

Test Report

FCC Part15 Subpart C

Product Name : 450Mbps Wireless N Router
Model No. : TL-WR940N
FCC ID : TE7WR940NV4

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 : Jul. 01, 2016
Test Date : Jul. 01, 2016~ Aug. 18, 2016
Issued Date : Oct. 18, 2016
Report No. : 1672003R-RF-US-P06V01
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 TAF,CNAS or any agency of the government.

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

Test Report Certification

Issued Date : Oct. 18, 2016

Report No. : 1672003R-RF-US-P06V01



Product Name : 450Mbps Wireless N Router
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. : TL-WR940N
FCC ID : TE7WR940NV4
EUT Voltage : 9V/0.6A
Brand Name : TP-LINK
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C
ANSI C63.4:2014; ANSI C63.10:2013;
KDB 558074 D01v03r05
KDB 662911 D01 Multiple Transmitter Output v02r01
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

Documented By :



(Adm. Specialist: Kathy Feng)

Reviewed By :



(Senior Engineer: Jack Zhang)

Approved By :



(Engineering Manager: 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/english/about/certificates.aspx?bval=5>
The address and introduction of Quietek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/index_en.aspx

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

HsinChu Testing Laboratory :

No.75-2, 3rd Lin, Wangye Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan, R.O.C.
TEL:+886-3-592-8858 / FAX:+886-3-592-8859 E-Mail : service@quietek.com

LinKou Testing Laboratory :

No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451, Taiwan, R.O.C.
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789 E-Mail : service@quietek.com

Suzhou Testing Laboratory :

No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006, Jiangsu, China
TEL : +86-512-6251-5088 / FAX : 86-512-6251-5098 E-Mail : service@quietek.com

TABLE OF CONTENTS

Description	Page
1. General Information	7
1.1. EUT Description	7
1.2. Working Frequency of Each Channel:	7
1.3. Antenna information	8
1.4. Mode of Operation	9
1.5. Tested System Details	9
1.6. Configuration of Tested System	10
2. Technical Test	12
2.1. Summary of Test Result	12
2.2. Test Frequency configuration:	12
2.3. Power setting parameter	13
2.4. Power vs Data Rate	14
2.5. Test Environment	15
2.6. Measurement Uncertainty	15
3. AC Power Line Conducted Emission	16
3.1. Test Equipment	16
3.2. Test Setup	16
3.3. Limit	17
3.4. Test Procedure	17
3.5. Test Result	18
4. Emissions in restricted frequency bands	20
4.1. Test Equipment	20
4.2. Test Setup	21
4.3. Limit	22
4.4. Test Procedure	24
4.5. EUT test Axis definition	25
4.6. Test Result	26
5. Emissions in non-restricted frequency bands	33
5.1. Test Equipment	33
5.2. Test Setup	34
5.3. Limit	35
5.4. Test Procedure	36
5.5. EUT test Axis definition	37
5.6. Test Result	38
6. Radiated Emission Band Edge	39
6.1. Test Equipment	39
6.2. Test Setup	40

6.3.	Limit.....	40
6.4.	Test Procedure	41
6.5.	EUT test definition	42
6.6.	Duty Cycle	43
6.7.	Test Result.....	44
7.	Occupied Bandwidth.....	116
7.1.	Test Equipment.....	116
7.2.	Test Setup.....	116
7.3.	Limit.....	117
7.4.	Test Procedure	117
7.5.	EUT test definition	118
7.6.	Test Result.....	119
8.	Fundamental emission output power	120
8.1.	Test Equipment.....	120
8.2.	Test Setup.....	120
8.3.	Limit.....	121
8.4.	Test Procedure	122
8.5.	EUT test definition	124
8.6.	Test Result.....	125
9.	Power Spectral Density	126
9.1.	Test Equipment.....	126
9.2.	Test Setup.....	126
9.3.	Limit.....	126
9.4.	Test Procedure	127
9.5.	EUT test definition	129
9.6.	Test Result.....	130
10.	Antenna Requirement.....	132
10.1.	Limit.....	132
10.2.	Antenna Connector Construction.....	132

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1672003R-RF-US-P06V01	V1.0	Initial Issued Report	Aug. 22, 2016
1672003R-RF-US-P06V01	V1.1	Page 95, Update the data	Sep. 08, 2016
1672003R-RF-US-P06V01	V1.2	Page 108, Add the antenna requirement of 15.203.	Sep. 12, 2016
1672003R-RF-US-P06V01	V1.3	1) Added data for band edge from Page 92 to Page 115 2) Added data for power setting on Page 13 3) Added data for power on Page 125	Oct. 18, 2016

1. General Information

1.1. EUT Description

Product Name	450Mbps Wireless N Router
Brand Name	TP-LINK
Model No.	TL-WR940N
EUT Voltage	9V/0.6A
Frequency Range	For 2.4GHz Band 802.11b/g/n(20MHz): 2412~2462MHz 802.11n(40MHz): 2422~2452MHz
Channel Number	For 2.4GHz Band 802.11b/g/n(20MHz): 11 802.11n(40MHz): 7
Type of Modulation	802.11b: DSSS 802.11g: OFDM
Data Rate	802.11g: 6/9/12/18/24/36/48/54 Mbps 802.11b: 1/2/5.5/11 Mbps 802.11n: up to 450 Mbps
Channel Control	Auto

1.2. Working Frequency of Each Channel:

802.11b/g/n(20MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	02	2417 MHz	03	2422 MHz	04	2427 MHz
05	2432 MHz	06	2437 MHz	07	2442 MHz	08	2447 MHz
09	2452 MHz	10	2457 MHz	11	2462 MHz	N/A	N/A
802.11n(40MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
03	2422 MHz	04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 MHz	N/A	N/A

1.3. Antenna information

Model No.	N/A				
Antenna manufacturer	TP-LINK				
Antenna Delivery	☐	1*TX+1*RX	☐	2*TX+2*RX	☒ 3*TX+3*RX
Antenna technology	☐	SISO			
	☒	MIMO	☐	Basic	
			☒	CDD	
			☐	Sectorized	
			☐	Beam-forming	
Antenna Type	☒	External	☒	Dipole	
			☐	Sectorized	
	☐	Internal	☐	PIFA	
			☐	PCB	
			☐	Ceramic Chip Antenna	
			☐	Metal plate type F antenna	
Antenna Technology	Ant Gain (dBi)			Directional Gain (dBi)	
				For Power	For PSD
☒ CDD	Ant0:5	Ant1: 5	Ant2: 5	5	9.77

1.4. Mode of Operation

Test Modes List
Mode 1: Transmit by 802.11b
Mode 2: Transmit by 802.11g
Mode 3: Transmit by 802.11n(20MHz)
Mode 4: Transmit by 802.11n(40MHz)

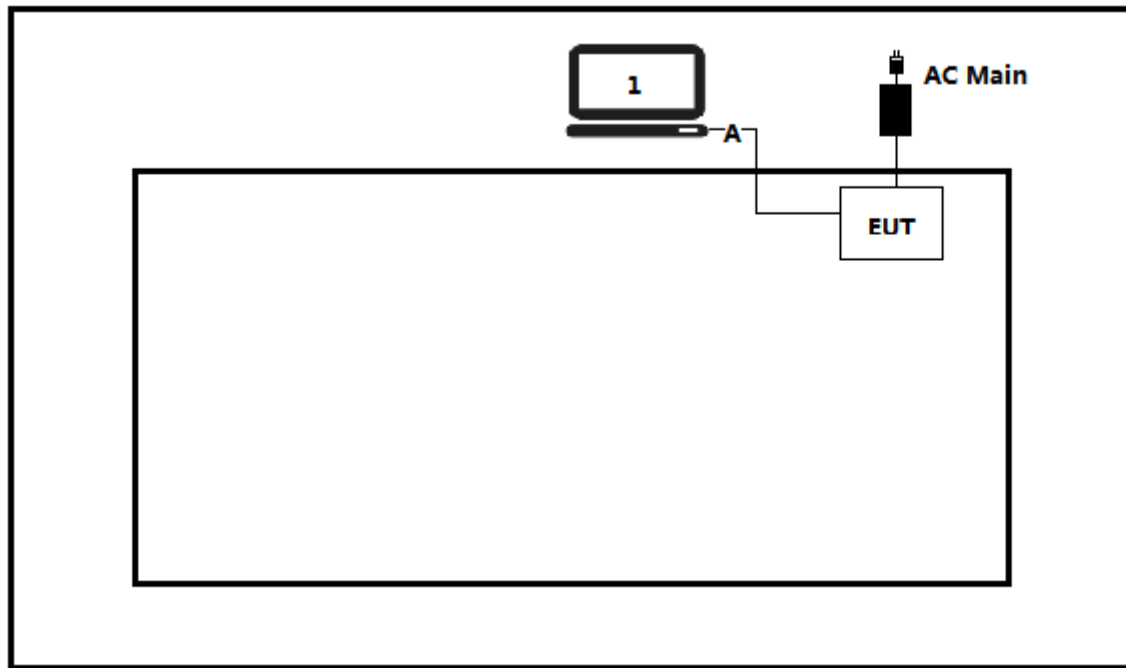
1.5. Tested System Details

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

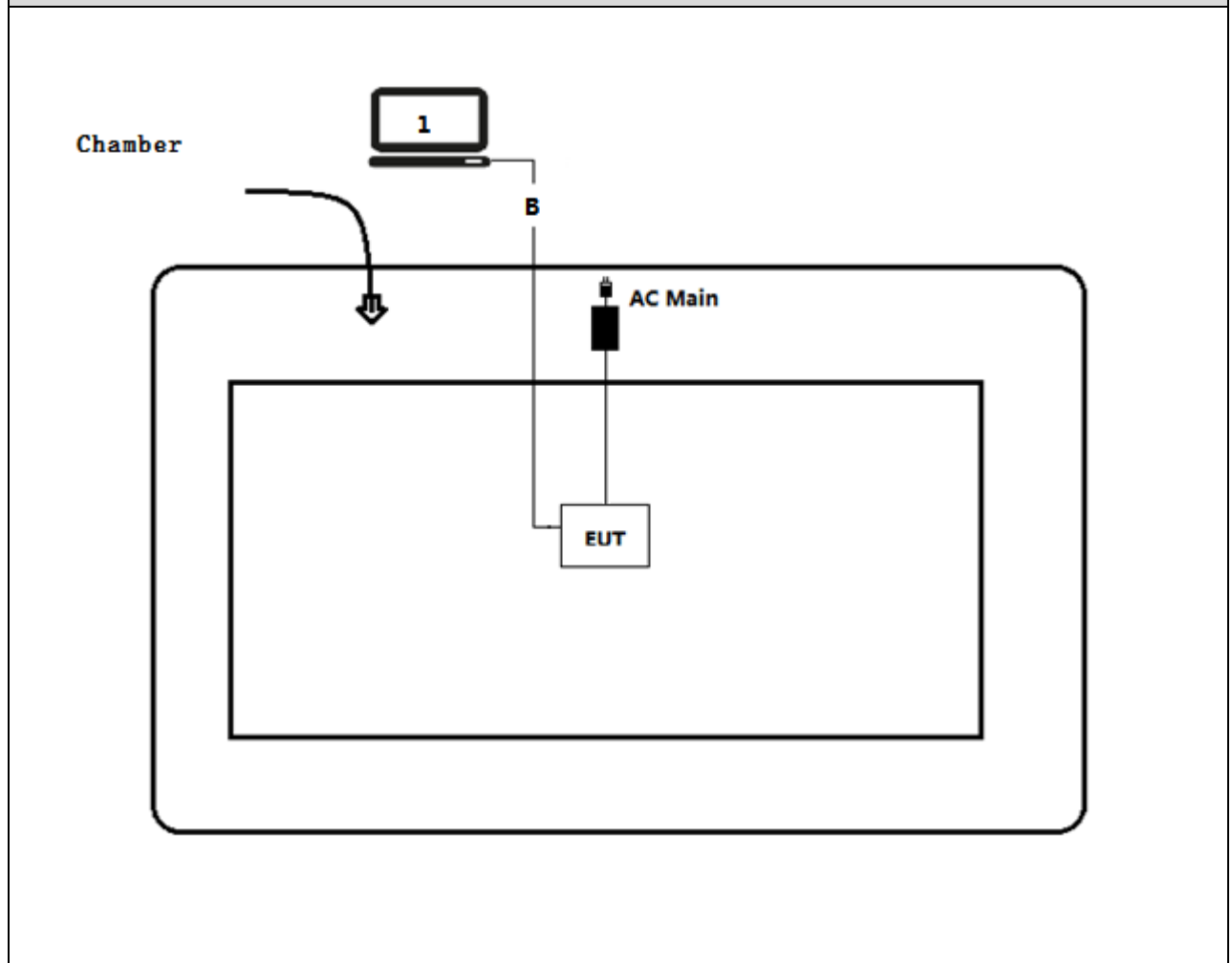
No.	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Lenovo	Think pad x220	SUA0600195	Non-shielded
A	LAN cable	N/A	N/A	N/A	Non-shielded, 1.5m
B	LAN cable	N/A	N/A	N/A	Non-shielded, 10m

1.6. Configuration of Tested System

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission



2. Technical Test

2.1. Summary of Test Result

Performed Test Item	Normative References	Limit	Result
AC Power Line Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.207	FCC 15.207	PASS
Emissions in restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.209	FCC 15.209	PASS
Emissions in non-restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(d)	$\geq 30\text{dBc}$	PASS
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2015 15.247(d)	FCC 15.209	PASS
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(2)	$\geq 500\text{kHz}$	PASS
Fundamental emission output power	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(b)(3)	$\leq 30\text{dBm}$	PASS
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(e)	$\leq 8\text{dBm}/3\text{kHz}$	PASS
Antenna Requirement	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.203	FCC 15.203	PASS

2.2. Test Frequency configuration:

Modulation Mode	Channel	Frequency	Channel	Frequency	Channel	Frequency
802.11b	01	2412 MHz	06	2437 MHz	11	2462MHz
802.11g	01	2412 MHz	06	2437 MHz	11	2462MHz
802.11n(20MHz)	01	2412 MHz	06	2437 MHz	11	2462MHz
802.11n(40MHz)	03	2422 MHz	06	2437 MHz	09	2452MHz

2.3. Power setting parameter

Test Software	ART 2			
Modulation Mode	Test Frequency	Ant 0	Ant 1	Ant 2
802.11b	2412	16	16	16
	2437	16	16	16
	2462	16	16	16
802.11g	2412	16.5	16.5	16.5
	2417	17.5	17.5	17.5
	2437	18.5	18.5	18.5
	2457	17.5	17.5	17.5
	2462	16	16	16
802.11n(20MHz)	2412	15	15	15
	2417	18	18	18
	2437	19	19	19
	2457	17	17	17
	2462	15.5	15.5	15.5
802.11n(40MHz)	2422	11	11	11
	2427	11.5	11.5	11.5
	2437	15.5	15.5	15.5
	2447	11	11	11
	2452	10	10	10

2.4. Power vs Data Rate

MCS Index for 802.11n	Spatial Streams	Data Rate (Mbps)						
		802.11b	802.11g	802.11a	20MHz Bandwidth		40MHz Bandwidth	
					800ns GI	400ns GI	800ns GI	400ns GI
0	1	1	6	6	6.5	7.2	13.5	15.0
1	1	2	9	9	13.0	14.4	27.0	30.0
2	1	5.5	12	12	19.5	21.7	40.5	45.0
3	1	11	18	18	26.0	28.9	54.0	60.0
4	1	---	24	24	39.0	43.3	81.0	90.0
5	1	---	36	36	52.0	57.8	108.0	120.0
6	1	---	48	48	58.5	65.0	121.5	135.0
7	1	---	54	54	65.0	72.2	135.0	150.0
8	2	---	---	---	13.0	14.4	27.0	30.0
9	2	---	---	---	26.0	28.9	54.0	60.0
10	2	---	---	---	39.0	43.3	81.0	90.0
11	2	---	---	---	52.0	57.8	108.0	120.0
12	2	---	---	---	78.0	86.7	162.0	180.0
13	2	---	---	---	104.0	115.6	216.0	240.0
14	2	---	---	---	117.0	130.0	243.0	270.0
15	2	---	---	---	130.0	144.0	270.0	300.0
16	3	---	---	---	19.5	21.6	40.5	45
17	3	---	---	---	39	43.2	81	90
18	3	---	---	---	58.5	65.1	121.5	135
19	3	---	---	---	78	86.7	162	180
20	3	---	---	---	117	129.9	243	270
21	3	---	---	---	156	173.4	324	360
22	3	---	---	---	175.5	195	364.5	405
23	3	---	---	---	195	216.6	405	450
Note 1 : The blue form is the maximum power data rate								
Note 2 : The EUT has three spatial Streams								

2.5. 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

2.6. Measurement Uncertainty

Test Items	Uncertainty
AC Power Line Conducted Emission	$\pm 2.02\text{dB}$
Radiated Emission	Below 1GHz $\pm 3.8\text{ dB}$
	Above 1GHz $\pm 3.9\text{ dB}$
RF Antenna Port Conducted Emission	$\pm 1.27\text{dB}$
Radiated Emission Band Edge	$\pm 3.9\text{dB}$
Occupied Bandwidth	$\pm 1\text{kHz}$
Power Spectral Density	$\pm 1.27\text{dB}$

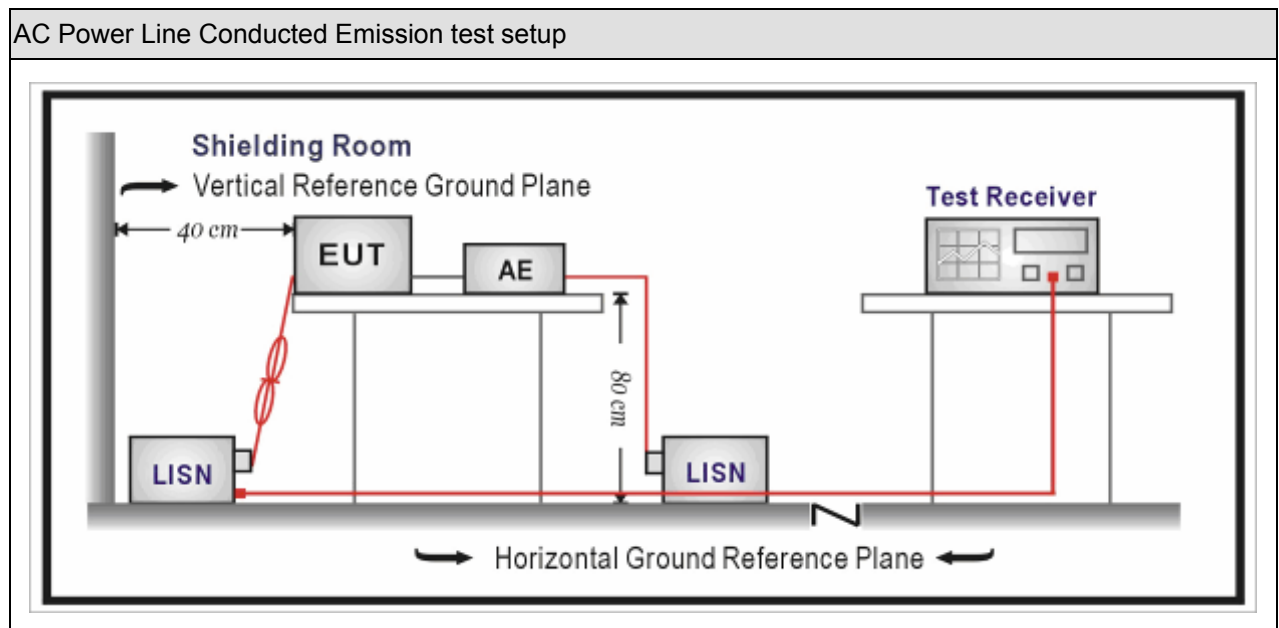
3. AC Power Line Conducted Emission

3.1. Test Equipment

AC Power Line Conducted Emission / TR-1					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100726	2016.03.29	2017.03.28
Two-Line V-Network	R&S	ENV216	100043	2016.03.29	2017.03.28
Two-Line V-Network	R&S	ENV216	100044	2015.09.17	2016.09.16
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2016.03.02	2017.03.01
50ohm Termination	SHX	TF2	07081401	2015.09.17	2016.09.16
Temperature/Humidity Meter	zhichen	ZC1-2	TR1-TH	2016.01.04	2017.01.03

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

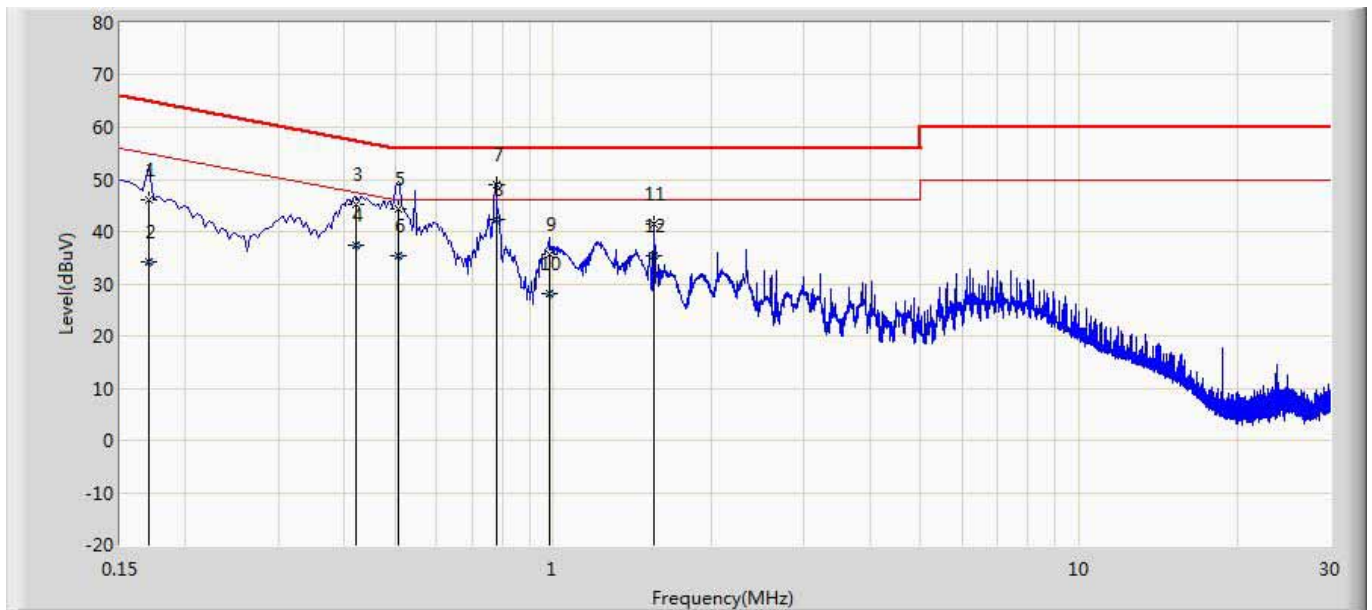
Frequency of Emission (MHz)	Conducted Limit	
	Quasi-peak (dB μ V)	Average (dB μ V)
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50
Note 1: The lower limit shall apply at the transition frequencies.		
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.		

3.4. Test Procedure

Test Method			
	References Rule	Chapter	Item
☒	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices
☒	ANSI C63.4-2014	7	AC power-line conducted emission measurements

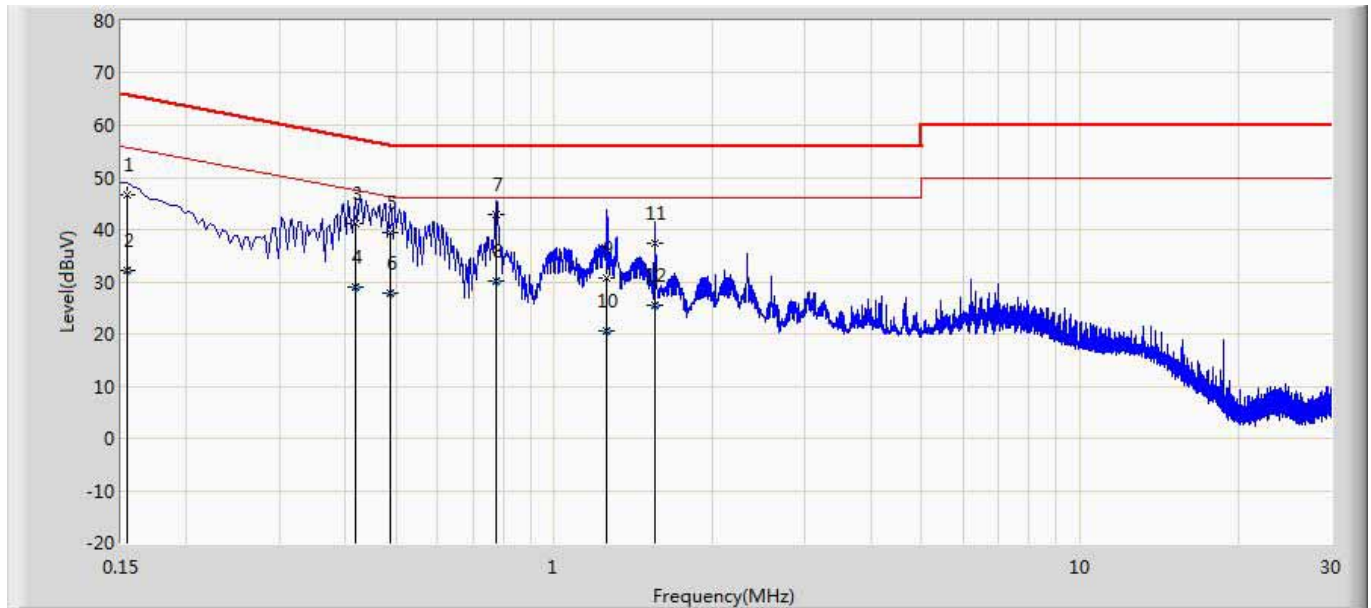
3.5. Test Result

Engineer: king	
Site: TR1	Time: 2016/07/04
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Line
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.170	46.045	36.425	-18.916	64.960	9.620	QP
2		0.170	34.268	24.649	-20.692	54.960	9.620	AV
3		0.422	45.184	35.555	-12.224	57.409	9.630	QP
4		0.422	37.409	27.779	-10.000	47.409	9.630	AV
5		0.506	44.234	34.601	-11.766	56.000	9.634	QP
6		0.506	35.482	25.848	-10.518	46.000	9.634	AV
7		0.778	48.894	39.247	-7.106	56.000	9.647	QP
8	*	0.778	42.452	32.805	-3.548	46.000	9.647	AV
9		0.982	35.588	25.931	-20.412	56.000	9.657	QP
10		0.982	28.121	18.463	-17.879	46.000	9.657	AV
11		1.554	41.348	31.667	-14.652	56.000	9.681	QP
12		1.554	35.393	25.713	-10.607	46.000	9.681	AV

Engineer: king	
Site: TR1	Time: 2016/07/04
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Neutral
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.154	46.808	37.207	-18.974	65.781	9.601	QP
2		0.154	32.291	22.690	-23.491	55.781	9.601	AV
3		0.418	41.218	31.601	-16.270	57.488	9.617	QP
4		0.418	29.126	19.509	-18.362	47.488	9.617	AV
5		0.486	39.442	29.819	-16.794	56.236	9.623	QP
6		0.486	27.684	18.061	-18.552	46.236	9.623	AV
7	*	0.774	42.817	33.161	-13.183	56.000	9.656	QP
8		0.774	30.234	20.578	-15.766	46.000	9.656	AV
9		1.258	30.755	21.108	-25.245	56.000	9.647	QP
10		1.258	20.681	11.034	-25.319	46.000	9.647	AV
11		1.554	37.289	27.628	-18.711	56.000	9.661	QP
12		1.554	25.612	15.952	-20.388	46.000	9.661	AV

4. Emissions in restricted frequency bands

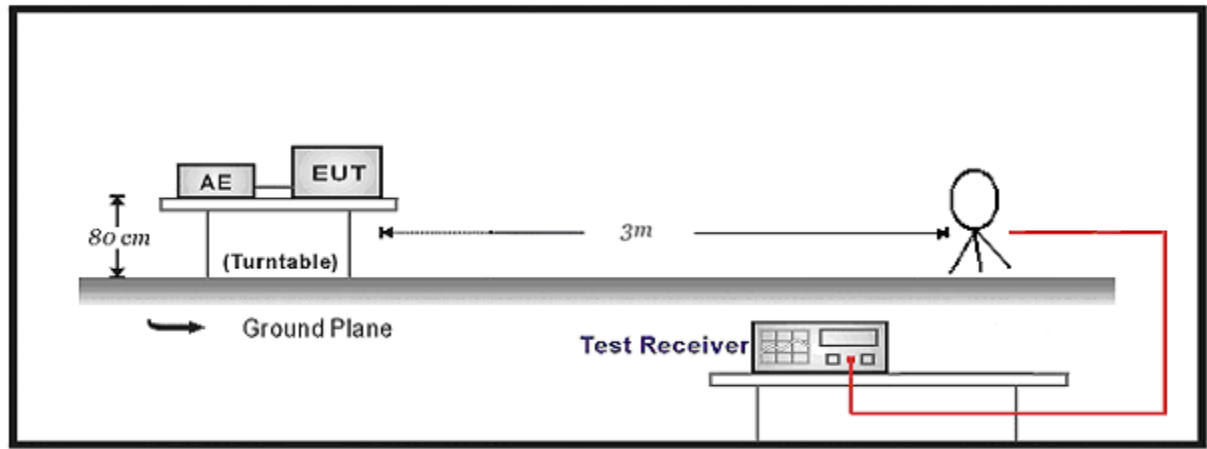
4.1. Test Equipment

Radiated Emission(Below 1GHz) / AC-2					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2016.03.29	2017.03.28
Loop Antenna	R&S	HFH2-Z2	833799/003	2015.11.16	2016.11.17
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2015.10.16	2016.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2016.03.02	2017.03.01
Temperature/Humidity Meter	Zhichen	ZC1-2	AC2-TH	2016.01.04	2017.01.03
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

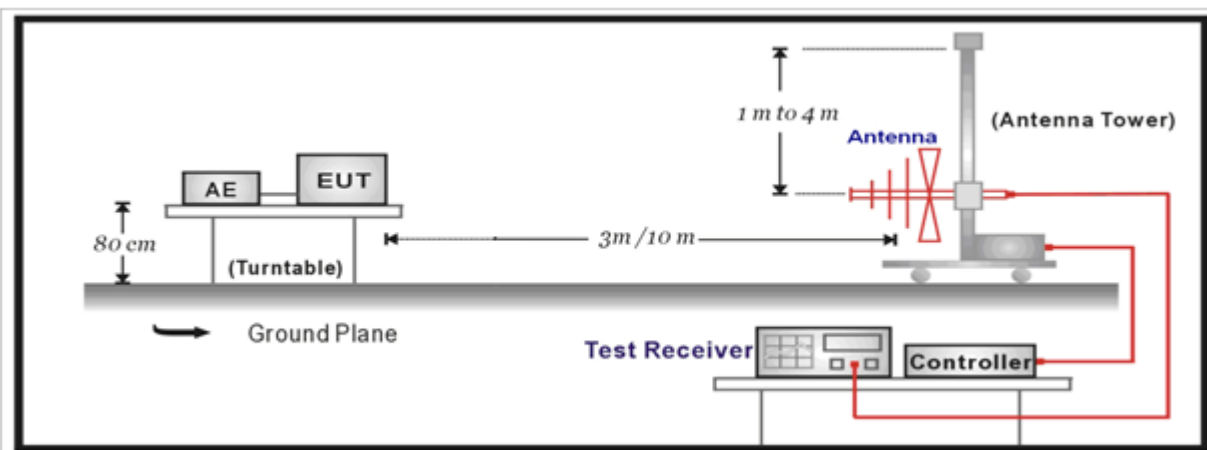
Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.04	2017.01.03
Preamplifier	Miteq	NSP1800-25	1364185	2016.05.06	2017.05.05
Preamplifier	Quietek	AP-040G	CHM-0906001	2016.05.06	2017.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2016.01.22	2017.01.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2015.11.25	2016.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2016.03.02	2017.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2016.03.02	2017.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2016.03.02	2017.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2016.06.10	2017.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2016.01.04	2017.01.03
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

4.2. Test Setup

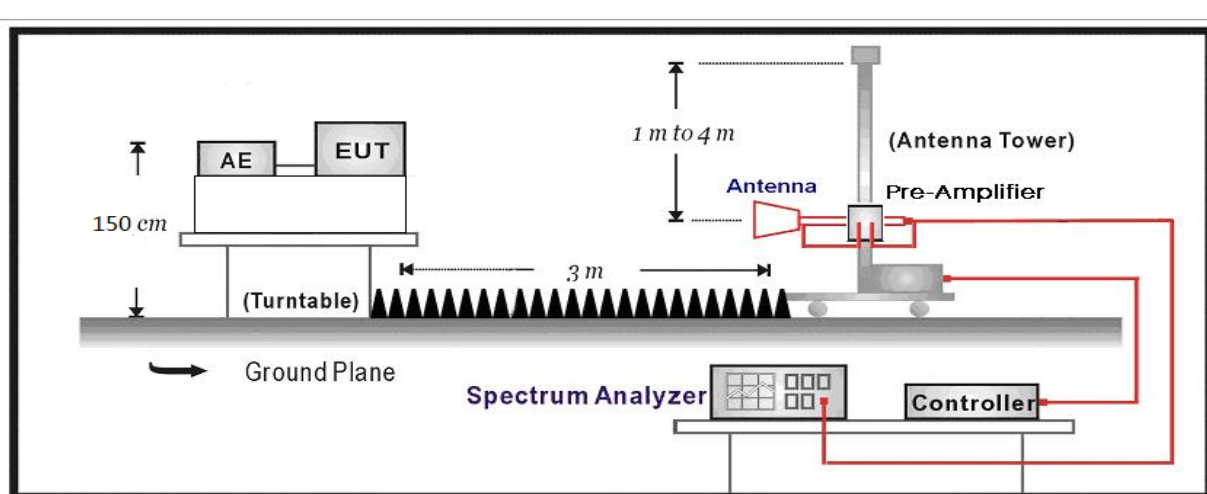
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

Restricted Bands of operation			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
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
8.81425 – 8.81475	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	
13.36 – 13.41			

Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μ V/m)	Field strength (dB μ V/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300 _(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30 _(Note 1)
1.705 - 30	30	29.5	30 _(Note 1)
30 - 88	100	40	3 _(Note 2)
88 - 216	150	43.5	3 _(Note 2)
216 - 960	200	46	3 _(Note 2)
Above 960	500	54	3 _(Note 2)

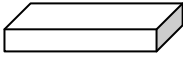
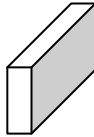
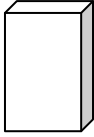
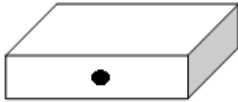
Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

4.4. Test Procedure

Test Method				
	References Rule		Chapter	Description
☐	ANSI C63.10		11.11	Emissions in non-restricted frequency bands
	☐	ANSI C63.10	11.11.2	Reference level measurement
	☐	ANSI C63.10	11.11.3	Emission level measurement
☒	ANSI C63.10		11.12	Emissions in restricted frequency bands
	☒	ANSI C63.10	11.12.1	Radiated emission measurements
	☒	ANSI C63.10	11.12.2.7	Radiated spurious emission test
	☒	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
		ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
		ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz
	☐	ANSI C63.10	11.12.2	Antenna-port conducted measurements
	☒	ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
		ANSI C63.10	11.12.2.4	Peak power measurement procedure
		ANSI C63.10	11.12.2.5	Average power measurement procedures
	☐	ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
		ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
		ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold

4.5. EUT test Axis definition

Item	Emissions in restricted frequency bands			
Device Category	☒	Fixed position use		
	☐	Mobile position use		
Test mode	Mode 1~4			
Test method	☒	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☒
	☐	Conducted		
	☐	Chain 1		
				
	☐	Chain 1	Chain 2	
				
	☐	Chain 1	Chain 2	Chain 3
				

4.6. Test Result

Product Name	:	450Mbps Wireless N Router	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1	Test Site	:	AC-5

Chain	CH	Antenna Polarity	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measured Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
Ant 0+1+2	1	H	4825.000	44.227	5.427	49.654	54(Note 3)	4.346	PK
		H	7236.000	36.787	9.656	46.443	54(Note 3)	7.557	PK
		H	9648.000	34.986	12.728	47.714	54(Note 3)	6.286	PK
		V	4824.000	48.236	5.439	53.676	54.000	0.324	AV
		V	4825.000	50.993	5.427	56.420	74.000	17.58	PK
		V	7236.000	36.973	9.656	46.629	54(Note 3)	7.371	PK
		V	9648.000	35.188	12.728	47.916	54(Note 3)	6.084	PK
	6	H	4876.000	46.956	5.577	52.533	54(Note 3)	1.467	PK
		H	7307.000	41.728	9.298	51.026	54(Note 3)	2.974	PK
		H	9748.000	35.368	12.985	48.354	54(Note 3)	5.646	PK
		V	4874.000	48.214	5.564	53.778	54.000	0.222	AV
		V	4876.000	53.145	5.577	58.722	74.000	15.278	PK
		V	7311.000	30.236	9.402	39.638	54.000	14.362	AV
		V	7315.500	47.222	9.518	56.740	74.000	17.26	PK
		V	9748.000	34.780	12.985	47.766	54(Note 3)	6.234	PK
	11	H	4924.000	31.236	5.759	36.995	54.000	17.005	AV
		H	4927.000	49.307	5.767	55.074	74.000	18.926	PK
		H	7383.500	40.540	9.246	49.786	54(Note 3)	4.214	PK
		H	9848.000	34.016	13.141	47.157	54(Note 3)	6.843	PK
		V	4924.000	48.102	5.759	53.861	54.000	0.139	AV
		V	4927.000	54.091	5.767	59.858	74.000	14.142	PK
		V	7383.500	45.248	9.246	54.494	74.000	19.506	PK
		V	7386.000	30.215	9.197	39.412	54.000	14.588	AV
		V	9848.000	33.566	13.141	46.707	54(Note 3)	7.293	PK

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

Note: 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.

