Test Report

Industry Canada RSS-Gen Issue 4/RSS-210 Issue 8
FCC Part15 Subpart C

Product Name	:	IP-STB
Model No.	:	4210X, 4230X
FCC ID	:	TC2-R1004
IC	:	5959A-R1004

Applicant : Roku Inc.

Address : 12980 Saratoga Ave, Suite D Saratoga, CA 95070

Date of Receipt	:	Jan. 16, 2015
Test Date	:	Jan. 16, 2015~Jan. 27, 2015
Issued Date	:	Feb. 10, 2015
Report No.	:	1510320R-RF-US-P05V01
Report Version	:	V1.0

Testing Laboratory
1596

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.
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Test Report Certification

Issued Date : Feb. 10, 2015
Report No. : 1510320R-RF-US-P05V01

QuieTek

Product Name	:	IP-STB
Applicant	:	Roku Inc.
Address	:	12980 Saratoga Ave, Suite D Saratoga, CA 95070
Manufacturer	:	Ambit Mircosystems (Shanghai) LTD.
Address	:	1925, Nanle Road, Songjiang Export Processing Zone, Shanghai, China 201613
Model No.	:	4210X, 4230X
FCC ID	:	TC2-R1004
IC	:	5959A-R1004
EUT Voltage	:	12V
Brand Name	:	Roku
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C: 2014 ANSI C63.4: 2009; KDB 558074 Industry Canada RSS-Gen Issue 4/RSS-210 Issue 8
Test Result	:	Complied
Performed Location	:	Suzhou EMC Laboratory No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., Suzhou, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Registration Number: 800392; IC Lab Code: 4075B

Documented By	:	Alice Ni
Reviewed By	:	Dream Cao
Approved By	:	Jeff Chen

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**
Germany	**:**	**TUV Rheinland**
Norway	**:**	**Nemko, DNV**
USA	**:**	**FCC**
Japan	**:**	**VCCI**
China	**:**	**CNAS**

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

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 Loufeng Hi-Tech Development Zone., SuZhou, China
TEL : +86-512-6251-5088 / FAX : 86-512-6251-5098 E-Mail : service@quietek.com

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1510320R-RF-US-P05V01	V1.0	Initial Issued Report	Feb. 10, 2015

1. General Information

1.1. EUT Description

Product Name	IP-STB
Brand Name	Roku
Model No.	4210X, 4230X
EUT Voltage	12V
Frequency Range	**For 2.4GHz Band** 802.11b/g/n(20MHz): 2412~2462MHz 802.11n(40MHz): 2422~2452MHz **For 5.0GHz Band** 802.11a/n(20MHz): 5180~5240MHz, 5745~5825MHz 802.11n(40MHz): 5190~5230MHz, 5755~5795MHz
Channel Number	For 2.4GHz Band 802.11b/g/n(20MHz): 11 802.11n(40MHz): 7 For 5.0GHz Band 802.11a/n(20MHz): 9 802.11n(40MHz): 4
Type of Modulation	802.11b: DSSS
	802.11a/g/n: OFDM
Data Rate	802.11a/g: 6/9/12/18/24/36/48/54 Mbps
	802.11b: 1/2/5.5/11 Mbps
	802.11n: up to 300 Mbps
Channel Control	Auto
Antenna Delivery	2*Tx + 2*Rx
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List
Components	
Adapter #1	Brand Name: Roku M/N: FA-1201000SUD Input: 120V~60Hz 0.5A Output: 12V, 1.0A
Adapter #2	Brand Name: Roku M/N: MU12AB120100-A1 Input: 100-240V~50/60Hz 0.3A Output: 12V, 1A

Note : This EUT has two kinds of adapter, we choose adapter 1# for all RF testing.

This report is an updated report based on 129S019R. Comparison of the original sample, the EUT only changed flash memory. Manufacturer has declared that the flash memory is the only difference. The RF characterize keeps identical, and the RSE & Bandedge parts were re-assessed.

We found for spurious emission, the deviation is less than 3dB comparing with the original test data.

The difference between them show as bellow:

Model 4210X & model 4230X use identical HW but have different retail pack out options which will not influence the RF characterize.

For 2.4GHz Band

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

For 5.0GHz Band

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

802.11a/b/g/n Antenna List

Antenna	Manufacturer	Model No.	Peak Gain
Antenna 1	Cortec Technology Inc.	N/A	2dBi for 2.4GHz, 1dBi for 5GHz
Antenna 2	Cortec Technology Inc.	N/A	2dBi for 2.4GHz, 1dBi for 5GHz

Power Parameter Value of the test software

Test Mode	Test Channel	Ant1	Ant2	Ant1+2
802.11b	2412	50	61	×
	2437	52	62	×
	2462	51	61	×
802.11g	2412	60	74	×
	2437	60	78	×
	2462	63	78	×
802.11n(20MHz)	2412	52	76	44
	2437	56	80	55
	2462	52	78	46
802.11n(40MHz)	2422	44	56	36
	2437	44	54	36
	2452	44	56	36

Test Mode	Test Channel	Ant1	Ant2	Ant1+2
802.11a	5745	75	58	×
	5785	75	56	×
	5825	75	58	×
802.11n (20MHz)	5745	75	75	75
	5785	75	75	75
	5825	75	75	75
802.11n (40MHz)	5755	75	75	75
	5795	75	75	75

The test mode of the test software can support.

Test Mode	Ant1	Ant2	Ant1+2
802.11b	√	√	×
	√	√	×
	√	√	×
802.11g	√	√	×
	√	√	×
	√	√	×
802.11n (20MHz)	√	√	√
	√	√	√
	√	√	√
802.11n (40MHz)	√	√	√
	√	√	√
	√	√	√

Test Mode	Ant1	Ant2	Ant1+2
802.11a	√	√	×
	√	√	×
	√	√	×
802.11n (20MHz)	√	√	√
	√	√	√
	√	√	√
802.11n (40MHz)	√	√	√
	√	√	√

1.2. Mode of Operation

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

Test Mode
Mode 1: Transmit by 802.11b
Mode 2: Transmit by 802.11g
Mode 3: Transmit by 802.11a
Mode 4: Transmit by 802.11n (20MHz)
Mode 5: Transmit by 802.11n (40MHz)

Note:

1. Regards to the frequency band operation: the lowest、middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. This device is a composite device in accordance with Part 15 Subpart B regulations. The function for the receiver was measured and made a test report that the report number is 129259R-ITUSP01V02.

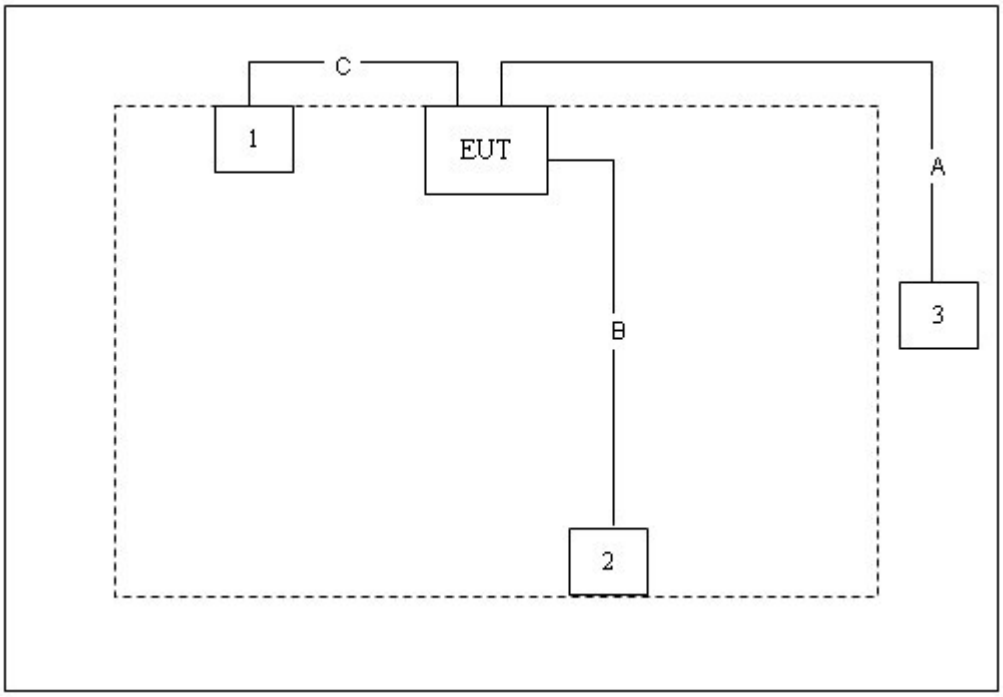
1.3. Tested System Details

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

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	LCD Monitor	DELL	ST2420LB	CN-OXOK27-74261-189-OA4U	Non-Shielded, 1.8m
2	iPod	Apple	A1199	7J71085BVQ5E	Power by PC
3	Laptop PC	Asus	N80V	8BN0AS226971468	N/A

1.4. Configuration of Tested System

Connection Diagram



Signal Cable Type		Signal cable Description
A	LAN Cable	Shielded, >10m
B	USB Cable	Shielded, 0.5m
C	HDMI Cable	Shielded, 0.8m

1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of equipment.
3	Execute some commands on the PC provided by applicant.
4	Setup the test channel and the test mode press ok to start the continue transmit.

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards
☐ Deviations from the test standards as below description:

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.207	No	N/A
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.209	Yes	No
RF Antenna Conducted Spurious	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.247(d)	No	N/A
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2014 15.247(d)	Yes	No
Operation Frequency Range of 20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2014 15.215(c)	No	N/A
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.247(a)(2)	No	N/A
Power Output	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.247(b)(3)	No	N/A
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.247(e)	No	No

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	RSS-Gen Issue 4 November 2014 Section 7.2.2	No	N/A
Radiated Emission	RSS-210 Issue 8 December 2010 Section 2.7 Table 2 and Table 3	Yes	No
RF Antenna Conducted Spurious	RSS-210 Issue 8 December 2010 Section A8.5	No	N/A
Radiated Emission Band Edge	RSS-210 Issue 8 December 2010 Section A8.5	Yes	No
Occupied Bandwidth	RSS-Gen Issue 4 November 2014 Section 4.6.1 and 4.6.2 RSS-210 Issue 8 December 2010 Section A8.2(1)	No	N/A
Power Output	RSS-210 Issue 8 December 2010 Section A8.4(4)	No	N/A
Power Spectral Density	RSS-210 Issue 8 December 2010 Section A8.2(2)	No	N/A

2.2. Test Environment

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

3. Power Output

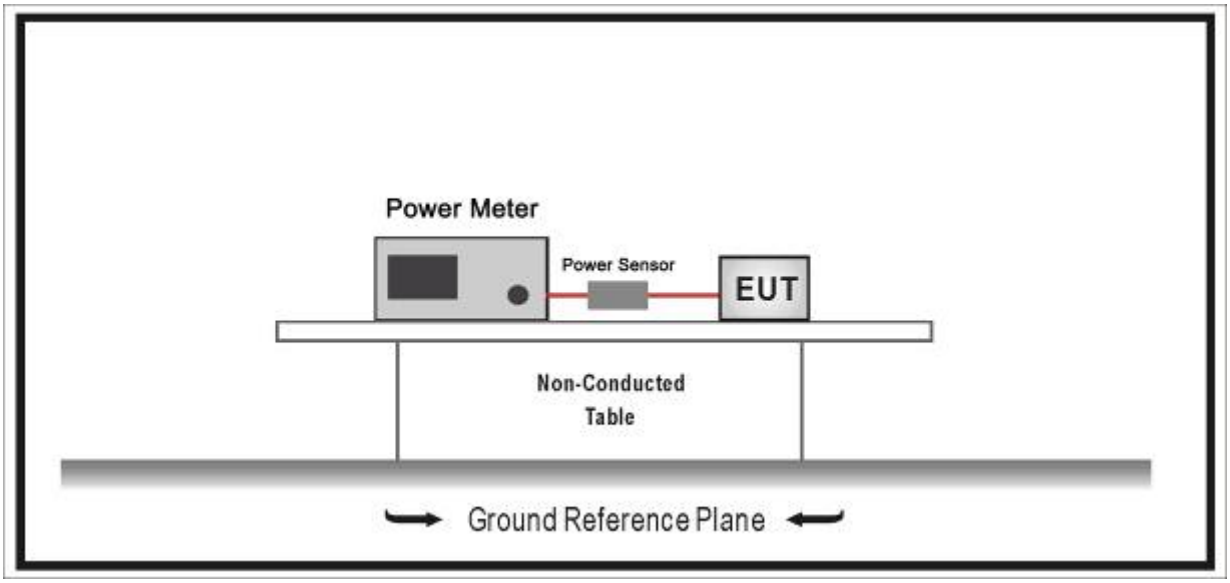
3.1. Test Equipment

Power Output / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2013.01.12
Power Sensor	Anritsu	MA2411B	0846014	2013.01.12
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2013.05.07

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

The maximum peak power shall be less 1 Watt (30dBm).

Note: the conducted output power limit specified above is based on the use the antennas with directional gains that do not exceed 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values above, as appropriate, by the amount in dB that the directional gain of antenna exceeds 6 dBi.

3.4. Test Procedure

The EUT was tested according to ANSI C63.10: 2009 and KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

Use the wideband power meter to test peak power and record the result.

3.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

3.6. Test Result

Power output test was verified over all data rates of each mode shown as below, and then choose the maximum power output (blue marker) for final test of each channel.

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

Power output at various data rates:

Test Mode	Bandwidth	Frequency (MHz)	Channel	Data Rate	Peak Power (dBm)
802.11b(Chain 1)	20	2437	6	1	18.34
				5.5	18.32
				11	18.33
802.11g(Chain 1)	20	2437	6	6	23.66
				24	23.62
				54	23.63
802.11a(Chain 1)	20	5785	157	6	18.52
				24	18.50
				54	18.51
802.11n(Chain 1)	20	2437	6	MCS0	23.01
				MCS4	22.97
				MCS7	22.96
		5785	157	MCS0	17.42
				MCS4	17.41
				MCS7	17.40
802.11n(Chain 1)	40	2437	6	MCS0	22.46
				MCS4	22.43
				MCS7	22.45
		5755	151	MCS0	17.27
				MCS4	17.25
				MCS7	17.26

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit by 802.11b (Chain 1)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
1	2412	17.32	N/A	17.32	30.00	Pass	19.32
6	2437	18.34	N/A	18.34	30.00	Pass	20.34
11	2462	17.45	N/A	17.45	30.00	Pass	19.45

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit by 802.11b (Chain 2)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
1	2412	N/A	18.36	18.36	30.00	Pass	20.36
6	2437	N/A	18.45	18.45	30.00	Pass	20.45
11	2462	N/A	18.47	18.47	30.00	Pass	20.47

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11g (Chain 1)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
1	2412	23.42	N/A	23.42	30.00	Pass	24.42
6	2437	23.66	N/A	23.66	30.00	Pass	24.66
11	2462	24.54	N/A	24.54	30.00	Pass	25.54

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 2: Transmit by 802.11g (Chain 2)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
1	2412	N/A	24.36	24.36	30.00	Pass	26.36
6	2437	N/A	25.67	25.67	30.00	Pass	27.67
11	2462	N/A	25.46	25.46	30.00	Pass	27.46

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 3: Transmit by 802.11a (Chain 1)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
149	5745	18.41	N/A	18.41	30.00	Pass	19.41
157	5785	18.52	N/A	18.52	30.00	Pass	19.52
165	5825	18.33	N/A	18.33	30.00	Pass	19.33

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 3: Transmit by 802.11a (Chain 2)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
149	5745	N/A	19.32	19.32	30.00	Pass	20.32
157	5785	N/A	18.44	18.44	30.00	Pass	19.44
165	5825	N/A	19.76	19.76	30.00	Pass	20.76

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 4: Transmit by 802.11n(20MHz) (Chain 1)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
1	2412	22.63	N/A	22.63	30.00	Pass	24.63
6	2437	23.01	N/A	23.01	30.00	Pass	25.01
11	2462	22.57	N/A	22.57	30.00	Pass	24.57
149	5745	17.53	N/A	17.53	30.00	Pass	18.53
157	5785	17.42	N/A	17.42	30.00	Pass	18.42
165	5825	18.34	N/A	18.34	30.00	Pass	19.34

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 4: Transmit by 802.11n(20MHz) (Chain 2)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
1	2412	N/A	24.32	24.32	30.00	Pass	26.32
6	2437	N/A	25.51	25.51	30.00	Pass	27.51
11	2462	N/A	24.46	24.46	30.00	Pass	26.46
149	5745	N/A	19.43	19.43	30.00	Pass	20.43
157	5785	N/A	19.32	19.32	30.00	Pass	20.32
165	5825	N/A	20.32	20.32	30.00	Pass	21.32

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 4: Transmit by 802.11n(20MHz) (Chain 1+2)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
1	2412	20.32	23.35	25.10	30.00	Pass	27.1
6	2437	23.05	24.41	26.79	30.00	Pass	28.79
11	2462	21.44	23.32	25.49	30.00	Pass	27.49
149	5745	16.22	18.42	20.47	30.00	Pass	21.47
157	5785	17.53	18.33	20.96	30.00	Pass	21.96
165	5825	16.26	19.45	21.15	30.00	Pass	22.15

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 5: Transmit by 802.11n(40MHz) (Chain 1)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
3	2422	22.33	N/A	22.33	30.00	Pass	24.33
6	2437	22.46	N/A	22.46	30.00	Pass	24.46
9	2452	22.53	N/A	22.53	30.00	Pass	24.53
151	5755	17.27	N/A	17.27	30.00	Pass	18.27
159	5795	16.42	N/A	16.42	30.00	Pass	17.42

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 5: Transmit by 802.11n(40MHz) (Chain 2)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
3	2422	N/A	23.23	23.23	30.00	Pass	25.23
6	2437	N/A	22.24	22.24	30.00	Pass	24.24
9	2452	N/A	23.26	23.26	30.00	Pass	25.26
151	5755	N/A	19.25	19.25	30.00	Pass	20.25
159	5795	N/A	19.36	19.36	30.00	Pass	20.36

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 5: Transmit by 802.11n(40MHz) (Chain 1+2)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
3	2422	20.23	21.37	23.85	30.00	Pass	25.85
6	2437	20.43	20.25	23.35	30.00	Pass	25.35
9	2452	20.42	21.43	23.96	30.00	Pass	25.96
151	5755	16.56	19.35	21.19	30.00	Pass	23.19
159	5795	18.26	18.72	21.51	30.00	Pass	23.51

Max.EIRP=Total Power + Antenna Gain

4. Radiated Emission

4.1. Test Equipment

Radiated Emission / AC-2

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
EMI Test Receiver	R&S	ESCI	100573	2014.03.28
Loop Antenna	R&S	HFH2-Z2	833799/003	2014.11.25
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2014.10.10
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2014.03.01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2014.01.08

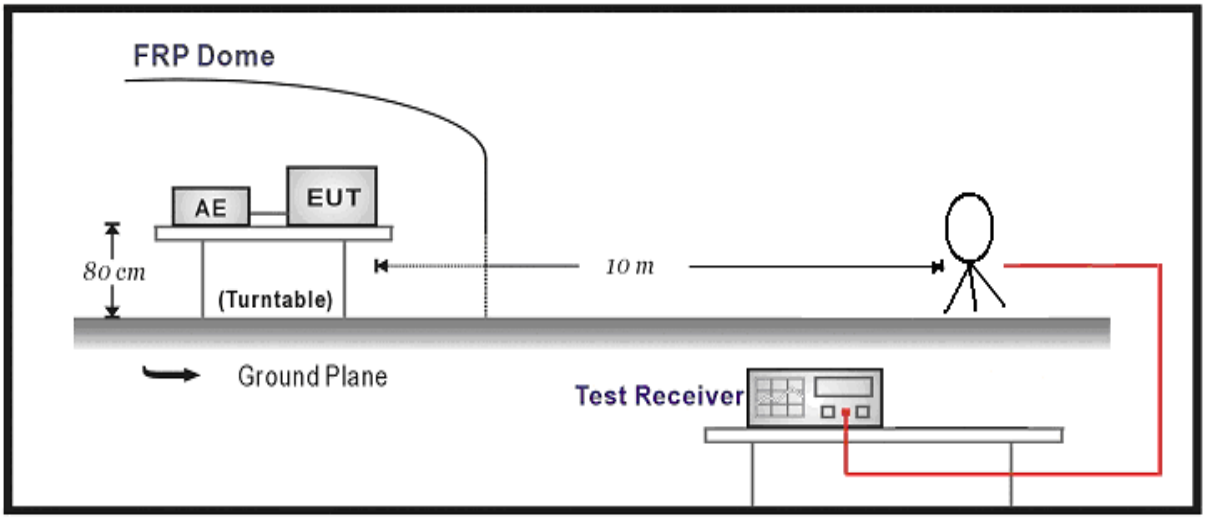
Radiated Emission / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2014.03.28
Preamplifier	Miteq	NSP1800-25	1364185	2014.05.12
Preamplifier	QuieTek	AP-040G	CHM-0906001	2014.05.03
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2014.05.03
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2014.10.15
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2014.01.07
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2014.04.10
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2014.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2014.03.01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC5-TH	2014.06.09

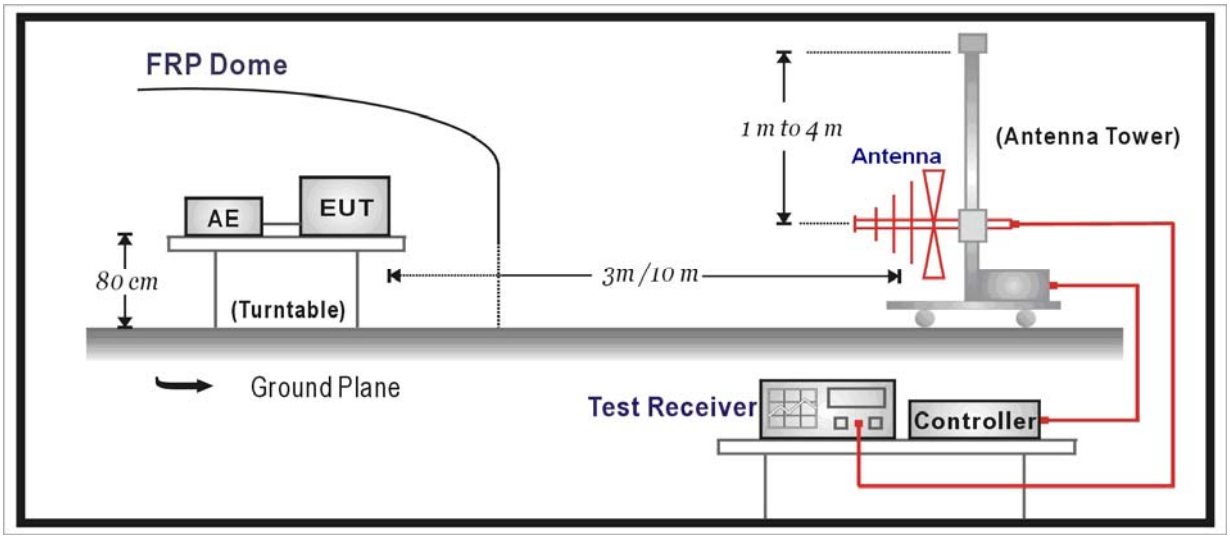
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

4.2. Test Setup

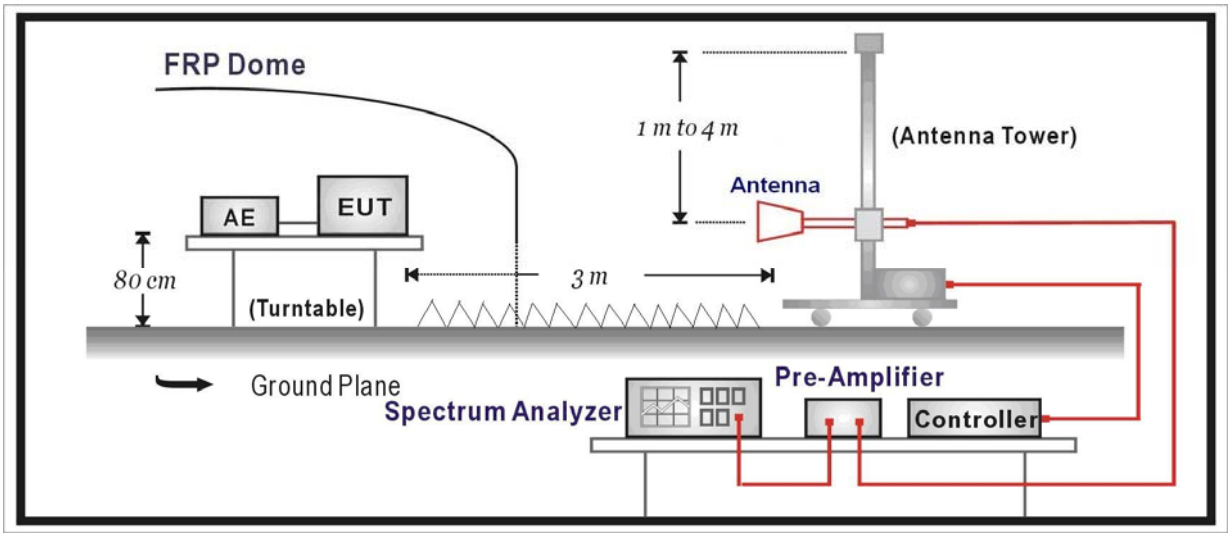
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

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

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

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

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

4.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2009 and tested according to ANSI C63.10: 2009 and KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

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

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This

is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4: 2009 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

The frequency range from 30MHz to 10th harmonic is checked.

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

4.5. Uncertainty

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

below 1G is defined as ± 3.8 dB

4.6. Test Result

All of the test result shown indicates the worst case, and spectrum analyzer parameters setting as shown below:

Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;

Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Measure Level = Reading Level + Cable Loss + Antenna Factor - Preamplifier Gain

802.11b

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Chain 1	1	V	304.7	14.3	14.8	29.1	46	-16.9	QP
		V	500.3	14.2	19.7	33.9	46	-12.1	QP
		V	3200	41.4	-0.6	40.8	54(note3)	-13.2	PK
		V	4823.8	46.8	2.6	49.4	54(note3)	-4.6	PK
		V	7236.2	51.6	8.9	60.5	74	-13.5	PK
		V	7236.1	43.9	8.9	52.8	54	-1.2	AV
		H	24000	59.1	-8.9	50.2	54(note3)	-3.8	PK
	6	V	316.4	14.2	15.2	29.4	46	-16.6	QP
		V	573.2	13.1	21.2	34.3	46	-11.7	QP
		V	3200	42.9	-0.6	42.3	54(note3)	-11.7	PK
		V	4877.6	48.8	2.8	51.6	54(note3)	-2.4	PK
		V	7316.1	52.7	8.8	61.5	74	-12.5	PK
		V	7311.1	42.9	8.8	51.7	54	-2.3	AV
		H	24000	59.1	-8.9	50.2	54(note3)	-3.8	PK
	11	V	305.5	13.7	14.9	28.6	46	-17.4	QP
		H	580.2	12.4	21.2	33.6	46	-12.4	QP
		V	3200	43.4	-0.6	42.8	54(note3)	-11.2	PK
		V	4923.8	44.7	3	47.7	54(note3)	-6.3	PK
		V	7383.3	48.9	8.9	57.8	74	-16.2	PK
		V	7388.2	43.8	8.9	52.7	54	-1.3	AV
		H	24000	59.1	-8.9	50.2	54(note3)	-3.8	PK
Chain 2	1	V	322.1	12.6	15.4	28	46	-18	QP
		V	549.1	13.9	21.2	35.1	46	-10.9	QP
		V	3200	42.3	-0.6	41.7	54(note3)	-12.3	PK
		V	4823.9	48.8	2.6	51.4	54(note3)	-2.6	PK
		V	7236.1	50.3	8.9	59.2	74	-14.8	PK
		V	7236	43.9	8.9	52.8	54	-1.2	AV

		H	24000	58.6	-8.9	49.7	54(note3)	-4.3	PK
	6	H	317.4	13.5	15.2	28.7	46	-17.3	QP
		V	547.4	13.7	21.2	34.9	46	-11.1	QP
		V	3200	43.1	-0.6	42.5	54(note3)	-11.5	PK
		V	4876.2	48.3	2.8	51.1	54(note3)	-2.9	PK
		V	7311.1	44.1	8.8	52.9	54(note3)	-1.1	PK
		H	24000	58.7	-8.9	49.8	54(note3)	-4.2	PK
	11	V	310.3	12.3	15	27.3	46	-18.7	QP
		H	543.2	13.4	21	34.4	46	-11.6	QP
		V	3200.2	42.2	-0.6	41.6	54(note3)	-12.4	PK
		V	4924.2	50.4	3	53.4	54	-0.6	AV
		V	4927.3	52.9	3	55.9	74	-18.1	PK
		V	7386.2	49.3	8.9	58.2	74	-15.8	PK
		V	7386.1	44.3	8.9	53.2	54	-0.8	AV
		H	24000	58.2	-8.9	49.3	54(note3)	-4.7	PK

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

2. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

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

802.11g

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Chain 1	1	H	296.7	13.6	14.7	28.3	46	-17.7	QP
		H	567.4	13.1	21.3	34.4	46	-11.6	QP
		V	3200	49.8	-13.4	36.4	54(note3)	-17.6	PK
		V	4824.1	43.4	2.6	46	54(note3)	-8	PK
		V	7236.1	36.2	8.9	45.1	54	-8.9	AV
		V	7236.1	49.3	8.9	58.2	74	-15.8	PK
		H	24000	58.9	-8.9	50	54(note3)	-4	PK
	6	V	303.1	12.8	14.8	27.6	46	-18.4	QP
		V	599.2	13.6	21.2	34.8	46	-11.2	QP
		V	3200.1	43.1	-0.6	42.5	54(note3)	-11.5	PK
		V	4876.1	44.9	2.8	47.7	54(note3)	-6.3	PK

