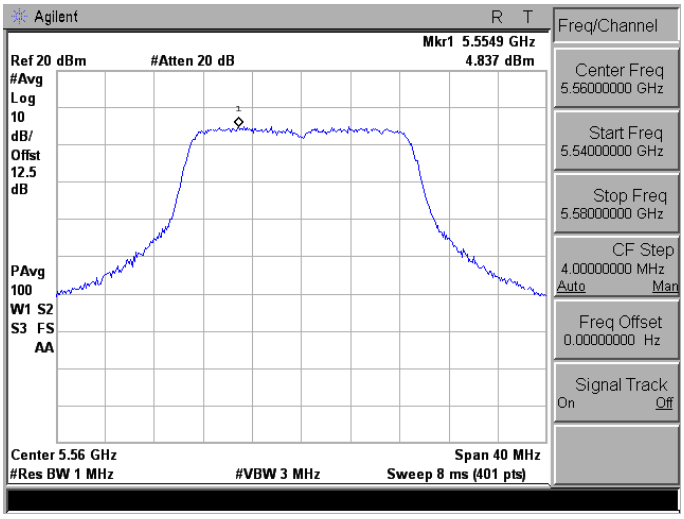
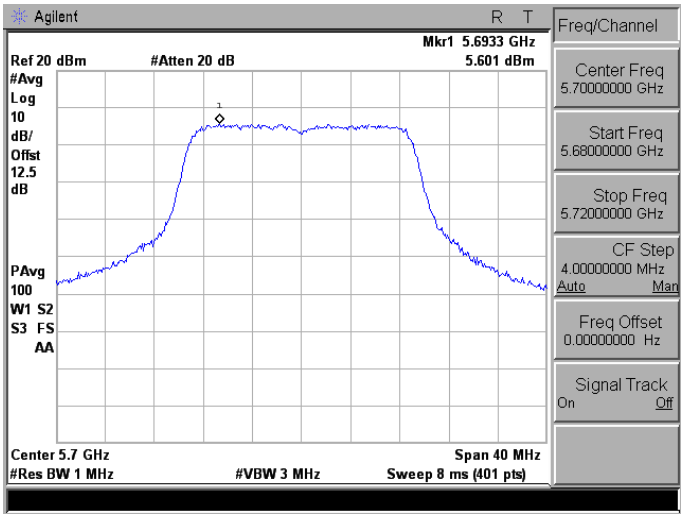
■ **Test Graphs**

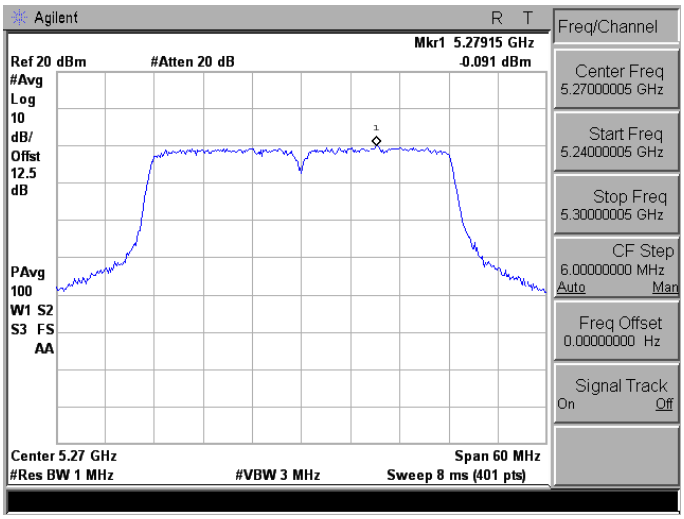
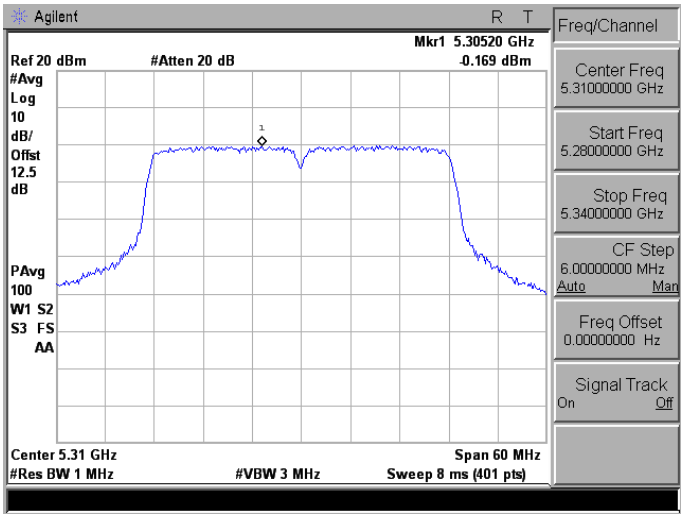
Antenna 0