Note: 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.

Note: 4. The VBW setting, see Clause 6.6.

Product Name	:	450Mbps Wireless N Router	Power	:	AC 120V/60Hz
Test Site	:	Mode 2	Test Site	:	AC-5

Chain	CH	Antenna Polarity	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measured Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
Ant 0+1+2	1	H	4825.000	43.967	5.427	49.394	54(Note 3)	4.606	PK
		H	7236.000	28.236	9.656	37.892	54.000	16.108	AV
		H	7239.000	50.306	9.659	59.965	74.000	14.035	PK
		H	9648.000	34.953	12.728	47.681	54(Note 3)	6.319	PK
		V	4824.000	30.210	5.439	35.650	54.000	18.350	AV
		V	4825.000	50.003	5.427	55.430	74.000	18.570	PK
		V	7236.000	33.324	9.656	42.980	54.000	11.020	AV
		V	7239.000	56.307	9.659	65.966	74.000	8.034	PK
		V	9648.000	35.117	12.728	47.845	54(Note 3)	6.155	PK
	6	H	4876.000	48.397	5.577	53.974	54(Note 3)	0.026	PK
		H	7311.000	36.236	9.402	45.638	54.000	8.362	AV
		H	7315.500	52.208	9.518	61.727	74.000	12.273	PK
		H	9748.000	35.304	12.985	48.290	54(Note 3)	5.710	PK
		V	4874.000	40.215	5.564	45.779	54.000	8.221	AV
		V	4876.000	53.488	5.577	59.065	74.000	14.935	PK
		V	7311.000	42.817	9.402	52.219	54.000	1.781	AV
		V	7315.500	56.288	9.518	65.806	74.000	8.194	PK
		V	9748.000	35.988	12.985	48.974	54(Note 3)	5.026	PK
	11	H	4927.000	44.973	5.767	50.740	54(Note 3)	3.260	PK
		H	7383.500	43.842	9.246	53.088	54(Note 3)	0.912	PK
		H	9848.000	34.095	13.141	47.236	54(Note 3)	6.764	PK
		V	4924.000	38.215	5.759	43.974	54.000	10.026	AV
		V	4927.000	49.631	5.767	55.398	74.000	18.602	PK
		V	7383.500	52.355	9.246	61.601	74.000	12.399	PK
		V	7386.000	30.215	9.197	39.412	54.000	14.588	AV
		V	9848.000	33.284	13.141	46.425	54(Note 3)	7.575	PK

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

Note: 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.

Note: 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.

Note: 4. The VBW setting, see Clause 6.6.

Product Name	:	450Mbps Wireless N Router	Power	:	AC 120V/60Hz
Test Site	:	Mode 3	Test Site	:	AC-5

Chain	CH	Antenna Polarity	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measured Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
Ant 0+1+2	1	H	4824.000	40.667	5.439	46.107	54(Note 3)	7.893	PK
		H	7236.000	39.362	9.656	49.018	54(Note 3)	4.982	PK
		H	9648.000	34.559	12.728	47.287	54(Note 3)	6.713	PK
		V	4816.500	46.763	5.535	52.299	54(Note 3)	1.701	PK
		V	7230.500	47.791	9.650	57.441	74.000	16.559	PK
		V	7236.000	38.215	9.656	47.871	54.000	6.129	AV
		V	9648.000	35.151	12.728	47.879	54(Note 3)	6.121	PK
	6	H	4876.000	48.322	5.577	53.899	54(Note 3)	0.101	PK
		H	7298.500	55.496	9.313	64.809	74.000	9.191	PK
		H	7311.000	40.215	9.402	49.617	54.000	4.383	AV
		H	9748.000	36.003	12.985	48.989	54(Note 3)	5.011	PK
		V	4874.000	38.251	5.564	43.815	54.000	10.185	AV
		V	4876.000	54.107	5.577	59.684	74.000	14.316	PK
		V	7307.000	62.632	9.298	71.930	74.000	2.070	PK
		V	7311.000	43.143	9.402	52.545	54.000	1.455	AV
		V	9748.000	36.401	12.985	49.387	54(Note 3)	4.613	PK
	11	H	4918.500	45.103	5.746	50.849	54(Note 3)	3.151	PK
		H	7383.500	42.336	9.246	51.582	54(Note 3)	2.418	PK
		H	9848.000	33.619	13.141	46.760	54(Note 3)	7.240	PK
		V	4918.500	47.723	5.746	53.469	54(Note 3)	0.531	PK
		V	7383.500	48.891	9.246	58.137	74.000	15.863	PK
		V	7386.000	36.000	9.197	45.197	54.000	8.803	AV
		V	9848.000	33.795	13.141	46.936	54(Note 3)	7.064	PK

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

Note: 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.

Note: 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.

Note: 4. The VBW setting, see Clause 6.6.

Product Name	:	450Mbps Wireless N Router	Power	:	AC 120V/60Hz
Test Site	:	Mode 4	Test Site	:	AC-5

Chain	CH	Antenna Polarity	Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measured Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
Ant 0+1+2	3	H	4844	39.532	5.716	45.248	54(Note 3)	8.752	PK
		H	7266	36.874	9.469	46.343	54(Note 3)	7.657	PK
		H	9688	34.581	12.987	47.568	54(Note 3)	6.432	PK
		V	4844	40.381	5.716	46.097	54(Note 3)	7.903	PK
		V	7266	36.376	9.469	45.845	54(Note 3)	8.155	PK
		V	9688	35.975	12.987	48.962	54(Note 3)	5.038	PK
	6	H	4874	39.074	5.564	44.638	54(Note 3)	9.362	PK
		H	7311	37.235	9.402	46.637	54(Note 3)	7.363	PK
		H	9748	35.487	12.985	48.473	54(Note 3)	5.527	PK
		V	4874	40.871	5.564	46.435	54(Note 3)	7.565	PK
		V	7311	36.723	9.402	46.125	54(Note 3)	7.875	PK
		V	9748	34.797	12.985	47.783	54(Note 3)	6.217	PK
	9	H	4904	39.057	5.721	44.778	54(Note 3)	9.222	PK
		H	7356	37.096	9.915	47.011	54(Note 3)	6.989	PK
		H	9808	34.709	12.376	47.085	54(Note 3)	6.915	PK
		H	4904	39.057	5.721	44.778	54(Note 3)	9.222	PK
		H	7356	37.096	9.915	47.011	54(Note 3)	6.989	PK
		H	9808	34.709	12.376	47.085	54(Note 3)	6.915	PK

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

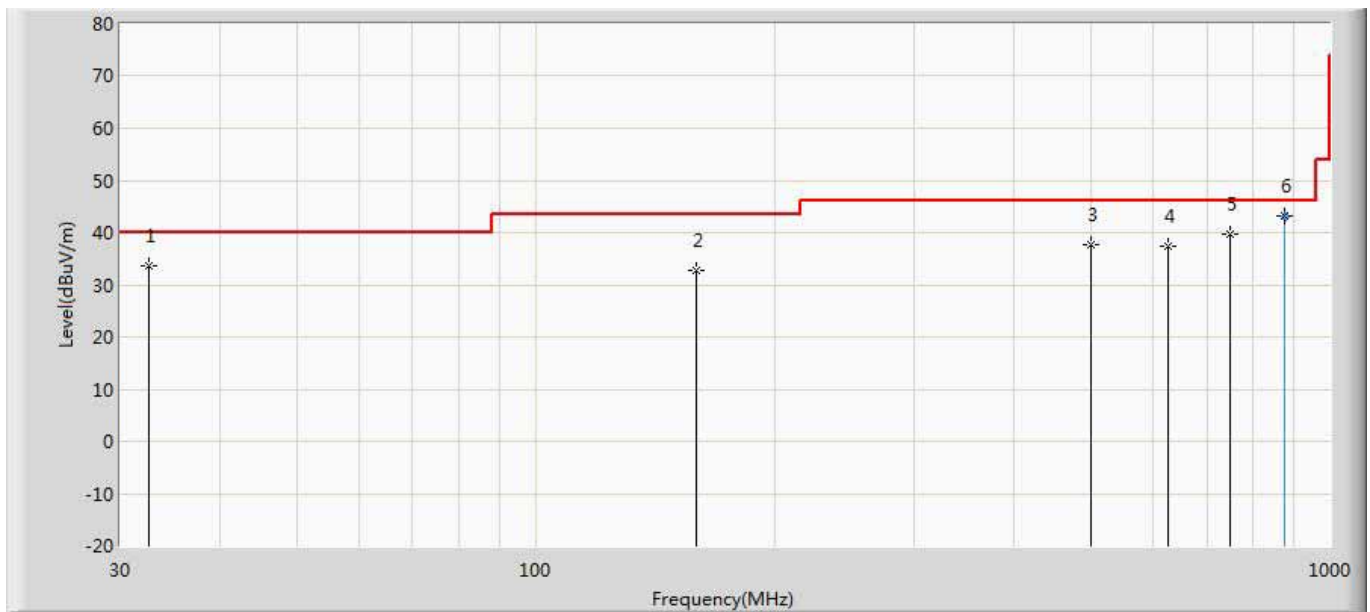
Note: 2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.

Note: 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.

Note: 4. The VBW setting, see Clause 6.6.

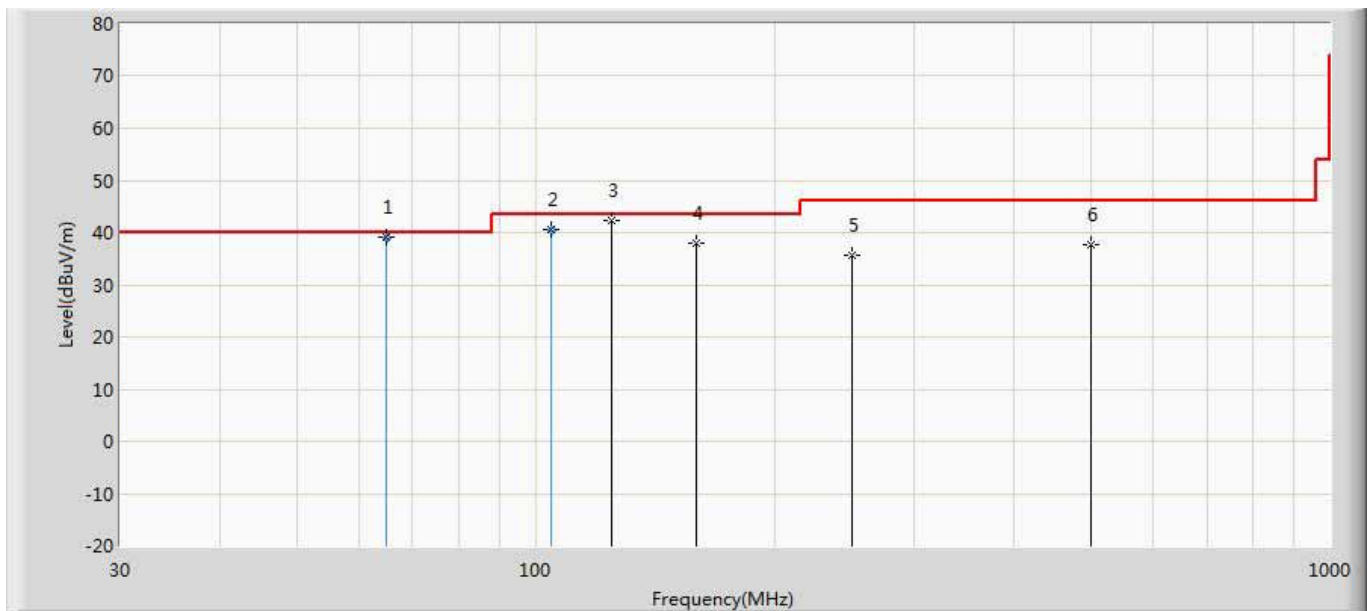
The worst case of Radiated Emission below 1GHz:

Engineer: Bruce	
Site: AC2	Time: 2016/08/12 - 16:18
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	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		32.546	33.522	6.147	-6.478	40.000	27.375	QP
2		159.374	32.806	15.554	-10.694	43.500	17.252	QP
3		499.965	37.599	10.090	-8.401	46.000	27.509	QP
4		625.095	37.261	6.568	-8.739	46.000	30.693	QP
5		750.104	39.750	10.149	-6.250	46.000	29.601	QP
6	*	875.261	43.291	10.800	-2.709	46.000	32.490	QP

Engineer: Bruce	
Site: AC2	Time: 2016/08/12 - 16:18
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	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	*	64.775	39.179	23.100	-0.821	40.000	16.080	QP
2		104.739	40.494	18.100	-3.006	43.500	22.394	QP
3		124.939	42.181	21.678	-1.319	43.500	20.503	QP
4		159.374	38.024	19.291	-5.476	43.500	18.733	QP
5		250.069	35.777	11.111	-10.223	46.000	24.666	QP
6		499.965	37.761	12.862	-8.239	46.000	24.899	QP

5. Emissions in non-restricted frequency bands

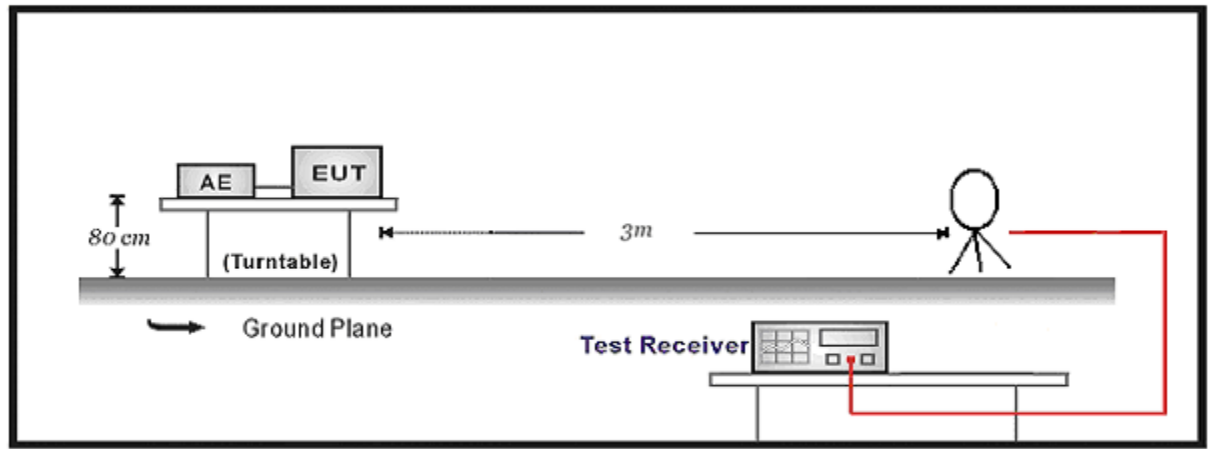
5.1. Test Equipment

Radiated Emission(Below 1GHz) / AC-2					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2016.03.29	2017.03.28
Loop Antenna	R&S	HFH2-Z2	833799/003	2015.11.16	2016.11.17
Bilog Chainenna	Teseq GmbH	CBL6112D	27611	2015.10.16	2016.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2016.03.02	2017.03.01
Temperature/Humidity Meter	Zhichen	ZC1-2	AC2-TH	2016.01.04	2017.01.03
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

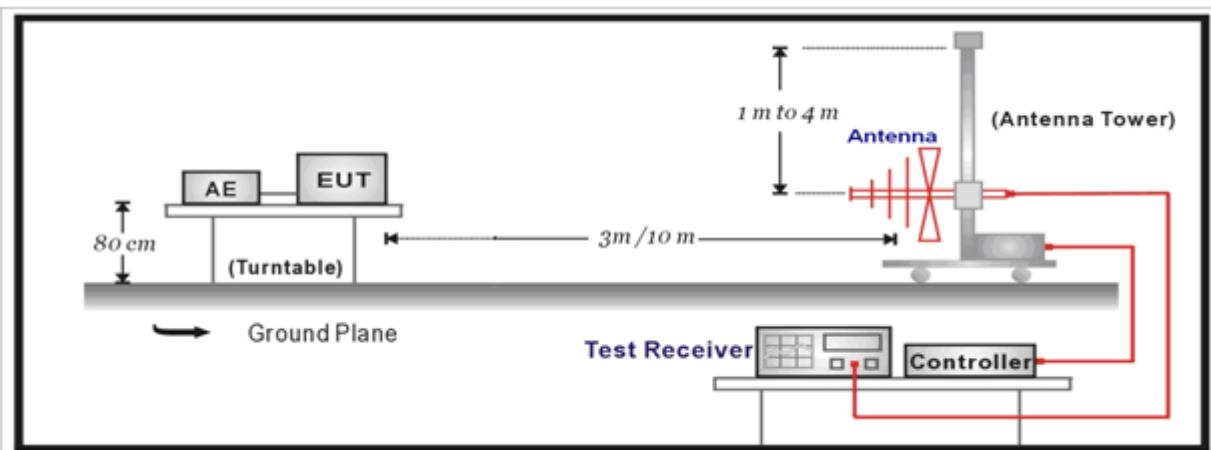
Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9020A	MY49100159	2016.03.29	2017.03.28
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.04	2017.01.03
Preamplifier	Miteq	NSP1800-25	1364185	2016.05.06	2017.05.05
Preamplifier	Quietek	AP-040G	CHM-0906001	2016.05.06	2017.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2016.01.22	2017.01.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2015.11.25	2016.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2016.03.02	2017.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2016.03.02	2017.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2016.03.02	2017.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2016.06.10	2017.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2016.01.04	2017.01.03
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

5.2. Test Setup

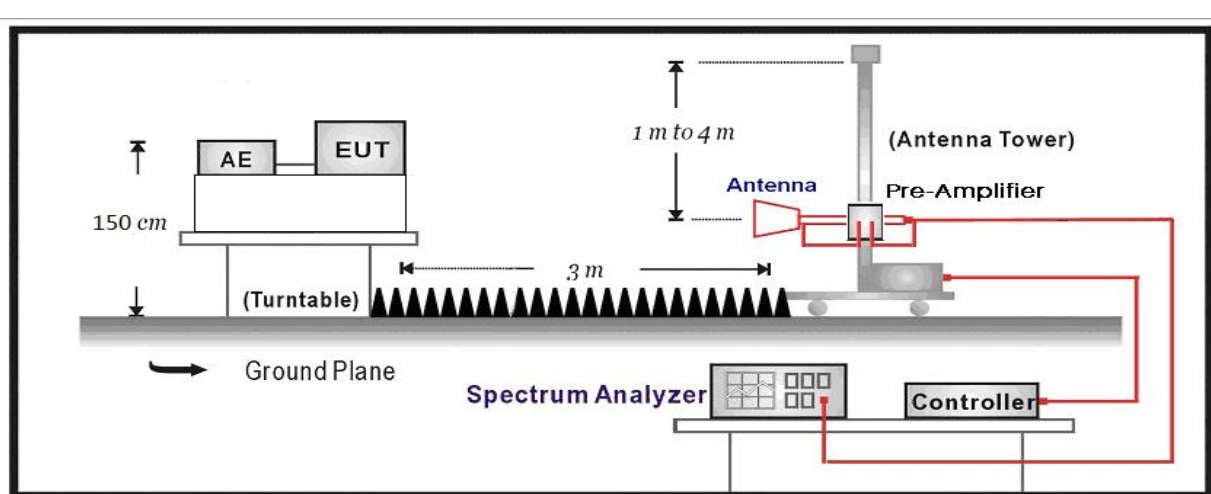
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



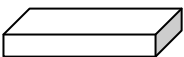
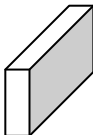
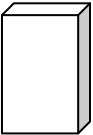
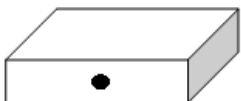
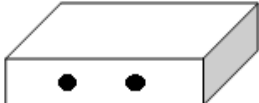
5.3. Limit

Un-Restricted Band Emissions Limit	
RF Output power (Detection methods)	Limit(dB)
RF Output power(Average detector)	30c(Note1)
RF Output power(PK detector)	20c(Note2)
Note 1: If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc). Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).	

5.4. Test Procedure

Test Method					
	References Rule			Chapter	Description
☒	ANSI C63.10			11.11	Emissions in non-restricted frequency bands
	☒	ANSI C63.10		11.11.2	Reference level measurement
	☒	ANSI C63.10		11.11.3	Emission level measurement
☐	ANSI C63.10			11.12	Emissions in restricted frequency bands
	☐	ANSI C63.10		11.12.1	Radiated emission measurements
	☐	ANSI C63.10		11.12.2.7	Radiated spurious emission test
☐	ANSI C63.10			6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
☐	ANSI C63.10			6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
☒	ANSI C63.10			6.6	Radiated emissions from unlicensed wireless devices above 1 GHz
	☒	ANSI C63.10		11.12.2	Antenna-port conducted measurements
		☐	ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
		☐	ANSI C63.10	11.12.2.4	Peak power measurement procedure
		☒	ANSI C63.10	11.12.2.5	Average power measurement procedures
		☒	ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
		☐	ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
		☐	ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold

5.5. EUT test Axis definition

Item	Emissions in non-restricted frequency bands			
Device Category	☒	Fixed position use		
	☐	Mobile position use		
Test mode	Mode 1 ~ Mode 4			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐
	☒	Conducted		
	☐	Chain 0		
				
	☐	Chain 0	Chain 1	
				
	☒	Chain 0	Chain 1	Chain 2
				

5.6. Test Result

Product Name	:	450Mbps Wireless N Router	Test Power	:	AC 120V/60Hz
Test Site	:	TR8			

Antenna #0+1+2

Mode	Channel	Test Frequency (MHz)	In-Band PSD[a] (dBm/100kHz)	Frequency (MHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
1	01	2412	8.669	2394.969	-46.490	55.159	>30	Pass
1	11	2462	8.331	2483.932	-49.362	57.693	>30	Pass
2	01	2412	4.736	2400.000	-26.777	31.513	>30	Pass
2	11	2462	3.480	2483.500	-43.298	46.778	>30	Pass
3	01	2412	1.259	2399.838	-29.703	30.962	>30	Pass
3	11	2462	2.359	2483.932	-45.028	47.387	>30	Pass
4	03	2422	-3.105	2399.976	-34.377	31.272	>30	Pass
4	09	2452	-5.088	2483.568	-45.456	40.368	>30	Pass

Note: The worst case of emissions in non-restricted frequency bands as below:

Mode 3 CH01(2412MHz)



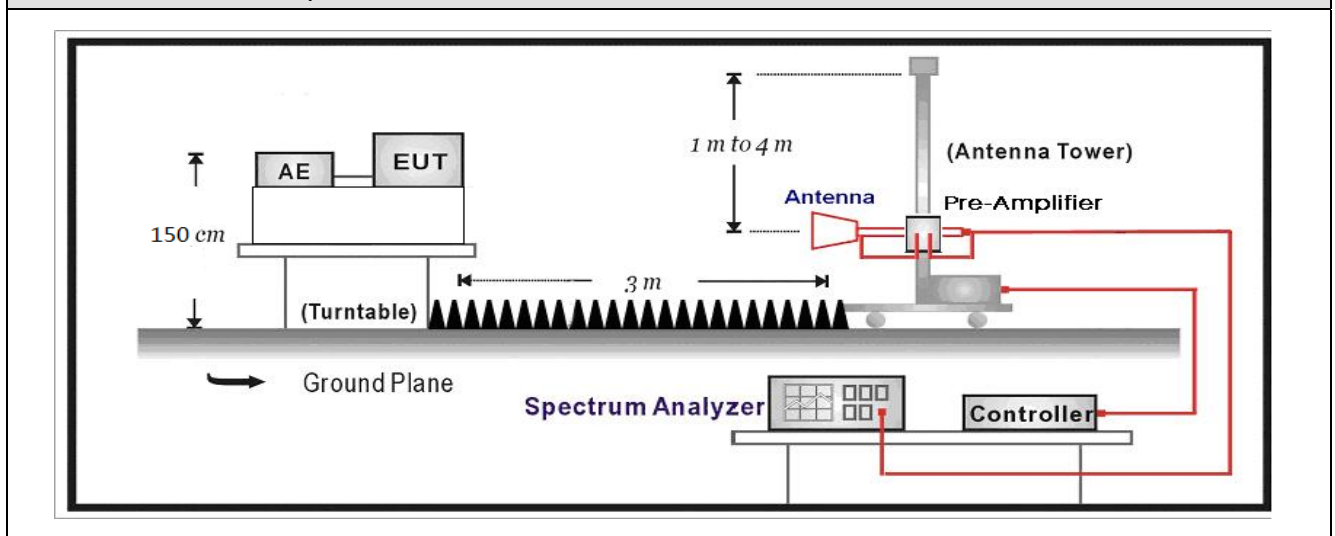
6. Radiated Emission Band Edge

6.1. Test Equipment

Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.04	2017.01.03
Preamplifier	Miteq	NSP1800-25	1364185	2016.05.06	2017.05.05
Preamplifier	QuieTek	AP-040G	CHM-0906001	2016.05.06	2017.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2016.01.22	2017.01.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2015.11.25	2016.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2016.03.02	2017.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2016.03.02	2017.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2016.03.02	2017.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2016.06.10	2017.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2016.01.04	2017.01.03
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

6.2. Test Setup

Above 1GHz Test Setup:



6.3. Limit

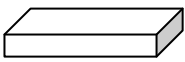
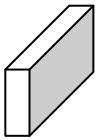
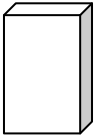
Band edge Limit				
Frequency bands (MHz)	Detector	Limit (dB μ V/m)	RBW (MHz)	Distance (m)
2310-2390	PK	74	1	3
2483.5-2500	AV	54	1	3

Note: The field strength of emissions appearing within these frequency bands shall not exceed the limits.

6.4. Test Procedure

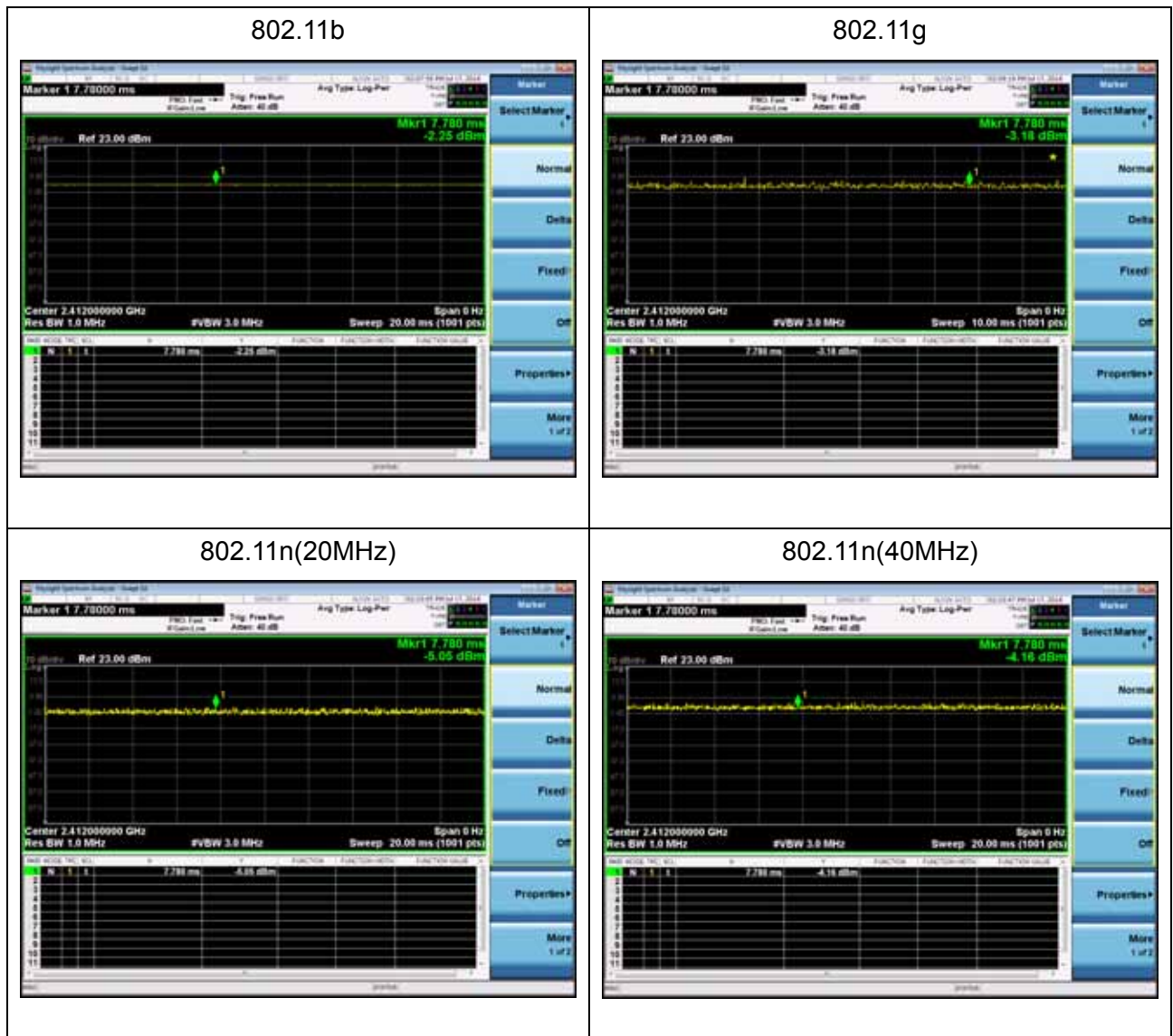
Test Method					
	References Rule		Chapter	Description	
☒	ANSI C63.10		6.10	Band-edge testing	
	☒	ANSI C63.10	6.10.5	Restricted-band band-edge measurements	
	☐	ANSI C63.10	6.10.6	Marker-delta method	
☒	ANSI C63.10		11.12	Emissions in restricted frequency bands	
	☒	ANSI C63.10	11.12.1	Radiated emission measurements	
	☒	ANSI C63.10	11.12.2.7	Radiated spurious emission test	
☐	ANSI C63.10		6.4	Radiated emissions from unlicensed wireless devices below 30 MHz	
☐	ANSI C63.10		6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz	
☒	ANSI C63.10		6.6	Radiated emissions from unlicensed wireless devices above 1 GHz	
	☐	ANSI C63.10		11.12.2	Antenna-port conducted measurements
		☐	ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
		☒	ANSI C63.10	11.12.2.4	Peak power measurement procedure
		☒	ANSI C63.10	11.12.2.5	Average power measurement procedures
		☐	ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
		☐	ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
		☒	ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold

6.5. EUT test definition

Item	Emissions in non-restricted frequency bands			
Device Category	☒	Fixed position use		
	☐	Mobile position use		
Test mode	Mode 1~4			
Test method	☒	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☒
	☐	Conducted		
	☐	Chain 0		
				
	☐	Chain 0	Chain 1	
				
	☐	Chain 0	Chain 1	Chain 2
				

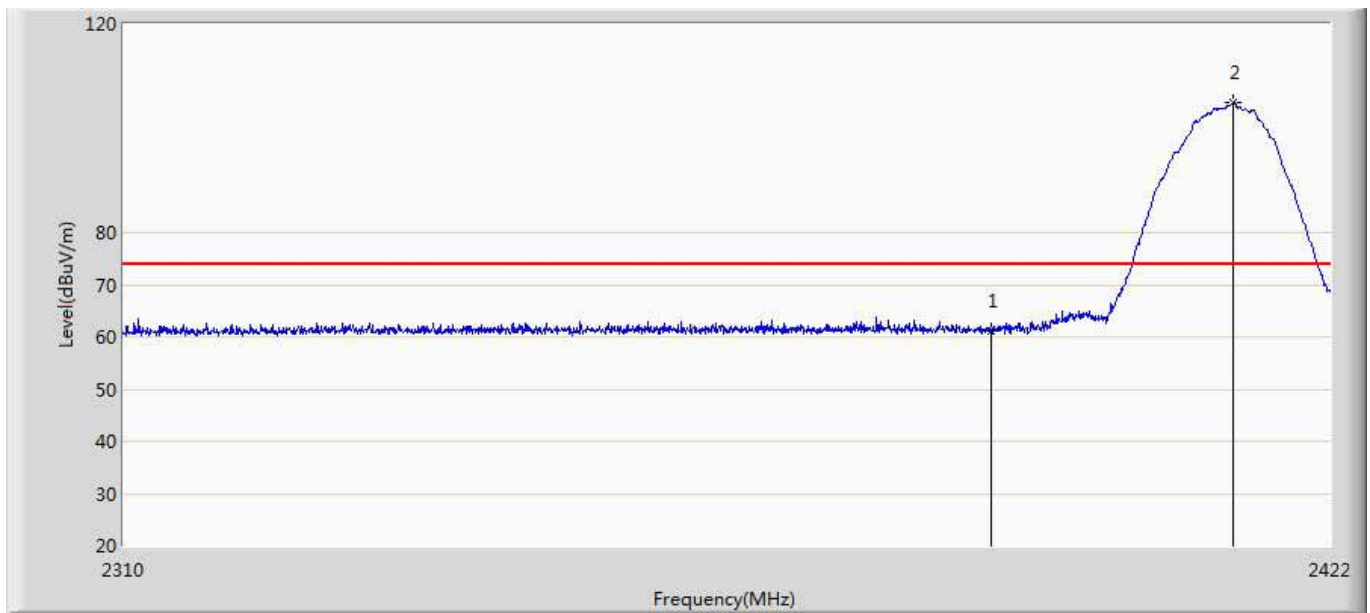
6.6. Duty Cycle

Test Mode	Tx On (ms)	Tx Off (ms)	VBW	Tx On + Tx Off (ms)	Duty Cycle
802.11b	N/A	N/A	10Hz	N/A	100%
802.11g	N/A	N/A	10Hz	N/A	100%
802.11n(20MHz)	N/A	N/A	10Hz	N/A	100%
802.11n(40MHz)	N/A	N/A	10Hz	N/A	100%



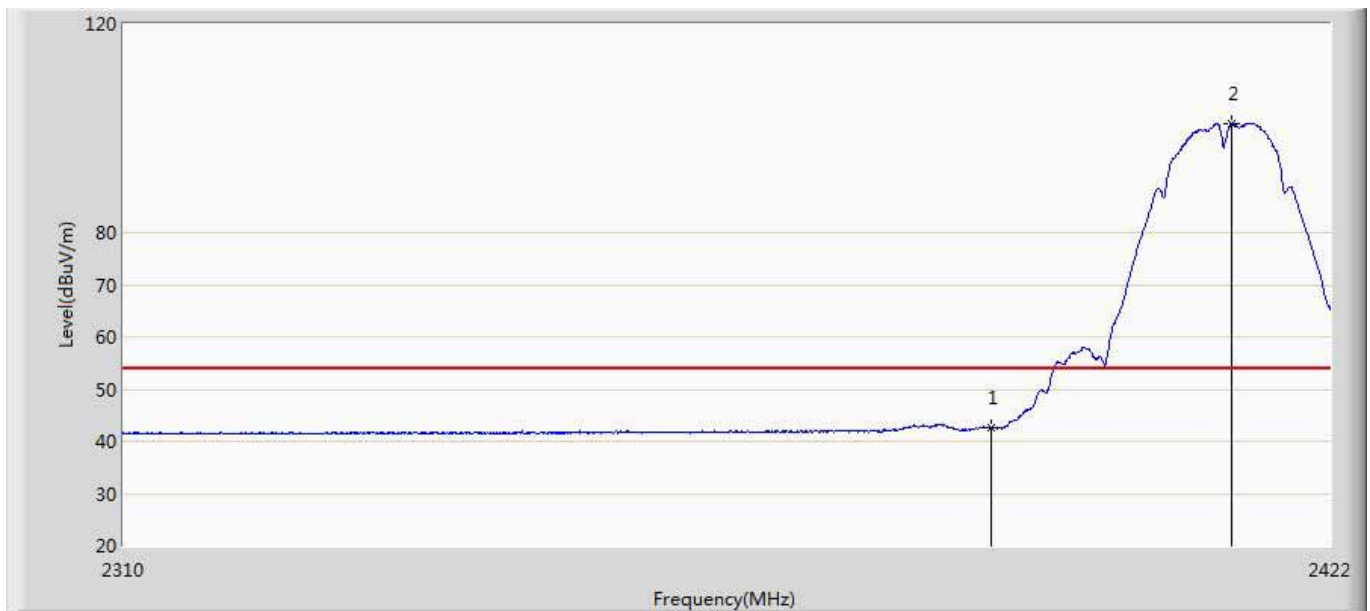
6.7. Test Result

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 11:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412Mhz by 802.11b	