		V	7297.5	44.3	8.8	53.1	54(note3)	-0.9	PK
		H	24000	58.9	-8.9	50	54(note3)	-4	PK
	11	H	587.3	13.6	21.2	34.8	46	-11.2	QP
		V	286.4	12.6	14.7	27.3	46	-18.7	QP
		V	3200.1	42.1	-0.6	41.5	54(note3)	-12.5	PK
		V	4924.1	45.4	3	48.4	54(note3)	-5.6	PK
		V	7386.2	37.1	8.9	46	54	-8	AV
		V	7392.7	51.3	8.9	60.2	74	-13.8	PK
		H	24000	59.7	-8.9	50.8	54(note3)	-3.2	PK
Chain 2	1	H	296.1	13.2	14.7	27.9	46	-18.1	QP
		H	599.6	13.3	21.2	34.5	46	-11.5	QP
		V	3200	42.7	-0.6	42.1	54(note3)	-11.9	PK
		V	4824.6	44.6	2.6	47.2	54(note3)	-6.8	PK
		V	7236.5	33.1	8.9	42	54	-12	AV
		V	7239.7	45.2	8.9	54.1	74	-19.9	PK
		H	24000	59.5	-8.9	50.6	54(note3)	-3.4	PK
	6	H	290.2	13.7	14.9	28.6	46	-17.4	QP
		H	628.3	14.5	21.2	35.7	46	-10.3	QP
		V	3200	42.6	-0.6	42	54(note3)	-12	PK
		V	4867.7	44.7	2.7	47.4	54(note3)	-6.6	PK
		V	7311.5	44.3	8.8	53.1	54(note3)	-0.9	PK
		H	24000.6	59.3	-8.9	50.4	54(note3)	-3.6	PK
	11	H	291.2	12.1	14.8	26.9	46	-19.1	QP
		H	500.7	16.2	19.7	35.9	46	-10.1	QP
		V	3200.2	42.7	-0.6	42.1	54(note3)	-11.9	PK
		V	4924.3	53.6	3	56.6	74	-17.4	PK
		V	4924.5	49.7	3	52.7	54	-1.3	AV
		V	7383.4	47.2	8.9	56.1	74	2.1	PK
		V	7386.5	34.3	8.9	43.2	54	-10.8	AV
		H	24000	59.8	-8.9	50.9	54(note3)	-3.1	PK

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

2. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

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

802.11a

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Chain 1	149	H	300.2	5.6	20.5	26.1	46	-19.9	QP
		H	901.3	1.7	29.2	30.9	46	-15.1	QP
		V	13000.2	34.2	9.8	44	54(note3)	-10	PK
		V	11489.1	49.6	8.5	58.1	74	-15.9	PK
		V	11489.2	40.3	8.5	48.8	54	-5.2	AV
		V	16000.3	40.4	7.6	48	54(note3)	-6	PK
		H	24000	59.2	-8.9	50.3	54(note3)	-3.7	PK
	157	H	300.1	4.7	20.5	25.2	46	-20.8	QP
		H	900.3	1.3	29.2	30.5	46	-15.5	QP
		V	13000.5	38.4	9.8	48.2	54(note3)	-5.8	PK
		V	11570.2	42.1	8.6	50.7	54	-3.3	AV
		V	11574.2	52.3	8.5	60.8	74	-13.2	PK
		V	16000.1	40.2	7.6	47.8	54(note3)	-6.2	PK
		H	24000.2	59.7	-8.9	50.8	54(note3)	-3.2	PK
	165	H	301.3	5.6	21.2	26.8	46	-19.2	QP
		H	900.1	1.7	29.5	31.2	46	-14.8	QP
		V	13000.3	34.2	8.7	42.9	54(note3)	-11.1	PK
		V	11650.4	41.3	8.9	50.2	54	-3.8	AV
		V	11650.1	53.1	9.2	62.3	74	-11.7	PK
		V	16000.3	40.7	7.5	48.2	54(note3)	-5.8	PK
		H	24000	59.9	-8.9	51	54(note3)	-3	PK
Chain 2	149	H	301.6	5.3	20.5	25.8	46	-20.2	QP
		H	900.4	2.2	29.2	31.4	46	-14.6	QP
		H	13000.2	34.4	9.8	44.2	54(note3)	-9.8	PK
		V	11489.3	54.3	8.5	62.8	74	-11.2	PK
		V	11489.1	43.1	8.5	51.6	54	-2.4	AV
		V	16000.4	41.2	7.6	48.8	54(note3)	-5.2	PK
		H	24000.1	59.4	-8.9	50.5	54(note3)	-3.5	PK
	157	H	301.3	4.2	20.5	24.7	46	-21.3	QP
		H	900.1	2.4	29.2	31.6	46	-14.4	QP
		V	13000.4	39.3	9.8	49.1	54(note3)	-4.9	PK
		V	11565.5	54.3	8.6	62.9	74	-11.1	PK
		V	11570.1	43.1	8.6	51.7	54	-2.3	AV

		V	16000.3	40.8	7.6	48.4	54(note3)	-5.6	PK
		H	24000	58.7	-8.9	49.8	54(note3)	-4.2	PK
	165	H	300.1	5.6	20.5	26.1	46	-19.9	QP
		H	900.3	2.2	29.2	31.4	46	-14.6	QP
		V	13000.5	35.2	9.8	45	54(note3)	-9	PK
		V	11650.3	42.3	8.7	51	74	-23	AV
		V	11659.4	55.1	8.7	63.8	54	9.8	PK
		V	16000.2	41.3	7.6	48.9	54(note3)	-5.1	PK
		H	24000	59.4	-8.9	50.5	54(note3)	-3.5	PK

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

2. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

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

802.11n(20MHz)

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Chain 1	1	H	597.1	14.4	21.2	35.6	46	-10.4	QP
		H	311.6	13.2	15.1	28.3	46	-17.7	QP
		V	3200.1	43.7	-0.6	43.1	54(note3)	-10.9	PK
		V	4824.7	42.3	2.6	44.9	54(note3)	-9.1	PK
		V	7236.3	33.2	8.9	42.1	54	-11.9	AV
		V	7239.2	45.3	8.9	54.2	74	-19.8	PK
		H	24000	59.8	-8.9	50.9	54(note3)	-3.1	PK
	6	H	561.4	13.1	21.2	34.3	46	-11.7	QP
		H	343.3	13.2	16	29.2	46	-16.8	QP
		V	3200.2	43.3	-0.6	42.7	54(note3)	-11.3	PK
		V	4876.2	45.2	2.8	48	54(note3)	-6	PK
		V	7311.5	54.1	8.8	62.9	74	-11.1	PK
		V	7311.2	41.7	8.8	50.5	54	-3.5	AV
		H	24000.3	59.2	-8.9	50.3	54(note3)	-3.7	PK
	11	H	301.4	13.3	14.7	28	46	-18	QP
		H	553.5	12.1	21.2	33.3	46	-12.7	QP
		V	3200.7	43.2	-0.6	42.6	54(note3)	-11.4	PK

		V	4924.3	41.7	3	44.7	54(note3)	-9.3	PK
		V	7375.1	50.2	9	59.2	74	-14.8	PK
		V	7378.2	33.3	9	42.3	54	-11.7	AV
		H	24000.3	59.4	-8.9	50.5	54(note3)	-3.5	PK
	149	H	313.2	12.5	15.1	27.6	46	-18.4	QP
		H	597.1	14.6	21.2	35.8	46	-10.2	QP
		H	13000.3	35.2	9.8	45	54(note3)	-29	PK
		V	11489.4	51.1	8.5	59.6	74	-14.4	PK
		V	11490.5	39.4	8.5	47.9	54	-6.1	AV
		V	16000.3	40.3	7.6	47.9	54(note3)	1.9	PK
		H	24000	59.2	-8.9	50.3	54(note3)	-3.7	PK
	157	H	300.2	4.4	20.5	24.9	46	-21.1	QP
		H	900.3	2.5	29.2	31.7	46	-14.3	QP
		V	13000.4	37.3	9.8	47.1	54(note3)	-6.9	PK
		V	11570.2	37.5	8.6	46.1	54	-7.9	AV
		V	11574.1	49.3	8.5	57.8	74	-16.2	PK
		V	16000.4	40.6	7.6	48.2	54(note3)	-5.8	PK
		H	24000.3	59.5	-8.9	50.6	54(note3)	-3.4	PK
	165	H	300.7	4.3	20.5	24.8	46	-21.2	QP
		H	900.3	2.1	29.2	31.3	46	-14.7	QP
		H	13000.2	33.4	9.8	43.2	54(note3)	-10.8	PK
		V	11650.1	39.3	8.7	48	54	-6	AV
		V	11650.4	47.5	8.7	56.2	74	-17.8	PK
		V	16000.2	40.4	7.6	48	54(note3)	-6	PK
		H	24000	59.4	-8.9	50.5	54(note3)	-3.5	PK
Chain 2	1	V	313.2	13.3	15.1	28.4	46	-17.6	QP
		V	597.7	14.7	21.2	35.9	46	-10.1	QP
		V	3200.3	41.6	-0.6	41	54(note3)	-13	PK
		V	4824.2	43.5	2.6	46.1	54(note3)	-7.9	PK
		V	7236.6	42.6	8.9	51.5	54(note3)	-2.5	PK
		H	24000	59.7	-8.9	50.8	54(note3)	-3.2	PK
	6	H	306.5	13.5	14.9	28.4	46	-17.6	QP
		H	561.1	13.1	21.2	34.3	46	-11.7	QP
		V	3200.2	42.3	-0.6	41.7	54(note3)	-12.3	PK
		V	4867.2	47.2	2.7	49.9	54(note3)	-4.1	PK
		V	7311.3	50.2	8.8	59	74	-15	PK
		V	7311.2	37.7	8.8	46.5	54	-7.5	AV

		H	24000	59.6	-8.9	50.7	54(note3)	-3.3	PK
	11	H	321.1	14.2	15.3	29.5	46	-16.5	QP
		H	551.2	13.4	21.2	34.6	46	-11.4	QP
		V	3200.1	42.3	-0.6	41.7	54(note3)	-12.3	PK
		V	4927.1	47.7	3	50.7	74	-23.3	PK
		V	7383.3	32.3	8.9	41.2	54	-12.8	AV
		V	7383.2	45.4	8.9	54.3	74	-19.7	PK
		H	24000	59.2	-8.9	50.3	54(note3)	-3.7	PK
	149	H	256.4	6.7	19.7	26.4	46	-19.6	QP
		H	299.1	8.2	20.5	28.7	46	-17.3	QP
		H	13000.3	34.4	9.8	44.2	54(note3)	-9.8	PK
		V	11489.2	47.3	8.5	55.8	74	-18.2	PK
		V	11560.7	39.2	8.6	47.8	54	-6.2	AV
		V	16000.3	40.4	7.6	48	54(note3)	-6	PK
		H	24000	59.2	-8.9	50.3	54(note3)	-3.7	PK
	157	H	207.2	6.4	15.9	22.3	43.5	-21.2	QP
		H	299.1	8.8	20.5	29.3	46	-16.7	QP
		H	13000.2	39.4	9.8	49.2	54(note3)	-4.8	PK
		V	11565.7	52.2	8.6	60.8	74	-13.2	PK
		V	11570.2	40.3	8.6	48.9	54	-5.1	AV
		V	16000.4	40.2	7.6	47.8	54(note3)	-6.2	PK
		H	24000	59.7	-8.9	50.8	54(note3)	-3.2	PK
	165	H	303.2	11.2	20.6	31.8	46	-14.2	QP
		H	565.4	5.4	26.6	32	46	-14	QP
		V	13000.1	34.3	9.8	44.1	54(note3)	-9.9	PK
		V	11650.1	38.5	8.7	47.2	54	-6.8	AV
		V	11650.3	46.6	8.7	55.3	74	-18.7	PK
		V	16000.7	40.5	7.6	48.1	54(note3)	-5.9	PK
		H	24000	59.4	-8.9	50.5	54(note3)	-3.5	PK
Chain 1+2	1	H	539.5	14.8	20.9	35.7	46	-10.3	QP
		H	297.6	13.1	14.7	27.8	46	-18.2	QP
		V	3200.2	42.6	-0.6	42	54(note3)	-12	PK
		V	4824.2	42.4	2.6	45	54(note3)	-9	PK
		V	7236.4	44.5	8.9	53.4	54	-0.6	AV
		V	7239.7	47.6	8.9	56.5	74	-17.5	PK
		H	24000	59.4	-8.9	50.5	54(note3)	-3.5	PK
	6	H	301.3	13.1	14.7	27.8	46	-18.2	QP

		H	539.4	14.2	20.9	35.1	46	-10.9	QP
		V	3200.1	52.1	-13.4	38.7	54(note3)	-15.3	PK
		V	4867.2	46.8	2.7	49.5	54(note3)	-4.5	PK
		V	7311	55.6	8.8	64.4	74	-9.6	PK
		V	7307.7	43.4	8.8	52.2	54	-1.8	AV
		H	24000	59.3	-8.9	50.4	54(note3)	-3.6	PK
	11	H	280.1	14.1	14.5	28.6	46	-17.4	QP
		H	500.3	17.6	19.7	37.3	46	-8.7	QP
		V	3200.1	42.7	-0.6	42.1	54(note3)	-11.9	PK
		V	4918.7	44.4	3	47.4	54(note3)	-6.6	PK
		V	7391.3	33.3	8.9	42.2	54	-11.8	AV
		V	7400.1	49.7	8.9	58.6	74	-15.4	PK
		H	24000	59.6	-8.9	50.7	54(note3)	-3.3	PK
	149	H	301.7	11.1	20.5	31.6	46	-22.4	QP
		H	565.2	5.2	26.6	31.8	46	-22.2	QP
		H	13000.1	35.3	9.8	45.1	54(note3)	-8.9	PK
		V	11489.3	53.7	8.5	62.2	74	-11.8	PK
		V	11490.4	39.4	8.5	47.9	54	-6.1	AV
		V	16000.2	40.5	7.6	48.1	54(note3)	-5.9	PK
		H	24000	59.6	-8.9	50.7	54(note3)	-3.3	PK
	157	H	201.4	7.3	16.1	23.4	43.5	-30.6	QP
		H	299.6	8.4	20.5	28.9	46	-25.1	QP
		V	13000	38.1	9.8	47.9	54(note3)	-6.1	PK
		V	11570	40.2	8.6	48.8	54	-5.2	AV
		V	11574	51.6	8.5	60.1	74	6.1	PK
		V	16000	42.7	7.6	50.3	54(note3)	-3.7	PK
		H	24000	59.2	-8.9	50.3	54(note3)	-3.7	PK
	165	H	544.1	5.1	26.5	31.6	46	31.6	QP
		H	900.2	2.3	29.2	31.5	46	-22.5	QP
		V	13000.4	34.4	9.8	44.2	54(note3)	-9.8	PK
		V	11570.1	41.5	8.6	50.1	54	-3.9	AV
		V	11659.2	50.6	8.7	59.3	74	5.3	PK
		V	16000.3	40.2	7.6	47.8	54(note3)	-6.2	PK
		H	24000	59.2	-8.9	50.3	54(note3)	-3.7	PK

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

2. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

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

802.11n(40MHz)

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Chain 1	3	H	341.1	14.2	16	30.2	46	-15.8	QP
		H	564.3	14.4	21.2	35.6	46	-10.4	QP
		V	3200.2	42.5	-0.6	41.9	54(note3)	-12.1	PK
		V	4844.4	41.6	2.6	44.2	54(note3)	-9.8	PK
		V	7290.3	44.7	8.8	53.5	54(note3)	-0.5	PK
		H	24000.1	59.5	-8.9	50.6	54(note3)	-3.4	PK
	6	H	291.4	12.3	14.8	27.1	46	-18.9	QP
		H	553.6	13.2	21.2	34.4	46	-11.6	QP
		V	3200.7	42.4	-0.6	41.8	54(note3)	-12.2	PK
		V	4874.2	41.1	2.8	43.9	54(note3)	-10.1	PK
		V	7349.3	32.3	9	41.3	54	-12.7	AV
		V	7358.4	46.2	9	55.2	74	-18.8	PK
		H	24000	59.7	-8.9	50.8	54(note3)	-3.2	PK
	9	H	586.3	14.5	21.2	35.7	46	-10.3	QP
		H	294..2	12.2	14.8	27	46	-19	QP
		V	3200.4	43.4	-0.6	42.8	54(note3)	-11.2	PK
		V	4904.6	41.1	2.9	44	54(note3)	-10	PK
		V	7349.3	32.3	9	41.3	54	-12.7	AV
		V	7349.5	45.4	9	54.4	74	-19.6	PK
		H	24000	59.3	-8.9	50.4	54(note3)	-3.6	PK
	151	H	303.3	12.1	20.6	32.7	46	-21.3	QP
		H	565.2	5.5	26.6	32.1	46	-21.9	QP
		H	13000.2	35.2	9.8	45	54(note3)	-9	PK
		V	11510.1	39.7	8.5	48.2	54	-5.8	AV
		V	11523.3	49.9	8.5	58.4	74	-15.6	PK
		V	16000.4	40.3	7.6	47.9	54(note3)	-6.1	PK
		H	24000	59.1	-8.9	50.2	54(note3)	50.2	PK
	159	H	298.7	12.7	20.4	33.1	46	-12.9	QP
		H	606.6	6.1	27	33.1	46	-12.9	QP
		V	13000.3	34.5	9.8	44.3	54(note3)	-9.7	PK

		V	11574.2	48.3	8.5	56.8	74	2.8	PK
		V	11590.1	39.4	8.5	47.9	54	-6.1	AV
		V	16000.1	40.1	7.5	47.6	54(note3)	-6.4	PK
		H	24000	59.1	-8.7	50.4	54(note3)	-3.6	PK
Chain 2	3	H	301.2	12.3	20.1	32.4	46	-13.6	QP
		H	565.7	5.7	26.4	32.1	46	-13.9	QP
		V	3200.3	42.3	-0.7	41.6	54(note3)	-12.4	PK
		V	4844.7	42.6	2.8	45.4	54(note3)	-8.6	PK
		V	7266.1	43.7	8.1	51.8	54(note3)	-2.2	PK
		H	24000	59.1	-8.2	50.9	54(note3)	-3.1	PK
	6	H	309.2	12.3	15.6	27.9	46	-18.1	QP
		H	608.7	14.7	21.4	36.1	46	-9.9	QP
		V	3200.3	43.7	-0.7	43	54(note3)	-11	PK
		V	4874.2	42.1	2.6	44.7	54(note3)	-9.3	PK
		V	7311.1	42.3	8.1	50.4	54(note3)	-3.6	PK
		H	24000	59.1	-8.8	50.3	54(note3)	-3.7	PK
	9	H	500.2	17.3	19.5	36.8	46	-9.2	QP
		H	266.6	13.7	14.3	28	46	-18	QP
		V	3200.7	42.3	-0.6	41.7	54(note3)	-12.3	PK
		V	4904.2	43.8	2.3	46.1	54(note3)	-7.9	PK
		V	7356.1	43.8	9.2	53	54(note3)	-1	PK
		H	24000	59.1	-8.7	50.4	54(note3)	-3.6	PK
	151	V	599.9	7.3	13.2	20.5	46	-25.5	QP
		V	697.3	4.1	14.1	18.2	46	-27.8	QP
		V	13000.2	35.6	9.7	45.3	54(note3)	-8.7	PK
		v	11510.2	48.2	8.2	56.4	74	-17.6	PK
		v	11510.2	39.5	8.1	47.6	54	-6.4	AV
		H	24000	59.1	-8.3	50.8	54(note3)	-3.2	PK
	159	H	553.7	7.5	11.2	18.7	46	-27.3	QP
		H	697.2	5.7	14.1	19.8	46	-26.2	QP
		V	13000.1	35.5	9.7	45.2	54(note3)	-8.8	PK
		V	11582.4	48.7	8.3	57	74	-17	PK
		V	11590.1	38.3	8.4	46.7	54	-7.3	AV
		V	16000.5	41.3	7.4	48.7	54(note3)	-5.3	PK
		H	24000	59.1	-8.2	50.9	54(note3)	-3.1	PK
		H	299.3	8.3	20.1	28.4	46	-17.6	QP
		H	548.5	6.4	26.7	33.1	46	-12.9	QP

Chain 1+2		V	3200.2	43.4	-0.3	43.1	54(note·3)	-10.9	PK
		V	4844.7	42.7	2.2	44.9	54(note·3)	-9.1	PK
		V	7264.1	40.5	8.8	49.3	54	-4.7	AV
		V	7273.3	51.4	8.8	60.2	74	-13.8	PK
		H	24000.2	59.6	-8.9	50.7	54(note3)	-3.3	PK
	6	H	280.4	14.7	14.5	29.2	46	-16.8	QP
		H	500.5	17.5	19.7	37.2	46	-8.8	QP
		V	3200.2	42.3	-0.6	41.7	54(note3)	-12.3	PK
		V	4876.4	46.2	2.8	49	54(note3)	-5	PK
		V	7290.3	50.7	8.8	59.5	74	-14.5	PK
		V	7290.1	38.3	8.8	47.1	54	-6.9	AV
		H	24000.4	59.2	-8.9	50.3	54(note3)	-3.7	PK
	9	H	324.1	13.3	15.5	28.8	46	-17.2	QP
		H	553.2	13.7	21.2	34.9	46	-11.1	QP
		V	3200.1	42.2	-0.6	41.6	54(note3)	-12.4	PK
		V	4904.5	43.6	2.9	46.5	54(note3)	-7.5	PK
		V	7358.6	47.4	9	56.4	74	-17.6	PK
		V	7358.4	35.6	9	44.6	54	-9.4	AV
		H	24000	59.7	-8.9	50.8	54(note3)	-3.2	PK
	151	H	299.2	5.8	20.5	26.3	46	-27.7	QP
		H	548.1	5.6	26.6	32.2	46	-21.8	QP
		V	13000.4	35.3	9.8	45.1	54(note3)	-8.9	PK
		V	11510.5	42.4	8.5	50.9	54	-3.1	AV
		V	11514.6	53.5	8.5	62	74	-12	PK
		V	16000.1	41.1	7.6	48.7	54(note3)	-5.3	PK
		H	24000	59.3	-8.9	50.4	54(note3)	-3.6	PK
	159	H	298.2	7.2	20.4	27.6	46	-18.4	QP
		H	571.3	6.8	26.6	33.4	46	-12.6	QP
		H	13000.7	34.7	9.8	44.5	54(note3)	-9.5	PK
		V	11590.3	39.1	8.5	47.6	54	-6.4	AV
		V	11591.1	51.3	8.5	59.8	74	-14.2	PK
		V	16000.5	40.2	7.6	47.8	54(note3)	-6.2	PK
		H	24000	59.7	-8.9	50.8	54(note3)	-3.2	PK

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

2. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

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

5. Radiated Emission Band Edge

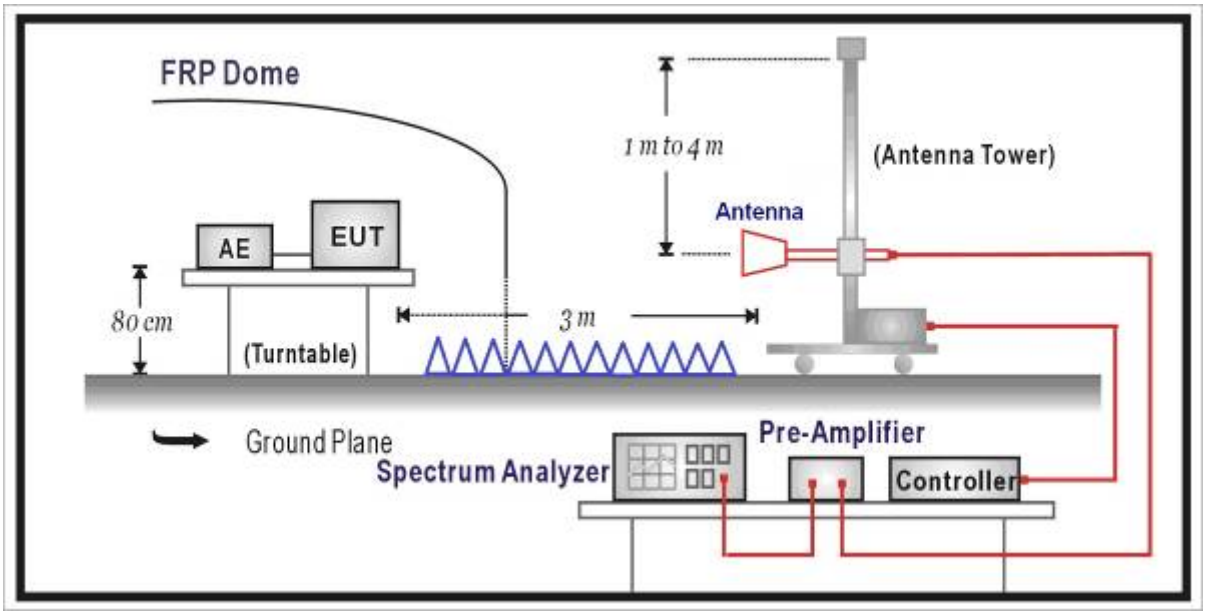
5.1. Test Equipment

☒Radiated Emission Band Edge / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2014.03.28
EMI Test Receiver	R&S	ESCI	100573	2014.05.12
Preamplifier	Miteq	NSP1800-25	1364185	2014.05.03
Preamplifier	QuieTek	AP-040G	CHM-0906001	2014.05.03
Bilog Type Antenna	Schaffner	CBL6112B	2932	2014.10.15
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2014.06.08
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2014.03.01
Temperature/Humidity Meter	zhicheng	ZC1-2	AC5-TH	2014.01.08

Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

5.2. Test Setup



5.3. Limit

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

5.4. Test Procedure

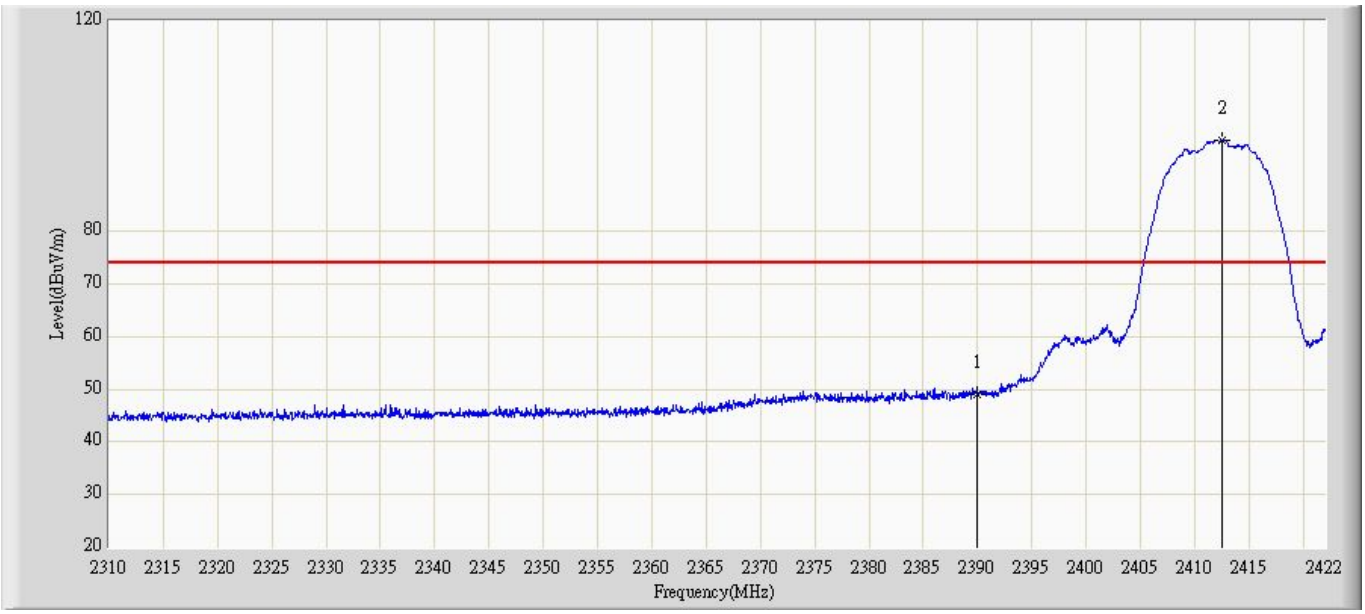
The EUT was setup according to ANSI C63.4: 2009 and tested according to ANSI C63.10: 2009 and KDB 558074 for compliance to FCC 47CFR 15.247 requirements.
The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4: 2009 on radiated measurement.