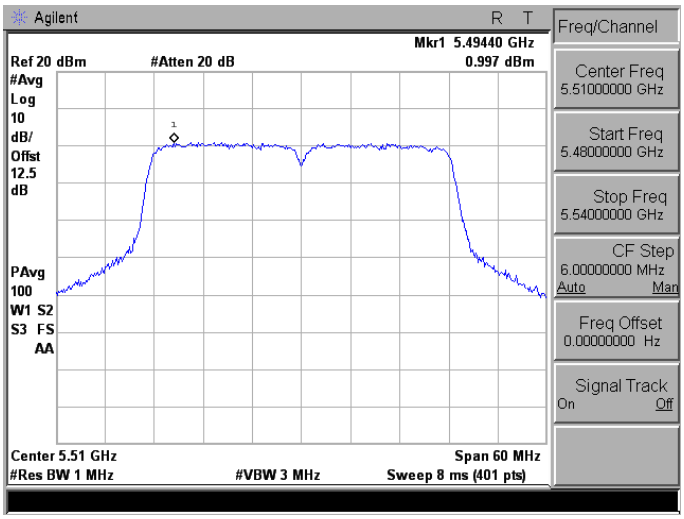
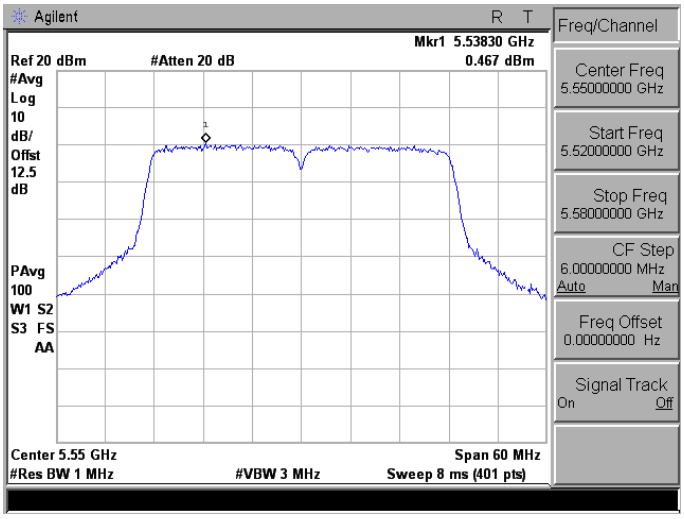
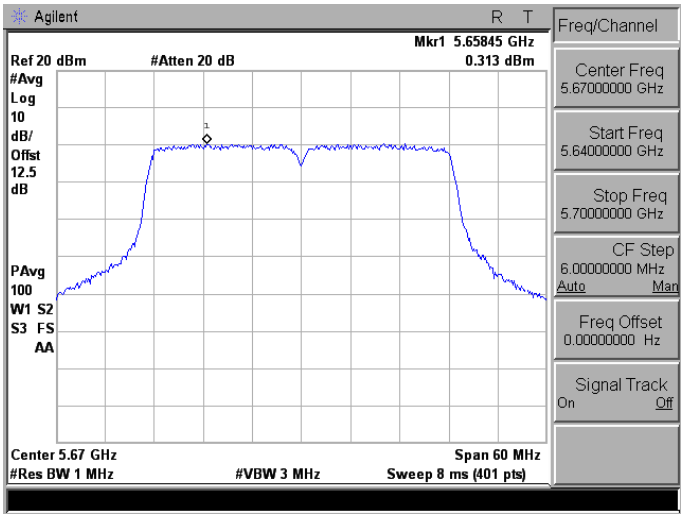
Mode 2: IEEE 802.11a Link Mode	
5260 MHz	
5280 MHz	
5320 MHz	

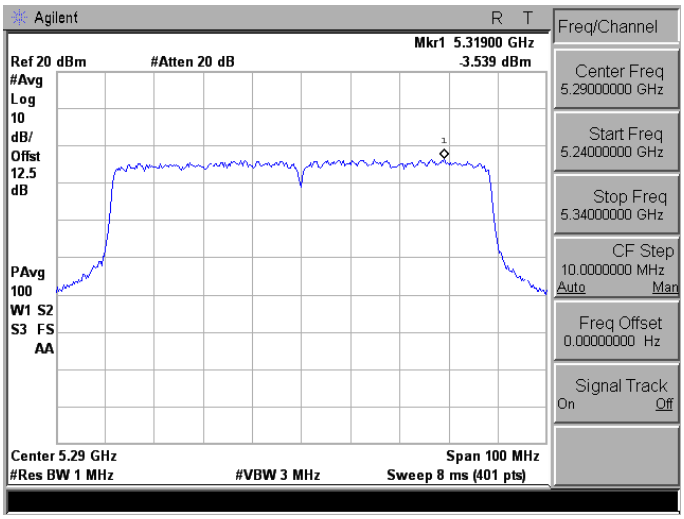
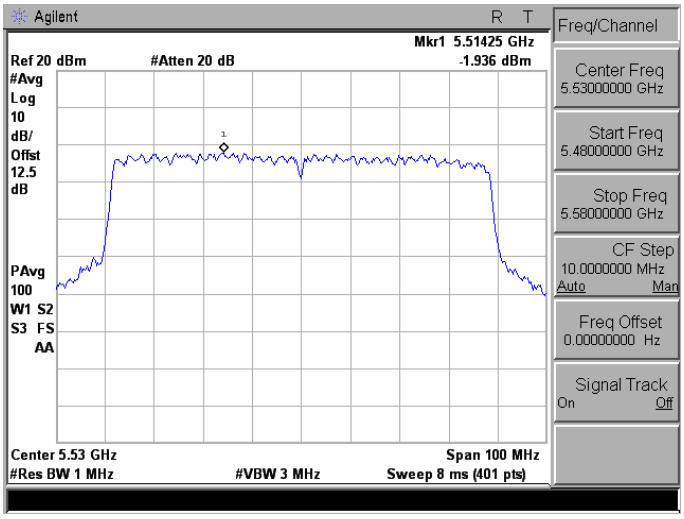
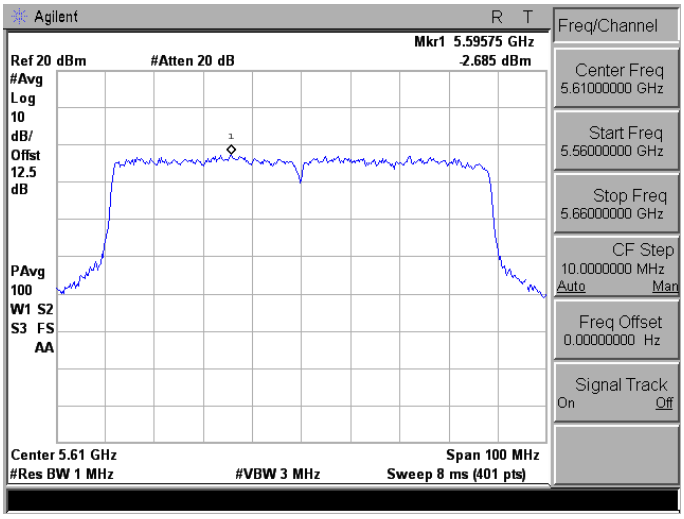
Mode 2: IEEE 802.11a Link Mode	
5500 MHz	
5560 MHz	
5700 MHz	