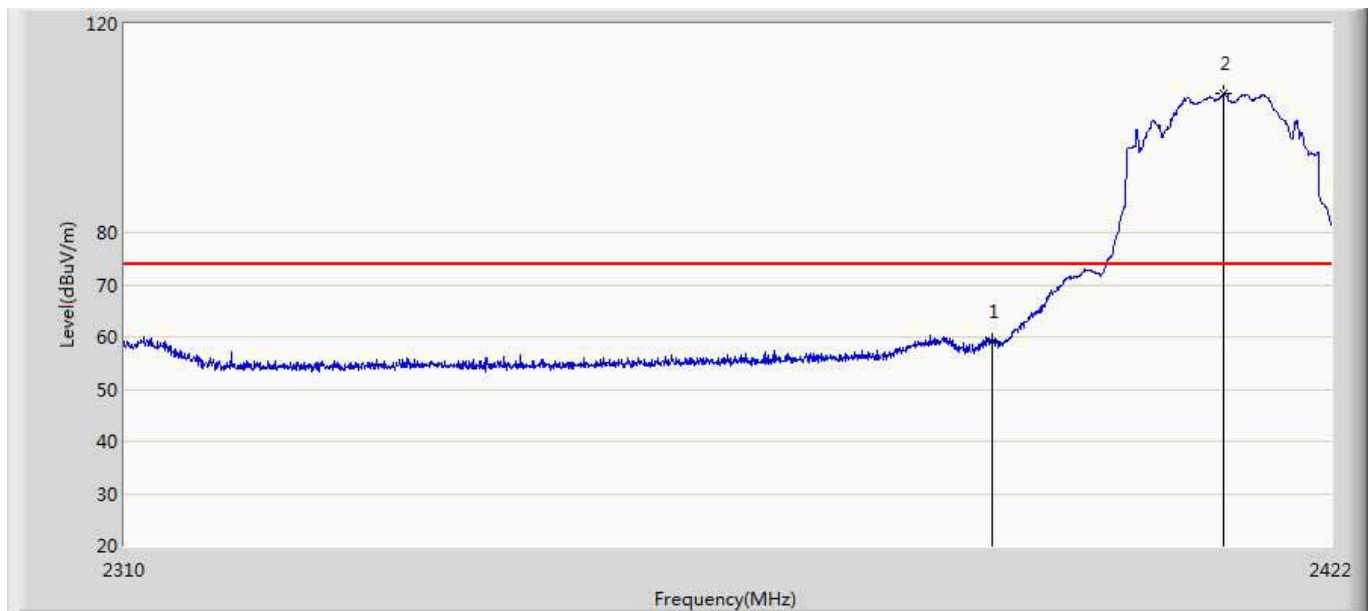
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	61.179	25.103	-12.821	74.000	36.076	PK
2	*	2412.816	104.945	68.773	30.945	74.000	36.172	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 11:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412Mhz by 802.11b	



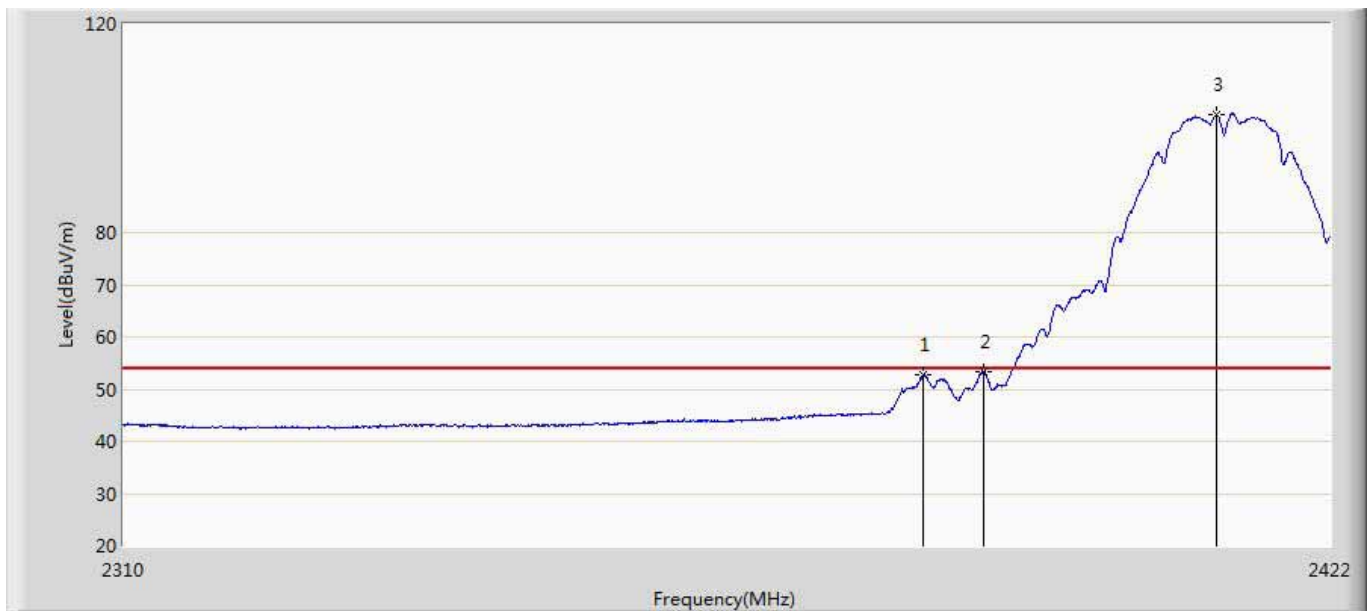
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	42.519	6.443	-11.481	54.000	36.076	AV
2	*	2412.648	100.914	64.742	46.914	54.000	36.173	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 11:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412Mhz by 802.11b	



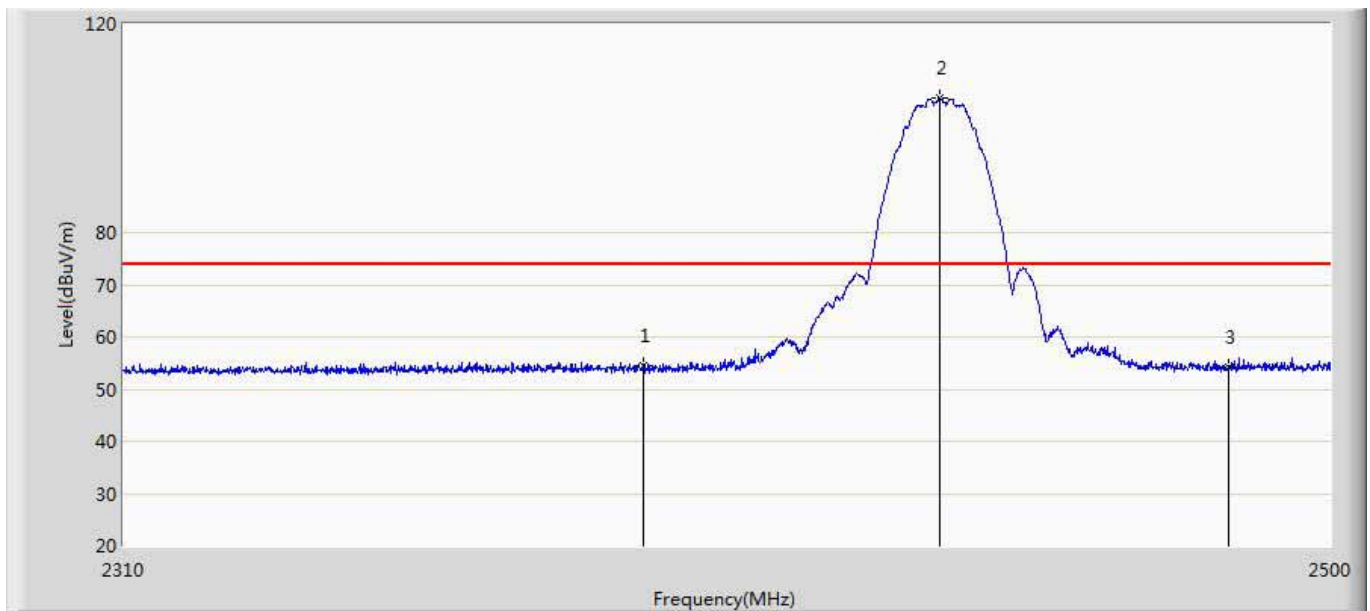
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	59.244	23.168	-14.756	74.000	36.076	PK
2	*	2411.752	106.599	70.428	32.599	74.000	36.171	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 11:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412Mhz by 802.11b	



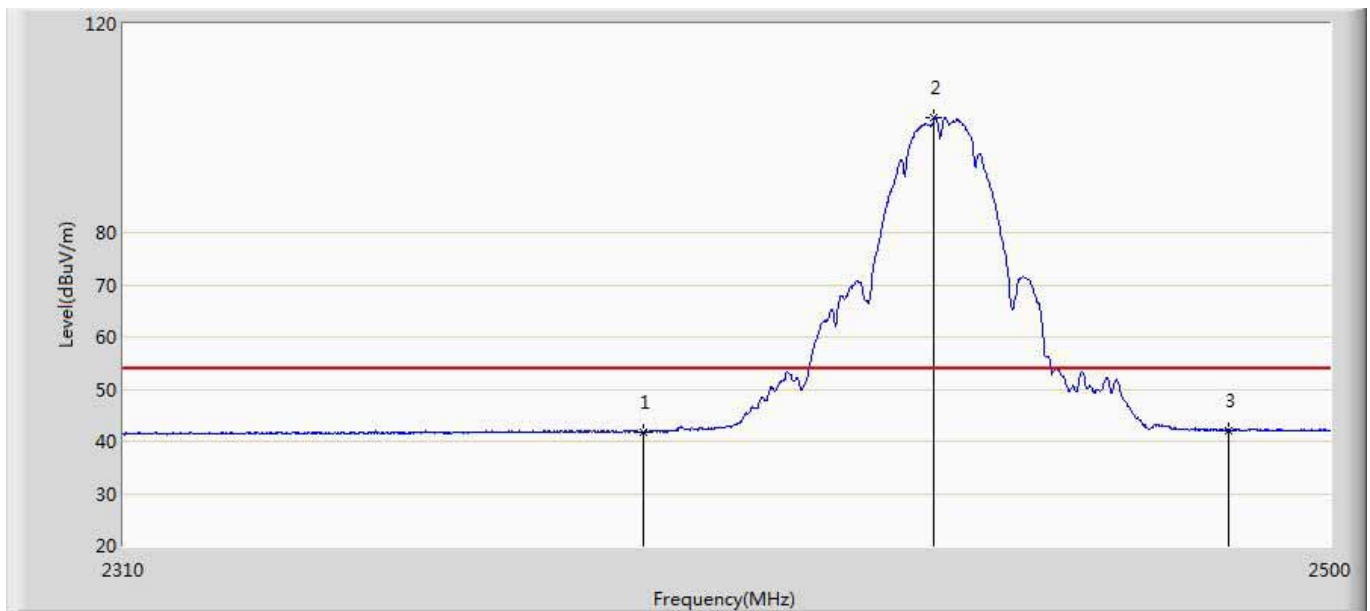
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2383.696	52.770	16.712	-1.230	54.000	36.058	AV
2		2389.296	53.290	17.216	-0.710	54.000	36.074	AV
3	*	2411.192	102.574	66.404	48.574	54.000	36.170	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 11:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2437Mhz by 802.11b	



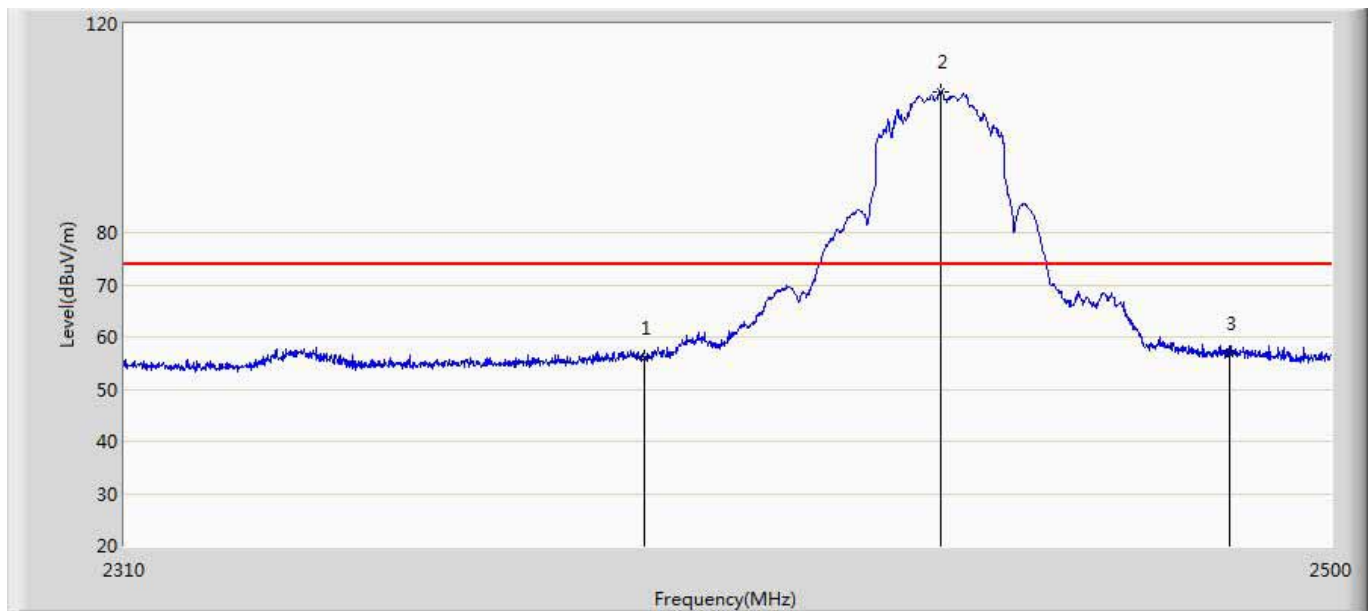
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	54.634	18.558	-19.366	74.000	36.076	PK
2	*	2437.015	105.900	69.669	31.900	74.000	36.232	PK
3		2483.500	54.311	17.966	-19.689	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 11:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2437Mhz by 802.11b	



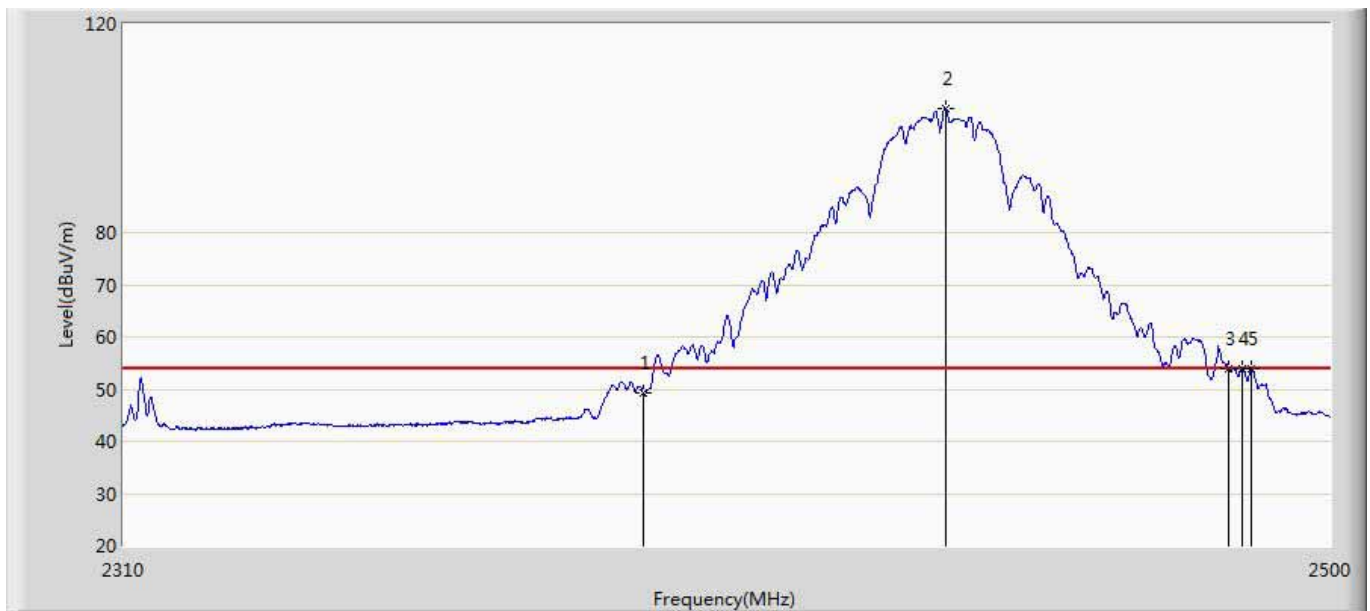
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	41.792	5.716	-12.208	54.000	36.076	AV
2	*	2436.065	101.971	65.744	47.971	54.000	36.228	AV
3		2483.500	42.055	5.710	-11.945	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 11:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2437Mhz by 802.11b	



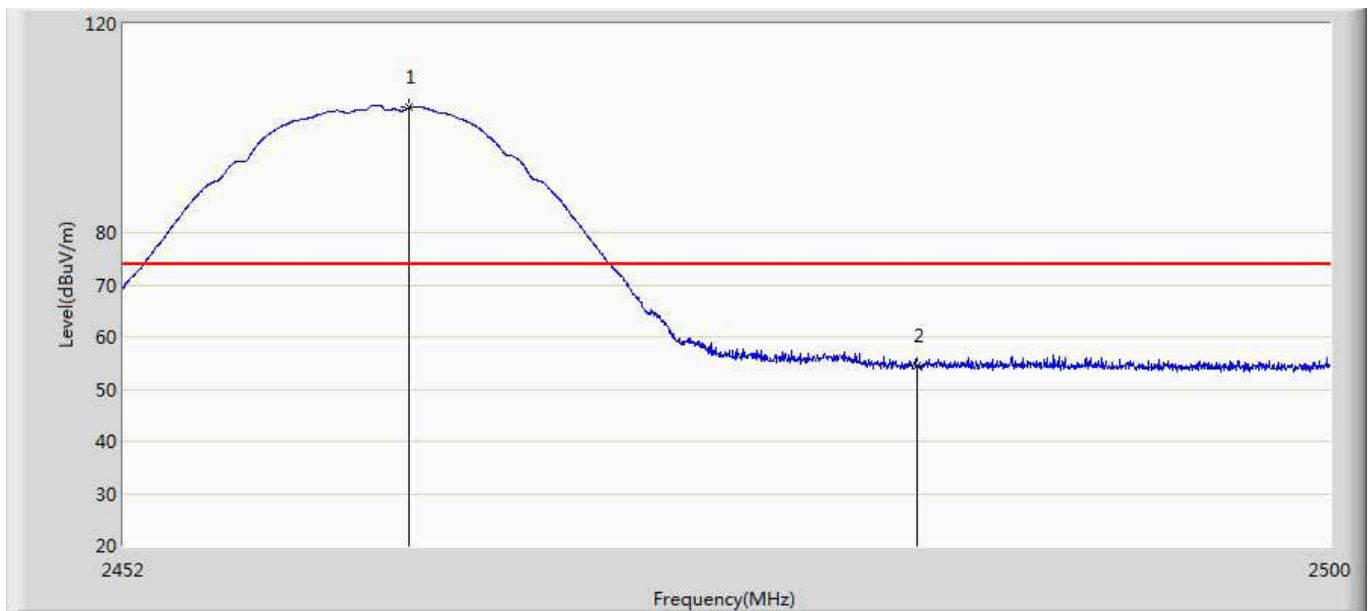
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	56.038	19.962	-17.962	74.000	36.076	PK
2	*	2437.015	106.964	70.733	32.964	74.000	36.232	PK
3		2483.500	56.899	20.554	-17.101	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 11:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2437Mhz by 802.11b	



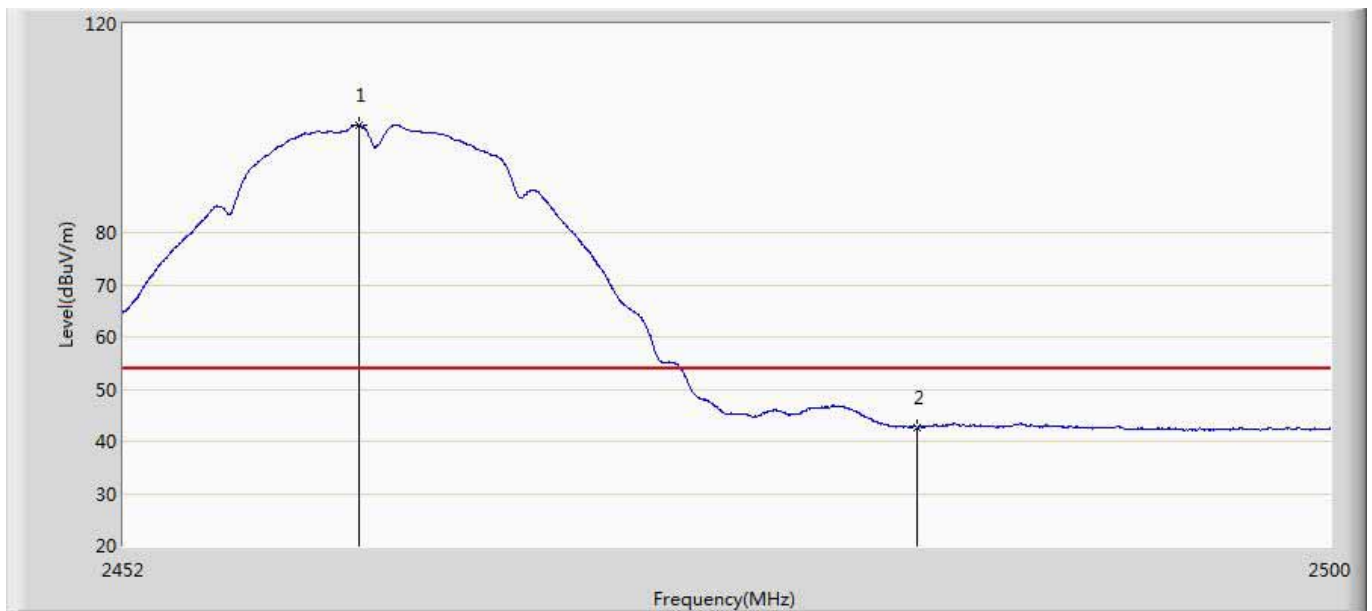
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	49.371	13.295	-4.629	54.000	36.076	AV
2	*	2437.775	103.719	67.485	49.719	54.000	36.234	AV
3		2483.500	53.770	17.425	-0.230	54.000	36.345	AV
4		2485.750	53.769	17.415	-0.231	54.000	36.354	AV
5		2487.270	53.773	17.413	-0.227	54.000	36.360	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 11:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462Mhz by 802.11b	



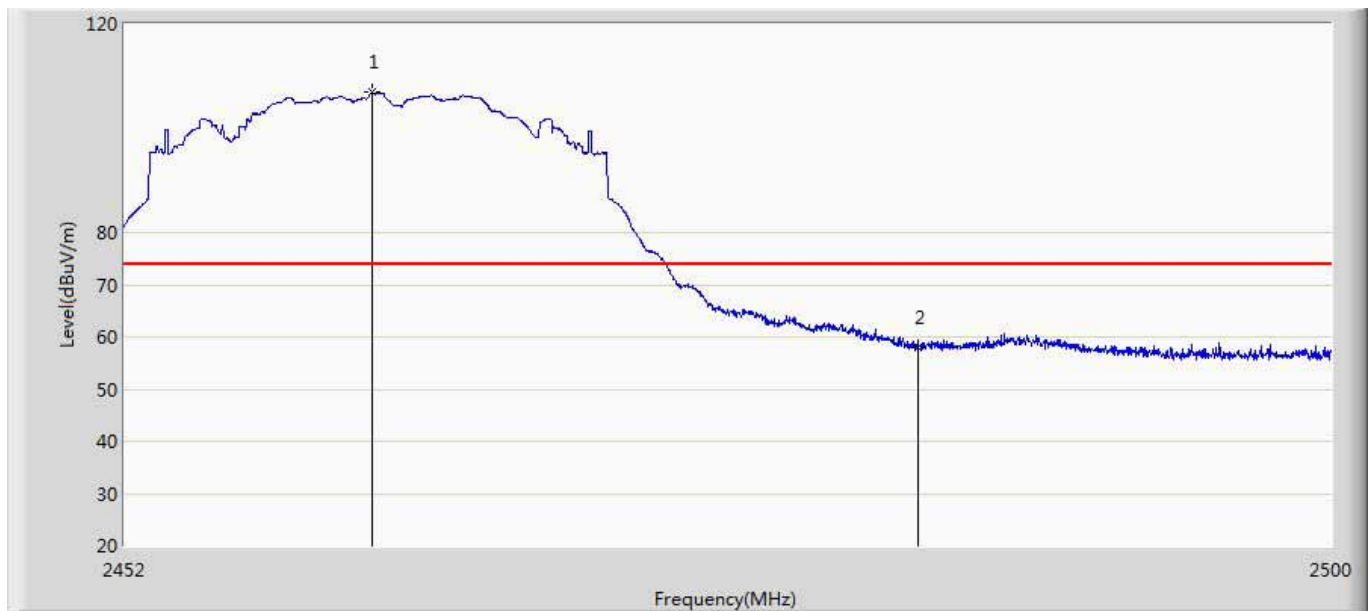
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.304	104.045	67.767	30.045	74.000	36.278	PK
2		2483.500	54.446	18.101	-19.554	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 11:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462Mhz by 802.11b	



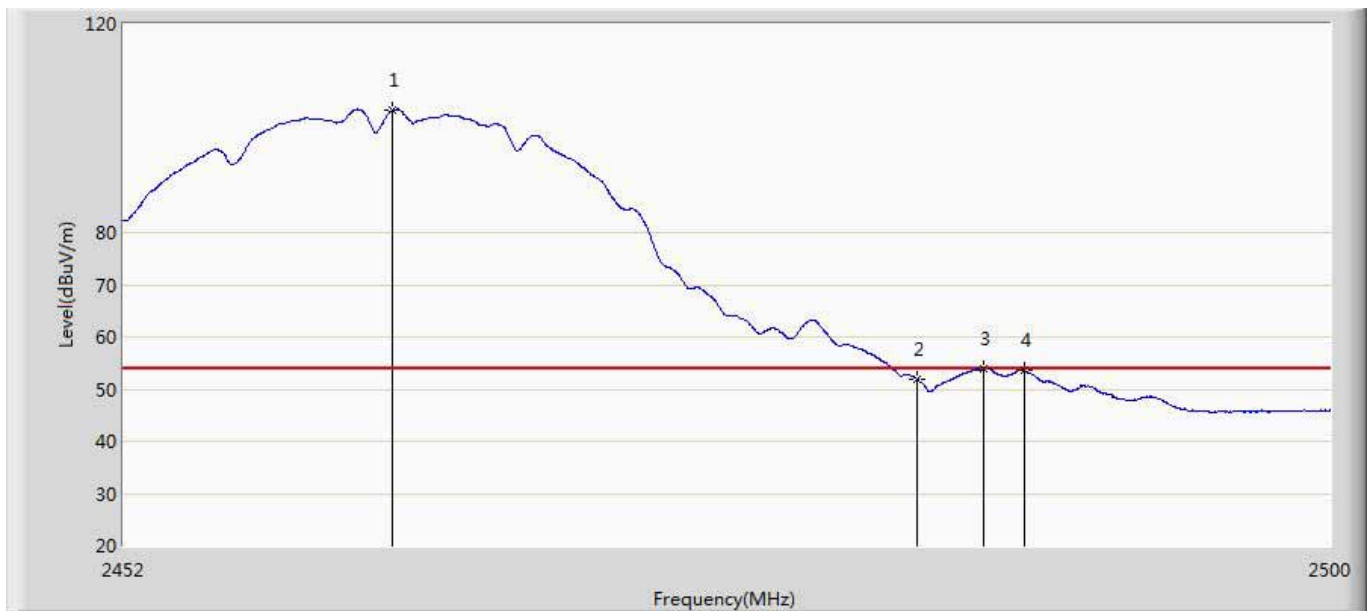
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.288	100.672	64.398	46.672	54.000	36.273	AV
2		2483.500	42.691	6.346	-11.309	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 11:40
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462Mhz by 802.11b	



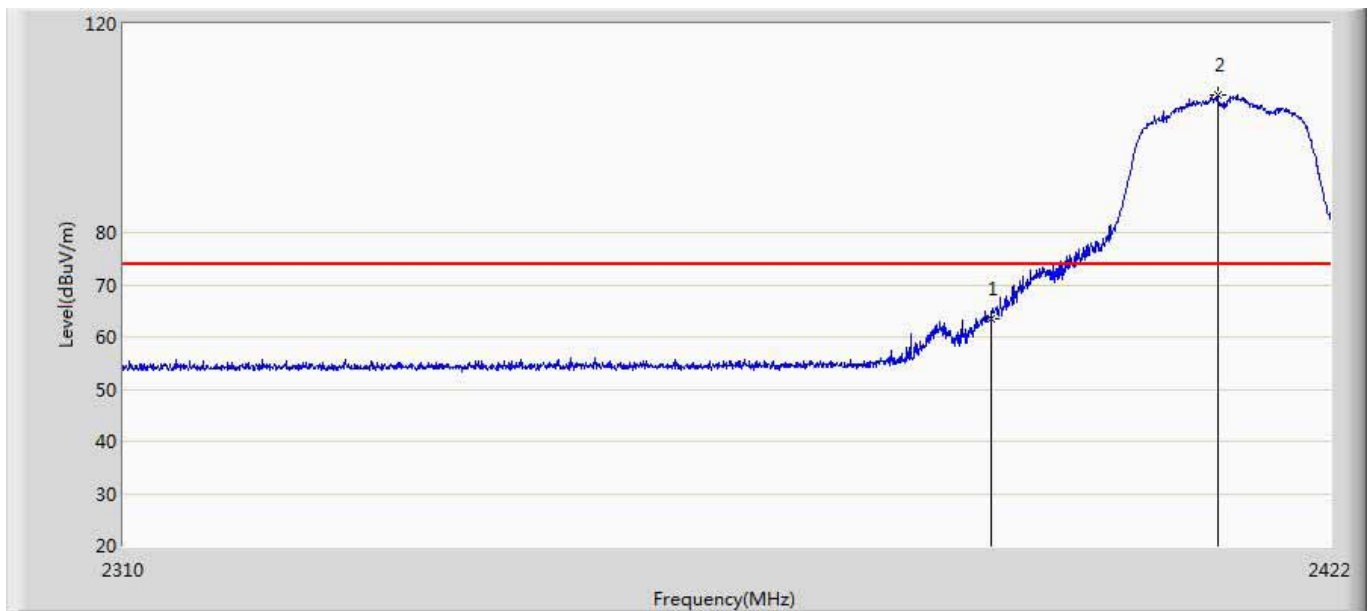
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.816	106.828	70.554	32.828	74.000	36.274	PK
2		2483.500	58.034	21.689	-15.966	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 11:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462Mhz by 802.11b	



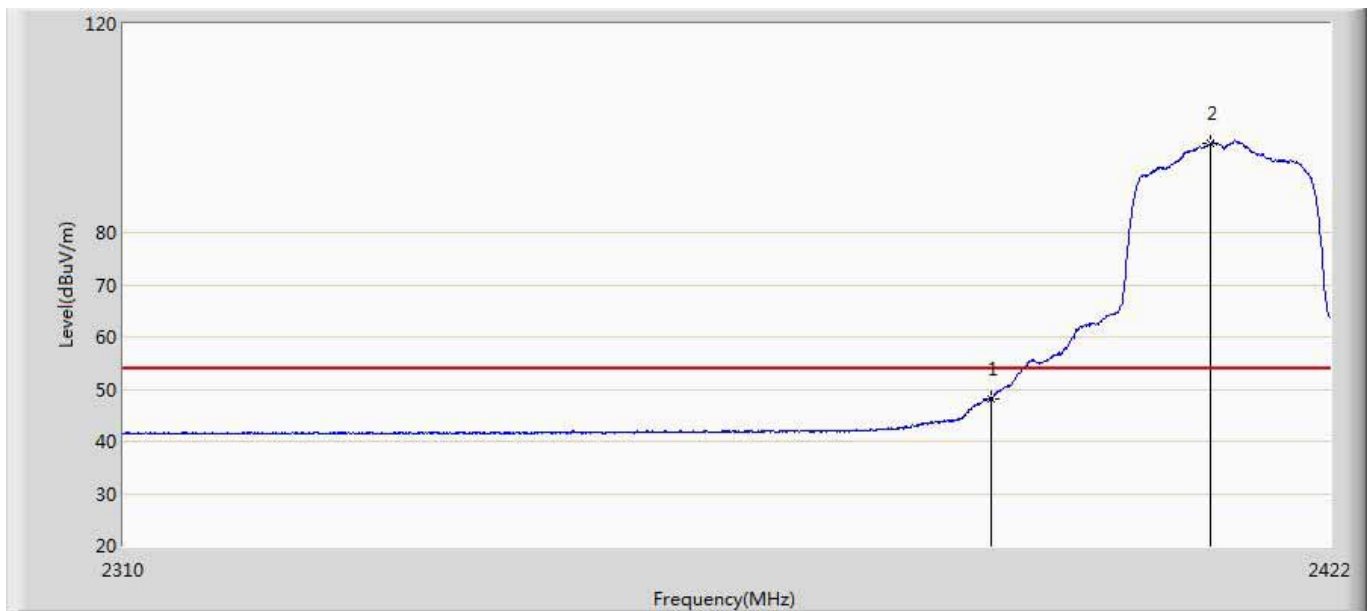
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.632	103.456	67.180	49.456	54.000	36.276	AV
2		2483.500	51.855	15.510	-2.145	54.000	36.345	AV
3		2486.128	53.787	17.431	-0.213	54.000	36.356	AV
4		2487.784	53.487	17.125	-0.513	54.000	36.362	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 11:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412Mhz by 802.11g	



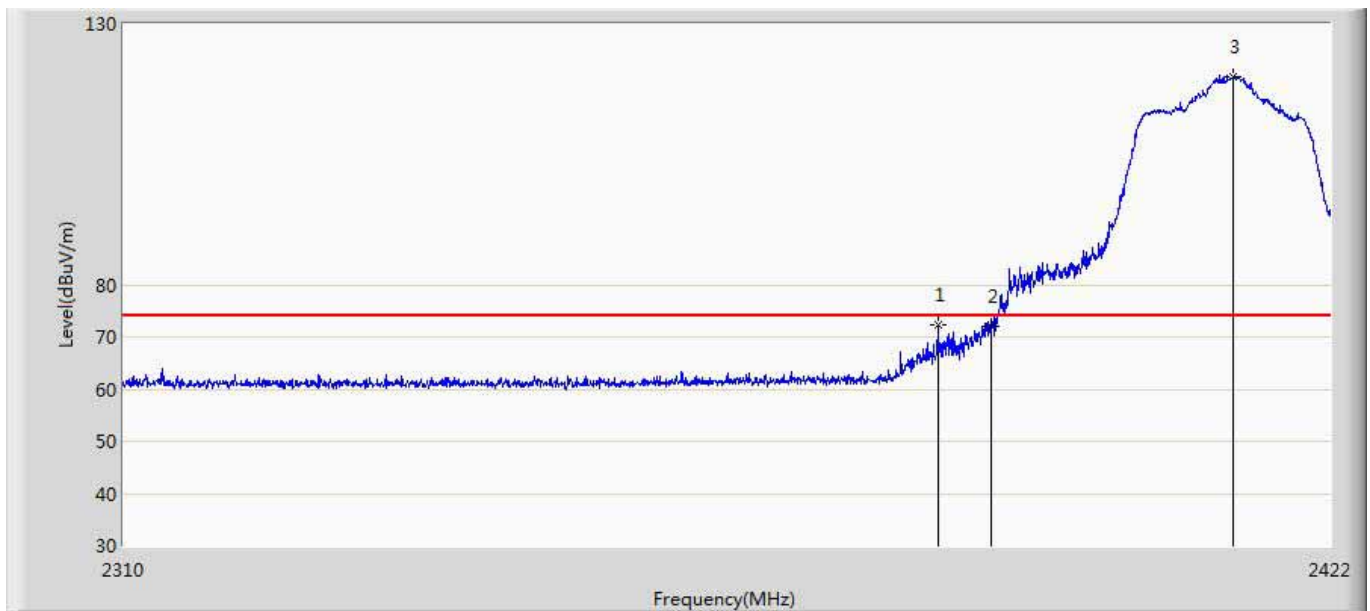
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	63.473	27.397	-10.527	74.000	36.076	PK
2	*	2411.360	106.271	70.101	32.271	74.000	36.171	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 11:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412Mhz by 802.11g	



