Test Report

FCC Part15 Subpart E

Product Name : AC750 Wireless Dual Band ADSL2+ Modem Router

Model No. : Archer D20

FCC ID : TE7D20V1

Applicant : TP-LINK TECHNOLOGIES CO., LTD.

Address : Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park,Shennan Rd, Nanshan, Shenzhen, China

Date of Receipt : Aug. 20, 2015

Test Date : Aug. 20, 2015~ Oct. 27, 2015

Issued Date : Nov. 20, 2015

Report No. : 1580591R-RF-US-P09V01

Report Version : V1.3

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by CNAS,TAF any agency of the government.

The test report shall not be reproduced without the written approval of QuieTek Corporation.

Test Report Certification

Issued Date : Nov. 20, 2015
Report No. : 1580591R-RF-US-P09V01

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Applicant	:	TP-LINK TECHNOLOGIES CO., LTD.
Address	:	Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China
Manufacturer	:	TP-LINK TECHNOLOGIES CO., LTD.
Address	:	Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China
Model No.	:	Archer D20
FCC ID	:	TE7D20V1
EUT Voltage	:	AC 120V/60Hz
Brand Name	:	TP-LINK
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart E: 2015 ANSI C63.4:2014; ANSI C63.10:2013; 789033 D02 General UNII Test Procedures New Rules v01
Test Result	:	Complied
Performed Location	:	Quietek Corporation - Suzhou EMC Laboratory No.99 Hongye Rd., Suzhou Industrial Park, Suzhou,215006, Jiangsu, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Registration Number: 800392; IC Lab Code: 4075B
Documented By	:	Elaine Wang
Reviewed By	:	Jack Zhang
Approved By	:	Harry Zhao

Laboratory Information

We, **QuieTek Corporation,** are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
USA	**:**	**FCC**
Japan	**:**	**VCCI**
China	**:**	**CNAS**

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site :http://www.quietek.com/tw/ctg/cts/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1580591R-RF-US-P09V01	V1.0	Initial Issued Report	Oct. 30, 2015
1580591R-RF-US-P09V01	V1.1	Modified the test procedure of power and spurious emission	Nov. 18, 2015
1580591R-RF-US-P09V01	V1.2	1. Add the description of the test method for conducted power. 2. Add the 802.11ac(80MHz) power data.	Nov. 19, 2015
1580591R-RF-US-P09V01	V1.3	Total power instead of EIRP	Nov. 20, 2015

1. General Information

1.1. EUT Description

Product Name	AC750 Wireless Dual Band ADSL2+ Modem Router
Brand Name	TP-LINK
Model No.	Archer D20
EUT Voltage	AC 120V/60Hz
Frequency Range	**For 5GHz Band** 802.11a/n/ac(20MHz): 5180~5240MHz, 5745~5825MHz 802.11n/ac(40MHz): 5190~5230MHz, 5755~5795MHz 802.11ac(80MHz):5210MHz, 5775MHz
Channel Number	**For 5GHz Band** 802.11a/n/ac(20MHz): 9 802.11n/ac(40MHz): 4 802.11ac(80MHz): 2
Type of Modulation	802.11a/n/ac: OFDM
Data Rate	802.11a: 6/9/12/18/24/36/48/54 Mbps
	802.11n: up to 150 Mbps
	802.11ac: up to 433.3 Mbps
Channel Control	Auto
Antenna Delivery	1*Tx + 1*Rx
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List

For 5.0GHz Band

802.11a/n(20MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz	48	5240 MHz
149	5745 MHz	153	5765 MHz	157	5785 MHz	161	5805 MHz
165	5825MHz	N/A	N/A	N/A	N/A	N/A	N/A
802.11n(40MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	151	5755 MHz	159	5795 MHz
802.11n(80MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210 MHz	155	5775 MHz	N/A	N/A	N/A	N/A

Antenna List

Antenna	Type	Model No.	Peak Gain
External Antenna	N/A	N/A	5GHz Band: 3 dBi

Power Parameter Value of the test software

Test Mode	Test Channel	Power Setting
802.11a	5180	28
	5200	35
	5240	40
	5745	20
	5785	38
	5825	23
802.11n(20MHz)	5180	25
	5200	36
	5240	40
	5745	20
	5785	38
	5825	24
802.11ac(20MHz)	5180	26
	5200	37
	5240	40
	5745	20
	5785	39
	5825	23
802.11n(40MHz)	5190	20
	5230	35
	5755	23
	5795	25
802.11ac(40MHz)	5190	20
	5230	36
	5755	23
	5795	24
802.11ac(80MHz)	5210	15
	5775	12

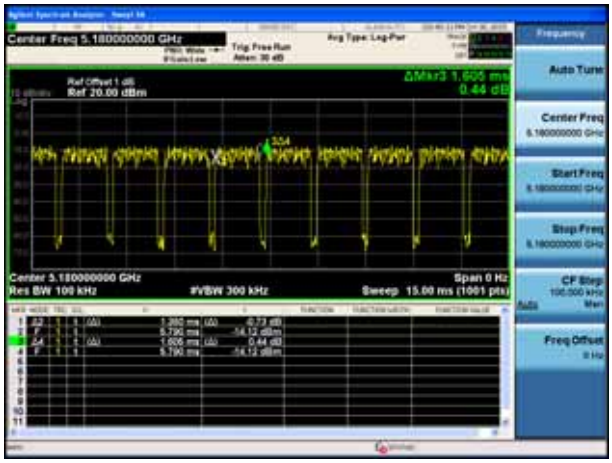
The test mode of the test software can support.

Test Mode	Ant
802.11a	√
802.11n(20MHz)	√
802.11n(40MHz)	√
802.11ac(20MHz)	√
802.11ac(40MHz)	√
802.11ac(80MHz)	√

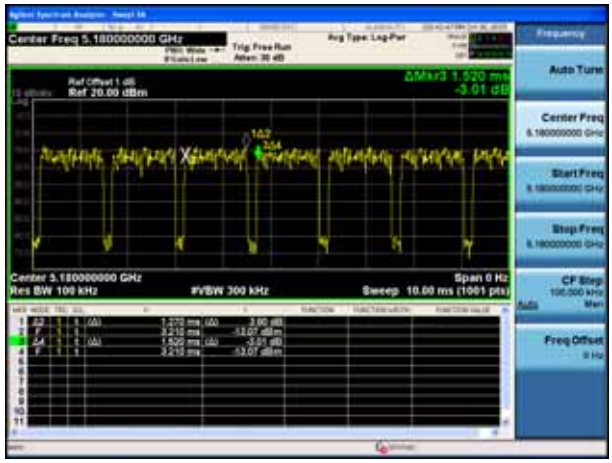
Duty Cycle

Test Mode	Duty Cycle
802.11a	85.98%
802.11n(20MHz)	83.55%
802.11n(40MHz)	84.31%
802.11ac(20MHz)	70.48%
802.11ac(40MHz)	72.90%
802.11ac(80MHz)	60.58%

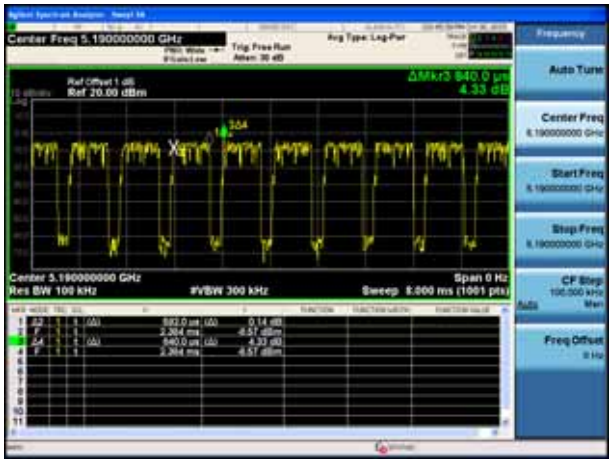
802.11a



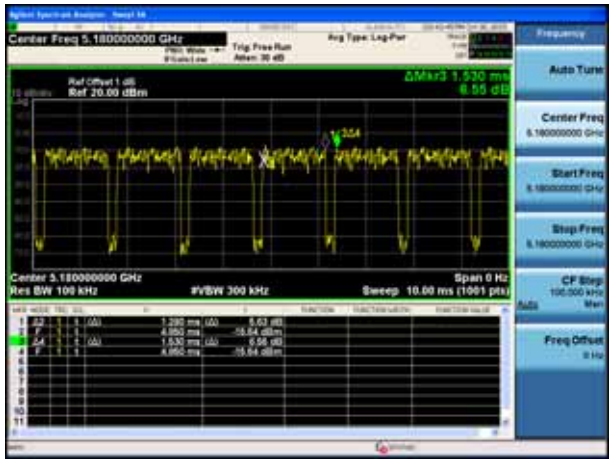
802.11n(20MHz)



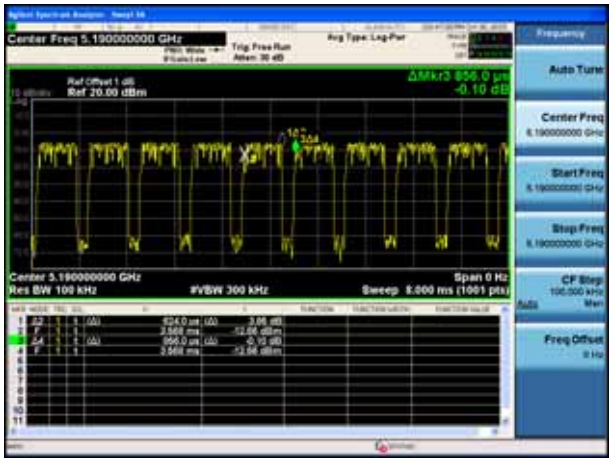
802.11n(40MHz)



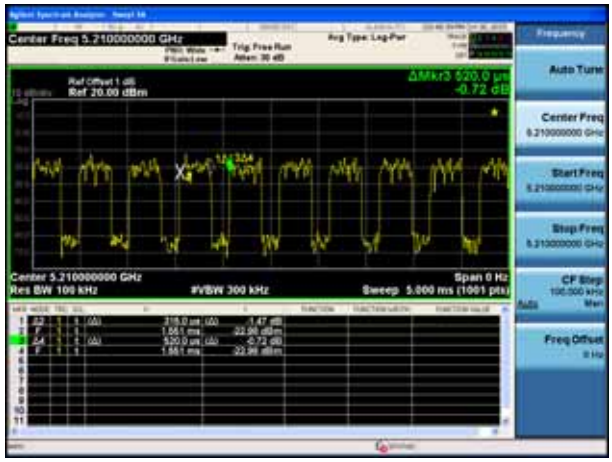
802.11ac(20MHz)



802.11ac(40MHz)



802.11ac(80MHz)



1.2. Mode of Operation

QuieTek 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: Transmit by 802.11a
Mode 2: Transmit by 802.11n(20MHz)
Mode 3: Transmit by 802.11n(40MHz)
Mode 4: Transmit by 802.11ac(20MHz)
Mode 5: Transmit by 802.11ac(40MHz)
Mode 6: Transmit by 802.11ac(80MHz)

Note:

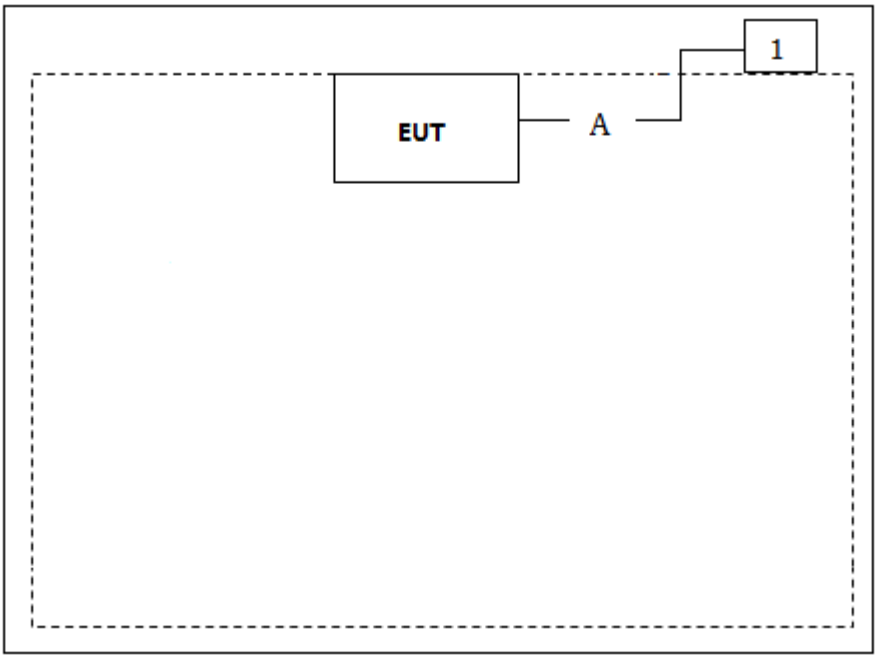
1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. The radiation measure measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Asus	N80V	8BN0AS226971468	None-shielded

1.4. Configuration of Tested System

Connection Diagram		
		
Signal Cable Type		Signal cable Description
A	LAN Cable	Non-shielded, 15m

1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of equipment.
3	Input RF commands, and set the test mode and channel, then press OK to start to continue transmit or receive.

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart E: 2015 Section 15.207	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart E: 2015 Section 15.209	Yes	No
26dB Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart E: 2015 Section 15.407(a)	Yes	No
6dB Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart E:2015 Section 15.407(e)	Yes	No
Power Output	FCC CFR Title 47 Part 15 Subpart E: 2015 Section 15.407(a)	Yes	No
Peak Power Spectral Density	FCC CFR Title 47 Part 15 Subpart E: 2015 Section 15.407(a)	Yes	No
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart E: 2015 Section 15.205, 15.407(b)	Yes	No
Frequency Stability	FCC CFR Title 47 Part 15 Subpart E: 2015 Section 15.407(g)	Yes	No

2.2. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

3. Conducted Emission

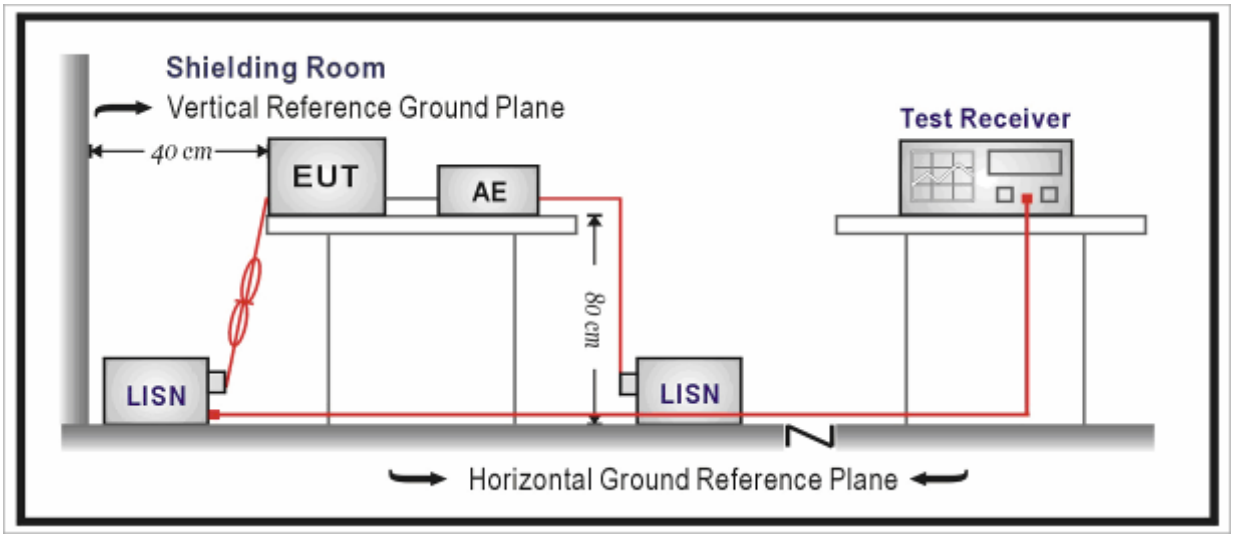
3.1. Test Equipment

Conducted Emission / TR-1

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100726	2016.03.28
Two-Line V-Network	R&S	ENV216	100043	2016.03.28
Two-Line V-Network	R&S	ENV216	100044	2016.09.16
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2016.03.01
50ohm Termination	SHX	TF2	07081401	2016.09.16
Temperature/Humidity Meter	zhicheng	ZC1-2	TR1-TH	2016.01.08

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

3.2. Test Setup



3.3. Limit

For FCC

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

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

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

3.4. Test Procedure

according to ANSI C63.4:2014& ANSI C63.10:2013&789033 D02 General UNII Test Procedures New Rules v01& FCC CFR Title 47 Part 15 Subpart E: 2015

The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)

Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

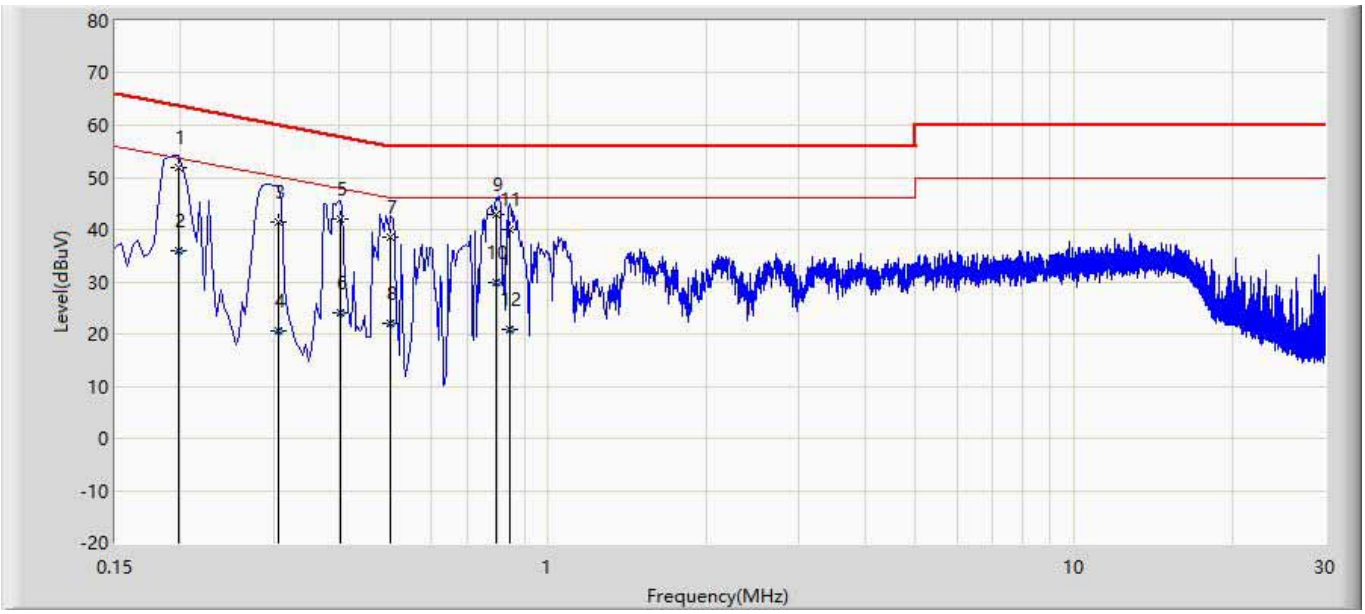
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

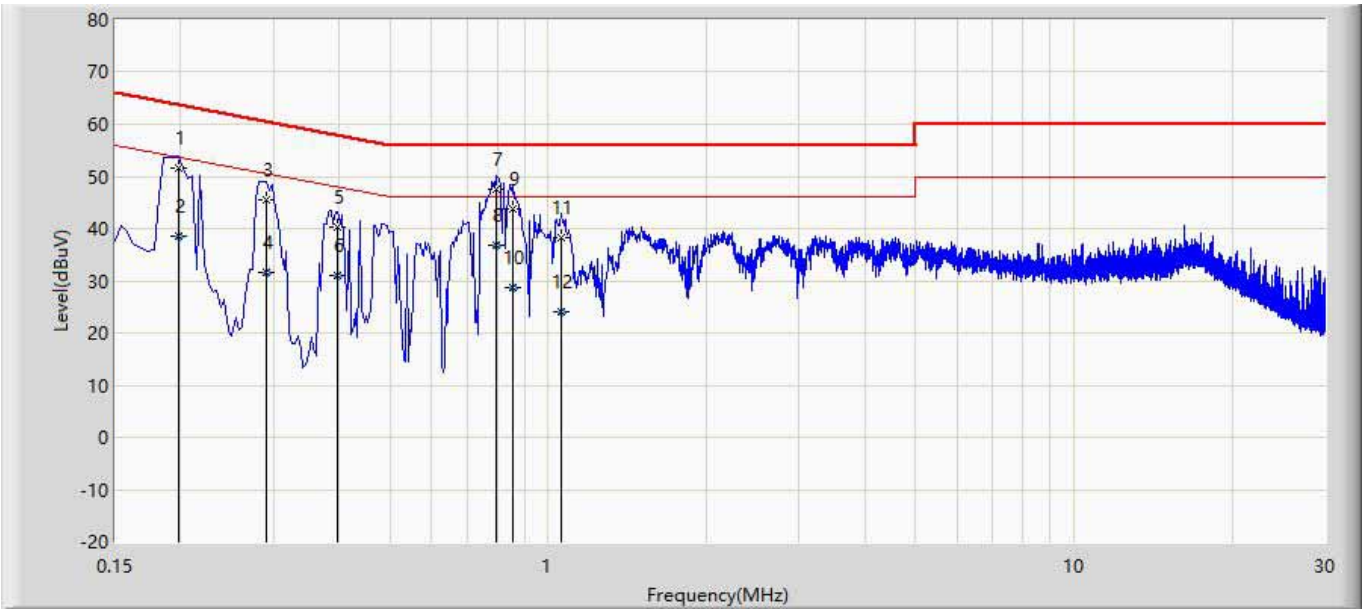
3.6. Test Result

Engineer: Scott	
Site: TR5	Time: 2015/08/24
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Line
EUT: AC750 Wireless Dual Band ADSL2+ModemRouter	Power: AC 120V/60Hz
Note: Mode 1: Transmit by 802.11a	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1	*	0.198	51.783	42.073	-11.911	63.694	9.710	QP
2		0.198	35.930	26.220	-17.764	53.694	9.710	AV
3		0.306	41.554	31.854	-18.524	60.078	9.700	QP
4		0.306	20.566	10.866	-29.512	50.078	9.700	AV
5		0.402	41.995	32.292	-15.817	57.812	9.703	QP
6		0.402	23.972	14.269	-23.840	47.812	9.703	AV
7		0.502	38.685	28.985	-17.315	56.000	9.700	QP
8		0.502	21.988	12.288	-24.012	46.000	9.700	AV
9		0.798	42.815	33.125	-13.185	56.000	9.690	QP
10		0.798	29.915	20.225	-16.085	46.000	9.690	AV
11		0.846	40.040	30.350	-15.960	56.000	9.690	QP
12		0.846	20.746	11.056	-25.254	46.000	9.690	AV

Engineer: Scott	
Site: TR5	Time: 2015/08/24
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Neutral
EUT: AC750 Wireless Dual Band ADSL2+ModemRouter	Power: AC 120V/60Hz
Note: Mode 1: Transmit by 802.11 a	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.198	51.580	41.860	-12.114	63.694	9.720	QP
2		0.198	38.440	28.720	-15.254	53.694	9.720	AV
3		0.290	45.616	35.906	-14.908	60.524	9.710	QP
4		0.290	31.500	21.790	-19.024	50.524	9.710	AV
5		0.398	40.415	30.712	-17.480	57.895	9.703	QP
6		0.398	30.916	21.213	-16.979	47.895	9.703	AV
7	*	0.794	47.446	37.736	-8.554	56.000	9.710	QP
8		0.794	36.817	27.107	-9.183	46.000	9.710	AV
9		0.858	43.875	34.168	-12.125	56.000	9.707	QP
10		0.858	28.802	19.095	-17.198	46.000	9.707	AV
11		1.058	38.298	28.588	-17.702	56.000	9.710	QP
12		1.058	24.136	14.426	-21.864	46.000	9.710	AV

Note: All the test modes are pretested and mode 1 802.11ac mode was found to be the worst mode, so the data of this test mode was recorded.

4. Radiated Emission

4.1. Test Equipment

Radiated Emission / AC-2

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2016.03.28
Loop Antenna	R&S	HFH2-Z2	833799/003	2015.11.17
Bilog Chainenna	Teseq GmbH	CBL6112D	27611	2016.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2016.03.01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2016.01.08

Radiated Emission / AC-5

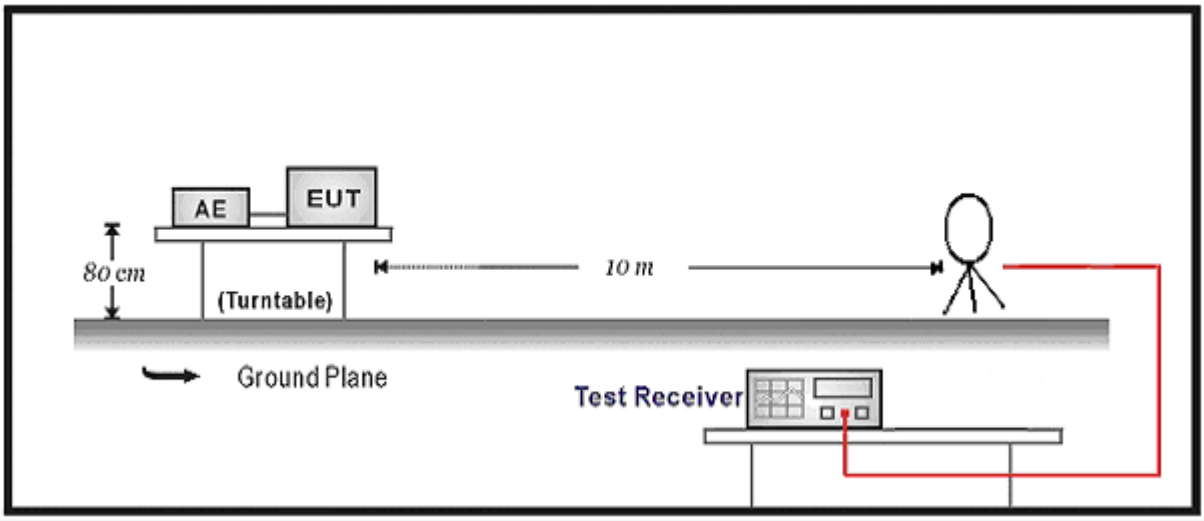
Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	N9020A	MY49100159	2016.03.28
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.07
Preamplifier	Miteq	NSP1800-25	1364185	2016.05.05
Preamplifier	QuieTek	AP-040G	CHM-0906001	2016.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2016.01.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2015.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2016.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2016.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2016.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2016.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2016.01.08

Note : All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

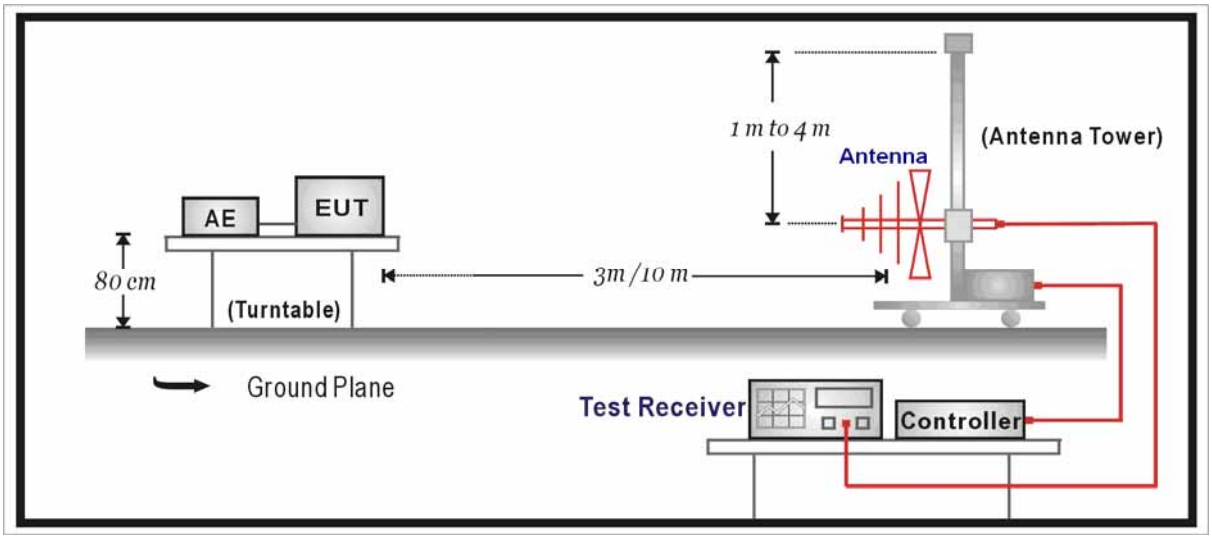
4.2. Test Setup

For FCC

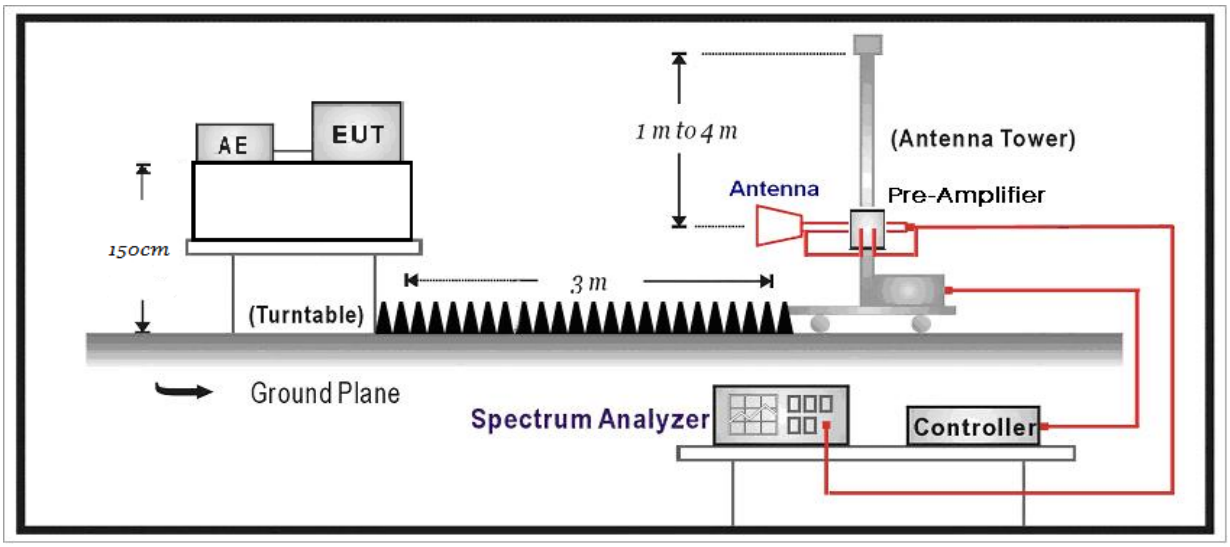
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Distance (m)	Level (dBuV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54

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

Note 2: Distance refers to the distance in meters between the measuring instrument Antenna and the closed point of any part of the device or system.

Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m)

4.4. Test Procedure

According to ANSI C63.4:2014& ANSI C63.10:2013&789033 D02 General UNII Test Procedures New Rules v01& FCC CFR Title 47 Part 15 Subpart E: 2015

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from Chainenna to the EUT was 3 meters.

The Chainenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the Chainenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2014 on radiated measurement.
The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.
The frequency range from 30MHz to 10th harmonic is checked.

The procedure for peak unwanted emissions measurements above 1000 MHz is as follows:
Peak emission levels are measured by setting the instrument as follows:
1) RBW = 1 MHz.
2) VBW ≥ [3 × RBW].
3) Detector = peak
4) Sweep time = auto.
5) Trace mode = max hold.
6) Allow sweeps to continue until the trace stabilizes. Note that if the transmission is not continuous, then the time required for the trace to stabilize will increase by a factor of approximately 1 / D, where D is the duty cycle. For example, at 50% duty cycle, the measurement time will increase by a factor of two, relative to measurement time for continuous transmission.

Average emission levels are measured by setting the instrument as follows:
a) RBW = 1 MHz.
b) Video bandwidth:
1) If the EUT is configured to transmit with D ≥ 98%, then set VBW ≤ RBW / 100 (i.e., 10 kHz), but not less than 10 Hz.
2) If the EUT D is < 98%, then set VBW ≥ 1 / T, where T is defined in item a1) of 12.2.
c) Video bandwidth mode or display mode:
1) The instrument shall be set with video filtering applied in the power domain. Typically, this requires setting the detector mode to RMS (power averaging) and setting the average-VBW type to power (rms).
2) As an alternative, the instrument may be set to linear detector mode. Video filtering shall be applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode to accomplish this. Others have a setting for average-VBW type, which can be set to “voltage” regardless of the display mode.
d) Detector = peak.
e) Sweep time = auto.
f) Trace mode = max hold.

g) Allow max hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98% duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of 1/x, where D is the duty cycle. For example, use at least 200 traces if the duty cycle is 25%. (If a specific emission is demonstrated to be continuous—i.e., 100% duty cycle—then rather than turning ON and OFF with the transmit cycle, at least 50 traces should be averaged.)

Note: When doing emission measurement above 1GHz, the horn Chainenna will be bended down a little (as horn antenna has the narrow beamwidth) in order to keeping the Chainenna in the “cone of radiation” of EUT. The 3dB beamwidth is 60~10 degrees for H-plane and 90~10 degrees for E-plane.