Mode 3: IEEE 802.11n 5GHz 20MHz link mode	
5260 MHz	
5280 MHz	
5320 MHz	

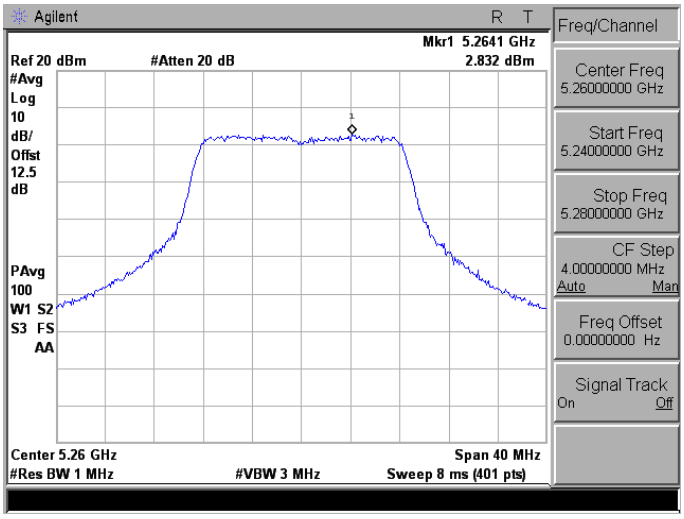
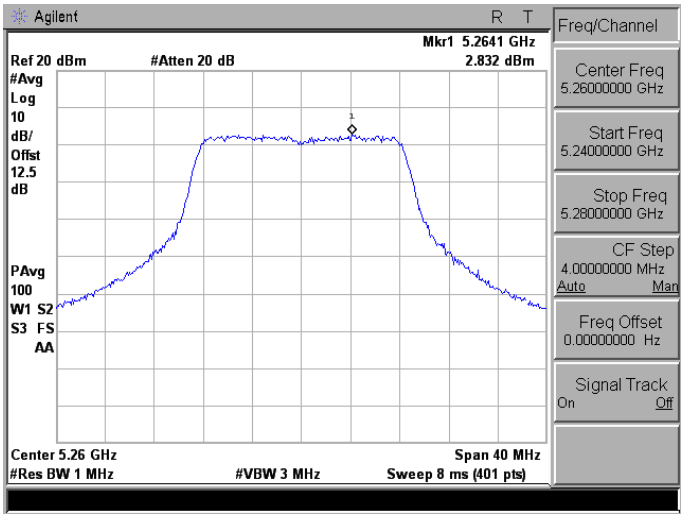
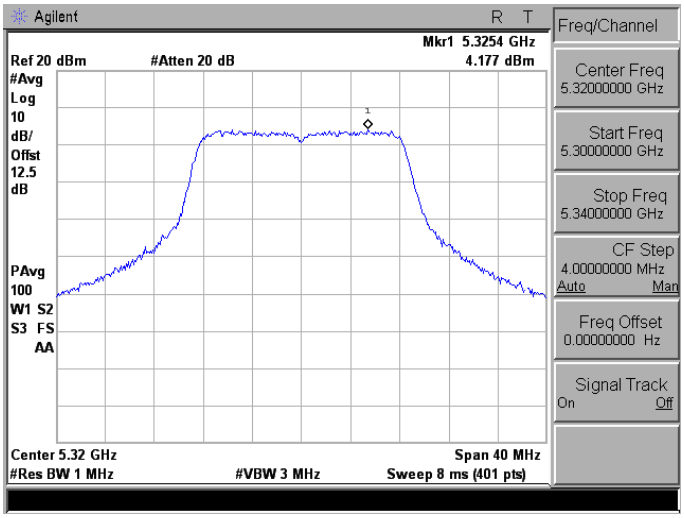
Mode 3: IEEE 802.11n 5GHz 20MHz link mode	
5500 MHz	
5560 MHz	
5700 MHz	