5.5. Uncertainty

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

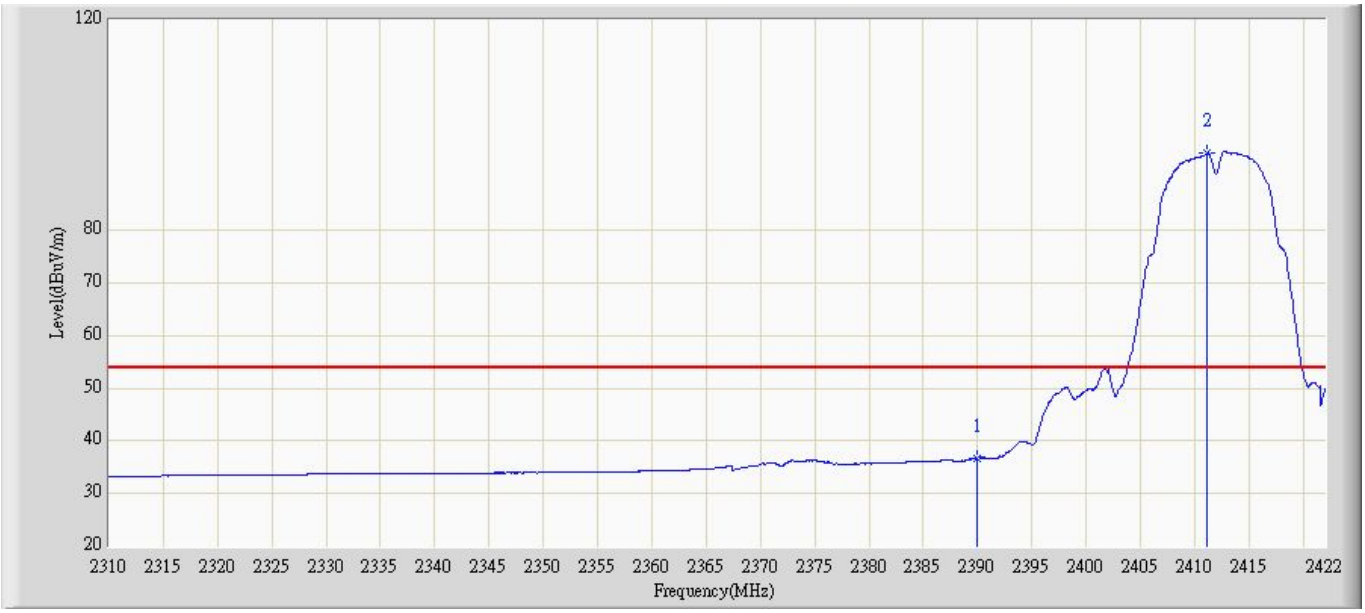
5.6. Test Result

Site: AC5	Time: 2014/12/18 - 16:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2412MHz by 802.11b chain 1	



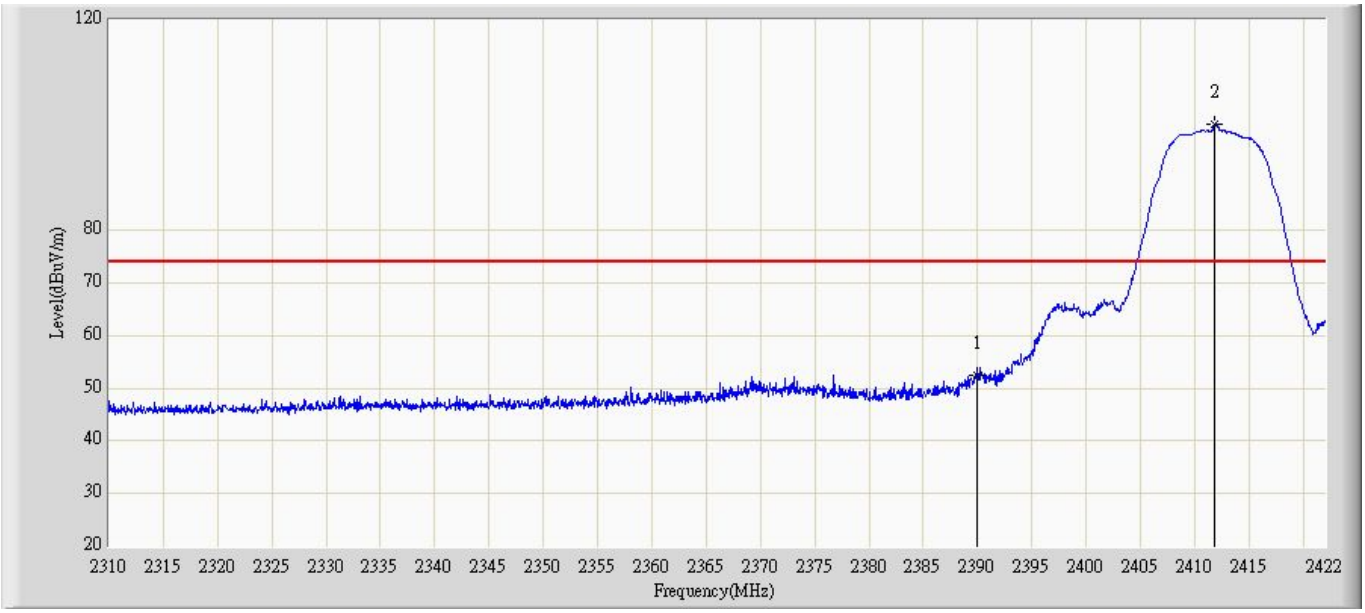
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	47.977	17.627	-26.023	74	30.35	PK
2	*	2412.458	97.735	67.332	N/A	N/A	30.403	PK

Site: AC5	Time: 2014/12/18 - 16:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2412MHz by 802.11b chain 1	



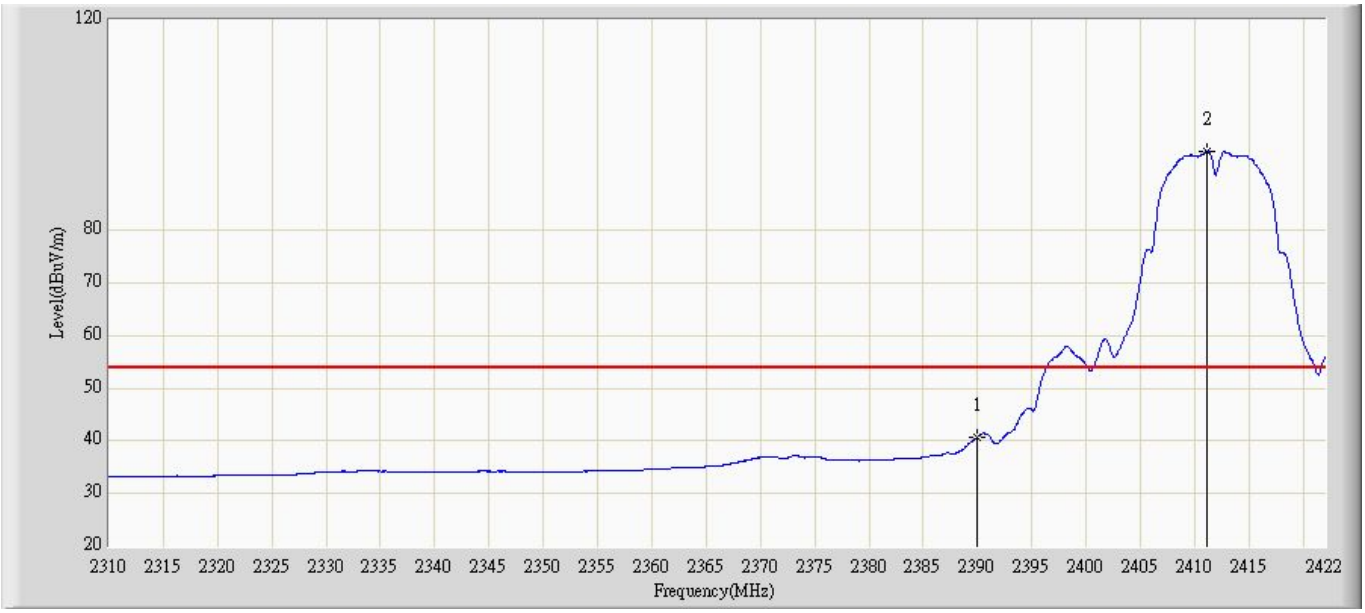
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	35.008	4.658	-18.992	54	30.35	AV
2	*	2411.212	93.657	63.257	N/A	N/A	30.4	AV

Site: AC5	Time: 2014/12/18 - 16:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2412MHz by 802.11b chain 1	



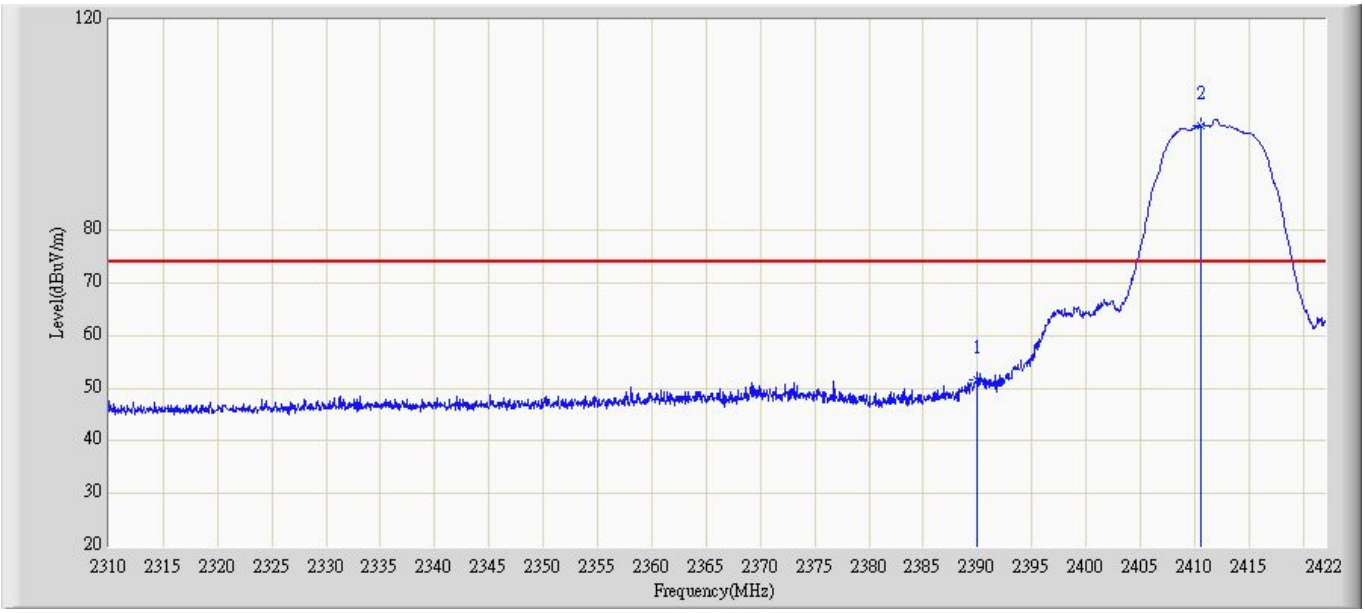
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	53.335	22.985	-20.665	74	30.35	PK
2	*	2413.152	102.962	72.556	N/A	N/A	30.406	PK

Site: AC5	Time: 2014/12/18 - 16:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2412MHz by 802.11b chain 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	40.066	9.326	-13.934	54	30.74	AV
2	*	2412.532	97.428	67.023	N/A	N/A	30.405	AV

Site: AC5	Time: 2014/12/18 - 16:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2412MHz by 802.11b chain 2	

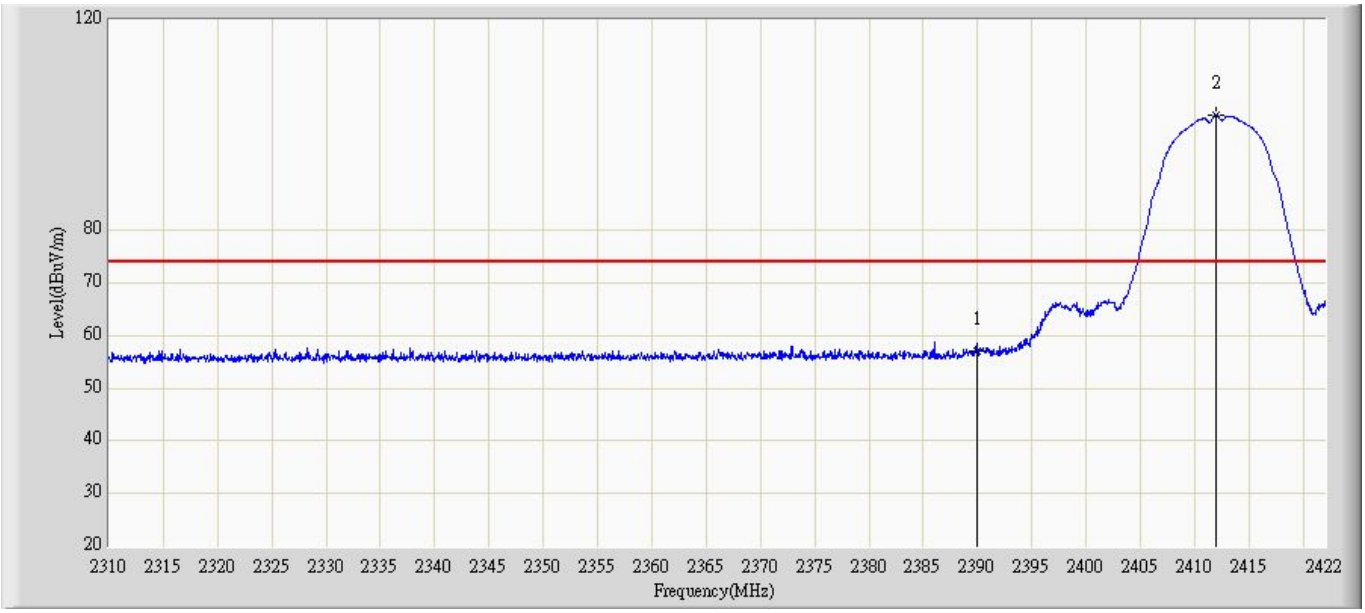


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.263	20.523	-22.737	74.000	30.740	PK
2	*	2411.327	99.057	68.658	N/A	N/A	30.399	PK

Site: AC5	Time: 2014/12/18 - 16:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2412MHz by 802.11b chain 2	

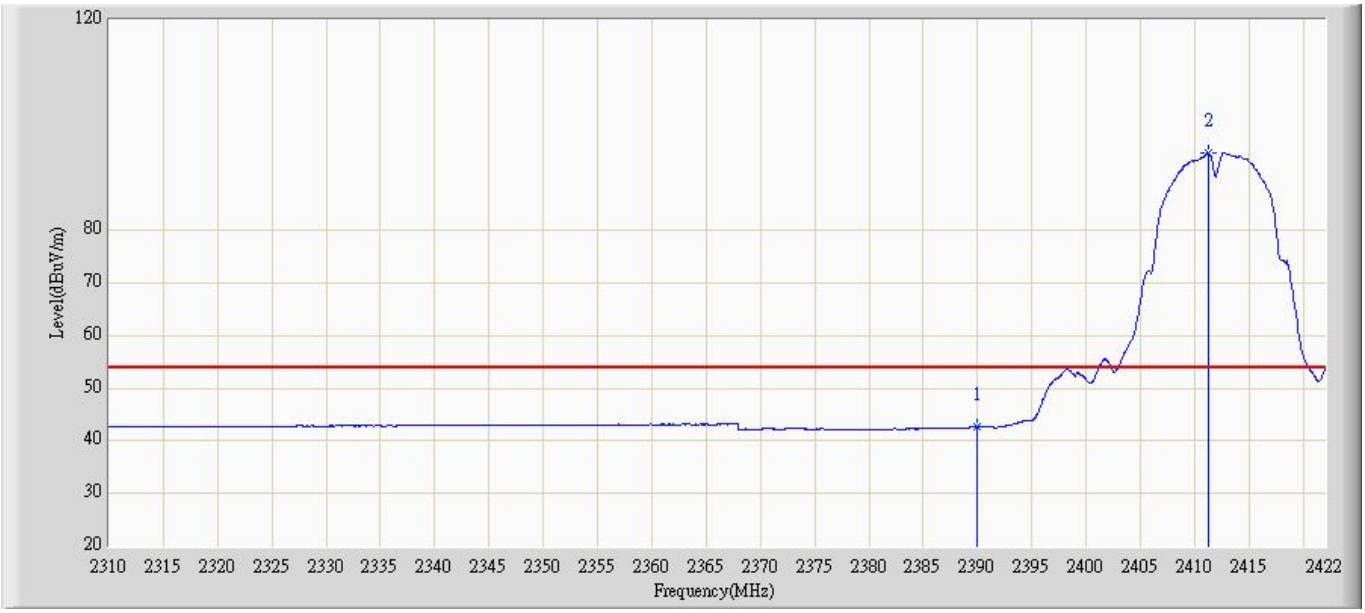
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	39.863	9.123	-14.137	54	30.74	AV
2	*	2412.326	95.642	65.237	N/A	N/A	30.405	AV

Site: AC5	Time: 2014/12/18 - 17:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2412MHz by 802.11b chain 2	



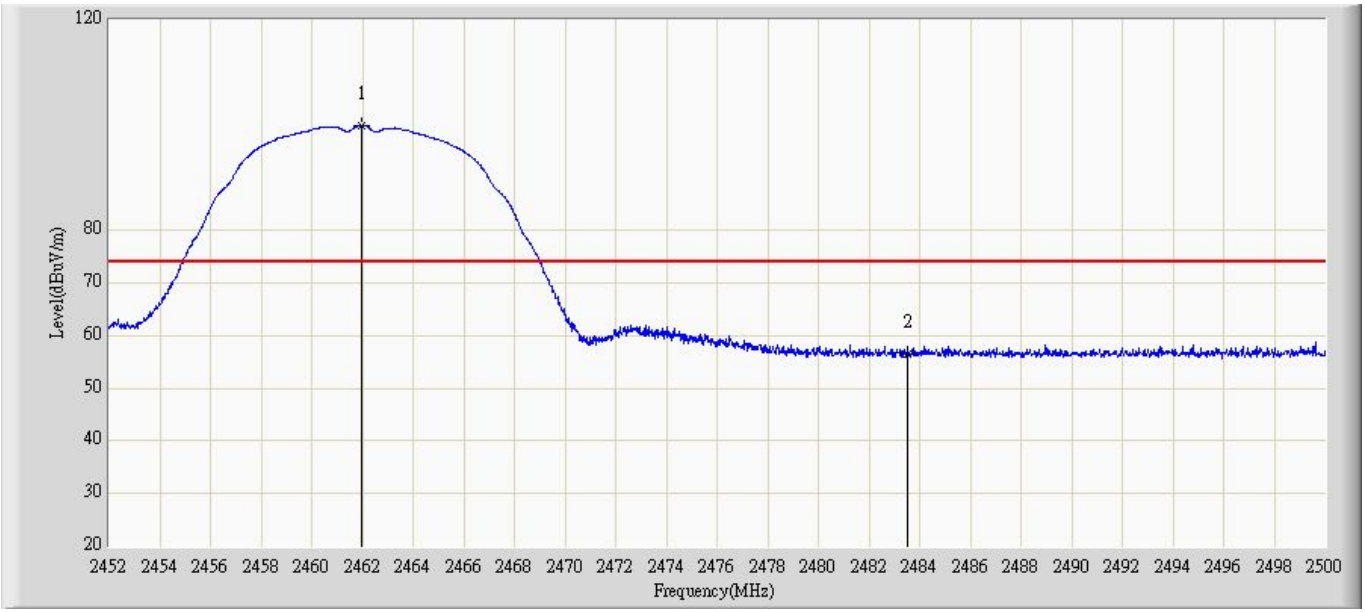
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	57.065	26.325	-16.935	74	30.74	PK
2	*	2412.127	102.930	72.524	N/A	N/A	30.406	PK

Site: AC5	Time: 2014/12/18 - 17:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2412MHz by 802.11b chain 2	



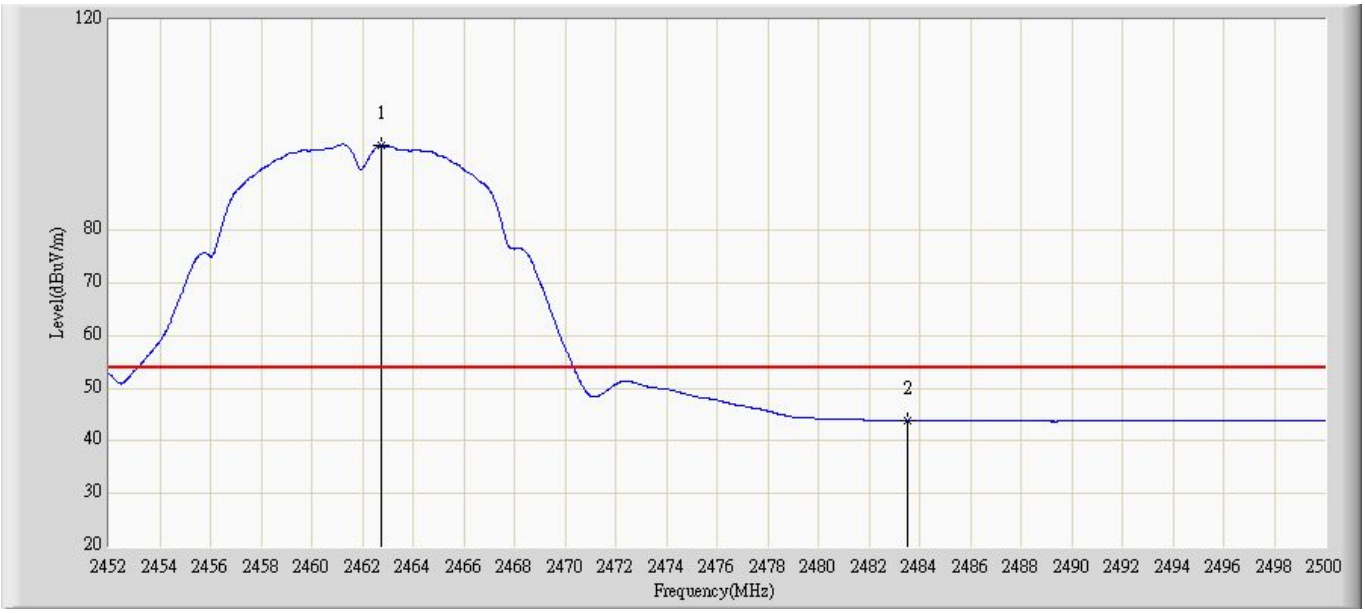
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	43.161	12.421	-10.839	54	30.74	AV
2	*	2411.326	94.736	64.336	N/A	N/A	30.4	AV

Site: AC5	Time: 2014/12/18 - 17:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2462MHz by 802.11b chain 1	



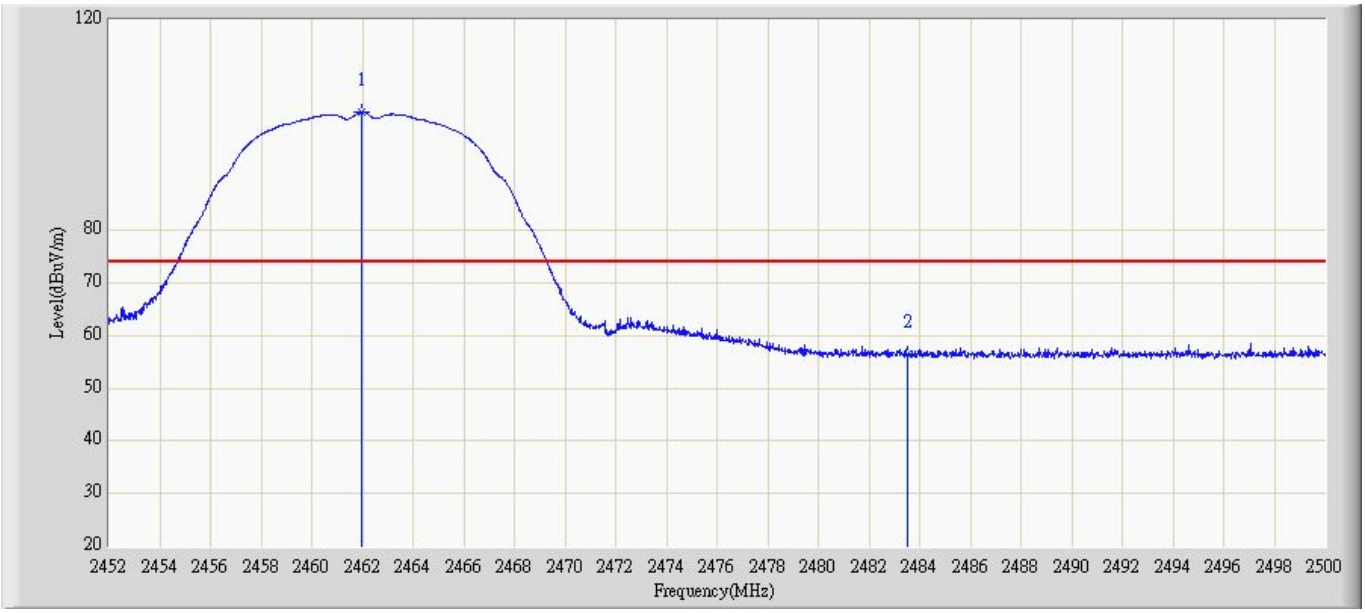
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.327	97.858	67.326	N/A	N/A	30.532	PK
2		2483.521	56.459	25.474	-17.541	74	30.985	PK

Site: AC5	Time: 2014/12/18 - 17:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2462MHz by 802.11b chain 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.128	95.191	64.658	N/A	N/A	30.533	AV
2		2483.5	43.311	12.326	-10.689	54	30.985	AV

Site: AC5	Time: 2014/12/18 - 17:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2462MHz by 802.11b chain 1	

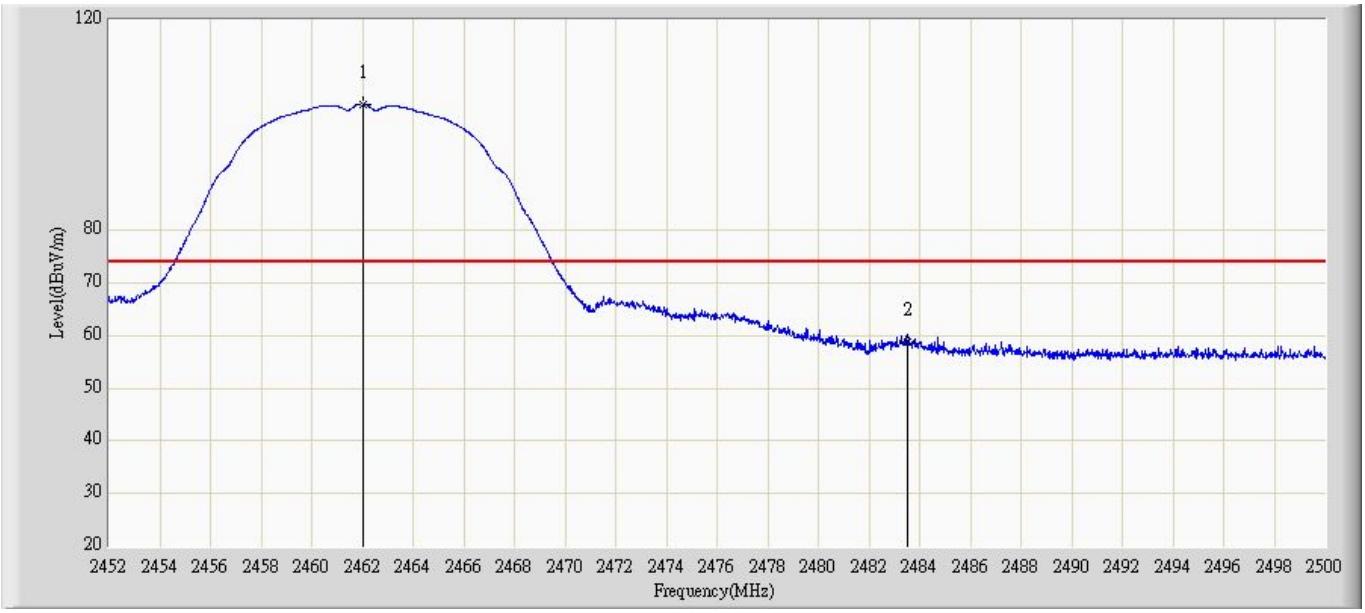


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.652	101.253	70.321	N/A	N/A	30.932	PK
2		2483.5	55.311	24.326	-18.689	74	30.985	PK

Site: AC5	Time: 2014/12/18 - 17:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2462MHz by 802.11b chain 1	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.284	96.797	66.264	N/A	N/A	30.533	AV
2		2483.5	42.997	12.012	-11.003	54	30.985	AV

Site: AC5	Time: 2014/12/18 - 17:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2462MHz by 802.11b chain 2	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.541	101.858	71.326	N/A	N/A	30.532	PK
2		2483.5	58.243	27.258	-15.757	74	30.985	PK

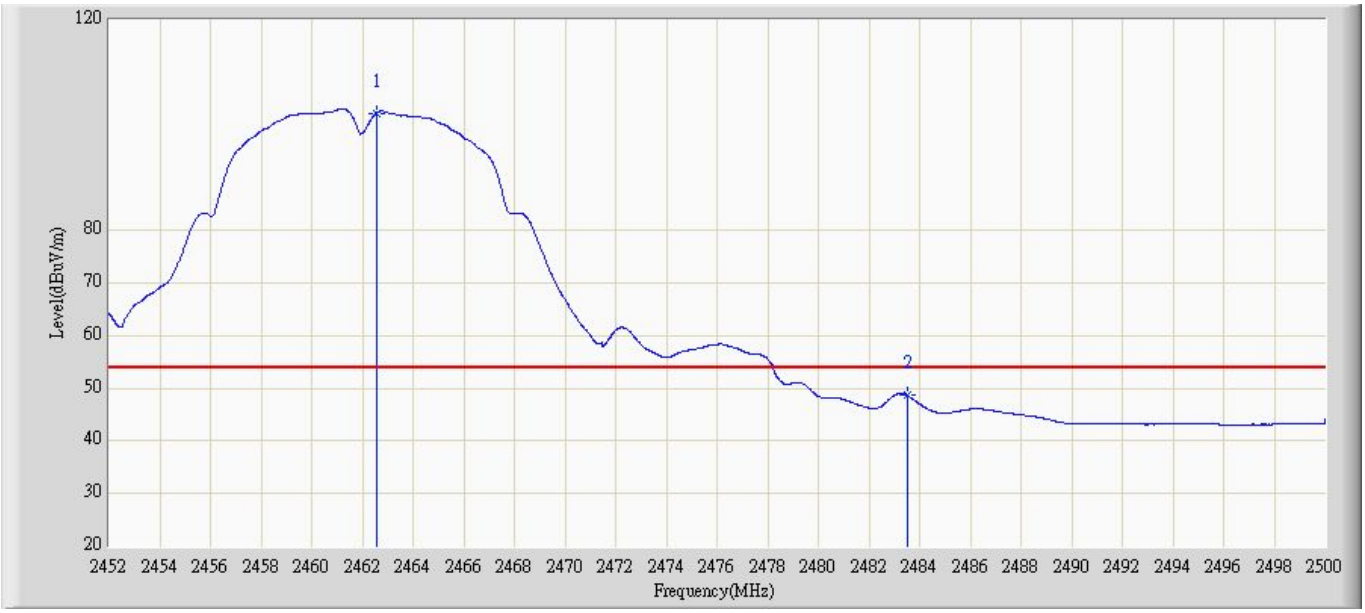
Site: AC5	Time: 2014/12/18 - 17:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2462MHz by 802.11b chain 2	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.321	100.863	70.326	N/A	N/A	30.537	AV
2		2483.5	47.199	16.214	-6.801	54	30.985	AV

Site: AC5	Time: 2014/12/18 - 17:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2462MHz by 802.11b chain 2	