4.5. Uncertainty

The measurement uncertainty above 1GHz is defined as ± 3.9 dB
below 1GHz is defined as ± 3.8 dB

4.6. Test Result

Mode1: Transmit by 802.11a

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
36	H	10360.000	43.494	2.515	46.009	54(Note3)	-7.991	PK
	H	15824.000	36.567	16.908	53.475	54(Note3)	-0.525	PK
	V	10360.000	42.968	2.515	45.483	54(Note3)	-8.517	PK
	V	15824.000	36.218	16.908	53.126	54(Note3)	-0.874	PK
40	H	10392.500	53.239	3.282	56.520	74	-17.480	PK
	H	10398.539	43.410	3.214	46.624	54	-7.376	AV
	H	15600.000	23.868	13.726	37.595	74	-16.405	PK
	V	10400.130	50.630	3.196	53.826	54	-0.174	AV
	V	10401.000	61.911	3.186	65.097	74	-8.903	PK
	V	15600.000	36.906	13.726	50.633	74	-3.367	PK
48	H	10477.500	54.436	2.390	56.826	74	-17.174	PK
	H	10480.000	48.330	2.416	50.746	54	-3.254	AV
	H	15720.000	31.576	13.453	45.028	54(Note3)	-8.972	PK
	V	10477.500	61.067	2.390	63.457	74	-10.543	PK
	V	10478.122	51.260	2.397	53.657	54	-0.343	AV
	V	15720.000	41.151	13.453	54.603	74	-19.397	PK
	V	15721.324	39.272	13.462	52.734	54	-1.266	AV
149	H	11490.000	43.339	6.113	49.453	54(Note3)	-4.547	PK
	H	17235.000	36.424	13.217	49.641	54(Note3)	-4.359	PK
	V	11490.000	45.843	6.113	51.957	54(Note3)	-2.043	PK
	V	17235.000	40.683	13.217	53.900	54(Note3)	-0.100	PK
157	H	11568.025	40.540	6.378	46.918	54	-7.082	AV
	H	11574.000	51.540	6.408	57.949	74	-16.051	PK
	H	17355.000	39.718	11.835	51.553	54(Note3)	-2.447	PK
	V	11565.500	58.015	6.364	64.380	74	-9.620	PK
	V	11570.125	47.500	6.389	53.889	54	-0.111	AV
	V	17355.000	40.385	11.841	52.226	54(Note3)	-1.774	PK
165	H	11650.000	43.859	7.037	50.896	54(Note3)	-3.104	PK
	H	17475.000	34.524	11.724	46.249	54(Note3)	-7.751	PK
	V	11650.000	45.300	7.037	52.337	54(Note3)	-1.663	PK
	V	17481.500	40.953	11.142	52.096	54(Note3)	-1.904	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Mode2: Transmit by 802.11n(20MHz)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
36	H	10350.000	51.288	2.505	53.793	54(Note3)	-0.207	PK
	H	15540.000	35.643	12.025	47.668	54(Note3)	-6.332	PK
	V	10358.500	45.581	2.514	48.095	54(Note3)	-5.905	PK
	V	15540.000	31.309	12.025	43.334	54(Note3)	-8.479	PK
40	H	10400.050	44.160	3.197	47.357	54	-6.643	AV
	H	10401.000	55.411	3.186	58.597	74	-15.403	PK
	H	15600.000	36.328	13.726	50.055	54(Note3)	-3.945	PK
	V	10400.272	50.470	3.194	53.664	54	-0.336	PK
	V	10401.000	61.156	3.186	64.342	74	-9.658	
	V	15600.000	37.178	13.726	50.905	54(Note3)	-3.095	PK
48	H	10477.500	54.638	2.390	57.028	74	-16.972	PK
	H	10479.850	46.040	2.414	48.454	54	-5.546	AV
	H	15720.000	30.668	13.453	44.120	54(Note3)	-29.880	PK
	V	10477.500	60.179	2.390	62.569	74	-11.431	PK
	V	10479.920	50.310	2.415	52.725	54	-1.275	AV
	V	15720.000	41.157	13.453	54.609	74	-19.391	PK
	V	15721.386	37.863	13.471	51.334	54	-2.666	AV
149	H	11490.000	43.357	6.113	49.471	54(Note3)	-4.529	PK
	H	17235.000	36.528	13.217	49.745	54(Note3)	-4.255	PK
	V	11490.000	46.804	6.113	52.918	54(Note3)	-1.082	PK
	V	17243.500	38.770	13.541	52.310	54(Note3)	-1.690	PK
157	H	11557.000	45.638	6.410	52.048	54(Note3)	-21.952	AV
	H	17354.000	42.376	11.802	54.178	54(Note3)	-19.822	PK
	V	11565.500	57.527	6.364	63.892	74	-10.108	PK
	V	11570.125	47.210	6.389	53.599	54	-0.401	AV
	V	17354.000	50.238	11.802	62.040	74	-11.960	PK
	V	17357.216	38.573	11.811	50.384	54	-3.616	AV
165	H	11650.000	44.773	7.037	51.810	54(Note3)	-2.190	PK
	H	17475.000	34.941	11.724	46.666	54(Note3)	-7.334	PK
	V	11642.000	46.985	6.413	53.398	54(Note3)	-0.602	PK
	V	17481.500	42.287	11.142	53.430	54(Note3)	-0.570	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Mode3: Transmit by 802.11n(40MHz)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
38	H	10384.000	46.834	3.342	50.176	54(Note3)	-3.824	PK
	H	15570.000	28.080	14.372	42.452	54(Note3)	-11.548	PK
	V	10408.000	52.327	0.884	53.211	54(Note3)	-0.789	PK
	V	15570.000	31.029	14.372	45.401	54(Note3)	-8.599	PK
46	H	10460.500	50.937	2.339	53.276	54(Note3)	-0.724	PK
	H	15690.000	40.865	10.648	51.514	54(Note3)	-2.486	PK
	V	10460.150	46.410	2.333	48.743	54	-5.257	PK
	V	10469.000	55.749	2.305	58.054	74	-15.946	PK
	V	15690.000	38.008	10.648	48.657	54(Note3)	-5.343	PK
151	H	11510.000	42.546	6.481	49.027	54(Note3)	-4.973	PK
	H	17265.000	37.902	11.302	49.204	54(Note3)	-4.796	PK
	V	11510.000	45.627	6.481	52.108	54(Note3)	-1.892	PK
	V	17265.000	41.126	11.302	52.428	54(Note3)	-1.572	PK
159	H	11590.000	43.013	6.150	49.163	54(Note3)	-4.837	PK
	H	17385.000	37.560	12.781	50.341	54(Note3)	-3.659	PK
	V	11590.000	43.412	6.150	49.562	54(Note3)	-4.438	PK
	V	17385.000	39.936	12.781	52.717	54(Note3)	-1.283	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Mode4: Transmit by 802.11ac(20MHz)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
36	H	10350.000	48.706	2.505	51.211	54(Note3)	-2.789	PK
	H	15540.000	35.825	12.025	47.850	54(Note3)	-6.150	PK
	V	10360.360	44.310	2.516	46.826	54	-7.174	PK
	V	10367.000	54.849	2.522	57.371	74	-16.629	PK
	V	15540.000	37.422	12.025	49.447	54(Note3)	-4.553	PK
40	H	10400.125	45.970	3.196	49.166	54	-4.834	AV
	H	10401.000	55.351	3.186	58.537	74	-15.463	PK
	H	15600.000	26.734	13.726	40.461	54(Note3)	-33.539	PK
	V	10399.970	50.800	3.198	53.998	54	-0.002	AV
	V	10401.000	61.750	3.186	64.936	74	-9.064	PK
	V	15600.000	36.076	13.726	49.803	54	-4.197	AV
48	H	10477.500	54.661	2.390	57.051	74	-16.949	PK
	H	10479.975	44.250	2.416	46.665	54	-7.335	AV
	H	15720.000	31.156	13.453	44.608	54(Note3)	-29.392	PK
	V	10477.500	59.979	2.390	62.369	74	-11.631	PK
	V	10479.600	50.620	2.412	53.032	54	-0.968	AV
	V	15720.000	41.848	13.453	55.300	74	-18.700	PK
	V	15722.346	36.812	13.479	50.291	54	-3.709	AV
149	H	11490.000	43.302	6.113	49.416	54(Note3)	-4.584	PK
	H	17235.000	36.846	13.217	50.063	54(Note3)	-3.937	PK
	V	11490.000	45.251	6.113	51.365	54(Note3)	-2.635	PK
	V	17235.000	41.422	13.217	54.639	74	-19.361	PK
	V	17233.375	35.521	13.192	48.713	54	-5.297	AV
157	H	11570.000	47.341	6.388	53.729	54(Note3)	-20.271	PK
	H	17355.000	39.097	11.835	50.932	54(Note3)	-23.068	PK
	V	11565.500	57.636	6.364	64.001	74	-9.999	PK
	V	11570.035	47.430	6.389	53.818	54	-0.182	AV
	V	17354.000	51.861	11.802	63.663	74	-10.337	PK
	V	17355.893	30.361	11.814	52.175	54	-1.825	AV
165	H	11650.000	44.310	7.037	51.347	54(Note3)	-2.653	PK
	H	17475.000	35.088	11.724	46.813	54(Note3)	-7.187	PK
	V	11650.000	46.237	7.037	53.274	54(Note3)	-0.726	PK
	V	17475.000	42.234	11.724	53.959	54(Note3)	-0.041	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Mode5: Transmit by 802.11ac(40MHz)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
38	H	10384.000	46.466	3.342	49.808	54(Note3)	-4.192	PK
	H	15570.000	37.236	14.372	51.608	54(Note3)	-2.392	PK
	V	10384.000	50.190	3.342	53.532	54(Note3)	-0.468	PK
	V	15570.000	38.326	14.372	52.698	54(Note3)	-1.302	PK
46	H	10452.000	50.770	2.198	52.968	54(Note3)	-1.032	PK
	H	15690.000	30.859	10.648	41.508	54(Note3)	-2.492	PK
	V	10452.000	55.671	2.198	57.869	74	-16.131	PK
	V	10460.320	46.900	2.336	49.236	54	-4.764	AV
	V	15690.000	37.921	10.648	48.570	54(Note3)	-5.430	PK
151	H	11510.000	42.486	6.481	48.967	54(Note3)	-5.033	PK
	H	17265.000	38.566	11.302	49.868	54(Note3)	-4.132	PK
	V	11510.000	44.995	6.481	51.476	54(Note3)	-2.524	PK
	V	17265.000	40.689	11.302	51.991	54(Note3)	-2.009	PK
159	H	11590.000	42.874	6.150	49.024	54(Note3)	-4.976	PK
	H	17385.000	36.694	12.781	49.475	54(Note3)	-4.525	PK
	V	11590.000	43.995	6.150	50.145	54(Note3)	-3.855	PK
	V	17385.000	40.349	12.781	53.130	54(Note3)	-0.870	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Mode6: Transmit by 802.11ac(80MHz)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
42	H	10420.000	43.111	2.443	45.555	54(Note3)	-8.445	PK
	H	15630.000	37.795	13.623	51.418	54(Note3)	-2.582	PK
	V	10420.000	45.720	2.443	48.164	54(Note3)	-5.836	PK
	V	15630.000	37.654	13.623	51.277	54(Note3)	-2.723	PK
155	H	11550.000	42.759	6.499	49.257	54(Note3)	-4.743	PK
	H	17325.000	37.683	11.575	49.258	54(Note3)	-4.742	PK
	V	11550.000	43.020	6.499	49.518	54(Note3)	-4.482	PK
	V	17325.000	37.803	11.575	49.378	54(Note3)	-4.622	PK

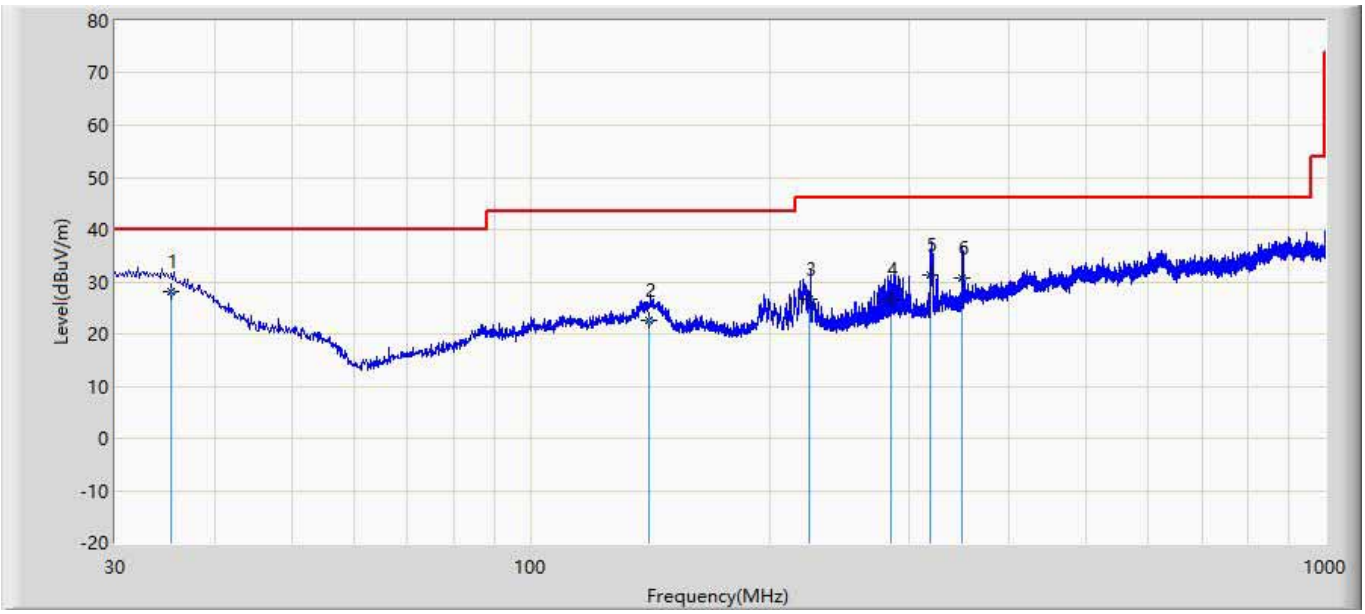
Note: 1. Measure Level = Reading Level + Factor.

2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn’t be performed.

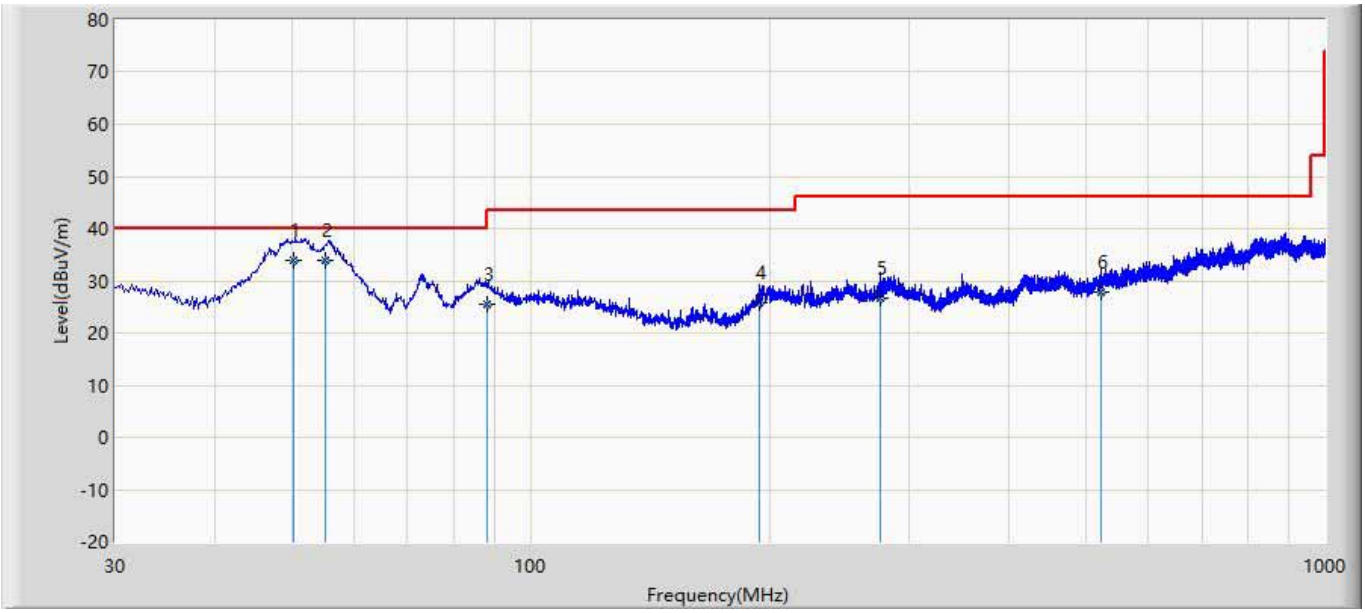
The worst case of Radiated Emission below 1GHz:

Site: AC2	Time: 2015/08/24
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: AC2_10M(30-1000M)20150408	Polarity: Horizontal
EUT: AC750 Wireless Dual Band ADSL2+ModemRouter	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	35.236	34.908	28.141	-11.859	40.000	6.767	QP
2		141.265	33.344	22.622	-20.878	43.500	10.722	QP
3		224.236	38.470	26.564	-19.436	46.000	11.906	QP
4		284.236	34.952	26.677	-19.323	46.000	8.275	QP
5		319.236	38.350	31.229	-14.771	46.000	7.121	QP
6		349.236	37.090	30.830	-15.170	46.000	6.260	QP

Site: AC2	Time: 2015/08/24
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: AC2_10M(30-1000M)20150408	Polarity: Vertical
EUT: AC750 Wireless Dual Band ADSL2+ModemRouter	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	50.236	47.951	33.854	-6.146	40.000	14.097	QP
2		55.236	48.692	33.792	-6.208	40.000	14.900	QP
3		88.236	38.772	25.382	-18.118	43.500	13.390	QP
4		194.236	37.975	25.655	-17.845	43.500	12.320	QP
5		276.235	35.076	26.596	-19.404	46.000	8.480	QP
6		522.236	29.881	27.925	-18.075	46.000	1.956	QP

5. Occupied Bandwidth

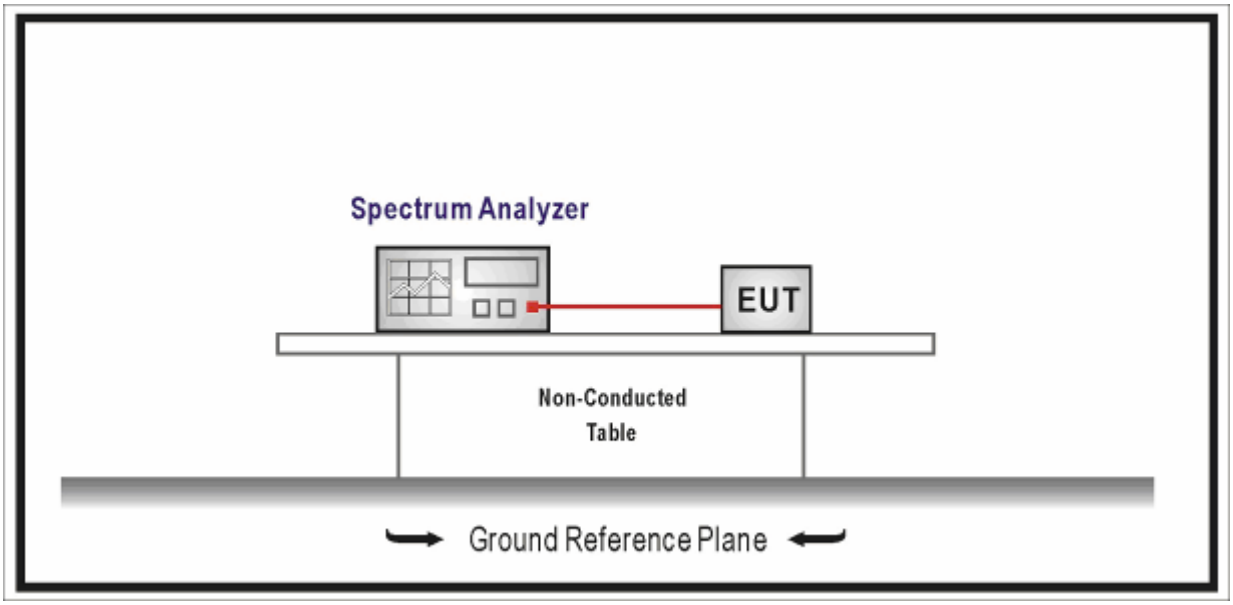
5.1. Test Equipment

Occupied Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.03.10
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2016.04.09

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

5.2. Test Setup



5.3. Limit

N/A

5.4. Test Procedure

According to ANSI C63.4:2014& ANSI C63.10:2013&789033 D02 General UNII Test Procedures New Rules v01& FCC CFR Title 47 Part 15 Subpart E: 2015

Emission Bandwidth

a) Set RBW = approximately 1% of the emission bandwidth.

b) Set the VBW > RBW.

c) Detector = Peak.

d) Trace mode = max hold.

e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

5.5. Uncertainty

The measurement uncertainty is defined as ± 1 kHz

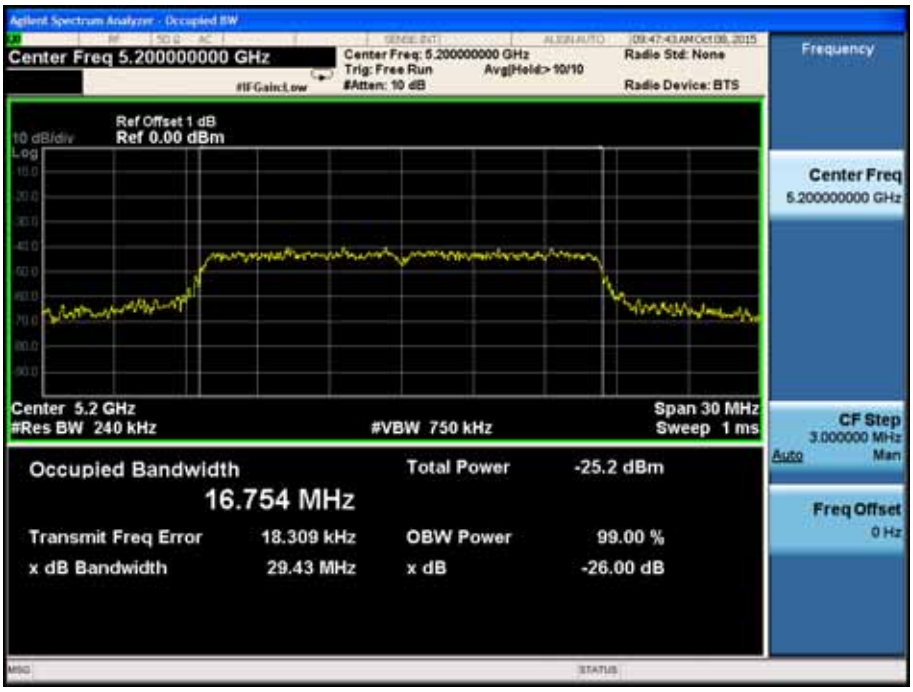
5.6. Test Result

Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a

Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180	30.00	18.273
40	5200	29.43	16.754
48	5240	30.00	18.857
149	5745	30.00	17.088
157	5785	29.55	19.155
165	5825	30.00	17.186

Channel 36 (5180MHz)

Channel 40 (5200MHz)



Channel 48 (5240MHz)

Channel 149 (5745MHz)

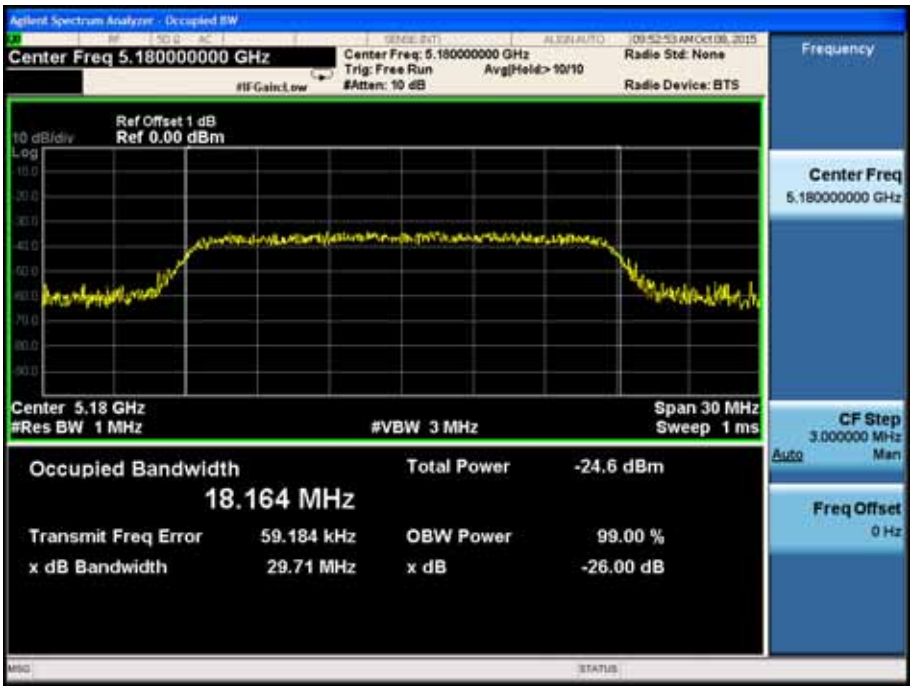
Channel 157(5785MHz)

Channel 165 (5825MHz)

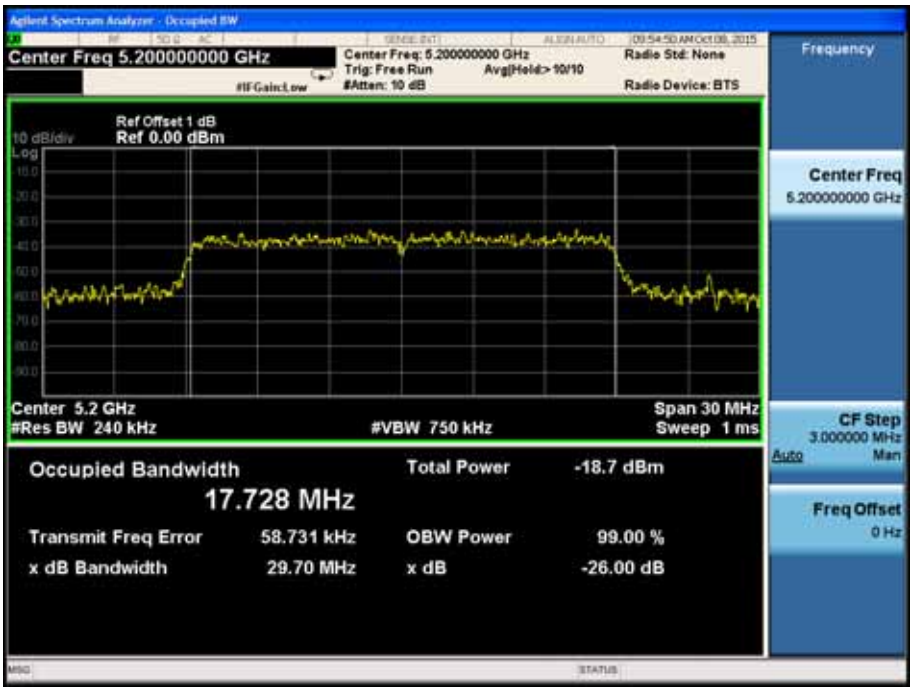
Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180	29.71	18.164
40	5200	29.70	17.728
48	5240	29.21	17.758
149	5745	30.00	17.781
157	5785	29.96	17.398
165	5825	30.00	17.709

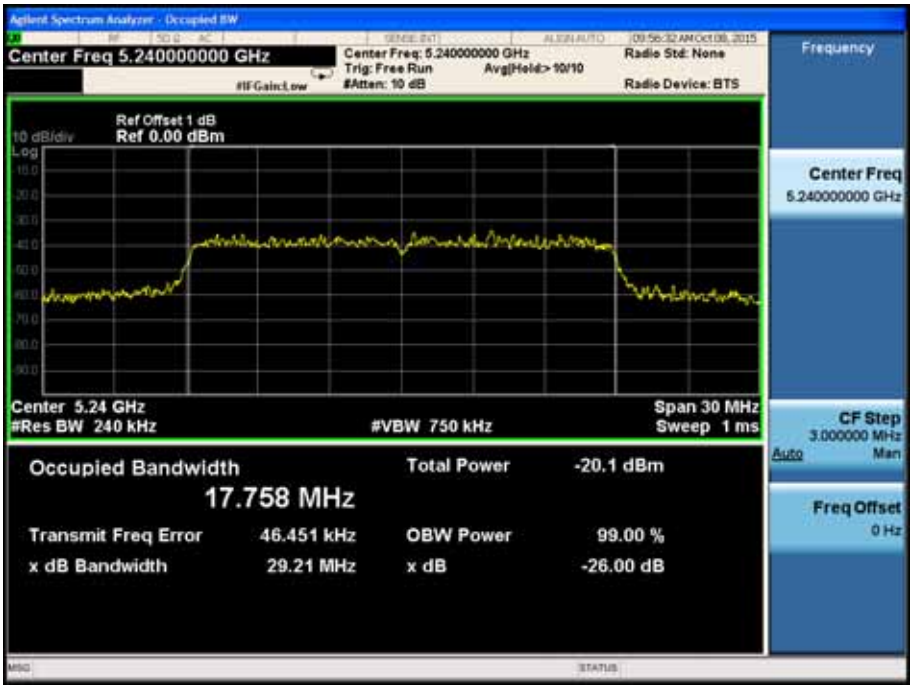
Channel 36 (5180MHz)



Channel 40 (5200MHz)

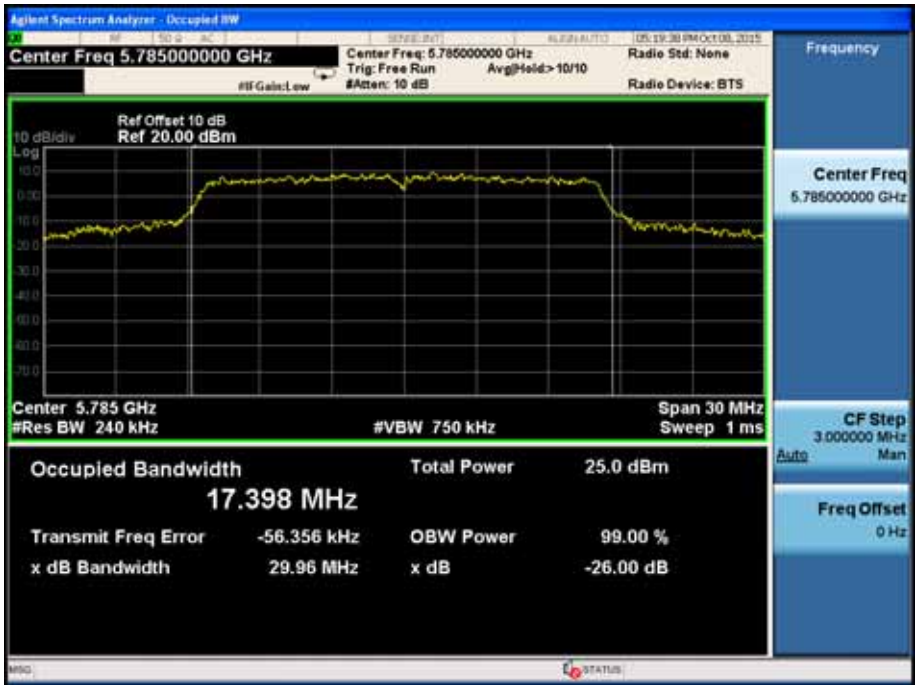


Channel 48 (5240MHz)



Channel 149 (5745MHz)

Channel 157(5785MHz)



Channel 165 (5825MHz)

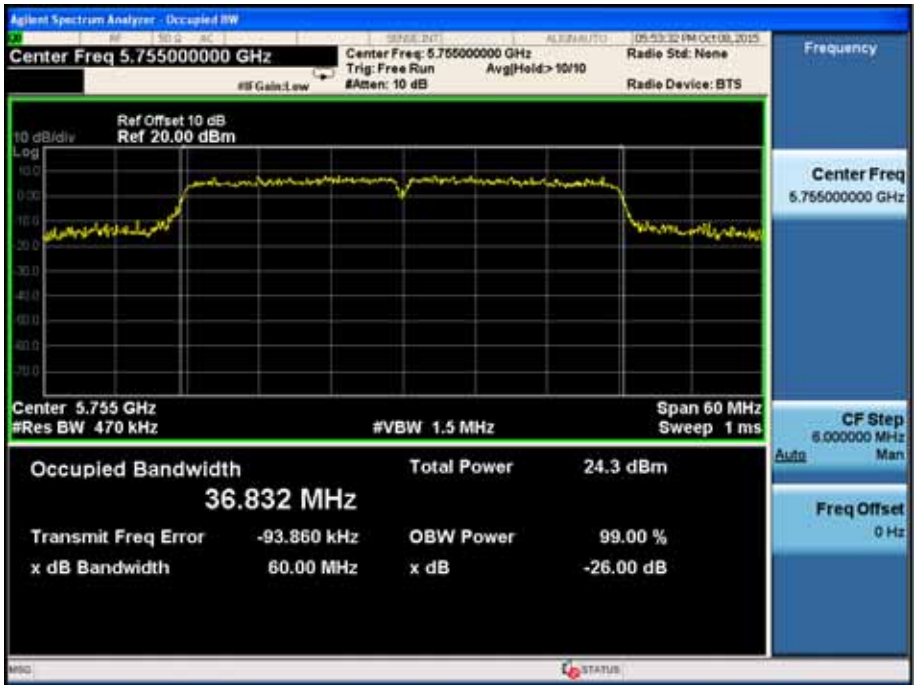
Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz)

Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190	41.51	36.508
46	5230	51.75	36.670
151	5755	60.00	36.832
159	5795	60.00	36.902

Channel 38 (5190MHz)

Channel 46 (5230MHz)

Channel 151 (5755MHz)

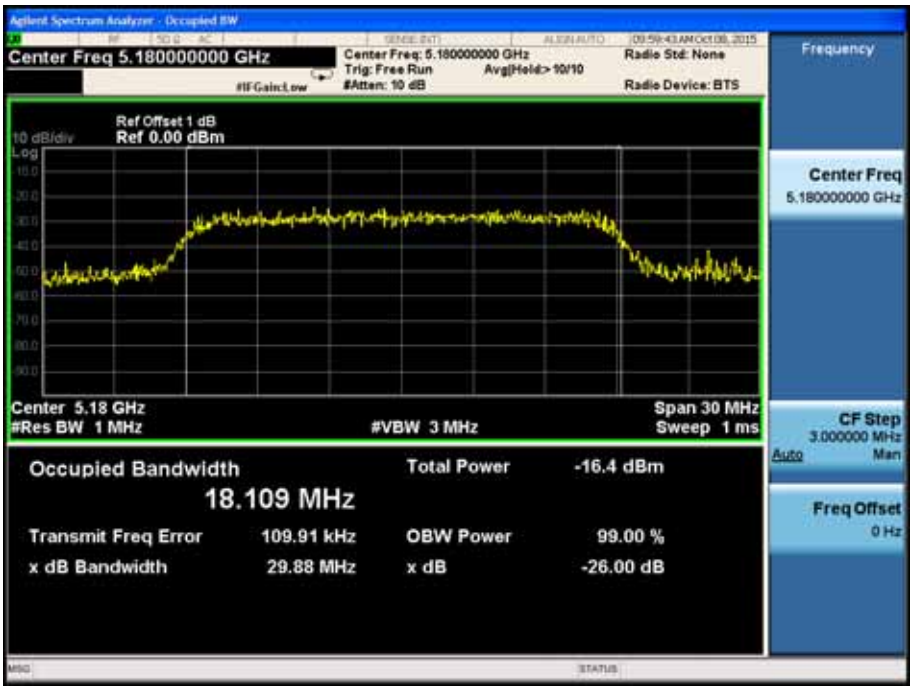


Channel 159(5795MHz)

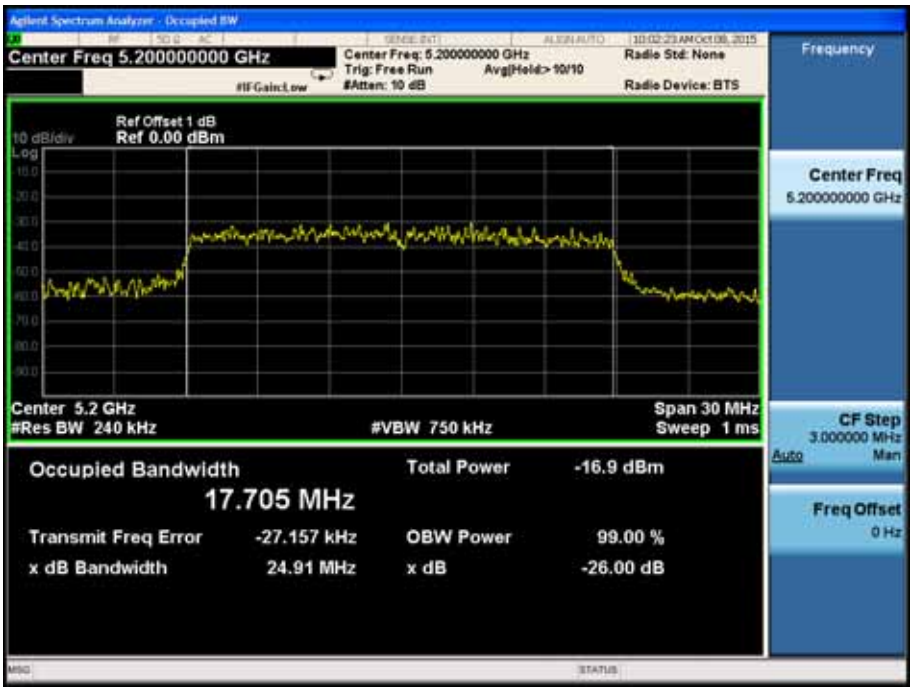
Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11ac(20MHz)

Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180	29.88	18.109
40	5200	24.91	17.705
48	5240	30.00	17.881
149	5745	25.62	17.606
157	5785	30.00	25.720
165	5825	30.00	17.850

Channel 36 (5180MHz)

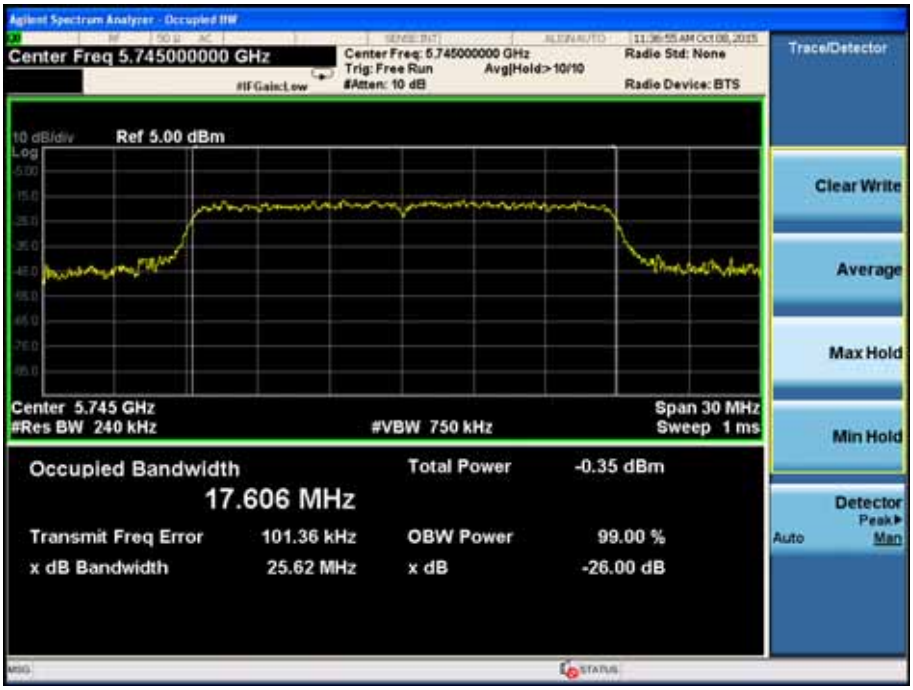


Channel 40 (5200MHz)



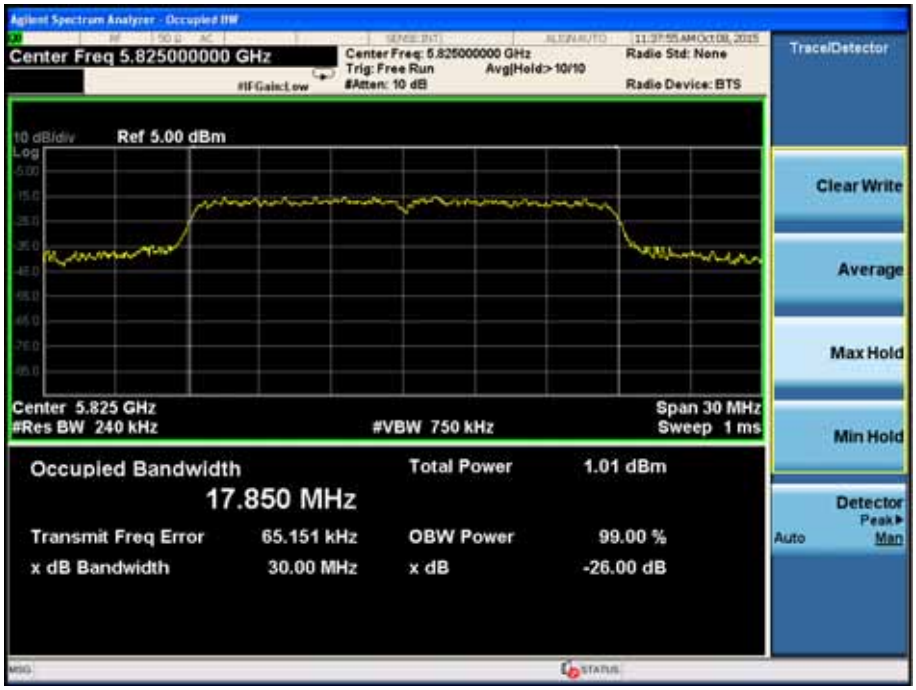
Channel 48 (5240MHz)

Channel 149 (5745MHz)



Channel 157(5785MHz)