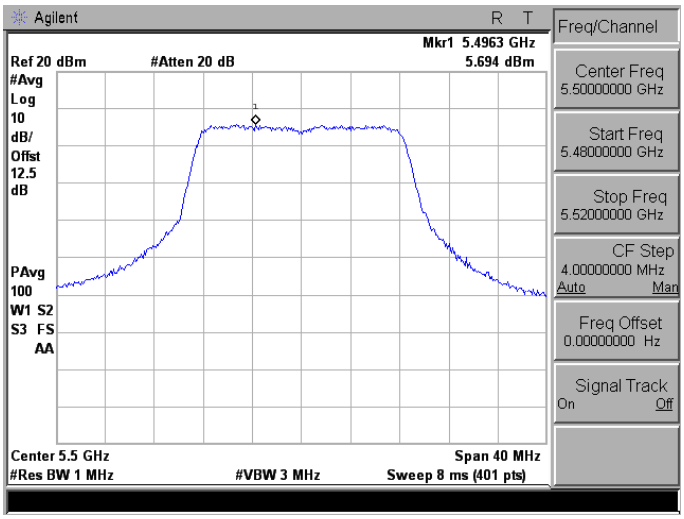
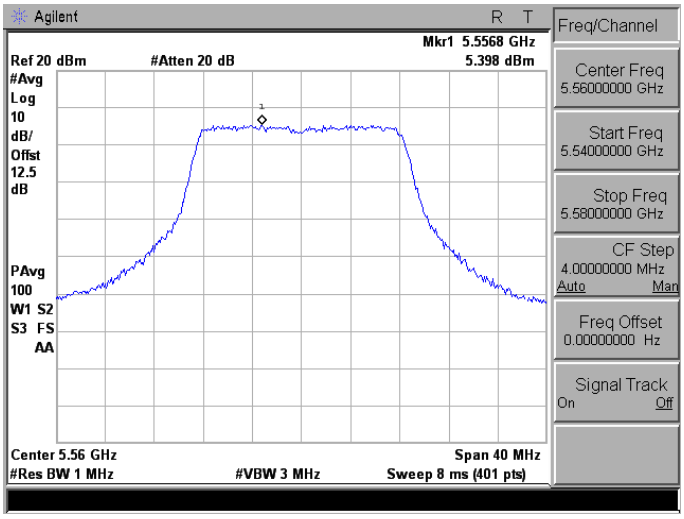
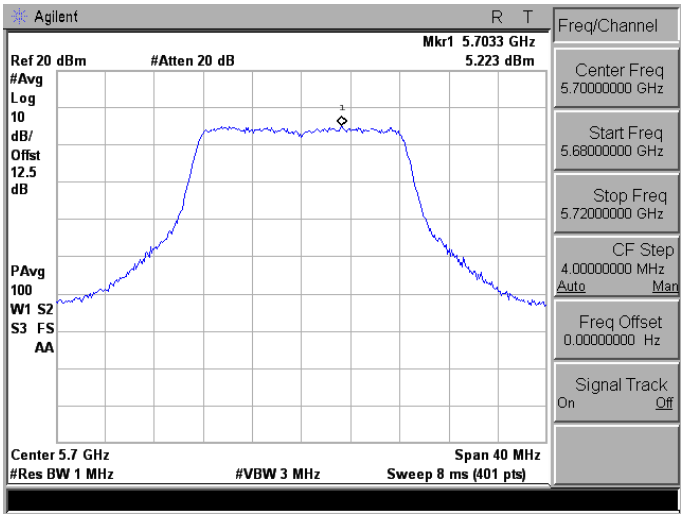
Mode 4: IEEE 802.11n 5GHz 40MHz link mode	
5270 MHz	
5310 MHz	