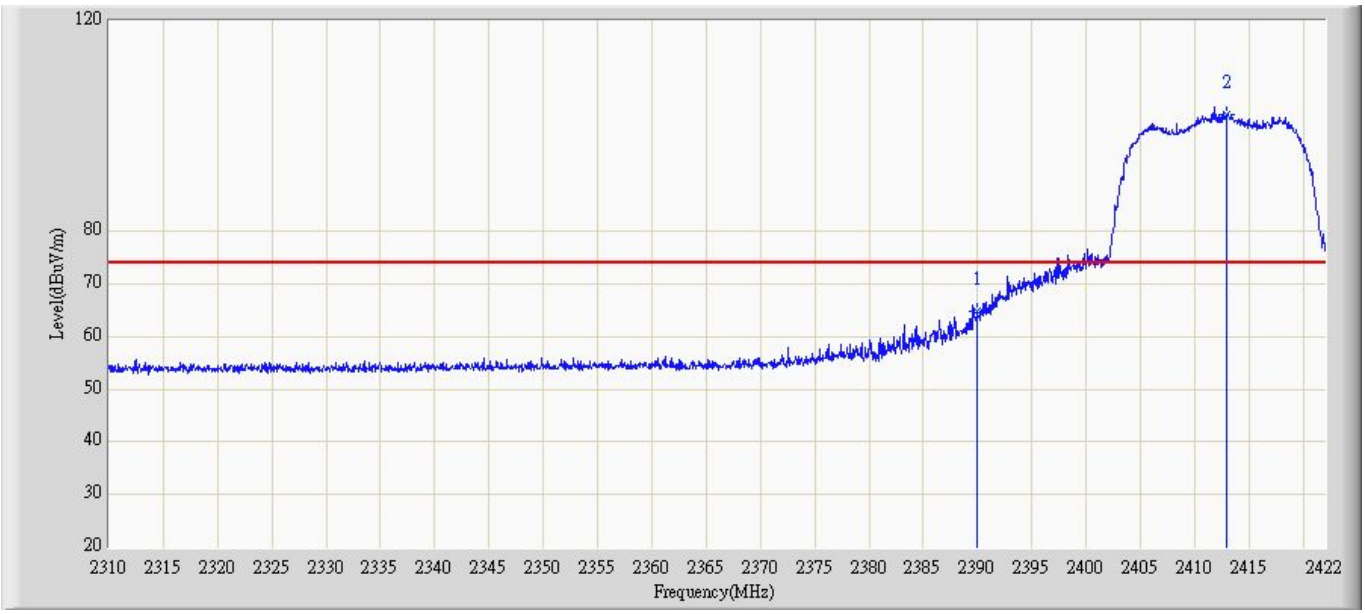
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.264	106.566	75.321	N/A	N/A	30.532	PK
2		2483.5	58.631	27.265	-15.369	74	30.985	PK

Site: AC5	Time: 2014/12/18 - 17:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1:Transmit at channel 2462MHz by 802.11b chain 2	



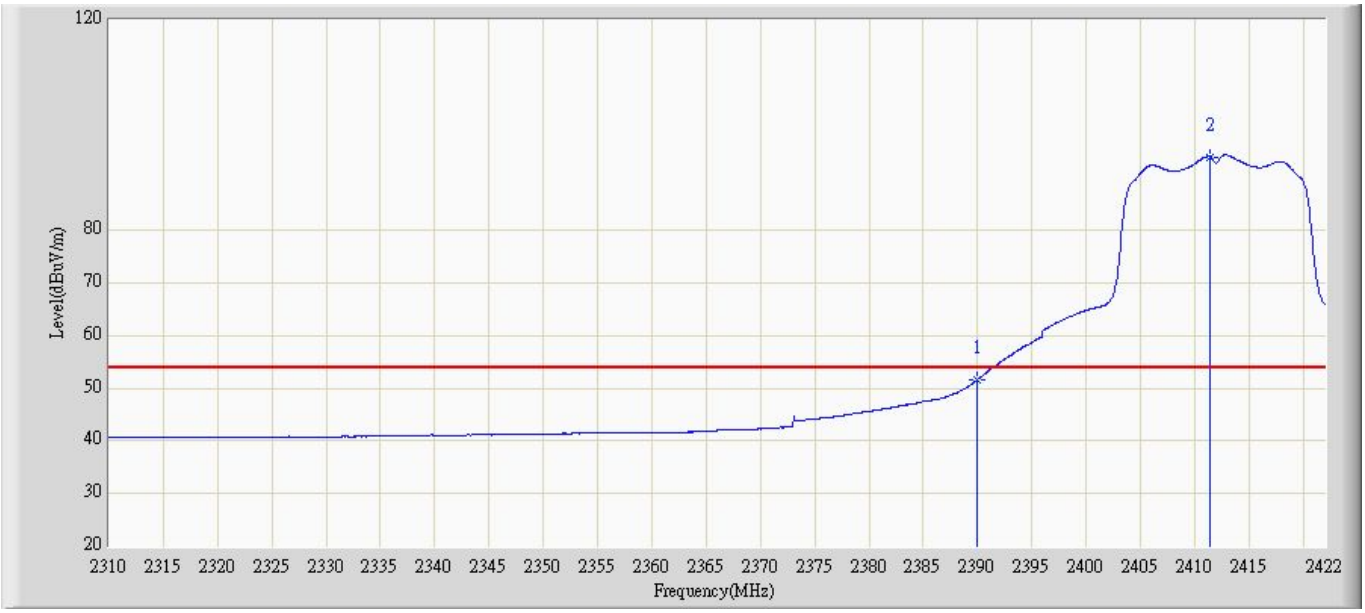
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.325	101.771	71.235	N/A	N/A	30.536	AV
2		2483.5	48.637	17.652	-5.363	54	30.985	AV

Profile: 129S019R	Page No.: 57
Site: AC5	Time: 2014/12/18 - 17:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2412MHz by 802.11g chain 1	



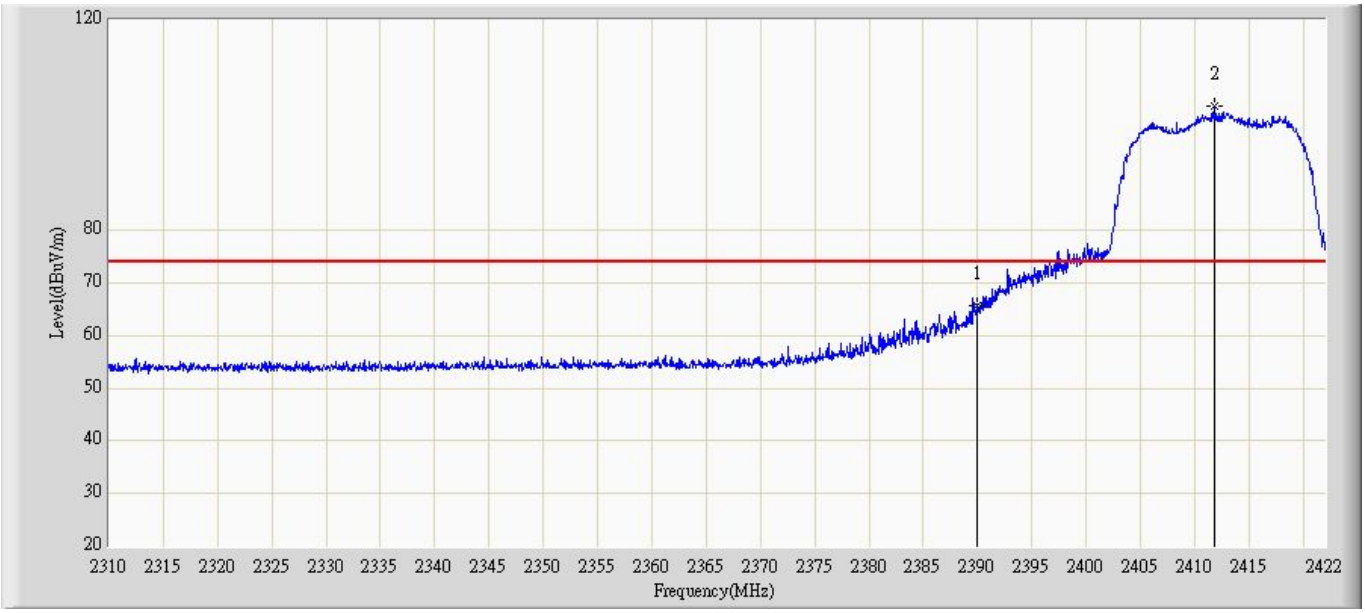
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	64.281	33.541	-9.719	74	30.74	PK
2	*	2412.452	101.760	71.354	N/A	N/A	30.406	PK

Site: AC5	Time: 2014/12/18 - 17:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2412MHz by 802.11g chain 1	



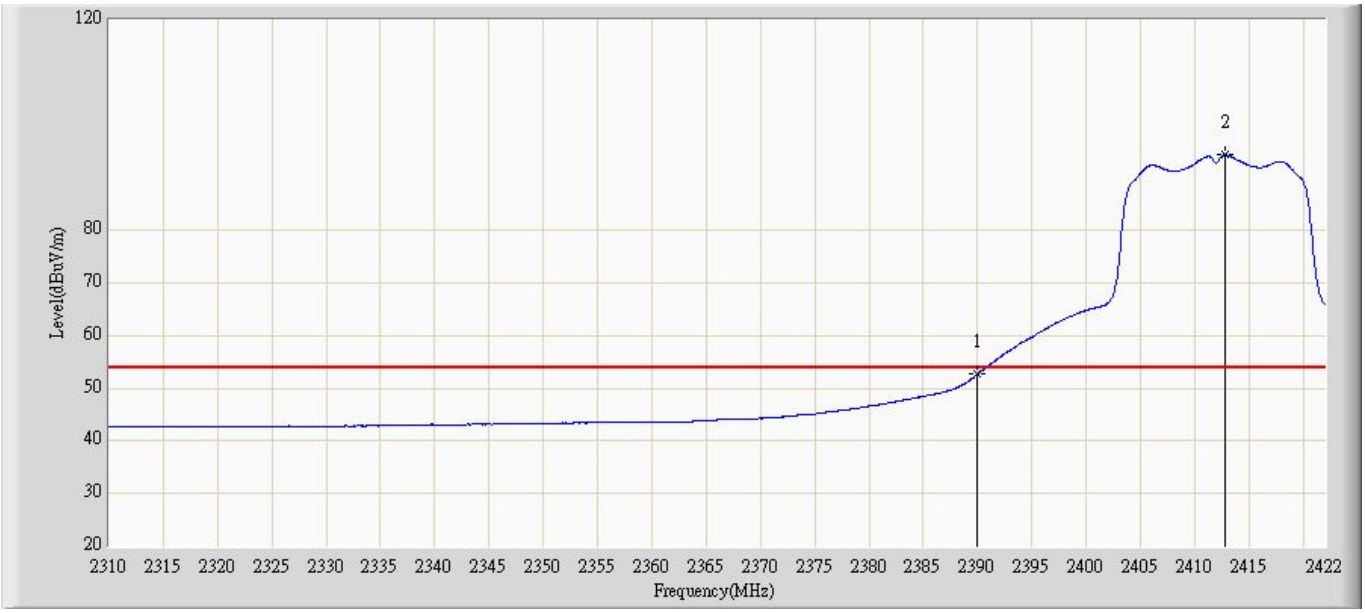
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	50.953	20.213	-3.047	54	30.74	AV
2	*	2411.223	93.858	63.457	N/A	N/A	30.401	AV

Site: AC5	Time: 2014/12/18 - 17:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2412MHz by 802.11g chain 1	



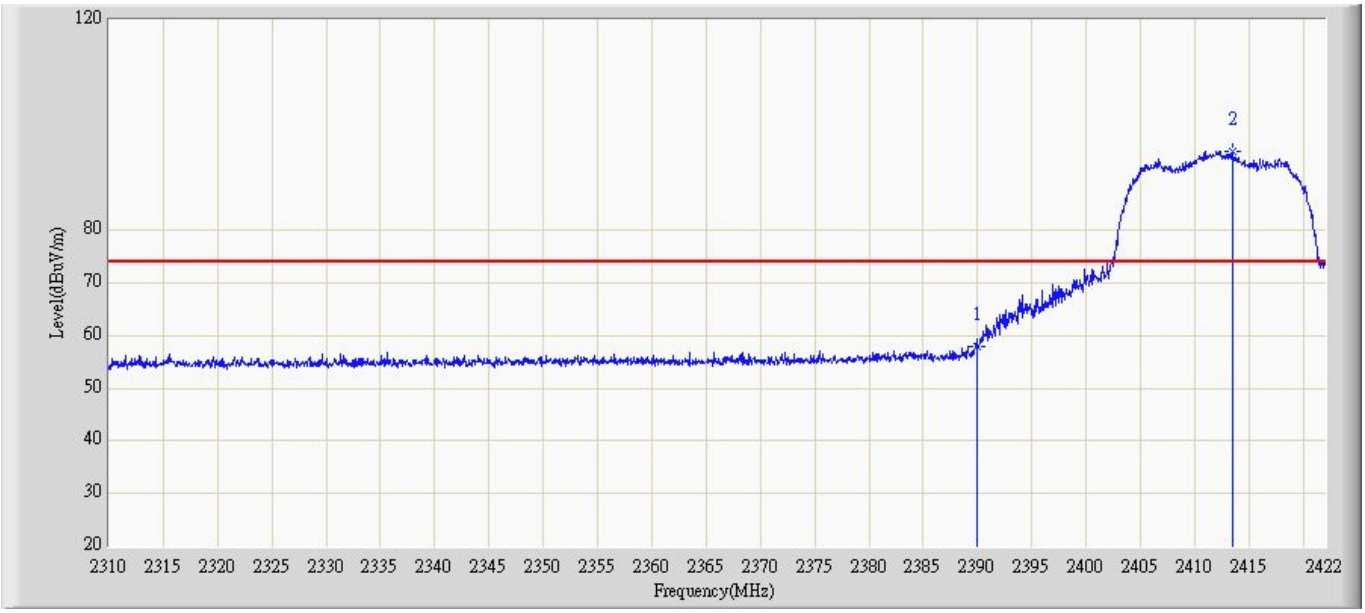
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	62.062	31.322	-11.938	74	30.74	PK
2	*	2411.457	95.947	65.154	N/A	N/A	30.793	PK

Site: AC5	Time: 2014/12/18 - 17:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2412MHz by 802.11g chain 1	



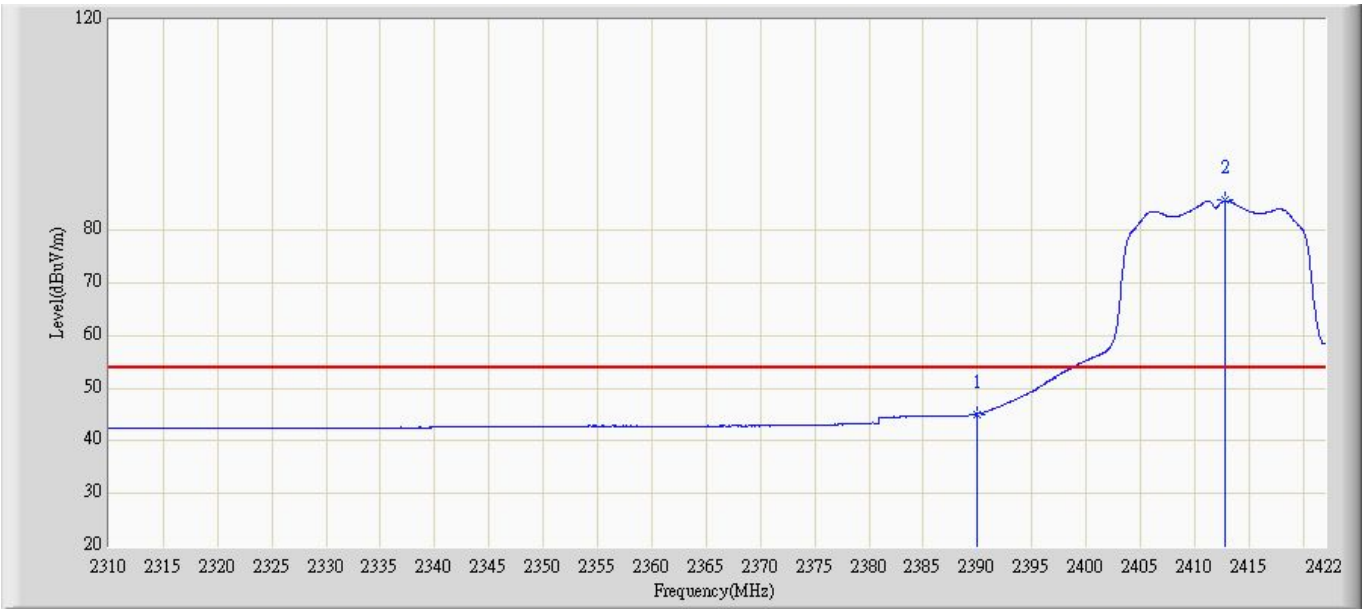
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	49.085	18.345	-4.915	54	30.74	AV
2	*	2411.232	93.075	62.675	N/A	N/A	30.4	AV

Site: AC5	Time: 2014/12/18 - 17:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2412MHz by 802.11g chain 2	



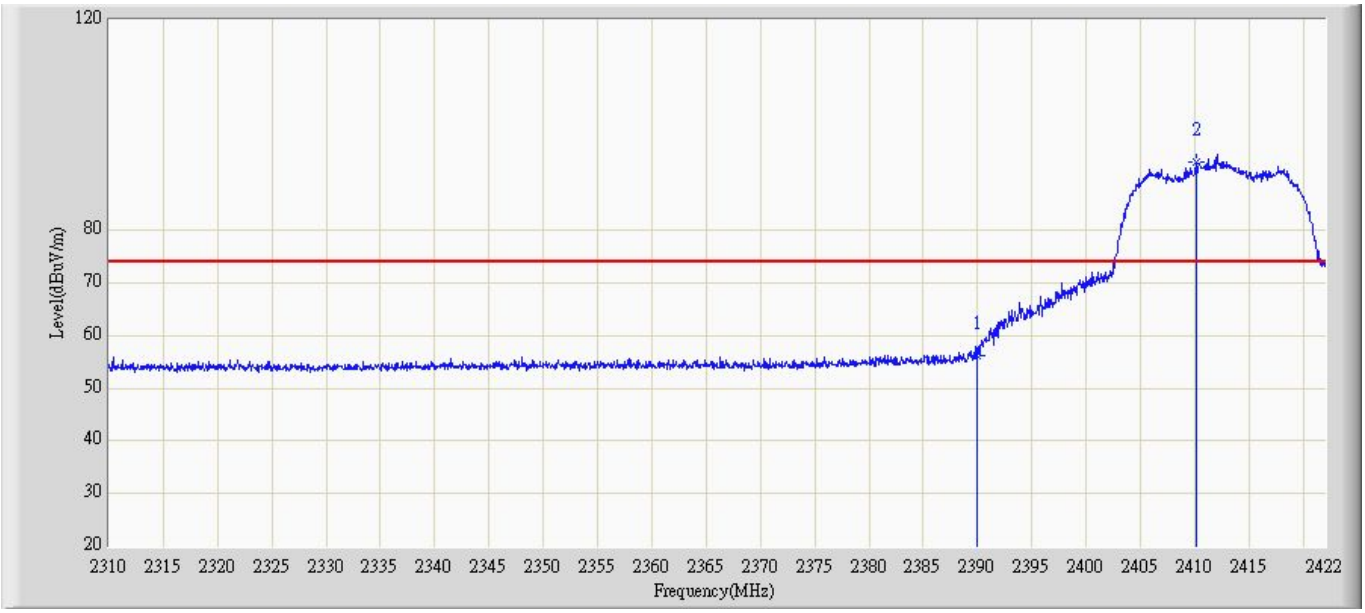
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	58.085	27.345	-15.915	74	30.74	PK
2	*	2413.345	94.942	64.536	N/A	N/A	30.406	PK

Site: AC5	Time: 2014/12/18 - 17:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2412MHz by 802.11g chain 2	



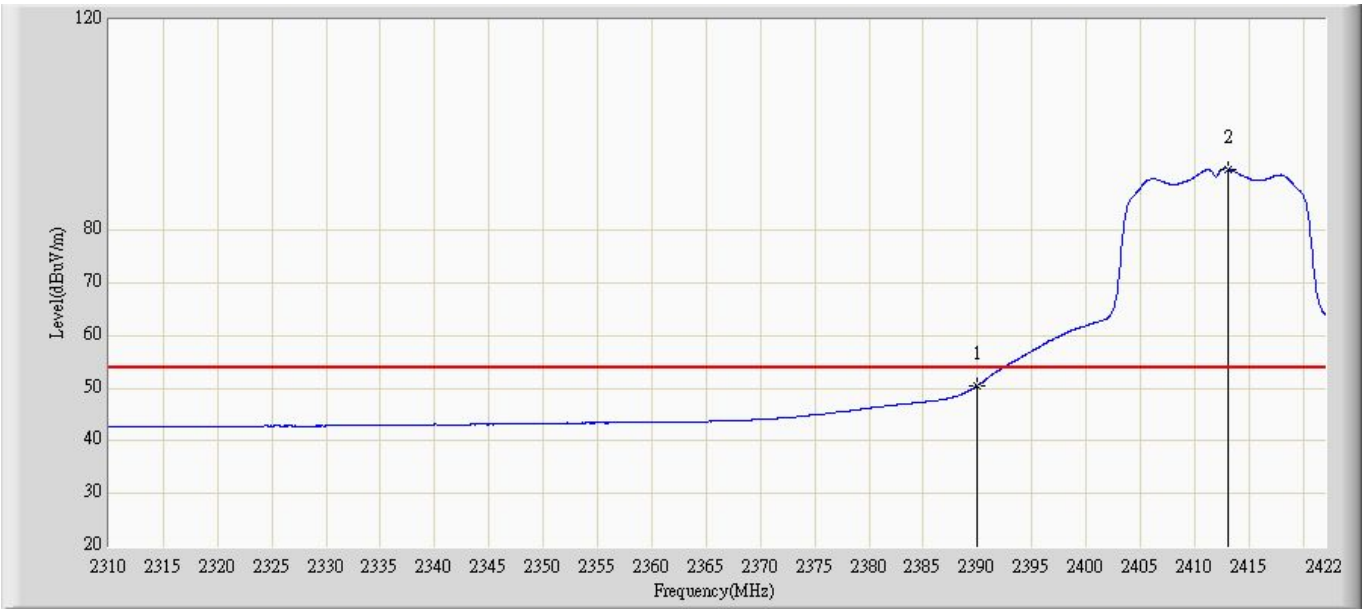
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	45.082	14.342	-8.918	54	30.74	AV
2	*	2412.321	85.937	55.532	N/A	N/A	30.405	AV

Site: AC5	Time: 2014/12/19 - 09:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2412MHz by 802.11g chain 2	



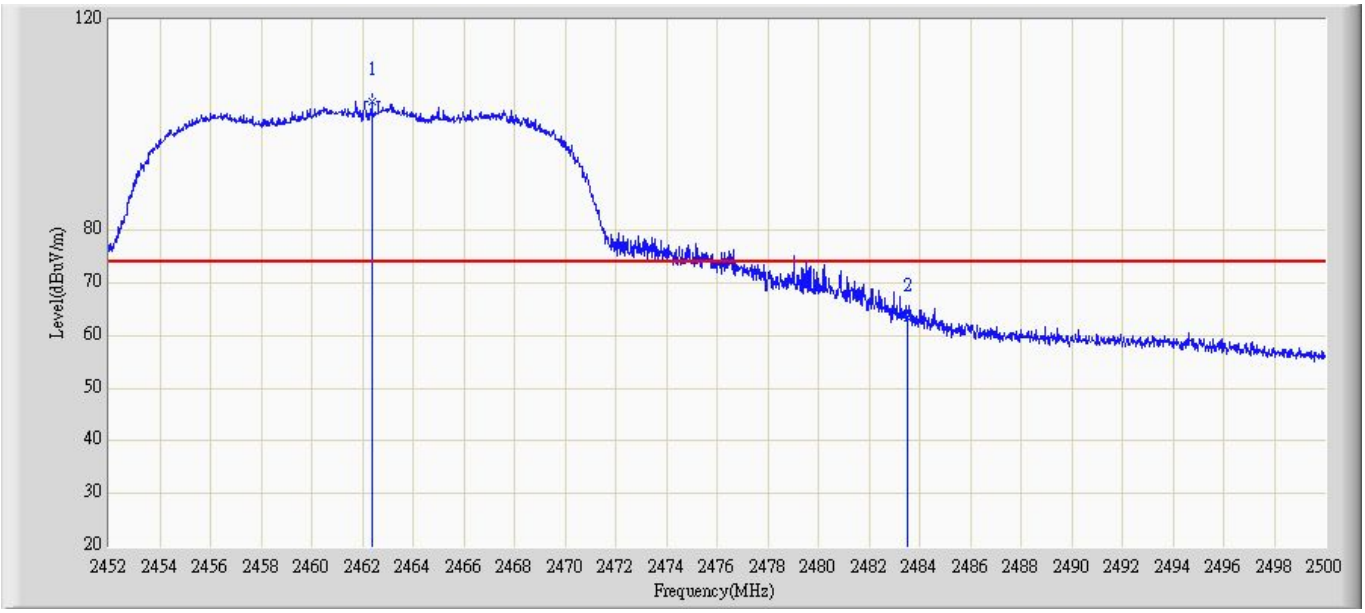
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	56.088	25.348	-17.912	74	30.74	PK
2	*	2410.756	92.882	62.484	N/A	N/A	30.398	PK

Site: AC5	Time: 2014/12/19 - 09:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2412MHz by 802.11g chain 2	



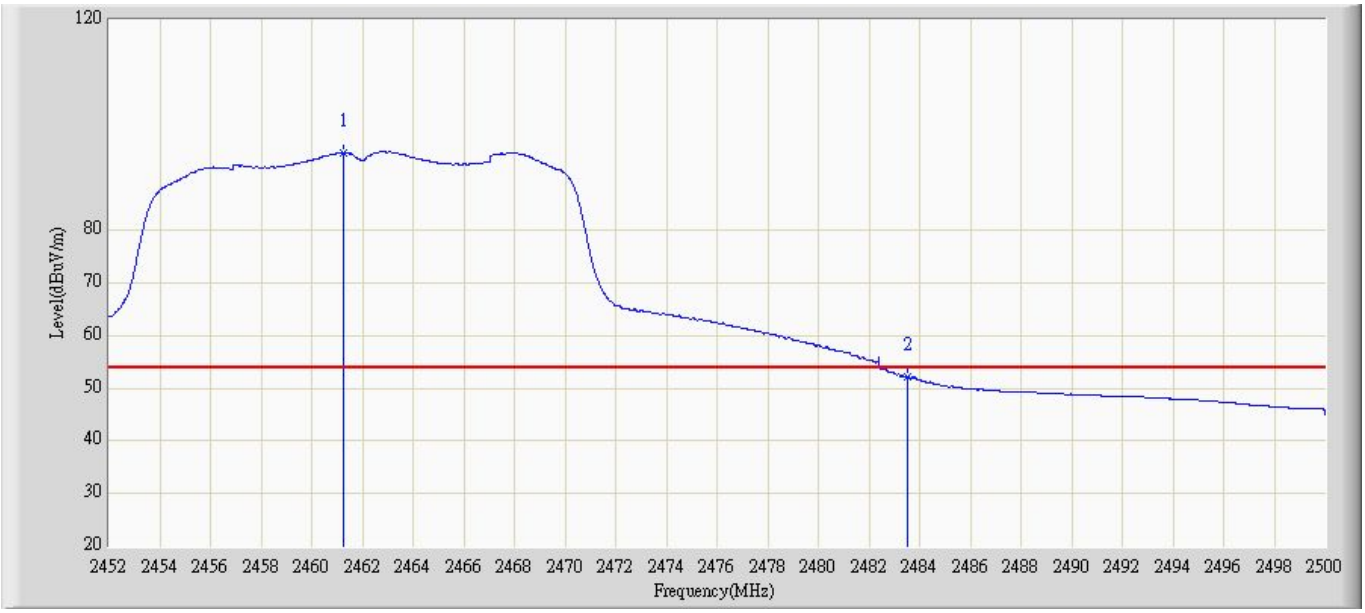
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	45.085	14.345	-8.915	54	30.74	AV
2	*	2411.121	85.454	55.054	N/A	N/A	30.4	AV

Site: AC5	Time: 2014/12/19 - 09:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2462MHz by 802.11g chain 1	



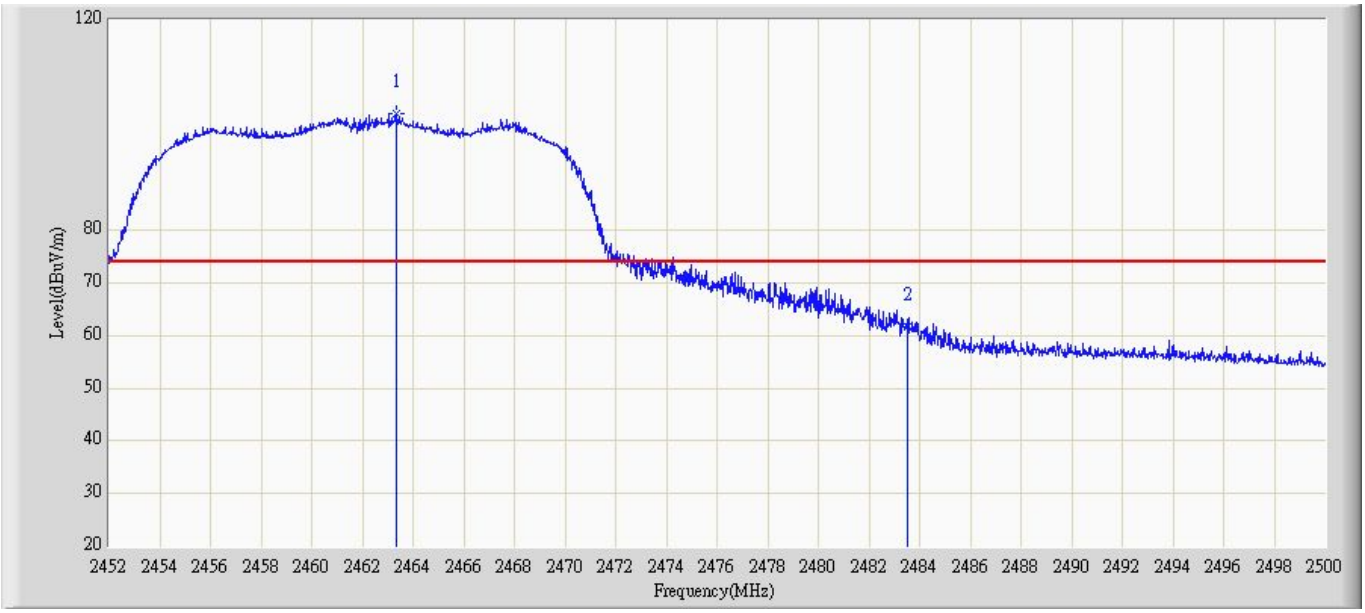
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.234	103.659	73.123	N/A	N/A	30.536	PK
2		2483.5	63.226	32.241	-10.774	74	30.985	PK

Site: AC5	Time: 2014/12/19 - 10:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2462MHz by 802.11g chain 1	