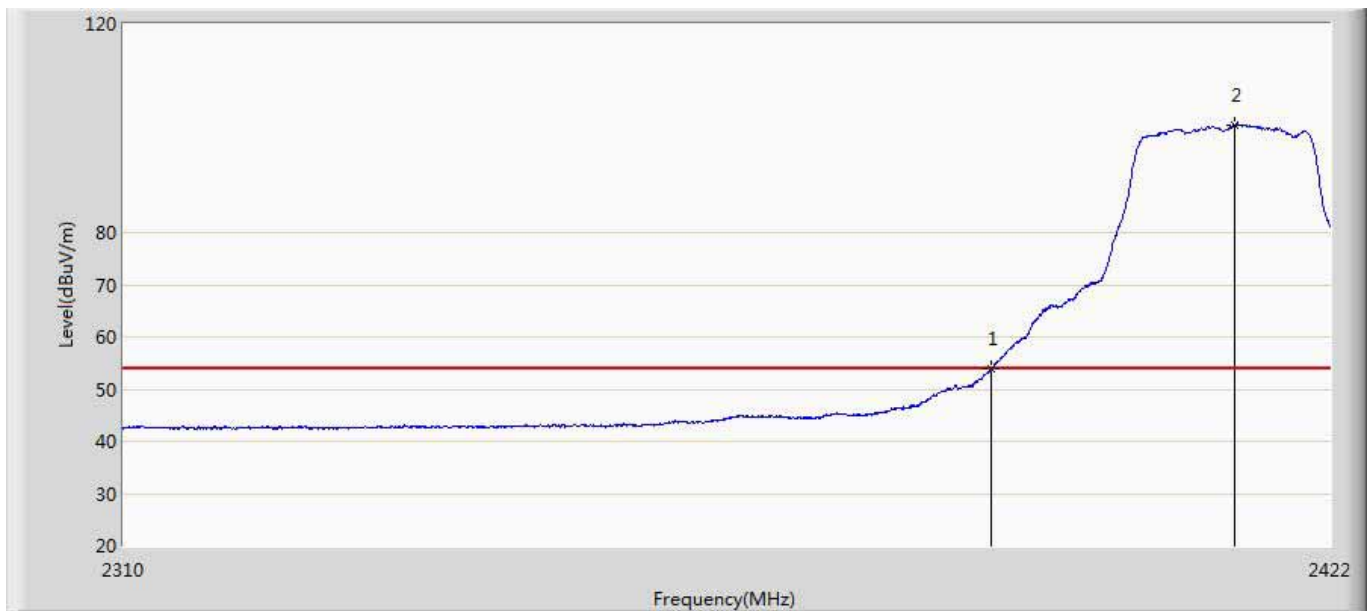
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	48.167	12.091	-5.833	54.000	36.076	AV
2	*	2410.688	97.213	61.045	43.213	54.000	36.168	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 11:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412Mhz by 802.11g	



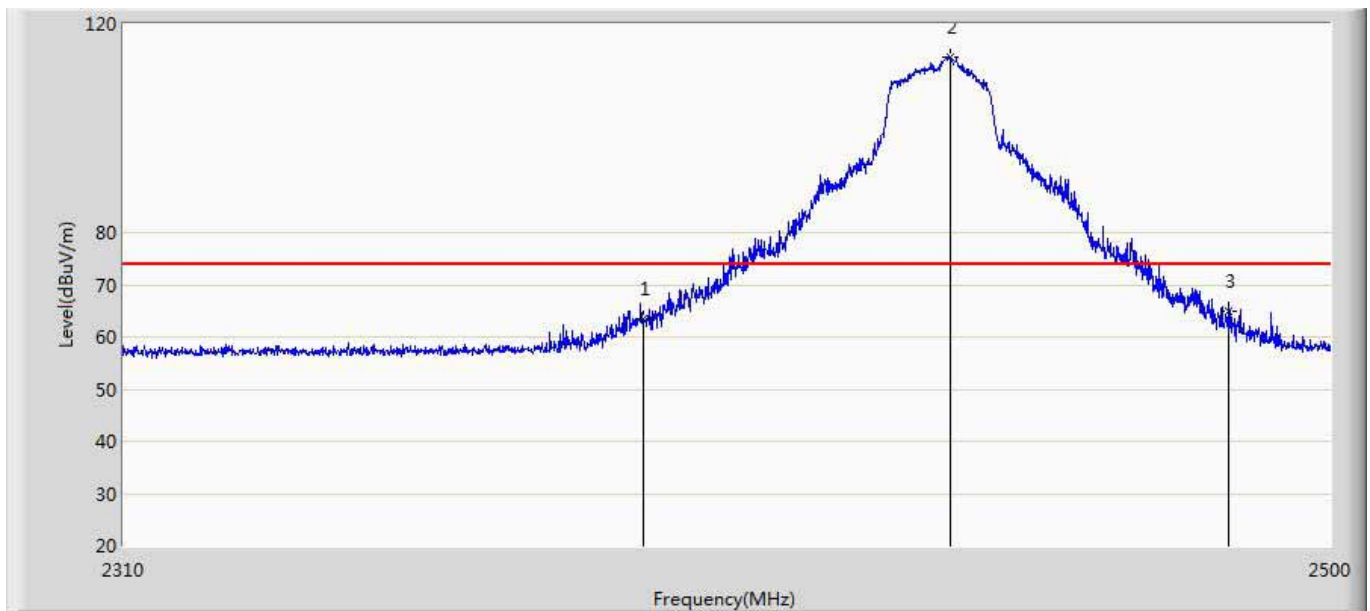
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2385.040	72.414	36.352	-1.586	74.000	36.062	PK
2		2390.000	71.909	35.833	-2.091	74.000	36.076	PK
3	*	2412.816	119.951	83.779	45.951	74.000	36.172	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412Mhz by 802.11g	



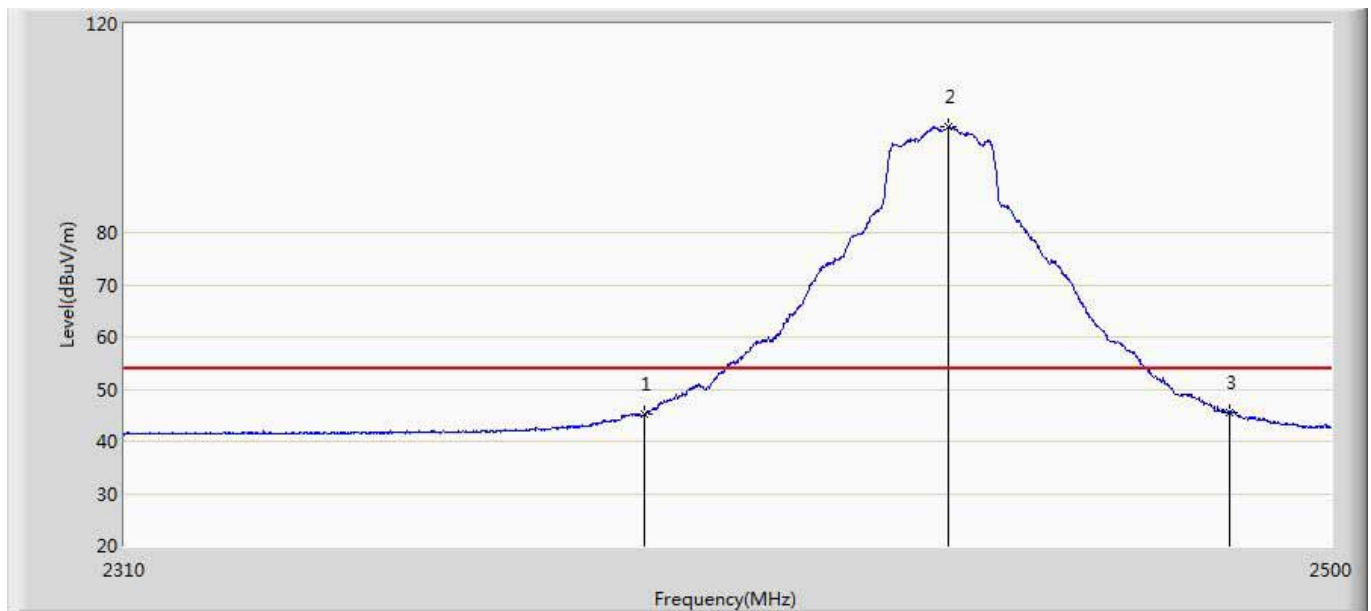
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.815	17.739	-0.185	54.000	36.076	AV
2	*	2412.984	100.608	64.435	46.608	54.000	36.172	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2437Mhz by 802.11g	



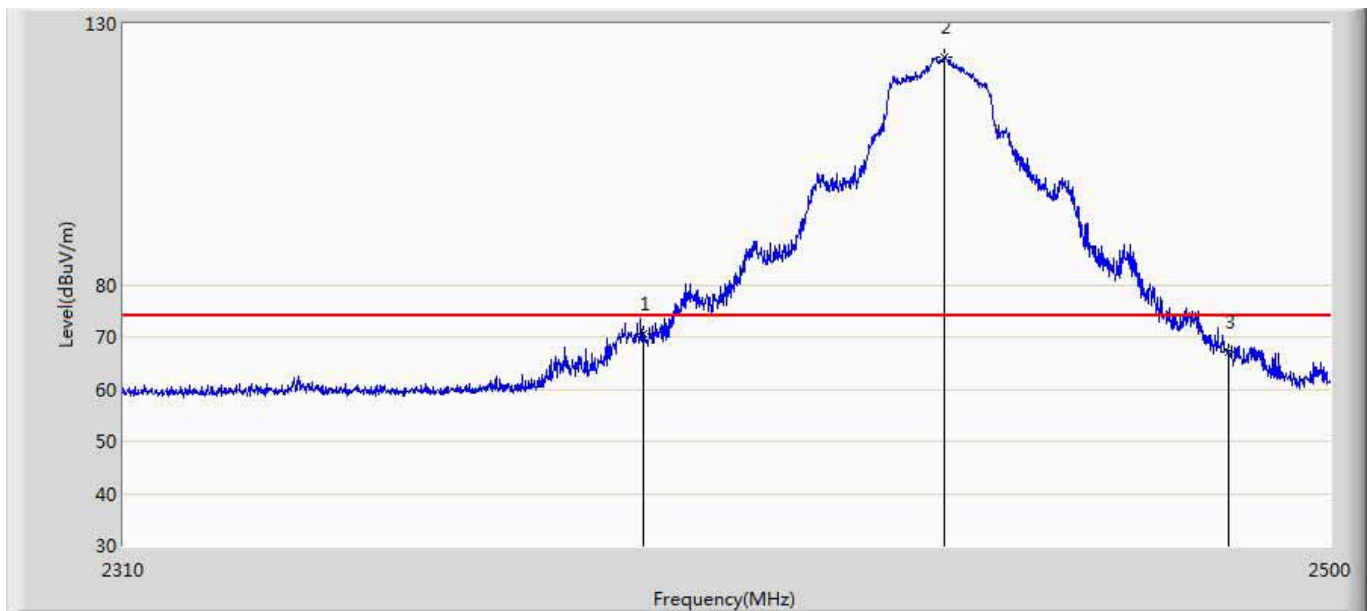
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	63.507	27.431	-10.493	74.000	36.076	PK
2	*	2438.630	113.737	77.499	39.737	74.000	36.238	PK
3		2483.500	64.825	28.480	-9.175	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2437Mhz by 802.11g	



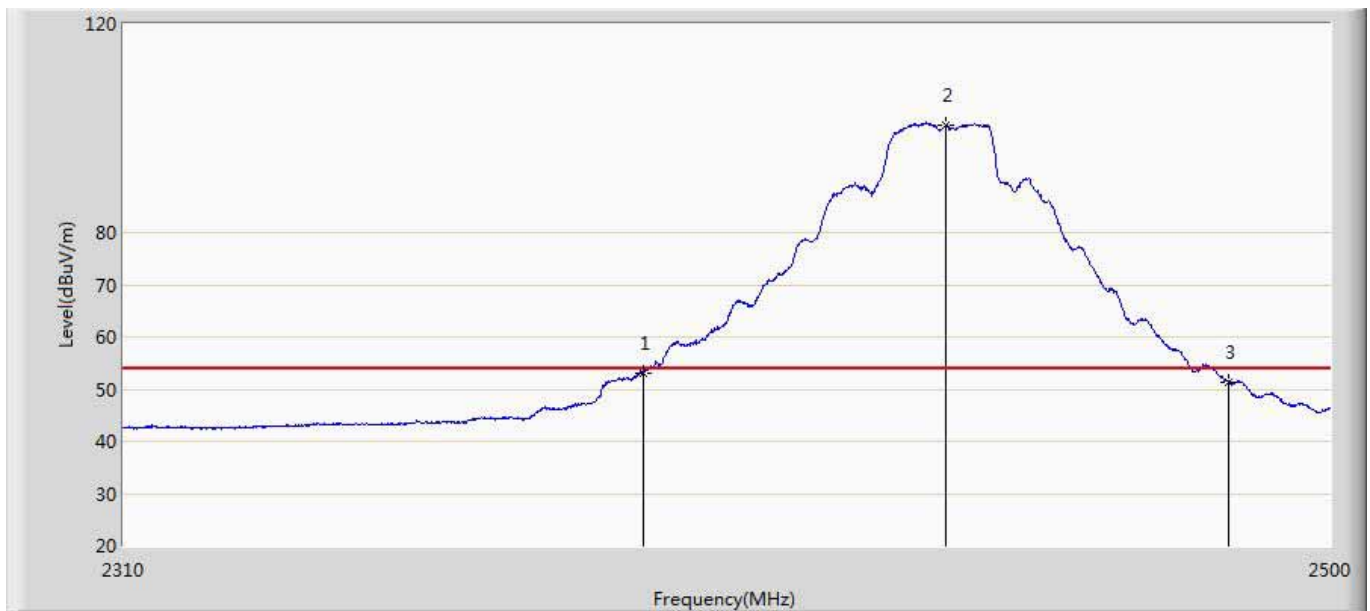
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	45.273	9.197	-8.727	54.000	36.076	AV
2	*	2438.155	100.303	64.067	46.303	54.000	36.236	AV
3		2483.500	45.563	9.218	-8.437	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2437Mhz by 802.11g	



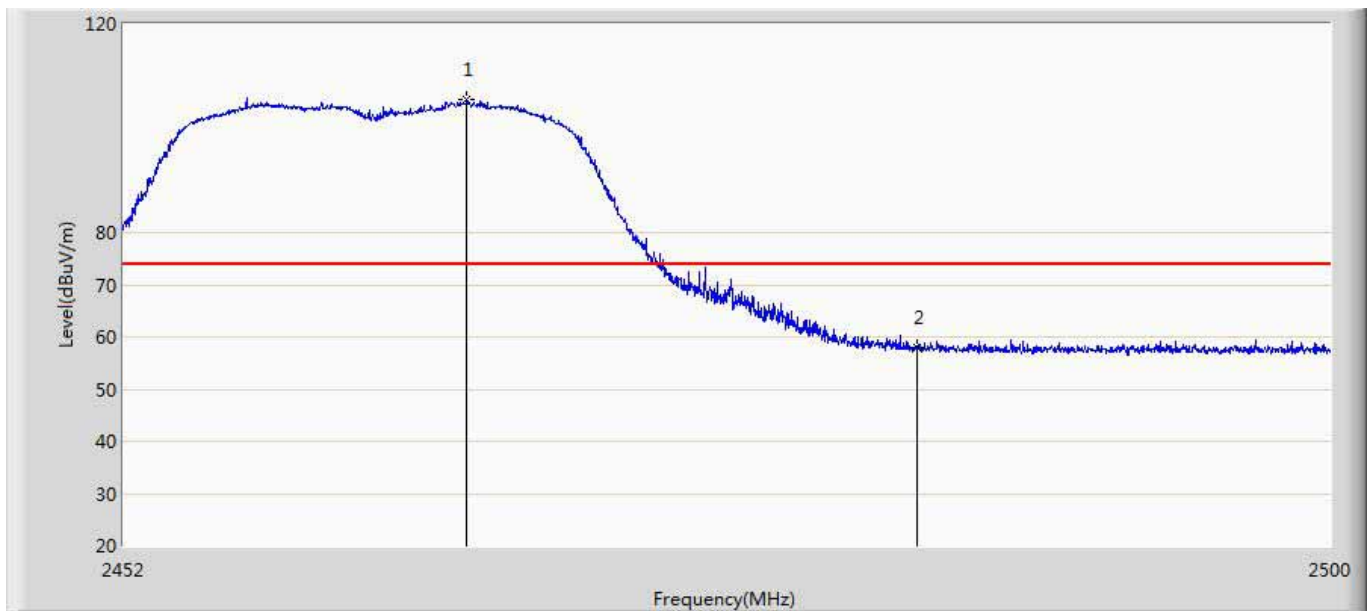
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	70.702	34.626	-3.298	74.000	36.076	PK
2	*	2437.585	123.618	87.384	49.618	74.000	36.234	PK
3		2483.500	67.177	30.832	-6.823	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2437Mhz by 802.11g	



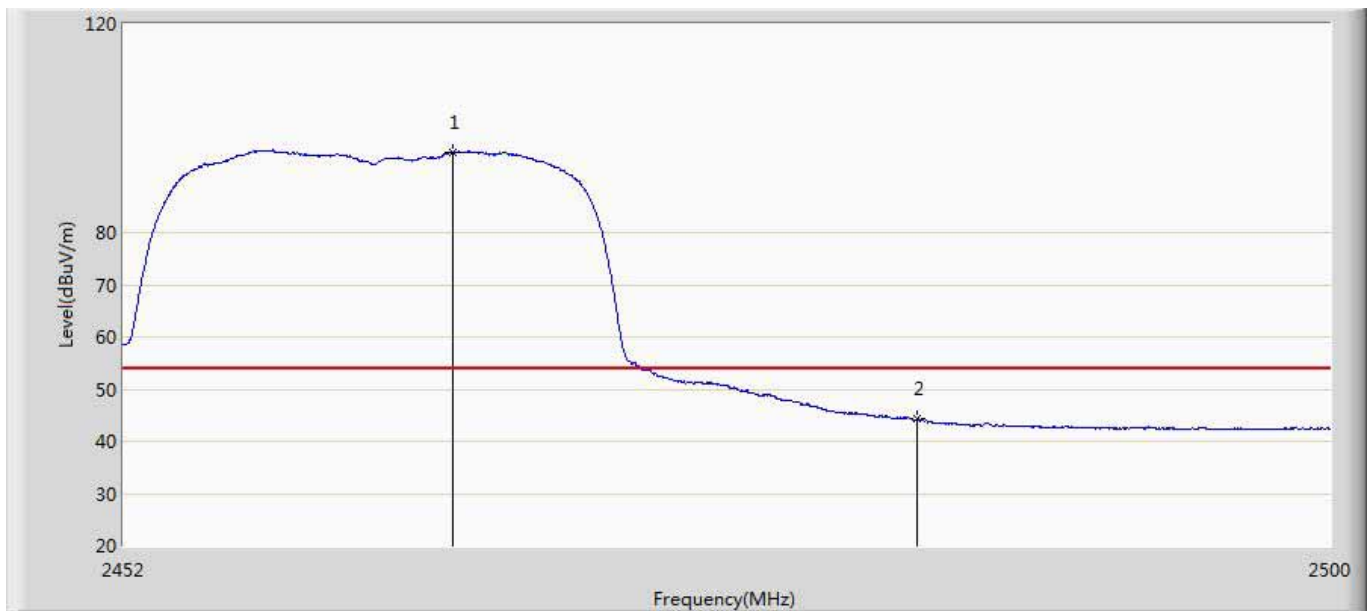
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.098	17.022	-0.902	54.000	36.076	AV
2	*	2437.870	100.484	64.250	46.484	54.000	36.234	AV
3		2483.500	51.367	15.022	-2.633	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2462Mhz by 802.11g	



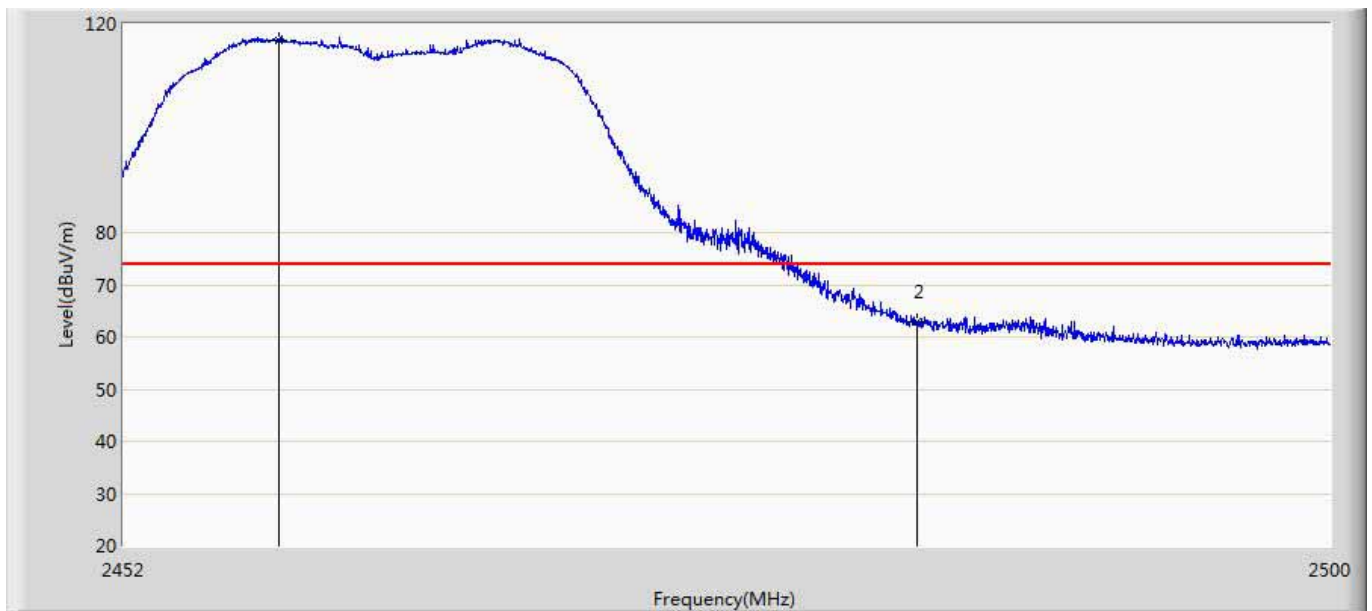
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2465.584	105.509	69.224	31.509	74.000	36.285	PK
2		2483.500	57.964	21.619	-16.036	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2462Mhz by 802.11g	



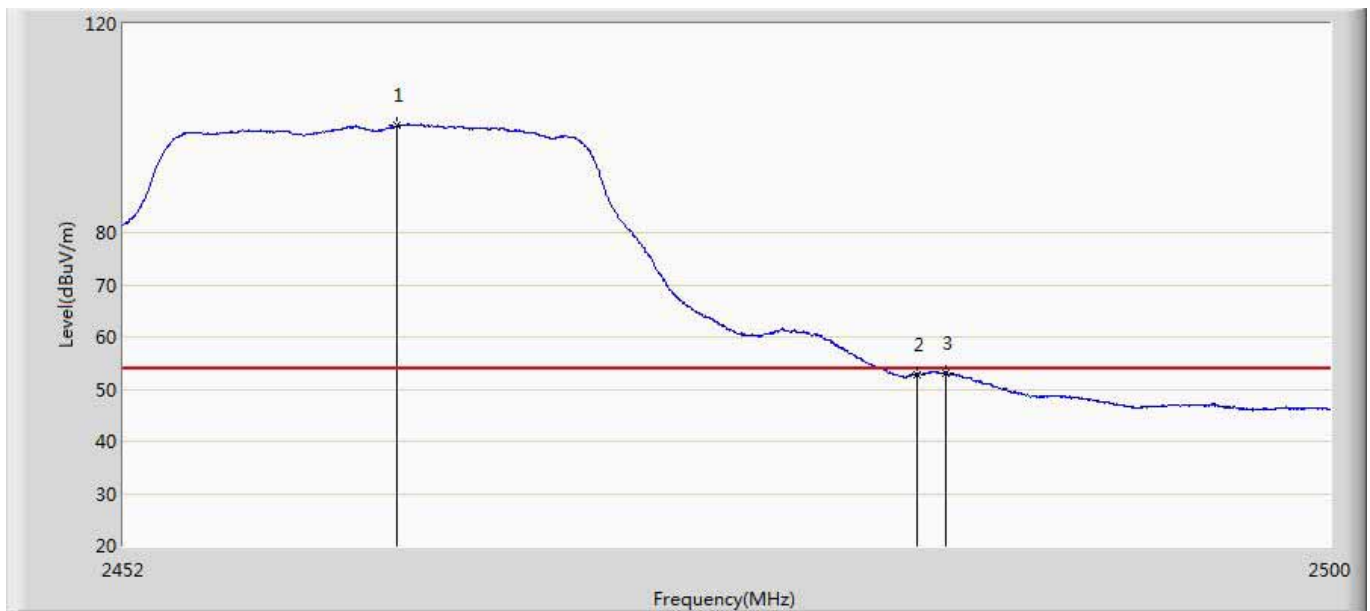
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2465.032	95.381	59.098	41.381	54.000	36.284	AV
2		2483.500	44.344	7.999	-9.656	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2462Mhz by 802.11g	



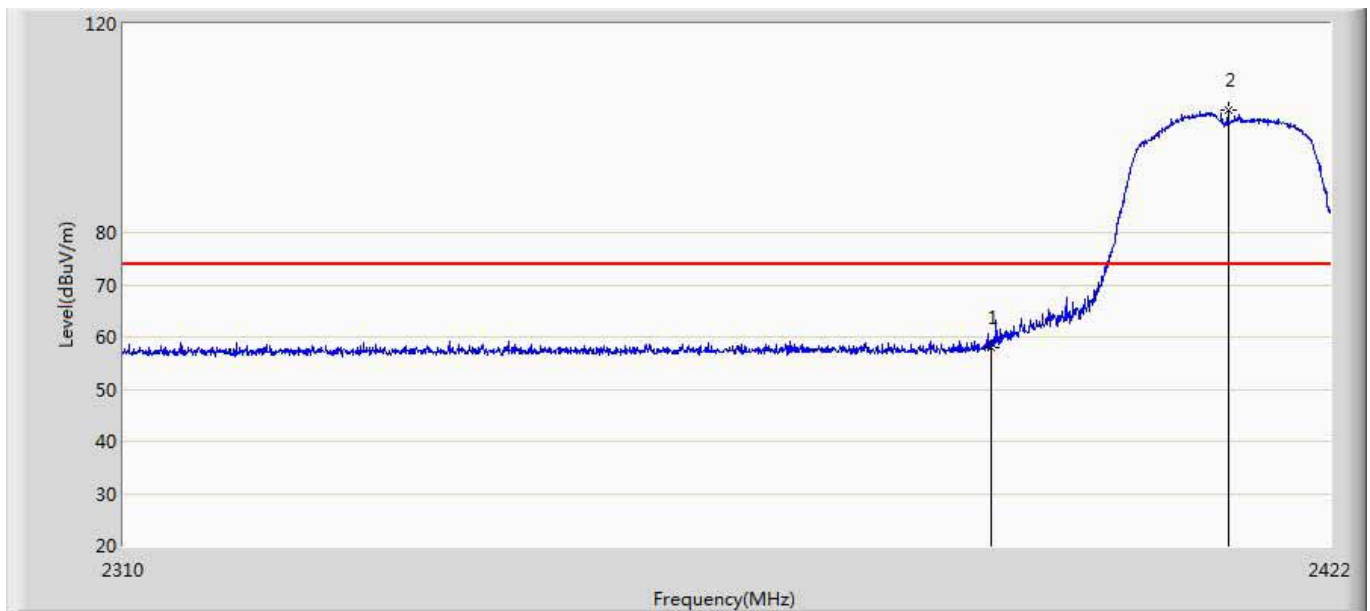
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2458.168	116.825	80.553	42.825	74.000	36.272	PK
2		2483.500	62.891	26.546	-11.109	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2462Mhz by 802.11g	



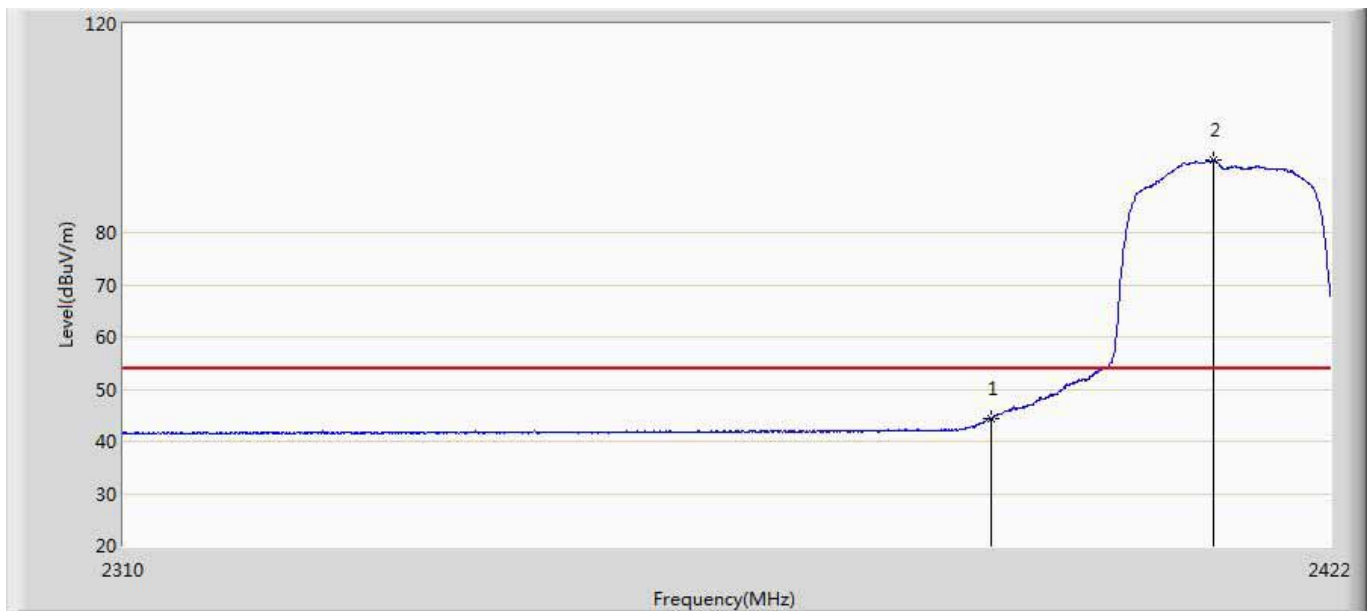
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.776	100.597	64.321	46.597	54.000	36.277	AV
2		2483.500	52.826	16.481	-1.174	54.000	36.345	AV
3		2484.616	53.154	16.805	-0.846	54.000	36.349	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412Mhz by 802.11n20	



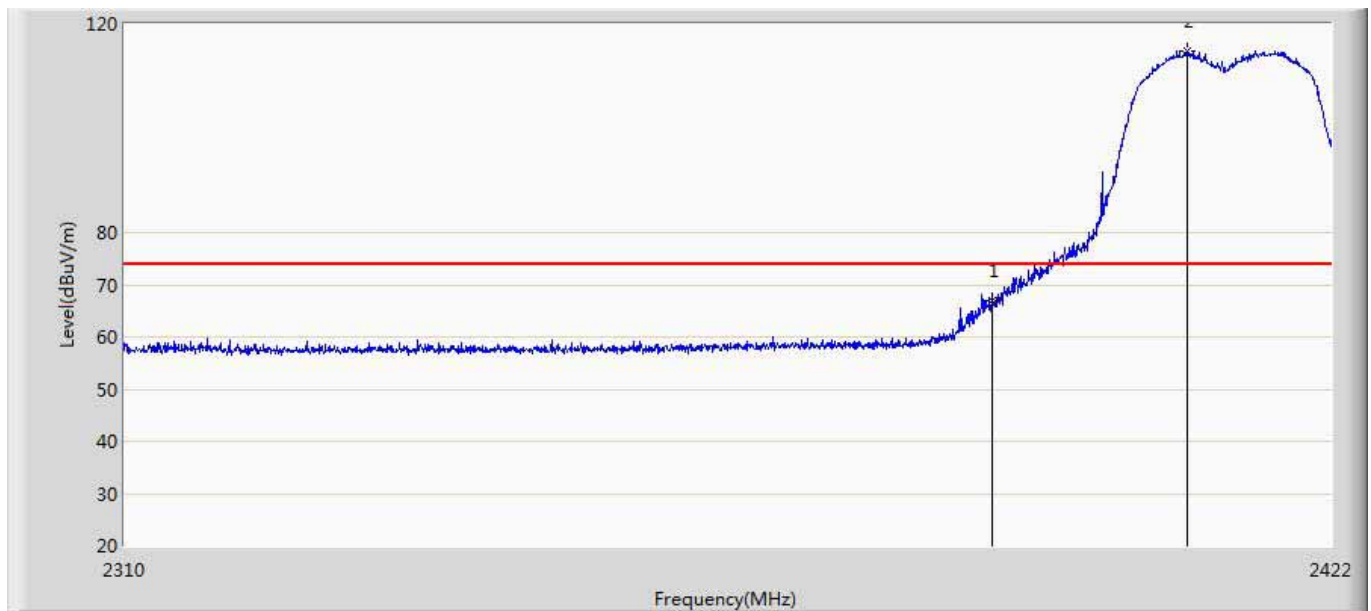
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	58.070	21.994	-15.930	74.000	36.076	PK
2	*	2412.368	103.503	67.331	29.503	74.000	36.172	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412Mhz by 802.11n20	



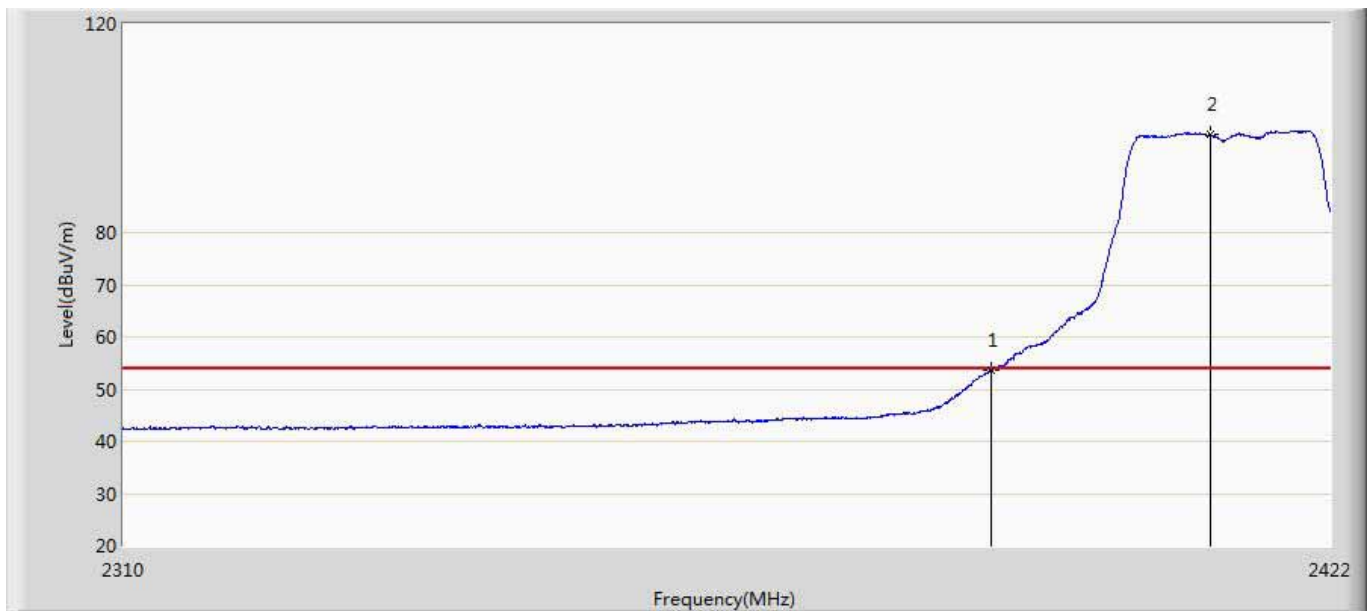
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	44.436	8.360	-9.564	54.000	36.076	AV
2	*	2411.024	93.792	57.622	39.792	54.000	36.170	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412Mhz by 802.11n20	