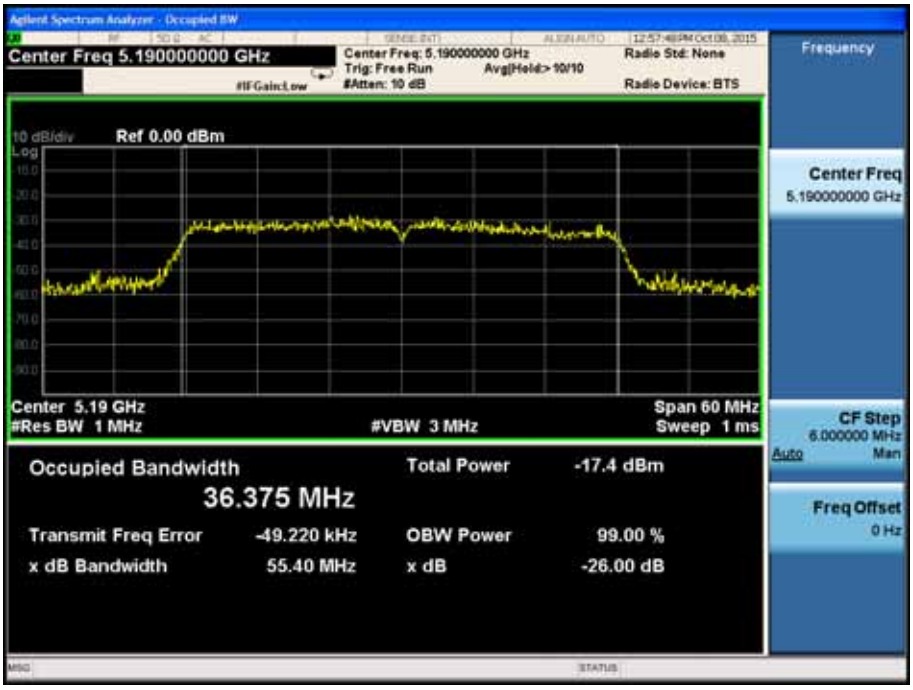
Channel 165 (5825MHz)



Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 5: Transmit by 802.11ac(40MHz)

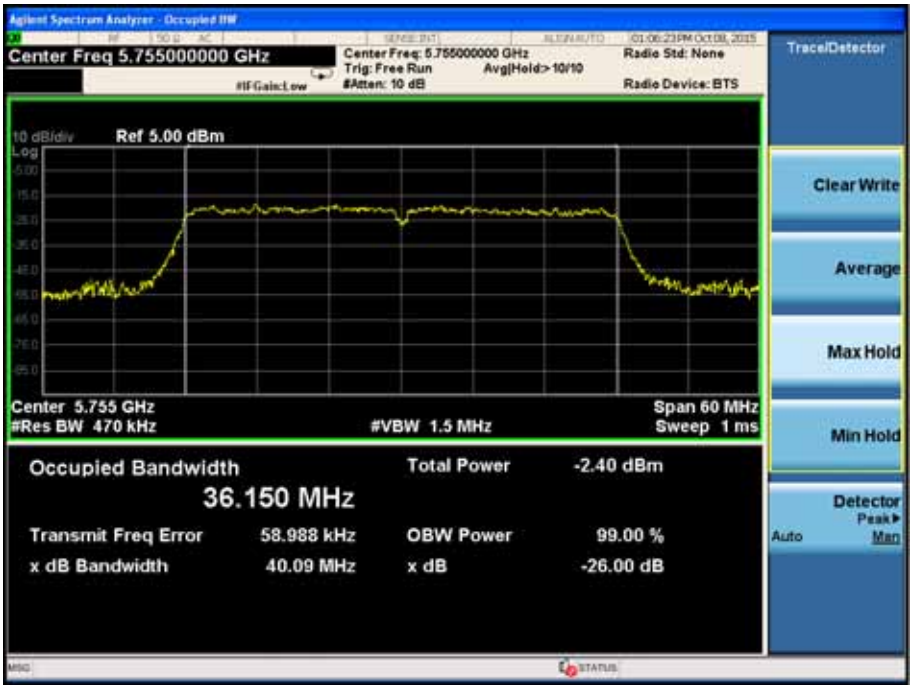
Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190	55.40	36.375
46	5230	59.89	36.619
151	5755	40.09	36.150
159	5795	60.00	41.053

Channel 38 (5190MHz)

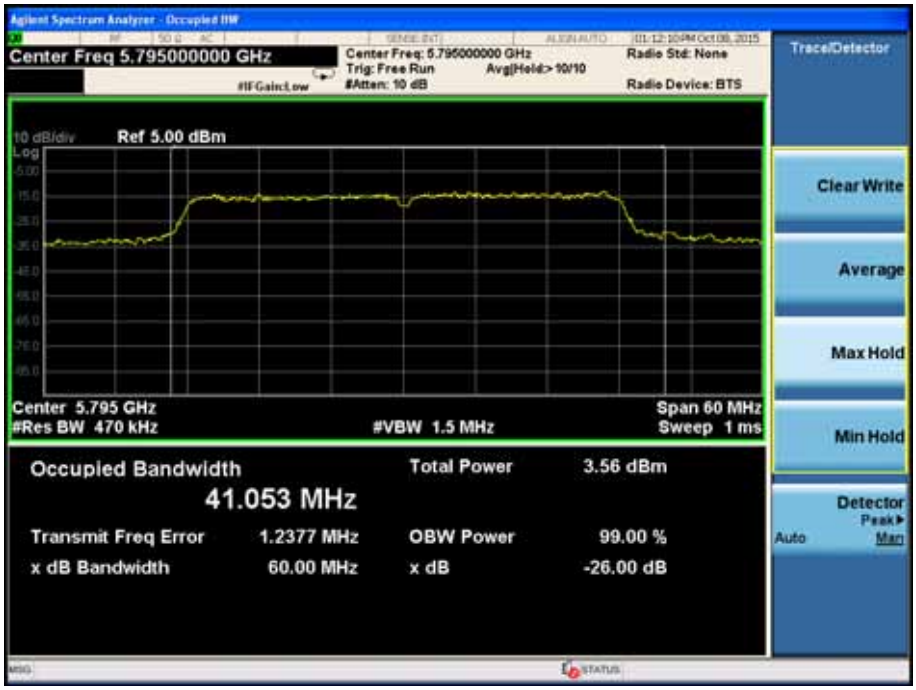


Channel 46 (5230MHz)

Channel 151 (5755MHz)



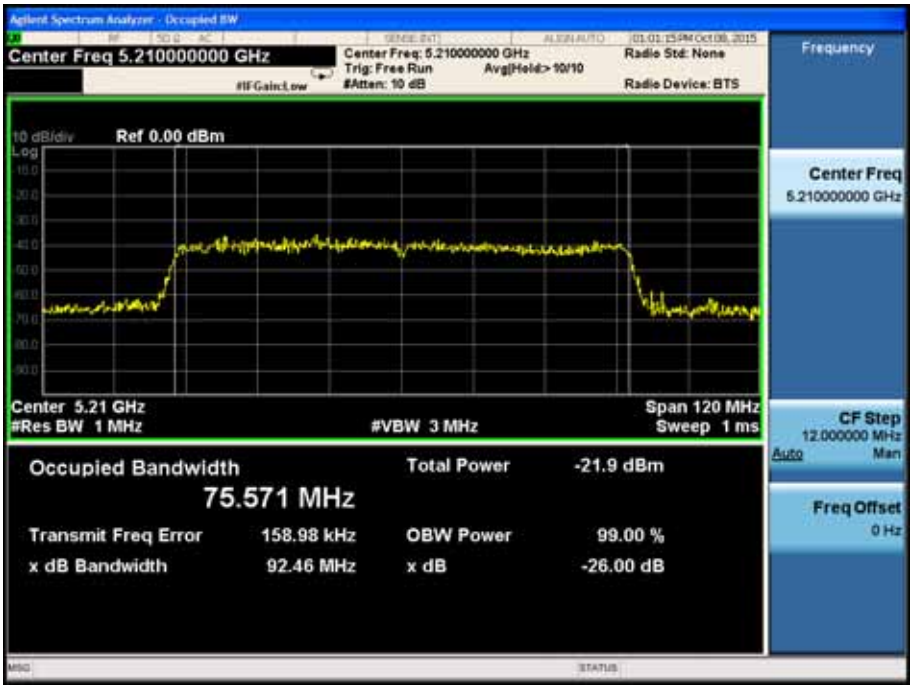
Channel 159(5795MHz)



Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 6: Transmit by 802.11ac(80MHz)

Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
42	5210	92.46	75.571
155	5775	81.17	75.679

Channel 42 (5210MHz)



Channel 155 (5775MHz)

6. 6dB Occupied Bandwidth

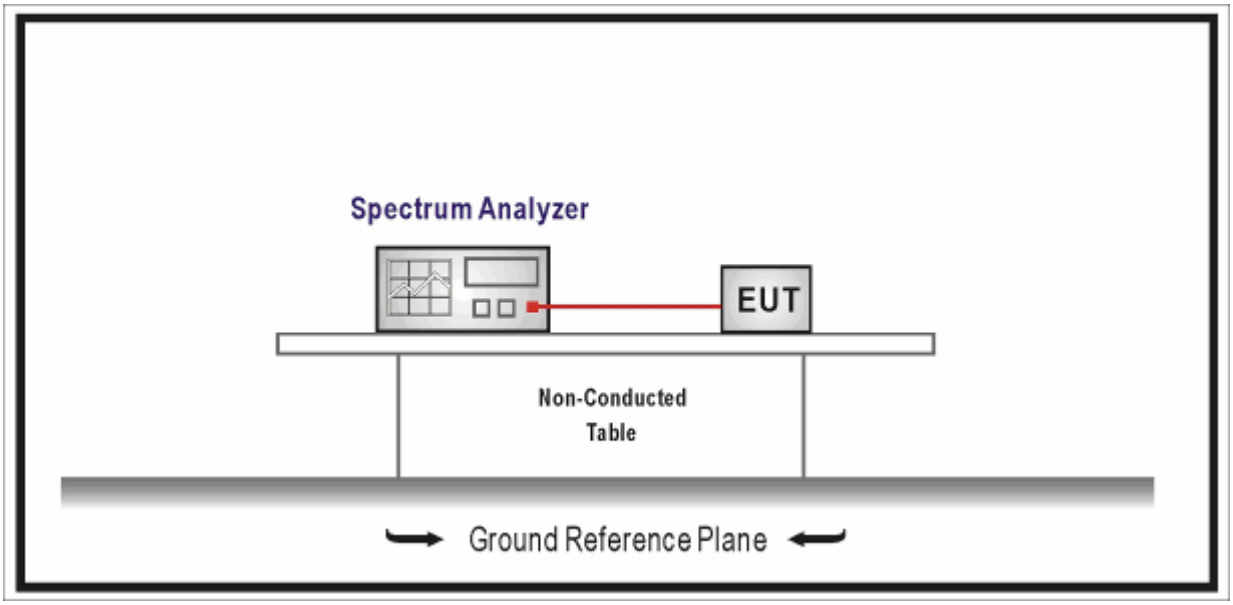
6.1. Test Equipment

Occupied Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.03.10
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2016.04.09

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

6.2. Test Setup



6.3. Limit

For FCC

The minimum 6 dB bandwidth shall be 500 kHz.

6.4. Test Procedure

According to ANSI C63.4:2014& ANSI C63.10:2013&789033 D02 General UNII Test Procedures New Rules v01& FCC CFR Title 47 Part 15 Subpart E: 2015

a) Set RBW = in the range of 1% to 5% of the OBW.
b) Set the video bandwidth (VBW) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Use the -6dBm function of the instrument (if available) and report the measured bandwidth.

6.5. Uncertainty

The measurement uncertainty is defined as ± 1 kHz

6.6. Test Result

Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a

Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (MHz)
149	5745	16.09
157	5785	16.39
165	5825	15.23

Channel 149 (5745MHz)

Channel 157(5785MHz)

Channel 165 (5825MHz)

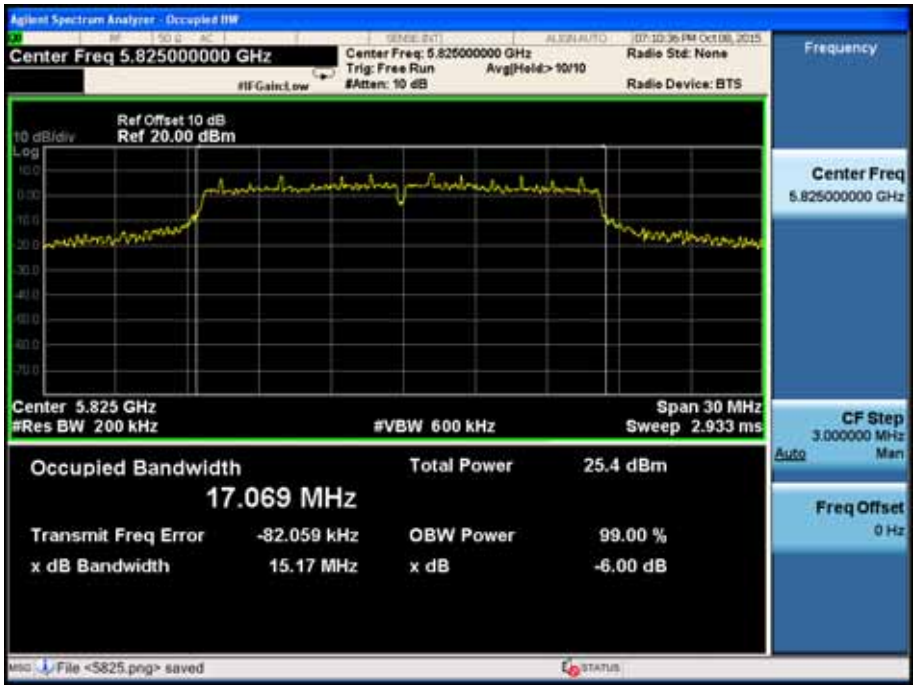
Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (MHz)
149	5745	16.29
157	5785	16.13
165	5825	15.17

Channel 149 (5745MHz)

Channel 157(5785MHz)

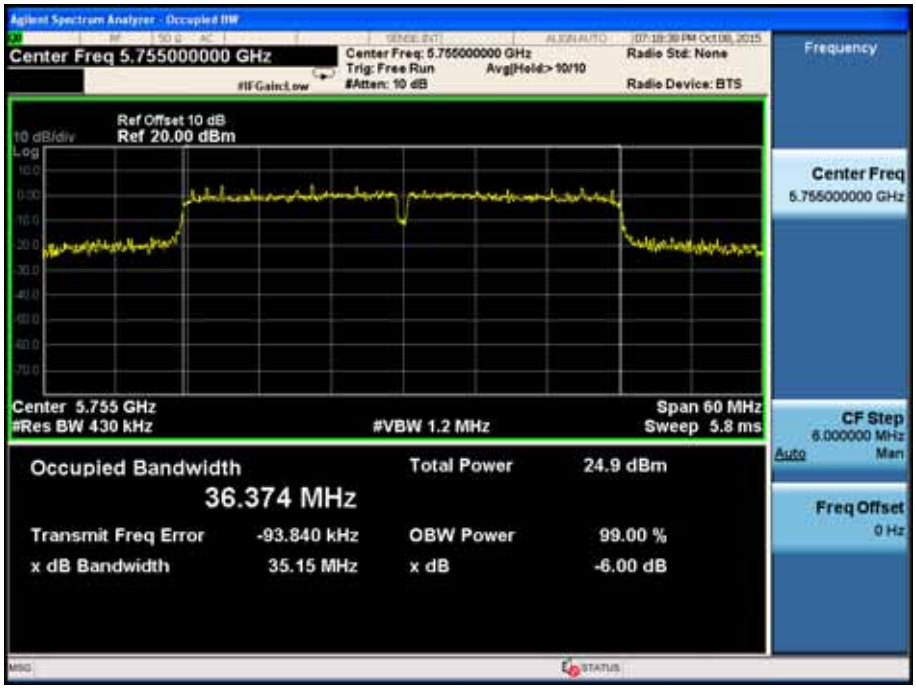
Channel 165 (5825MHz)



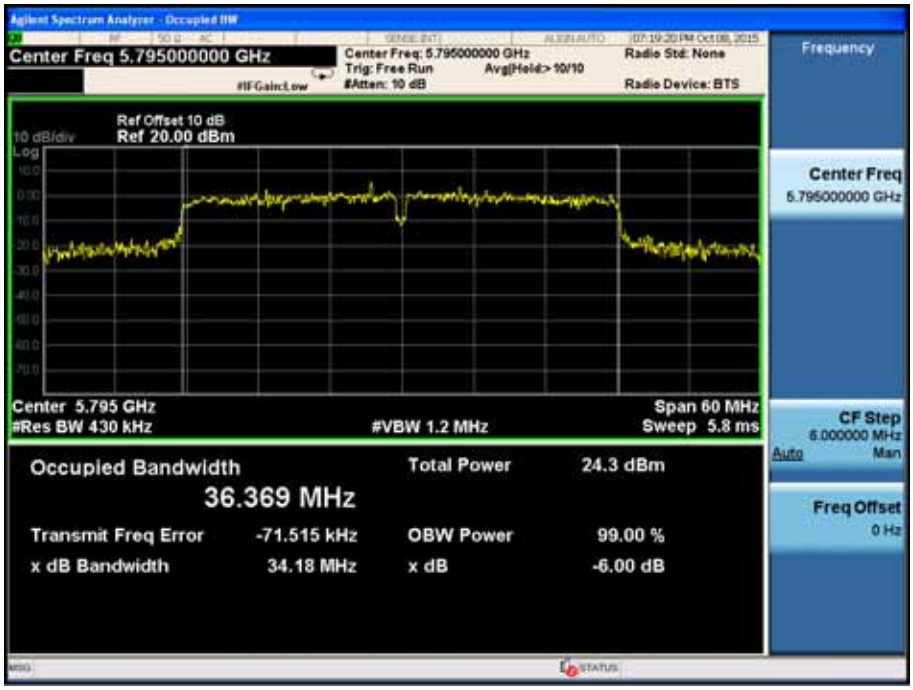
Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz)

Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (MHz)
151	5755	35.15
159	5795	34.18

Channel 151 (5755MHz)



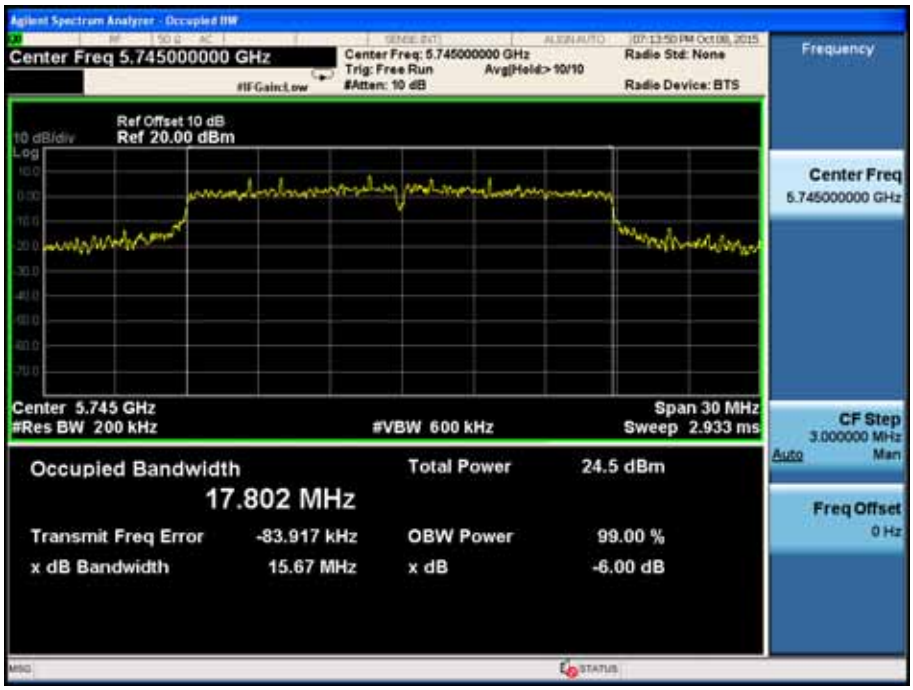
Channel 159(5795MHz)



Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11ac(20MHz)

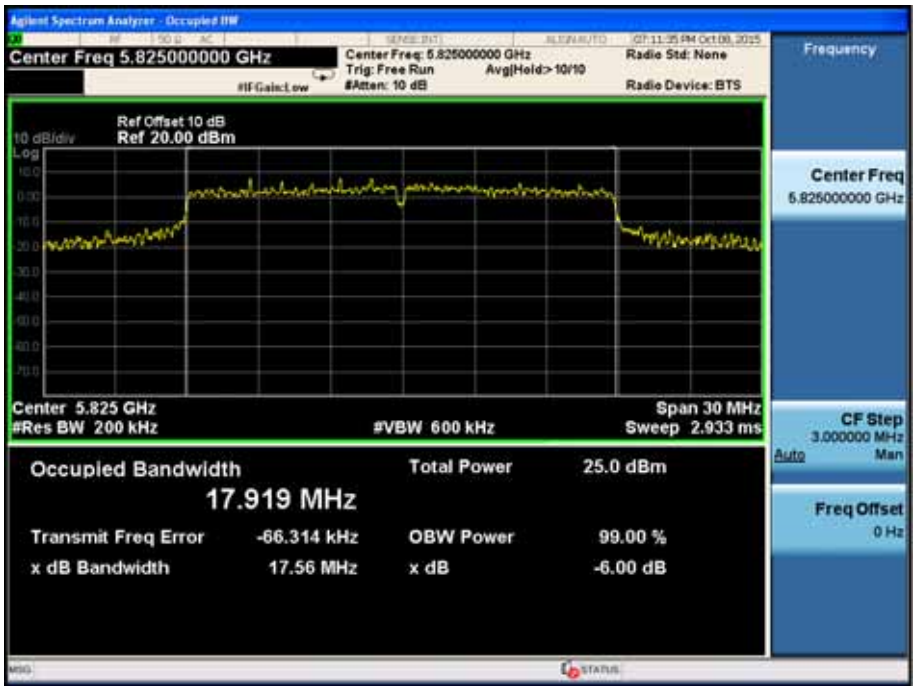
Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (MHz)
149	5745	15.67
157	5785	17.57
165	5825	17.56

Channel 149 (5745MHz)



Channel 157(5785MHz)

Channel 165 (5825MHz)



Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 5: Transmit by 802.11ac(40MHz)

Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (MHz)
151	5755	36.11
159	5795	36.29

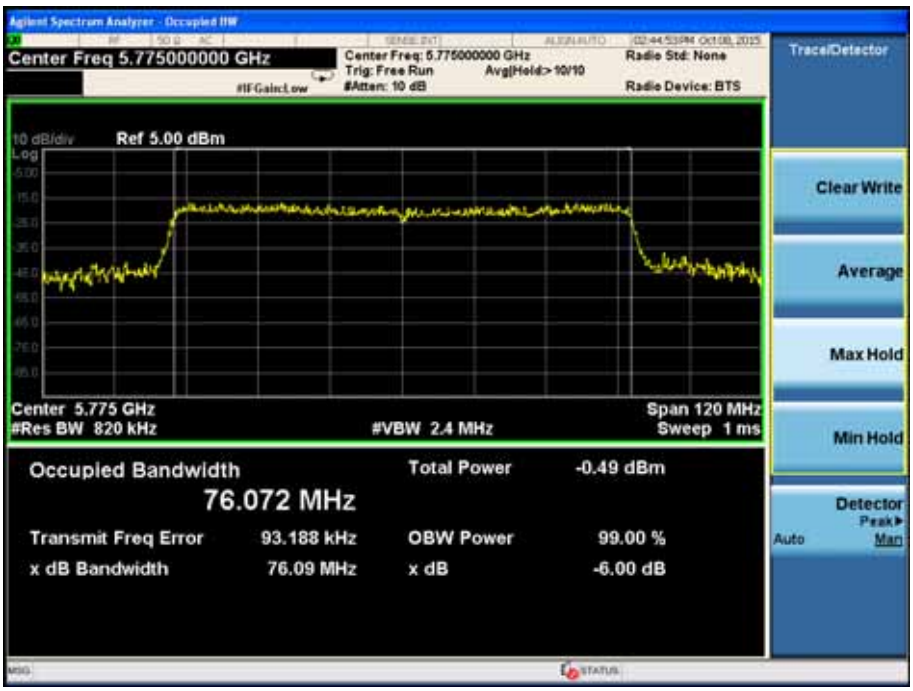
Channel 151 (5755MHz)

Channel 159(5795MHz)

Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 6: Transmit by 802.11ac(80MHz)

Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (MHz)
155	5775	76.09

Channel 155(5775MHz)



7. Power Output

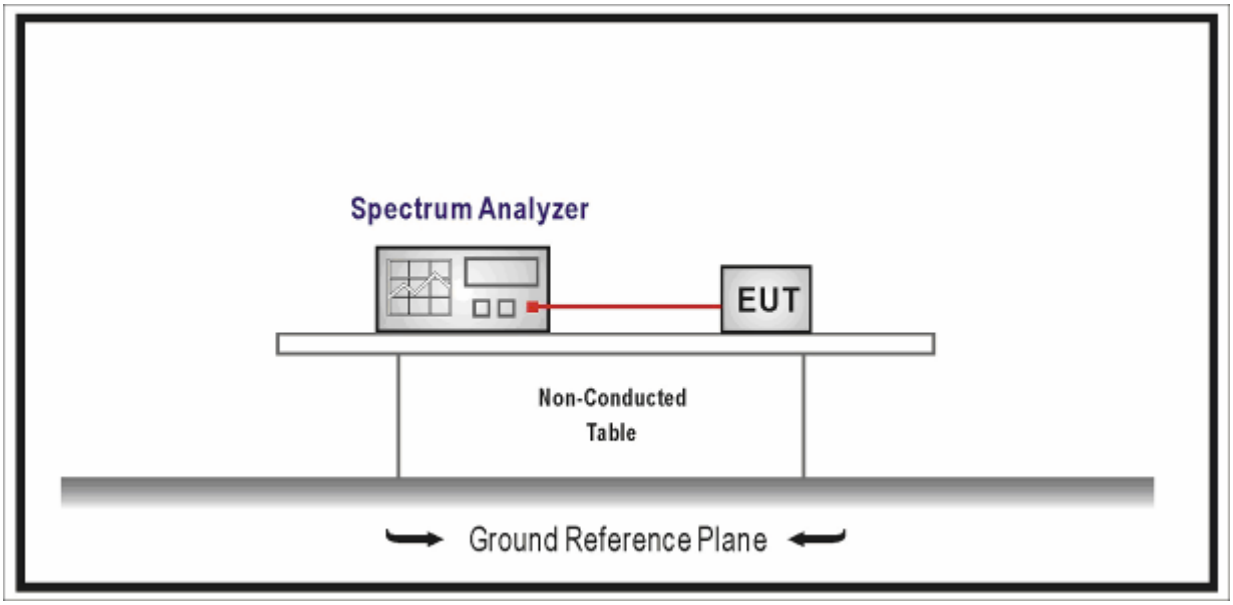
7.1. Test Equipment

Power Output / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.03.10
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2016.04.09

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

7.2. Test Setup



7.3. Limit

- For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm +

10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

- For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

7.4. Test Procedure

According to ANSI C63.4:2014& ANSI C63.10:2013&789033 D02 General UNII Test Procedures New Rules v01& FCC CFR Title 47 Part 15 Subpart E: 2014

Use the wideband power meter to test RMS power and record the result.
However, if the bandwidth of the single is higher than 40MHz, use the Spectrum Analyzer and the channel power function to test RMS power and record the result.

☒ **Maximum conducted output power using a power meter**

Method PM is Measurement using an RF average power meter. The procedure for this method is as follows:

a) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:

1) The EUT is configured to transmit continuously, or to transmit with a constant duty cycle.

2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.

3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.

b) If the transmitter does not transmit continuously, measure the duty cycle D of the transmitter

output signal as described in 12.2.

c) Measure the average power of the transmitter. This measurement is an average over both the ON and OFF periods of the transmitter.

d) Adjust the measurement in dBm by adding [10 log (1 / D)], where D is the duty cycle {e.g., [10 log (1 / 0.25)], if the duty cycle is 25%}

Maximum conducted output power measurement using a spectrum analyzer

☐ **Method SA-1**

Method SA-1 uses trace averaging with the EUT transmitting at full power throughout each sweep. The procedure for this method is as follows:

a) Set span to encompass the entire 26 dB EBW or 99% OBW of the signal.

b) Set RBW = 1 MHz.

c) Set VBW ≥ 3 MHz.

d) Number of points in sweep ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)

e) Sweep time = auto.

f) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.

g) If transmit duty cycle < 98%, use a video trigger with the trigger level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no OFF intervals) or at duty cycle ≥ 98%, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run.”

h) Trace average at least 100 traces in power averaging (rms) mode.

i) Compute power by integrating the spectrum across the 26 dB EBW or 99% OBW of the signal using the instrument’s band power measurement function, with band limits set equal to the EBW or OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW or 99% OBW of the spectrum.

☒ **Method SA-2**

Method SA-2 uses trace averaging across ON and OFF times of the EUT transmissions, followed by duty cycle correction. The procedure for this method is as follows:

a) Measure the duty cycle D of the transmitter output signal as described in 12.2.

b) Set span to encompass the entire 26 dB EBW or 99% OBW of the signal.

c) Set RBW = 1 MHz.

d) Set VBW ≥ 3 MHz.

e) Number of points in sweep ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)

f) Sweep time = auto.

g) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.

h) Do not use sweep triggering. Allow the sweep to "free run."

i) Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed such that the average accurately represents the true average over the ON and OFF periods of the transmitter.

j) Compute power by integrating the spectrum across the 26 dB EBW or 99% OBW of the signal using the instrument's band power measurement function with band limits set equal to the EBW or OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW or 99% OBW of the spectrum.

k) Add [10 log (1 / D)], where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the ON and OFF times of the transmission). For example, add [10 log (1 / 0.25)] = 6 dB if the duty cycle is 25%.

☐ **Method SA-3**

Method SA-3 uses rms detection with max hold. The procedure for this method is as follows:

a) Set span to encompass the entire 26 dB EBW or 99% OBW of the signal.

b) Set sweep trigger to "free run."

c) Set RBW = 1 MHz

d) Set VBW ≥ 3 MHz

e) Number of points in sweep ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)

f) Sweep time ≤ [(number of points in sweep) × *T*], where *T* is defined in 12.2. If this gives a sweep time less than the auto sweep time of the instrument, then method SA-3A shall not be used. (The purpose of this step is so that averaging time in each bin is less than or equal to the minimum time of a transmission.)

g) Detector = RMS (power averaging).

h) Trace mode = max hold.

i) Allow max hold to run for at least 60 s or longer as needed to allow the trace to stabilize.

j) Compute power by integrating the spectrum across the 26 dB EBW or 99% OBW of the signal using the instrument's band power measurement function with band limits set equal to the EBW or OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW of the spectrum.

7.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

7.6. Test Result

Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Total Power (dBm)	FCC Limit (dBm)
36	5180	19.20	19.86	30
44	5220	21.43	22.09	30
48	5240	21.00	21.66	30
149	5745	16.66	17.32	30
157	5785	20.16	20.82	30
165	5825	17.81	18.47	30

Note1: For fixed point-to-point access points operating in the band 5.15-5.25 GHz, fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density.

Note2: For the band 5.725-5.85 GHz, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

Note3: Total Power = Measurement Power Output + 10Log(1/(Duty Cycle))

Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Total Power (dBm)	FCC Limit (dBm)
36	5180	17.94	18.72	30
44	5220	20.97	21.75	30
48	5240	20.73	21.51	30
149	5745	16.33	17.11	30
157	5785	19.49	20.27	30
165	5825	17.58	18.36	30

Note1: For fixed point-to-point access points operating in the band 5.15-5.25 GHz, fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density.

Note2: For the band 5.725-5.85 GHz, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

Note3: Total Power = Measurement Power Output + 10Log(1/(Duty Cycle))

Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Total Power (dBm)	FCC Limit (dBm)
38	5190	16.00	16.74	30
46	5230	19.97	20.71	30
151	5755	16.49	17.23	30
159	5795	17.22	17.96	30

Note1: For fixed point-to-point access points operating in the band 5.15-5.25 GHz, fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density.

Note2: For the band 5.725-5.85 GHz, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

Note3: Total Power= Measurement Power Output + 10Log(1/(Duty Cycle))

Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11ac(20MHz)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Total Power (dBm)	FCC Limit (dBm)
36	5180	19.14	20.66	30
44	5220	20.18	21.70	30
48	5240	20.05	21.57	30
149	5745	15.51	17.03	30
157	5785	18.88	20.40	30
165	5825	16.68	18.20	30

Note1: For fixed point-to-point access points operating in the band 5.15-5.25 GHz, fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density.

Note2: For the band 5.725-5.85 GHz, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

Note3: Total Power= Measurement Power Output + 10Log(1/(Duty Cycle))

Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 5: Transmit by 802.11ac(40MHz)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Total Power (dBm)	FCC Limit (dBm)
38	5190	15.08	16.45	30
46	5230	19.11	20.48	30
151	5755	15.50	16.87	30
159	5795	16.26	17.63	30

Note1: For fixed point-to-point access points operating in the band 5.15-5.25 GHz, fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density.

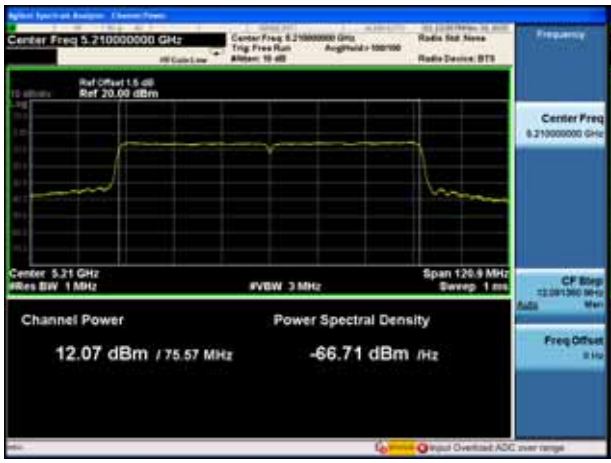
Note2: For the band 5.725-5.85 GHz, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

Note3: Total Power= Measurement Power Output + 10Log(1/(Duty Cycle))

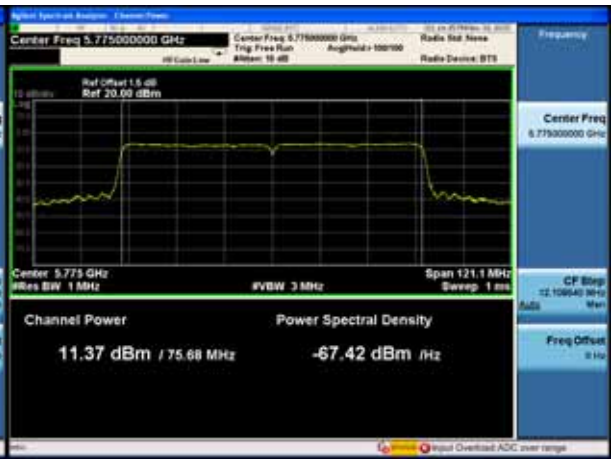
Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 6: Transmit by 802.11ac(80MHz)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Total Power (dBm)	FCC Limit (dBm)
42	5210	12.07	14.25	30
155	5775	11.37	13.55	30

802.11ac(80MHz) 5210MHz



802.11ac(80MHz) 5775MHz



Note1: For fixed point-to-point access points operating in the band 5.15-5.25 GHz, fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density.

Note2: For the band 5.725-5.85 GHz, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

Note3: Total Power= Measurement Power Output + 10Log(1/(Duty Cycle))

8. Peak Power Spectral Density

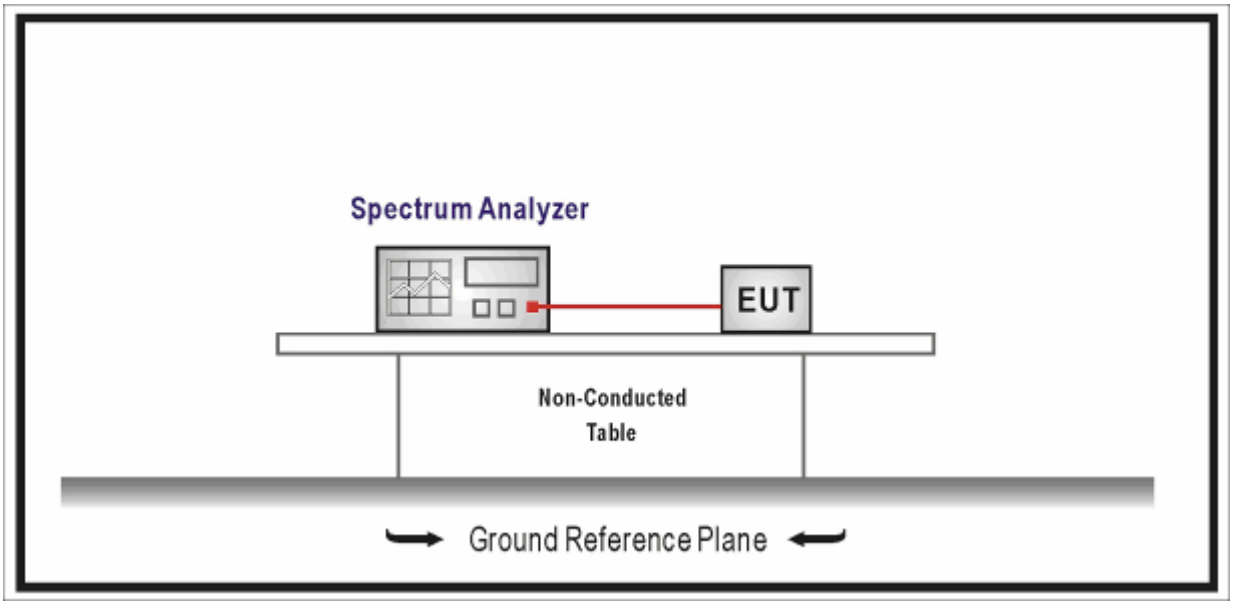
8.1. Test Equipment

Peak Power Spectral Density / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.03.10
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2016.04.09

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

8.2. Test Setup



8.3. Limit

- For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm +

10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

- For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

8.4. Test Procedure

According to ANSI C63.4:2014& ANSI C63.10:2013&789033 D02 General UNII Test Procedures New Rules v01& FCC CFR Title 47 Part 15 Subpart E: 2014

Set span to encompass the entire emission bandwidth (EBW) of the signal.