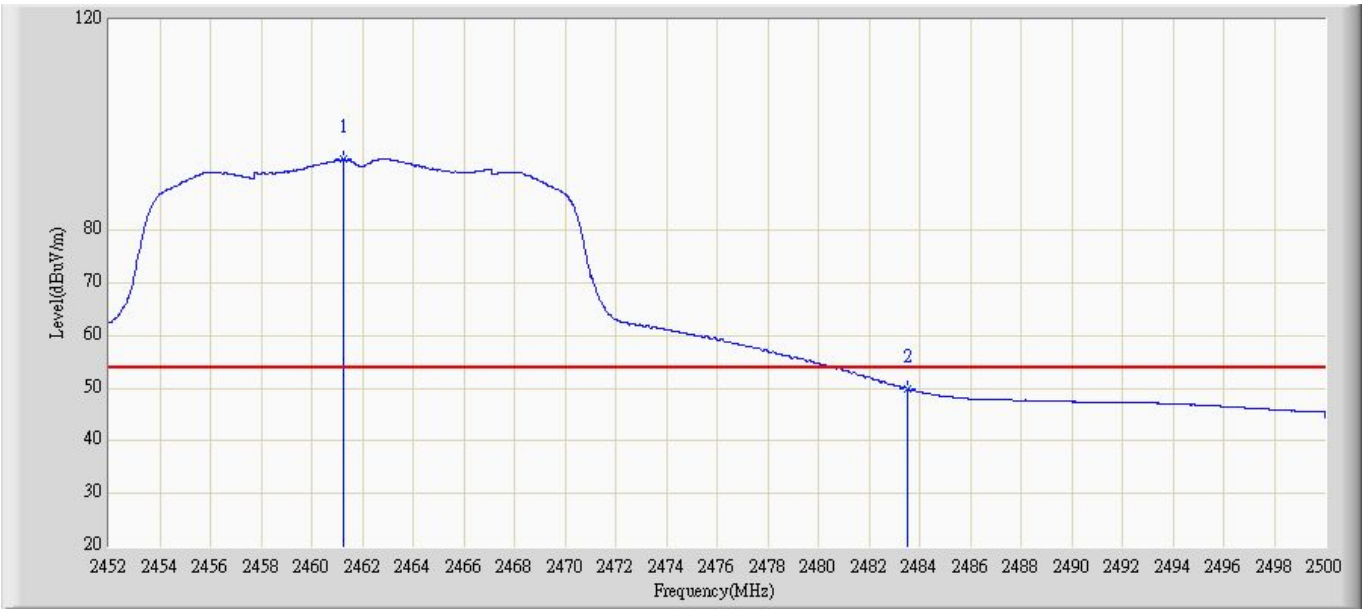
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.231	94.857	64.324	N/A	N/A	30.533	AV
2		2483.5	52.663	21.678	-1.337	54	30.985	AV

Site: AC5	Time: 2014/12/19 - 10:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2462MHz by 802.11g chain 1	



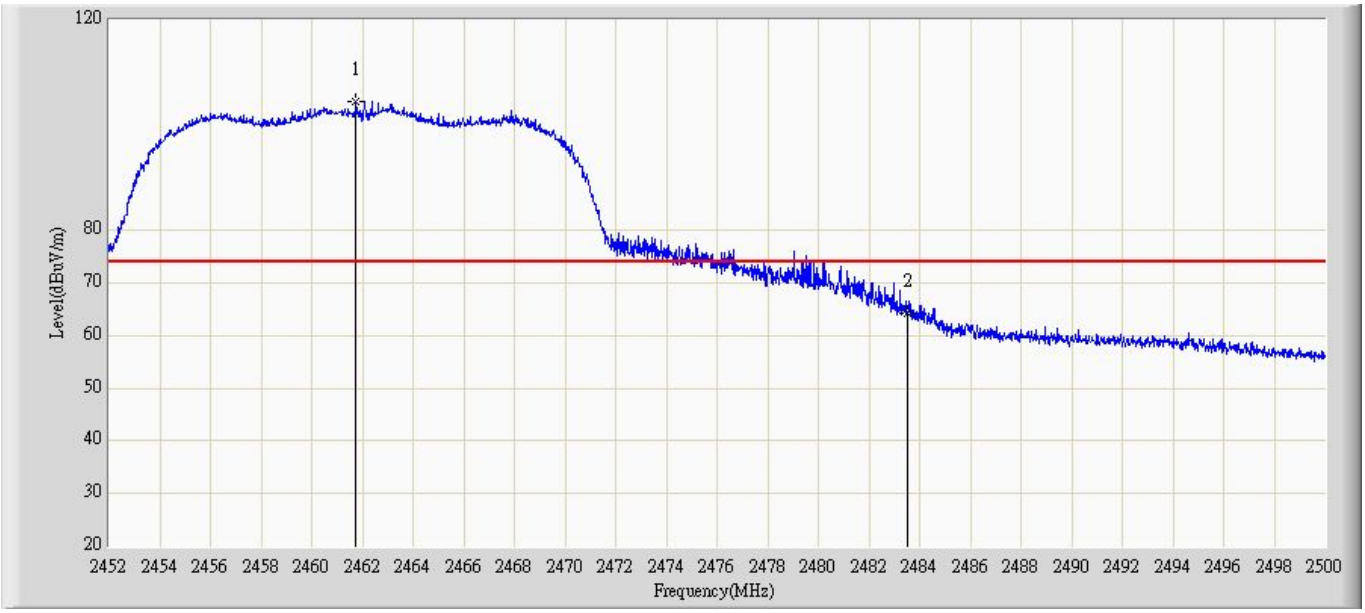
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.675	101.880	71.342	N/A	N/A	30.538	PK
2		2483.5	61.549	30.564	-12.451	74	30.985	PK

Site: AC5	Time: 2014/12/19 - 10:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2462MHz by 802.11g chain 1	



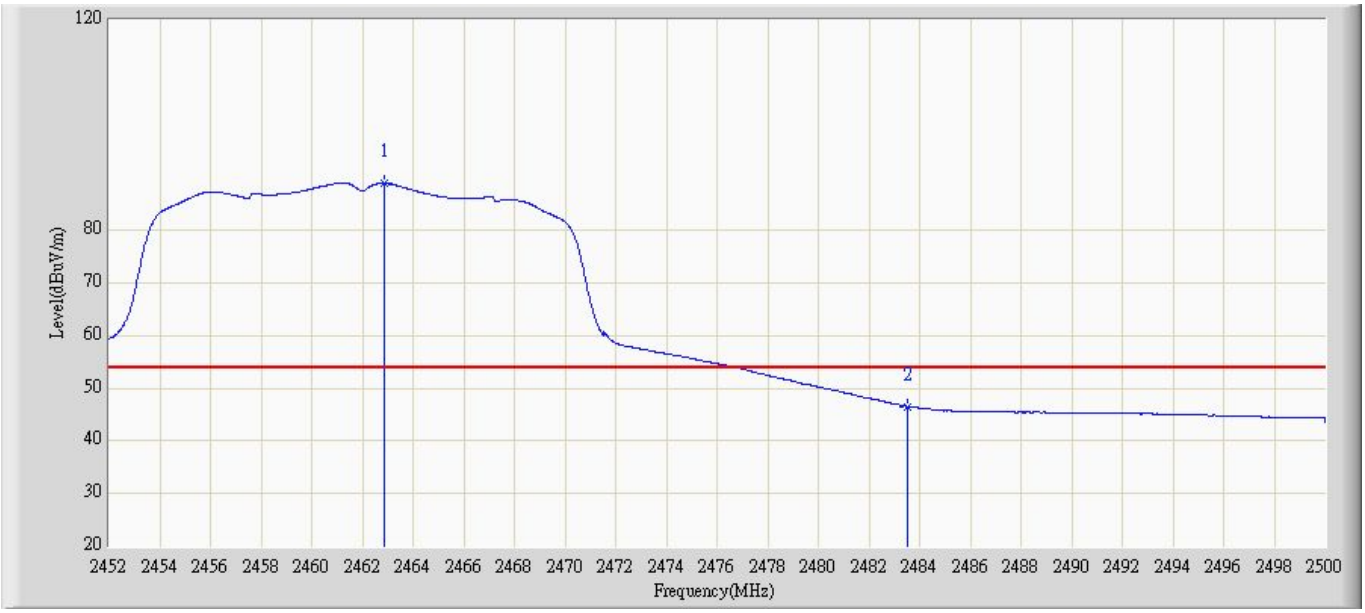
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.672	92.878	62.345	N/A	N/A	30.533	AV
2		2483.5	50.110	19.125	-3.890	54	30.985	AV

Site: AC5	Time: 2014/12/19 - 10:31
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2462MHz by 802.11g chain1	



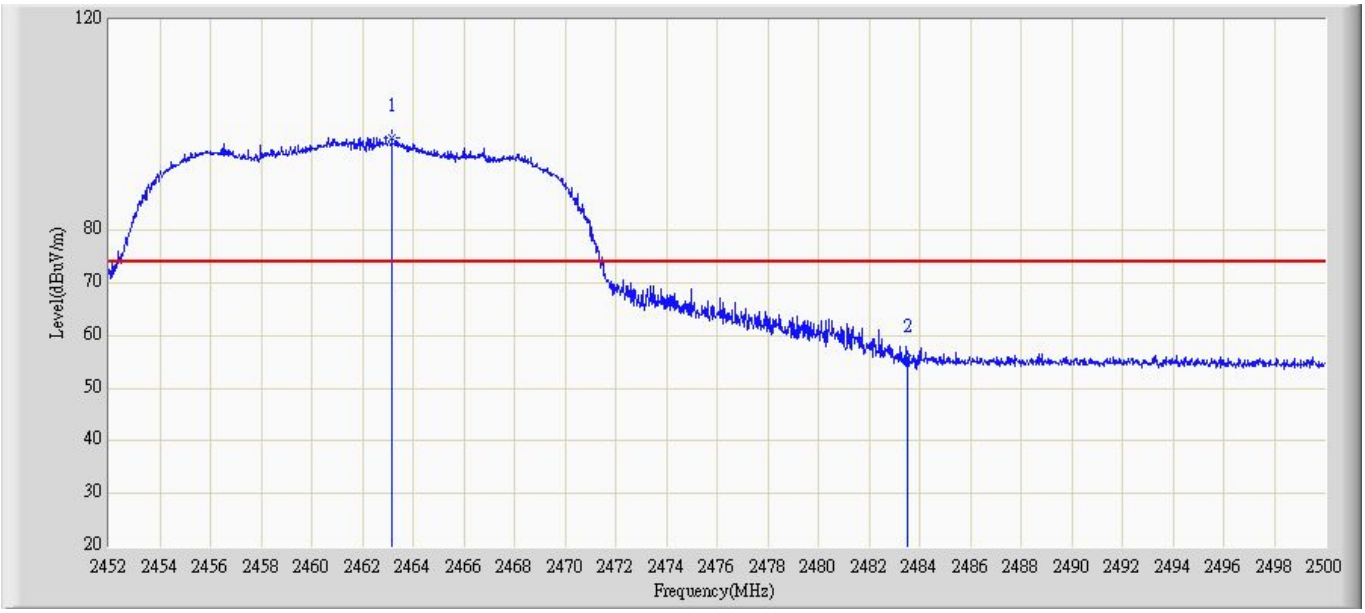
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.453	96.660	66.125	N/A	N/A	30.535	PK
2		2483.5	55.549	24.564	-18.451	74	30.985	PK

Site: AC5	Time: 2014/12/19 - 10:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2462MHz by 802.11g chain1	



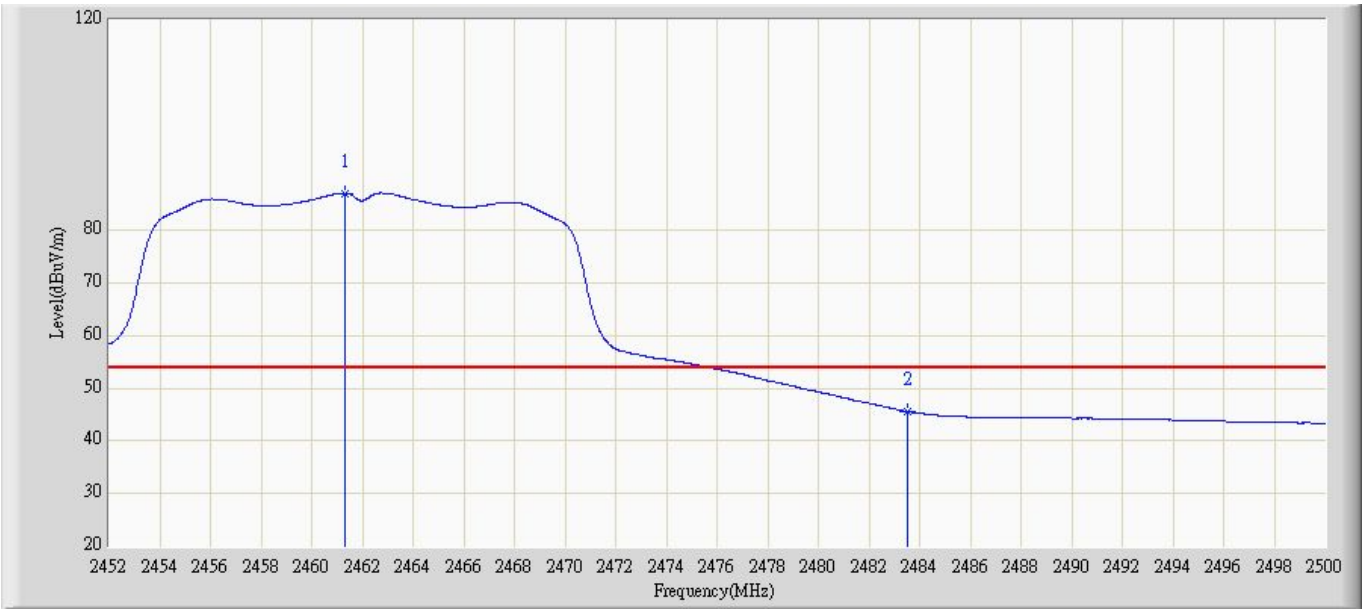
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.457	88.751	58.213	N/A	N/A	30.538	AV
2		2483.5	46.109	15.124	-7.891	54	30.985	AV

Site: AC5	Time: 2014/12/19 - 10:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2462MHz by 802.11g chain1	



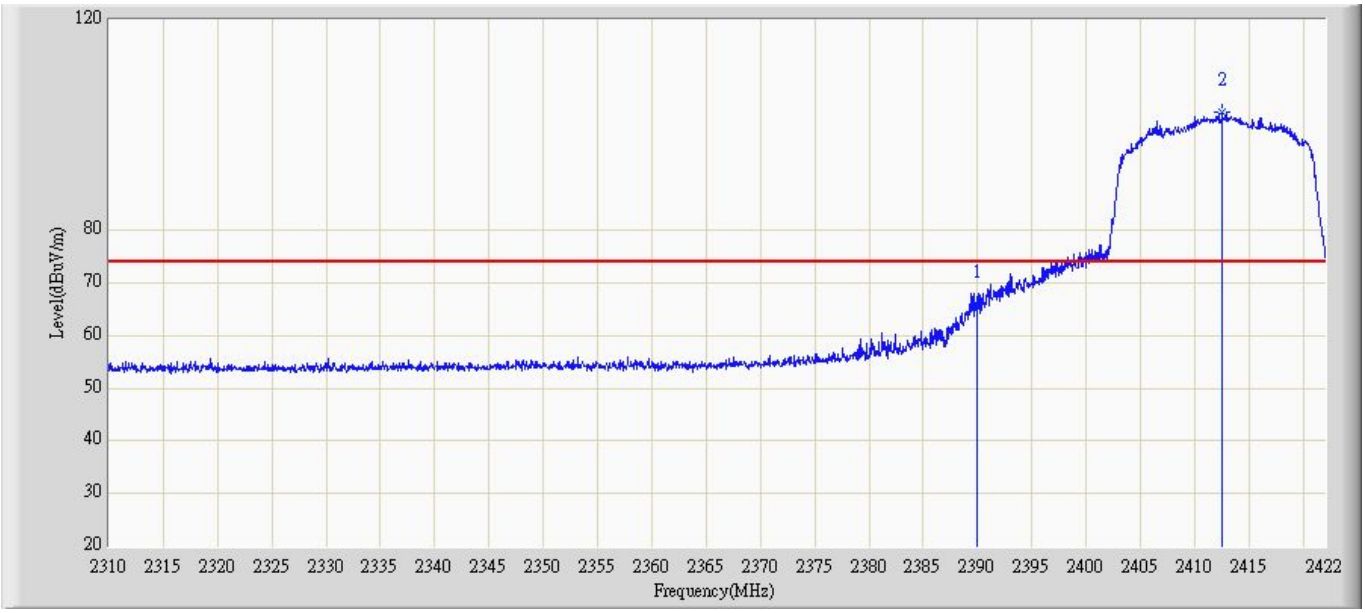
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.453	96.883	66.345	N/A	N/A	30.538	PK
2		2483.5	55.629	24.644	-18.371	74	30.985	PK

Site: AC5	Time: 2014/12/19 - 10:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2:Transmit at channel 2462MHz by 802.11g chain1	



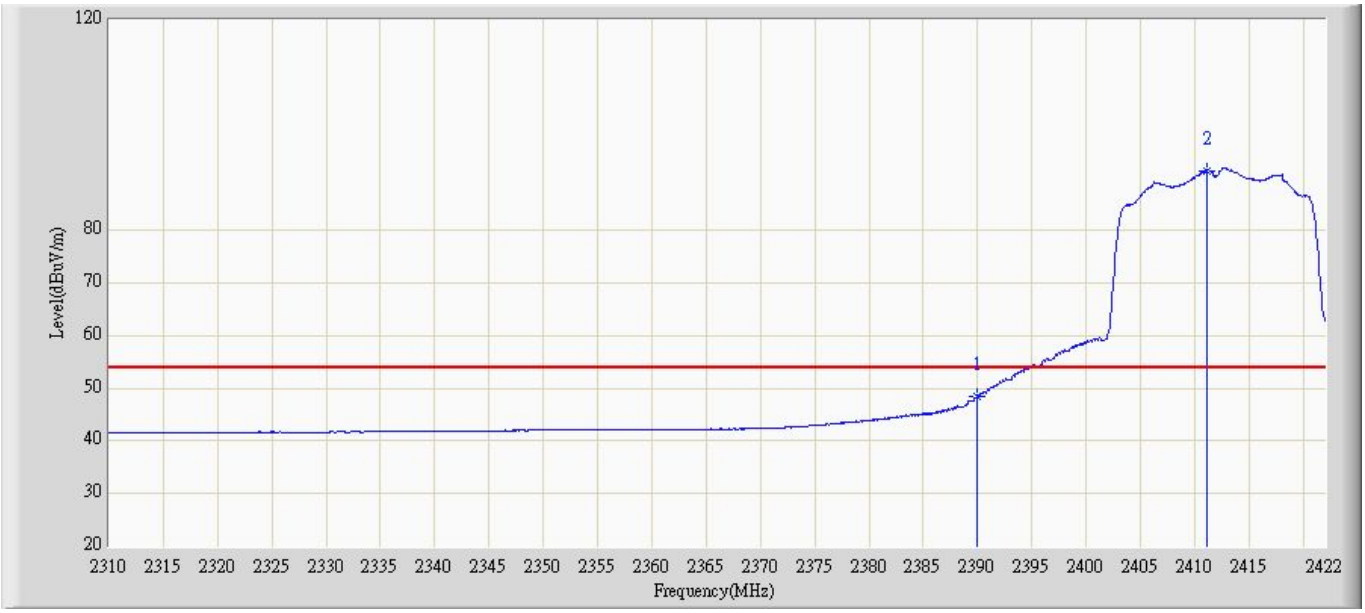
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.674	86.954	56.421	N/A	N/A	30.533	AV
2		2483.5	45.220	14.235	-8.780	54	30.985	AV

Site: AC5	Time: 2014/12/19 - 10:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2412MHz by 802.11n20 chain 1	



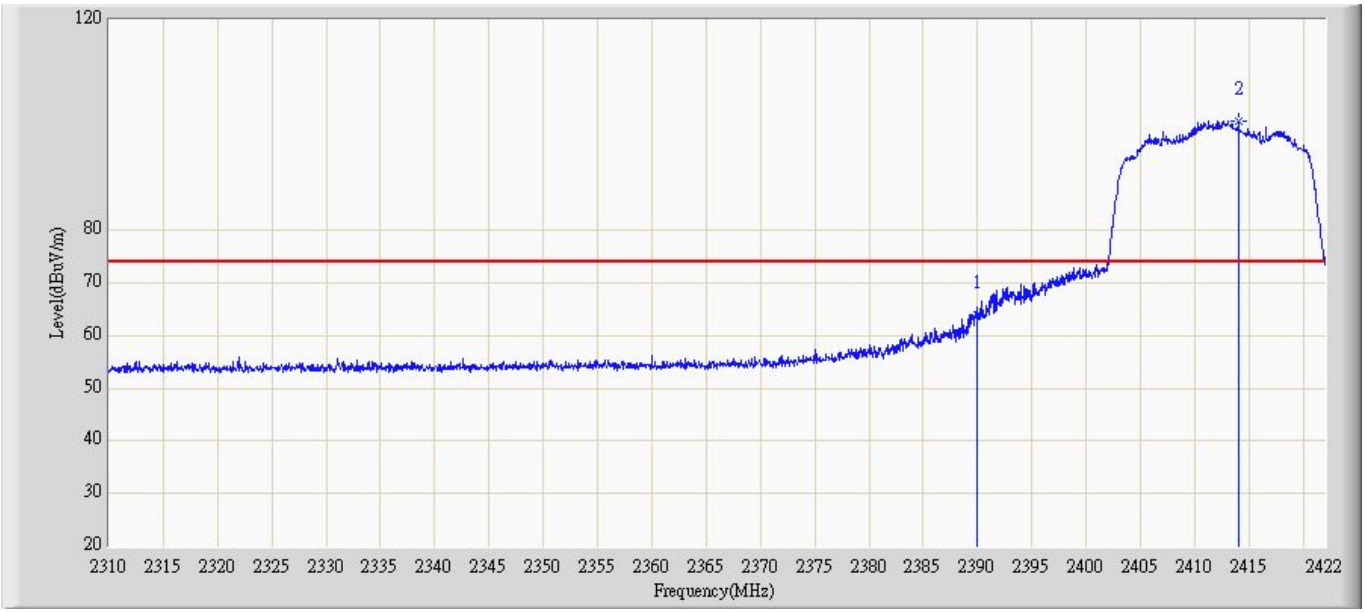
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	66.304	35.564	-7.696	74	30.74	PK
2	*	2412.563	102.189	71.785	N/A	N/A	30.404	PK

Site: AC5	Time: 2014/12/19 - 10:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2412MHz by 802.11n20 chain 1	



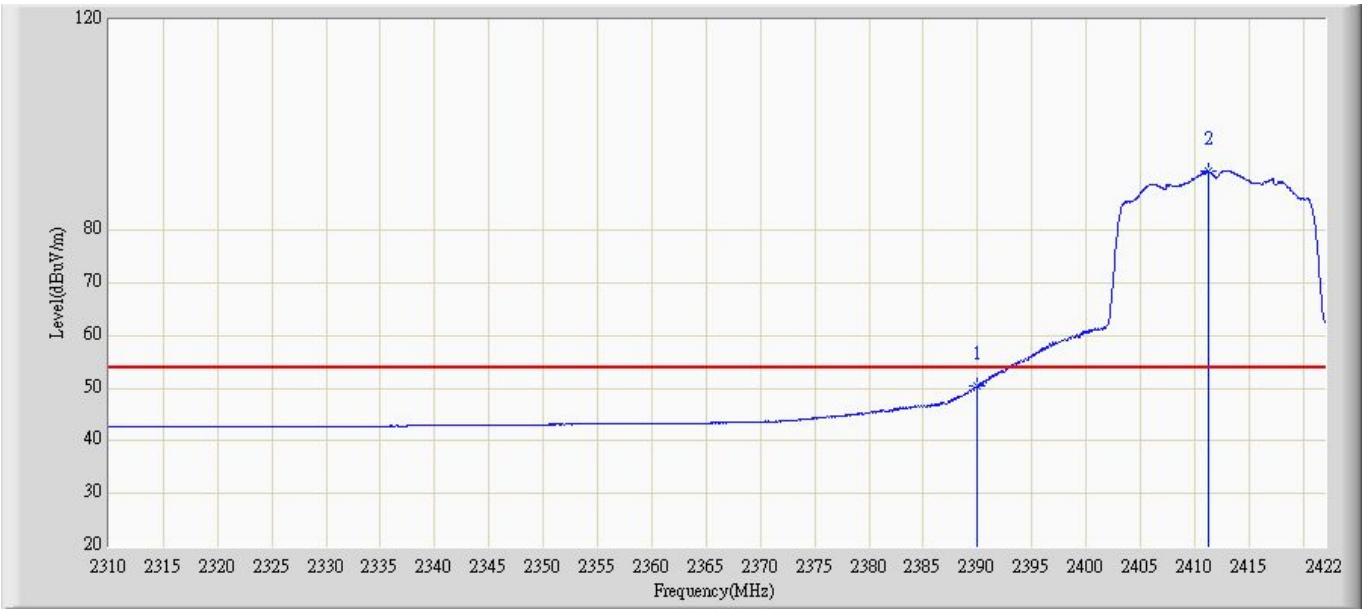
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	48.254	17.514	-5.746	54	30.74	AV
2	*	2411.318	91.136	60.736	N/A	N/A	30.4	AV

Site: AC5	Time: 2014/12/19 - 10:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2412MHz by 802.11n20 chain 1	



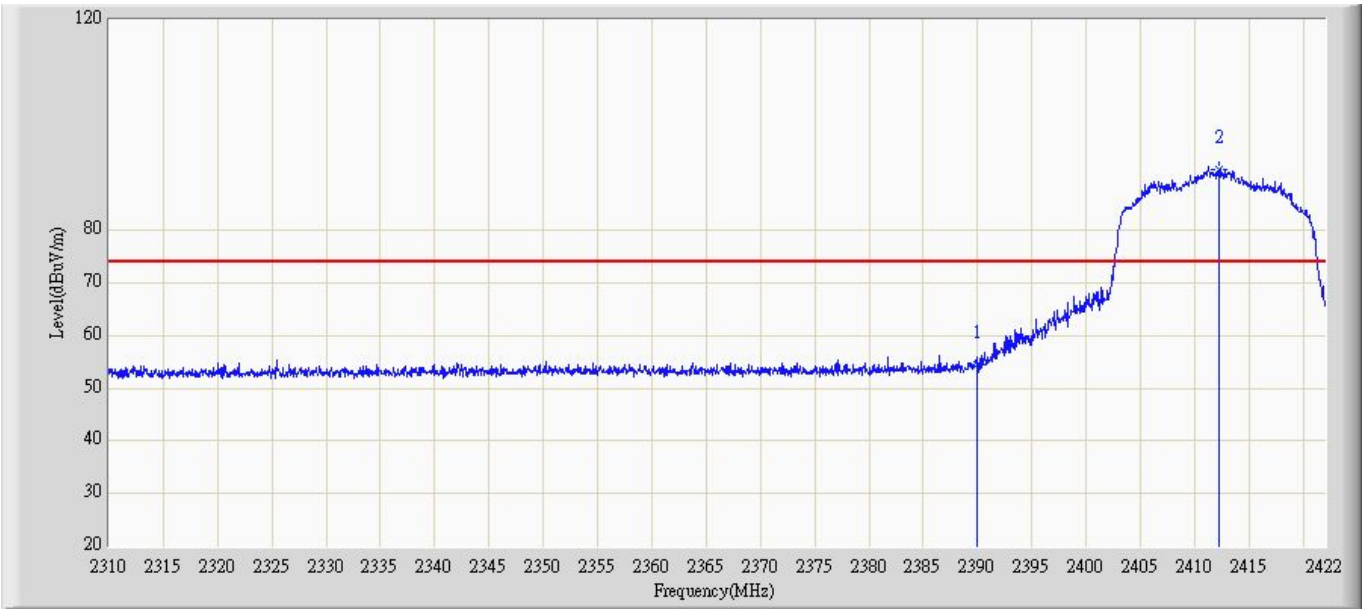
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	64.304	33.564	-9.696	74	30.74	PK
2	*	2414.784	100.653	70.245	N/A	N/A	30.408	PK

Site: AC5	Time: 2014/12/19 - 11:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2412MHz by 802.11n20 chain 1	



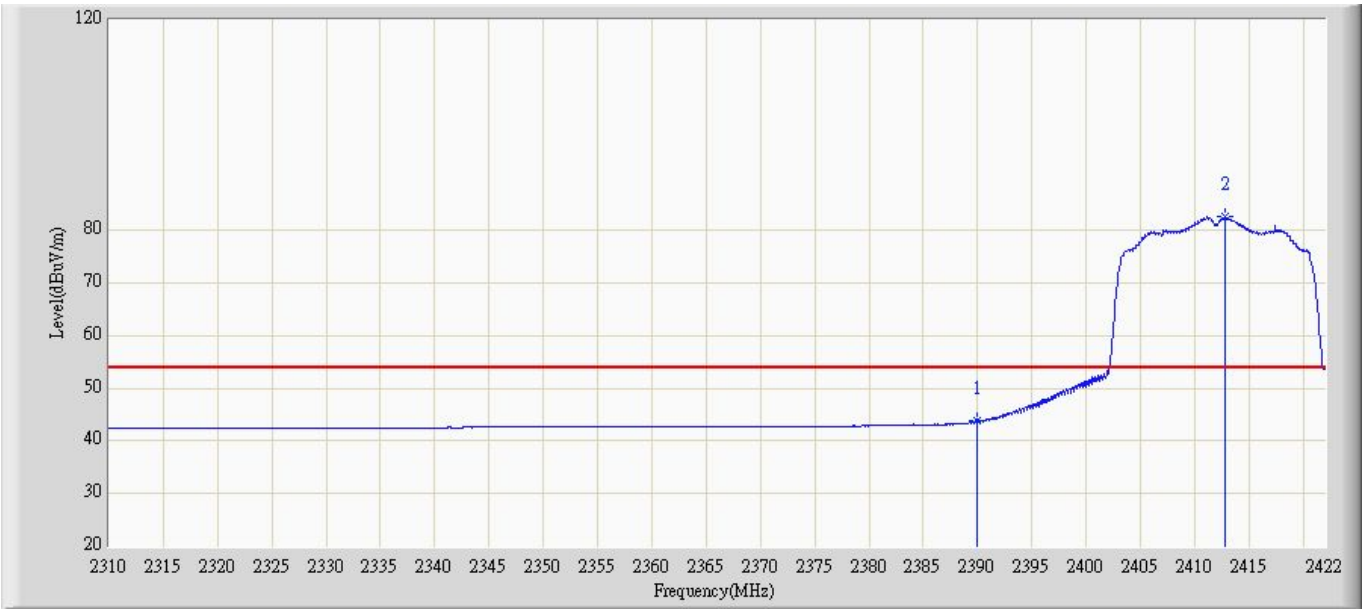
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	49.864	19.124	-4.136	54	30.74	AV
2	*	2411.457	90.754	60.354	N/A	N/A	30.4	AV