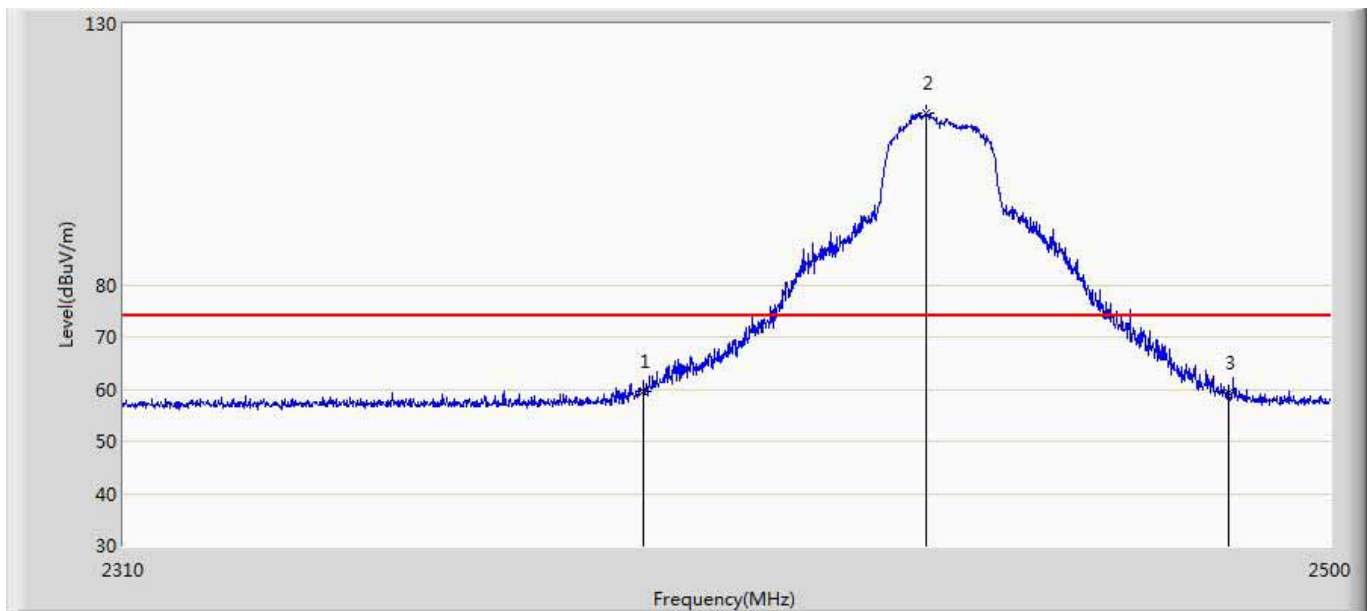
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	67.073	30.997	-6.927	74.000	36.076	PK
2	*	2408.392	114.663	78.506	40.663	74.000	36.157	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412Mhz by 802.11n20	



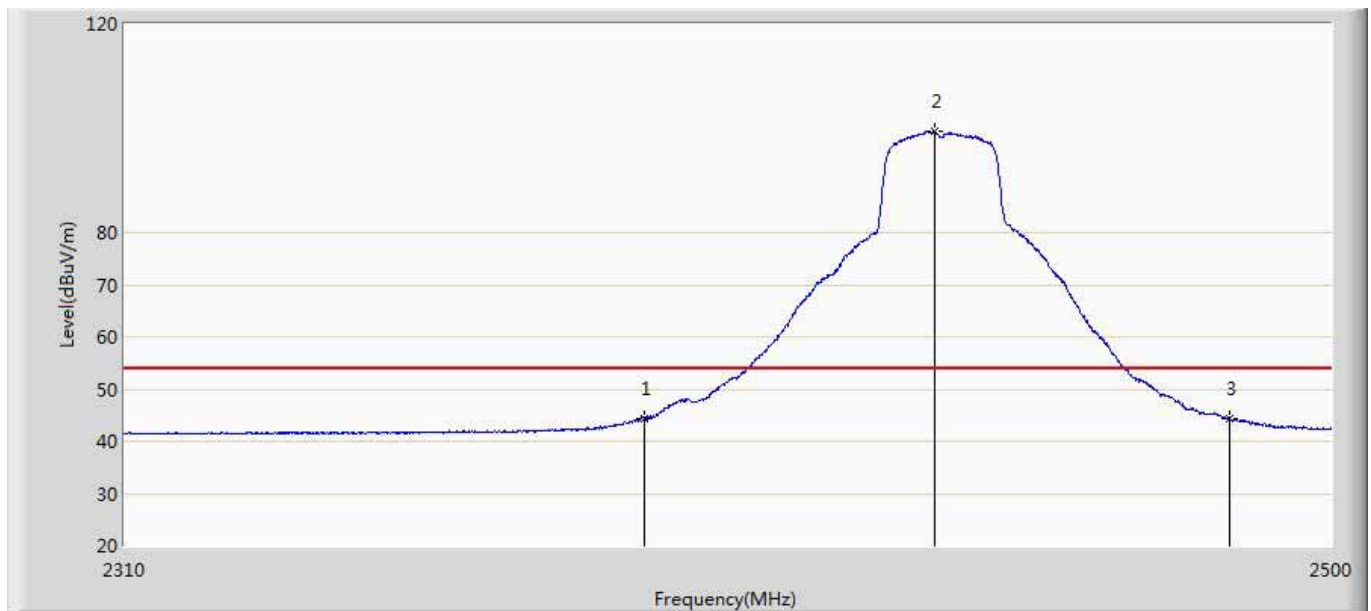
No	Mar	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.702	17.626	-0.298	54.000	36.076	AV
2	*	2410.632	98.783	62.615	44.783	54.000	36.168	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2437Mhz by 802.11n20	



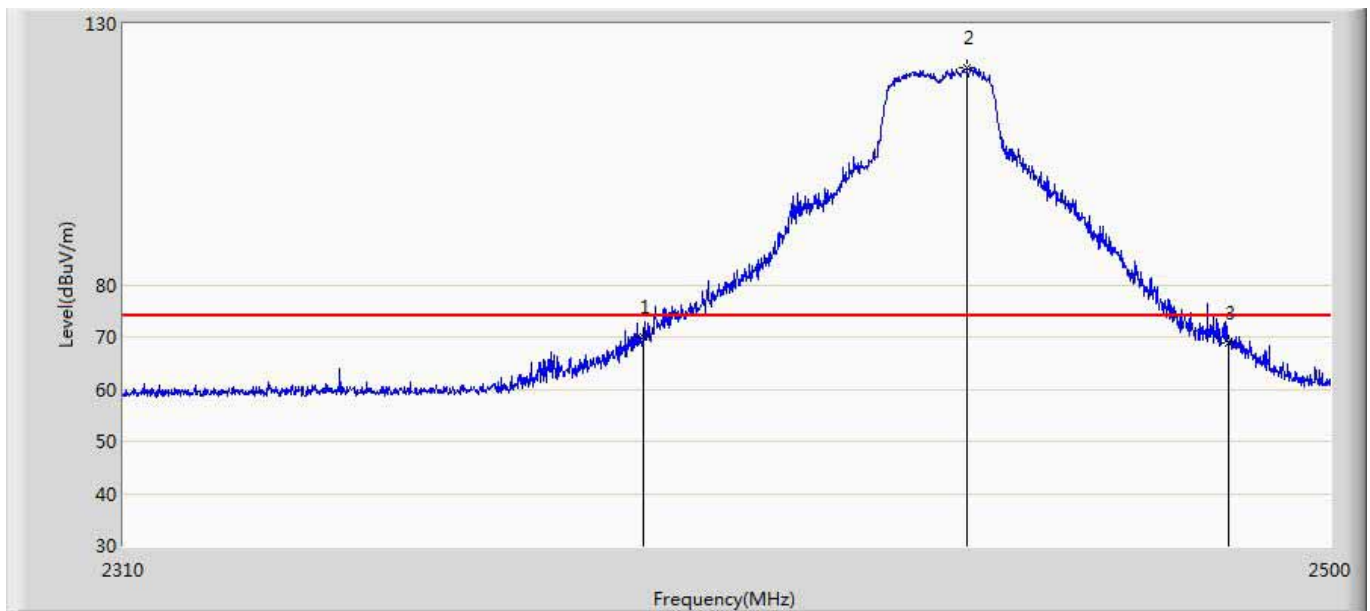
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	59.644	23.568	-14.356	74.000	36.076	PK
2	*	2434.640	112.827	76.606	38.827	74.000	36.221	PK
3		2483.500	59.279	22.934	-14.721	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2437Mhz by 802.11n20	



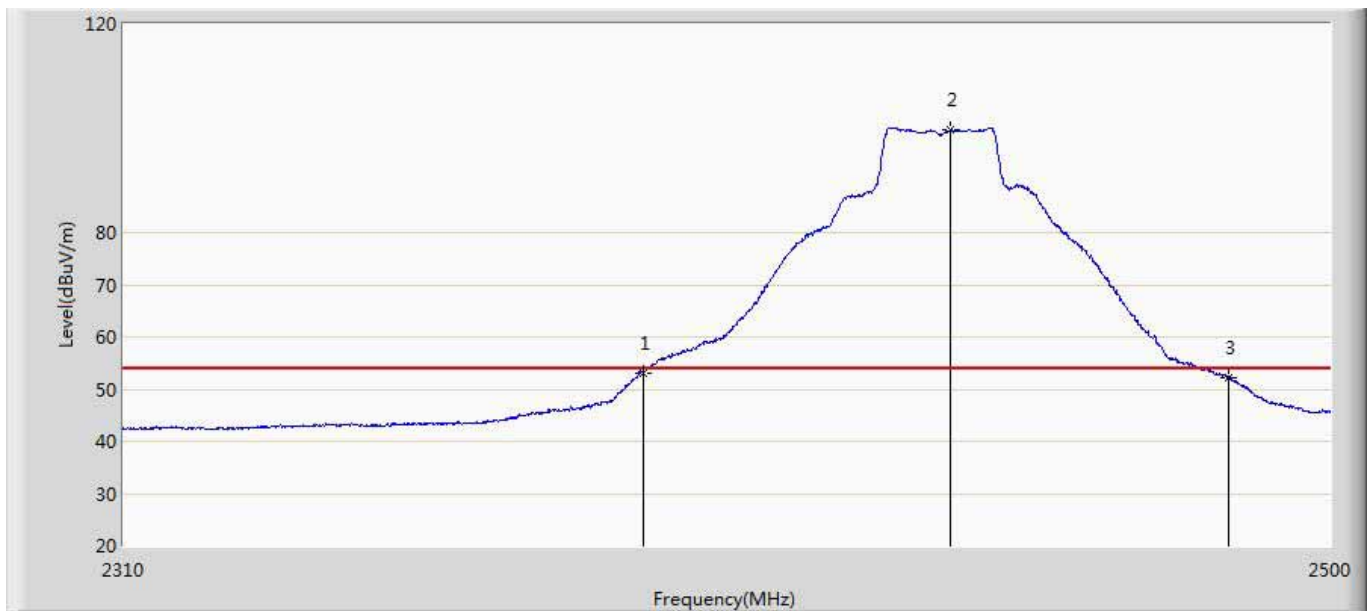
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	44.481	8.405	-9.519	54.000	36.076	AV
2	*	2435.875	99.351	63.125	45.351	54.000	36.226	AV
3		2483.500	44.396	8.051	-9.604	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2437Mhz by 802.11n20	



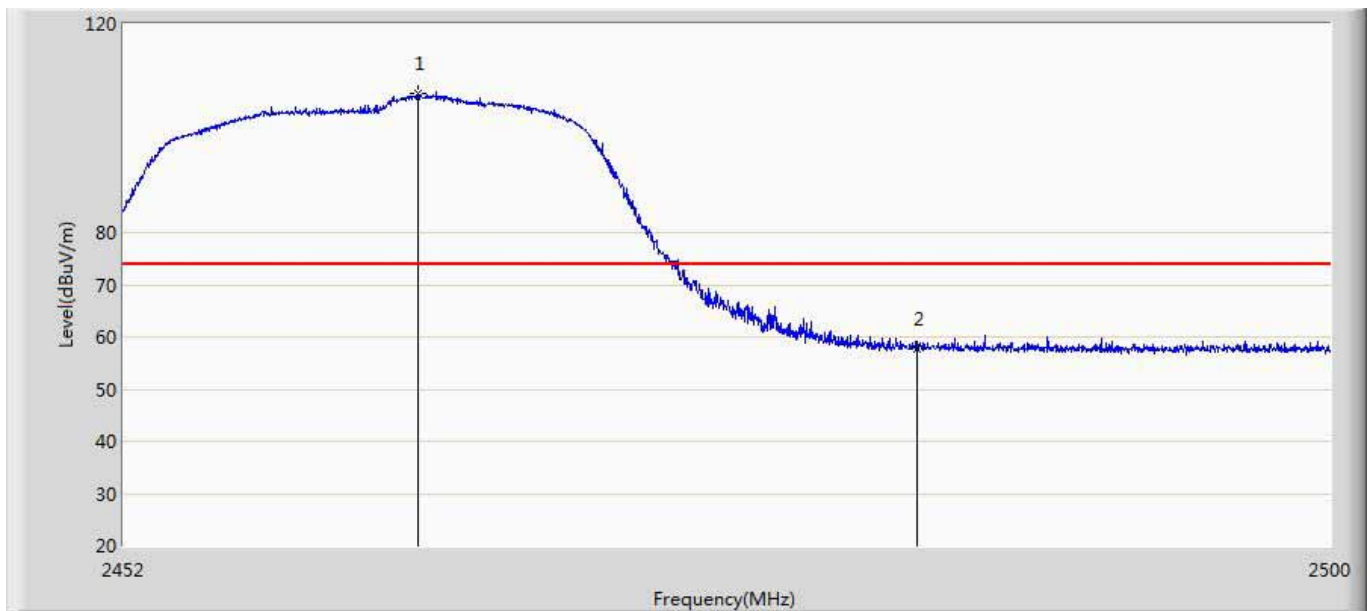
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	69.994	33.918	-4.006	74.000	36.076	PK
2	*	2441.290	121.733	85.484	47.733	74.000	36.249	PK
3		2483.500	68.910	32.565	-5.090	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2437Mhz by 802.11n20	



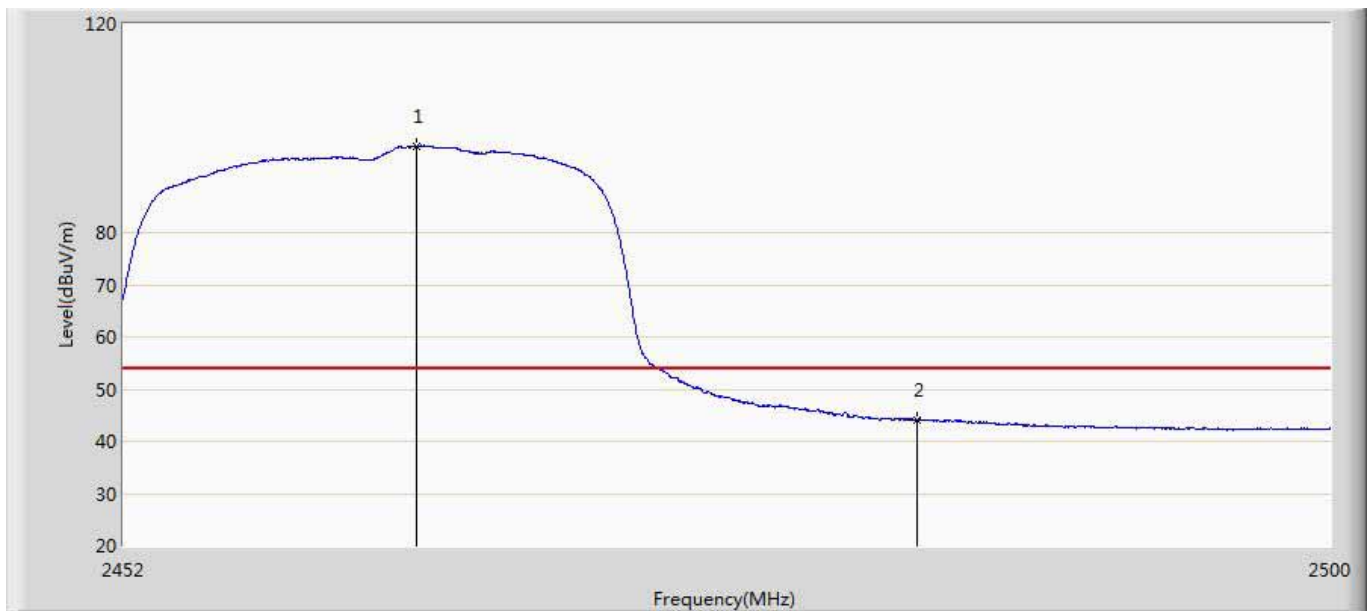
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.132	17.056	-0.868	54.000	36.076	AV
2	*	2438.725	99.834	63.596	45.834	54.000	36.238	AV
3		2483.500	52.262	15.917	-1.738	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462Mhz by 802.11n20	



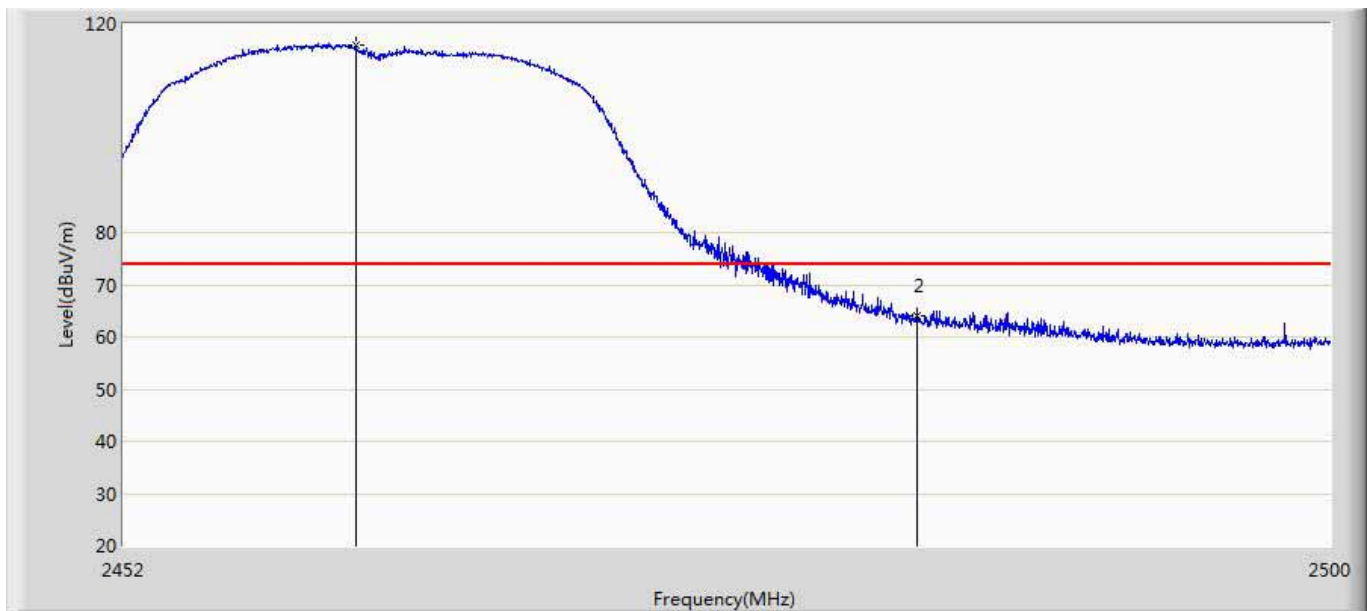
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.664	106.732	70.453	32.732	74.000	36.279	PK
2		2483.500	57.625	21.280	-16.375	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462Mhz by 802.11n20	



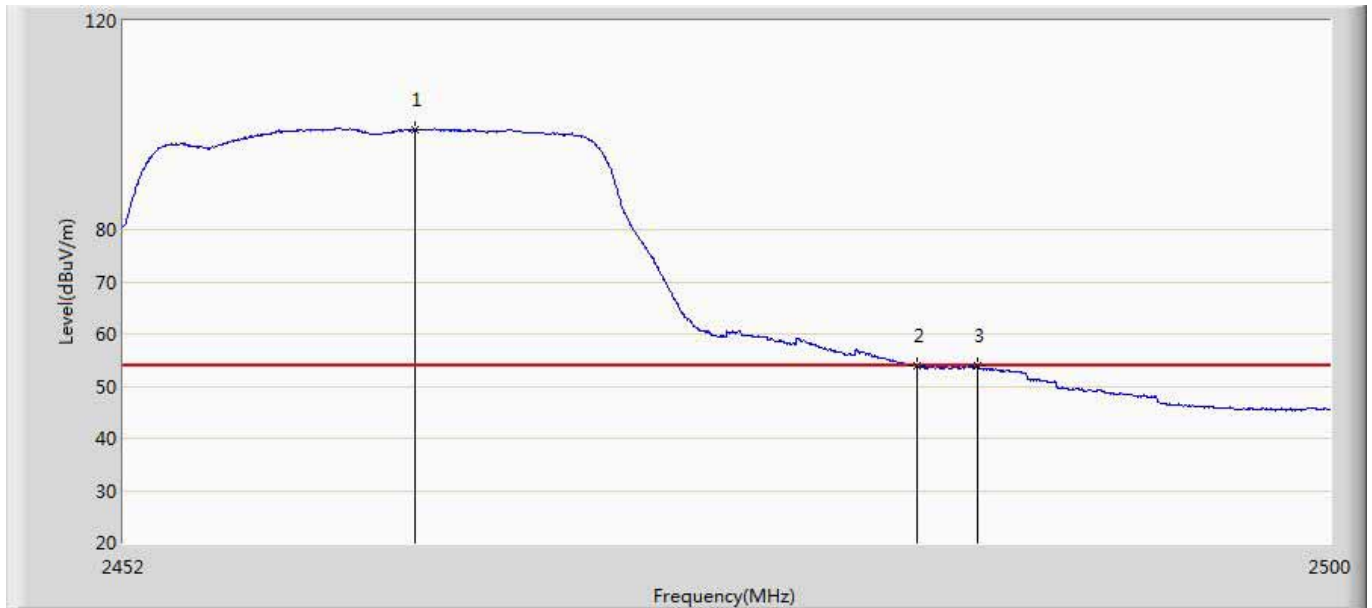
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.592	96.588	60.309	42.588	54.000	36.279	AV
2		2483.500	44.129	7.784	-9.871	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462Mhz by 802.11n20	



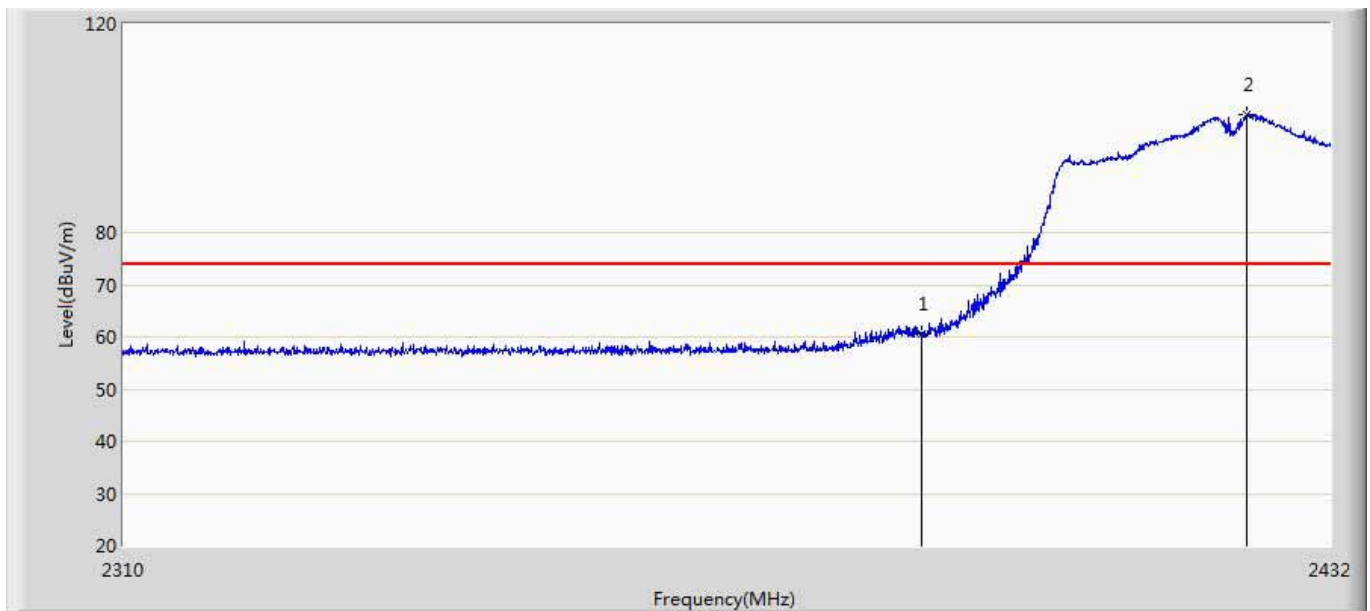
No	Mar	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.192	115.926	79.652	41.926	74.000	36.273	PK
2		2483.500	63.953	27.608	-10.047	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462Mhz by 802.11n20	



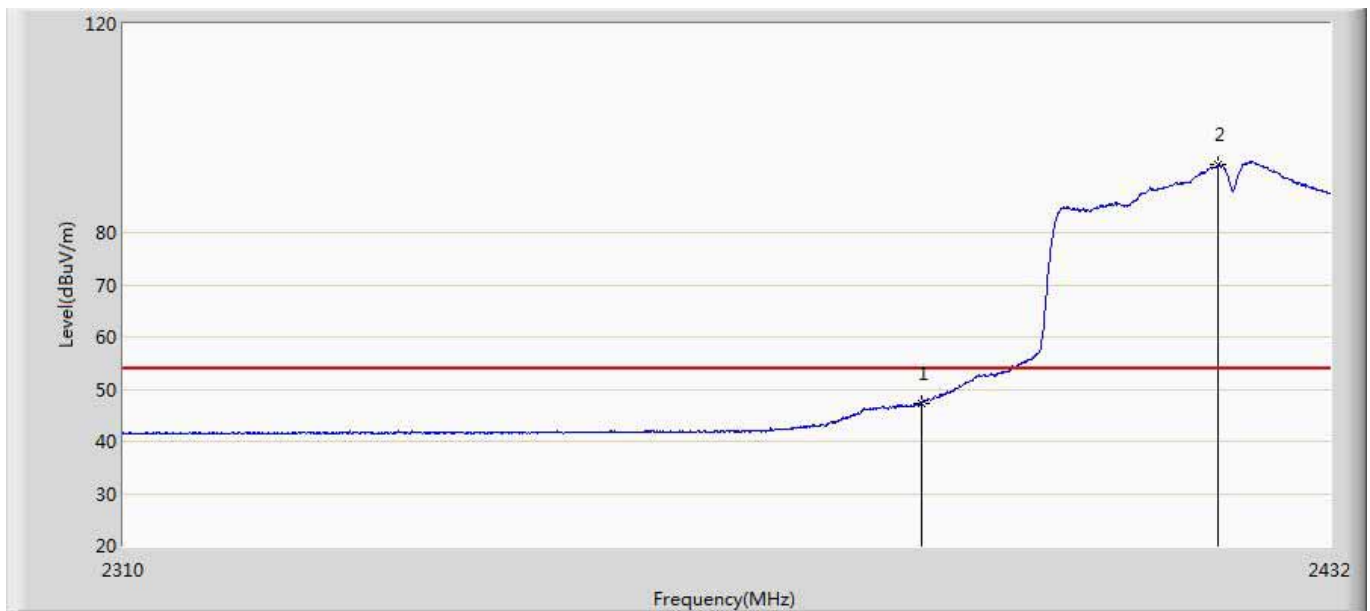
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.544	99.099	62.821	45.099	54.000	36.278	AV
2		2483.500	53.792	17.447	-0.208	54.000	36.345	AV
3		2485.912	53.787	17.432	-0.213	54.000	36.355	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 12:58
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422Mhz by 802.11n40	



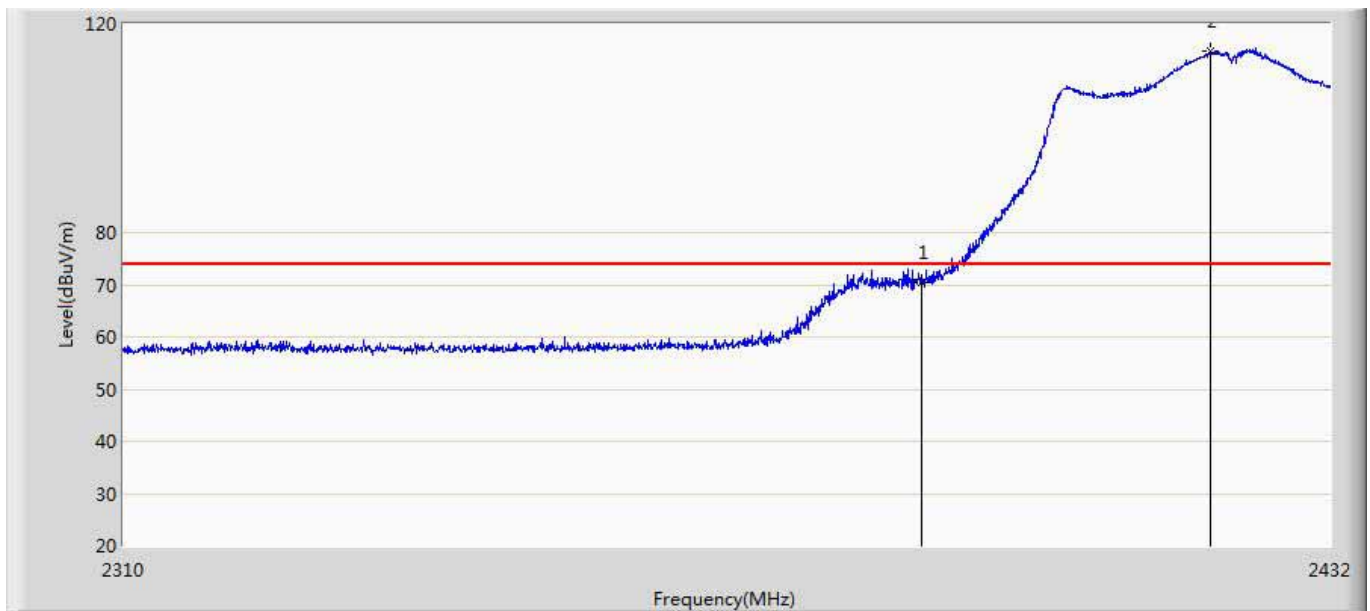
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	60.482	24.406	-13.518	74.000	36.076	PK
2	*	2423.460	102.536	66.349	28.536	74.000	36.187	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 13:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422Mhz by 802.11n40	



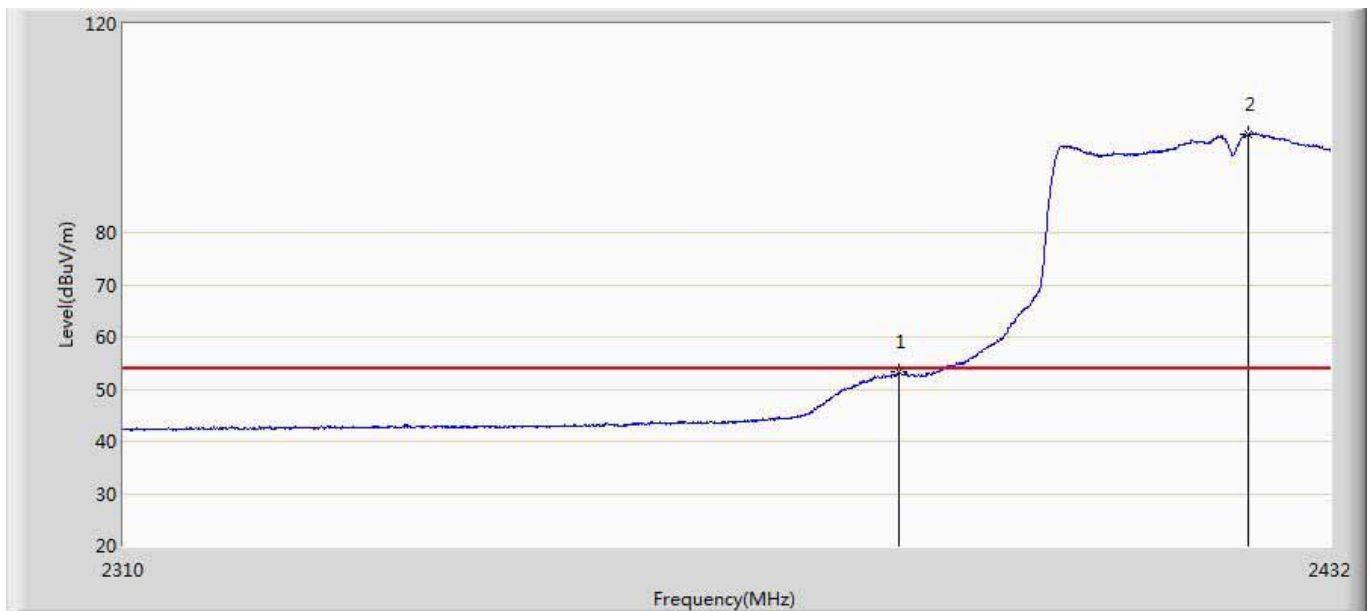
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.356	11.280	-6.644	54.000	36.076	AV
2	*	2420.471	93.000	56.817	39.000	54.000	36.183	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 13:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422Mhz by 802.11n40	



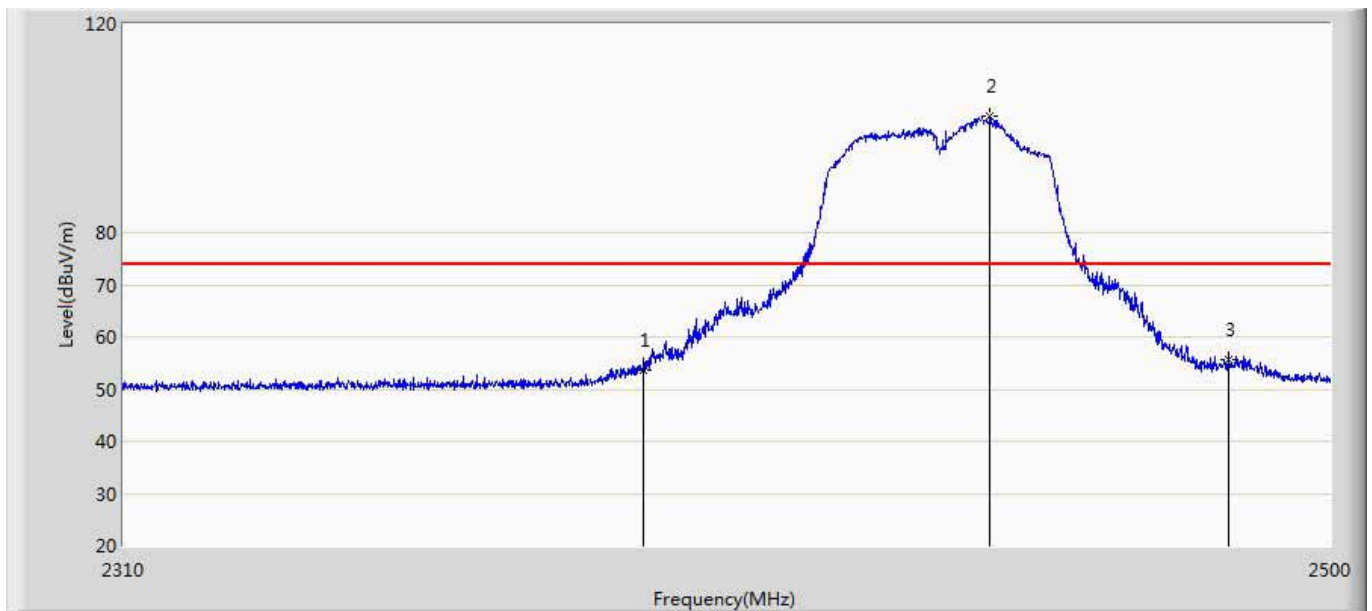
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	70.342	34.266	-3.658	74.000	36.076	PK
2	*	2419.678	114.653	78.471	40.653	74.000	36.181	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 13:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422Mhz by 802.11n40	