For 5150-5725MHz

a) Set RBW = 1 MHz.
b) Set VBW ≥ 3 MHz.
c) Sweep time = auto.
d) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.

For 5725-5875MHz

e) Set RBW=510KHz
f) VBW≥3RBW
g) Sweep time=auto
h) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.

8.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

8.6. Test Result

Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Peak Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Duty Cycle (%)	Total PPSD (dBm/MHz)	FCC Limit (dBm)
36	5180	15.854	85.98	16.510	17
40	5200	15.212	85.98	15.868	17
48	5240	15.596	85.98	16.252	17
149	5745	8.921	85.98	9.577	30
157	5785	13.132	85.98	13.788	30
165	5825	10.181	85.98	10.837	30

Note1: When EUT duty cycle < 98%, the total PSD = Reading Level + 10*log(1/duty cycle)

Note2: For fixed point-to-point access points operating in the band 5.15-5.25 GHz, fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density.

Note3: For the band 5.725-5.85 GHz, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

Channel 36 (5180MHz)

Channel 40 (5200MHz)

Channel 48 (5240MHz)

Channel 149 (5745MHz)

Channel 157(5785MHz)

Channel 165 (5825MHz)

Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Peak Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Duty Cycle (%)	Total PPSD (dBm/MHz)	FCC Limit (dBm)
36	5180	14.434	83.55	15.214	17
40	5200	15.771	83.55	16.551	17
48	5240	15.062	83.55	15.842	17
149	5745	7.945	83.55	8.725	30
157	5785	13.540	83.55	14.320	30
165	5825	9.984	83.55	10.764	30

Note1: When EUT duty cycle < 98%, the total PSD = Reading Level + 10*log(1/duty cycle)

Note2: For fixed point-to-point access points operating in the band 5.15-5.25 GHz, fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density.

Note3: For the band 5.725-5.85 GHz, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

Channel 36 (5180MHz)

Channel 40 (5200MHz)

Channel 48 (5240MHz)

Channel 149 (5745MHz)

Channel 157(5785MHz)

Channel 165 (5825MHz)

Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Peak Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Duty Cycle (%)	Total PPSD (dBm/MHz)	FCC Limit (dBm)
38	5190	8.970	70.48	10.490	17
46	5230	13.975	70.48	15.495	17
151	5755	5.951	70.48	7.471	30
159	5795	7.631	70.48	9.151	30

Note1: When EUT duty cycle < 98%, the total PSD = Reading Level + 10*log(1/duty cycle)

Note2: For fixed point-to-point access points operating in the band 5.15-5.25 GHz, fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density.

Note3: For the band 5.725-5.85 GHz, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

Channel 38 (5190MHz)

Channel 46 (5230MHz)

Channel 151 (5755MHz)

Channel 159 (5795MHz)

Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Peak Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11ac(20MHz)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Duty Cycle (%)	Total PPSD (dBm/MHz)	FCC Limit (dBm)
36	5180	14.717	84.31	15.457	17
40	5200	15.218	84.31	15.958	17
48	5240	15.434	84.31	16.174	17
149	5745	7.895	84.31	8.635	30
157	5785	12.828	84.31	13.568	30
165	5825	9.549	84.31	10.289	30

Note1: When EUT duty cycle < 98%, the total PSD = Reading Level + 10*log(1/duty cycle)

Note2: For fixed point-to-point access points operating in the band 5.15-5.25 GHz, fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density.

Note3: For the band 5.725-5.85 GHz, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

Channel 36 (5180MHz)

Channel 40 (5200MHz)

Channel 48 (5240MHz)

Channel 149 (5745MHz)

Channel 157(5785MHz)

Channel 165 (5825MHz)

Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Peak Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 5: Transmit by 802.11ac(40MHz)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Duty Cycle (%)	Total PPSD (dBm/MHz)	FCC Limit (dBm)
38	5190	9.221	72.90	10.594	17
46	5230	14.040	72.90	15.413	17
151	5755	5.993	72.90	7.366	30
159	5795	7.262	72.90	8.635	30

Note1: When EUT duty cycle < 98%, the total PSD = Reading Level + 10*log(1/duty cycle)

Note2: For fixed point-to-point access points operating in the band 5.15-5.25 GHz, fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density.

Note3: For the band 5.725-5.85 GHz, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

Channel 38 (5190MHz)

Channel 46 (5230MHz)

Channel 151 (5755MHz)

Channel 159 (5795MHz)

Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Peak Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 6: Transmit by 802.11ac(80MHz)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Duty Cycle (%)	Total PPSD (dBm/MHz)	FCC Limit (dBm)
42	5210	5.158	60.58	7.335	17
155	5775	0.128	60.58	2.305	30

Note1: When EUT duty cycle < 98%, the total PSD = Reading Level + 10*log(1/duty cycle)

Note2: For fixed point-to-point access points operating in the band 5.15-5.25 GHz, fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density.

Note3: For the band 5.725-5.85 GHz, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

Channel 42 (5210MHz)

Channel 155 (5775MHz)

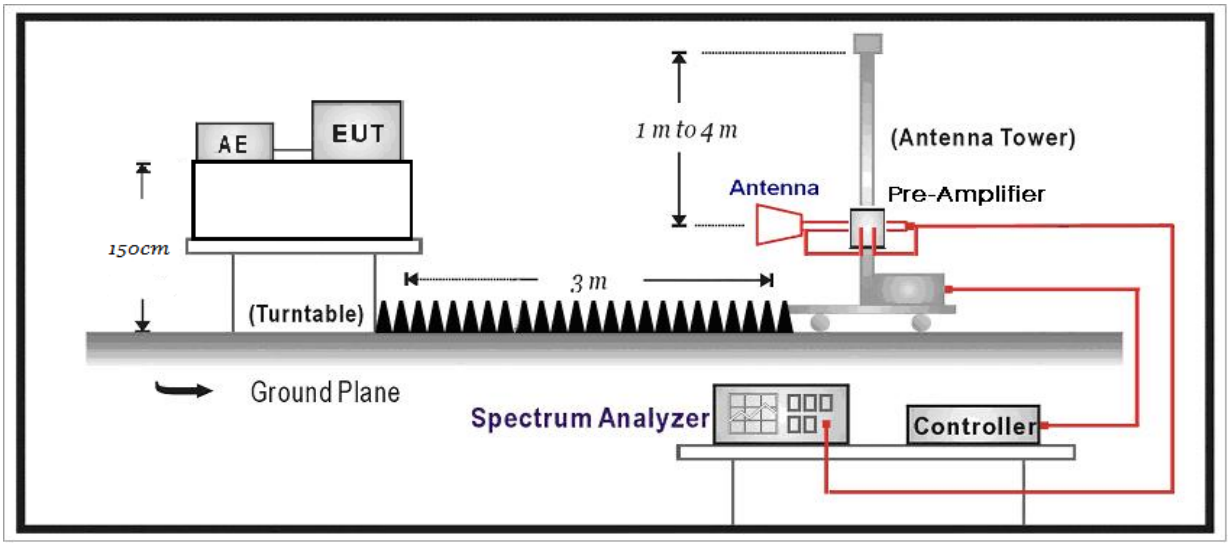
9. Radiated Emission Band Edge

9.1. Test Equipment

☒Radiated Emission Band Edge / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.03.10
Preamplifier	Miteq	NSP1800-25	1364185	2016.05.03
Preamplifier	QuieTek	AP-040G	CHM-0906001	2016.05.03
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2016.10.15
DRG Horn	ETS-Lindgren	3117	00123988	2016.01.07
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2016.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2016.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2016.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2016.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2016.01.08

9.2. Test Setup



9.3. Limit

<u>For 15.205 requirement:</u>

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])

For 15.407(b) requirement:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

Operating Frequency Band (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength at 3m (dBuV/m)
5150 - 5250	-27	68.3
5250 - 5350	-27	68.3
5470 - 5725	-27	68.3
5725 - 5825	-27 [Note(1)]	68.3
	-17 [Note(2)]	78.3

Note(1): Outside the frequency range 5715 - 5835MHz.
Note(2): Within the frequency range from the band edge to 10MHz below or above the band edge, 5715 – 5725MHz and 5825 - 5835MHz.

9.4. Test Procedure

According to ANSI C63.4:2014& ANSI C63.10:2013&789033 D02 General UNII Test Procedures New Rules v01& FCC CFR Title 47 Part 15 Subpart E: 2014

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4: 2009 on radiated measurement.

The procedure for peak unwanted emissions measurements above 1000 MHz is as follows:
Peak emission levels are measured by setting the instrument as follows:
1) RBW = 1 MHz.
2) VBW ≥ [3 × RBW].
3) Detector = peak
4) Sweep time = auto.
5) Trace mode = max hold.
6) Allow sweeps to continue until the trace stabilizes. Note that if the transmission is not continuous, then the time required for the trace to stabilize will increase by a factor of approximately 1 / D, where D is the duty cycle. For example, at 50% duty cycle, the measurement time will increase by a factor of two, relative to measurement time for continuous transmission.

Average emission levels are measured by setting the instrument as follows:
a) RBW = 1 MHz.
b) Video bandwidth:
1) If the EUT is configured to transmit with D ≥ 98%, then set VBW ≤ RBW / 100 (i.e., 10 kHz), but not less than 10 Hz.
2) If the EUT D is < 98%, then set VBW ≥ 1 / T, where T is defined in item a1) of 12.2.
c) Video bandwidth mode or display mode:
1) The instrument shall be set with video filtering applied in the power domain. Typically, this requires setting the detector mode to RMS (power averaging) and setting the average-VBW type to power (rms).
2) As an alternative, the instrument may be set to linear detector mode. Video filtering shall be applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode to accomplish this. Others have a setting for

average-VBW type, which can be set to “voltage” regardless of the display mode.

d) Detector = peak.

e) Sweep time = auto.

f) Trace mode = max hold.

g) Allow max hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98% duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of 1/x, where D is the duty cycle. For example, use at least 200 traces if the duty cycle is 25%. (If a specific emission is demonstrated to be continuous—i.e., 100% duty cycle—then rather than turning ON and OFF with the transmit cycle, at least 50 traces should be averaged.)

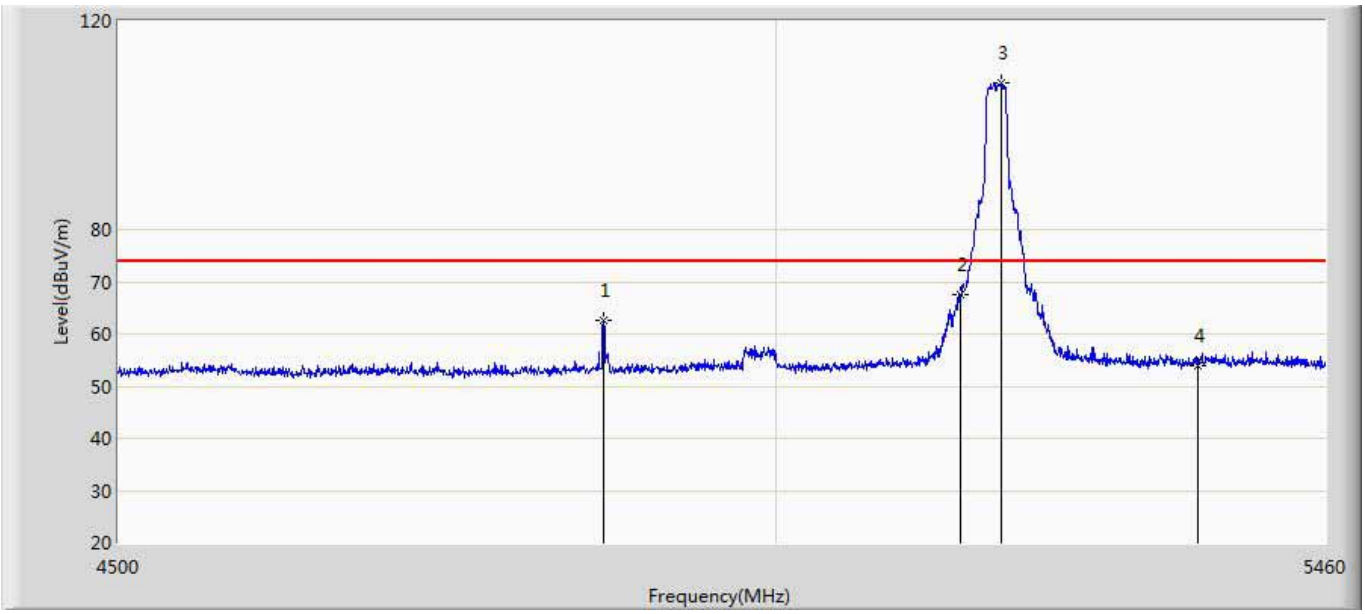
Note: When doing emission measurement above 1GHz, the horn Chainenna will be bended down a little (as horn Chainenna has the narrow beamwidth) in order to keeping the Chainenna in the “cone of radiation” of EUT. The 3dB beamwidth is 10~60 degrees for H-plane and 10~90 degrees for E-plane.

9.5. Uncertainty

The measurement uncertainty above 1GHz is defined as ± 3.9 dB

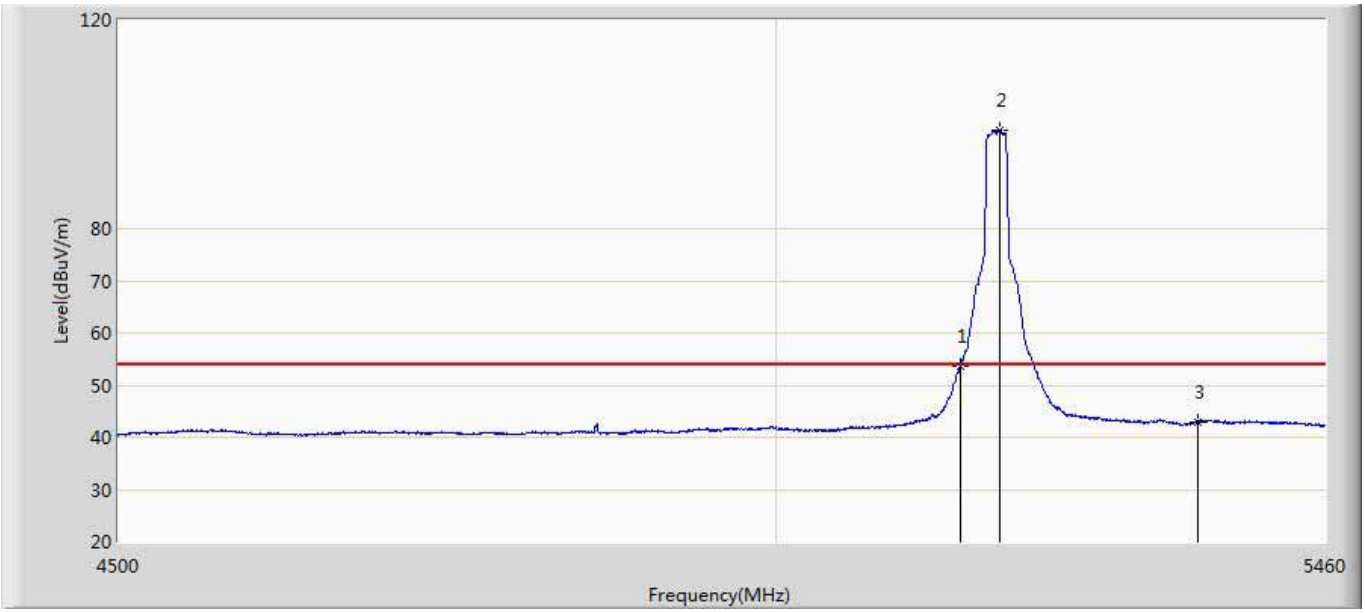
9.6. Test Result

Site: AC5	Time: 2015/09/30 - 09:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 1:Transmit at channel 5180Mhz by 802.11a	



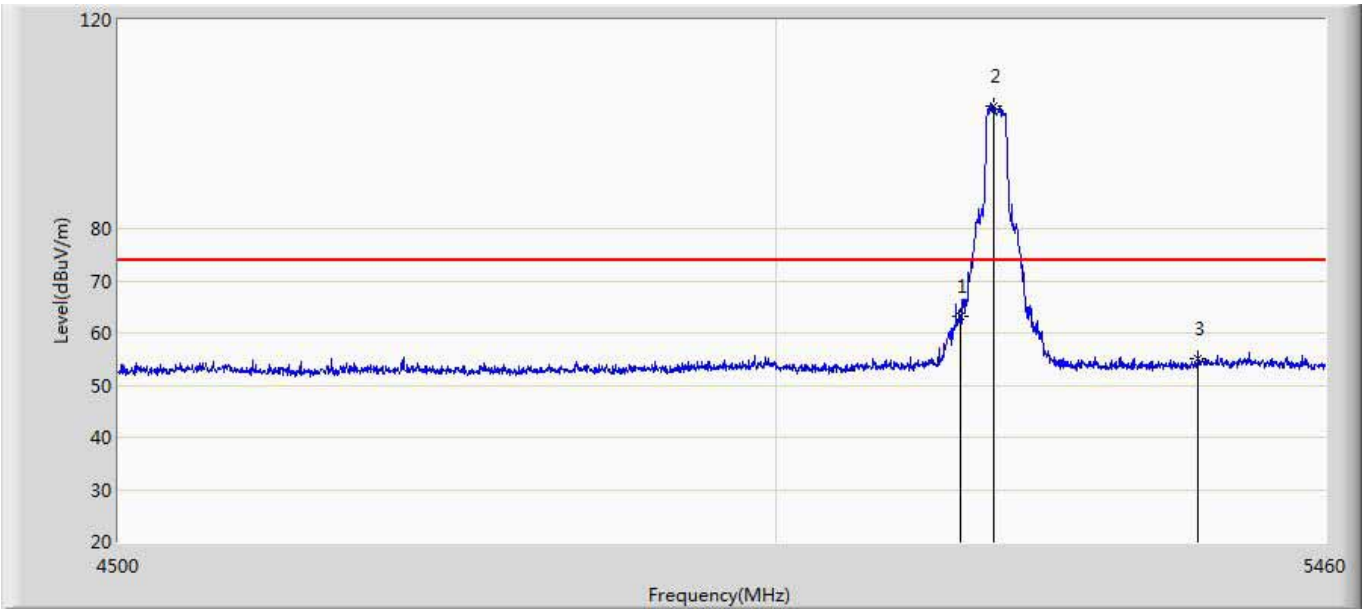
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4863.840	62.684	21.227	-11.316	74.000	41.457	PK
2		5150.000	67.410	25.395	-6.590	74.000	42.015	PK
3	*	5183.520	108.142	66.006	N/A	N/A	42.136	PK
4		5350.000	54.038	11.522	-19.962	74.000	42.516	PK

Site: AC5	Time: 2015/09/30 - 09:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 1:Transmit at channel 5180Mhz by 802.11a	



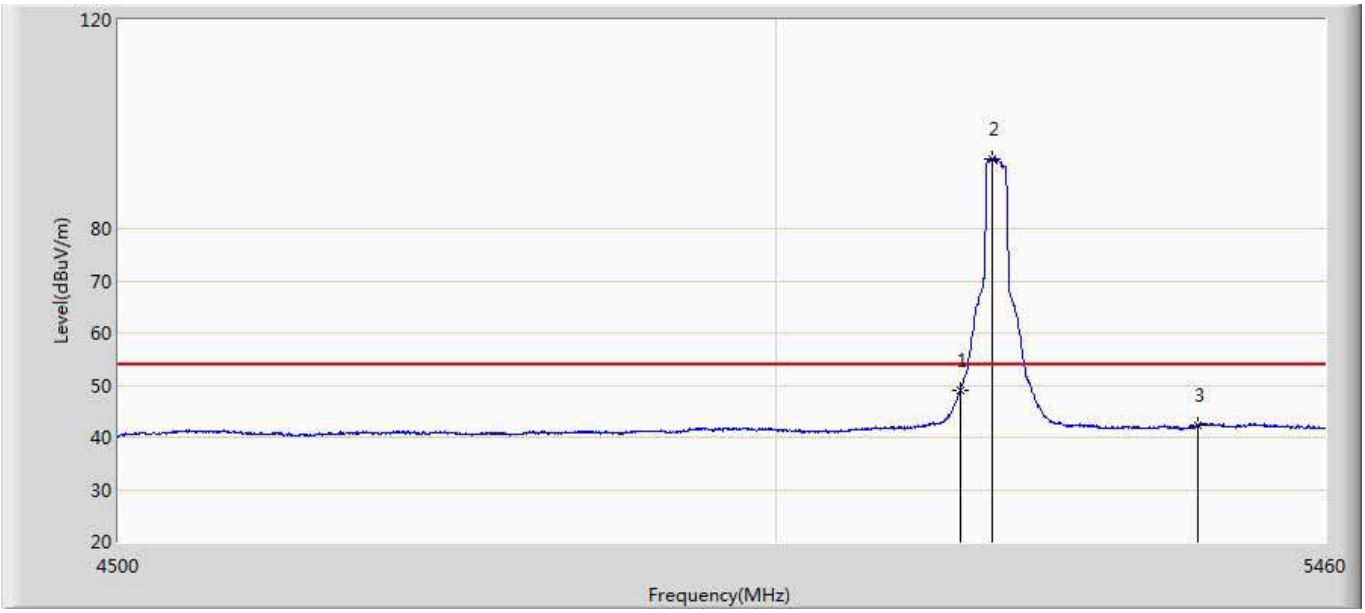
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	53.748	11.733	-0.252	54.000	42.015	AV
2	*	5182.560	98.807	56.665	N/A	N/A	42.142	AV
3		5350.000	42.855	0.339	-11.145	54.000	42.516	AV

Site: AC5	Time: 2015/09/30 - 09:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 1:Transmit at channel 5180Mhz by 802.11a	



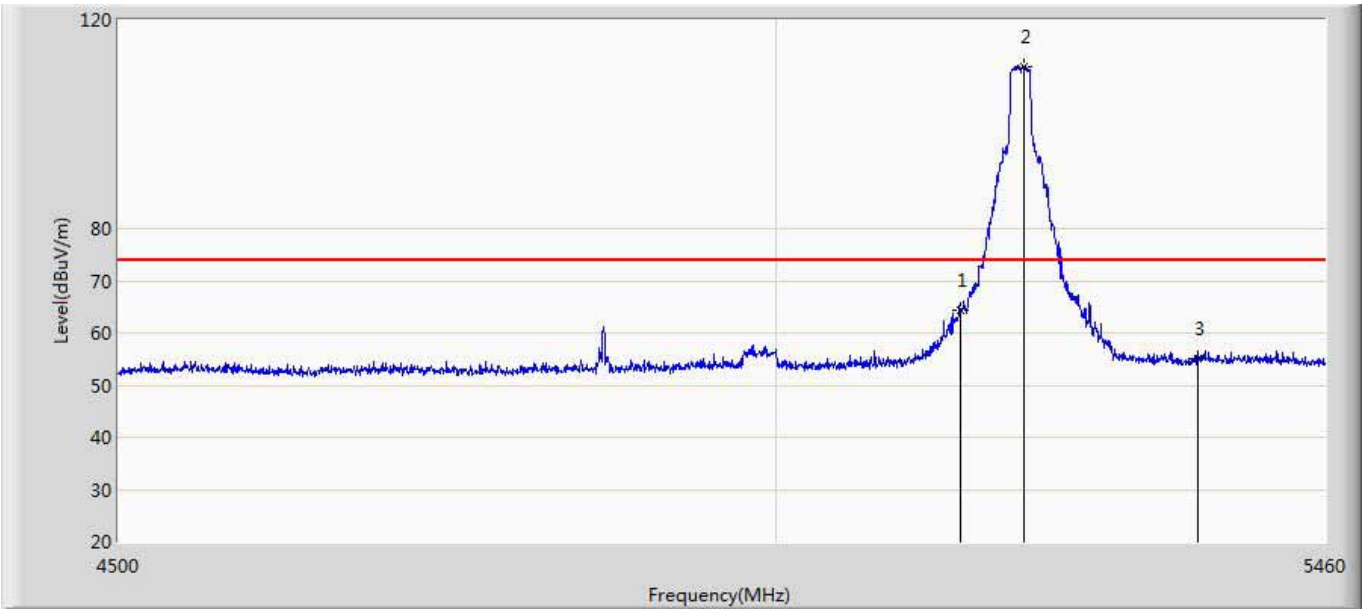
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	63.150	21.135	-10.850	74.000	42.015	PK
2	*	5178.240	103.468	61.323	N/A	N/A	42.145	PK
3		5350.000	55.213	12.697	-18.787	74.000	42.516	PK

Site: AC5	Time: 2015/09/30 - 09:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 1:Transmit at channel 5180Mhz by 802.11a	



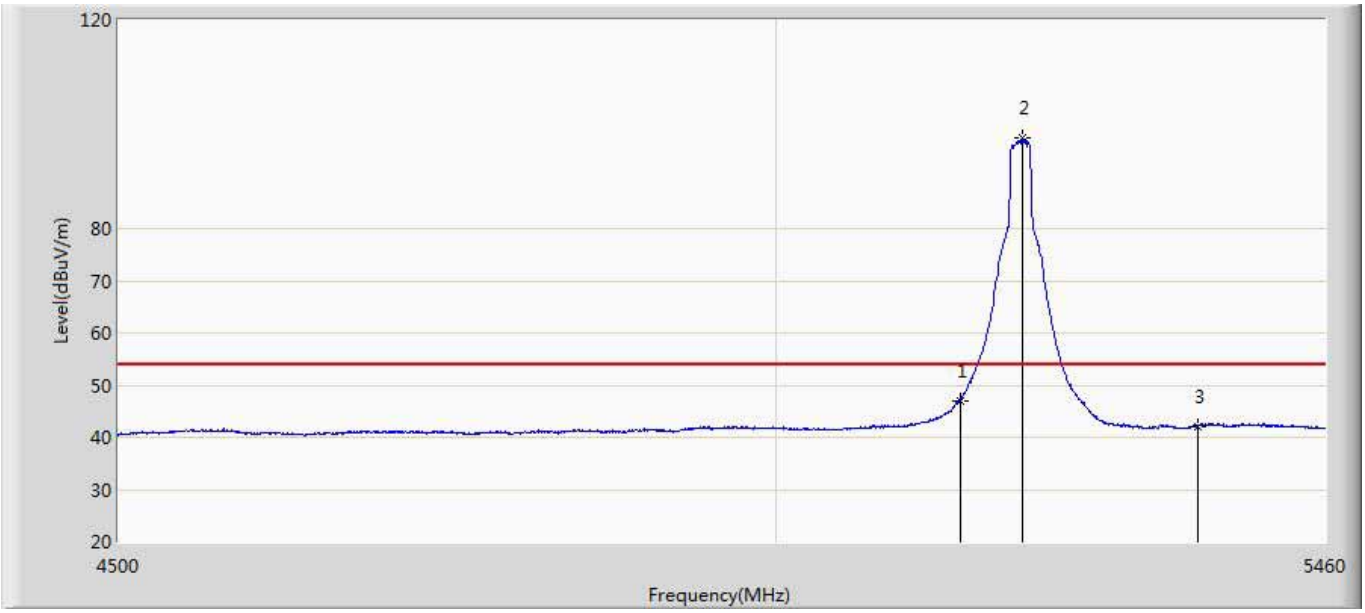
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	49.022	7.007	-4.978	54.000	42.015	AV
2	*	5176.800	93.457	51.312	N/A	N/A	42.146	AV
3		5350.000	42.183	-0.333	-11.817	54.000	42.516	AV

Site: AC5	Time: 2015/09/30 - 09:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 1:Transmit at channel 5200Mhz by 802.11a	



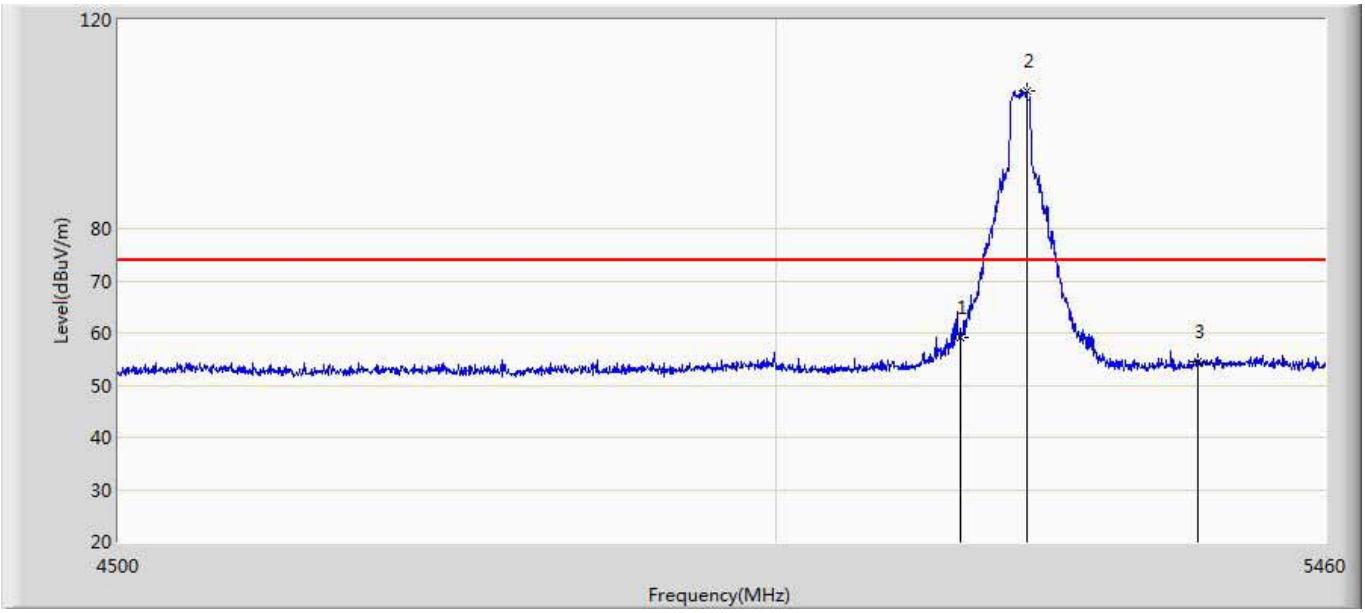
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	64.348	22.333	-9.652	74.000	42.015	PK
2	*	5202.720	110.920	68.895	N/A	N/A	42.025	PK
3		5350.000	54.938	12.422	-19.062	74.000	42.516	PK

Site: AC5	Time: 2015/09/30 - 10:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 1:Transmit at channel 5200Mhz by 802.11a	



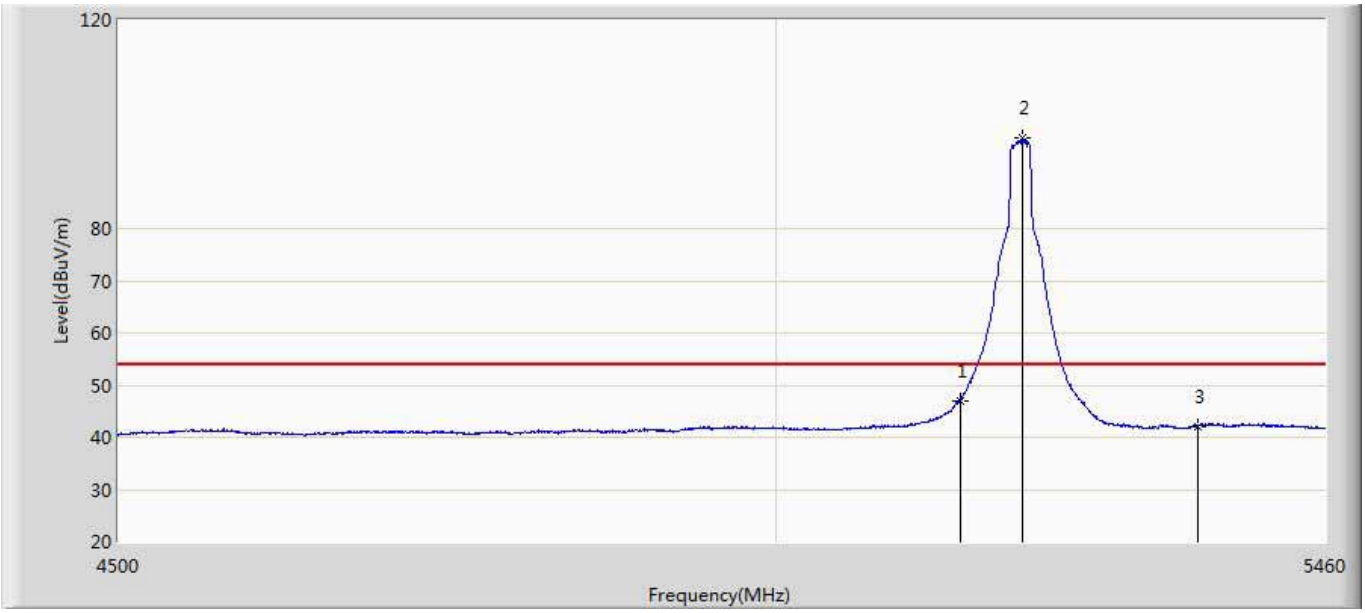
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	46.983	4.968	-7.017	54.000	42.015	AV
2	*	5201.760	97.262	55.234	N/A	N/A	42.028	AV
3		5350.000	42.106	-0.410	-11.894	54.000	42.516	AV

Site: AC5	Time: 2015/09/30 - 10:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 1:Transmit at channel 5200Mhz by 802.11a	



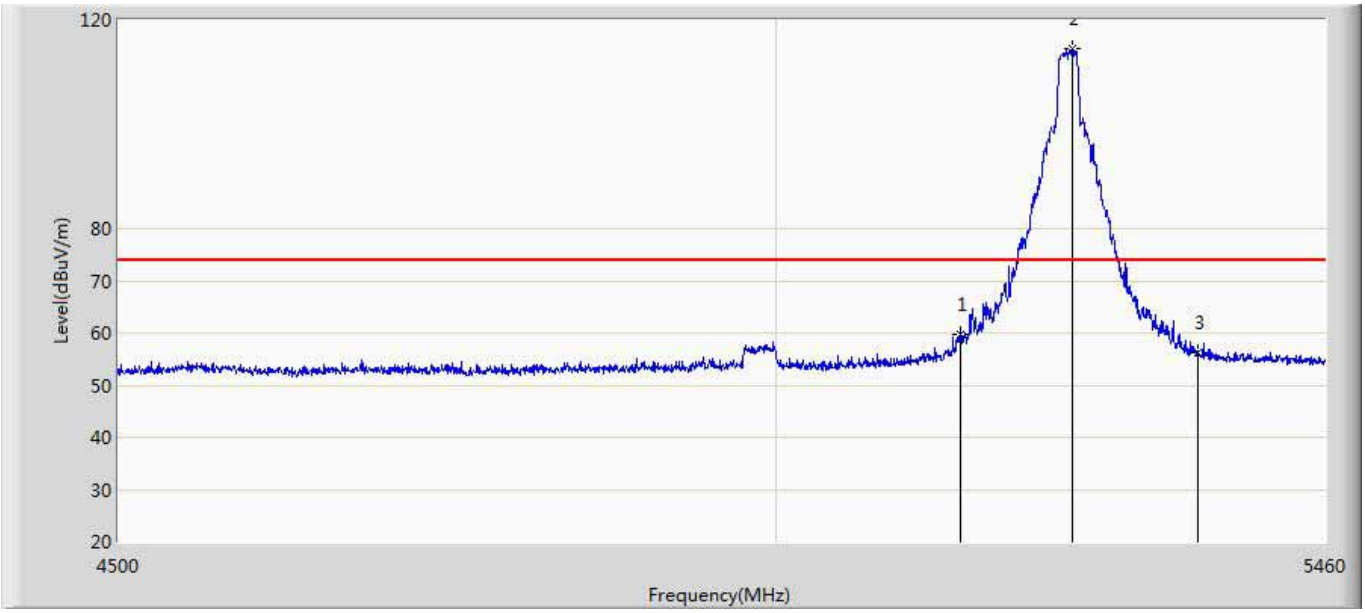
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	58.993	16.978	-15.007	74.000	42.015	PK
2	*	5205.600	106.498	64.482	N/A	N/A	42.016	PK
3		5350.000	54.443	11.927	-19.557	74.000	42.516	PK

Site: AC5	Time: 2015/09/30 - 10:10
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 1:Transmit at channel 5200Mhz by 802.11a 40	



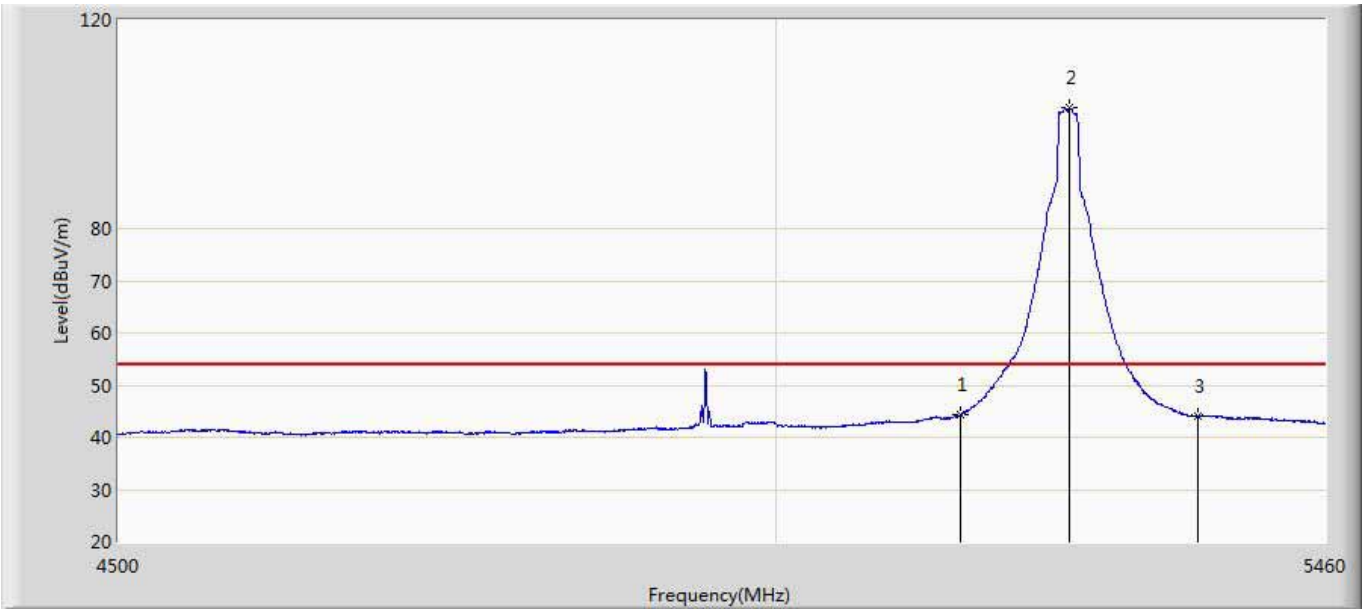
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	46.983	4.968	-7.017	54.000	42.015	AV
2	*	5201.760	97.262	55.234	N/A	N/A	42.028	AV
3		5350.000	42.106	-0.410	-11.894	54.000	42.516	AV