Site: AC5	Time: 2014/12/19 - 11:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2412MHz by 802.11n20 chain 2	



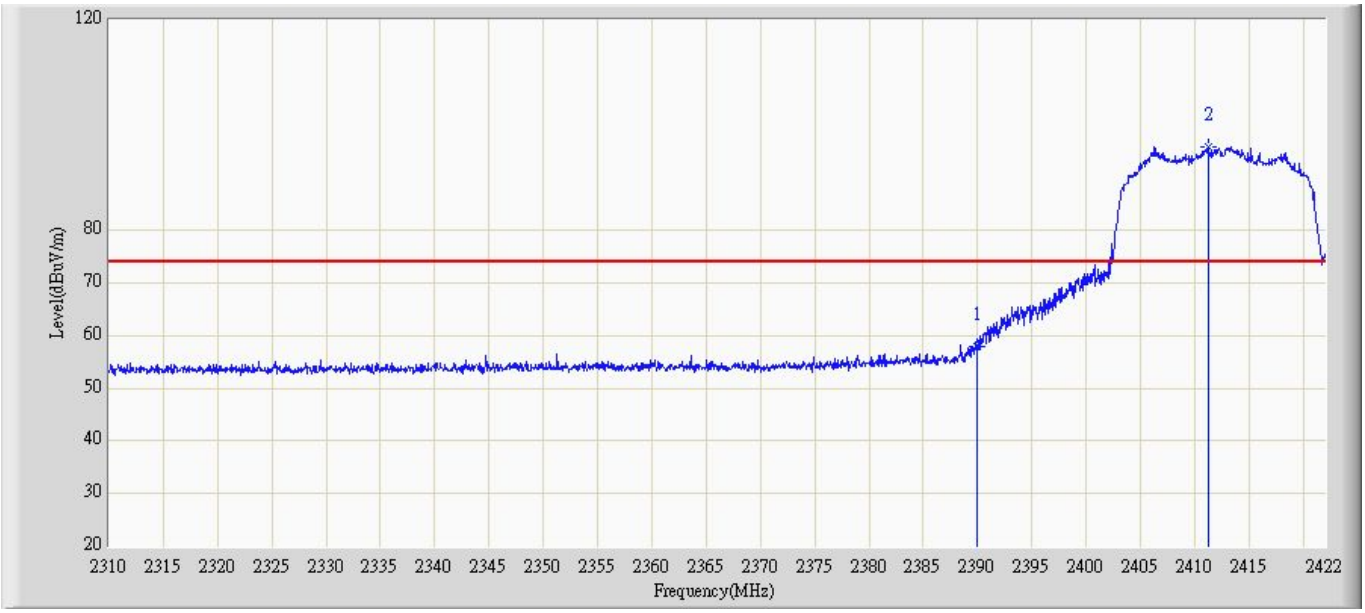
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	54.564	23.824	-19.436	74	30.74	PK
2	*	2412.874	91.421	61.018	N/A	N/A	30.403	PK

Site: AC5	Time: 2014/12/19 - 11:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2412MHz by 802.11n20 chain 2	



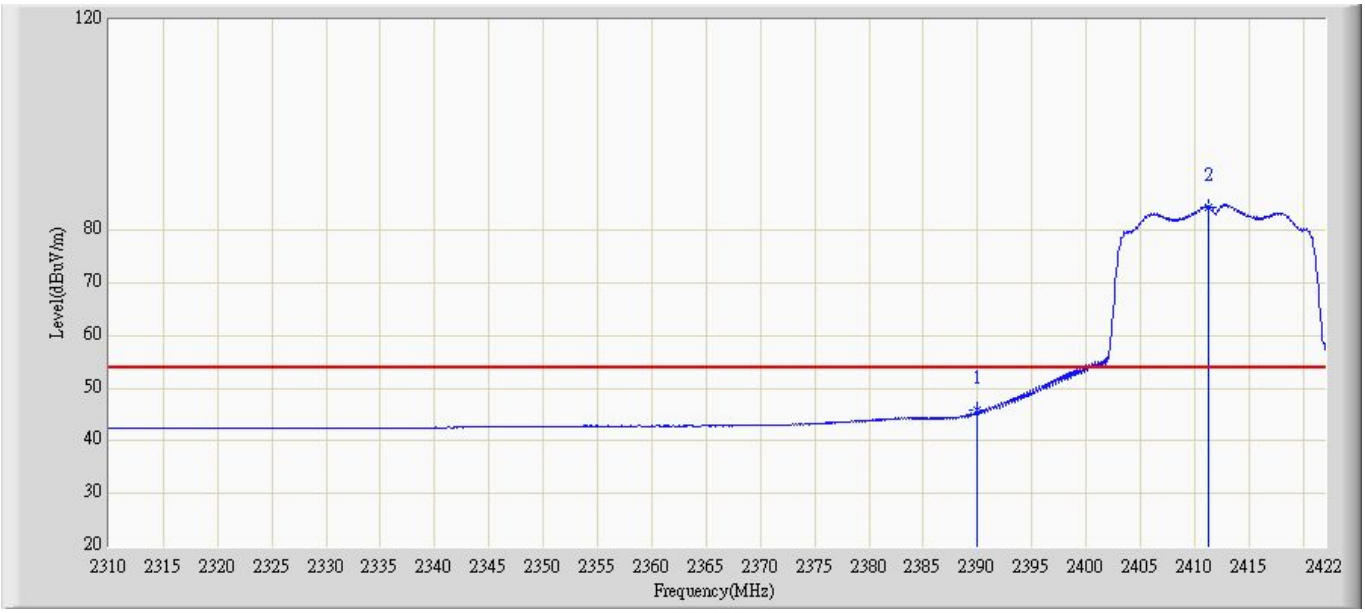
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	43.868	13.128	-10.132	54	30.74	AV
2	*	2412.226	82.661	52.256	N/A	N/A	30.405	AV

Site: AC5	Time: 2014/12/19 - 11:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2412MHz by 802.11n20 chain 2	



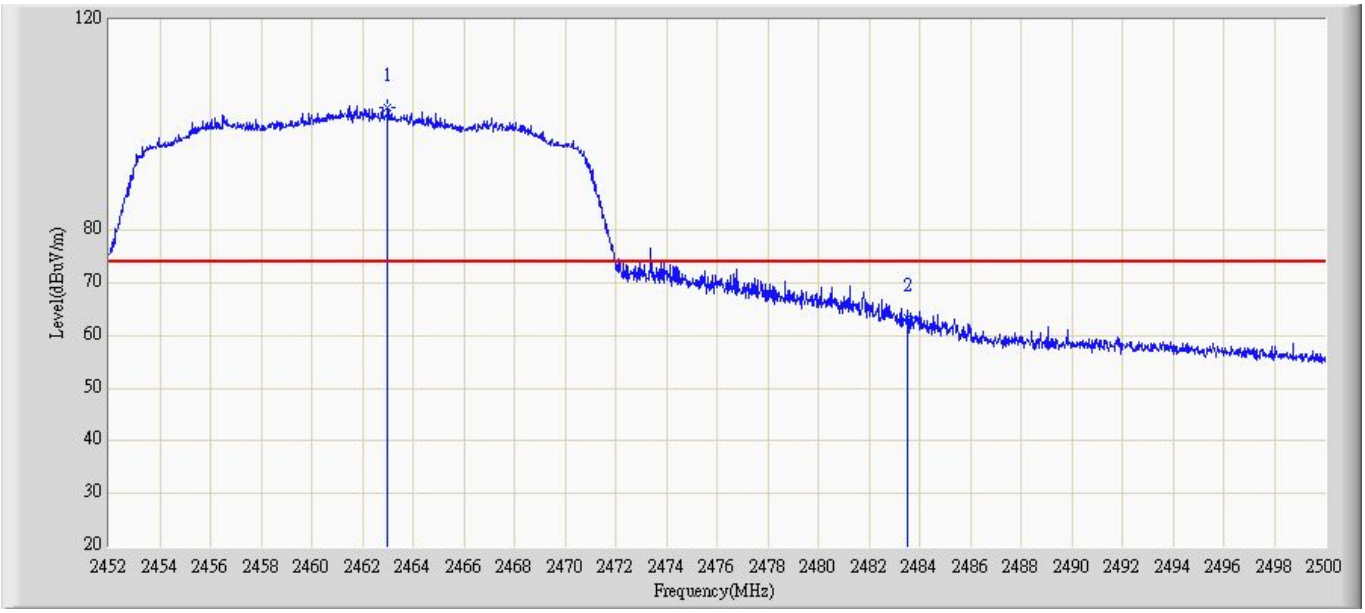
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	57.868	27.128	-16.132	74	30.74	PK
2	*	2411.741	95.647	65.247	N/A	N/A	30.4	PK

Site: AC5	Time: 2014/12/19 - 11:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2412MHz by 802.11n20 chain 2	



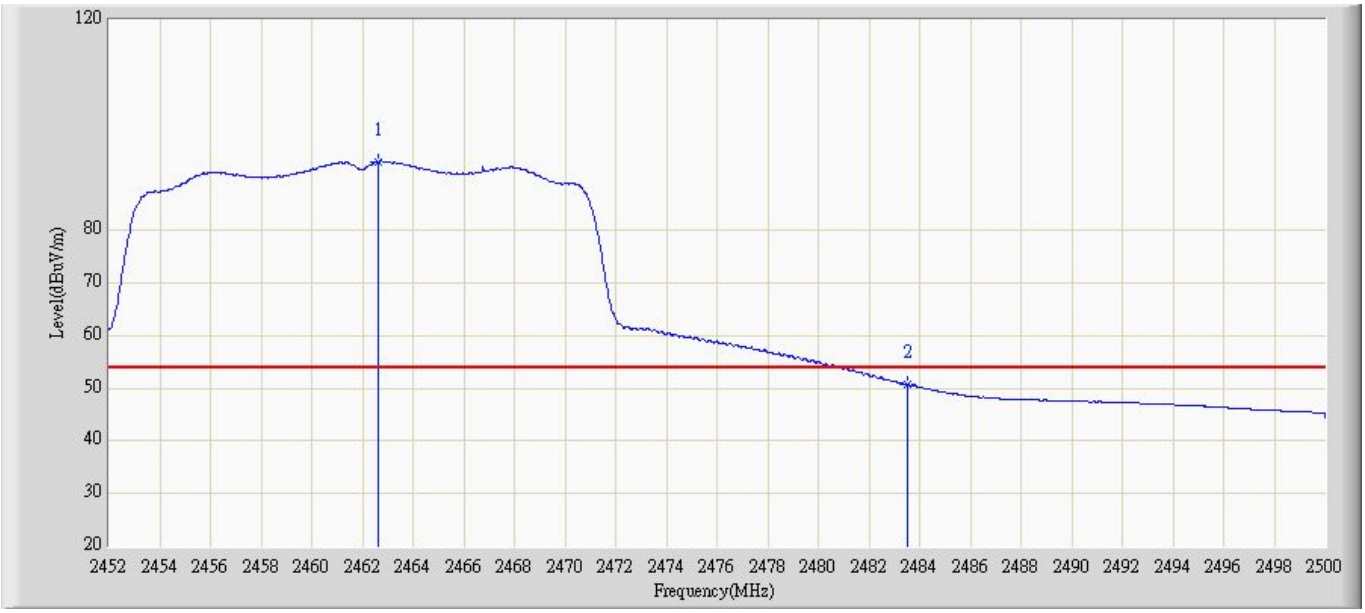
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	45.885	15.145	-8.115	54	30.74	AV
2	*	2411.174	84.526	54.126	N/A	N/A	30.4	AV

Site: AC5	Time: 2014/12/19 - 13:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2462MHz by 802.11n20 chain 1	



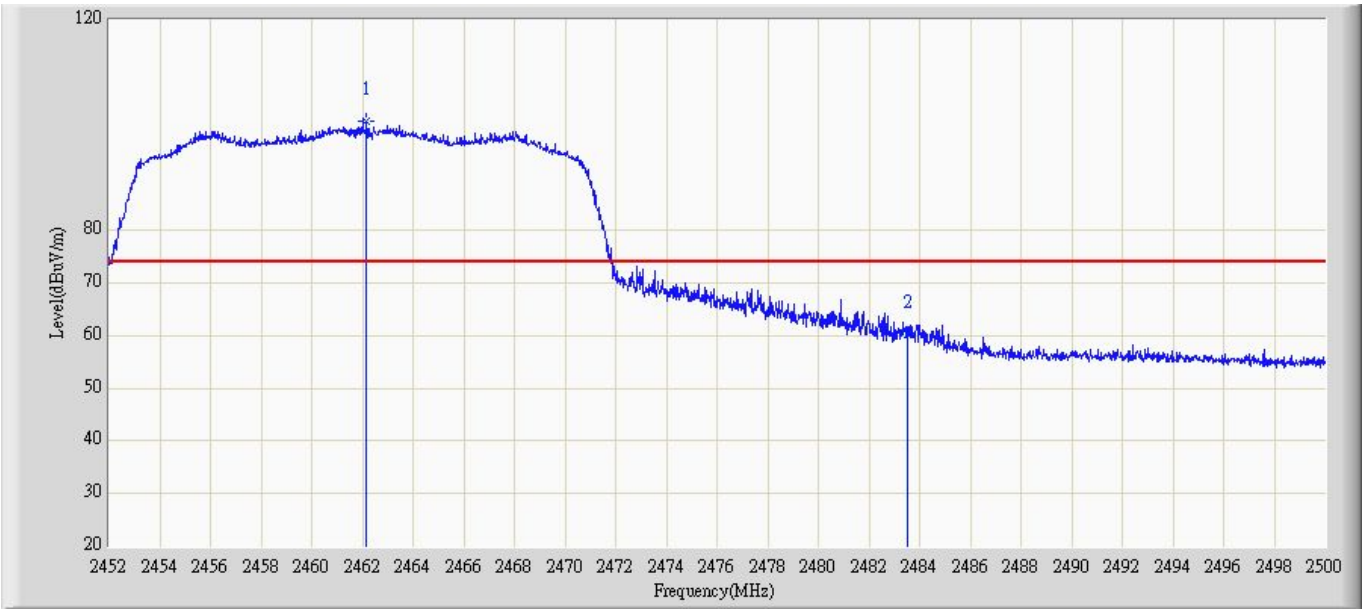
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.457	103.284	72.746	N/A	N/A	30.538	PK
2		2483.5	63.219	32.234	-10.781	74	30.985	PK

Site: AC5	Time: 2014/12/19 - 13:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2462MHz by 802.11n20 chain 1	



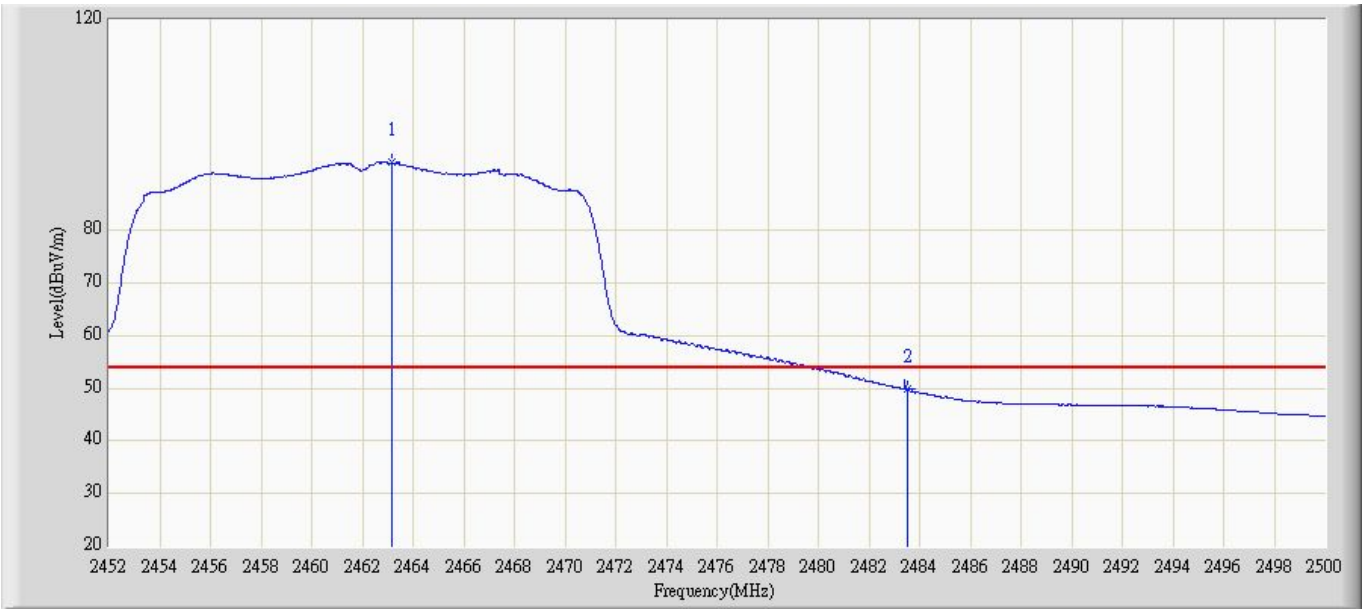
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.787	93.097	62.164	N/A	N/A	30.933	AV
2		2483.5	50.529	19.544	-3.471	54	30.985	AV

Site: AC5	Time: 2014/12/19 - 13:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2462MHz by 802.11n20 chain 1	



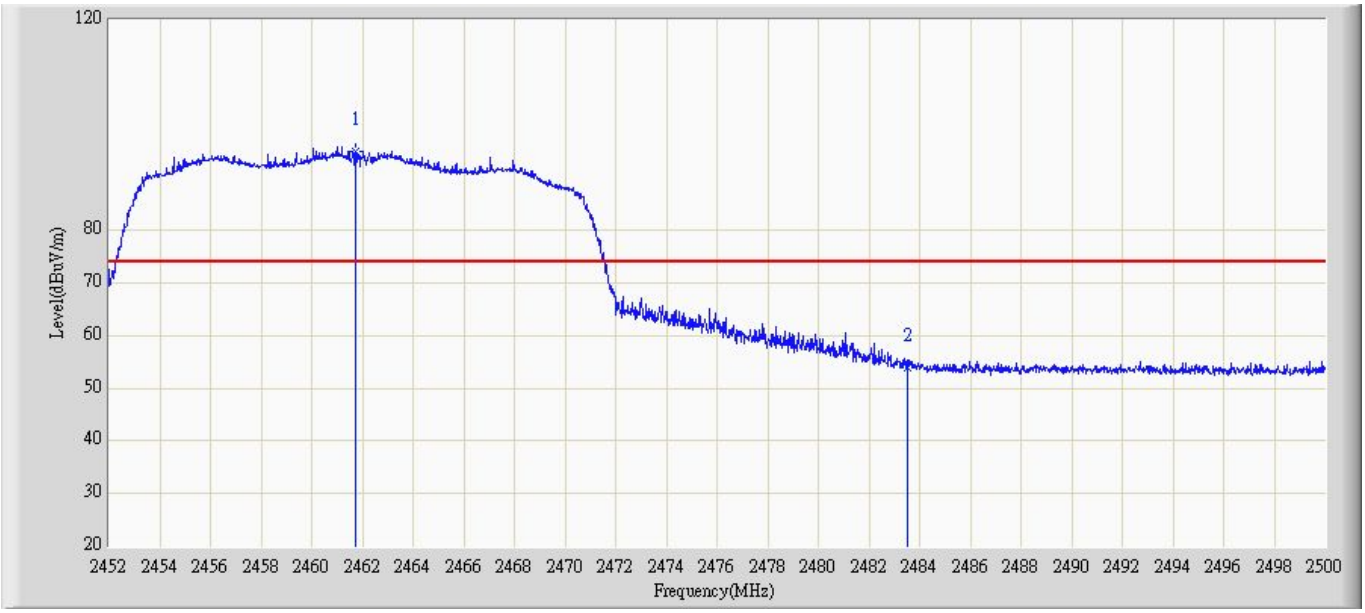
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.457	100.677	70.142	N/A	N/A	30.535	PK
2		2483.5	60.439	29.454	-13.561	74	30.985	PK

Site: AC5	Time: 2014/12/19 - 13:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2462MHz by 802.11n20 chain 1	



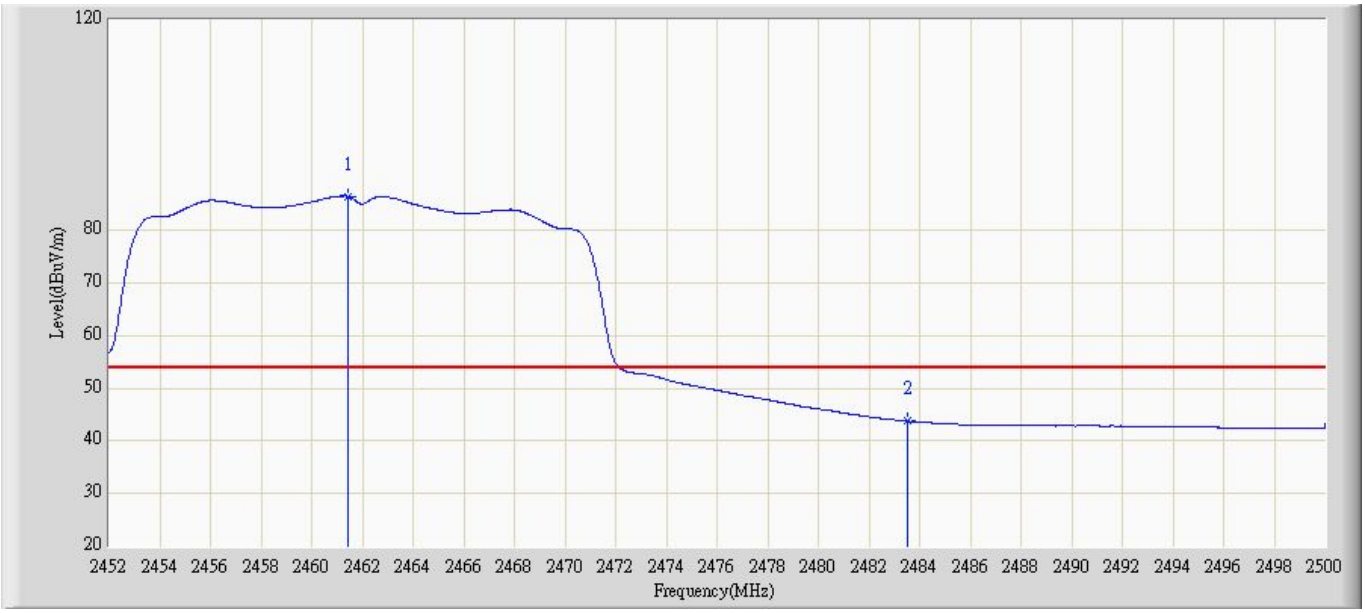
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.327	92.662	62.124	N/A	N/A	30.538	AV
2		2483.5	49.729	18.744	-4.271	54	30.985	AV

Site: AC5	Time: 2014/12/19 - 13:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2462MHz by 802.11n20 chain 2	



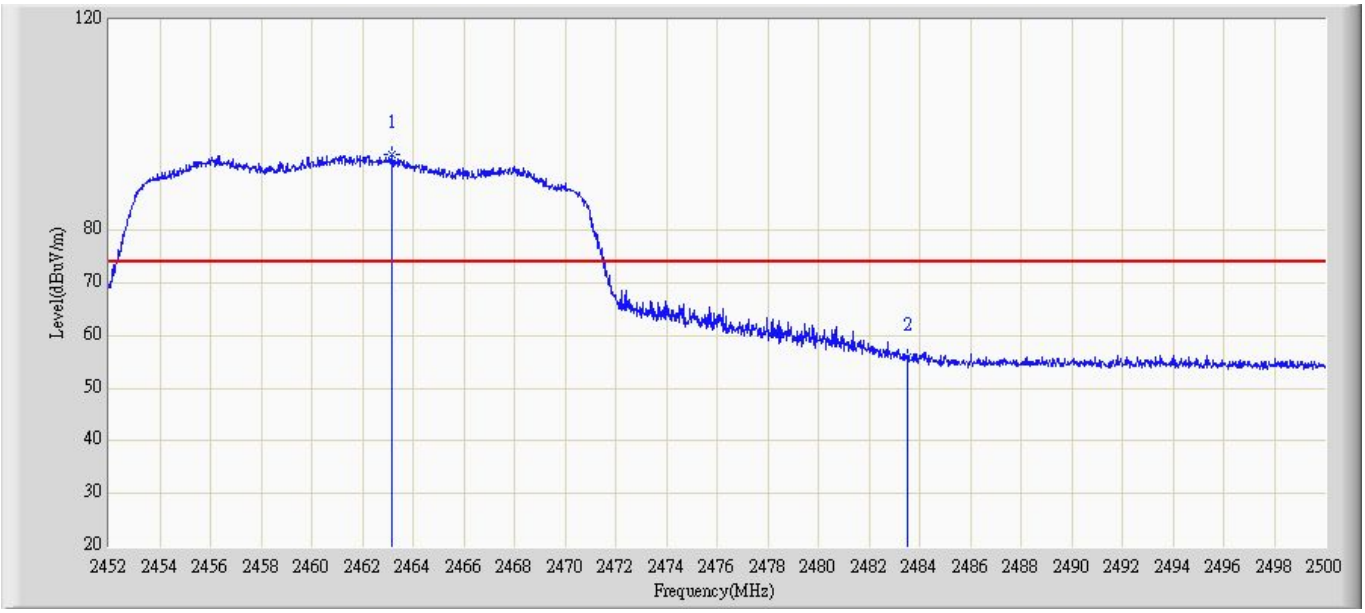
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.784	95.279	64.744	N/A	N/A	30.535	PK
2		2483.5	53.642	22.657	-20.358	74	30.985	PK

Site: AC5	Time: 2014/12/19 - 13:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2462MHz by 802.11n20 chain 2	



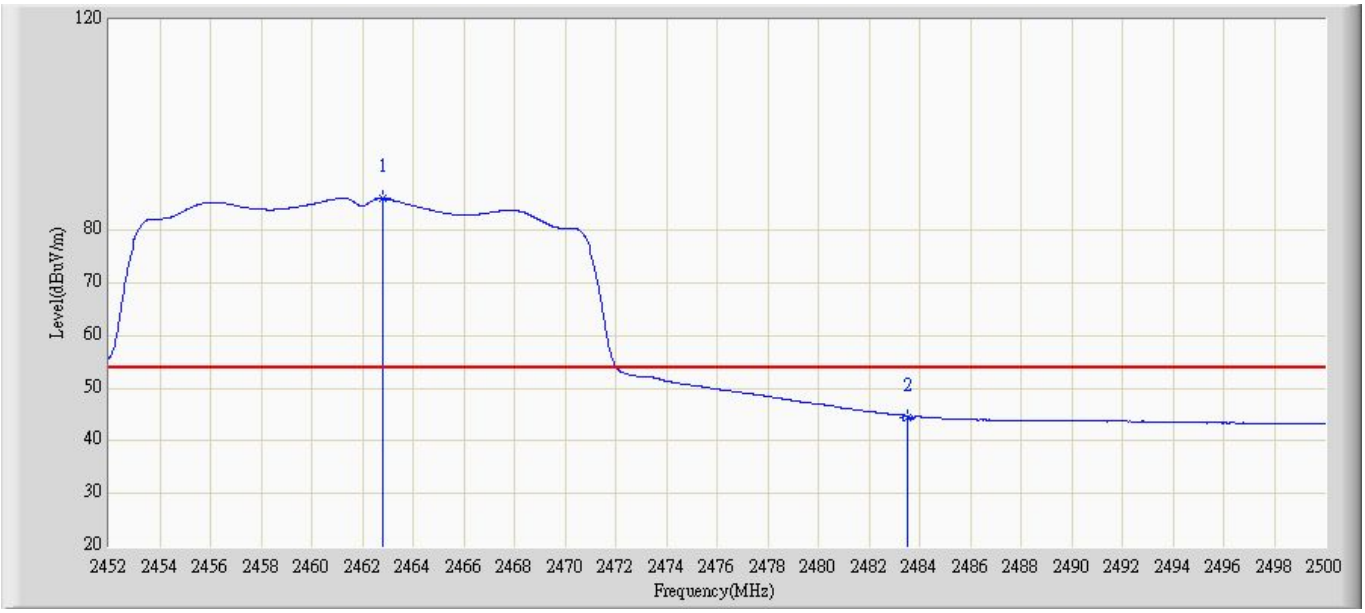
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.124	85.984	55.451	N/A	N/A	30.533	AV
2		2483.5	43.111	12.126	-10.889	54	30.985	AV

Site: AC5	Time: 2014/12/19 - 13:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2462MHz by 802.11n20 chain 2	



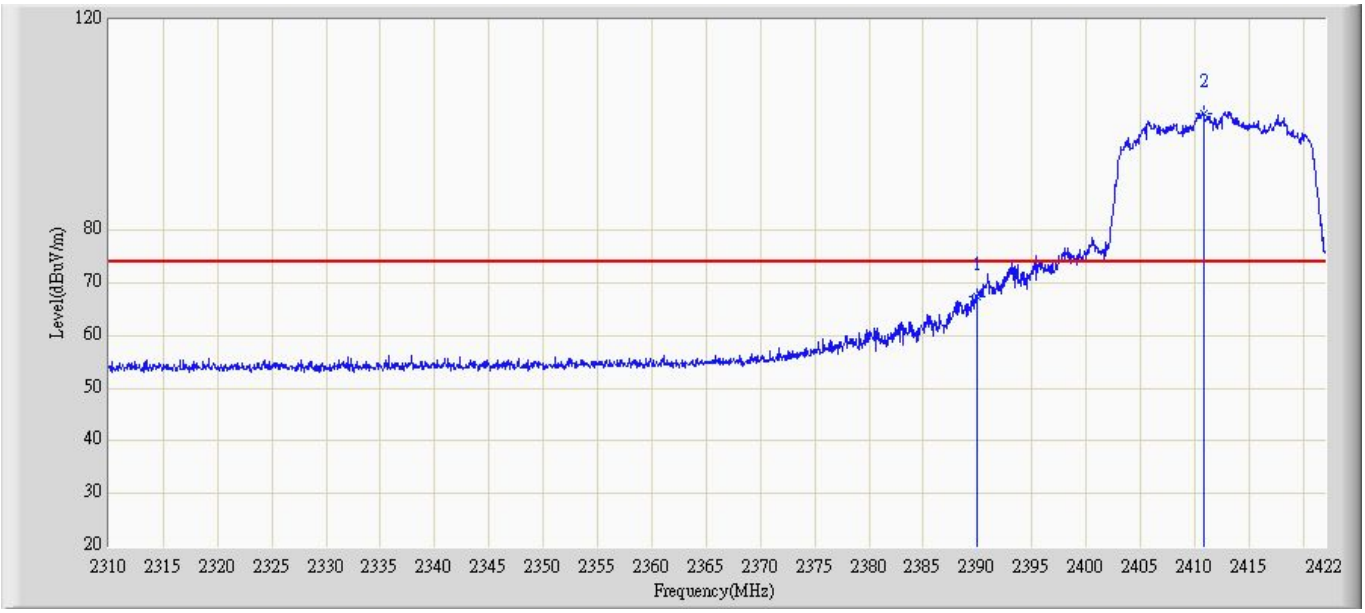
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.474	93.661	63.123	N/A	N/A	30.538	PK
2		2483.5	56.030	25.045	-17.970	74	30.985	PK