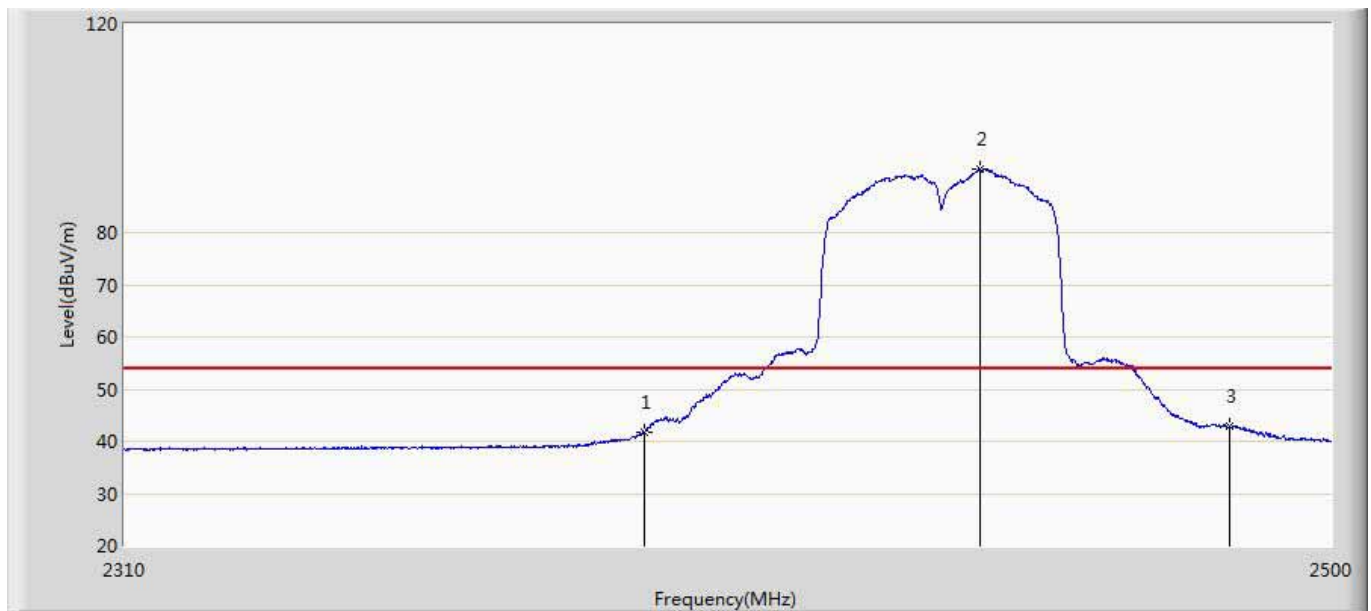
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2387.775	53.240	17.170	-0.760	54.000	36.070	AV
2	*	2423.521	98.952	62.765	44.952	54.000	36.187	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/09 - 09:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2437Mhz by 802.11n40	



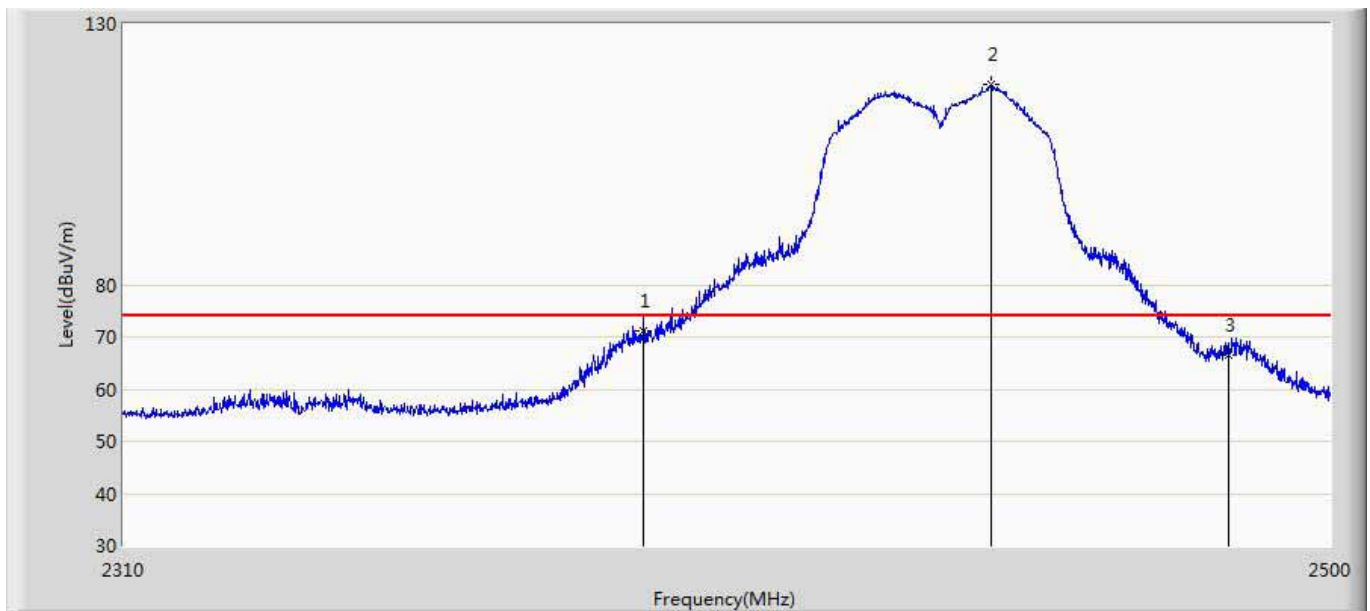
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.737	17.661	-20.263	74.000	36.076	PK
2	*	2444.900	102.357	66.092	28.357	74.000	36.265	PK
3		2483.500	55.550	19.205	-18.450	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/09 - 09:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2437Mhz by 802.11n40	



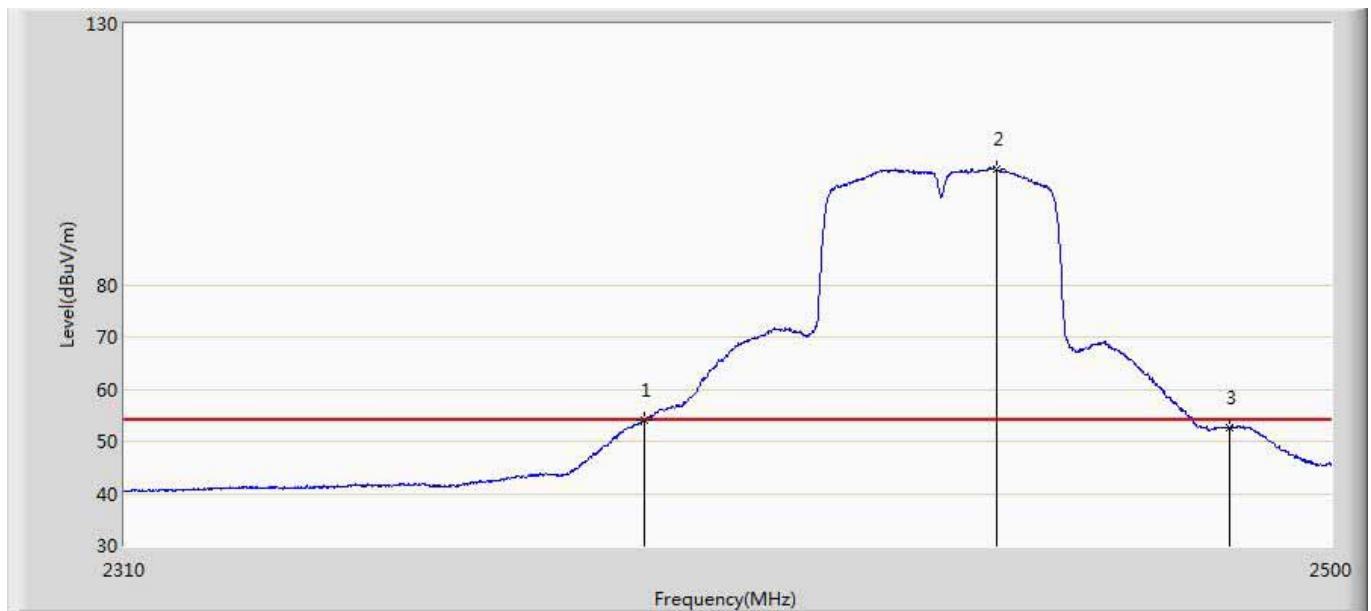
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	41.606	5.530	-12.394	54.000	36.076	AV
2	*	2443.095	92.214	55.957	38.214	54.000	36.257	AV
3		2483.500	42.798	6.453	-11.202	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/09 - 09:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode :Transmit at 2437Mhz by 802.11n40	



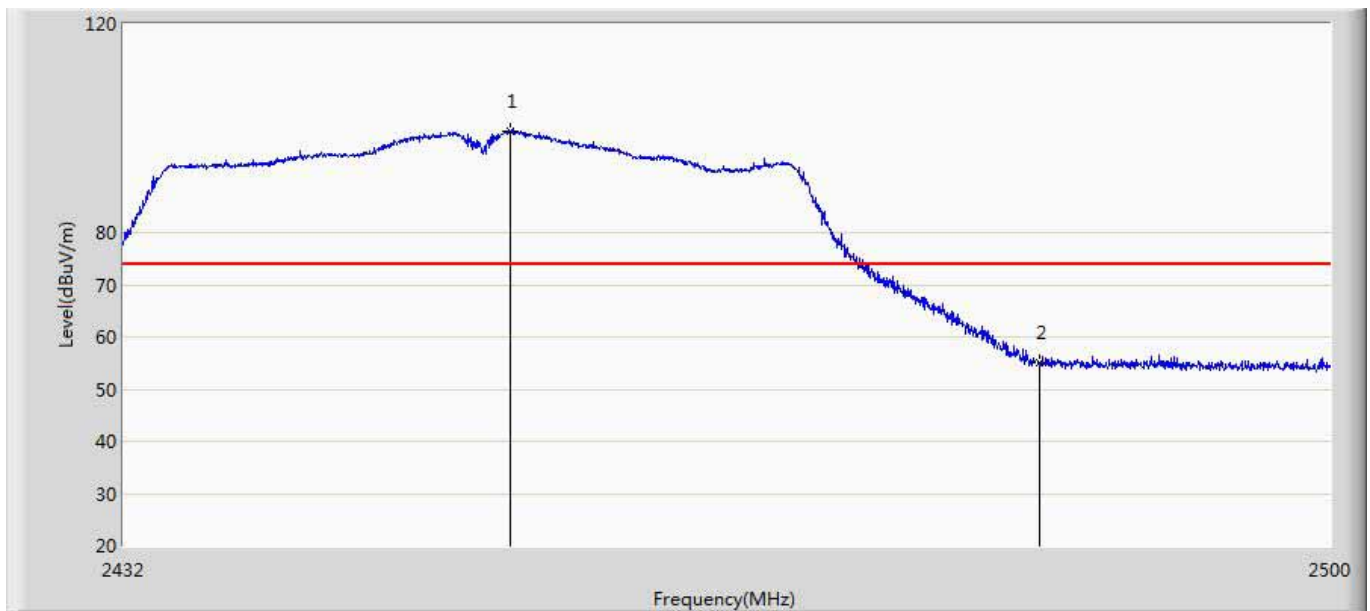
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	71.178	35.102	-2.822	74.000	36.076	PK
2	*	2445.185	118.367	82.102	44.367	74.000	36.265	PK
3		2483.500	66.613	30.268	-7.387	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/09 - 09:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2437Mhz by 802.11n40	



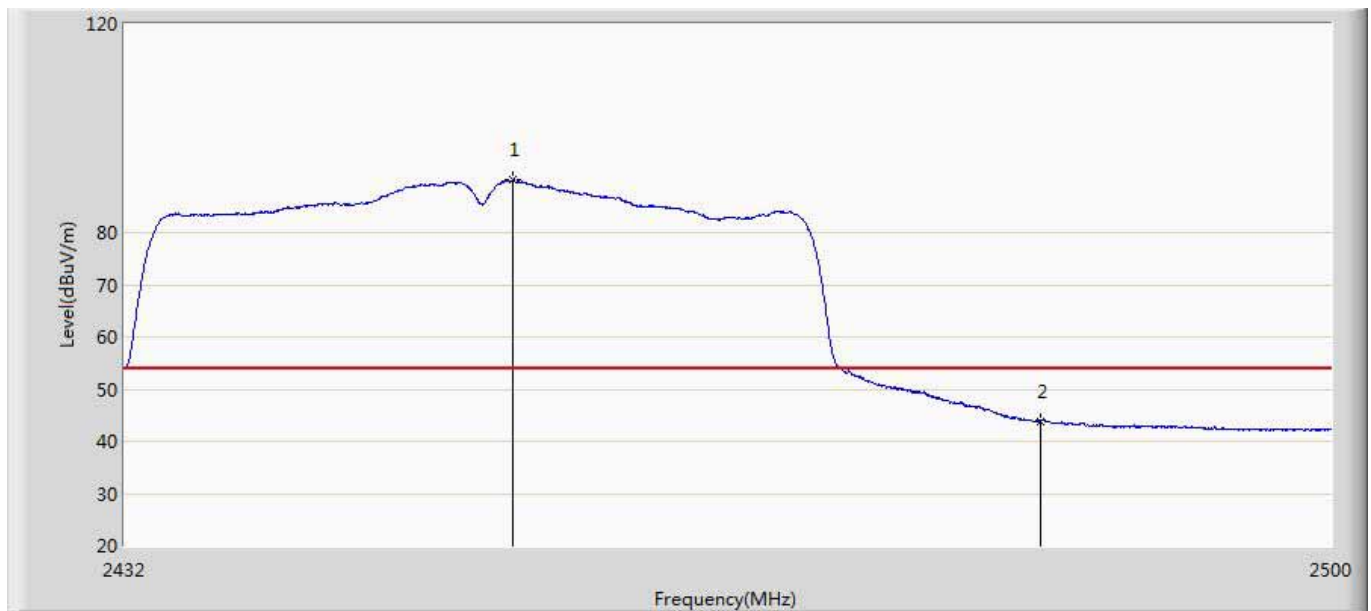
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.938	17.862	-0.062	54.000	36.076	AV
2	*	2445.945	102.275	66.009	48.275	54.000	36.265	AV
3		2483.500	52.576	16.231	-1.424	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 13:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452Mhz by 802.11n40	



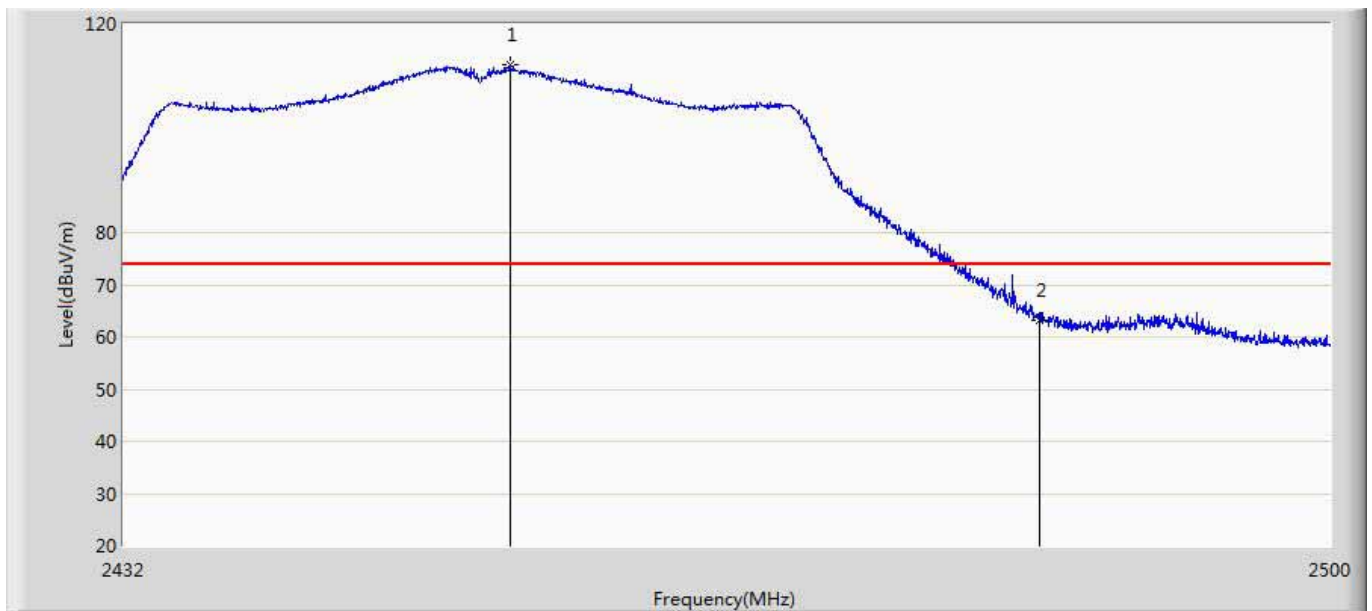
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.624	99.481	63.211	25.481	74.000	36.270	PK
2		2483.500	55.083	18.738	-18.917	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 13:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452Mhz by 802.11n40	



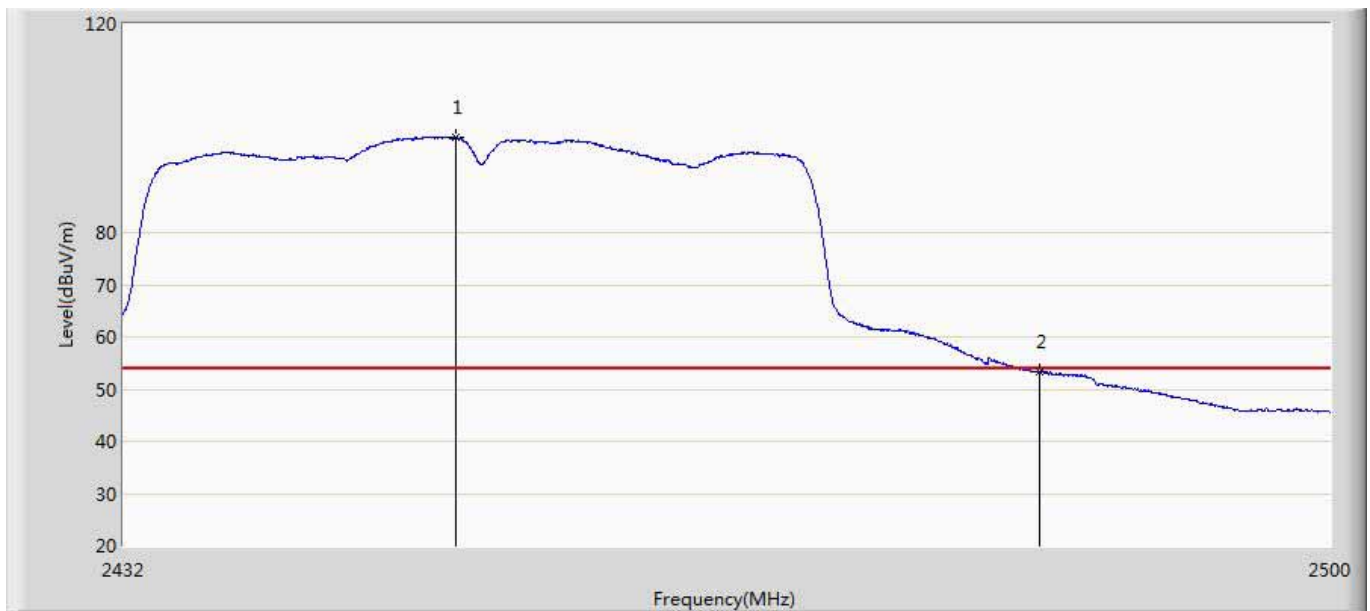
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.692	90.166	53.896	36.166	54.000	36.270	AV
2		2483.500	43.865	7.520	-10.135	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 13:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452Mhz by 802.11n40	



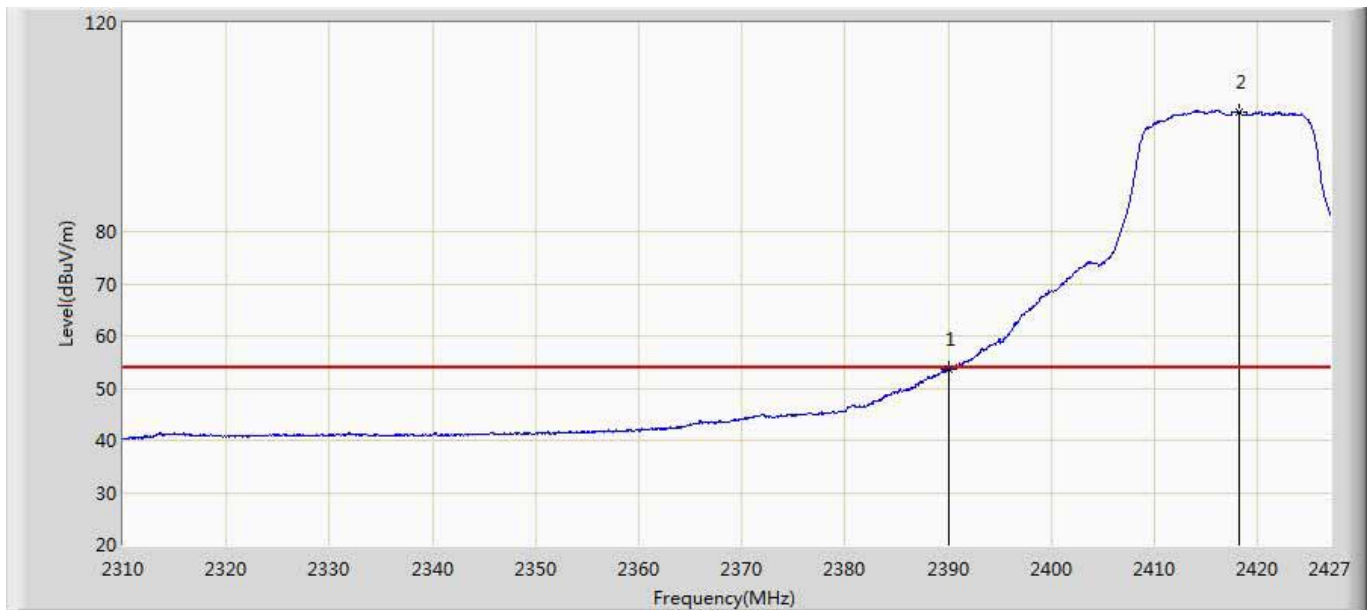
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.590	112.315	76.045	38.315	74.000	36.270	PK
2		2483.500	63.291	26.946	-10.709	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/08/07 - 13:31
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452Mhz by 802.11n40	



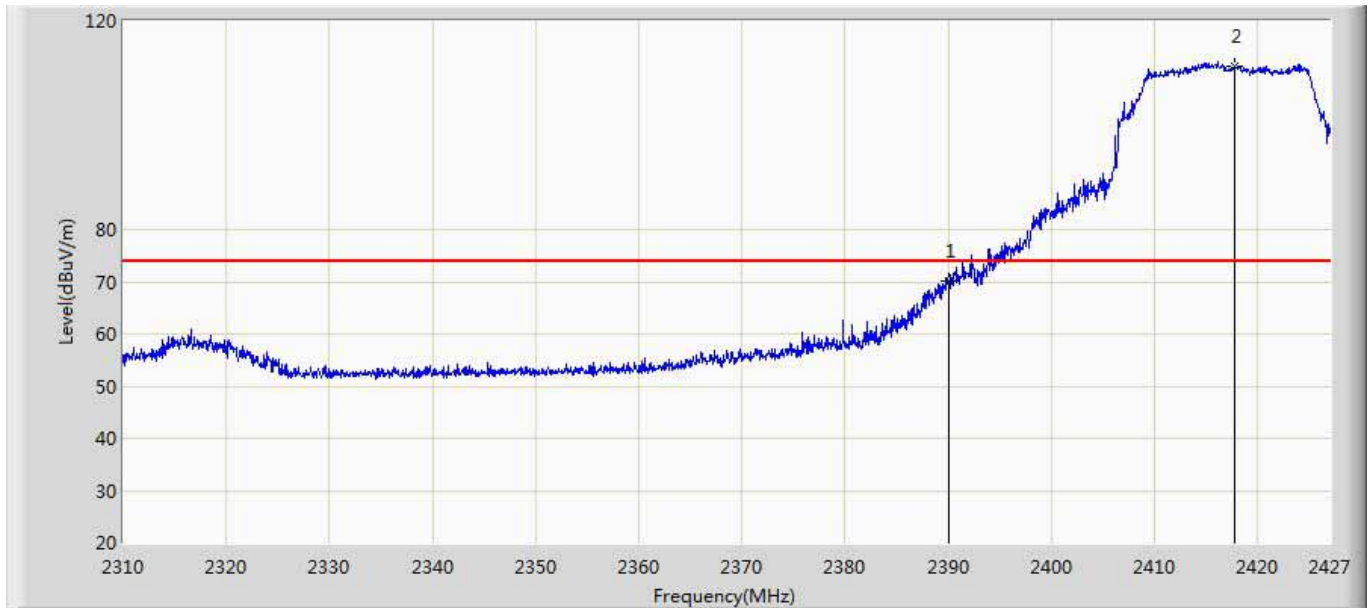
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2450.598	98.167	61.899	44.167	54.000	36.268	AV
2		2483.500	53.333	16.988	-0.667	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 10:59
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2: transmit at 2417MHz by 802.11g	



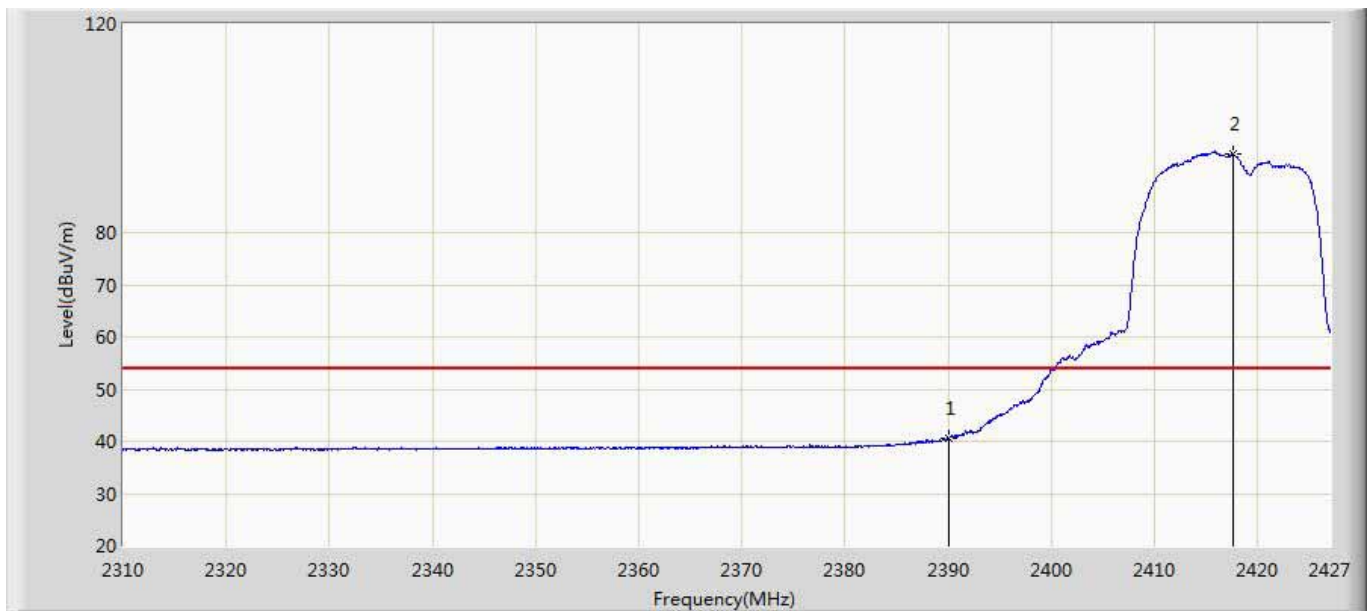
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.605	17.529	-0.395	54.000	36.076	AV
2	*	2418.167	102.855	66.675	48.855	54.000	36.180	AV

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2: transmit at 2417MHz by 802.11g	



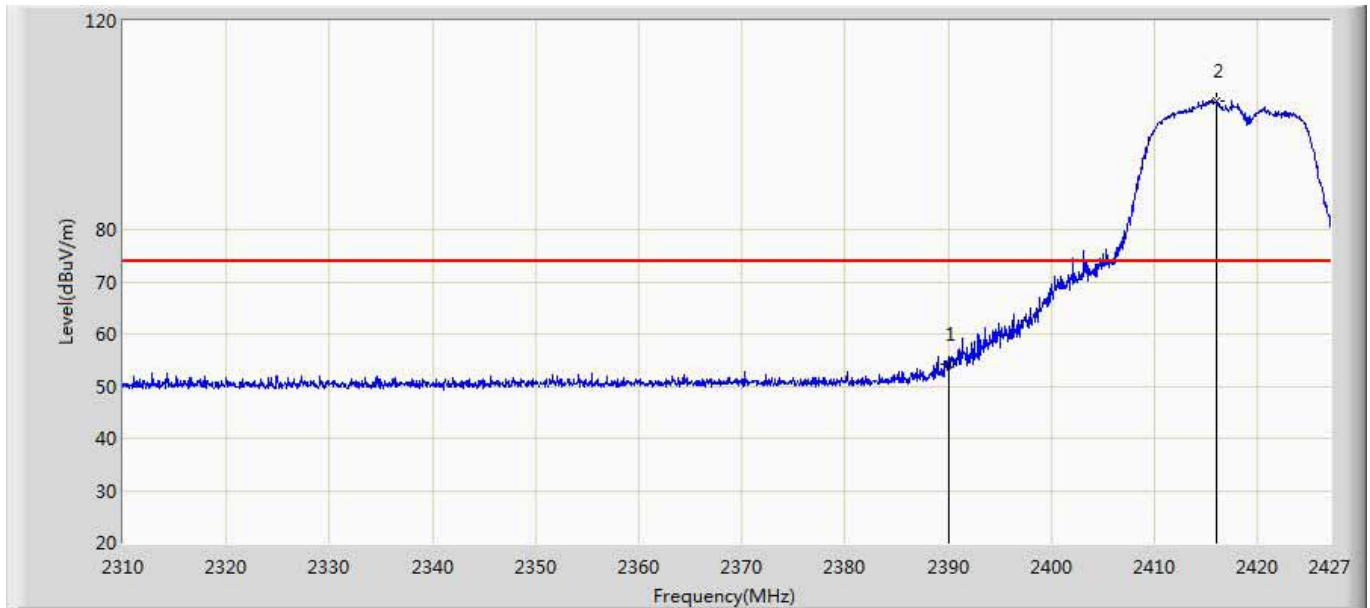
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	70.045	33.969	-3.955	74.000	36.076	PK
2	*	2417.815	111.340	75.161	37.340	74.000	36.179	PK

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2: transmit at 2417MHz by 802.11g	



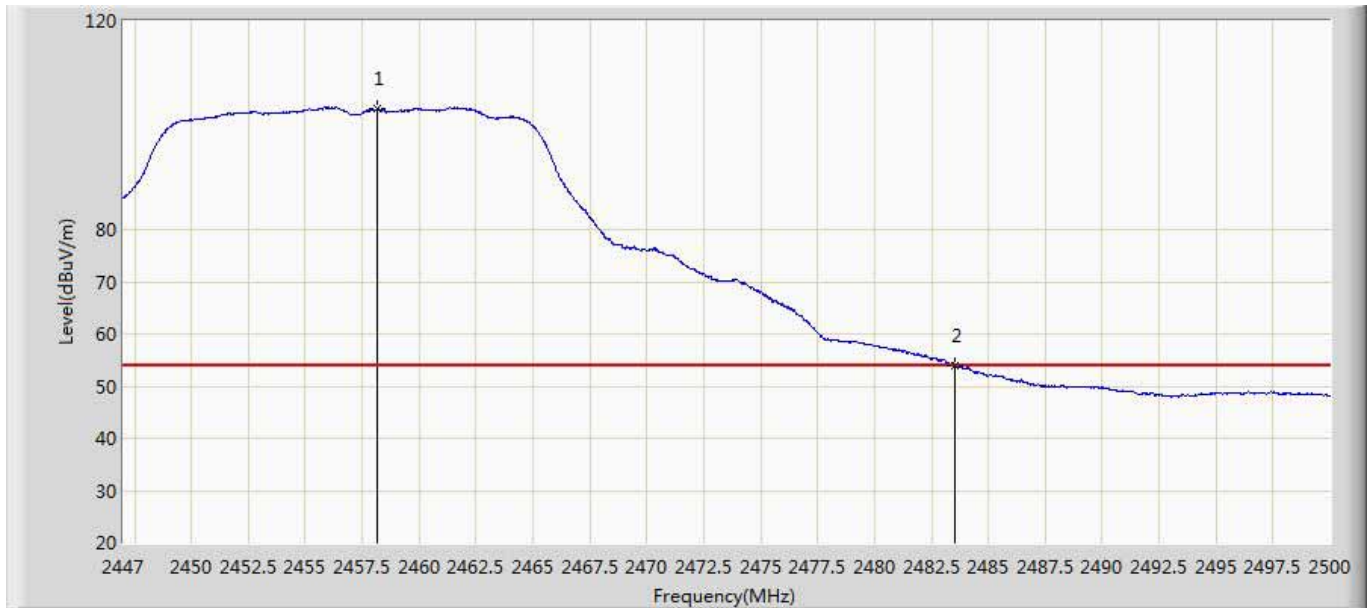
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	40.482	4.406	-13.518	54.000	36.076	AV
2	*	2417.582	95.027	58.848	41.027	54.000	36.179	AV

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2: transmit at 2417MHz by 802.11g	



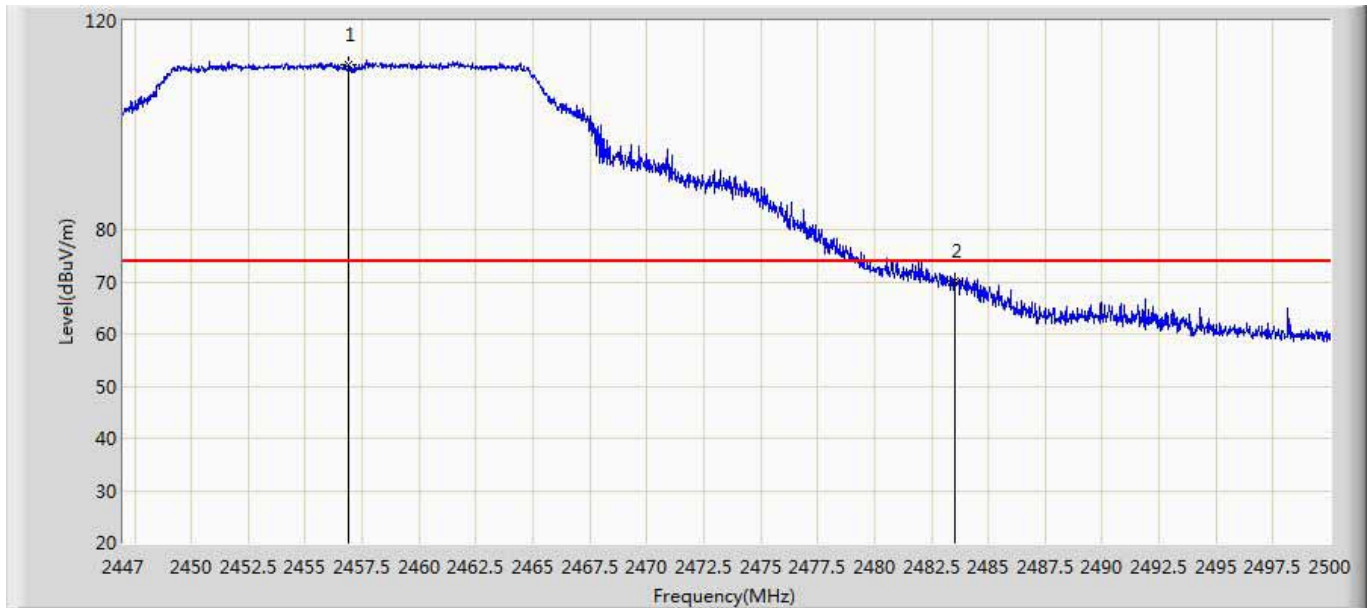
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	54.121	18.045	-19.879	74.000	36.076	PK
2	*	2416.002	104.707	68.530	30.707	74.000	36.177	PK

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2: transmit at 2457MHz by 802.11g	