Site: AC5	Time: 2015/09/30 - 17:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 1:Transmit at channel 5240Mhz by 802.11a	



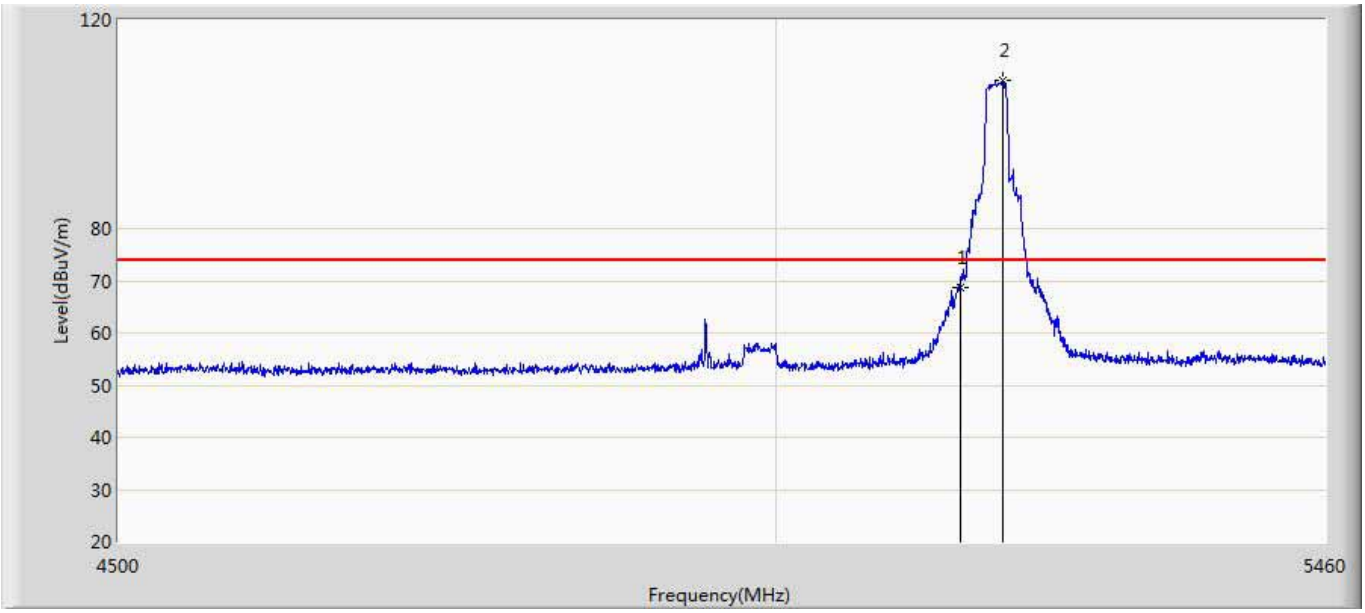
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	59.745	17.730	-14.255	74.000	42.015	PK
2	*	5243.040	114.494	72.333	N/A	N/A	42.161	PK
3		5350.000	56.366	13.850	-17.634	74.000	42.516	PK

Site: AC5	Time: 2015/09/30 - 17:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 1:Transmit at channel 5240Mhz by 802.11a 40	



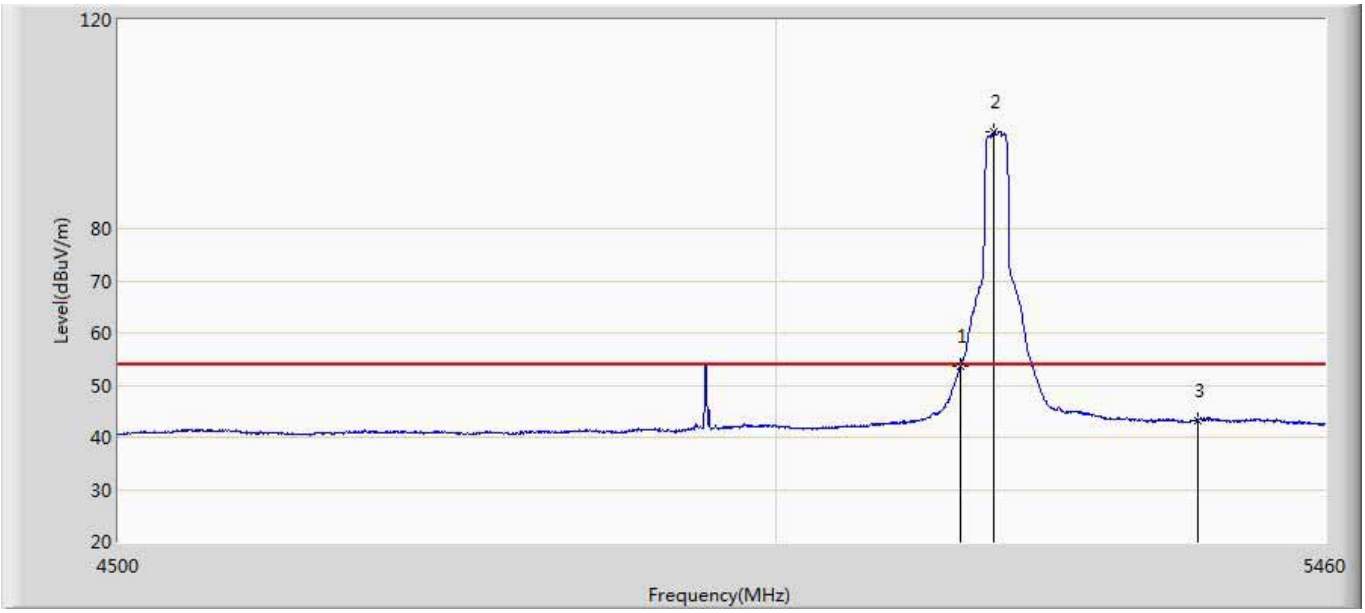
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	44.279	2.264	-9.721	54.000	42.015	AV
2	*	5241.120	103.178	61.035	N/A	N/A	42.142	AV
3		5350.000	43.980	1.464	-10.020	54.000	42.516	AV

Site: AC5	Time: 2015/09/30 - 17:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 2:Transmit at channel 5180Mhz by 802.11n20	



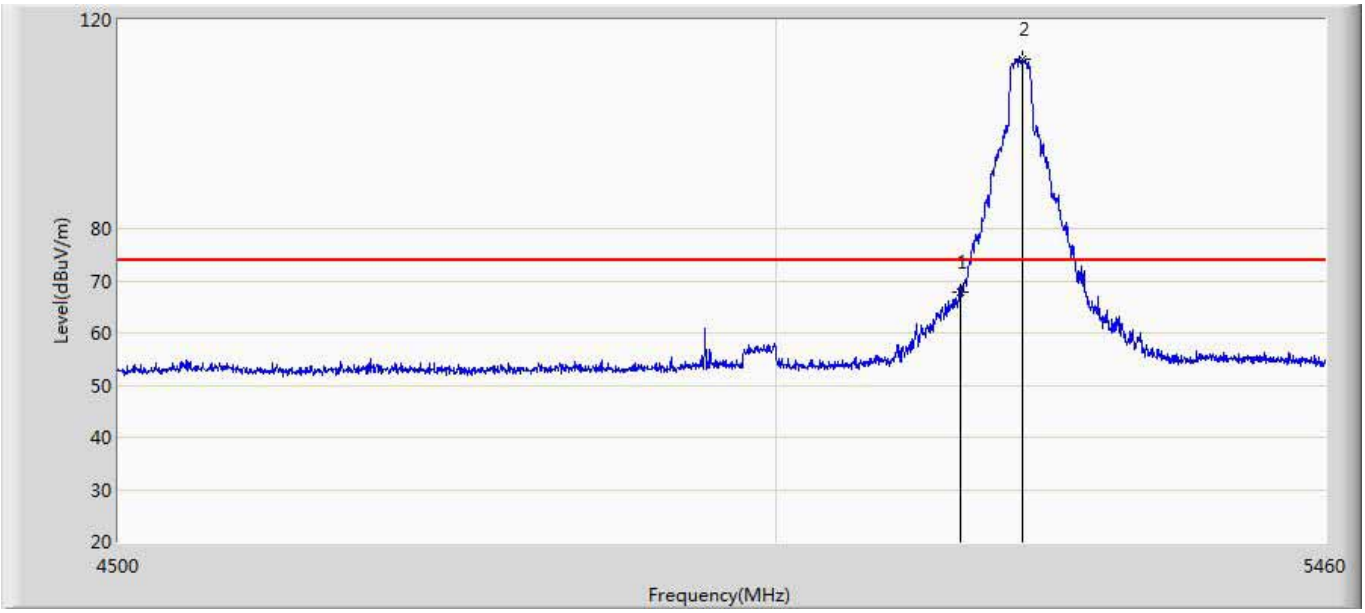
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	68.555	26.540	-5.445	74.000	42.015	PK
2	*	5184.960	108.314	66.188	N/A	N/A	42.126	PK

Site: AC5	Time: 2015/09/30 - 17:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 2:Transmit at channel 5180Mhz by 802.11n20	



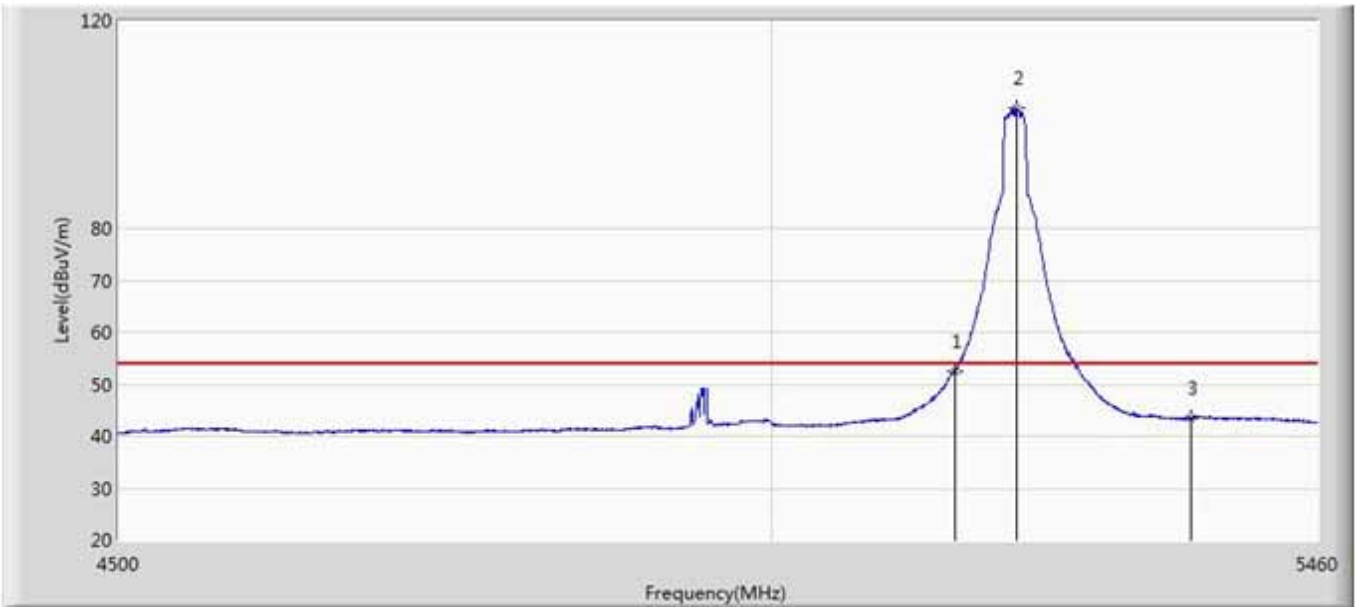
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	53.705	11.690	-0.295	54.000	42.015	AV
2	*	5178.240	98.420	56.275	N/A	N/A	42.145	AV
3		5350.000	43.323	0.807	-10.677	54.000	42.516	AV

Site: AC5	Time: 2015/09/30 - 17:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 2:Transmit at channel 5200Mhz by 802.11n20	



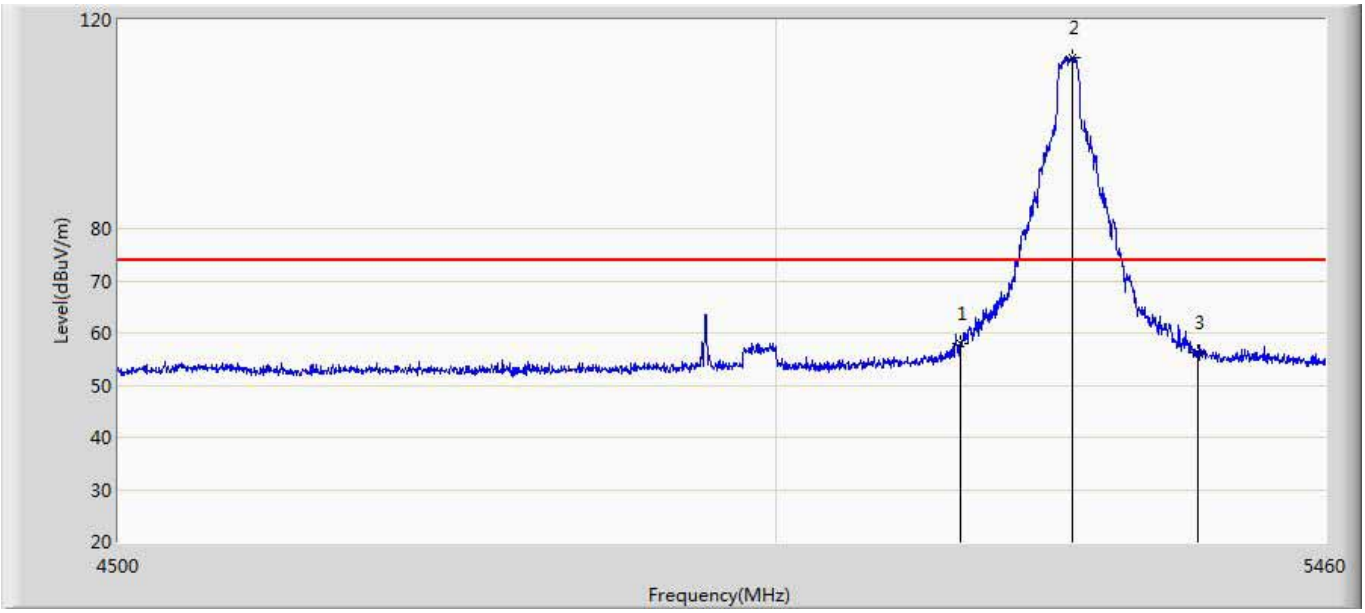
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	67.746	25.731	-6.254	74.000	42.015	PK
2	*	5201.280	112.514	70.485	N/A	N/A	42.029	PK

Site: AC5	Time: 2015/09/30 - 17:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 2:Transmit at channel 5200Mhz by 802.11n20	



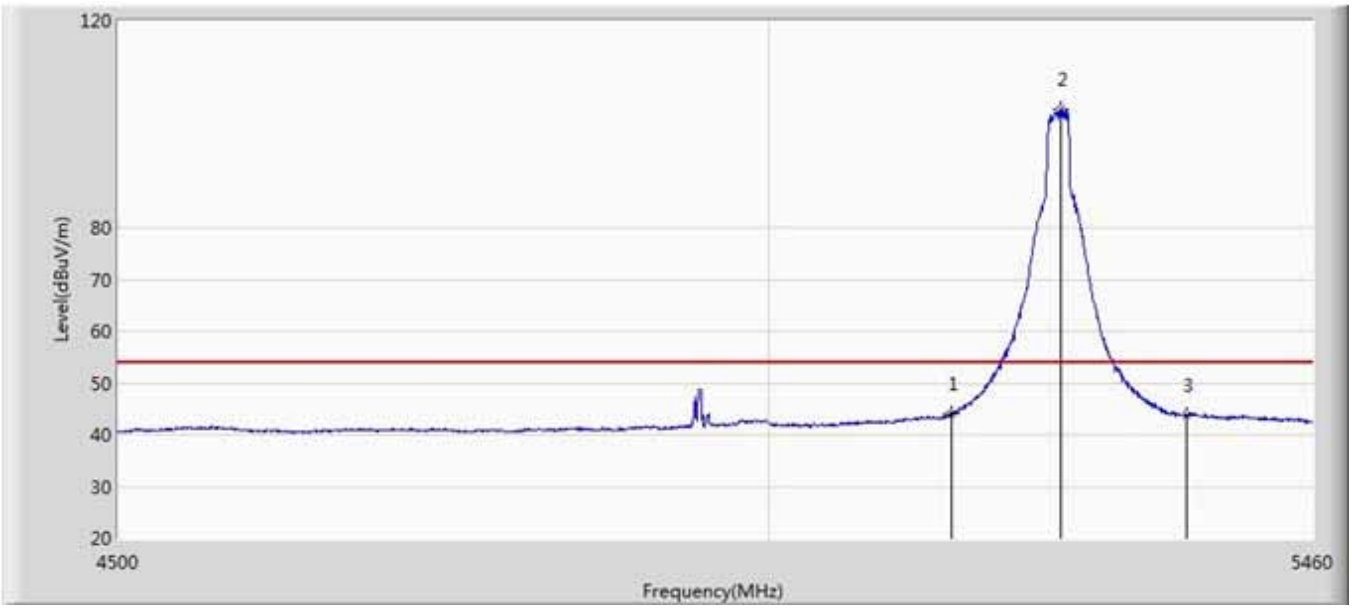
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	52.574	10.559	-1.426	54.000	42.015	AV
2	*	5201.760	103.127	61.099	N/A	N/A	42.028	AV
3		5350.000	43.552	1.036	-10.448	54.000	42.516	AV

Site: AC5	Time: 2015/09/30 - 17:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 2:Transmit at channel 5240Mhz by 802.11n20	



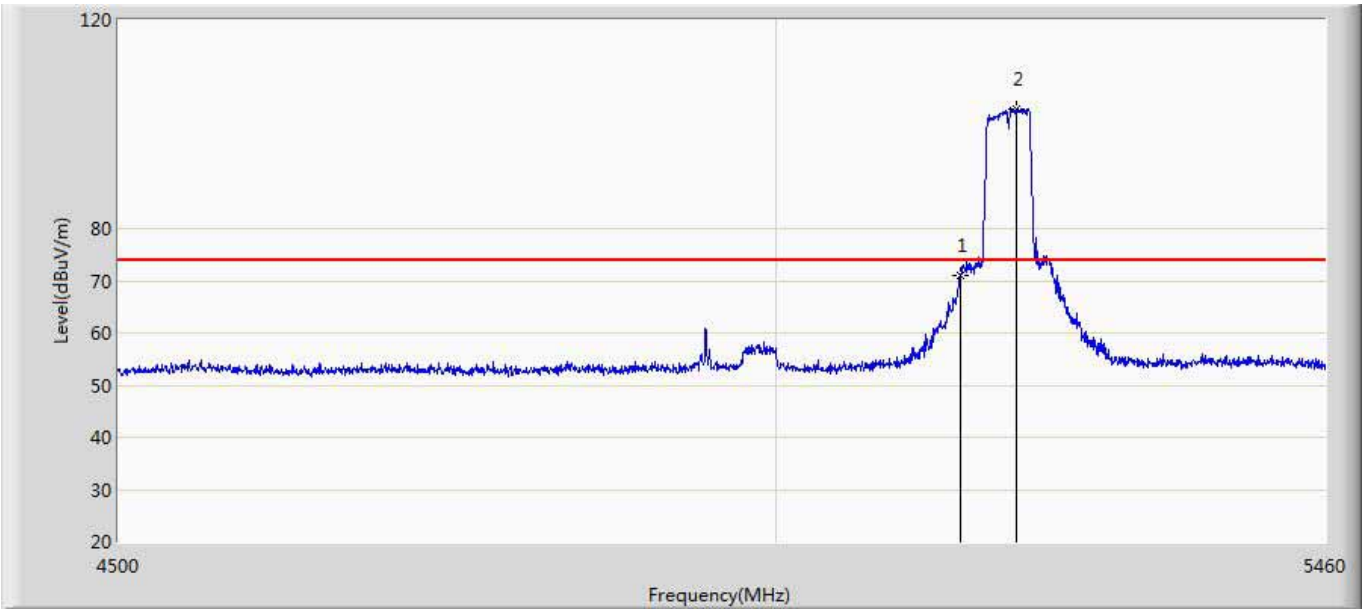
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	57.931	15.916	-16.069	74.000	42.015	PK
2	*	5244.000	112.809	70.638	N/A	N/A	42.171	PK
3		5350.000	56.164	13.648	-17.836	74.000	42.516	PK

Site: AC5	Time: 2015/09/30 - 17:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 2:Transmit at channel 5240Mhz by 802.11n20	



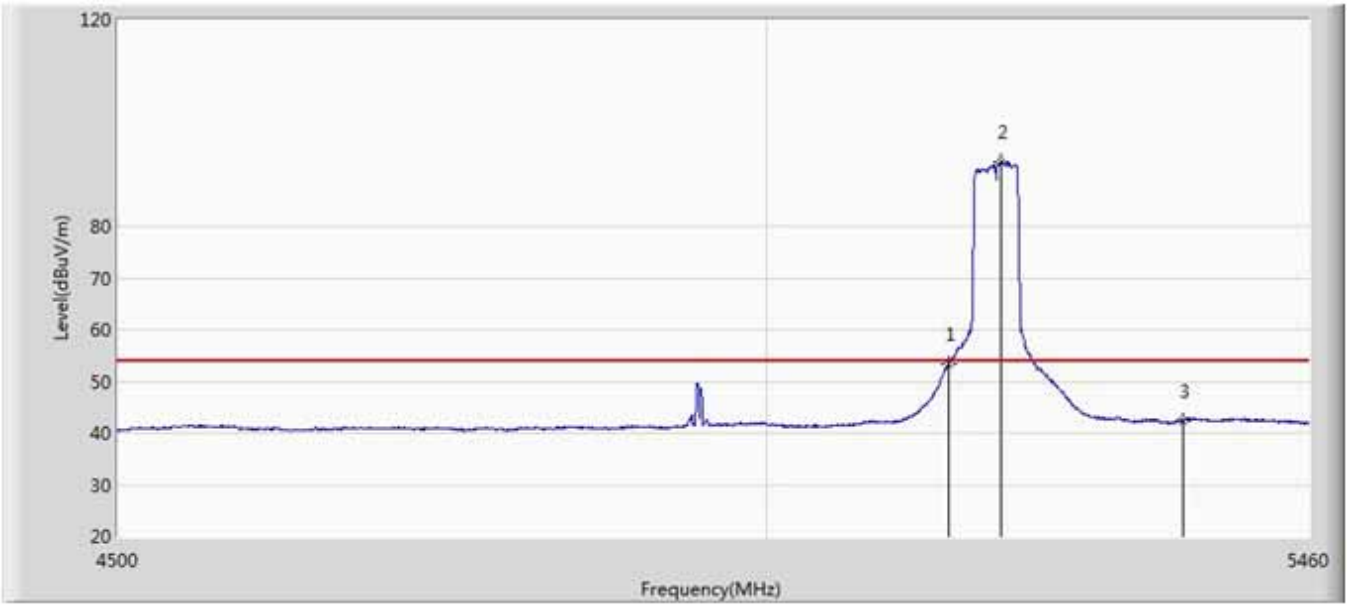
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	44.046	2.031	-9.954	54.000	42.015	AV
2	*	5241.600	102.869	60.722	N/A	N/A	42.148	AV
3		5350.000	43.792	1.276	-10.208	54.000	42.516	AV

Site: AC5	Time: 2015/09/30 - 17:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 3:Transmit at channel 5190Mhz by 802.11n40	



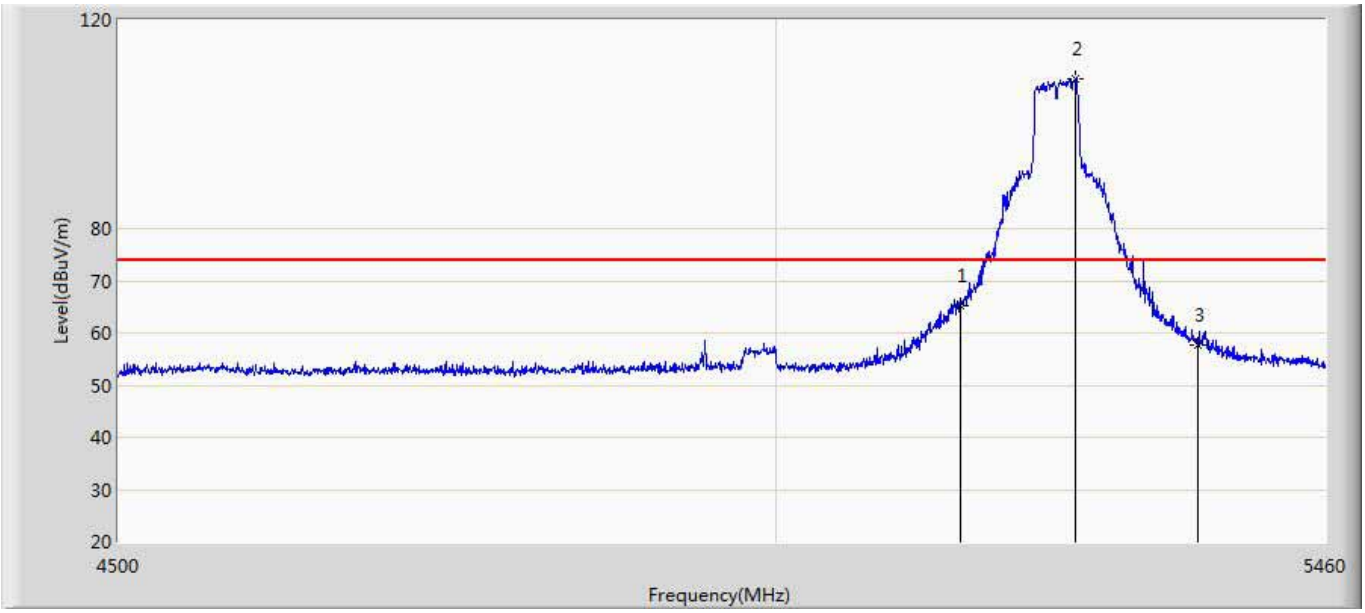
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	70.947	28.932	-3.053	74.000	42.015	PK
2	*	5196.480	102.816	60.763	N/A	N/A	42.052	PK

Site: AC5	Time: 2015/09/30 - 17:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 3:Transmit at channel 5190Mhz by 802.11n40	



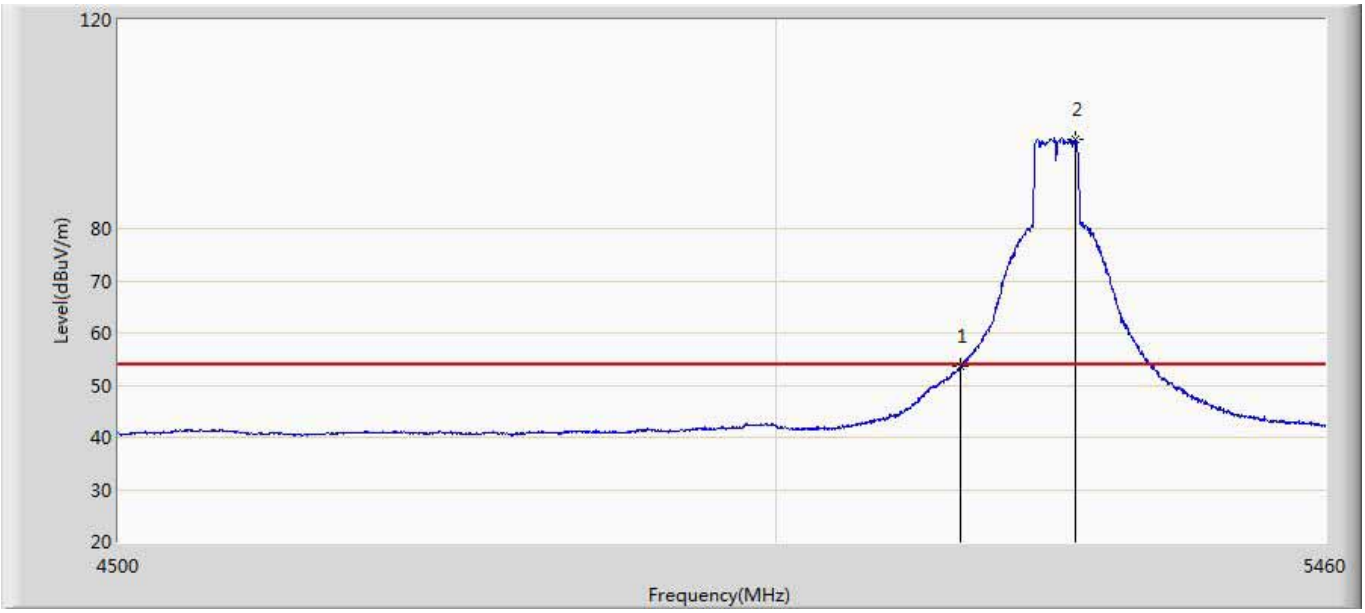
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	53.449	11.434	-0.551	54.000	42.015	AV
2	*	5194.560	92.534	50.469	N/A	N/A	42.065	AV
3		5350.000	42.462	-0.054	-11.538	54.000	42.516	AV

Site: AC5	Time: 2015/09/30 - 17:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 3:Transmit at channel 5230Mhz by 802.11n40	



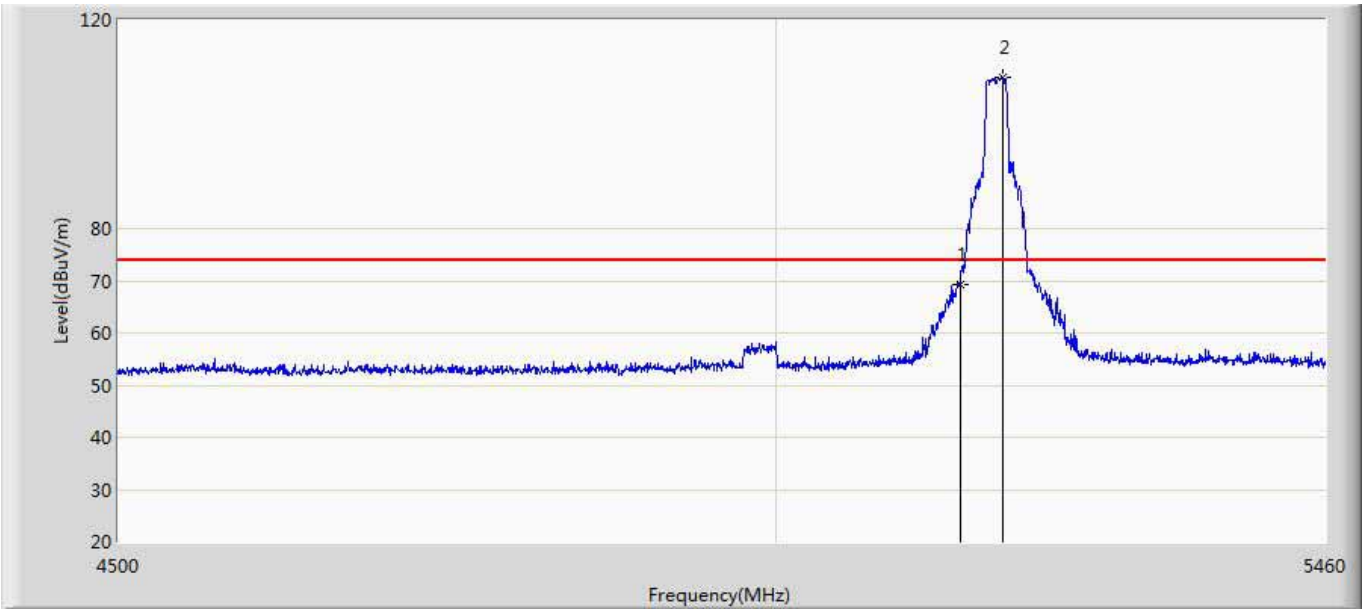
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	65.254	23.239	-8.746	74.000	42.015	PK
2	*	5245.440	108.696	66.511	N/A	N/A	42.185	PK
3		5350.000	57.668	15.152	-16.332	74.000	42.516	PK

Site: AC5	Time: 2015/09/30 - 17:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 3:Transmit at channel 5230Mhz by 802.11n40	



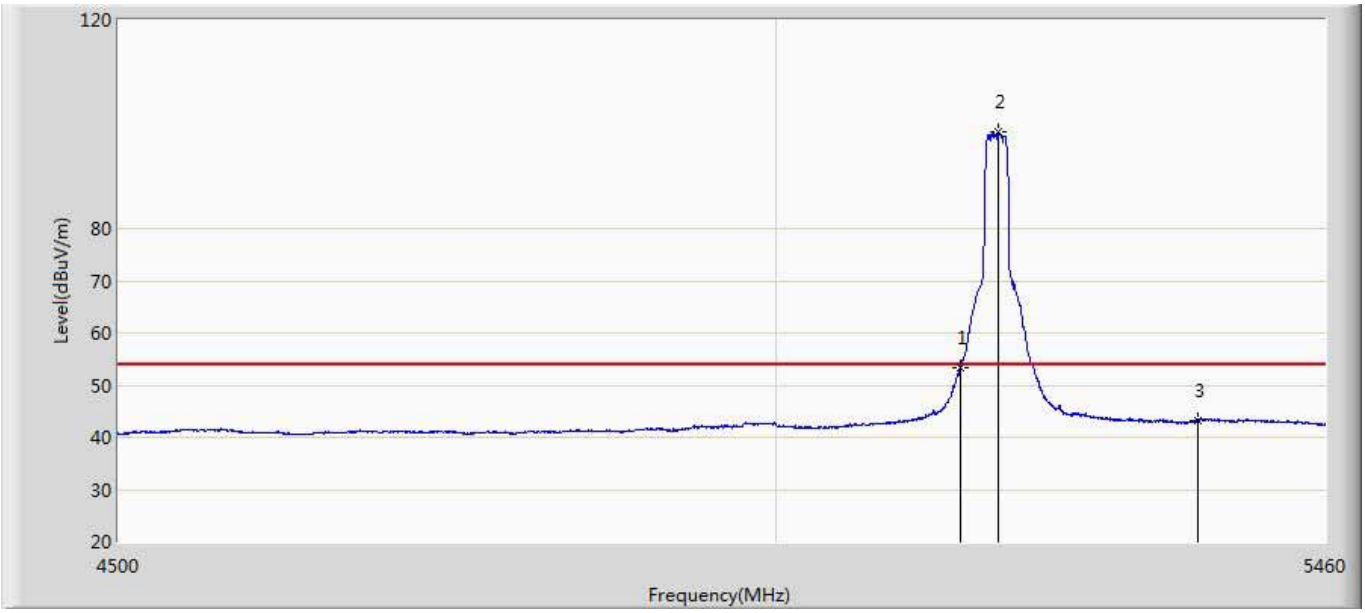
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	53.503	11.488	-0.497	54.000	42.015	AV
2	*	5245.920	97.239	55.049	N/A	N/A	42.190	AV

Site: AC5	Time: 2015/09/30 - 18:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 4:Transmit at channel 5180Mhz by 802.11ac20	



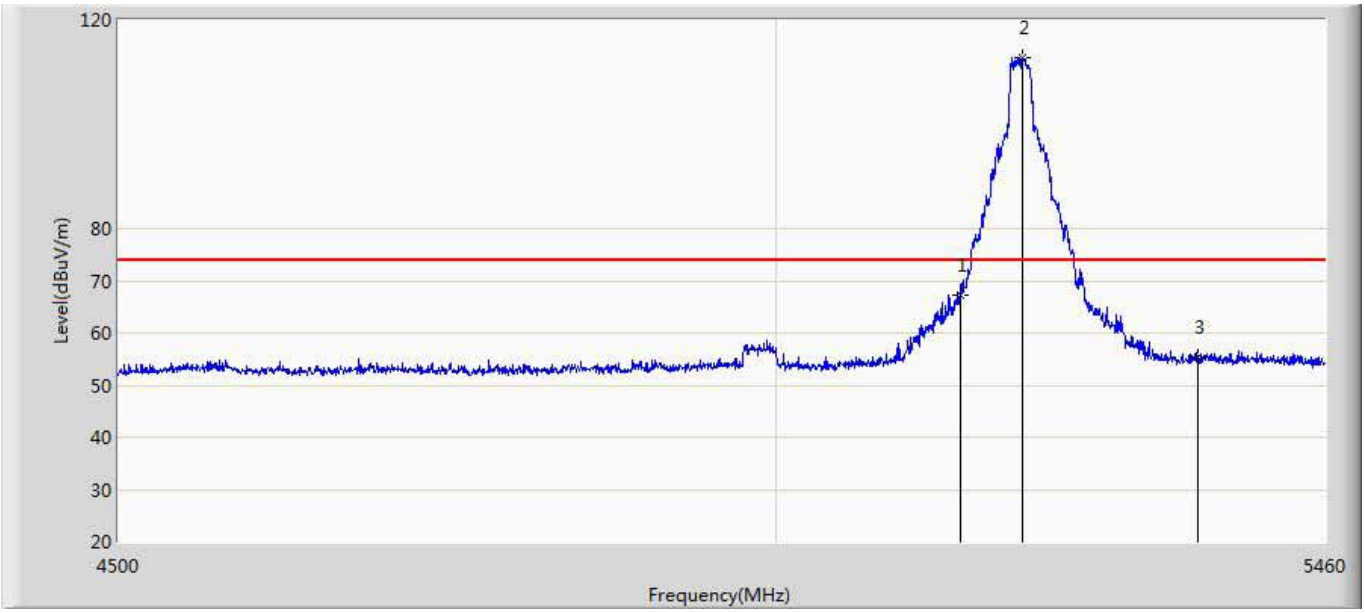
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	69.187	27.172	-4.813	74.000	42.015	PK
2	*	5185.440	109.080	66.957	N/A	N/A	42.123	PK