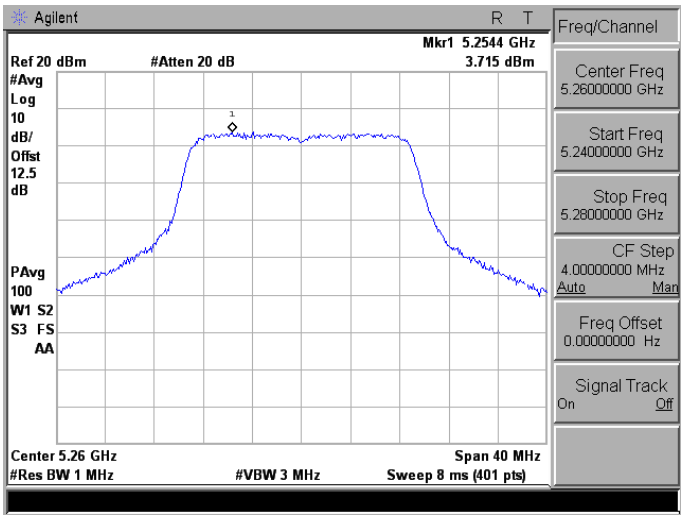
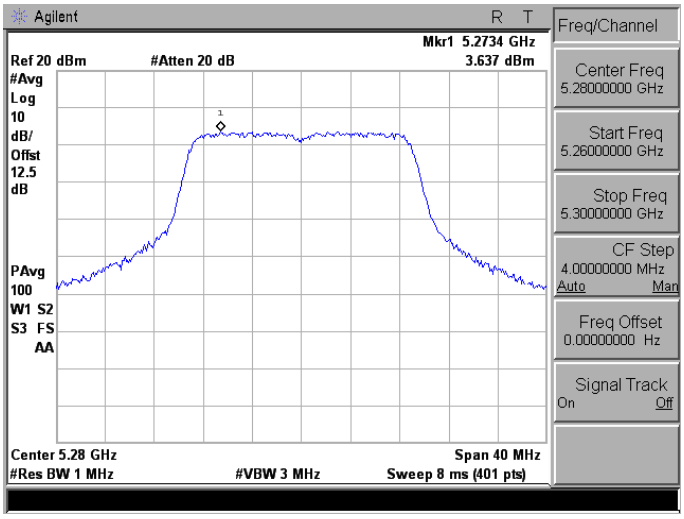
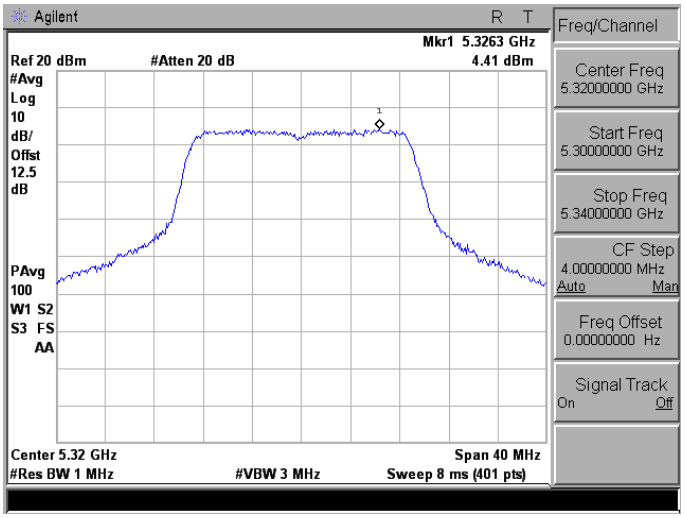
Mode 4: IEEE 802.11n 5GHz 40MHz link mode	
5510 MHz	
5550 MHz	
5670 MHz	

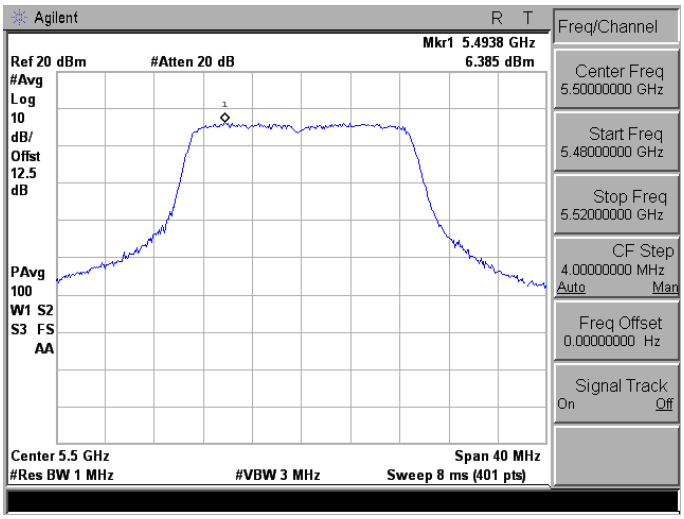
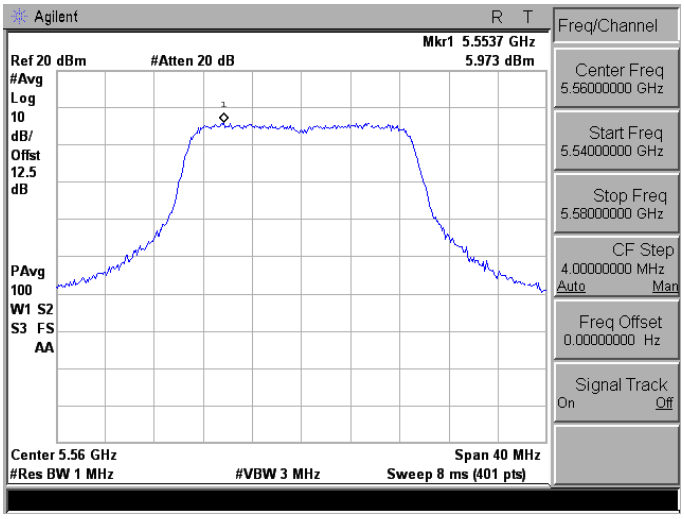
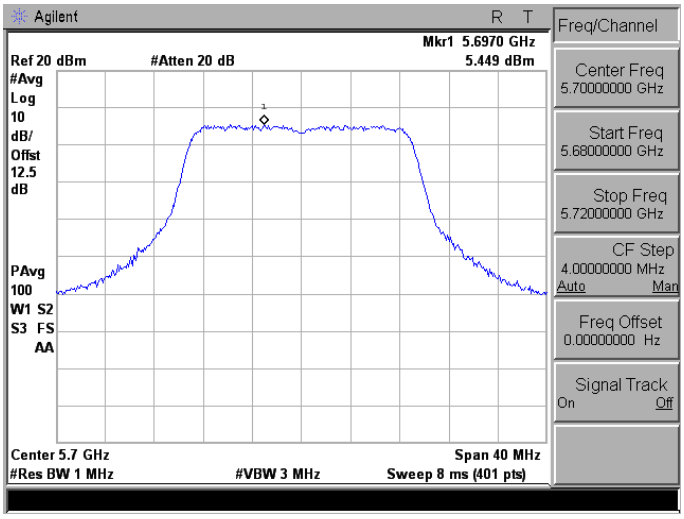
Mode 5: IEEE 802.11ac 80MHz Link Mode	
5290 MHz	
5530 MHz	
5610 MHz	