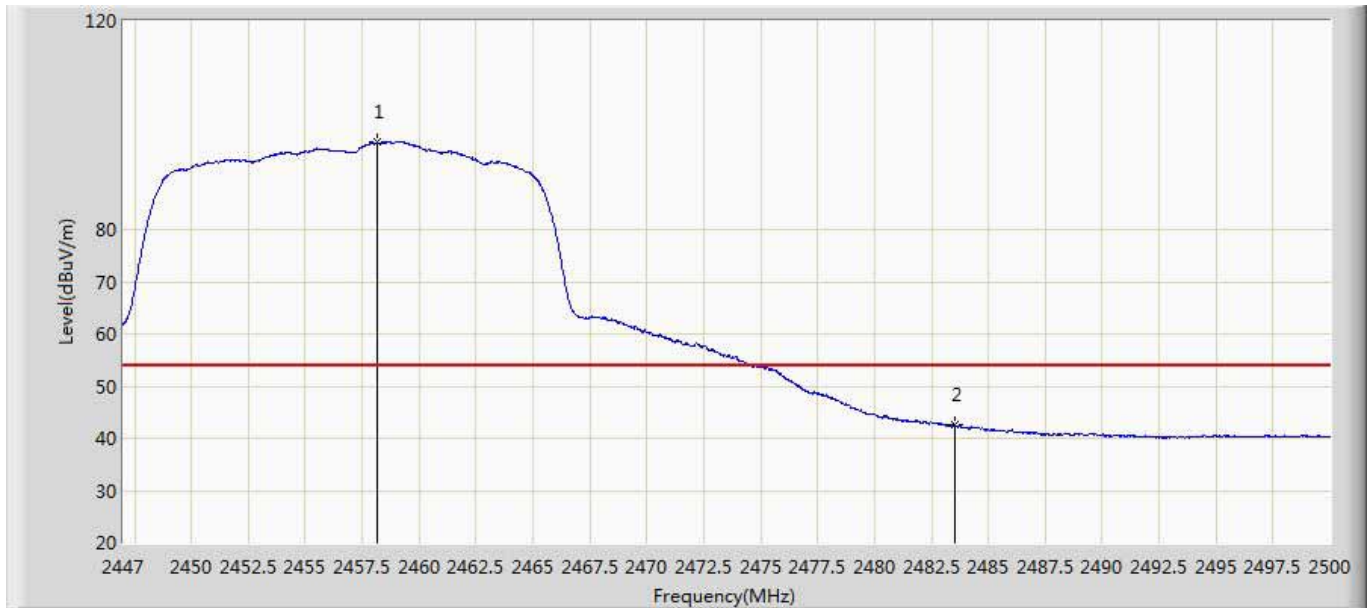
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2458.183	103.086	66.814	49.086	54.000	36.272	AV
2		2483.500	53.871	17.526	-0.129	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:10
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2: transmit at 2457MHz by 802.11g	



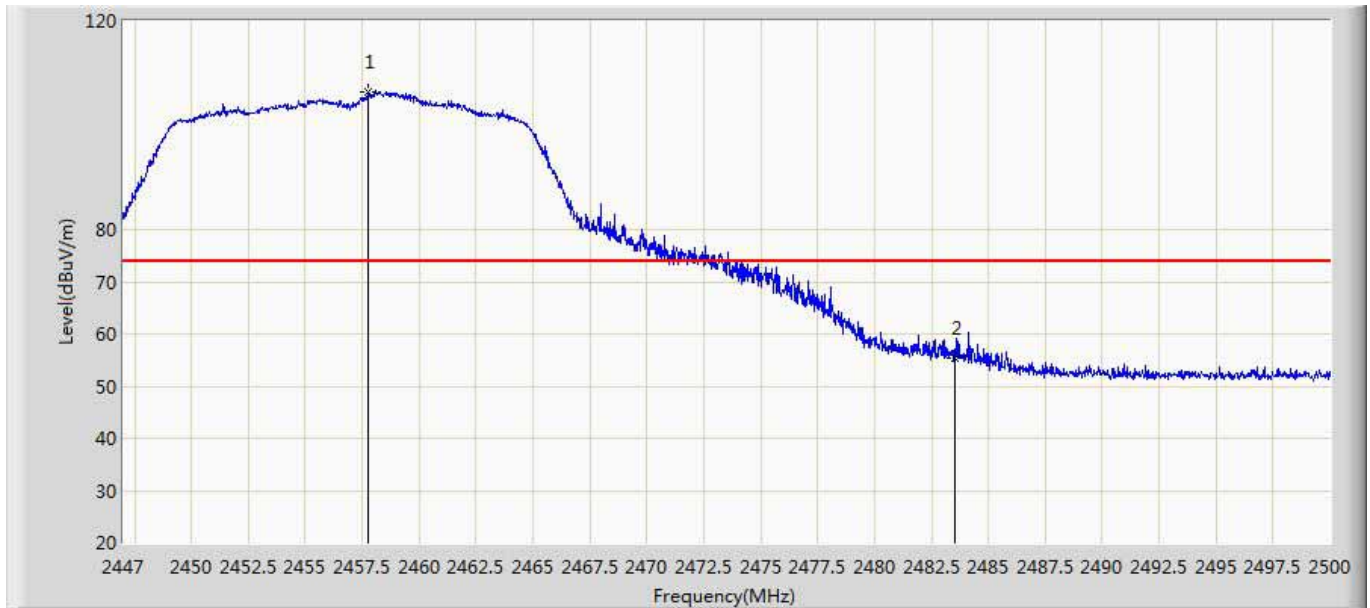
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2456.911	111.498	75.227	37.498	74.000	36.271	PK
2		2483.500	70.270	33.925	-3.730	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2: transmit at 2457MHz by 802.11g	



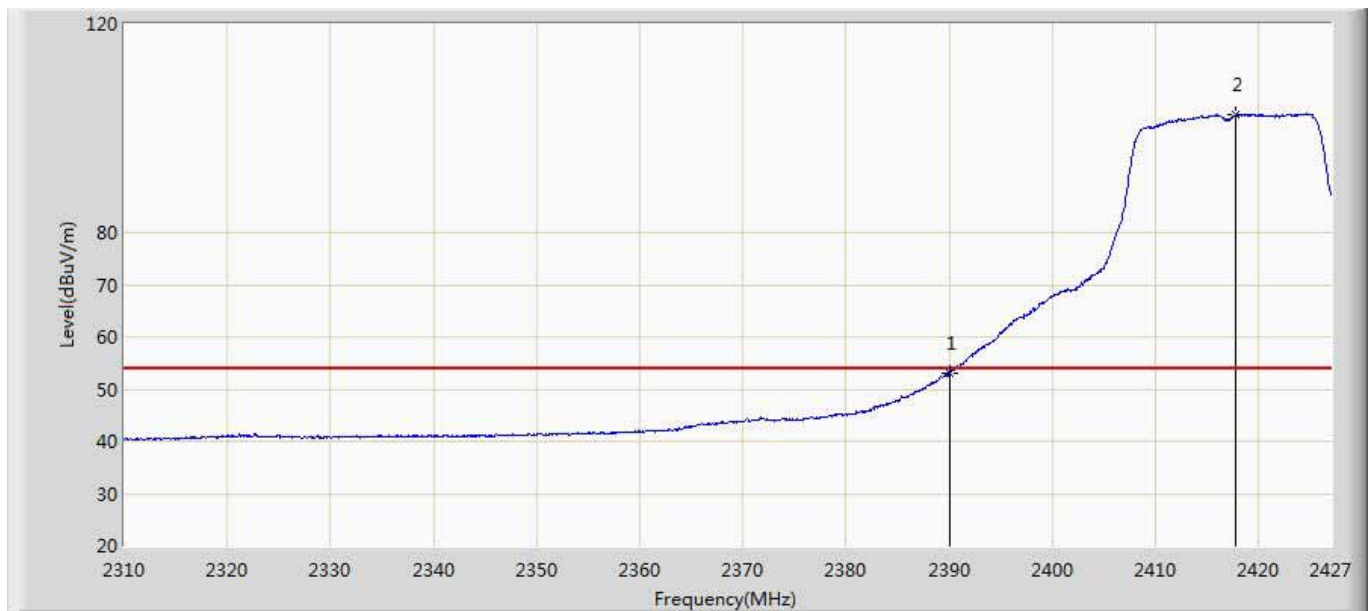
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2458.156	96.750	60.478	42.750	54.000	36.272	AV
2		2483.500	42.491	6.146	-11.509	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 2: transmit at 2457MHz by 802.11g	



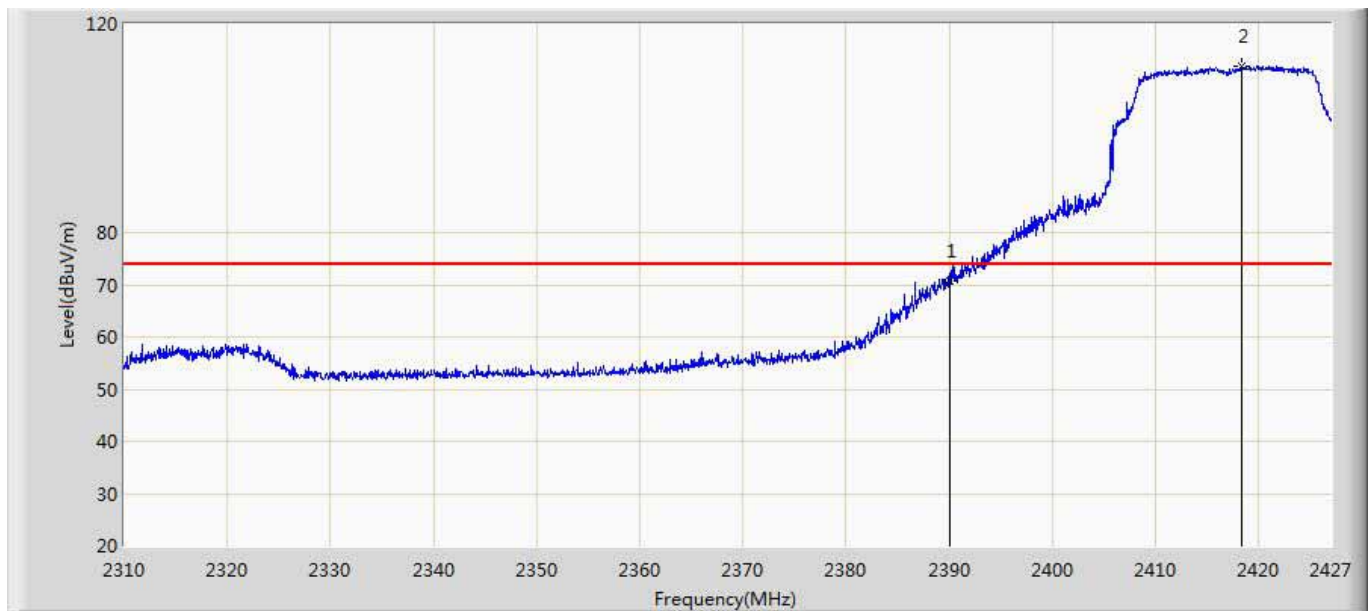
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2457.785	106.356	70.084	32.356	74.000	36.272	PK
2		2483.500	55.447	19.102	-18.553	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3: transmit at 2417MHz by 802.11n20	



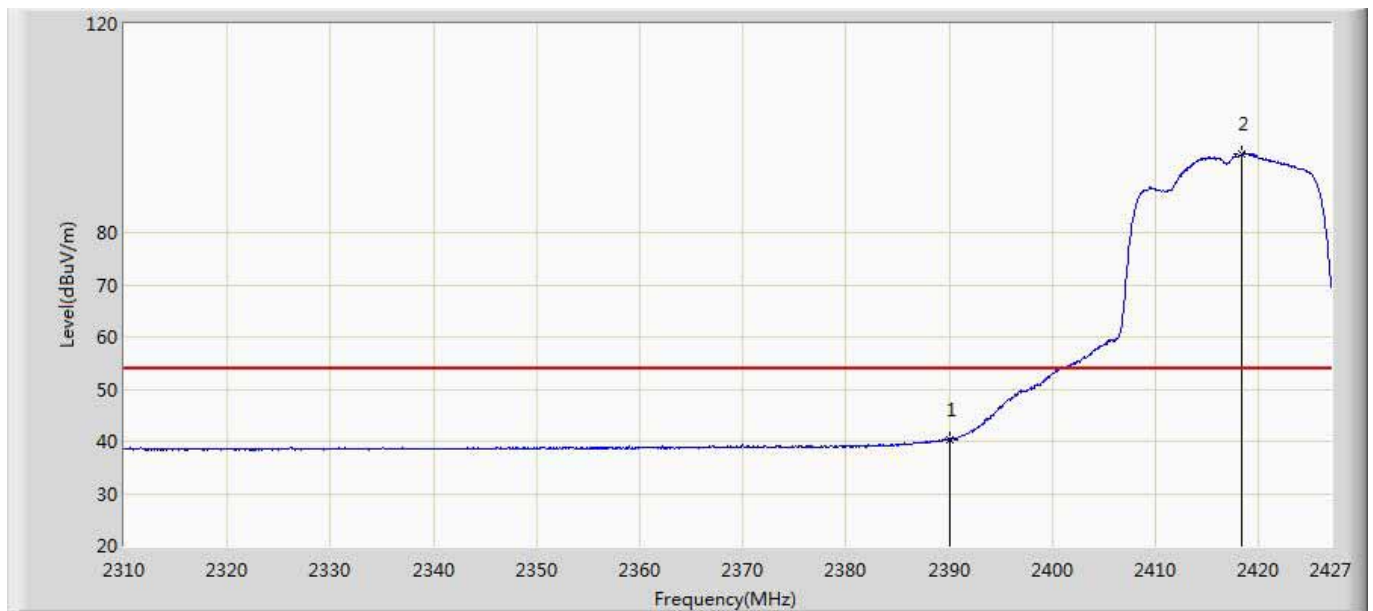
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.118	17.042	-0.882	54.000	36.076	AV
2	*	2417.815	102.617	66.438	48.617	54.000	36.179	AV

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3: transmit at 2417MHz by 802.11n20	



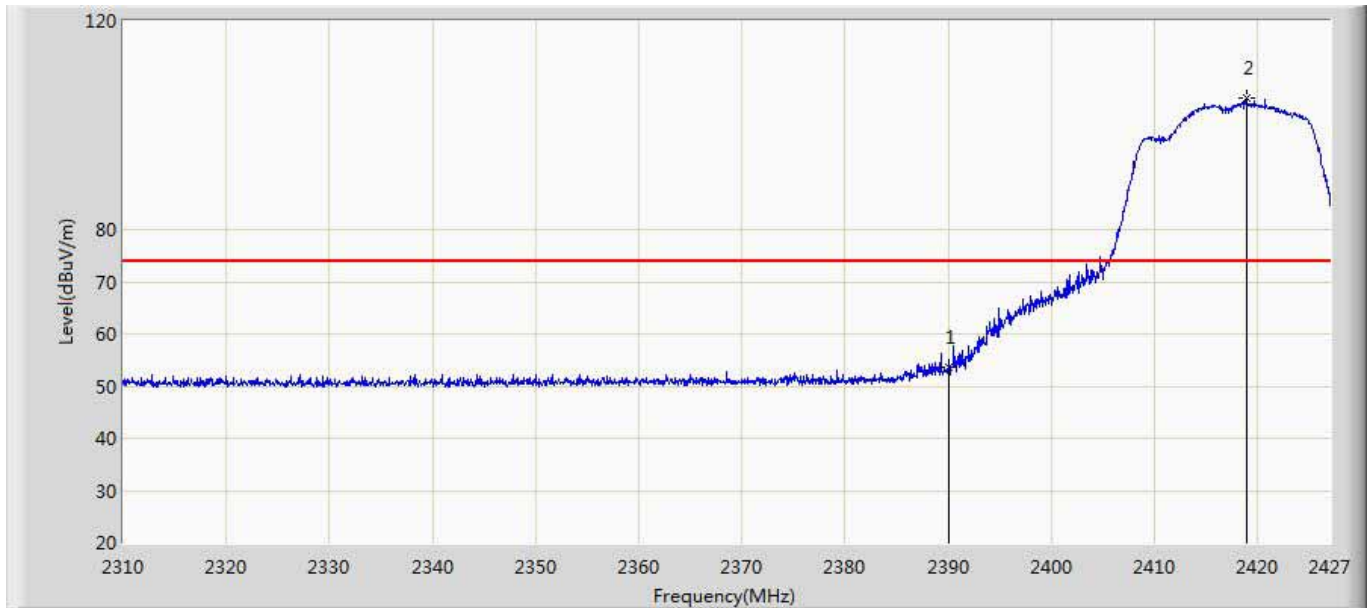
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	70.678	34.602	-3.322	74.000	36.076	PK
2	*	2418.283	111.752	75.572	37.752	74.000	36.180	PK

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3: transmit at 2417MHz by 802.11n20	



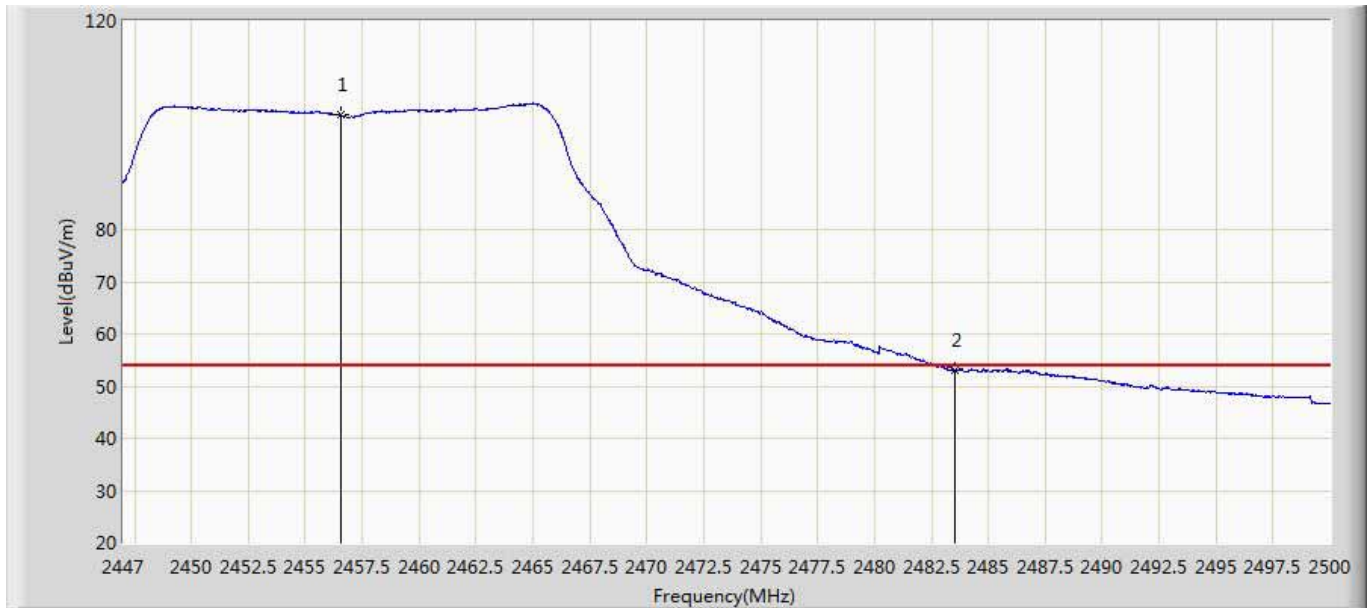
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	40.412	4.336	-13.588	54.000	36.076	AV
2	*	2418.342	95.080	58.900	41.080	54.000	36.180	AV

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3: transmit at 2417MHz by 802.11n20	



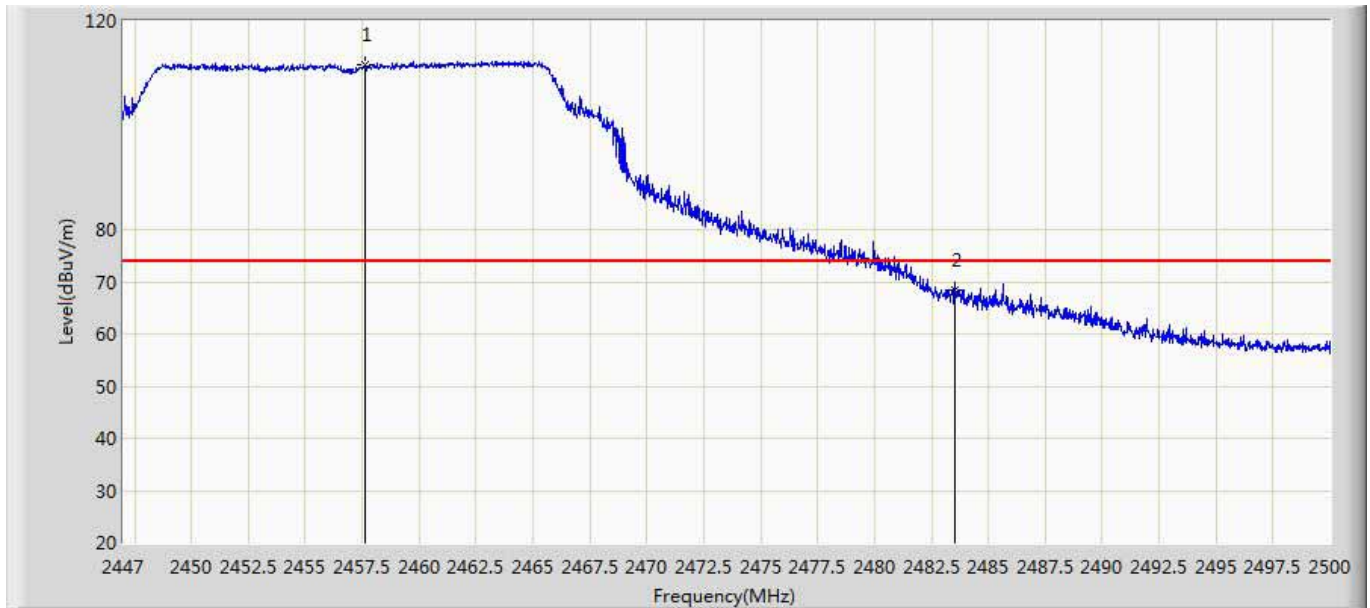
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.505	17.429	-20.495	74.000	36.076	PK
2	*	2418.868	105.360	69.179	31.360	74.000	36.181	PK

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3: transmit at 2457MHz by 802.11n20	



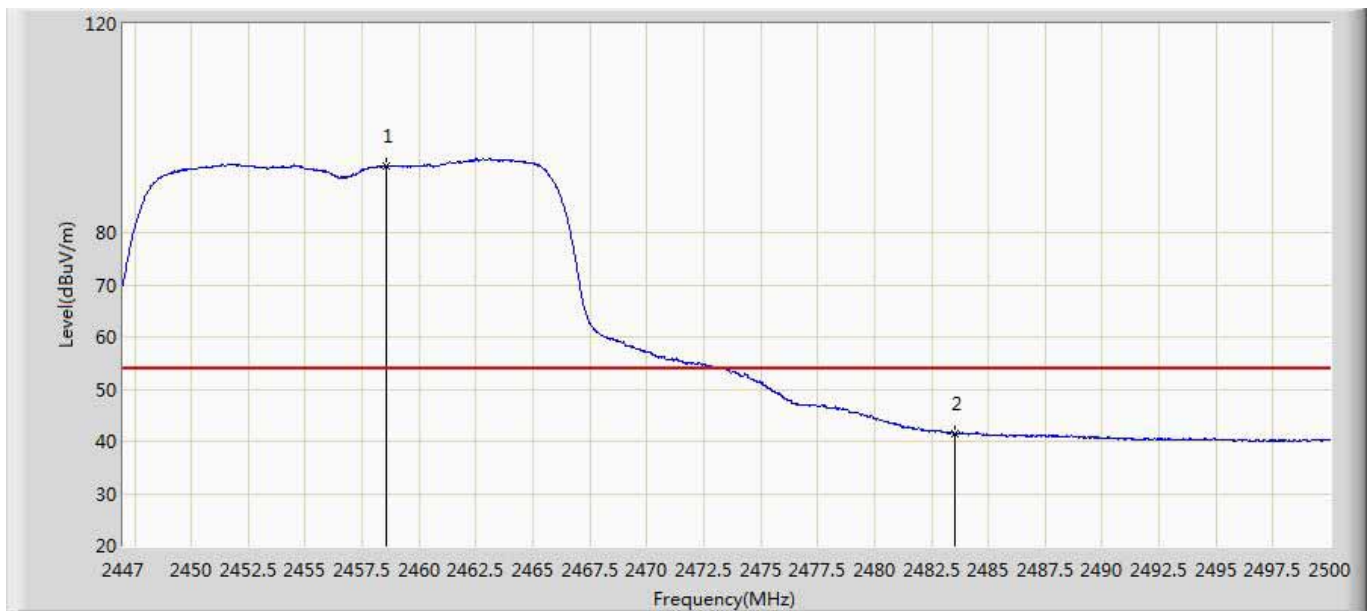
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2456.593	101.889	65.618	47.889	54.000	36.271	AV
2		2483.500	53.023	16.678	-0.977	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3: transmit at 2457MHz by 802.11n20	



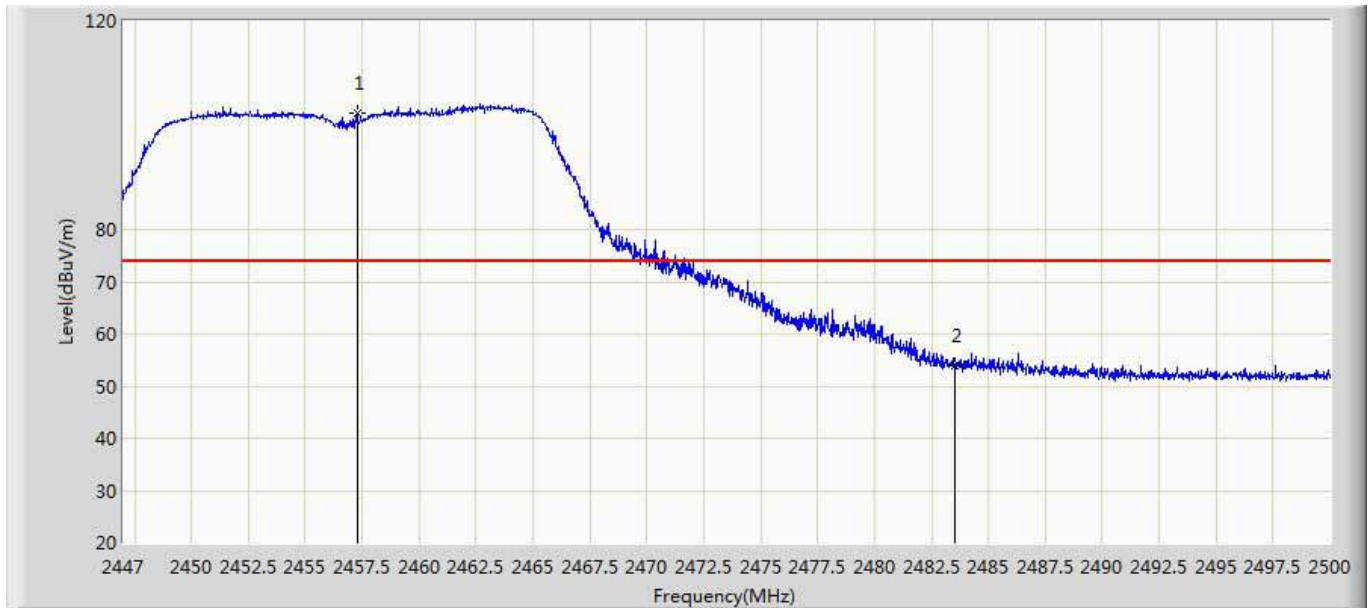
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2457.653	111.490	75.218	37.490	74.000	36.272	PK
2		2483.500	68.379	32.034	-5.621	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3: transmit at 2457MHz by 802.11n20	



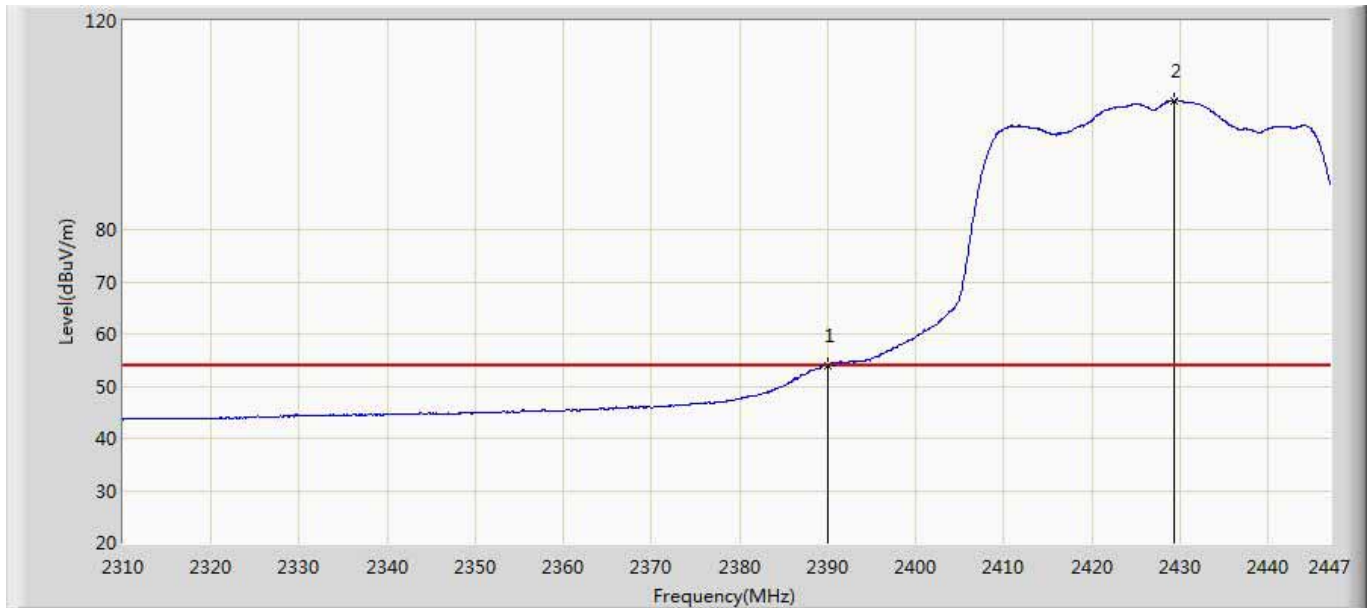
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2458.528	92.851	56.579	38.851	54.000	36.272	AV
2		2483.500	41.556	5.211	-12.444	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 3: transmit at 2457MHz by 802.11n20	



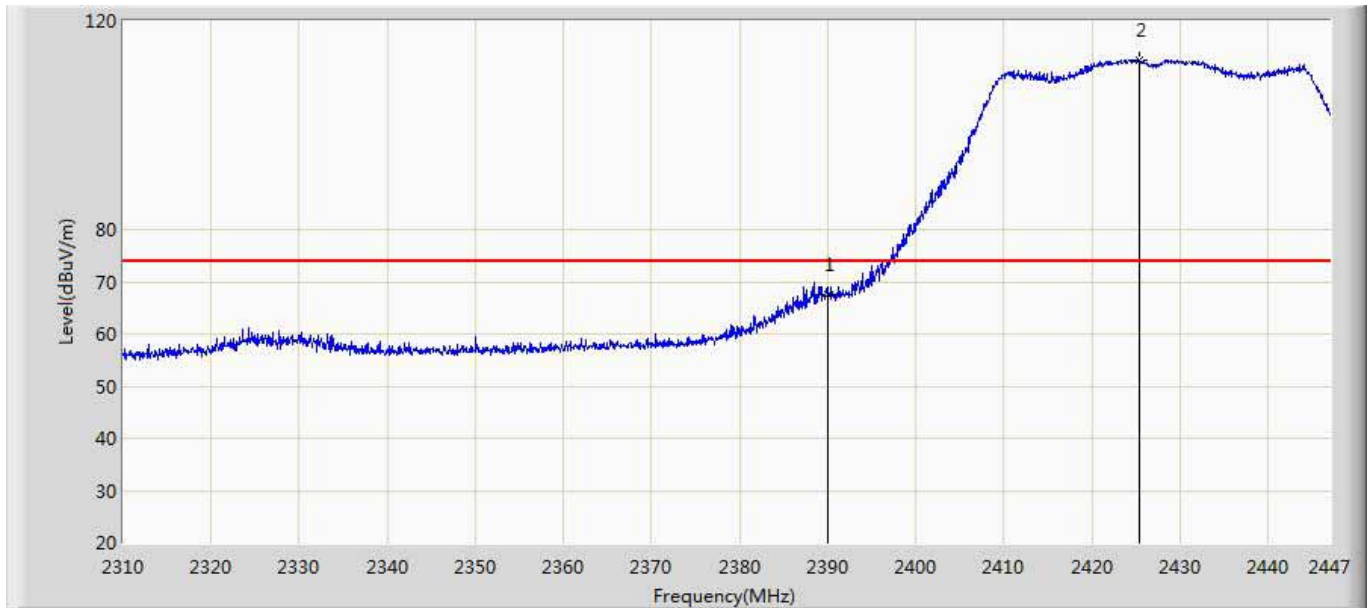
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2457.282	102.261	65.989	28.261	74.000	36.272	PK
2		2483.500	53.945	17.600	-20.055	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4: transmit at 2427MHz by 802.11n40	



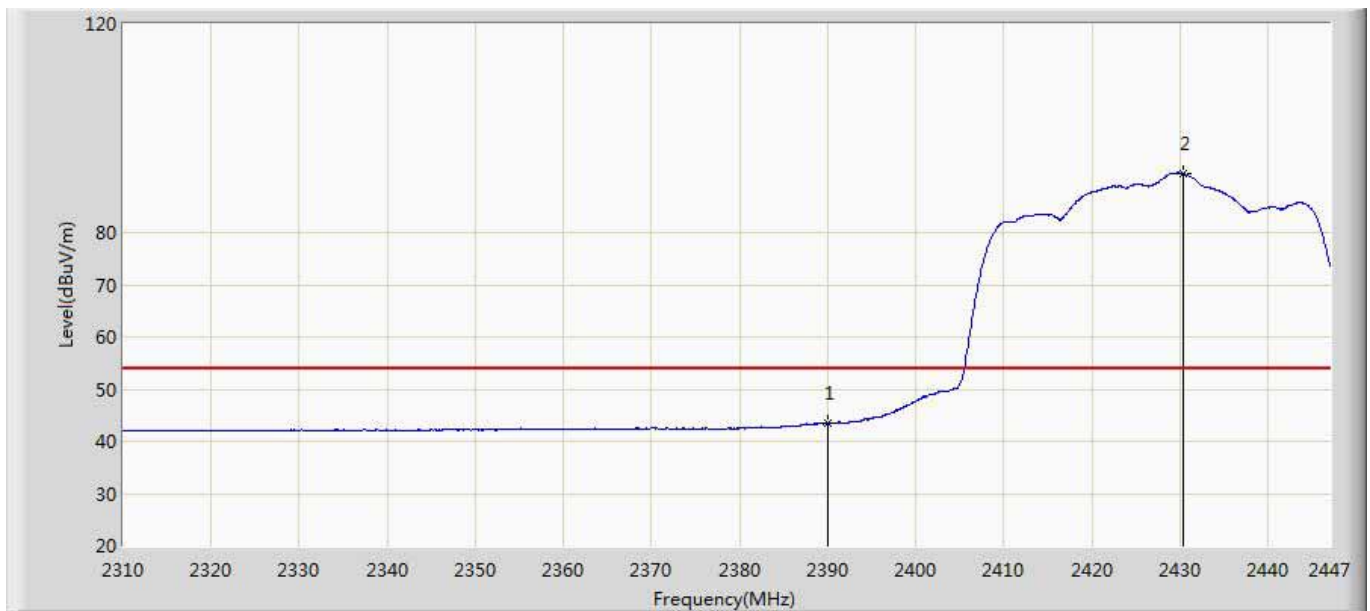
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.947	17.871	-0.053	54.000	36.076	AV
2	*	2429.327	104.728	68.529	50.728	54.000	36.199	AV

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4: transmit at 2427MHz by 802.11n40	