Site: AC5	Time: 2015/09/30 - 18:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 4:Transmit at channel 5180Mhz by 802.11ac20	



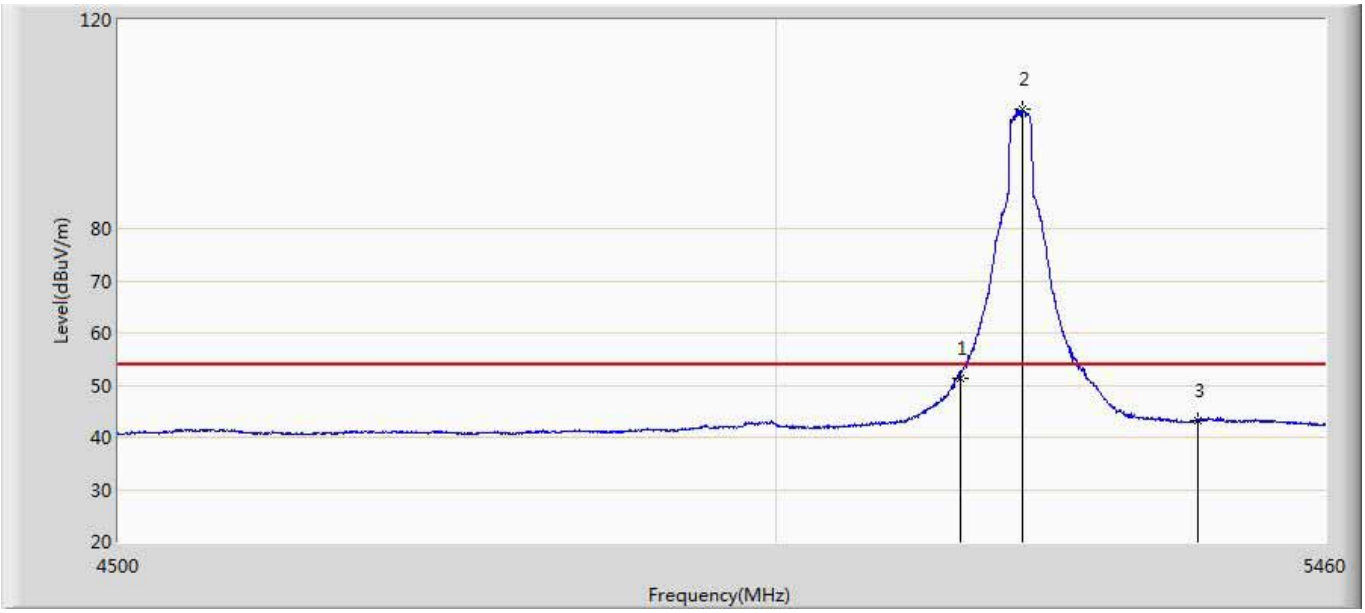
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	53.211	11.196	-0.789	54.000	42.015	AV
2	*	5181.600	98.463	56.318	N/A	N/A	42.146	AV
3		5350.000	43.289	0.773	-10.711	54.000	42.516	AV

Site: AC5	Time: 2015/09/30 - 18:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 4:Transmit at channel 5200Mhz by 802.11ac20	



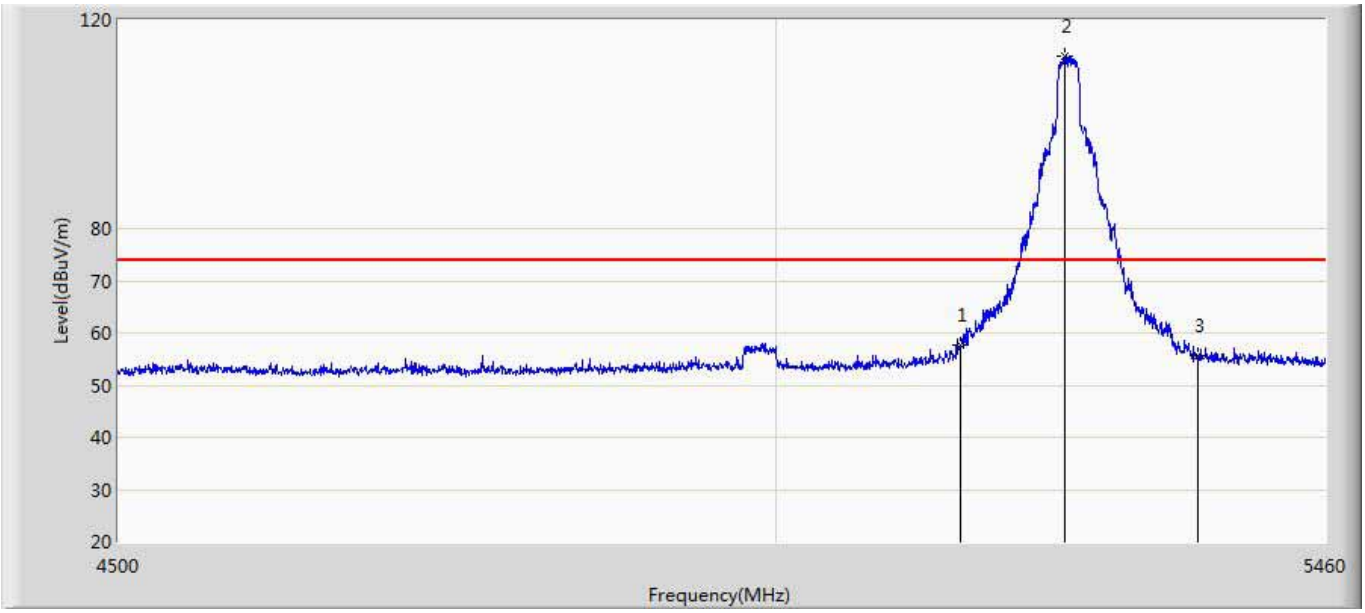
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	67.288	25.273	-6.712	74.000	42.015	PK
2	*	5201.280	112.811	70.782	N/A	N/A	42.029	PK
3		5350.000	55.489	12.973	-18.511	74.000	42.516	PK

Site: AC5	Time: 2015/09/30 - 18:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 4:Transmit at channel 5200Mhz by 802.11ac20	



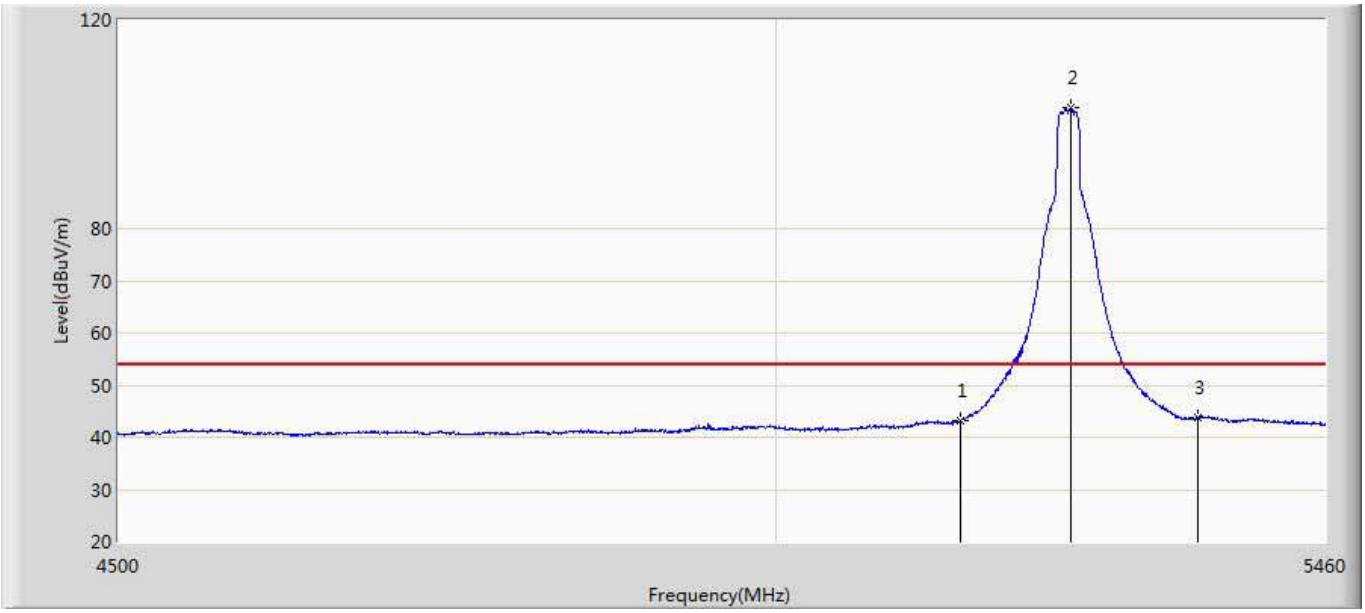
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	51.378	9.363	-2.622	54.000	42.015	AV
2	*	5201.760	102.807	60.779	N/A	N/A	42.028	AV
3		5350.000	43.293	0.777	-10.707	54.000	42.516	AV

Site: AC5	Time: 2015/09/30 - 18:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 4:Transmit at channel 5240Mhz by 802.11ac20	



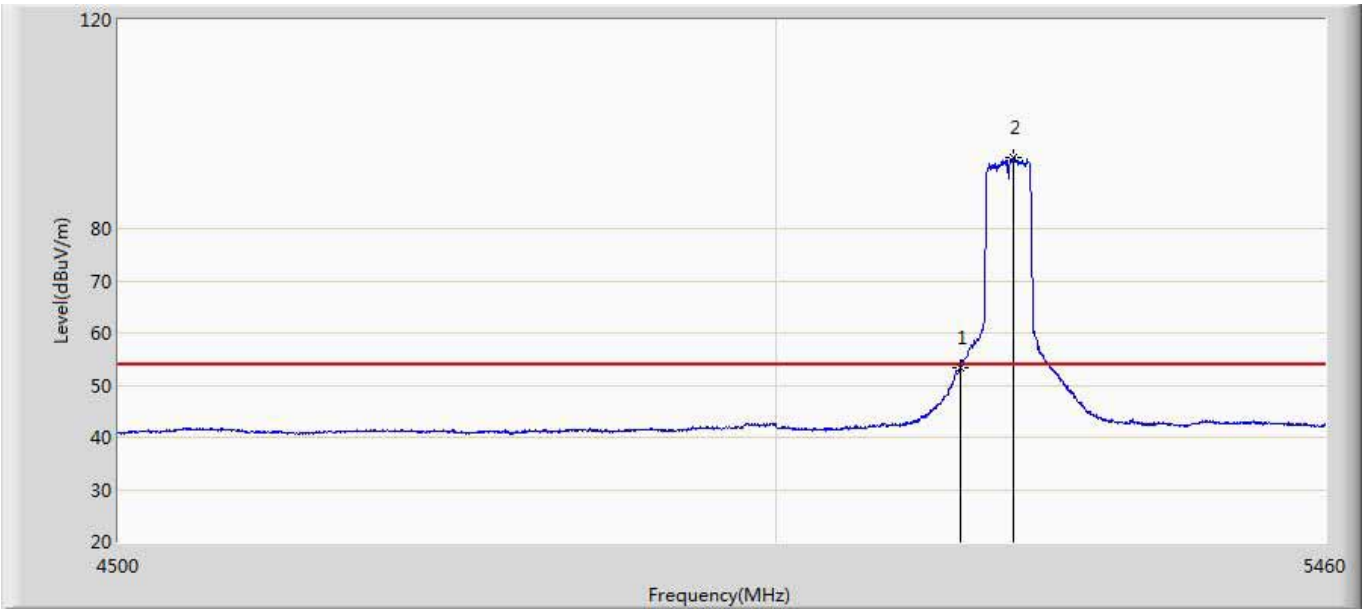
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	57.569	15.554	-16.431	74.000	42.015	PK
2	*	5236.800	113.103	71.003	N/A	N/A	42.100	PK
3		5350.000	55.549	13.033	-18.451	74.000	42.516	PK

Site: AC5	Time: 2015/09/30 - 18:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 4:Transmit at channel 5240Mhz by 802.11ac20	



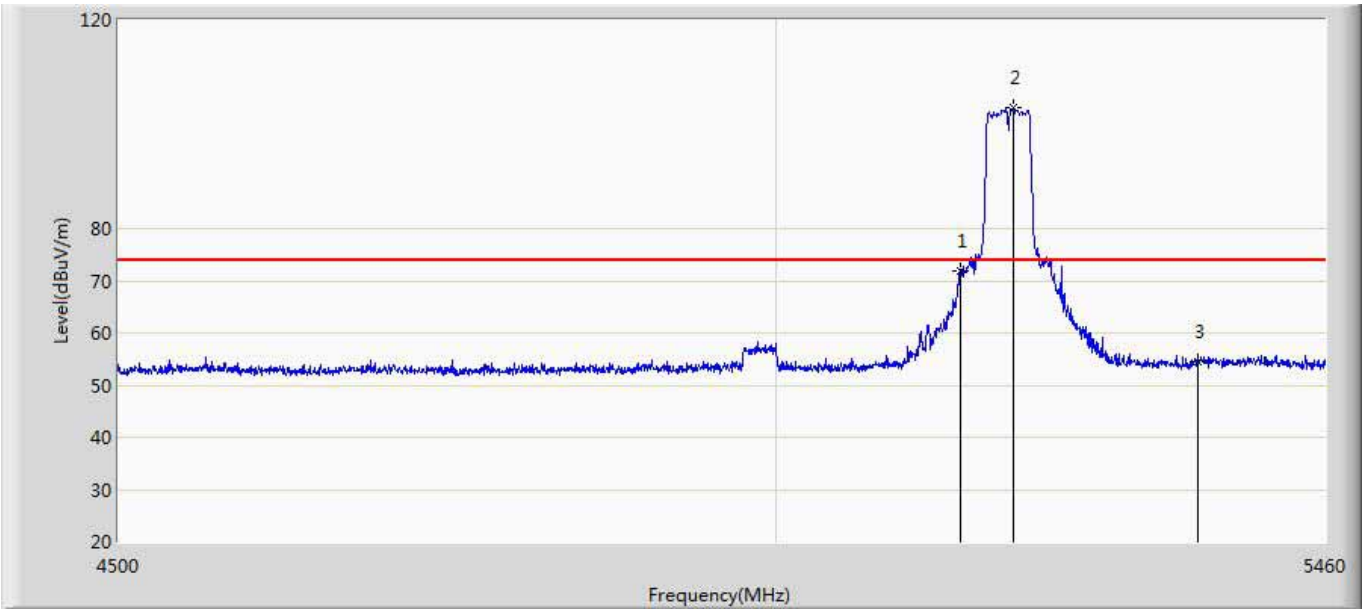
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	43.155	1.140	-10.845	54.000	42.015	AV
2	*	5242.560	103.065	60.908	N/A	N/A	42.157	AV
3		5350.000	43.698	1.182	-10.302	54.000	42.516	AV

Site: AC5	Time: 2015/09/30 - 18:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 5:Transmit at channel 5190Mhz by 802.11ac40	



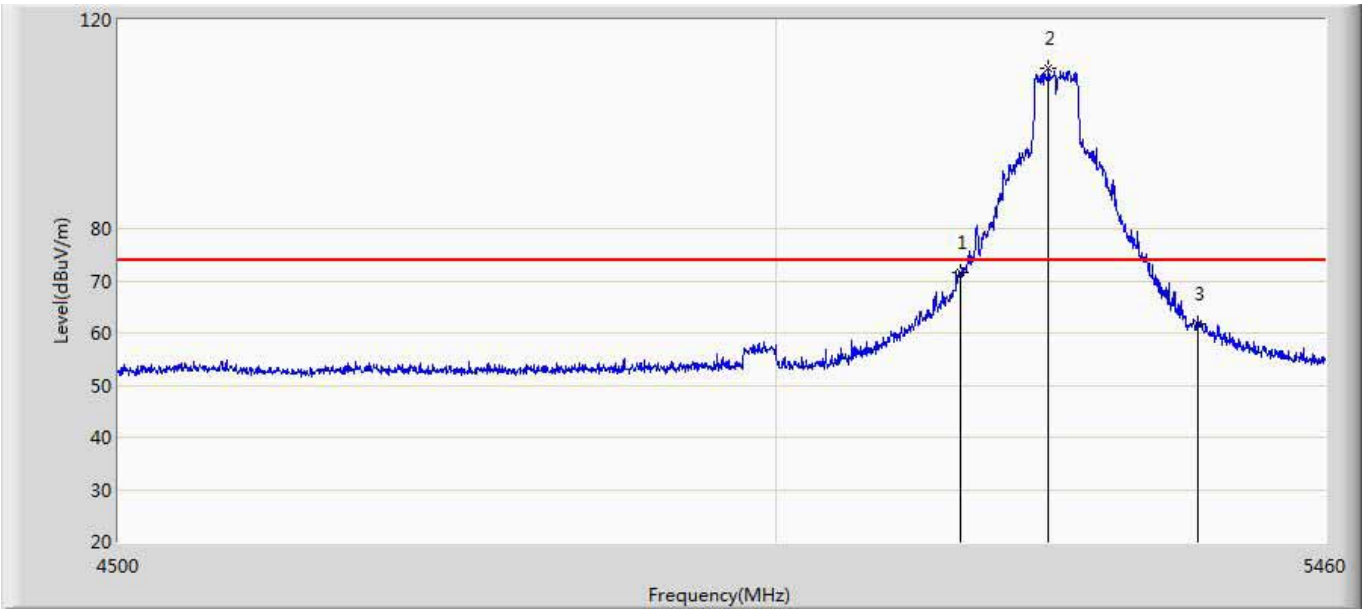
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	53.348	11.333	-0.652	54.000	42.015	AV
2	*	5193.600	93.644	51.573	N/A	N/A	42.071	AV

Site: AC5	Time: 2015/09/30 - 18:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 5:Transmit at channel 5190Mhz by 802.11ac40	



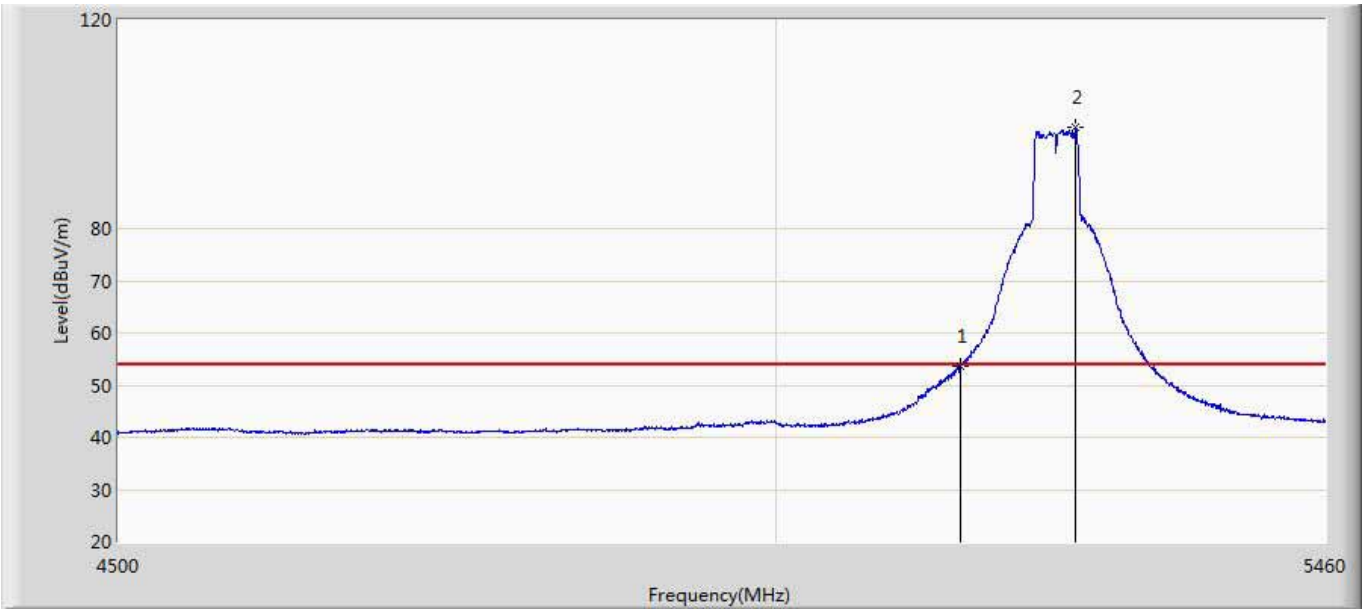
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	71.879	29.864	-2.121	74.000	42.015	PK
2	*	5193.600	103.065	60.994	N/A	N/A	42.071	PK
3		5350.000	54.500	11.984	-19.500	74.000	42.516	PK

Site: AC5	Time: 2015/09/30 - 18:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 5:Transmit at channel 5230Mhz by 802.11ac40	



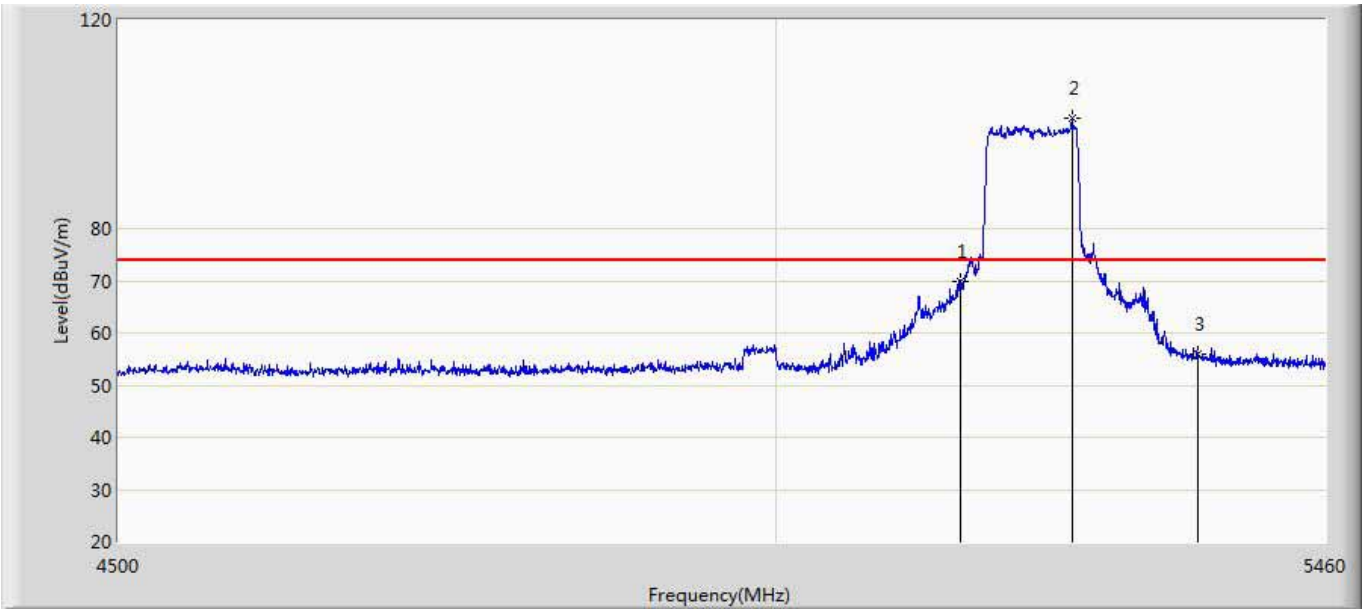
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	71.535	29.520	-2.465	74.000	42.015	PK
2	*	5223.360	110.799	68.782	N/A	N/A	42.017	PK
3		5350.000	61.687	19.171	-12.313	74.000	42.516	PK

Site: AC5	Time: 2015/09/30 - 18:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 5:Transmit at channel 5230Mhz by 802.11ac40	



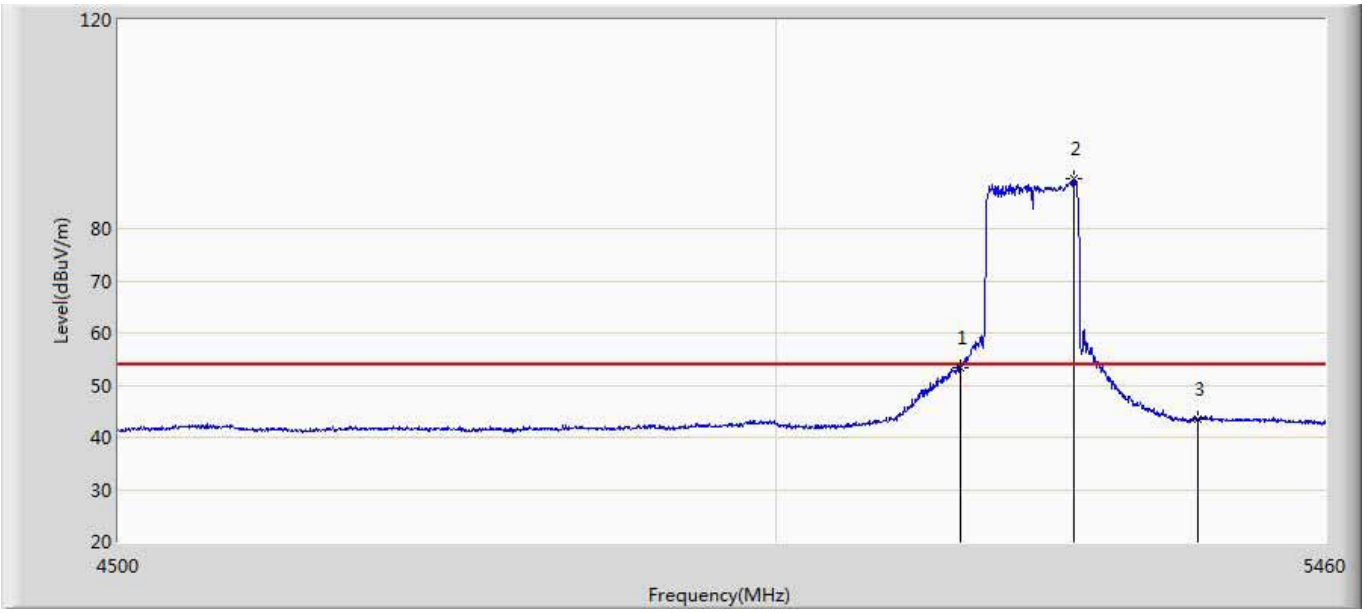
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	53.507	11.492	-0.493	54.000	42.015	AV
2	*	5245.920	99.288	57.098	N/A	N/A	42.190	AV

Site: AC5	Time: 2015/09/30 - 19:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5210Mhz by 802.11ac80	



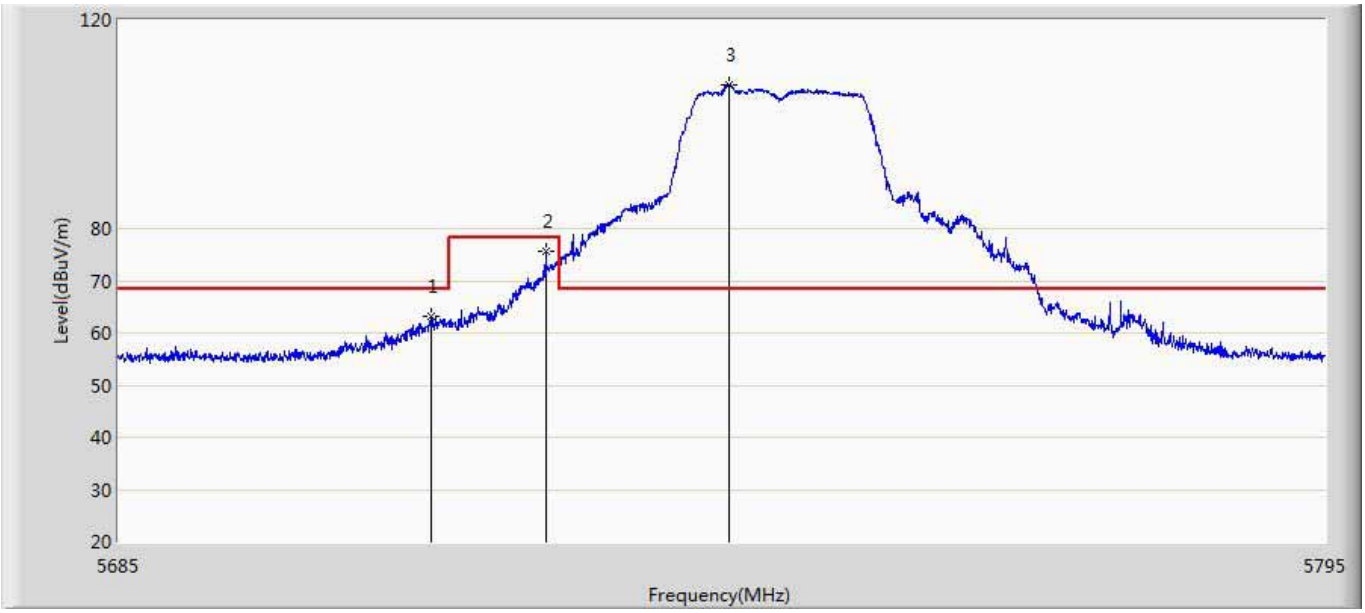
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	69.921	27.906	-4.079	74.000	42.015	PK
2	*	5243.040	101.022	58.861	N/A	N/A	42.161	PK
3		5350.000	55.896	13.380	-18.104	74.000	42.516	PK

Site: AC5	Time: 2015/09/30 - 19:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5210Mhz by 802.11ac80	



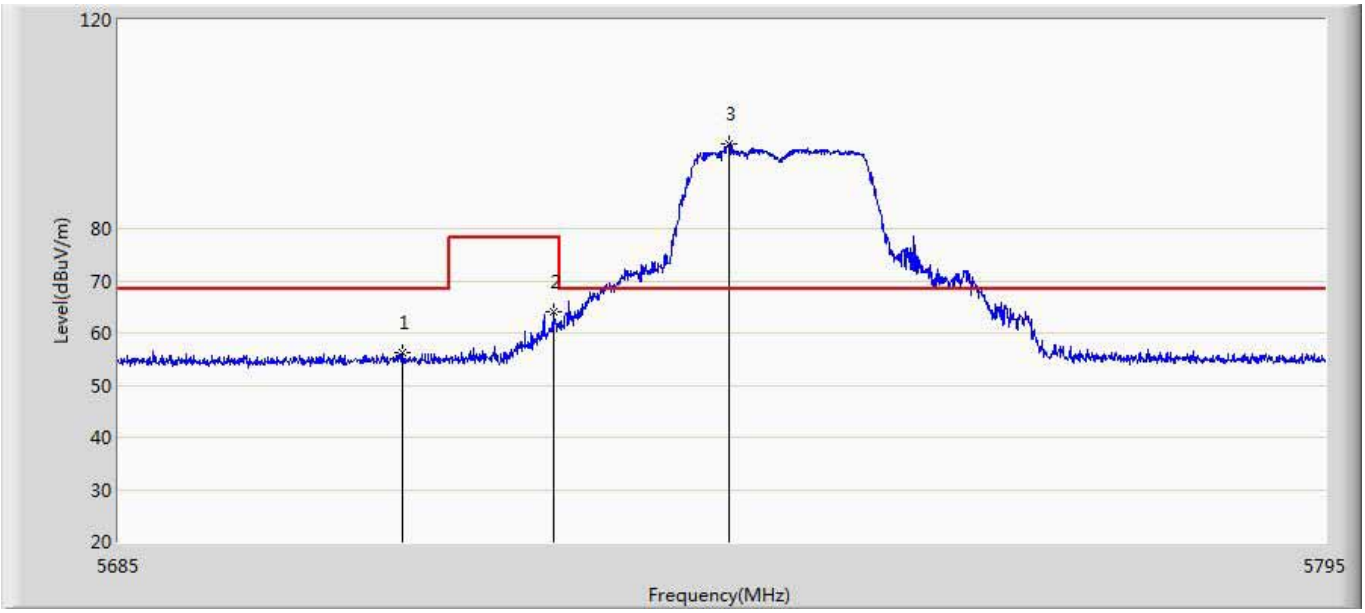
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	53.433	11.418	-0.567	54.000	42.015	AV
2	*	5244.480	89.642	47.466	N/A	N/A	42.175	AV
3		5350.000	43.428	0.912	-10.572	54.000	42.516	AV

Site: AC5	Time: 2015/10/08 - 20:29
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5745Mhz by 802.11A	



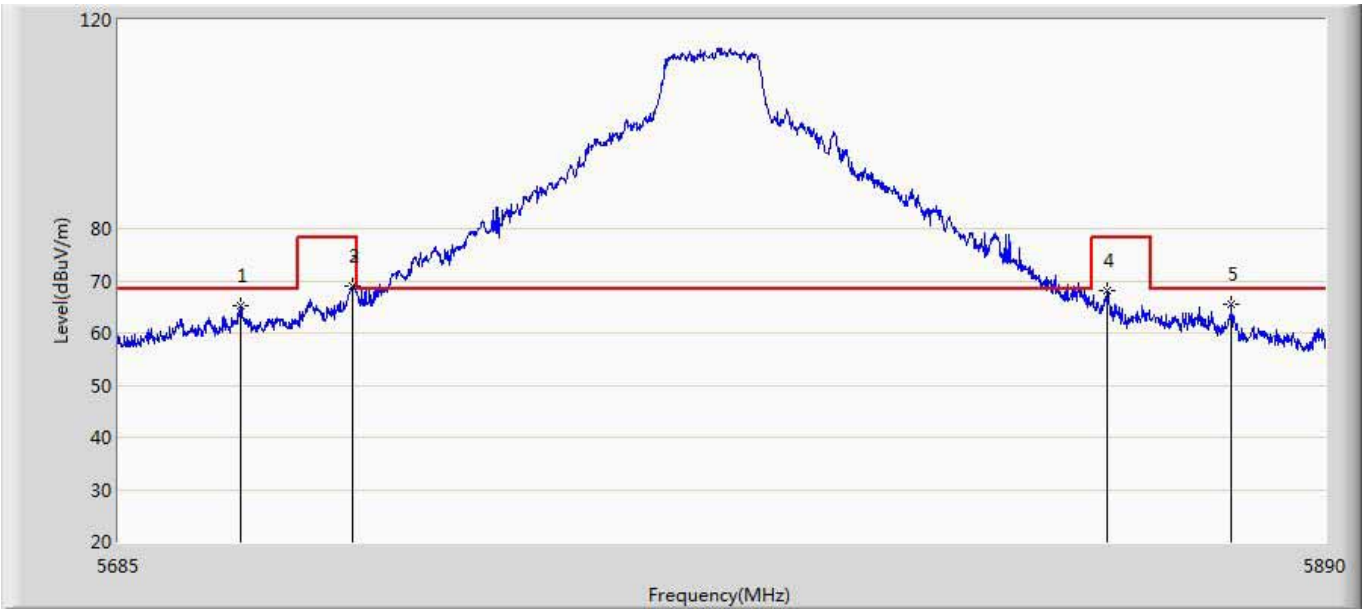
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5713.270	63.146	19.840	-5.154	68.300	43.306	PK
2		5723.720	75.750	32.480	-2.550	78.300	43.270	PK
3	*	5740.440	107.455	64.158	N/A	N/A	43.296	PK

Site: AC5	Time: 2015/10/08 - 20:31
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5745Mhz by 802.11A	



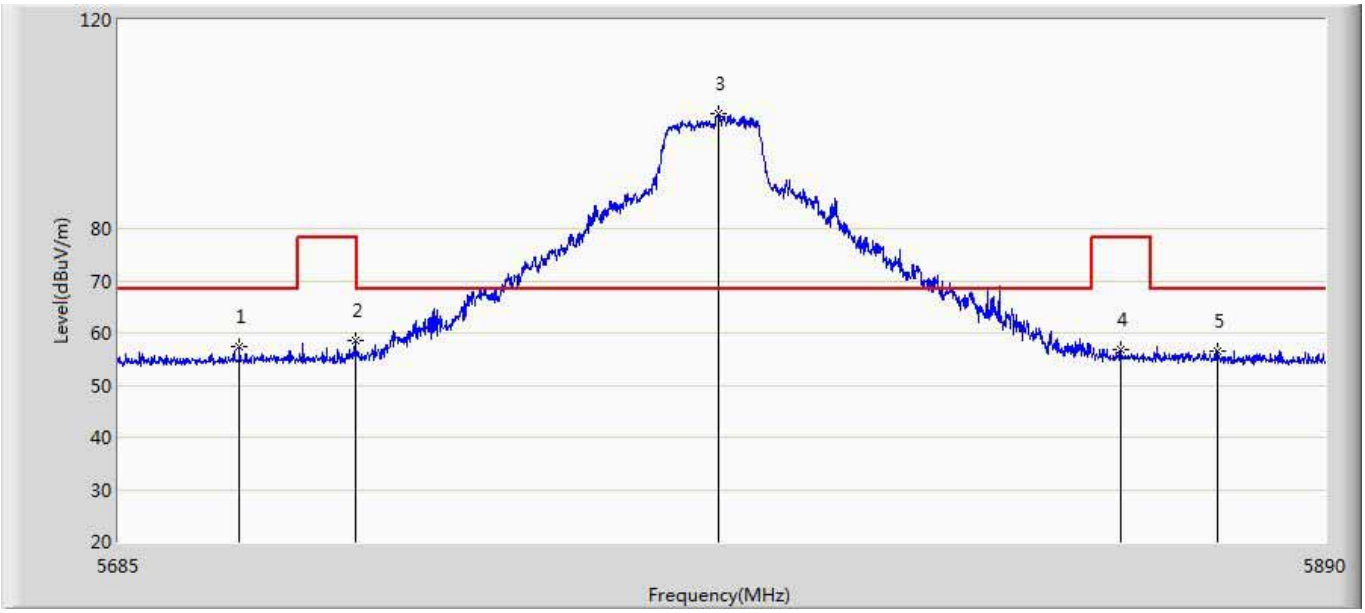
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5710.685	56.183	12.868	-12.117	68.300	43.314	PK
2		5724.435	64.025	20.757	-14.275	78.300	43.268	PK
3	*	5740.440	96.330	53.033	N/A	N/A	43.296	PK