Site: AC5	Time: 2014/12/19 - 13:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2462MHz by 802.11n20 chain 2	



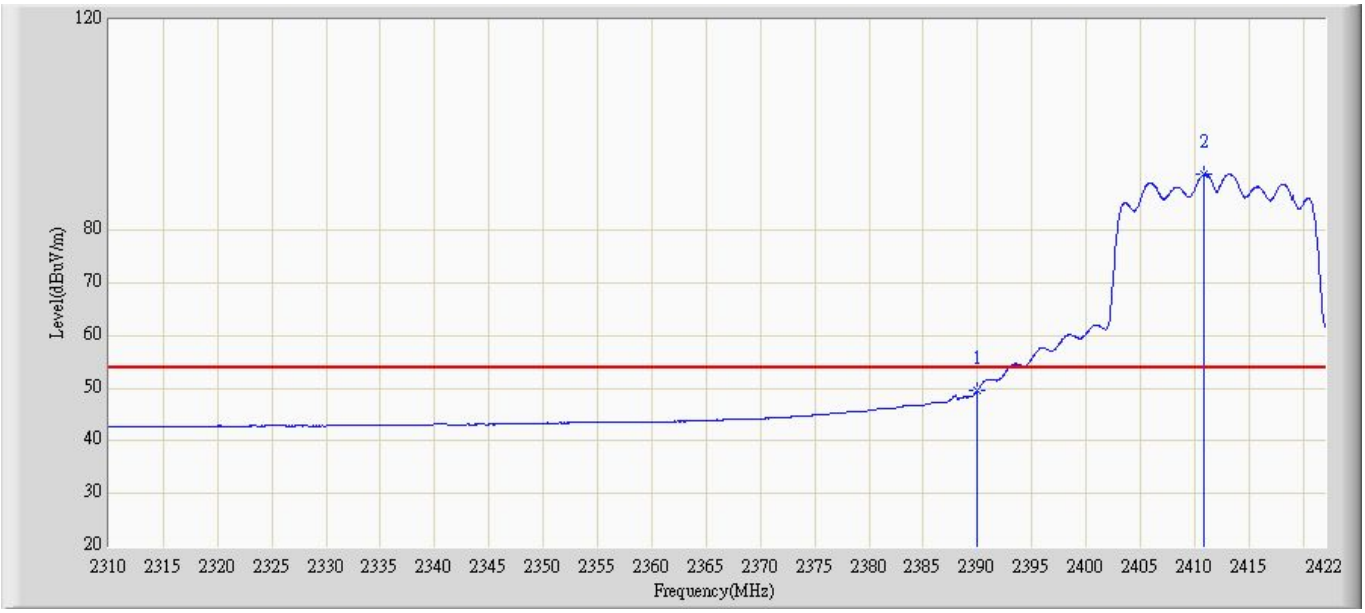
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.124	86.284	55.747	N/A	N/A	30.537	AV
2		2483.5	44.553	13.568	-9.447	54	30.985	AV

Site: AC5	Time: 2014/12/19 - 13:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2412MHz by 802.11n20 chain 1+2	



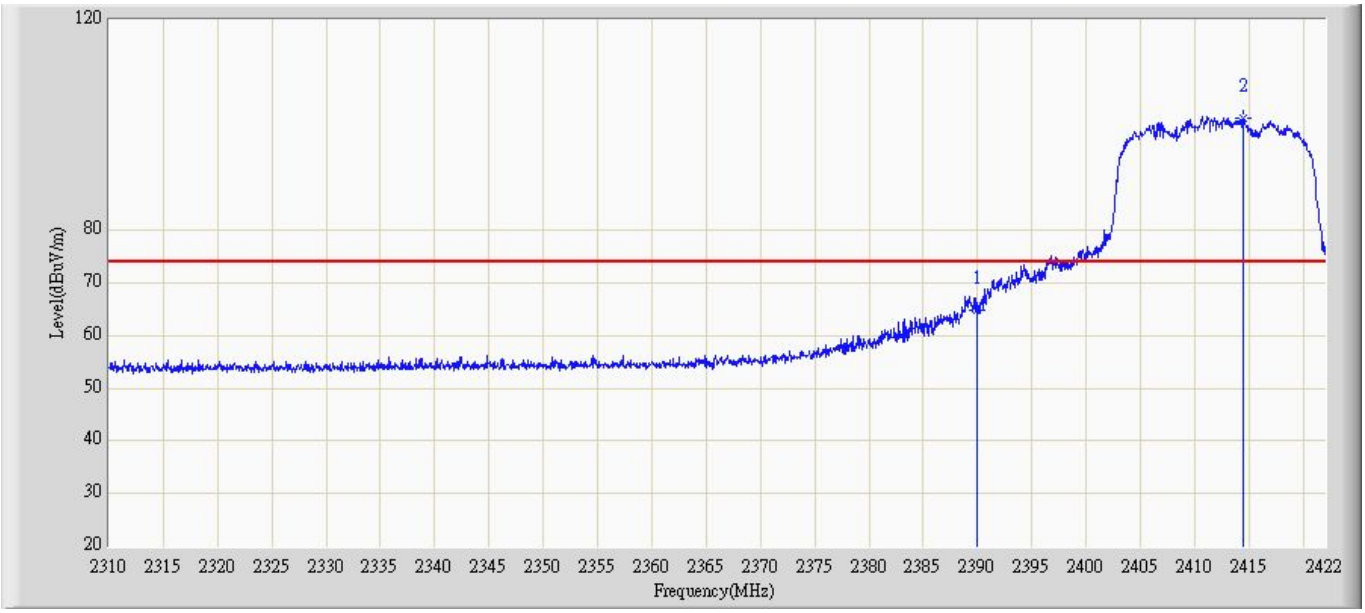
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	67.197	36.457	-6.803	74	30.74	PK
2	*	2410.748	102.259	71.859	N/A	N/A	30.4	PK

Site: AC5	Time: 2014/12/19 - 13:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2412MHz by 802.11n20 chain 1+2	



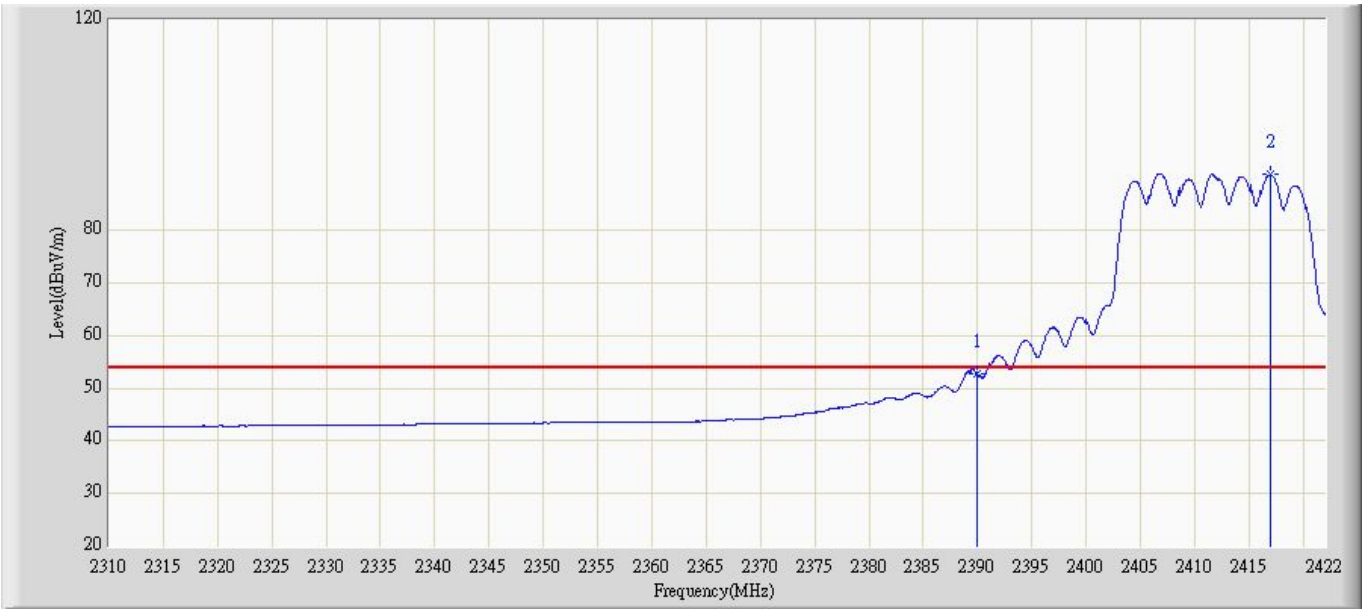
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	49.488	18.748	-4.512	54	30.74	AV
2	*	2410.787	90.854	60.454	N/A	N/A	30.4	AV

Site: AC5	Time: 2014/12/19 - 13:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2412MHz by 802.11n20 chain 1+2	



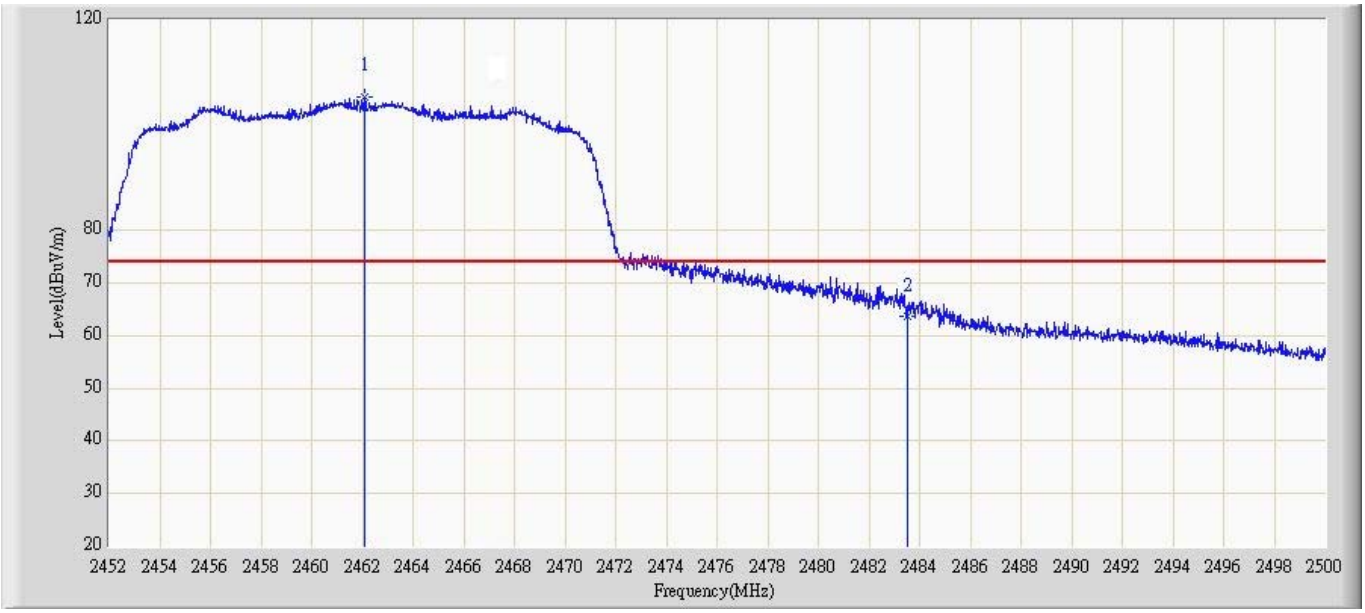
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	64.752	34.012	-9.248	74	30.74	PK
2	*	2414.741	100.554	70.145	N/A	N/A	30.409	PK

Site: AC5	Time: 2014/12/19 - 13:31
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2412MHz by 802.11n20 chain 1+2	



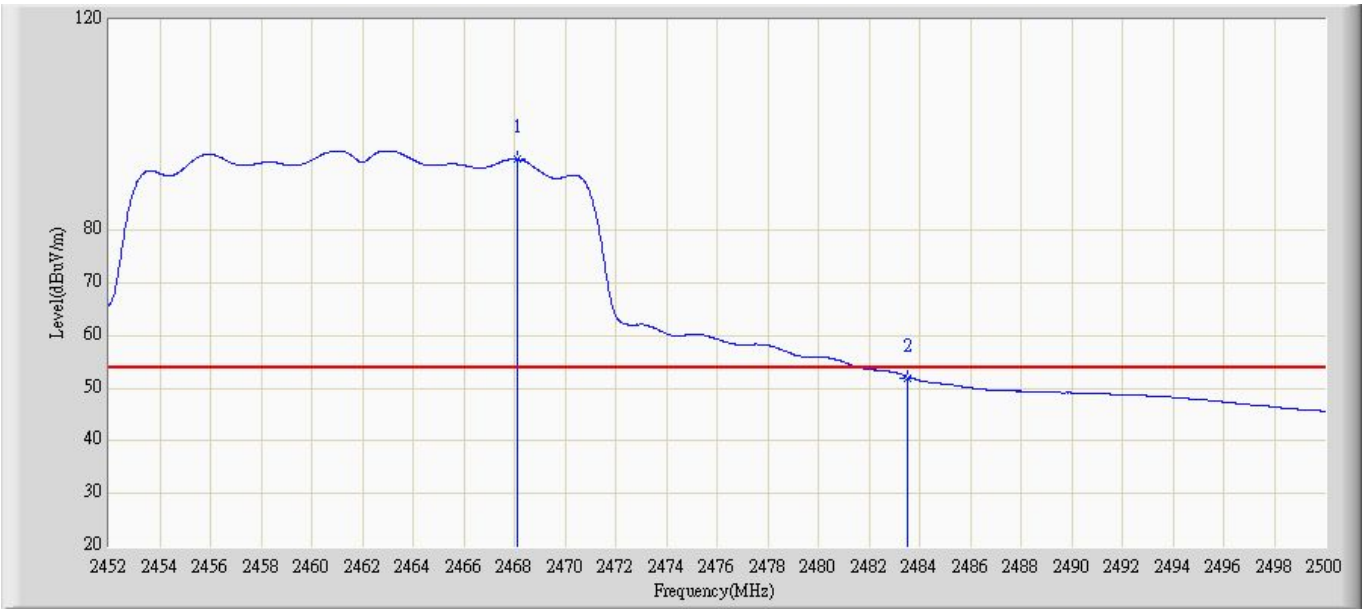
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	52.864	22.124	-1.136	54	30.74	AV
2	*	2417.454	91.258	60.841	N/A	N/A	30.417	AV

Site: AC5	Time: 2014/12/19 - 13:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2462MHz by 802.11n20 chain 1+2	



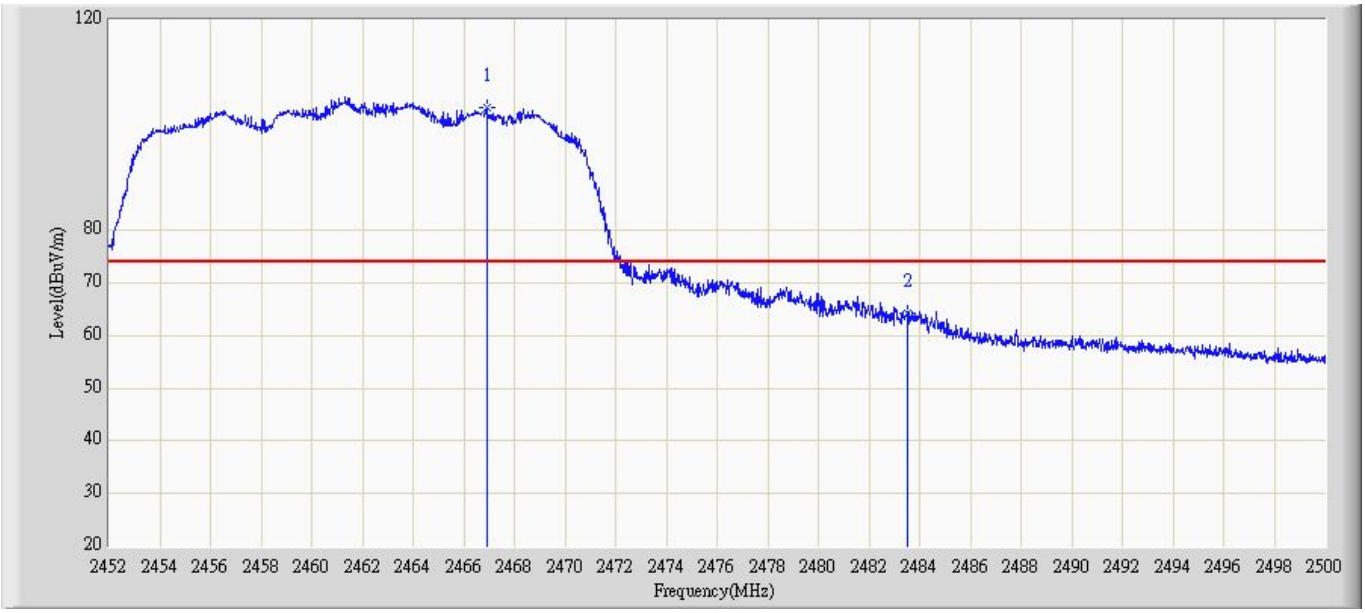
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.746	105.084	74.152	N/A	N/A	30.932	PK
2		2483.5	63.376	32.784	-10.624	74	30.592	PK

Site: AC5	Time: 2014/12/19 - 13:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2462MHz by 802.11n20 chain 1+2	



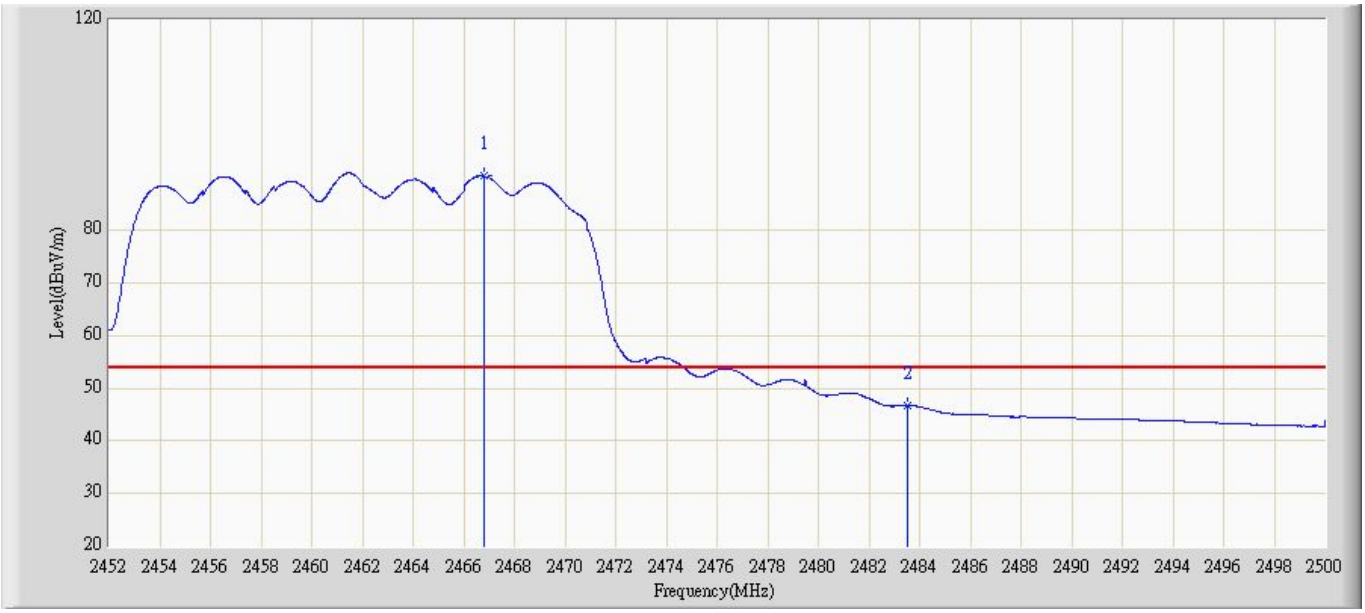
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2468.474	93.292	62.741	N/A	N/A	30.551	AV
2		2483.5	51.436	20.451	-2.564	54	30.985	AV

Site: AC5	Time: 2014/12/19 - 13:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2462MHz by 802.11n20 chain 1+2	



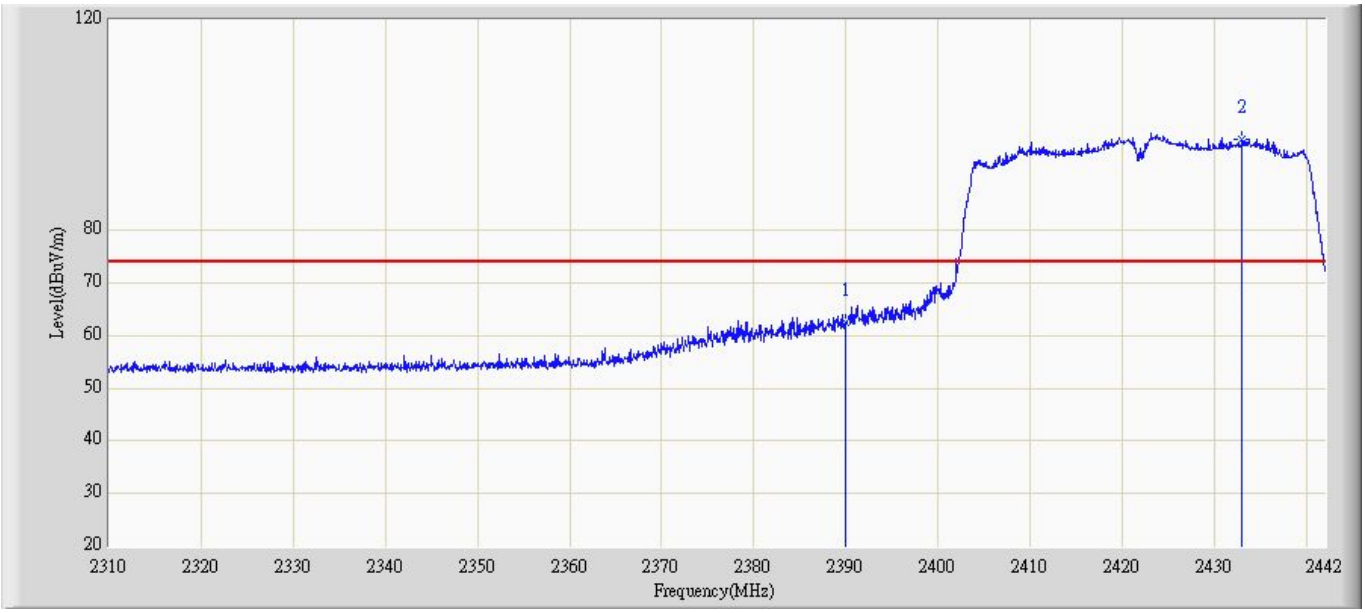
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2466.743	103.002	72.454	N/A	N/A	30.548	PK
2		2483.5	64.726	33.741	-9.274	74	30.985	PK

Site: AC5	Time: 2014/12/19 - 13:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3:Transmit at channel 2462MHz by 802.11n20 chain 1+2	



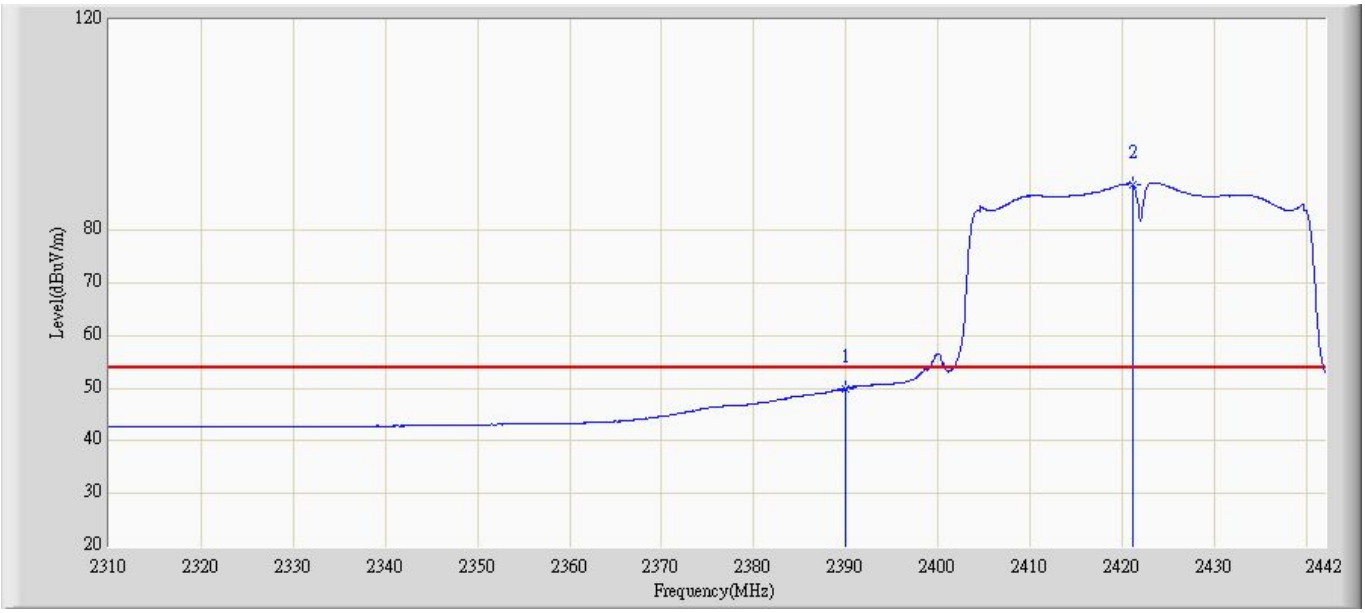
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2466.746	89.998	59.451	N/A	N/A	30.547	AV
2		2483.5	46.339	15.354	-7.661	54	30.985	AV

Site: AC5	Time: 2014/12/19 - 13:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2422MHz by 802.11n40 chain 1	



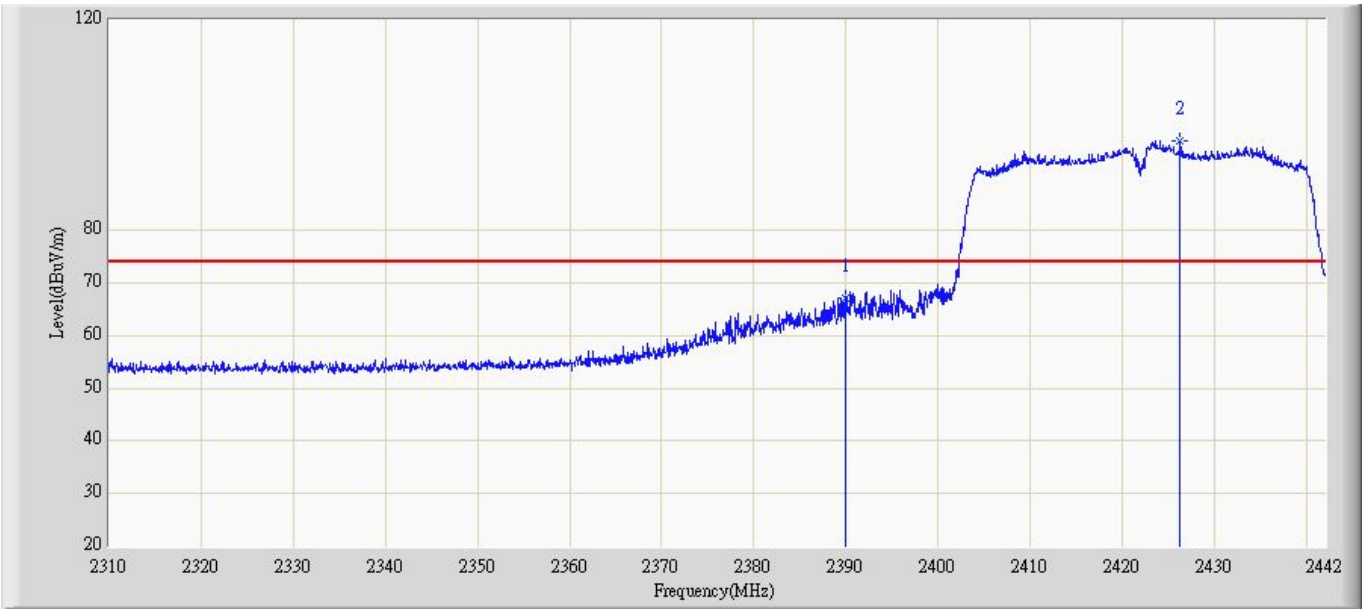
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	62.196	31.456	-11.804	74	30.74	PK
2	*	2432.787	96.579	66.121	N/A	N/A	30.458	PK

Site: AC5	Time: 2014/12/19 - 13:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2422MHz by 802.11n40 chain 1	