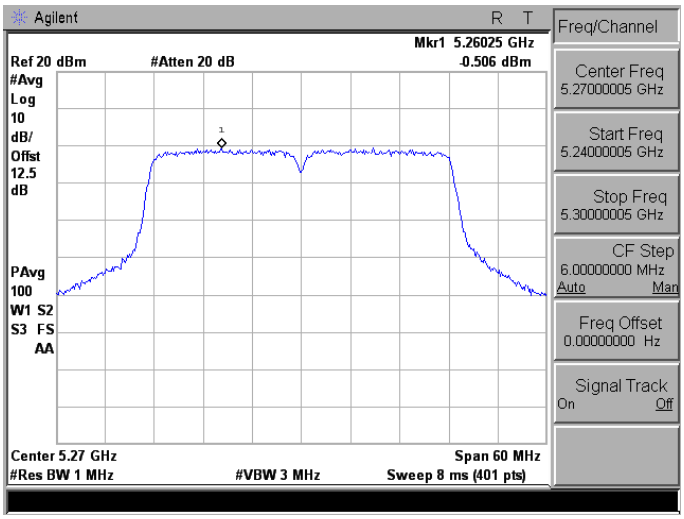
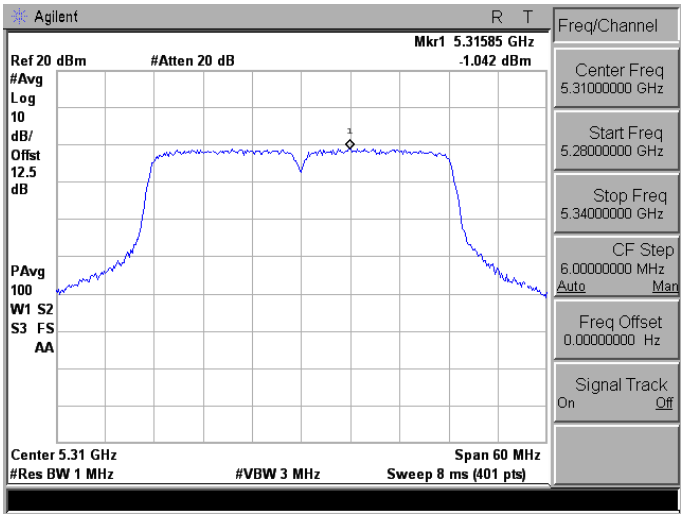
Antenna 1