Site: AC5	Time: 2015/10/09 - 16:02
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5785Mhz by 802.11A	



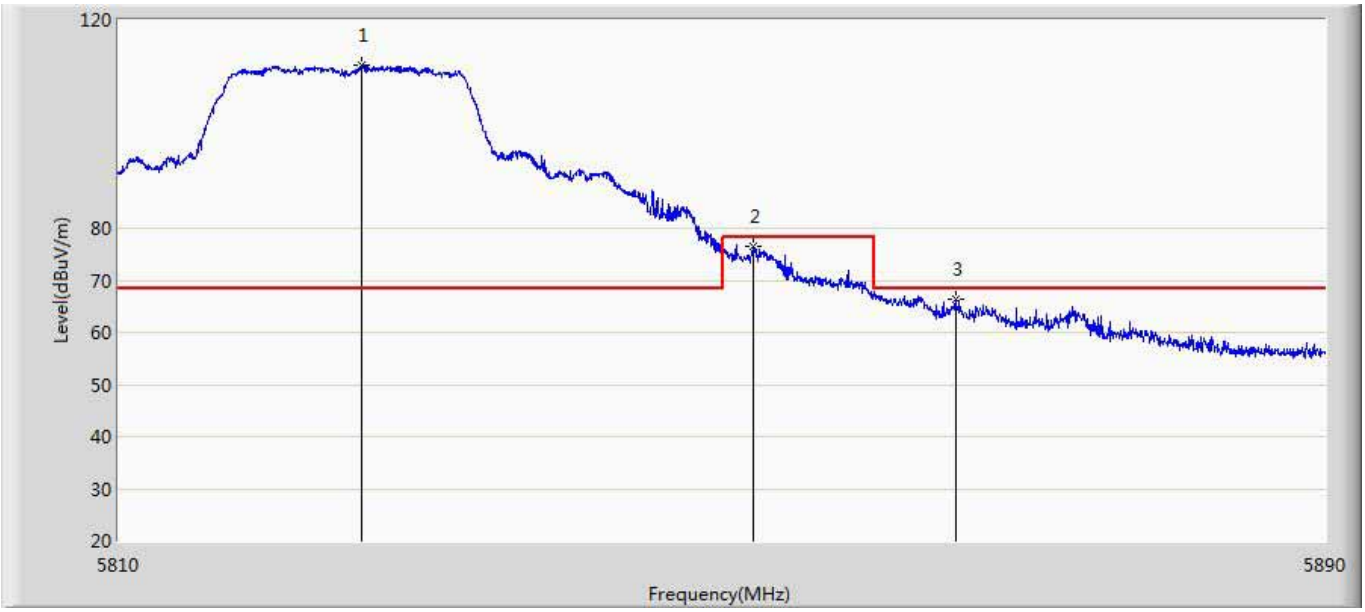
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5705.603	65.076	21.766	-3.224	68.300	43.309	PK
2		5724.257	68.950	25.682	-9.350	78.300	43.269	PK
3		5724.257	68.950	25.682	-9.350	78.300	43.269	PK
4		5852.587	67.987	24.498	-10.313	78.300	43.489	PK
5	*	5873.805	65.447	21.849	-2.853	68.300	43.598	PK

Site: AC5	Time: 2015/10/09 - 16:04
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5785Mhz by 802.11A	



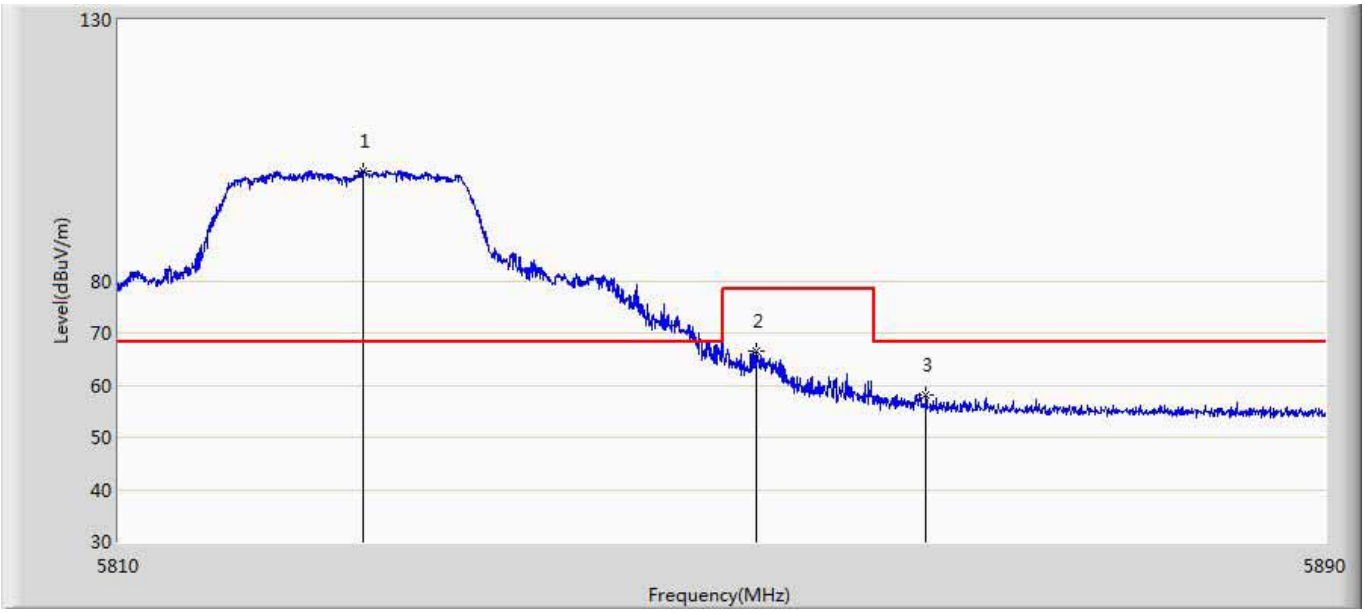
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5705.295	57.267	13.958	-11.033	68.300	43.309	PK
2		5724.667	58.433	15.166	-19.867	78.300	43.267	PK
3	*	5786.167	102.030	58.719	N/A	N/A	43.312	PK
4		5854.740	56.852	13.346	-21.448	78.300	43.506	PK
5		5871.447	56.564	12.973	-11.736	68.300	43.590	PK

Site: AC5	Time: 2015/10/08 - 20:36
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5825Mhz by 802.11A	



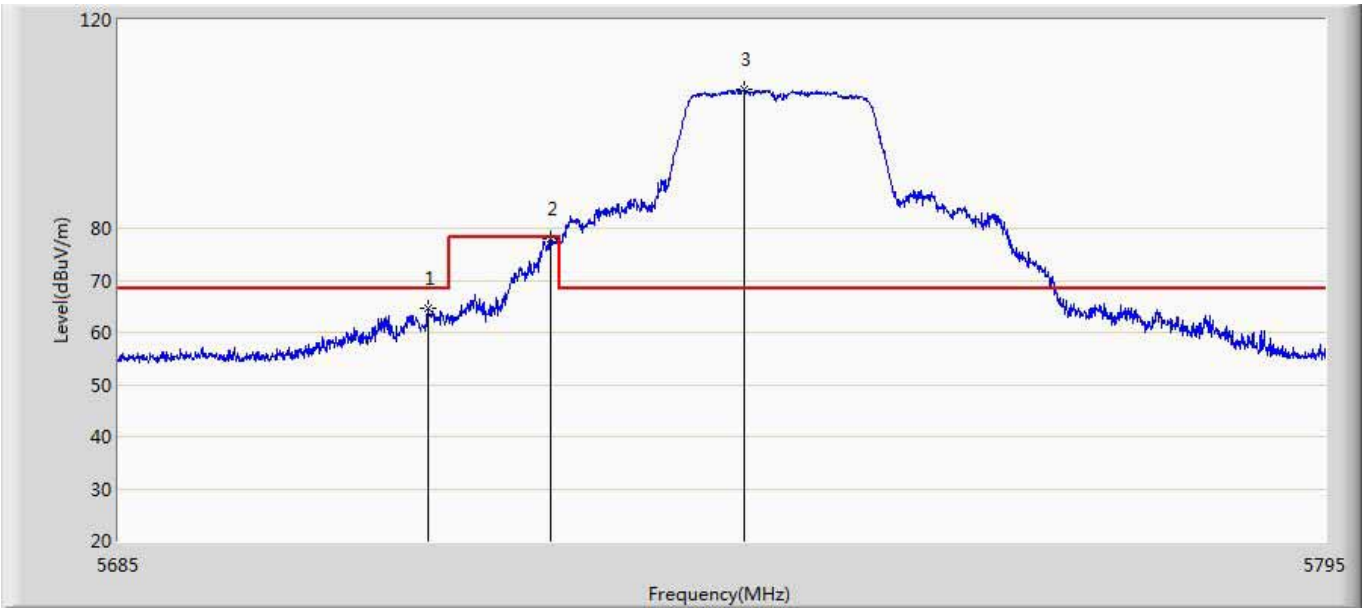
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5826.040	111.232	67.827	N/A	N/A	43.405	PK
2		5851.960	76.610	33.126	-1.690	78.300	43.484	PK
3		5865.400	66.326	22.754	-1.974	68.300	43.572	PK

Site: AC5	Time: 2015/10/08 - 20:38
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5825Mhz by 802.11A	



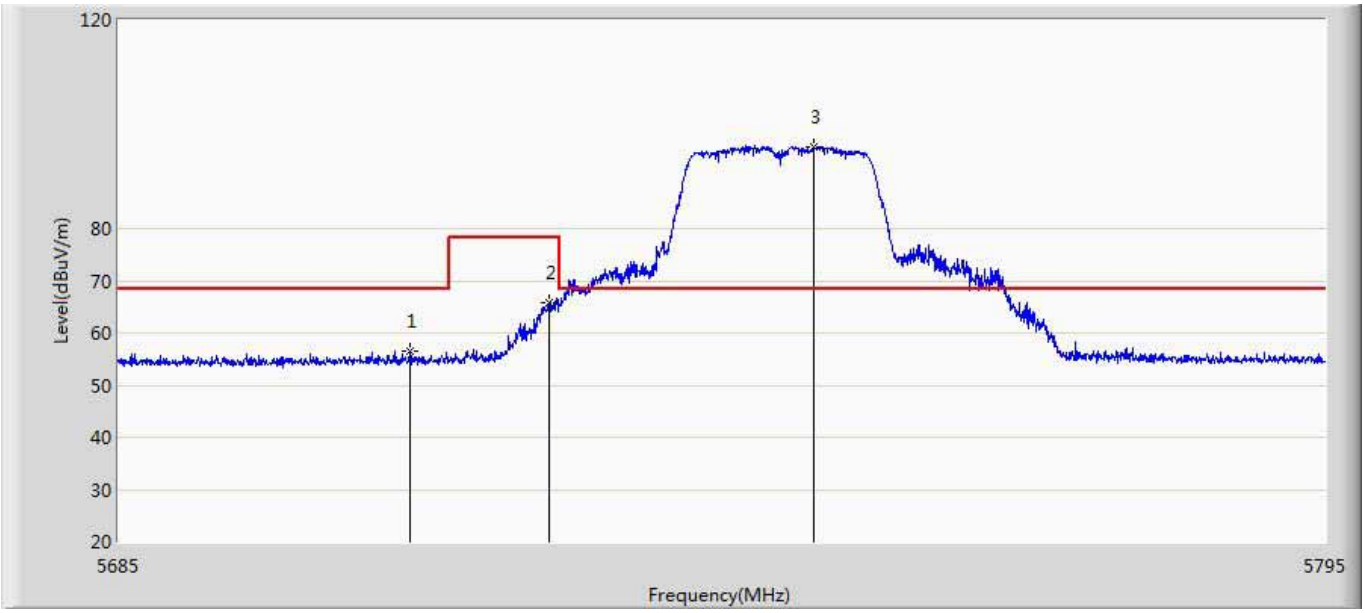
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5826.160	101.028	57.623	N/A	N/A	43.405	PK
2		5852.200	66.588	23.102	-11.712	78.300	43.486	PK
3		5863.440	58.045	14.479	-10.255	68.300	43.566	PK

Site: AC5	Time: 2015/10/08 - 20:03
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5745Mhz by 802.11N20	



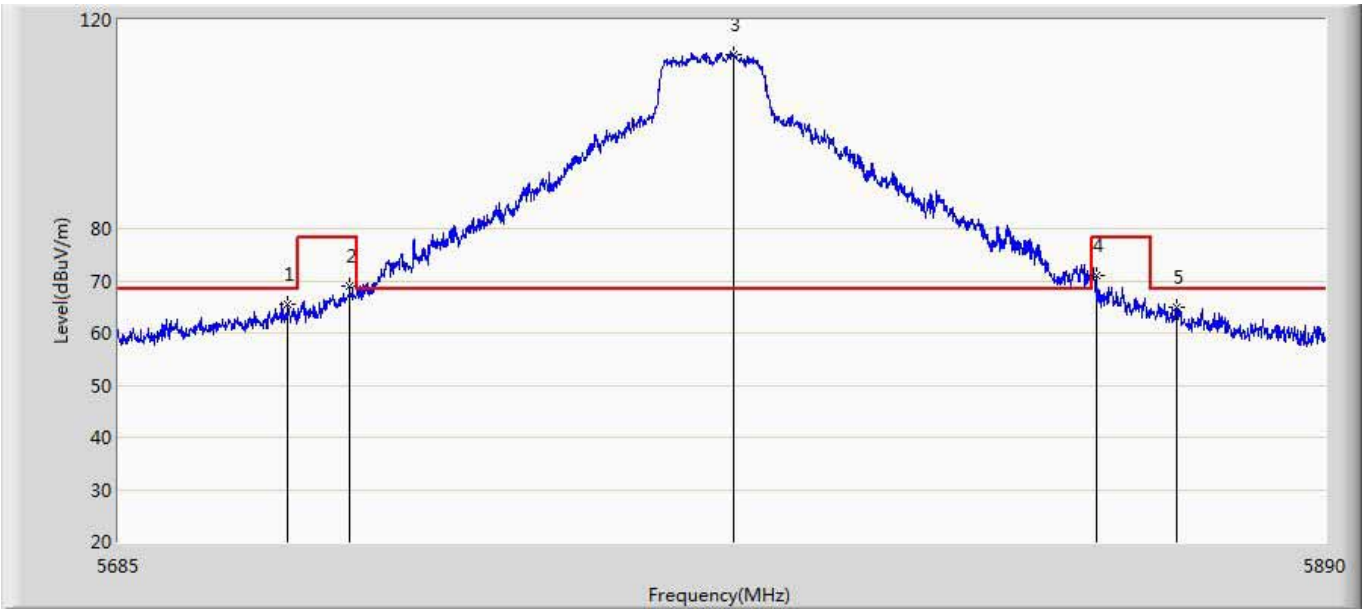
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5713.050	64.558	21.251	-3.742	68.300	43.306	PK
2		5724.215	77.891	34.622	-0.409	78.300	43.269	PK
3	*	5741.870	106.589	63.289	N/A	N/A	43.300	PK

Site: AC5	Time: 2015/10/08 - 20:05
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5745Mhz by 802.11N20	



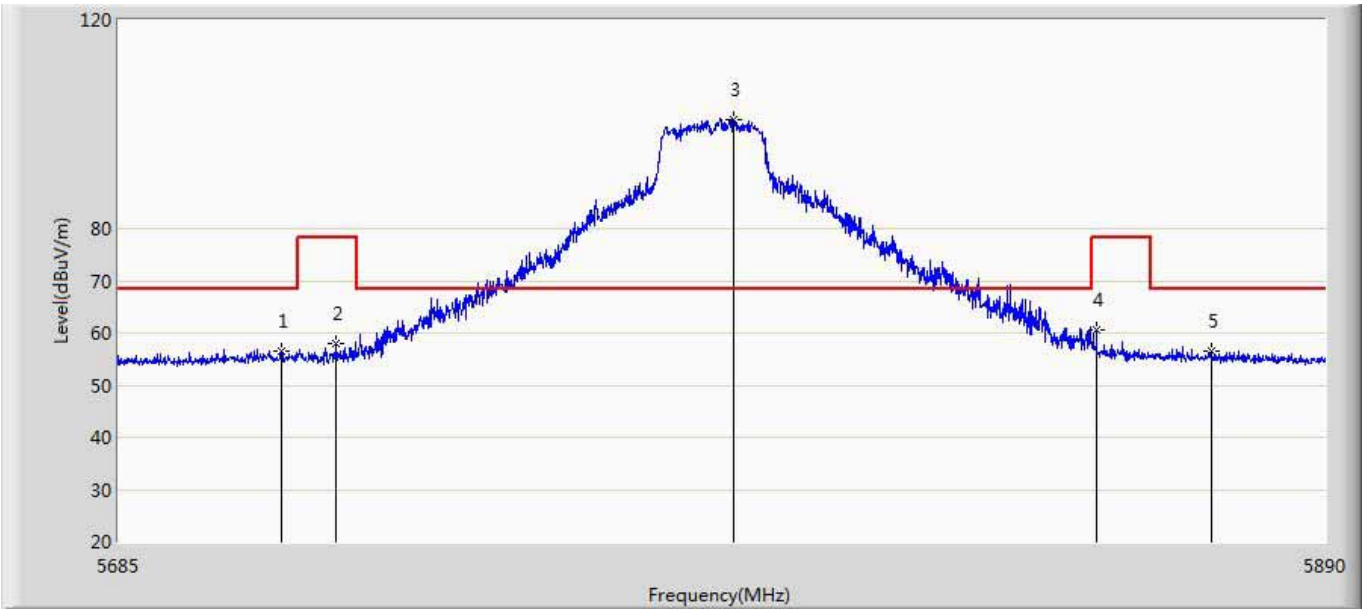
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5711.400	56.530	13.218	-11.770	68.300	43.312	PK
2		5723.995	65.857	22.588	-12.443	78.300	43.269	PK
3	*	5748.195	95.652	52.368	N/A	N/A	43.284	PK

Site: AC5	Time: 2015/10/09 - 16:09
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5785Mhz by 802.11n20	



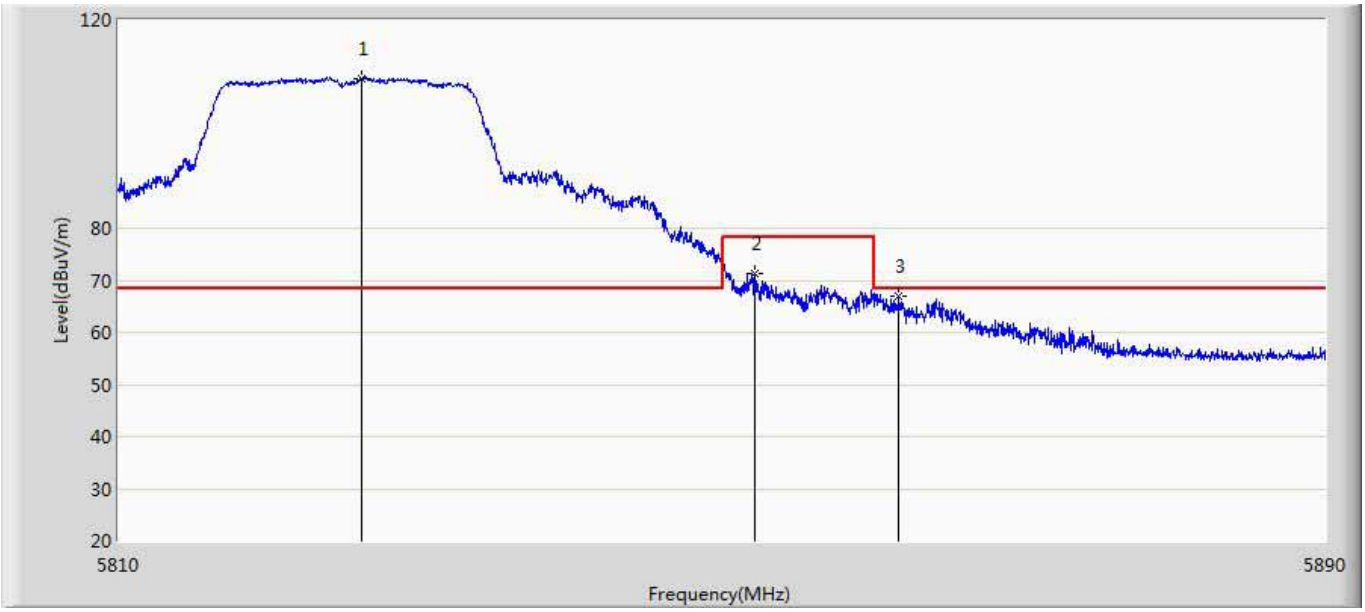
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5713.393	65.647	22.342	-2.653	68.300	43.305	PK
2		5723.745	69.099	25.829	-9.201	78.300	43.270	PK
3	*	5788.525	113.430	70.126	N/A	N/A	43.304	PK
4		5850.640	70.972	27.498	-7.328	78.300	43.474	PK
5		5864.375	65.057	21.488	-3.243	68.300	43.568	PK

Site: AC5	Time: 2015/10/09 - 16:11
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5785Mhz by 802.11n20	



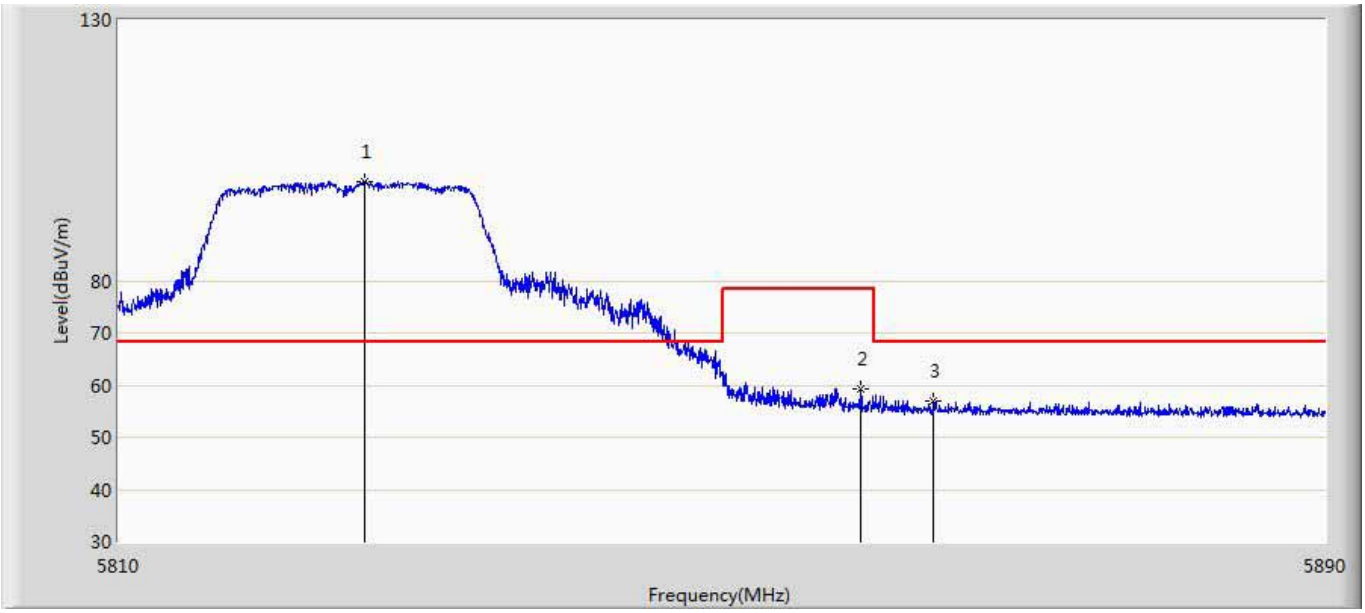
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5712.368	56.626	13.317	-11.674	68.300	43.309	PK
2		5721.490	57.938	14.660	-20.362	78.300	43.278	PK
3	*	5788.525	100.859	57.555	N/A	N/A	43.304	PK
4		5850.640	60.476	17.002	-17.824	78.300	43.474	PK
5		5870.422	56.541	12.954	-11.759	68.300	43.588	PK

Site: AC5	Time: 2015/10/08 - 20:20
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5825Mhz by 802.11N20	



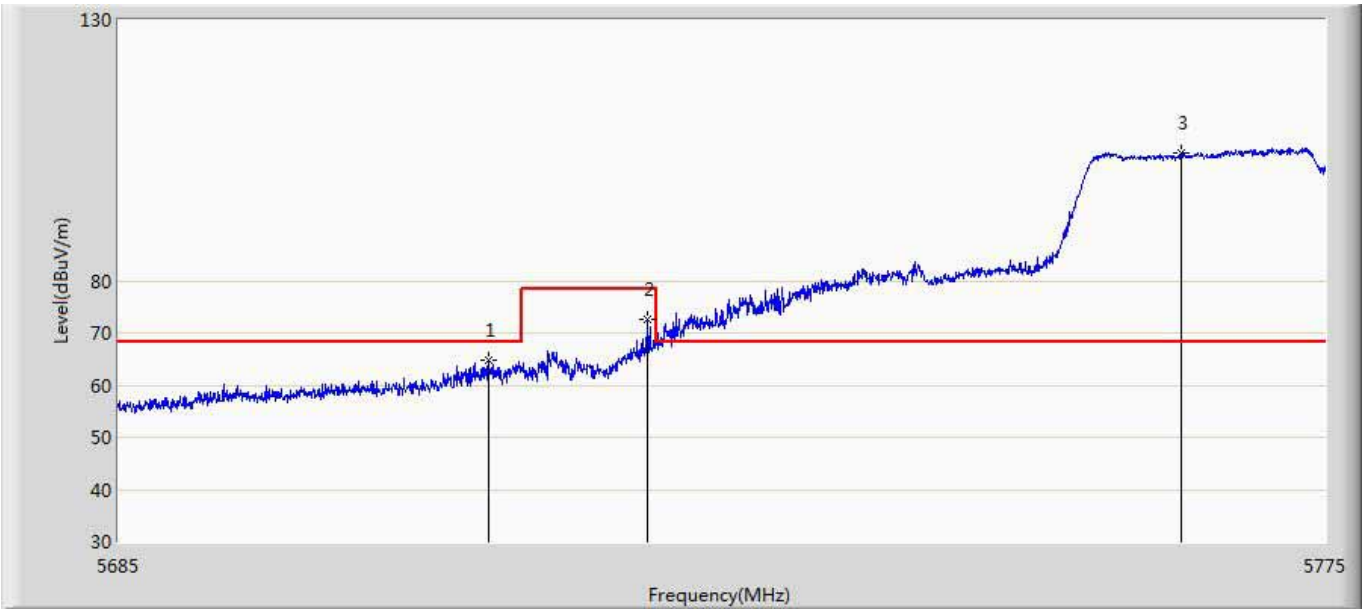
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5826.040	108.784	65.379	N/A	N/A	43.405	PK
2		5852.080	71.388	27.903	-6.912	78.300	43.485	PK
3		5861.640	66.902	23.344	-1.398	68.300	43.558	PK

Site: AC5	Time: 2015/10/08 - 20:22
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5825Mhz by 802.11N20	



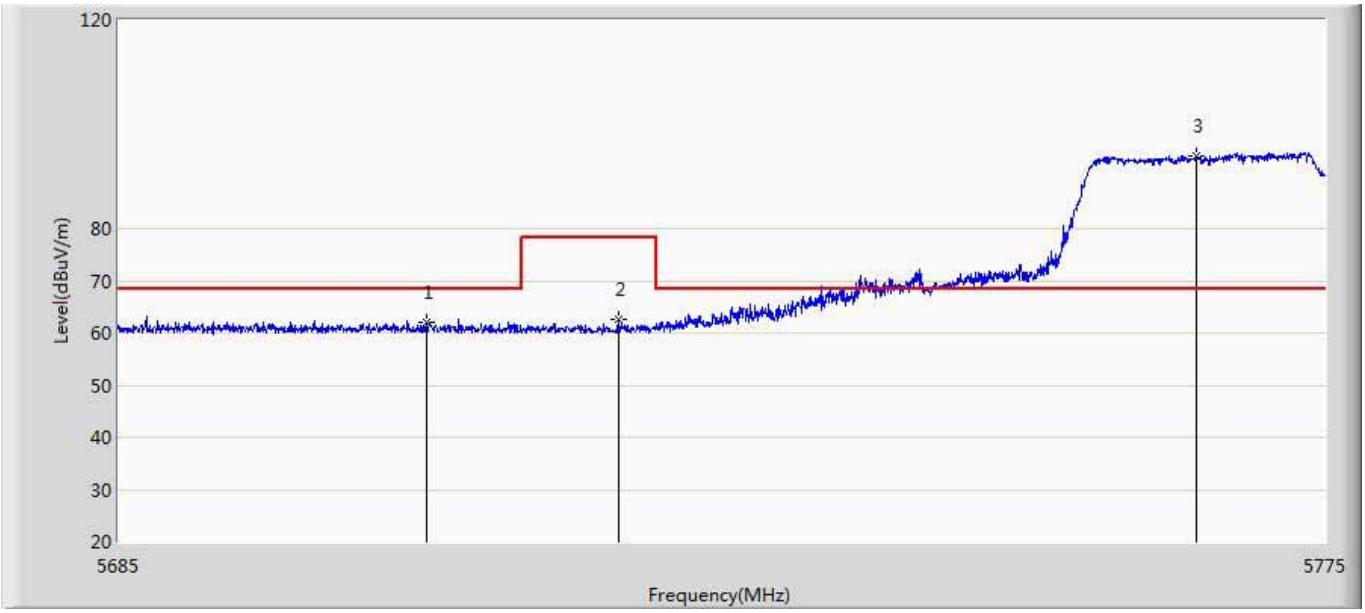
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5826.280	98.900	55.494	N/A	N/A	43.406	PK
2		5859.080	59.219	15.680	-19.081	78.300	43.539	PK
3		5863.960	57.084	13.517	-11.216	68.300	43.568	PK

Site: AC5	Time: 2015/10/08 - 21:04
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5755Mhz by 802.11N40	



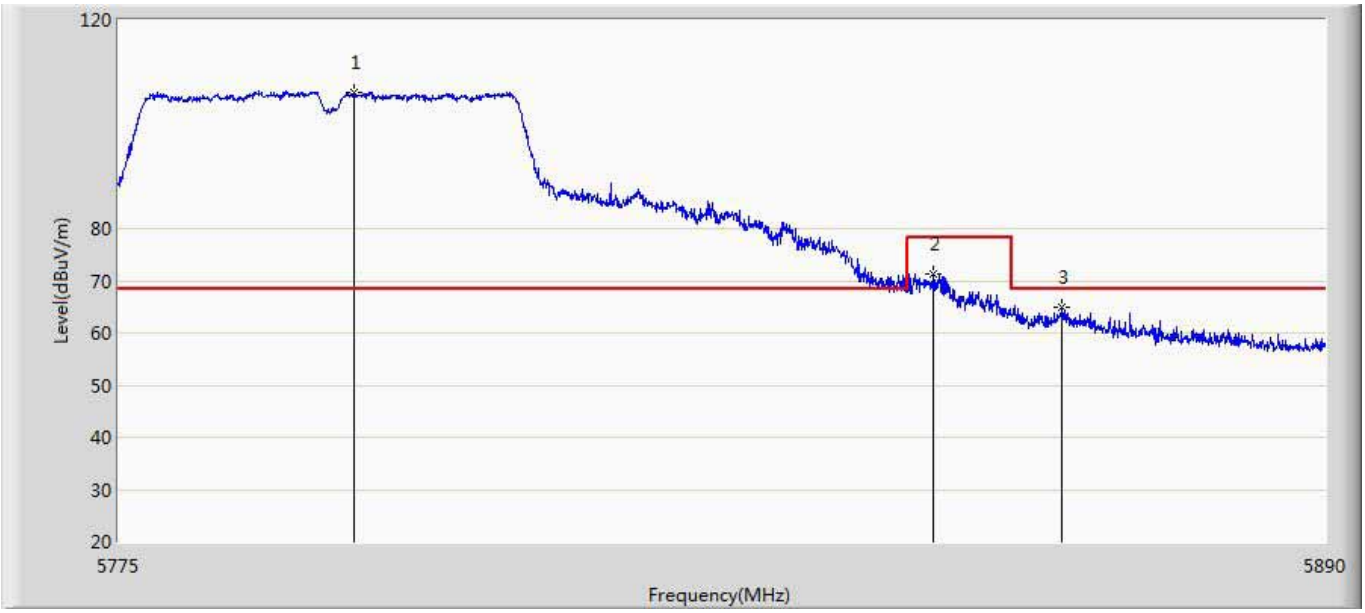
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5712.450	64.806	21.497	-3.494	68.300	43.309	PK
2		5724.330	72.473	29.205	-5.827	78.300	43.268	PK
3	*	5764.155	104.490	61.223	N/A	N/A	43.267	PK

Site: AC5	Time: 2015/10/08 - 21:06
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5755Mhz by 802.11N40	



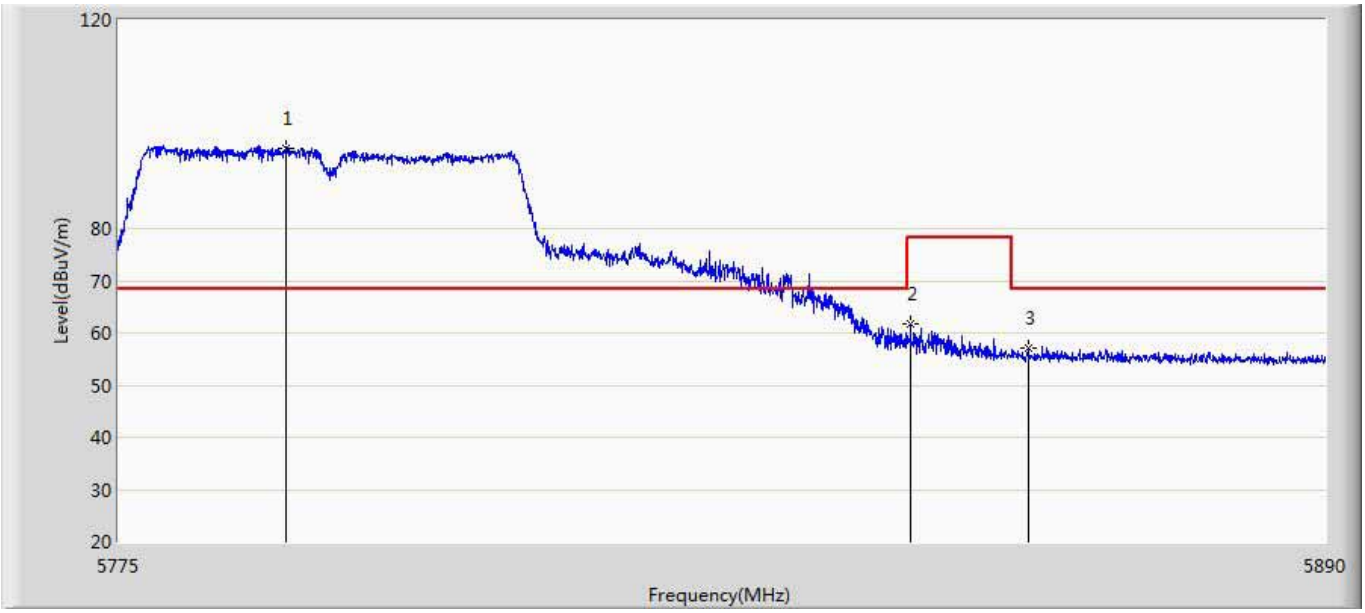
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5707.905	62.105	18.788	-6.195	68.300	43.316	PK
2		5722.125	62.543	19.267	-15.757	78.300	43.276	PK
3	*	5765.370	93.824	50.550	N/A	N/A	43.274	PK

Site: AC5	Time: 2015/10/08 - 21:15
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5795Mhz by 802.11N40	



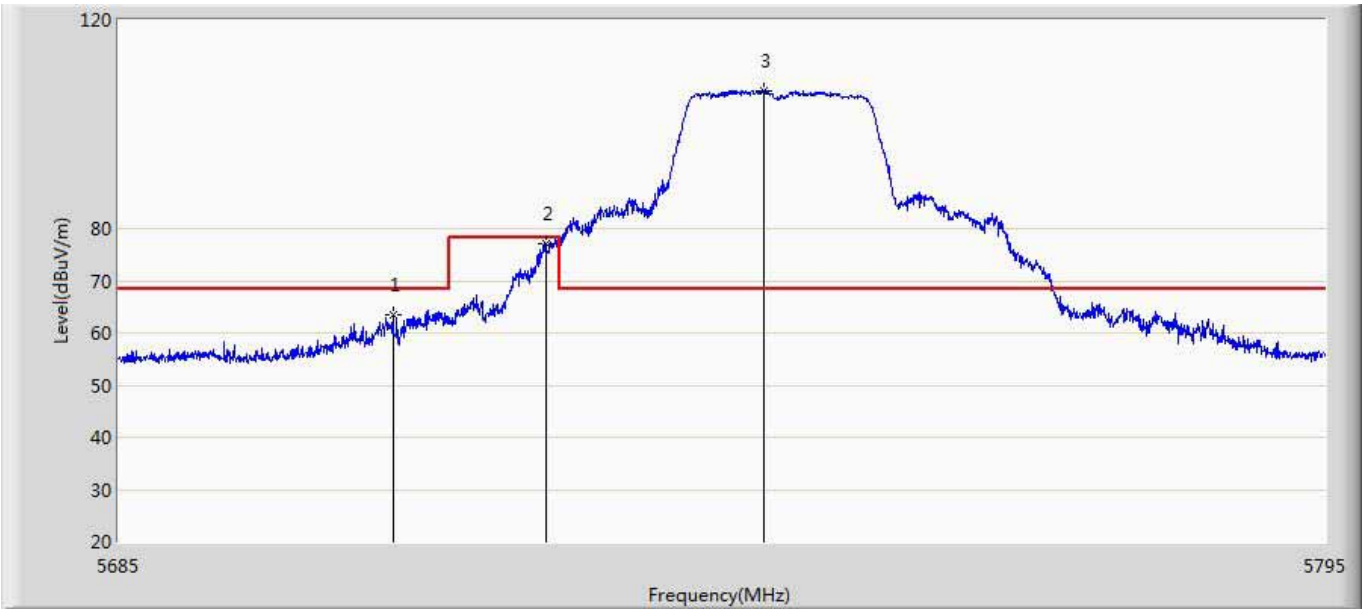
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5797.252	106.185	62.882	N/A	N/A	43.302	PK
2		5852.453	71.302	27.814	-6.998	78.300	43.488	PK
3		5864.757	64.785	21.215	-3.515	68.300	43.570	PK