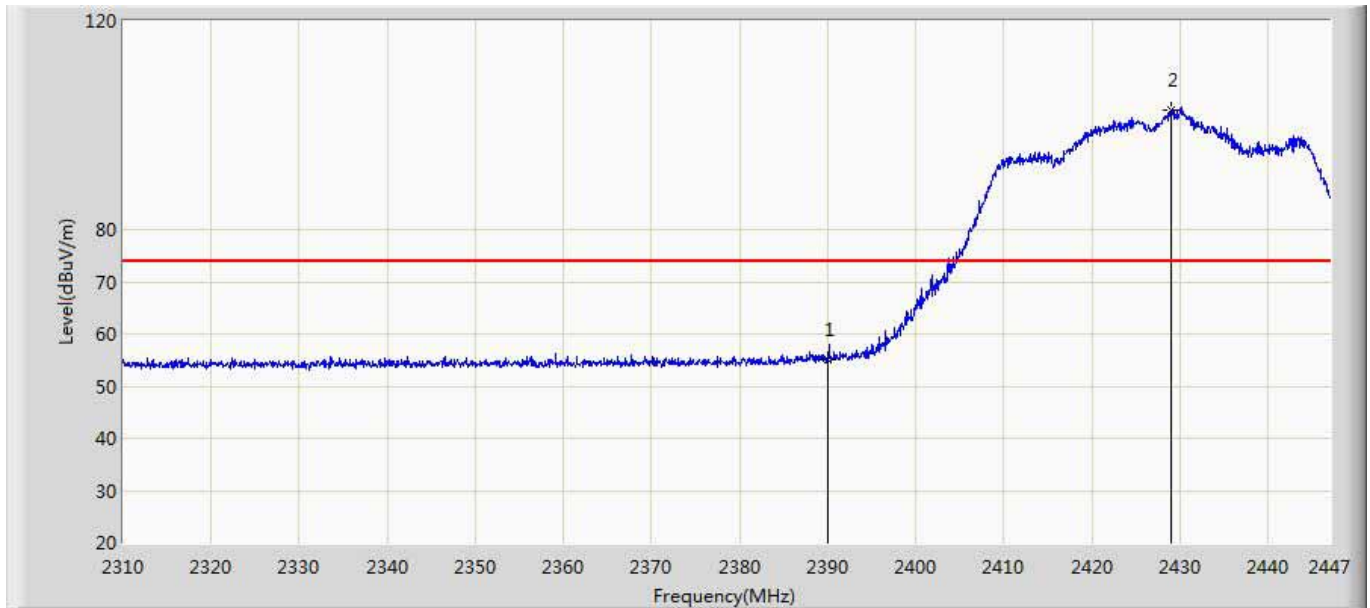
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	67.467	31.391	-6.533	74.000	36.076	PK
2	*	2425.423	112.470	76.280	38.470	74.000	36.189	PK

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4: transmit at 2427MHz by 802.11n40	



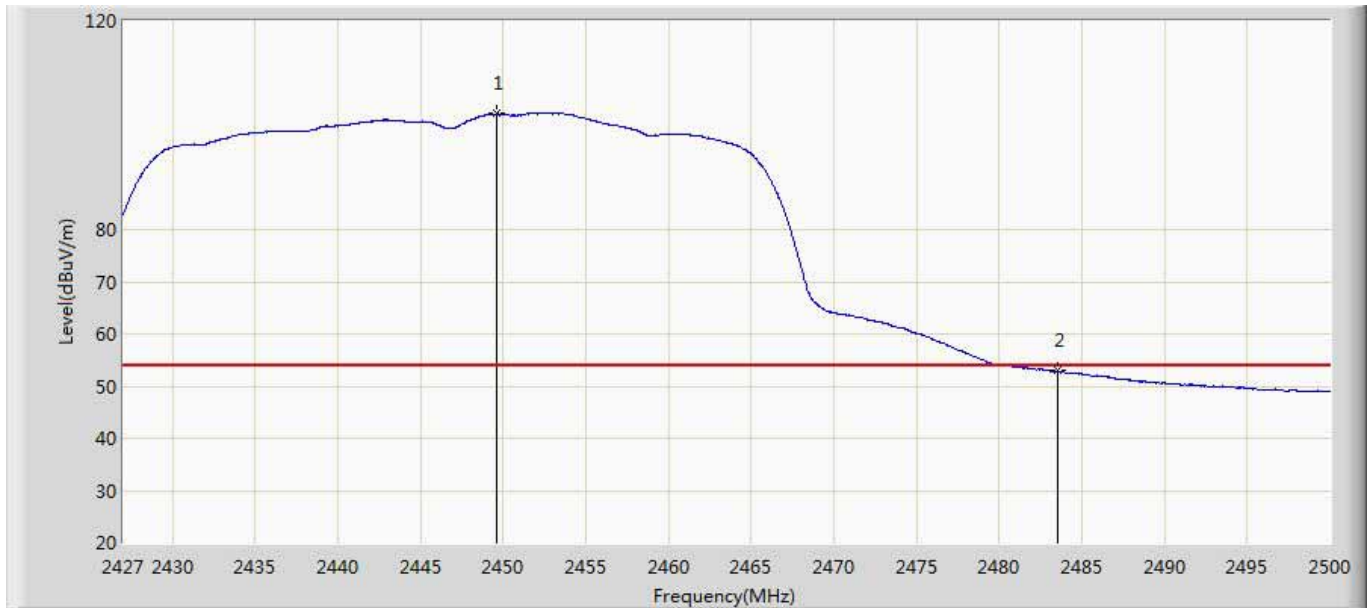
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	43.584	7.508	-10.416	54.000	36.076	AV
2	*	2430.423	91.276	55.073	37.276	54.000	36.203	AV

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4: transmit at 2427MHz by 802.11n40	



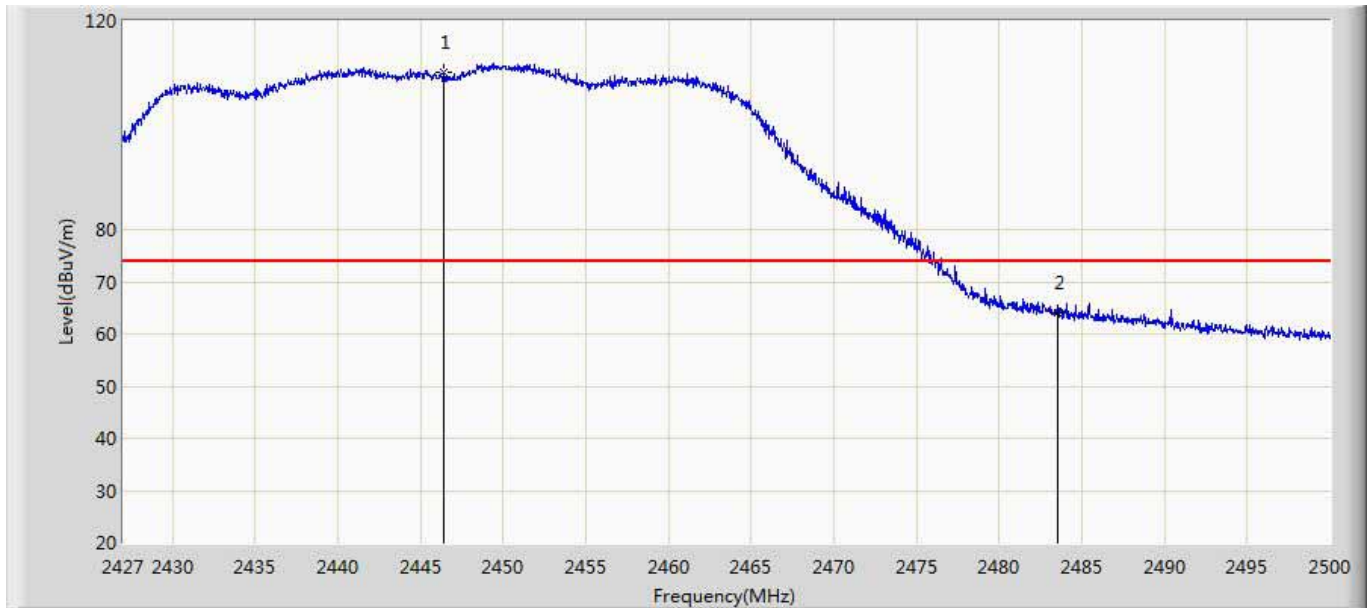
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	54.935	18.859	-19.065	74.000	36.076	PK
2	*	2428.916	102.785	66.588	28.785	74.000	36.197	PK

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4: transmit at 2447MHz by 802.11n40	



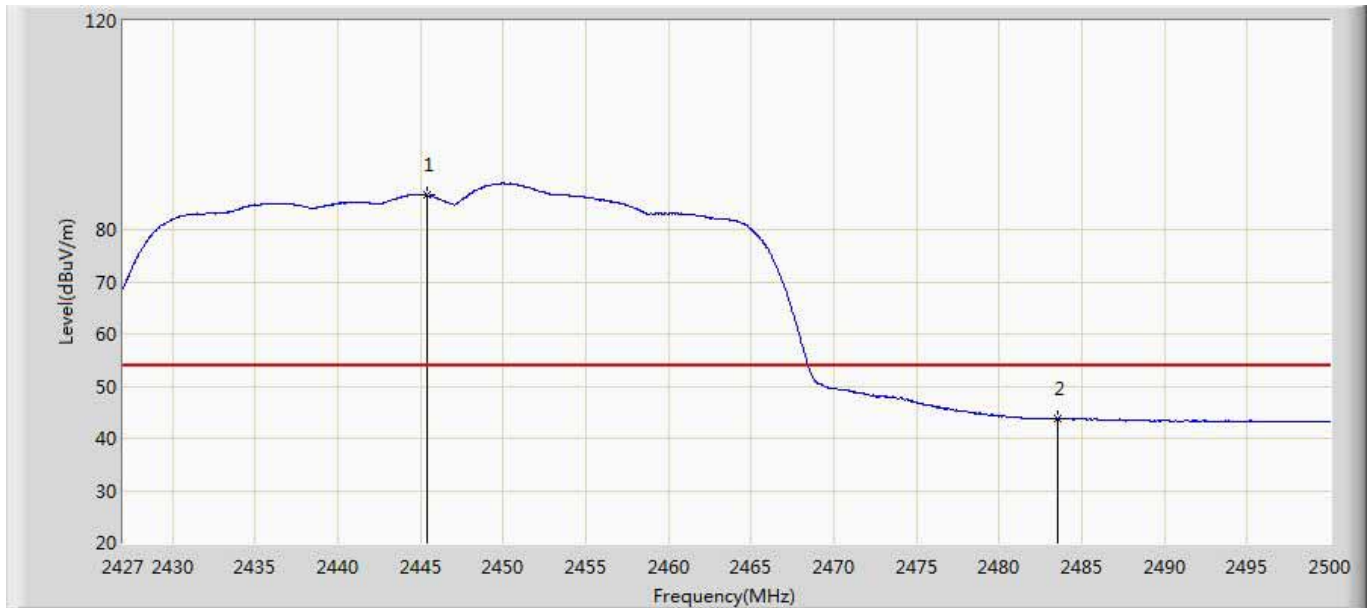
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2449.630	102.188	65.921	48.188	54.000	36.267	AV
2		2483.500	53.090	16.745	-0.910	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Vertical
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4: transmit at 2447MHz by 802.11n40	



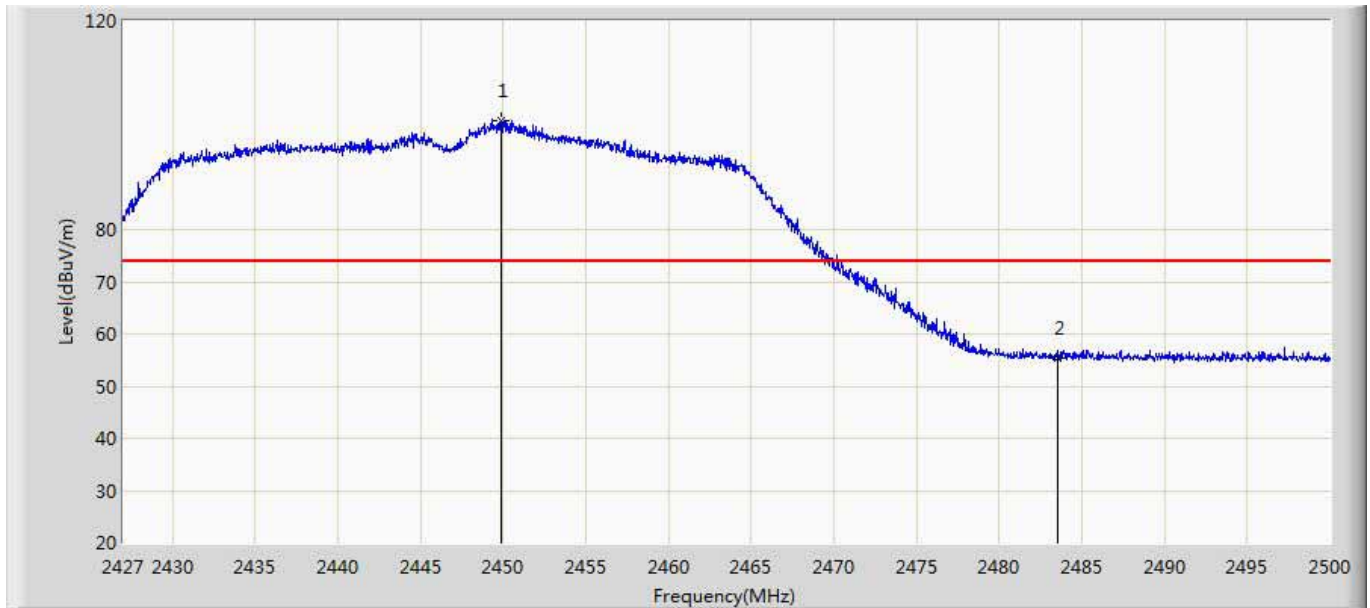
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2446.382	110.229	73.963	36.229	74.000	36.266	PK
2		2483.500	63.978	27.633	-10.022	74.000	36.345	PK

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:55
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4: transmit at 2447MHz by 802.11n40	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2445.360	86.652	50.387	32.652	54.000	36.265	AV
2		2483.500	43.691	7.346	-10.309	54.000	36.345	AV

Engineer: Bruce	
Site: AC5	Time: 2016/10/13 - 11:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00165315(1-18GHz)	Polarity: Horizontal
EUT: 450Mbps Wireless N Router	Power: AC 120V/60Hz
Note: Mode 4: transmit at 2447MHz by 802.11n40	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2449.849	101.012	64.744	27.012	74.000	36.268	PK
2		2483.500	55.395	19.050	-18.605	74.000	36.345	PK

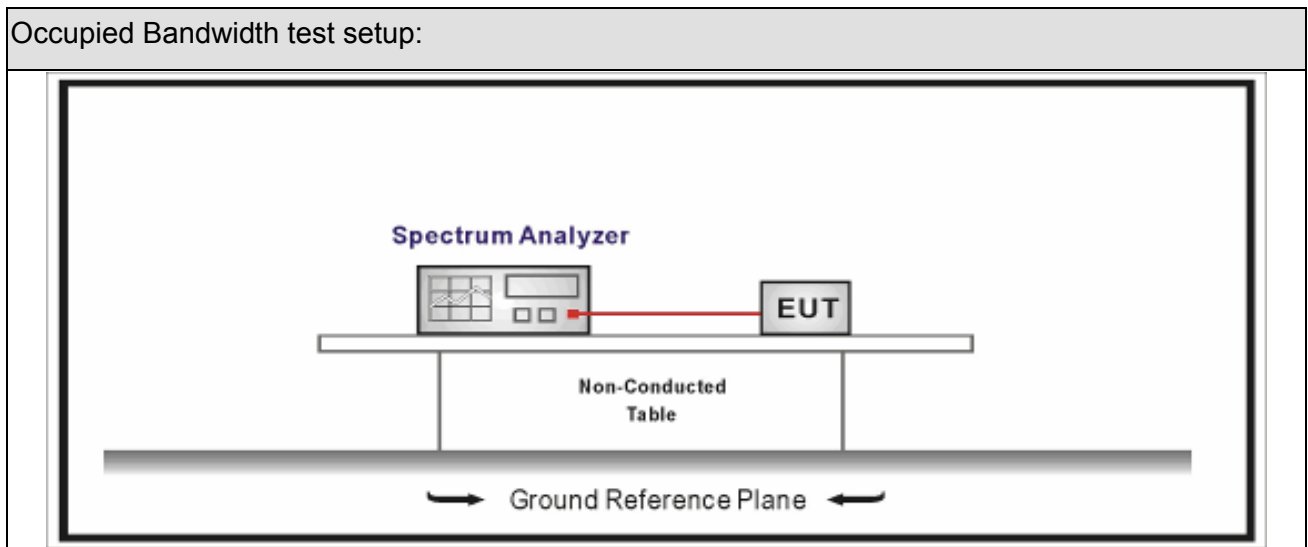
7. Occupied Bandwidth

7.1. Test Equipment

Occupied Bandwidth / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.04	2017.01.03
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.03.11	2017.03.10
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2016.04.10	2017.04.09

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

7.2. Test Setup



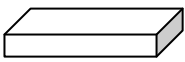
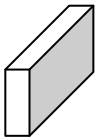
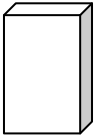
7.3. Limit

Occupied Bandwidth
Systems using digital modulation techniques operate in the 2400-2483.5 MHz. The minimum 6 dB bandwidth shall be at least 500 kHz

7.4. Test Procedure

Test Method				
	Reference Rule		Chapter	Description
☒	ANSI C63.10		11.8	DTS bandwidth
	☐	ANSI C63.10	11.8.1	Option 1
	☒	ANSI C63.10	11.8.2	Option 2

7.5. EUT test definition

Item	Occupied Bandwidth			
Device Category	☒	Fixed position use		
	☐	Mobile position use		
Test mode	Mode 1~4			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐
	☒	Conducted		
	☐	Chain 0		
				
	☐	Chain 0	Chain 1	
				
	☒	Chain 0	Chain 1	Chain 2
				

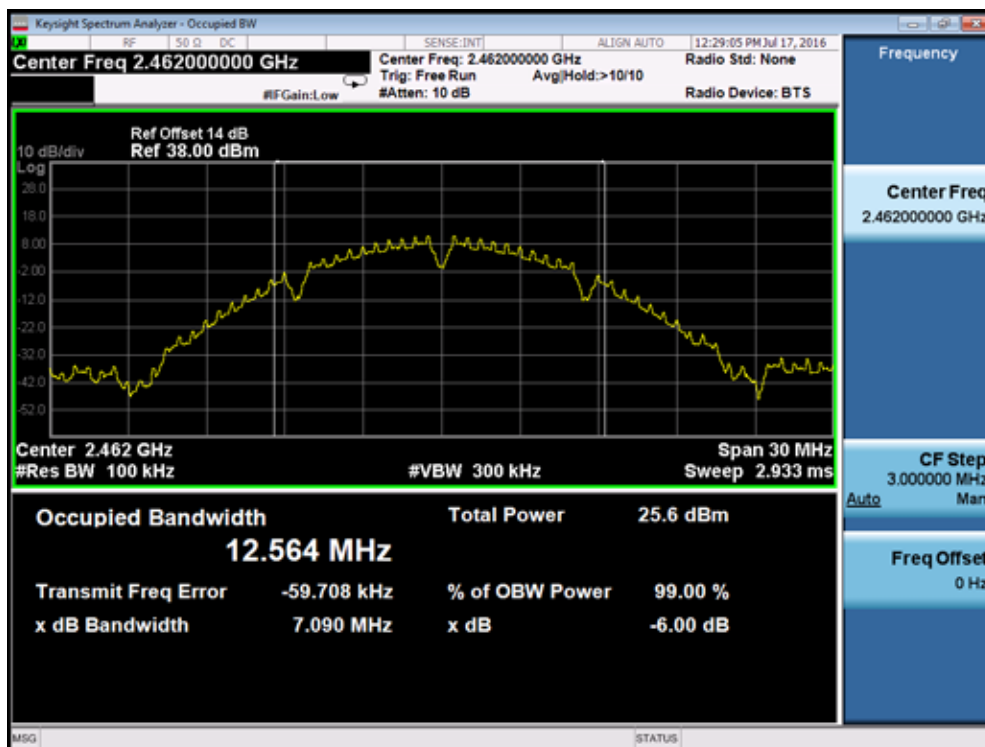
7.6. Test Result

Product Name	:	450Mbps Wireless N Router	Test Power	:	AC 120V/60Hz
Test Site	:	TR-8			

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (MHz)			6dB Occupied Bandwidth (MHz)			Limit (kHz)	Result
			Ant 0	Ant 1	Ant 2	Ant 0	Ant 1	Ant 2		
1	01	2412	12.103	11.931	11.691	7.095	7.103	7.091	>500	Pass
1	06	2437	11.886	12.273	12.237	7.093	7.095	7.099	>500	Pass
1	11	2462	12.564	12.433	12.083	7.090	7.105	7.088	>500	Pass
2	01	2412	16.196	15.228	16.232	15.70	15.35	15.31	>500	Pass
2	06	2437	16.235	15.216	16.199	15.45	15.27	15.80	>500	Pass
2	11	2462	16.183	16.195	16.237	15.72	15.66	15.42	>500	Pass
3	01	2412	17.417	17.257	17.317	17.03	16.03	15.67	>500	Pass
3	06	2437	17.711	17.654	17.510	17.92	17.33	16.58	>500	Pass
3	11	2462	17.389	17.341	17.322	16.54	16.28	15.70	>500	Pass
4	03	2422	35.690	35.566	35.693	31.47	32.16	29.40	>500	Pass
4	06	2437	35.785	35.608	35.691	28.82	30.04	30.86	>500	Pass
4	09	2452	35.706	35.801	35.637	31.40	28.78	29.77	>500	Pass

Note : The worst case of Occupied Bandwidth as below in next page:

Mode 1 CH11 (2462MHz) Ant 0



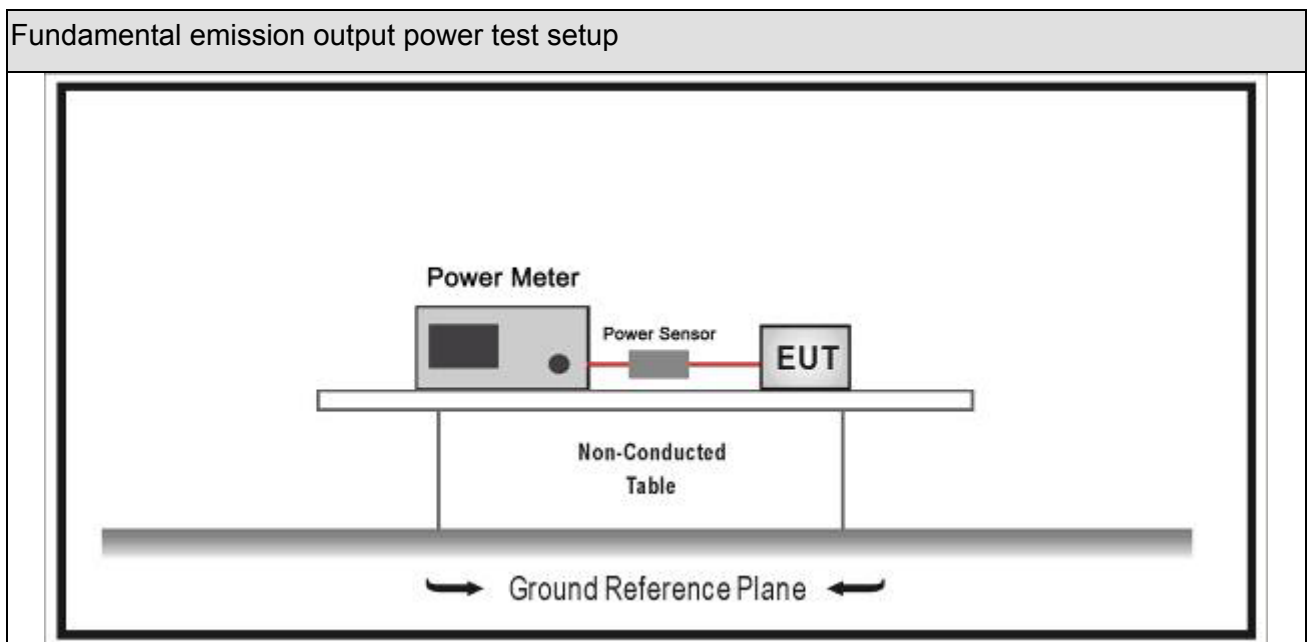
8. Fundamental emission output power

8.1. Test Equipment

Fundamental emission output power/ TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.04	2017.01.03
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.03.11	2017.03.10
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2015.11.11	2016.11.10
Power Sensor	Anritsu	MA2411B	0846014	2015.11.11	2016.11.10
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2016.04.10	2017.04.09

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

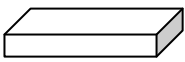
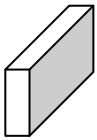
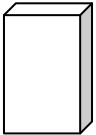
Fundamental emission output power Limit		
☒	$G_{TX} < 6\text{dBi}$	$P_{out} \leq 30\text{dBm}$
☒	$G_{TX} > 6\text{dBi}$	
☐	Non-Fix point-point	$P_{out} \leq 30 - (G_{TX} - 6)$
☐	Fix point-point	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
☒	Point-to-multipoint	$P_{out} \leq 30 - (G_{TX} - 6)$
☐	Overlap Beams	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
☐	Aggregate power transmitted simultaneously on all beams	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
☐	single directional beam	$P_{out} \leq 30 - [(G_{TX} - 6)]/3 + 8\text{dB}$
Note 1 : G_{TX} directional gain of transmitting antennas.		
Note 2 : P_{out} is maximum peak conducted output power .		

8.4. Test Procedure

Fundamental emission output power Test Method						
	References Rule			Chapter	Description	
☒	ANSI C63.10			11.9	Fundamental emission output power	
	☐	ANSI C63.10		11.9.1	Maximum peak conducted output power	
		☐	ANSI C63.10	11.9.1.1	RBW ≥ DTS bandwidth	
		☐	ANSI C63.10	11.9.1.2	Integrated band power method	
		☐	ANSI C63.10	11.9.1.3	PKPM1 Peak power meter method	
	☒	ANSI C63.10		11.9.2	Maximum conducted (average) output power	
		☐	ANSI C63.10		11.9.2.2	Measurement using a spectrum analyzer (SA)
			☐	ANSI C63.10	11.9.2.2.2	Method AVGSA-1(Duty cycle≥98%)
			☐	ANSI C63.10	11.9.2.2.3	Method AVGSA-1A(Duty cycle≥98%)
			☐	ANSI C63.10	11.9.2.2.4	Method AVGSA-2(Duty cycle≤98%)
			☐	ANSI C63.10	11.9.2.2.5	Method AVGSA-2A(Duty cycle≤98%)
			☐	ANSI C63.10	11.9.2.2.4	Method AVGSA-3
			☐	ANSI C63.10	11.9.2.2.5	Method AVGSA-3A
		☒	ANSI C63.10		11.9.2.3	Measurement using a power meter (PM)
			☐	ANSI C63.10	11.9.2.3.1	Method AVGPM
			☒	ANSI C63.10	11.9.2.3.2	Method AVGPM-G

Directional Gain Calculations for In-Band test method				
	References Rule		Chapter	Description
☐	KDB 662911		F2)a)	Basic methodology with NANT transmit antennas
	☐	KDB 662911	F2)a) (i)	transmit signals are correlated
	☐	KDB 662911	F2)a) (ii)	transmit signals are uncorrelated
☐	KDB 662911		F2)b)	Sectorized antenna systems.
☐	KDB 662911		F2)c)	Cross-polarized antennas
	☐	ANSI C63.10	F2)c) (i)	Cross-polarized antennas with NANT = 2.
	☐	ANSI C63.10	F2)c) (ii)	Multiple antennas
☐	KDB 662911		F2)e)	Spatial stream
	☐	KDB 662911	F2)e) (i)	Antennas have the same gain
	☐	KDB 662911	F2)e) (ii)	Antenna have the different gain with one spatial stream
	☐	KDB 662911	F2)e) (iii)	Antenna have the different gain with more than one spatial stream
☒	KDB 662911		F2)f)	Cyclic Delay Diversity (CDD)
	☐	KDB 662911	F2)f) (i)	Antennas have the same gain
	☐	KDB 662911	F2)f) (ii)	Antenna have the different gain with one spatial stream
	☒	KDB 662911	F2)f) (ii)	Antenna have the different gain with more than one spatial stream

8.5. EUT test definition

Item	Fundamental emission output power			
Device Category	☒	Fixed position use		
	☐	Mobile position use		
Test mode	Mode 1~4			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐
	☒	Conducted		
	☐	Chain 0		
				
	☐	Chain 0	Chain 1	
				
	☒	Chain 0	Chain 1	Chain 2
				

8.6. Test Result

Product Name	:	450Mbps Wireless N Router	Test Power	:	AC 120V/60Hz
Test Site	:	TR8			

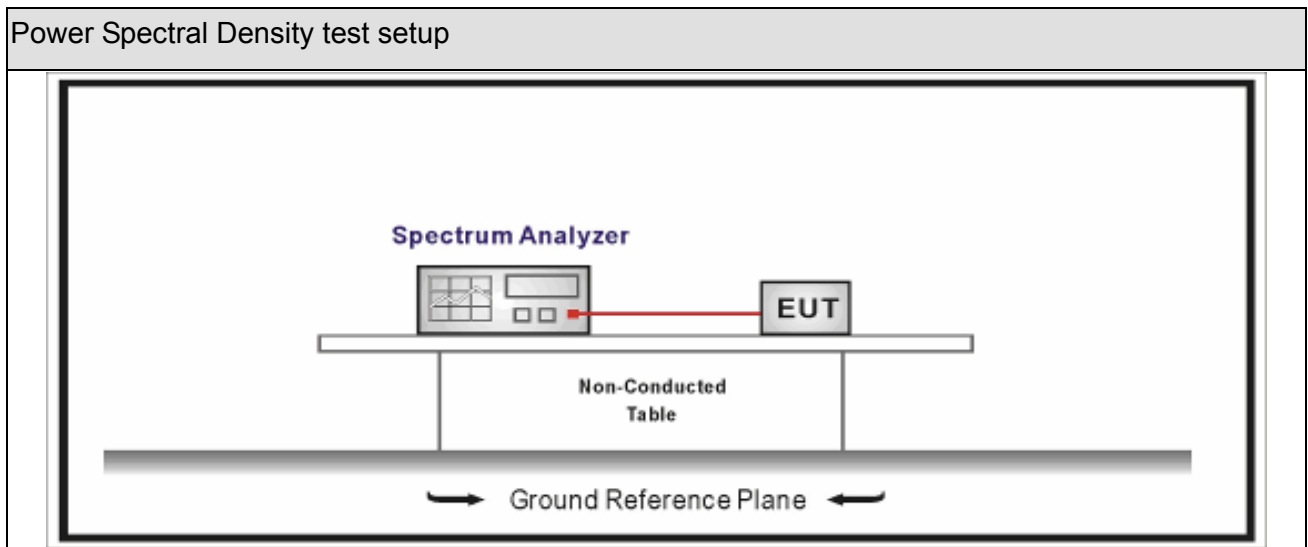
Mode	Channel	Test Frequency (MHz)	Average Power Output (dBm)			Total Power (dBm)	Directional Gain (dBi)	Limit (dBm)	Result
			Ant 0	Ant 1	Ant 2				
1	01	2412	16.51	15.95	16.56	21.120	5	30	Pass
1	06	2437	16.44	16.15	16.21	21.040	5	30	Pass
1	11	2462	16.24	16.62	15.93	21.044	5	30	Pass
2	01	2412	16.43	16.15	17.12	21.357	5	30	Pass
2	02	2417	17.33	17.14	17.52	22.104	5	30	Pass
2	06	2437	18.43	17.54	18.21	22.847	5	30	Pass
2	10	2457	17.28	17.16	17.49	22.083	5	30	Pass
2	11	2462	15.82	16.11	15.93	20.726	5	30	Pass
3	01	2412	15.52	14.23	14.50	19.558	5	30	Pass
3	02	2417	17.58	17.42	17.62	22.312	5	30	Pass
3	06	2437	18.52	18.12	18.11	23.025	5	30	Pass
3	10	2457	16.33	16.26	16.54	21.150	5	30	Pass
3	11	2462	15.64	15.17	14.99	20.047	5	30	Pass
4	03	2422	12.11	11.11	11.49	16.361	5	30	Pass
4	04	2427	12.15	11.52	11.32	16.449	5	30	Pass
4	06	2437	16.32	16.21	15.64	20.838	5	30	Pass
4	08	2447	11.45	11.25	11.03	16.018	5	30	Pass
4	09	2452	10.52	10.62	10.28	15.247	5	30	Pass

9. Power Spectral Density

9.1. Test Equipment

Power Spectral Density / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.04	2017.01.03
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.03.11	2017.03.10
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2016.04.10	2017.04.09
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

9.2. Test Setup



9.3. Limit

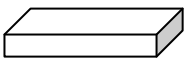
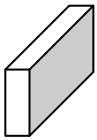
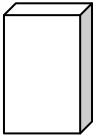
Power Spectral Density Limit
Power Spectral Density $\leq 8\text{dBm}/3\text{kHz}$

9.4. Test Procedure

Power Spectral Density Test Method				
	References Rule		Chapter	Description
☒	ANSI C63.10		11.10	Maximum power spectral density level in the fundamental emission
	☒	ANSI C63.10	11.10.2	Method PKPSD (peak PSD)
	☐	ANSI C63.10	11.10.3	Method AVGPSD-1(Duty cycle≥98%)
	☐	ANSI C63.10	11.10.4	Method AVGPSD-1A(Duty cycle≥98%)
	☐	ANSI C63.10	11.10.5	Method AVGPSD-2(Duty cycle<98%)
	☐	ANSI C63.10	11.10.6	Method AVGPSD-2A(Duty cycle<98%)
	☐	ANSI C63.10	11.10.7	Method AVGPSD-3
	☐	ANSI C63.10	11.10.8	Method AVGPSD-3A

Directional Gain Calculations for In-Band test method				
	Referred Rule		Chapter	Description
☐	KDB 662911		F2)a)	Basic methodology with NANT transmit antennas
	☐	KDB 662911	F2)a) (i)	transmit signals are correlated
	☐	KDB 662911	F2)a) (ii)	transmit signals are uncorrelated
☐	KDB 662911		F2)b)	Sectorized antenna systems.
☐	KDB 662911		F2)c)	Cross-polarized antennas
	☐	ANSI C63.10	F2)c) (i)	Cross-polarized antennas with NANT = 2.
	☐	ANSI C63.10	F2)c) (ii)	Multiple antennas
☐	KDB 662911		F2)e)	Spatial stream
	☐	KDB 662911	F2)e) (i)	Antennas have the same gain
	☐	KDB 662911	F2)e) (ii)	Antenna have the different gain with one spatial stream
	☐	KDB 662911	F2)e) (iii)	Antenna have the different gain with more than one spatial stream
☒	KDB 662911		F2)f)	Cyclic Delay Diversity (CDD)
	☐	KDB 662911	F2)f) (i)	Antennas have the same gain
	☐	KDB 662911	F2)f) (ii)	Antenna have the different gain with one spatial stream
	☒	KDB 662911	F2)f) (ii)	Antenna have the different gain with more than one spatial stream

9.5. EUT test definition

Item	Power Spectral Density Test Method			
Device Category	☒	Fixed position use		
	☐	Mobile position use		
Test mode	Mode 1~4			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐
	☒	Conducted		
	☐	Chain 0		
				
	☐	Chain 0	Chain 1	
				
	☒	Chain 0	Chain 1	Chain 2
				

9.6. Test Result

Product Name	:	450Mbps Wireless N Router	Test Power	:	AC 120V/60Hz
Test Site	:	TR8			

Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)			Total PSD (dBm/3kHz)	Directional Gain (dBi)	Limit (dBm/3kHz)	Result
			Ant 0	Ant 1	Ant 2				
1	01	2412	-4.991	-7.284	-5.028	-0.873	9.77	4.23	Pass
1	06	2437	-6.442	-7.639	-6.013	-1.874	9.77	4.23	Pass
1	11	2462	-6.966	-6.225	-7.469	-2.085	9.77	4.23	Pass
2	01	2412	-9.624	-8.806	-8.838	-4.302	9.77	4.23	Pass
2	06	2437	-7.010	-7.857	-7.823	-2.774	9.77	4.23	Pass
2	11	2462	-10.285	-7.391	-9.302	-4.051	9.77	4.23	Pass
3	01	2412	-11.767	-10.892	-11.799	-6.694	9.77	4.23	Pass
3	06	2437	-8.247	-6.088	-8.100	-2.590	9.77	4.23	Pass
3	11	2462	-9.932	-10.160	-11.260	-5.642	9.77	4.23	Pass
4	03	2422	-16.958	-16.349	-16.957	-11.974	9.77	4.23	Pass
4	06	2437	-12.768	-11.305	-18.067	-8.461	9.77	4.23	Pass
4	09	2452	-17.091	-17.103	-13.162	-10.589	9.77	4.23	Pass

Note : The worst case of PSD as below in next page:

Mode 1 CH01(2412MHz) Ant 0+1+2



10. Antenna Requirement

10.1. Limit

Antenna Requirement Limit

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

10.2. Antenna Connector Construction

The EUT use permanently attached antennas and comply with FCC 15.203.



The End