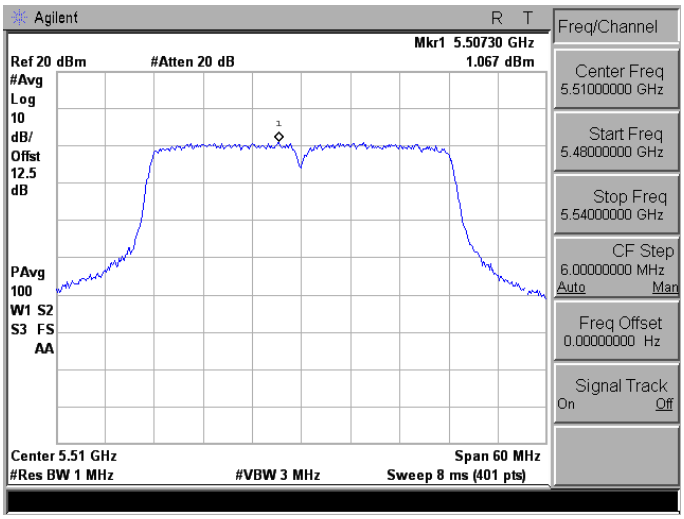
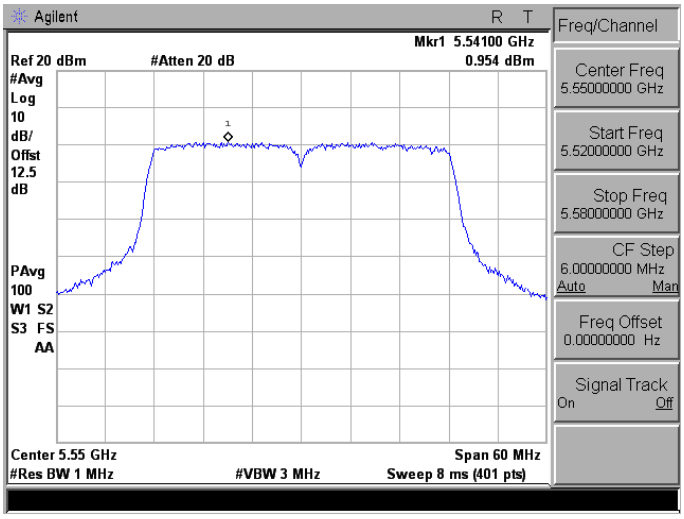
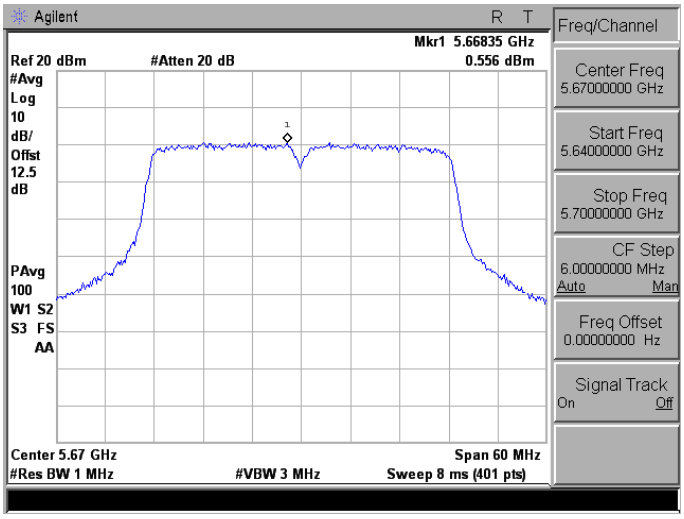
Mode 2: IEEE 802.11a Link Mode	
5260 MHz	
5280 MHz	
5320 MHz	

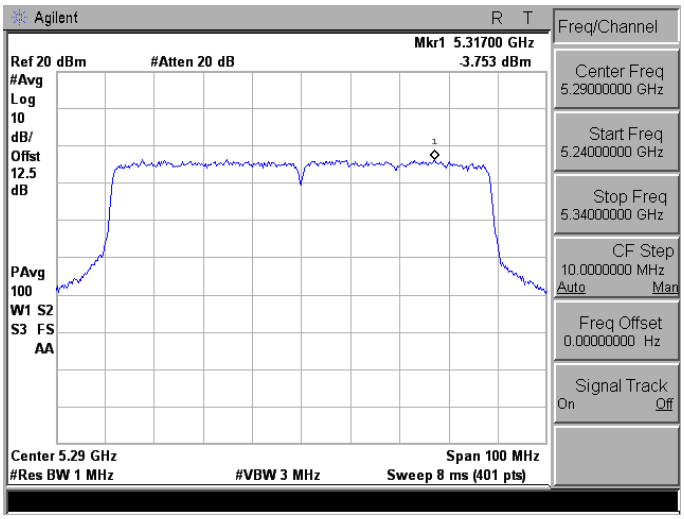
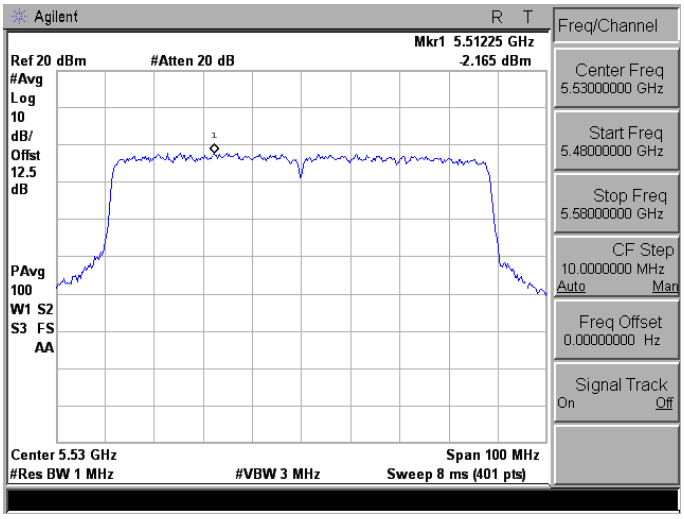
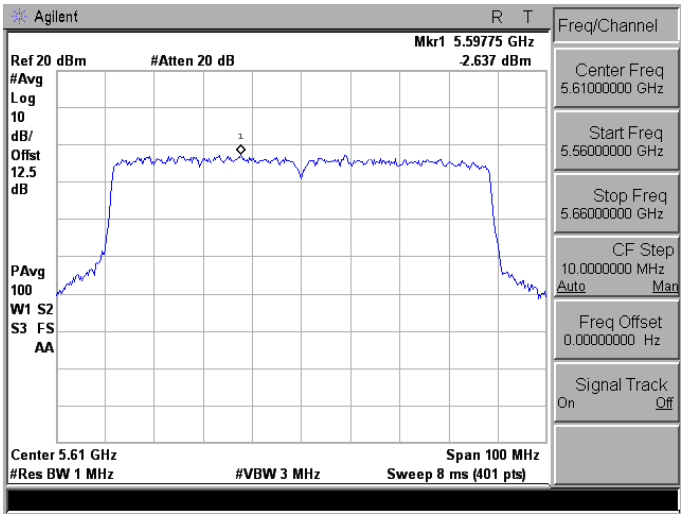
Mode 2: IEEE 802.11a Link Mode	
5500 MHz	
5560 MHz	
5700 MHz	