Site: AC5	Time: 2015/10/08 - 21:16
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5795Mhz by 802.11N40	



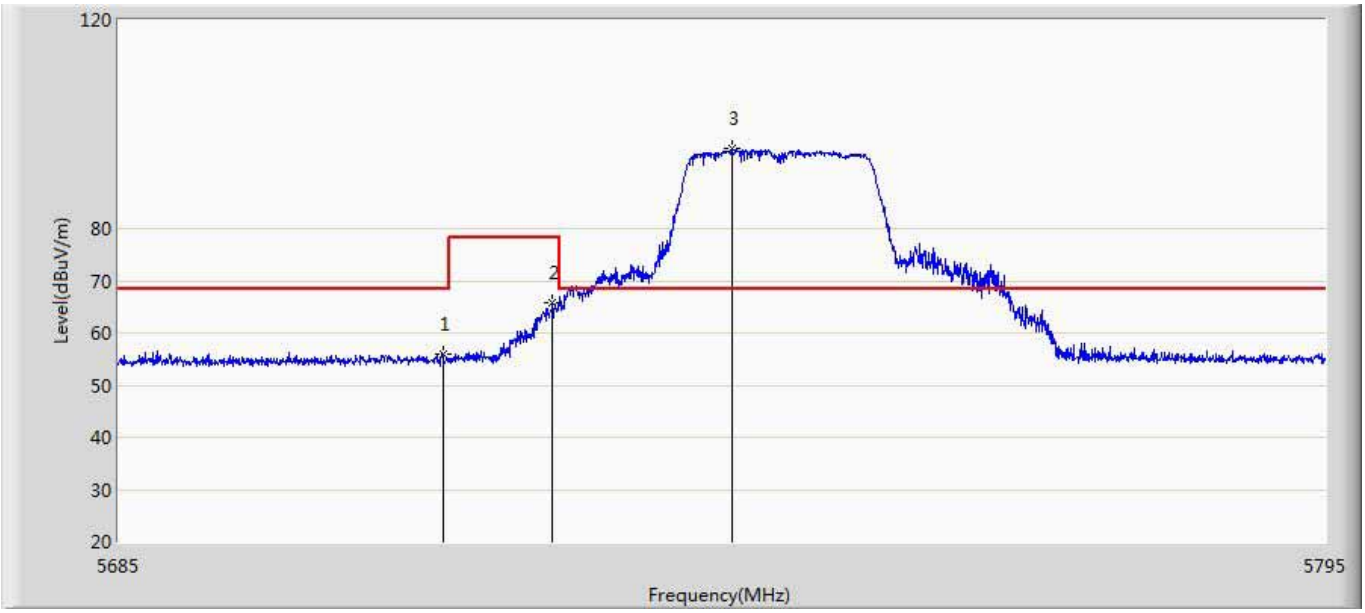
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5790.812	95.370	52.073	N/A	N/A	43.296	PK
2		5850.268	61.639	18.168	-16.661	78.300	43.471	PK
3		5861.480	57.238	13.681	-11.062	68.300	43.557	PK

Site: AC5	Time: 2015/10/08 - 20:41
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5745Mhz by 802.11AC20	



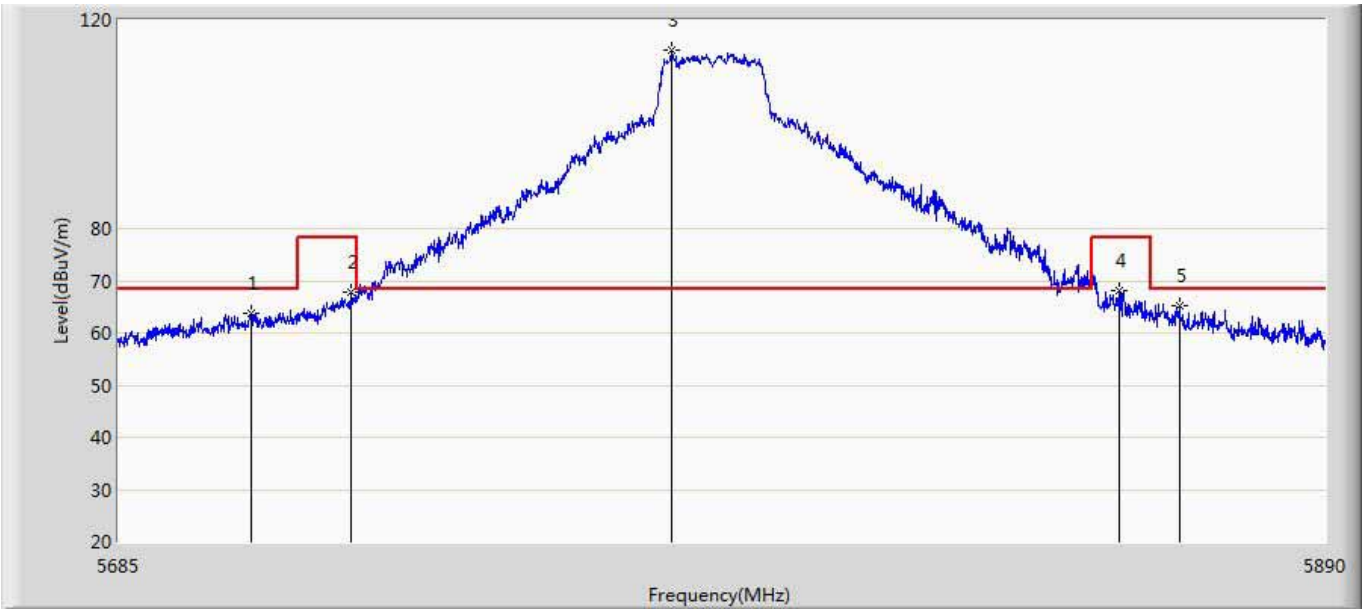
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5709.860	63.427	20.110	-4.873	68.300	43.317	PK
2		5723.720	77.013	33.743	-1.287	78.300	43.270	PK
3	*	5743.575	106.281	62.980	N/A	N/A	43.301	PK

Site: AC5	Time: 2015/10/08 - 20:42
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5745Mhz by 802.11AC20	



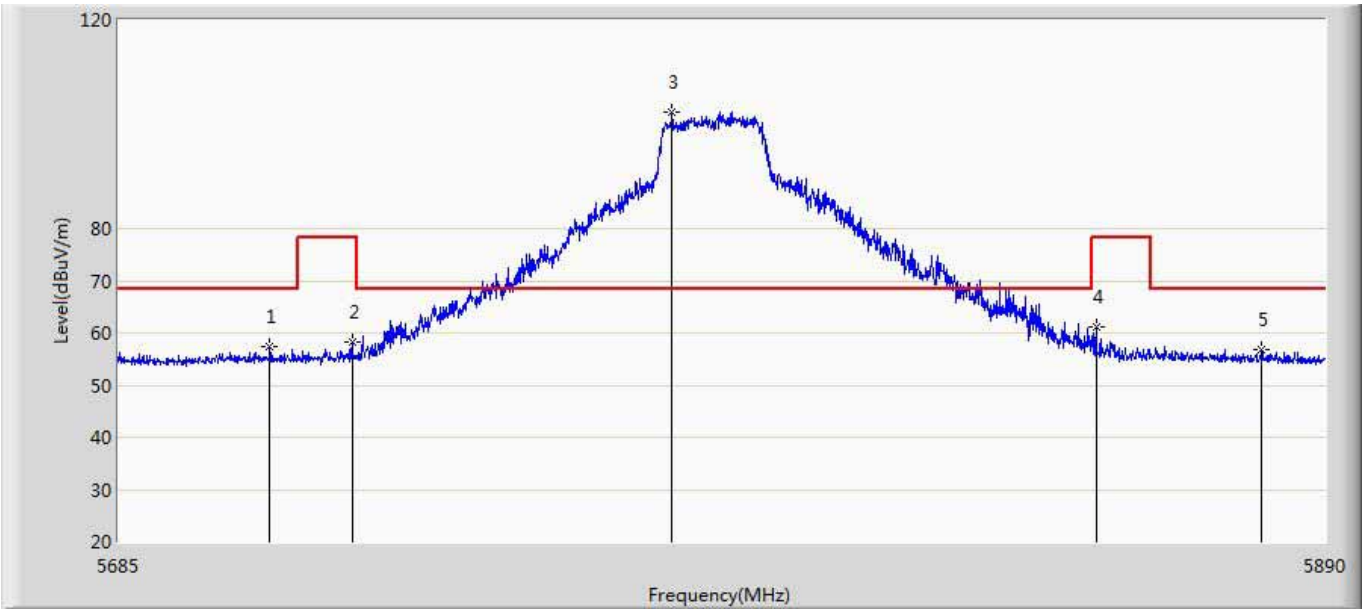
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5714.370	55.873	12.571	-12.427	68.300	43.302	PK
2		5724.380	65.664	22.396	-12.636	78.300	43.268	PK
3	*	5740.770	95.312	52.015	N/A	N/A	43.298	PK

Site: AC5	Time: 2015/10/09 - 16:17
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5785Mhz by 802.11ac20	



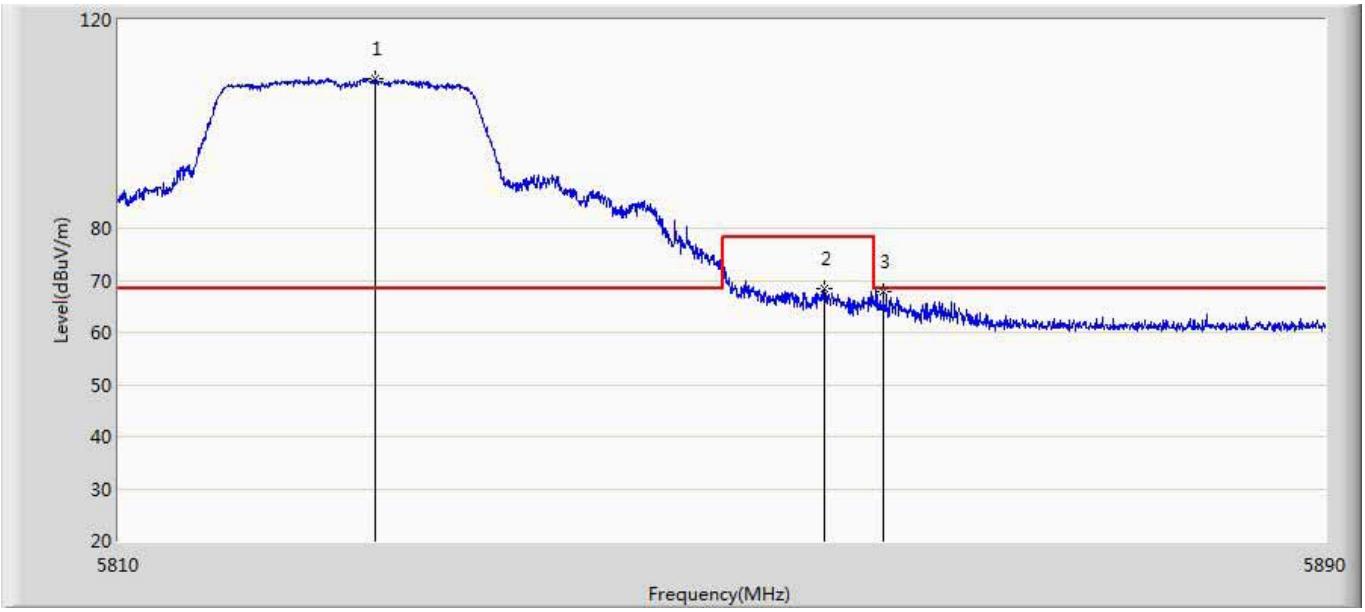
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5707.345	63.874	20.559	-4.426	68.300	43.316	PK
2		5724.053	67.940	24.671	-10.360	78.300	43.269	PK
3	*	5778.172	114.068	70.731	N/A	N/A	43.337	PK
4		5854.638	68.257	24.752	-10.043	78.300	43.505	PK
5		5864.888	65.078	21.508	-3.222	68.300	43.570	PK

Site: AC5	Time: 2015/10/09 - 16:18
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5785Mhz by 802.11ac20	



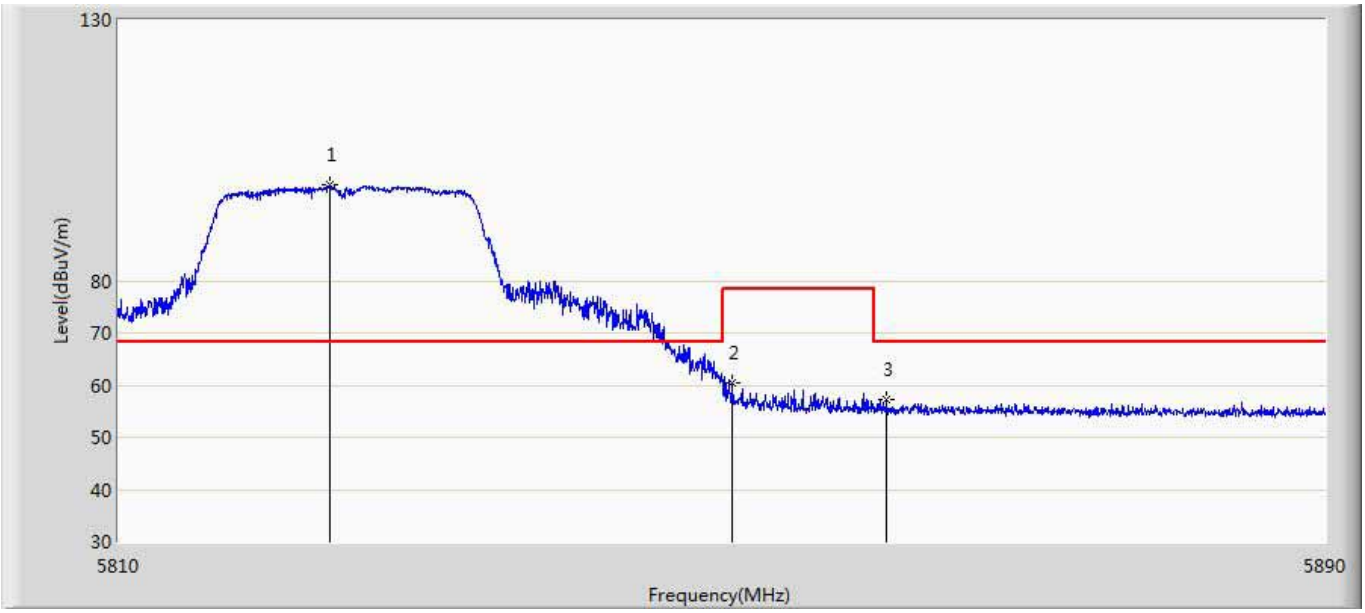
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5710.317	57.391	14.075	-10.909	68.300	43.316	PK
2		5724.155	58.131	14.862	-20.169	78.300	43.269	PK
3	*	5778.172	102.292	58.955	N/A	N/A	43.337	PK
4		5850.538	61.274	17.801	-17.026	78.300	43.474	PK
5		5879.033	56.858	13.244	-11.442	68.300	43.614	PK

Site: AC5	Time: 2015/10/08 - 20:56
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5825Mhz by 802.11AC20	



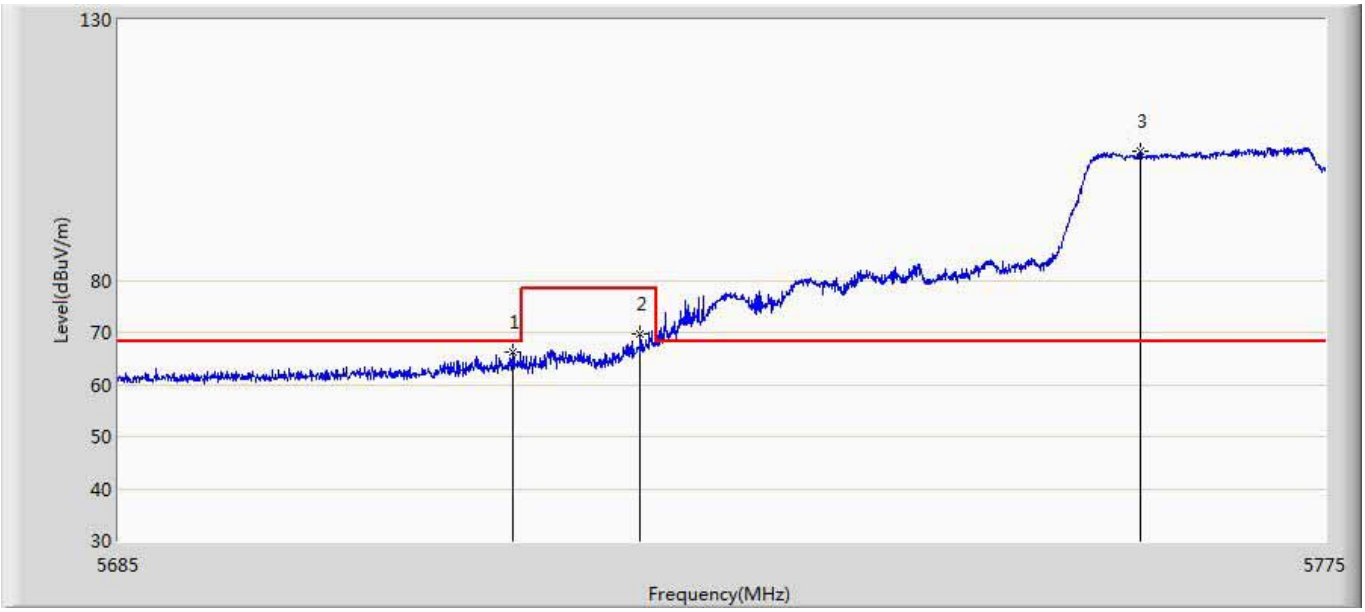
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5827.000	108.580	65.173	N/A	N/A	43.408	PK
2		5856.720	68.392	24.871	-9.908	78.300	43.521	PK
3		5860.600	67.937	24.387	-0.363	68.300	43.550	PK

Site: AC5	Time: 2015/10/08 - 20:57
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5825Mhz by 802.11AC20	



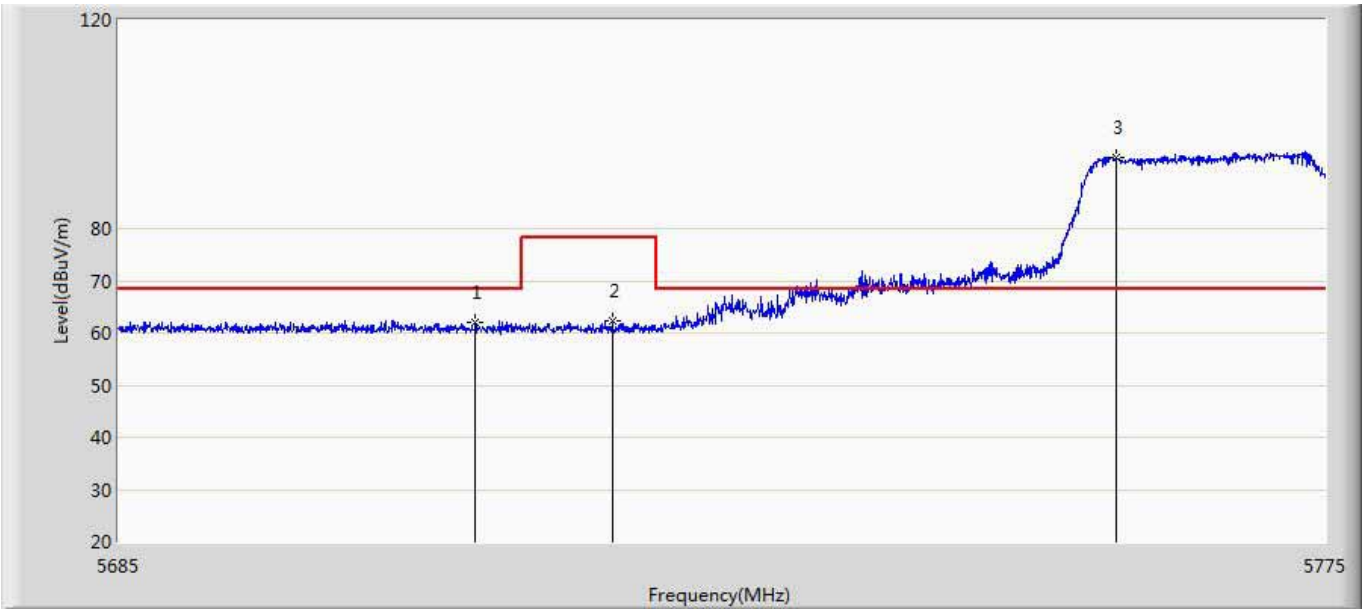
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5824.000	98.267	54.867	N/A	N/A	43.400	PK
2		5850.600	60.311	16.837	-17.989	78.300	43.474	PK
3		5860.840	57.110	13.558	-11.190	68.300	43.552	PK

Site: AC5	Time: 2015/10/08 - 21:20
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5755Mhz by 802.11AC40	



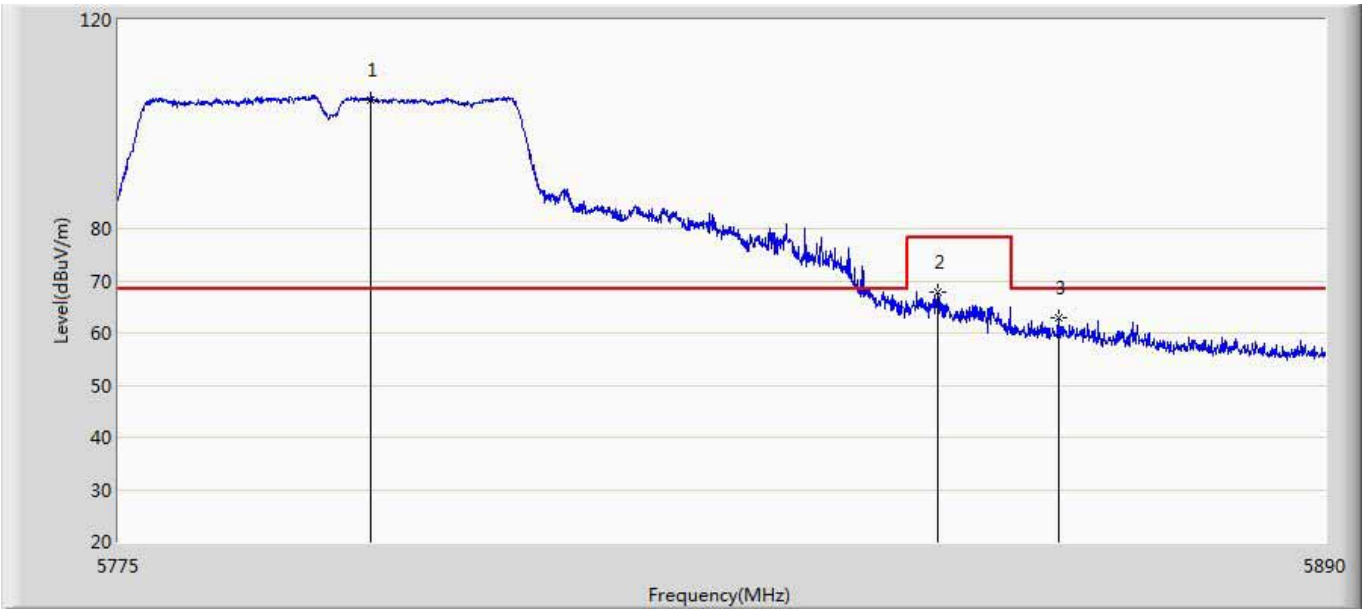
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5714.250	66.099	22.796	-2.201	68.300	43.302	PK
2		5723.790	69.834	26.564	-8.466	78.300	43.270	PK
3	*	5761.185	104.880	61.631	N/A	N/A	43.250	PK

Site: AC5	Time: 2015/10/08 - 21:21
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5755Mhz by 802.11AC40	



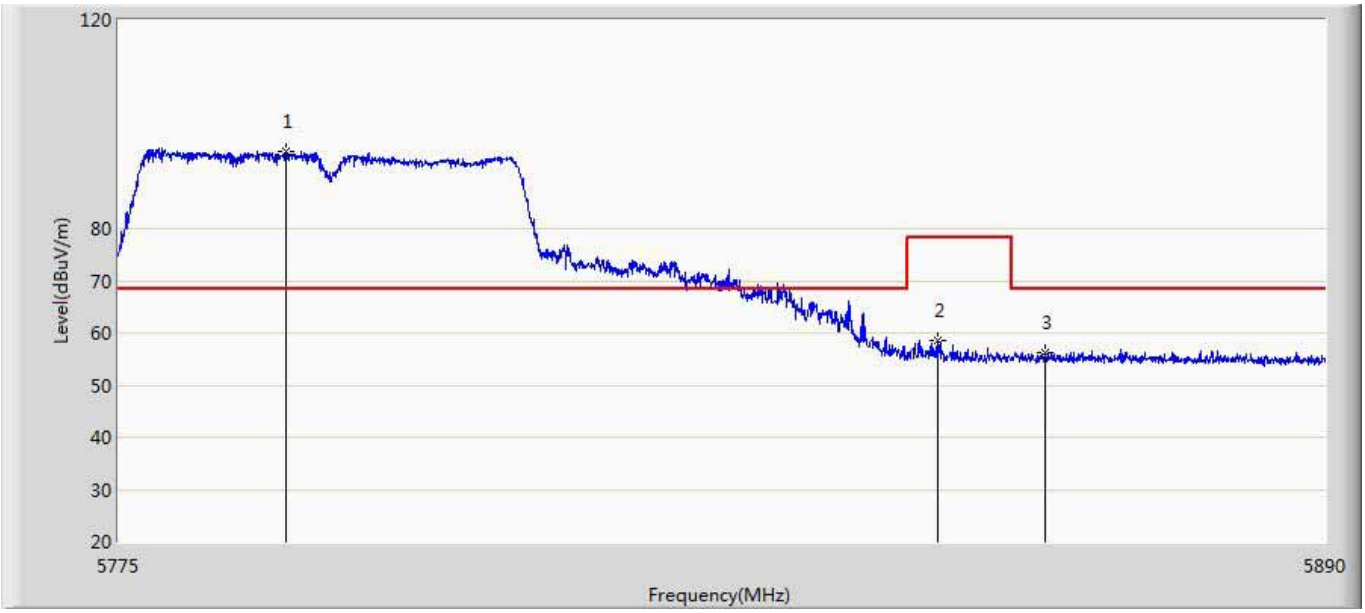
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5711.460	62.047	18.735	-6.253	68.300	43.312	PK
2		5721.675	62.267	18.990	-16.033	78.300	43.277	PK
3	*	5759.295	93.490	50.245	N/A	N/A	43.245	PK

Site: AC5	Time: 2015/10/08 - 21:23
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5795Mhz by 802.11AC40	



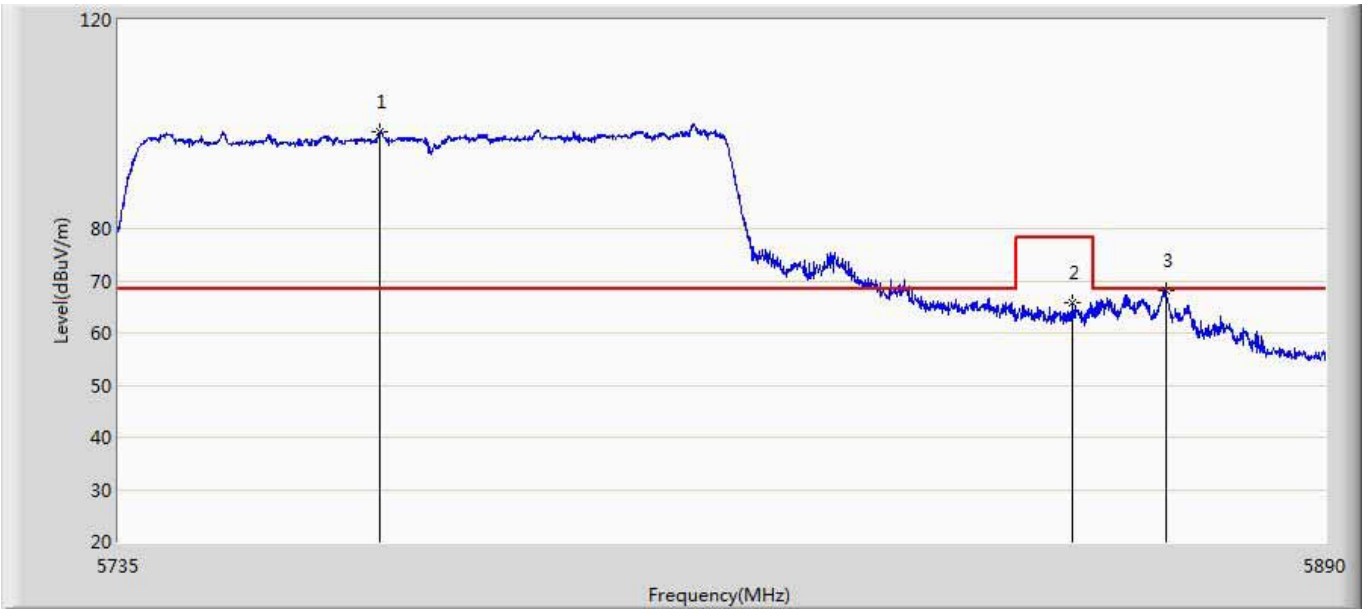
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5798.862	104.536	61.226	N/A	N/A	43.311	PK
2		5852.797	67.970	24.479	-10.330	78.300	43.491	PK
3		5864.470	63.007	19.438	-5.293	68.300	43.568	PK

Site: AC5	Time: 2015/10/08 - 21:25
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5795Mhz by 802.11AC40	



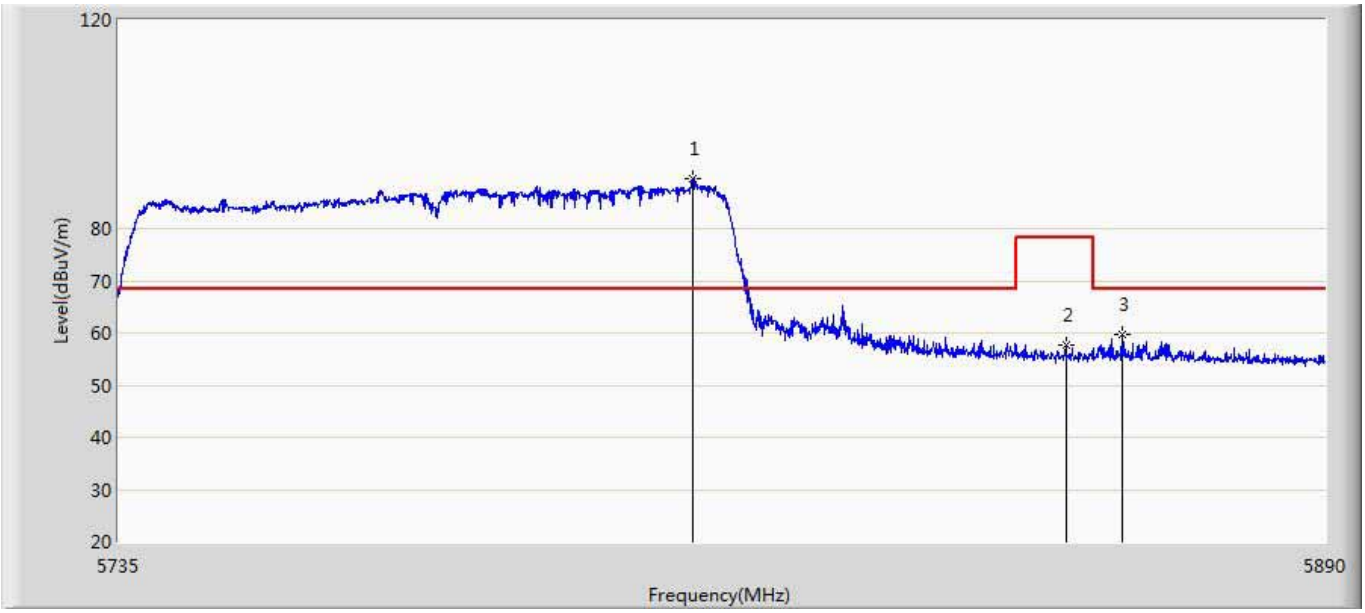
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5790.928	94.746	51.450	N/A	N/A	43.297	PK
2		5852.797	58.463	14.972	-19.837	78.300	43.491	PK
3		5863.205	56.208	12.643	-12.092	68.300	43.565	PK

Site: AC5	Time: 2015/10/09 - 16:43
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5775Mhz by 802.11ac80	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5768.325	98.574	55.283	N/A	N/A	43.291	PK
2		5857.140	65.705	22.181	-12.595	78.300	43.524	PK
3		5869.308	68.222	24.638	-0.078	68.300	43.584	PK

Site: AC5	Time: 2015/10/09 - 16:45
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: D20	Power: AC 120V/60Hz
Note: Mode 6:Transmit at channel 5775Mhz by 802.11ac80	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5808.315	89.480	46.123	N/A	N/A	43.357	PK
2		5856.365	57.716	14.198	-20.584	78.300	43.518	PK
3		5863.650	59.631	16.065	-8.669	68.300	43.566	PK

10. Frequency Stability

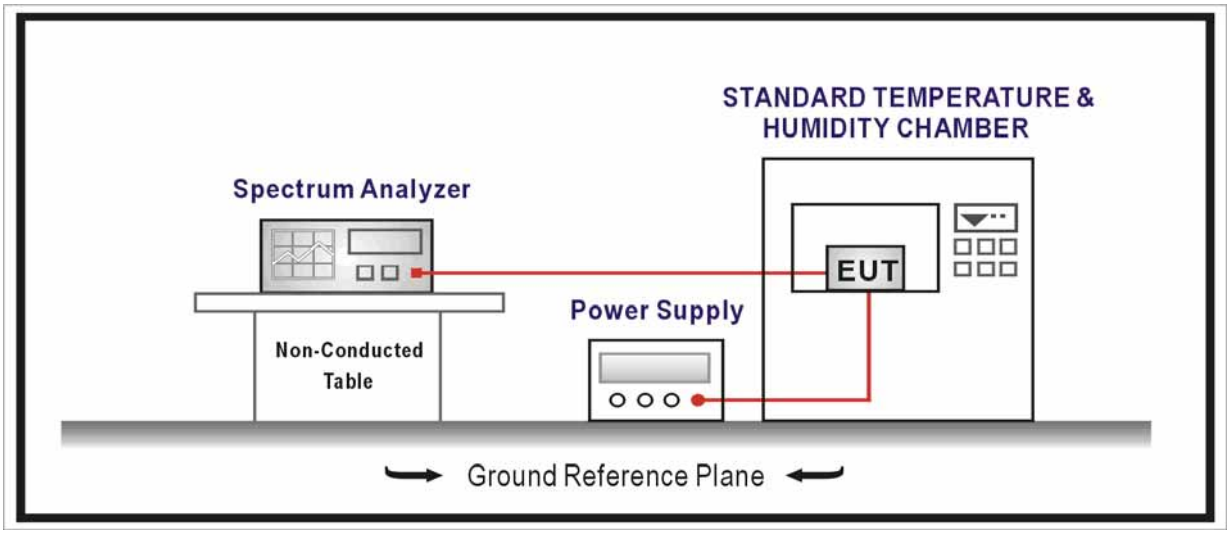
10.1. Test Equipment

Frequency Stability / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.07
AC Power Supply	IDRC	CF-500TP	979422	2016.09.16
DC Power Supply	IDRC	CD-035-020PR	977272	2016.09.16
Programmable Temperature & Humidity Chamber	Gaoyu	TH-1P-B	WIT-05121302	2016.01.07
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2016.04.09

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

10.2. Test Setup



10.3. Limit

For FCC

Manufactures 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 user's manual.

10.4. Test Procedure

Frequency Stability Under Temperature Variations:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20℃ operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10℃ decreased per stage until the lowest temperature reached.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.
Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, record the maximum frequency change.

10.5. Uncertainty

The measurement uncertainty is defined as ± 100 Hz

10.6. Test Result

Product	:	AC750 Wireless Dual Band ADSL2+ModemRouter
Test Item	:	Frequency Stability
Test Site	:	TR-8
Test Mode	:	Carrier Transmit

Frequency Stability under Temperature

Temperature Interval (℃)	Test Frequency (MHz)	Deviation (Hz)
-30	5200.000	180
-20	5200.000	-191
-10	5200.000	-139
0	5200.000	225
10	5200.000	-122
20	5200.000	-93
30	5200.000	123
40	5200.000	105
50	5200.000	-122

Frequency Stability under Voltage

AC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)
102	5200.000	148
120	5200.000	109
138	5200.000	114

Frequency Stability under Temperature

Temperature Interval (℃)	Test Frequency (MHz)	Deviation (Hz)
-30	5805.000	114
-20	5805.000	84
-10	5805.000	-70
0	5805.000	-110
10	5805.000	-55
20	5805.000	98
30	5805.000	105
40	5805.000	113
50	5805.000	-69

Frequency Stability under Voltage

AC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)
102	5805.000	85
120	5805.000	-100
138	5805.000	187

The End