Mode 3: IEEE 802.11n 5GHz 20MHz link mode	
5260 MHz	
5280 MHz	
5320 MHz	

Mode 3: IEEE 802.11n 5GHz 20MHz link mode	
5500 MHz	
5560 MHz	
5700 MHz	

Mode 4: IEEE 802.11n 5GHz 40MHz link mode	
5270 MHz	
5310 MHz	

Mode 4: IEEE 802.11n 5GHz 40MHz link mode	
5510 MHz	
5550 MHz	
5670 MHz	

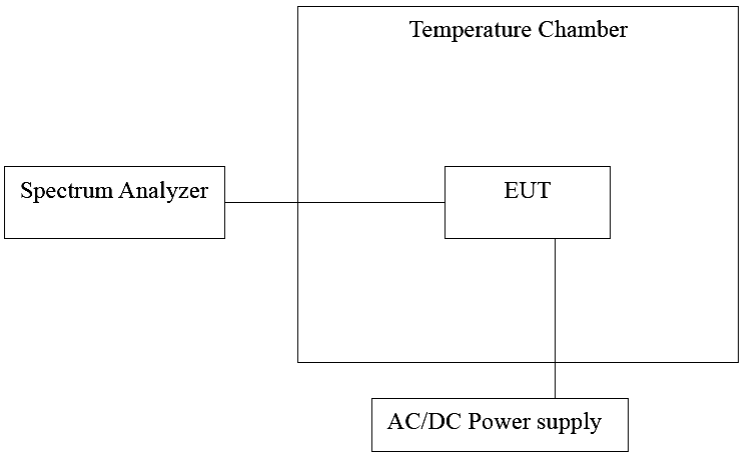
Mode 5: IEEE 802.11ac 80MHz Link Mode	
5290 MHz	
5530 MHz	
5610 MHz	

4.5. Frequency Stability Measurement

■ **Limit**

The frequency tolerance of the carrier signal shall be maintained within the band of operation frequency over a temperature variation of –30 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

■ **Test Setup**



■ **Test Instruments**

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Spectrum Analyzer	Agilent	E4408B	MY45107753	07/24/2014	1 year
Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	08/14/2014	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

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

4.6. 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.

■ **Test Result**

Model Number	UAP-AC-LR					
Test Item	Frequency Stability					
Test Mode	Mode 2: IEEE 802.11a Link Mode					
Date of Test	06/20/2015					
Frequency	Temp. (°C)	Voltage (Vac)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5280 MHz	-10	120	5280.0656	65600	12.424	Pass
	0		5280.0211	21100	3.996	Pass
	10		5280.0318	31800	6.023	Pass
	20		5280.0621	62100	11.761	Pass
	30		5280.0995	99500	18.845	Pass
	40		5280.0121	12100	2.292	Pass
	50		5279.9319	-68100	-12.898	Pass
	60		5279.9197	-80300	-15.208	Pass
	70		5279.9521	-47900	-9.072	Pass
5560 MHz	-10	120	5560.0938	93800	16.871	Pass
	0		5560.0328	32800	5.899	Pass
	10		5560.0848	84800	15.252	Pass
	20		5560.0698	69800	12.554	Pass
	30		5560.0593	59300	10.665	Pass
	40		5560.0179	17900	3.219	Pass
	50		5559.9929	-7100	-1.277	Pass
	60		5559.9317	-68300	-12.284	Pass
	70		5559.9358	-64200	-11.547	Pass

Frequency	Temp. (°C)	Voltage (Vac)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5280 MHz	20	138.00	5280.0683	68300	12.936	Pass
		120.00	5280.0121	12100	2.292	Pass
		102.00	5279.9529	-47100	-8.920	Pass
5560 MHz	20	138.00	5560.0240	24000	4.317	Pass
		120.00	5560.0179	17900	3.219	Pass
		102.00	5559.9441	-55900	-10.054	Pass

4.7. Antenna Requirement

■ **Requirement**

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.

■ **Antenna Connector Construction**

The antenna used in this product is Dual band tri pol antenna. And the maximum Gain of this antenna is only 3 dBi.

4.8. Directional Gain Calculated

According to FCC KDB 662911 D01 v02r01 - If all transmit signals are completely uncorrelated, then Directional Gain=10*log [($10^{G1/10}$+$10^{G2/10}$) / N_{ANT}]

Operate Freq. Band	Directional Gain (dBi)
IEEE 802.11a	3
IEEE 802.11n 5GHz 20MHz	3
IEEE 802.11n 5GHz 40MHz	3
IEEE 802.11ac 80MHz	3