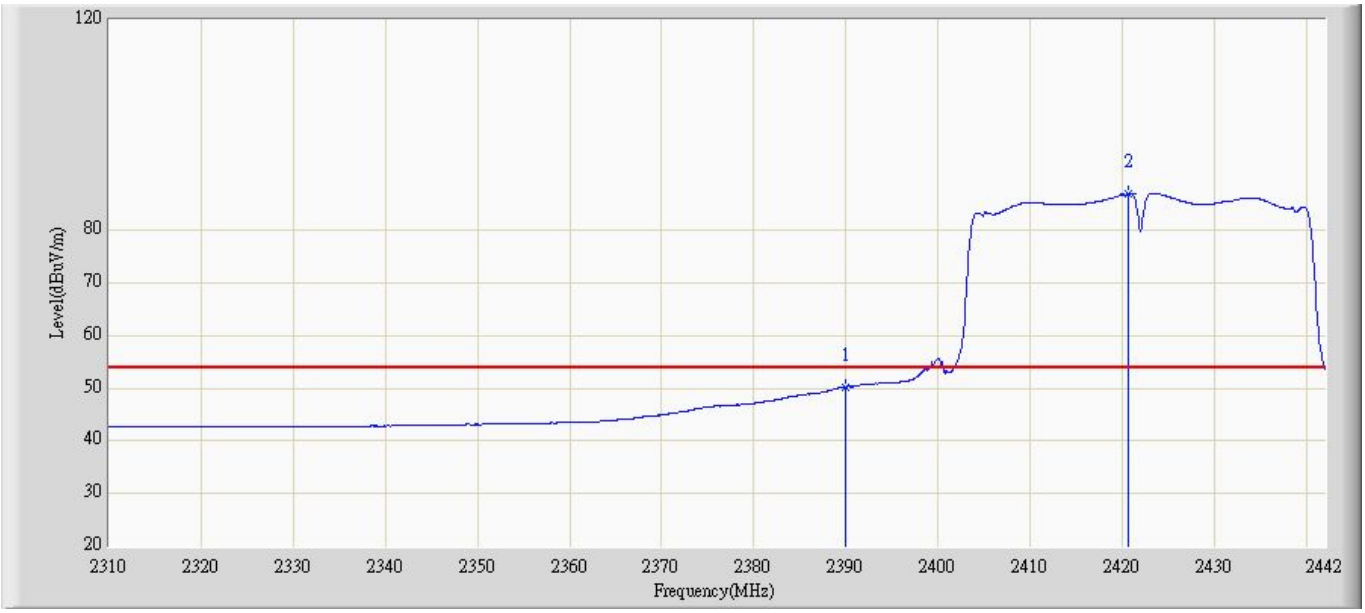
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	49.894	19.154	-4.106	54	30.74	AV
2	*	2421.147	88.752	58.325	N/A	N/A	30.427	AV

Site: AC5	Time: 2014/12/19 - 13:59
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2422MHz by 802.11n40 chain 1	



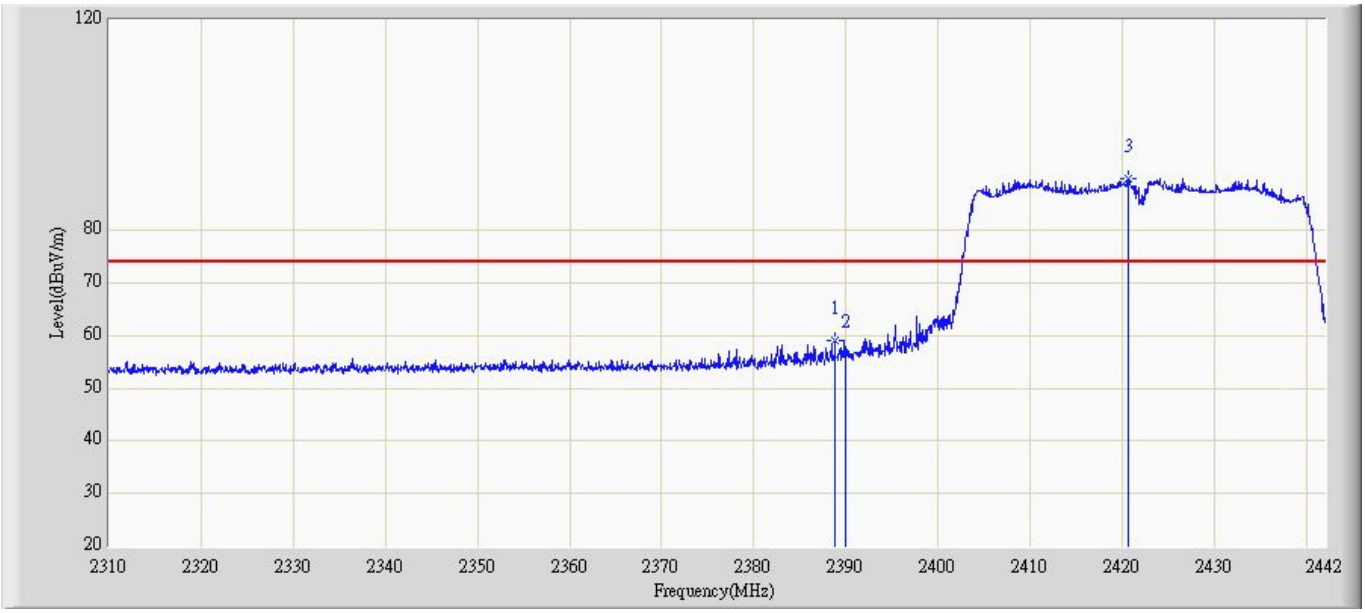
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	66.984	36.244	-7.016	74	30.74	PK
2	*	2426.145	96.766	66.325	N/A	N/A	30.441	PK

Site: AC5	Time: 2014/12/19 - 14:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2422MHz by 802.11n40 chain 1	



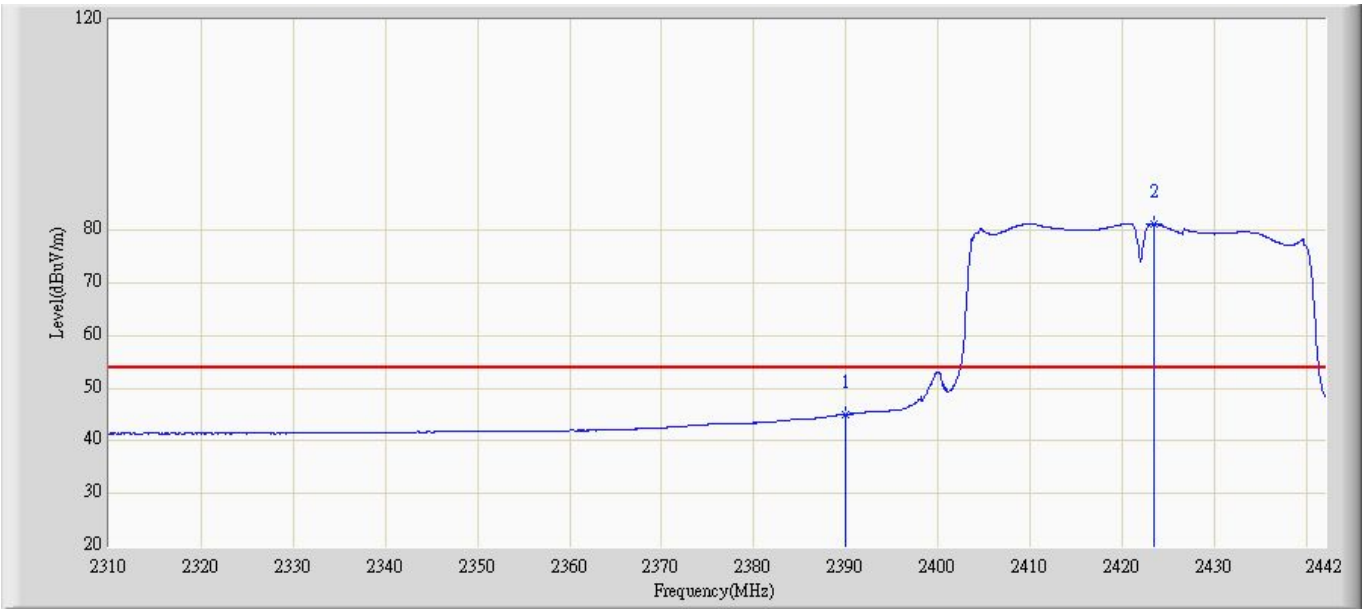
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	49.864	19.124	-4.136	54	30.74	AV
2	*	2420.457	86.661	56.235	N/A	N/A	30.426	AV

Site: AC5	Time: 2014/12/19 - 14:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2422MHz by 802.11n40 chain 2	



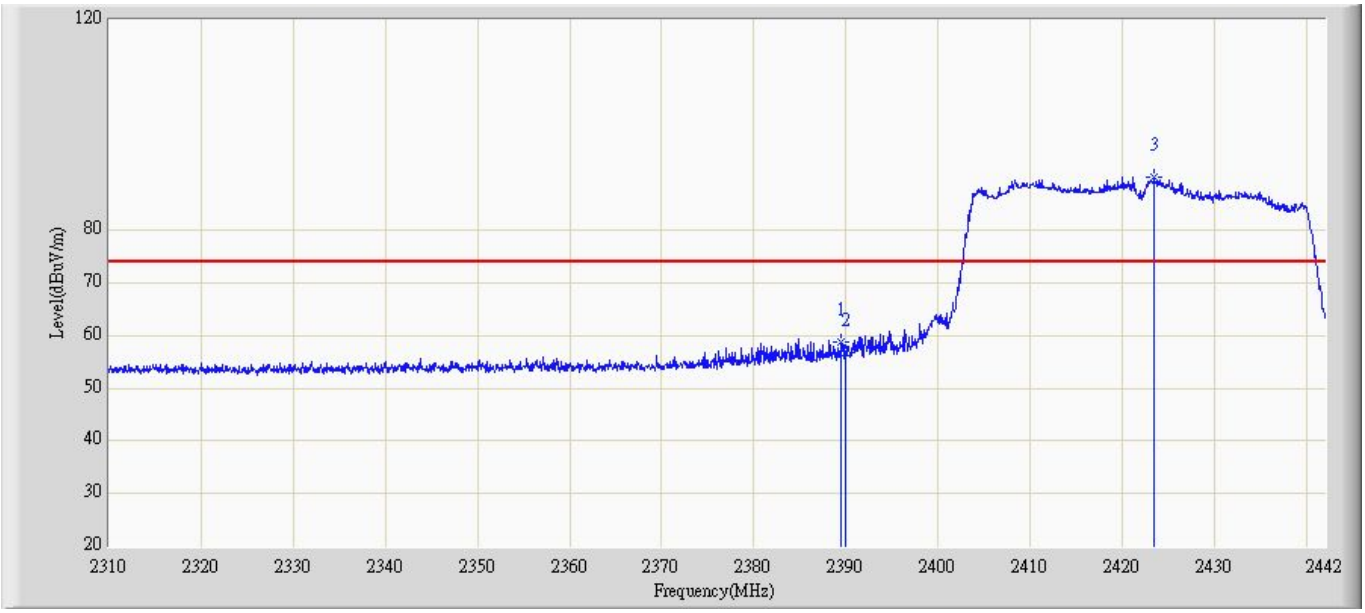
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2388.804	58.691	28.345	-15.309	74	30.346	PK
2		2390	56.493	25.753	-17.507	74	30.74	PK
3	*	2420.334	89.698	59.273	N/A	N/A	30.426	PK

Site: AC5	Time: 2014/12/19 - 14:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2422MHz by 802.11n40 chain 2	



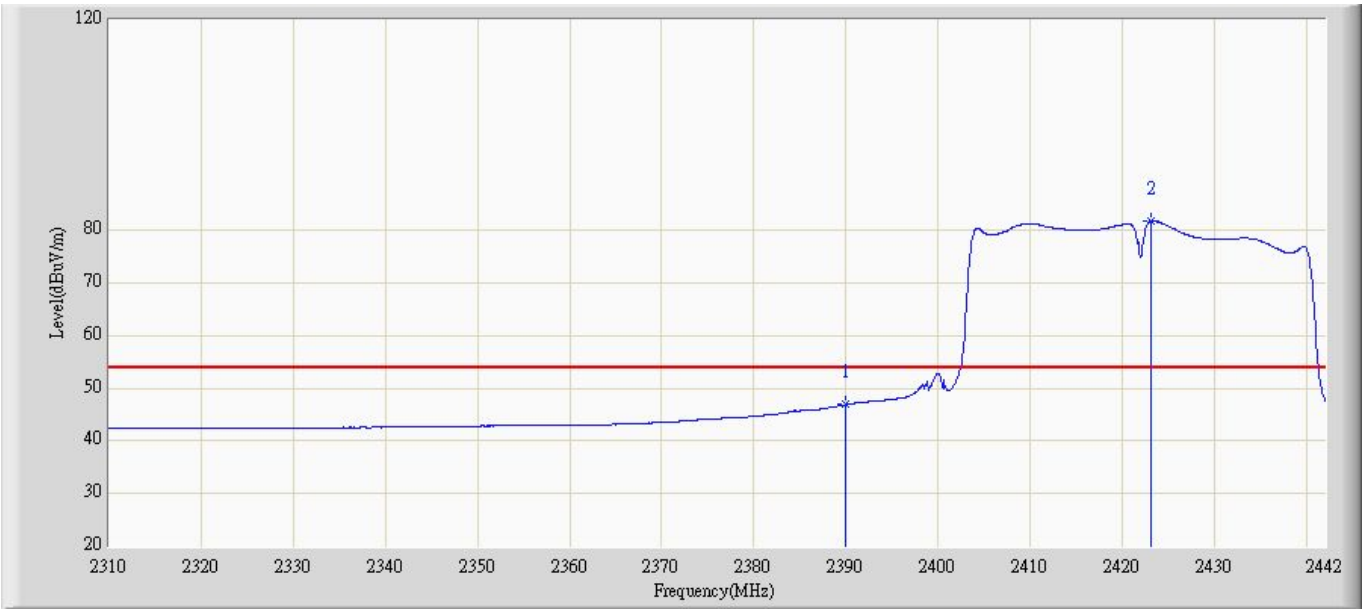
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	45.487	14.747	-8.513	54	30.74	AV
2	*	2423.345	81.008	50.574	N/A	N/A	30.434	AV

Site: AC5	Time: 2014/12/19 - 14:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2422MHz by 802.11n40 chain 2	



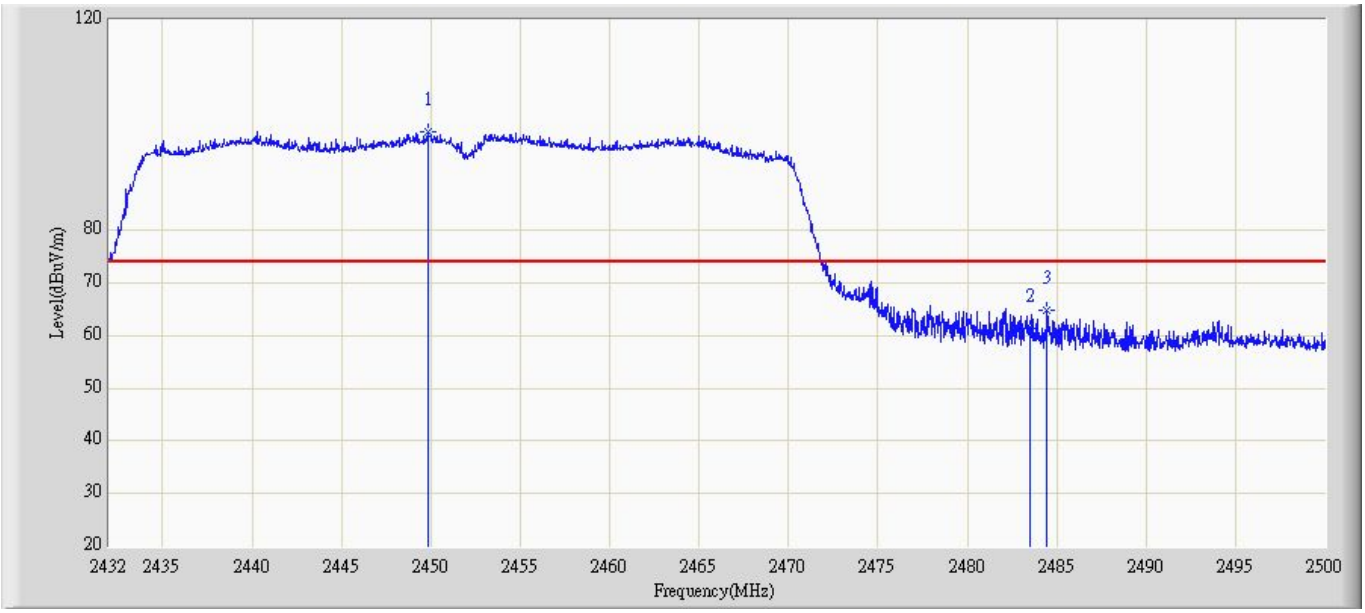
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2389.347	58.081	27.343	-15.919	74	30.738	PK
2		2390	56.392	25.652	-17.608	74	30.74	PK
3	*	2423.752	90.109	59.675	N/A	N/A	30.434	PK

Site: AC5	Time: 2014/12/19 - 14:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2422MHz by 802.11n40 chain 2	



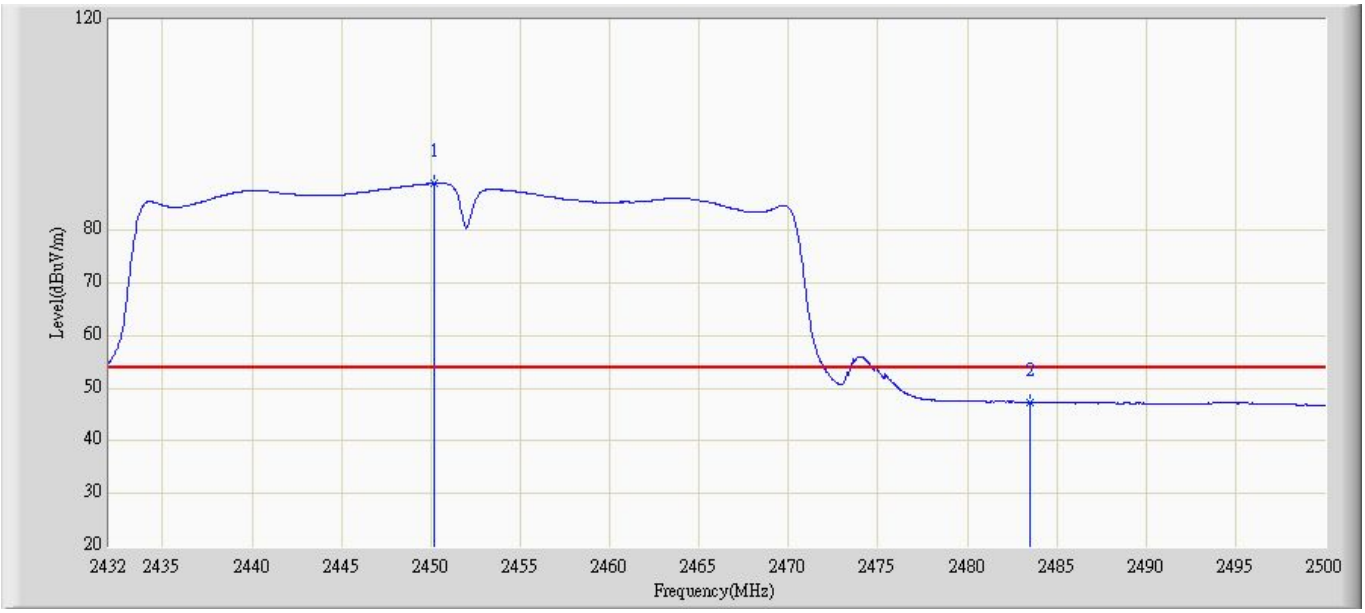
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	47.283	16.543	-6.717	54	30.74	AV
2	*	2423.247	82.055	51.623	N/A	N/A	30.432	AV

Site: AC5	Time: 2014/12/19 - 14:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2452MHz by 802.11n40 chain 1	



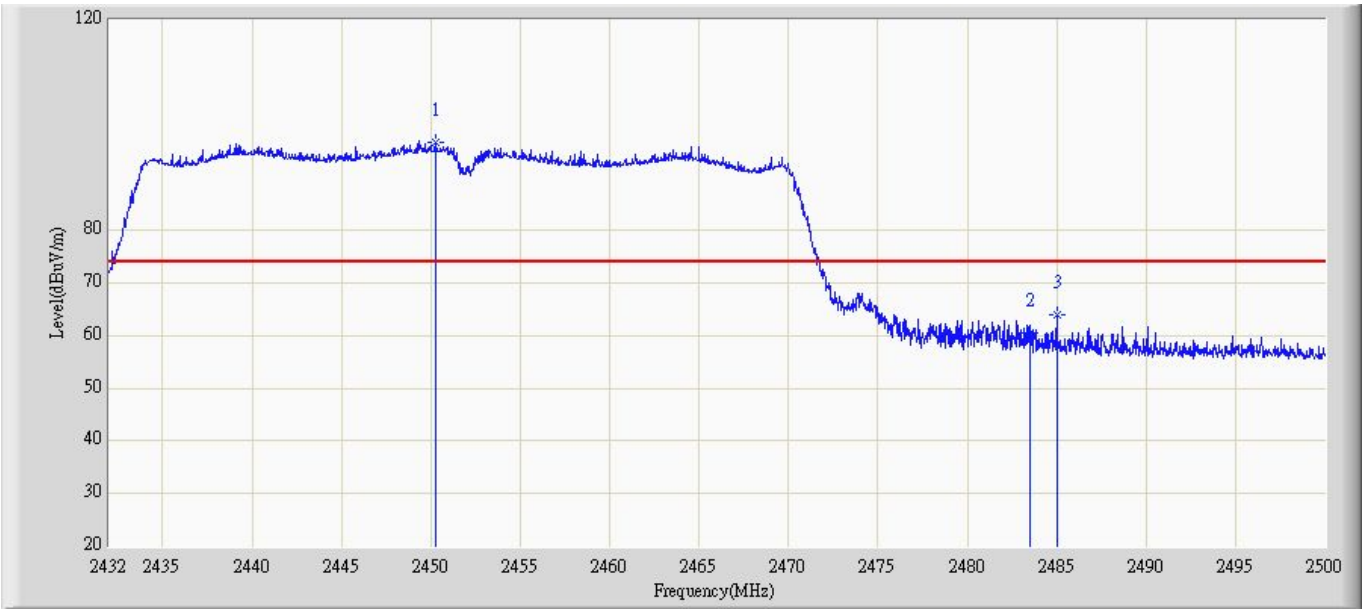
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2449.85	98.754	68.254	N/A	N/A	30.5	PK
2		2483.5	61.730	30.745	-12.270	74	30.985	PK
3		2484.462	64.726	33.124	-9.274	74	30.988	PK

Site: AC5	Time: 2014/12/19 - 14:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2452MHz by 802.11n40 chain 1	



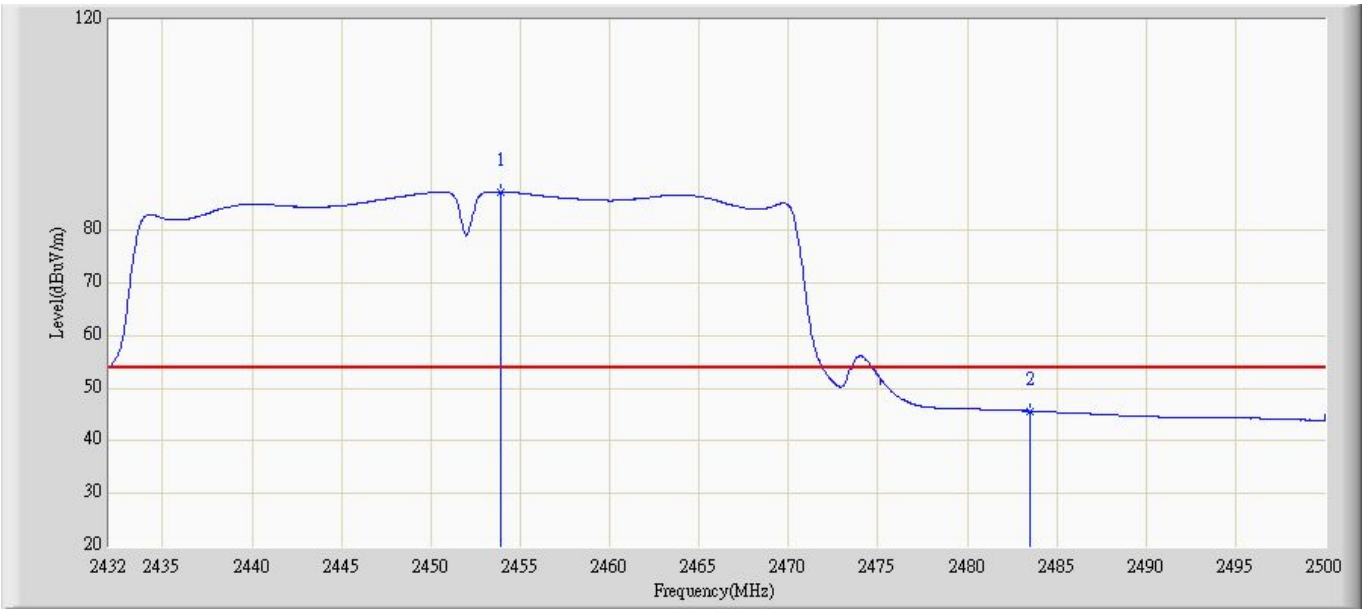
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2450.174	88.624	58.124	N/A	N/A	30.5	AV
2		2483.5	47.326	16.341	-6.674	54	30.985	AV

Site: AC5	Time: 2014/12/19 - 14:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2452MHz by 802.11n40 chain 1	



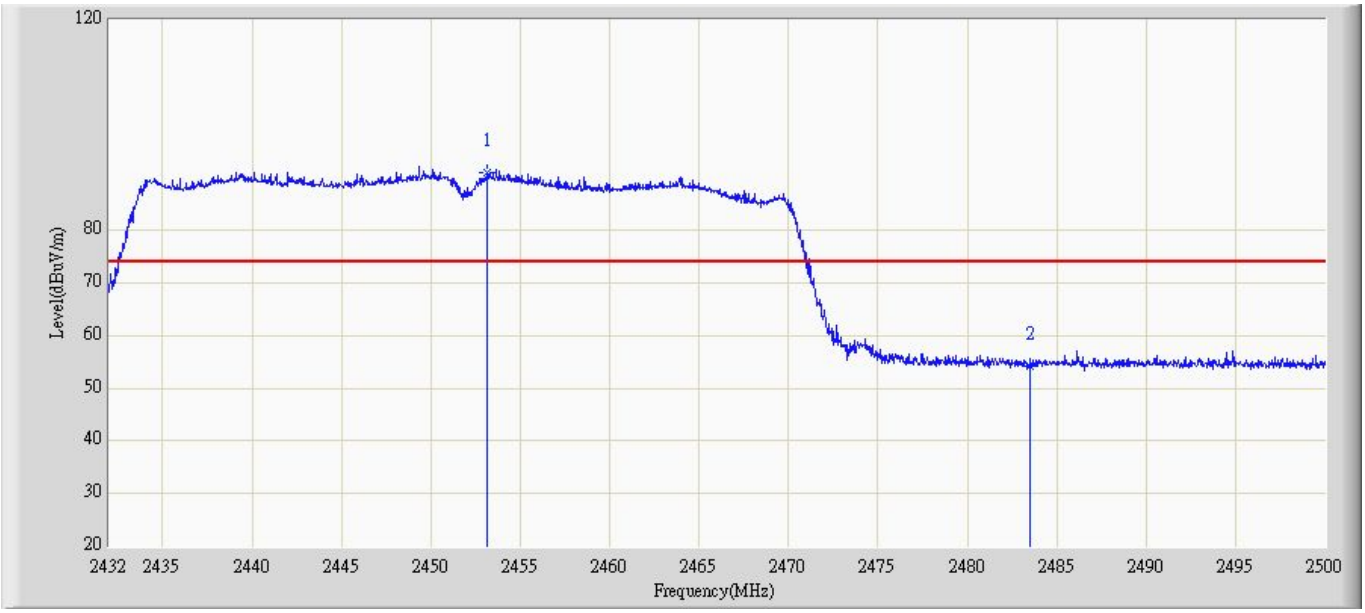
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2450.454	96.614	66.112	N/A	N/A	30.502	PK
2		2483.5	60.130	29.145	-13.870	74	30.985	PK
3		2485.175	63.857	33.745	-10.143	74	30.596	PK

Site: AC5	Time: 2014/12/19 - 14:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2452MHz by 802.11n40 chain 1	



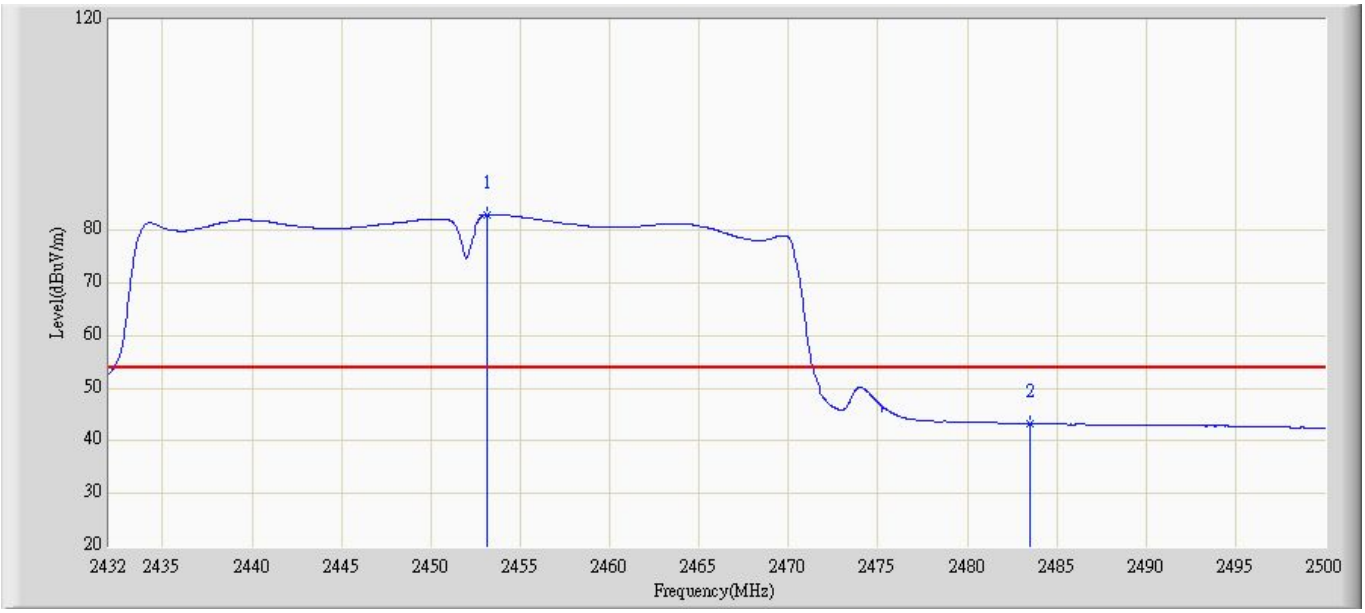
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.447	86.635	56.124	N/A	N/A	30.511	AV
2		2483.5	45.572	14.587	-8.428	54	30.985	AV

Site: AC5	Time: 2014/12/19 - 14:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2452MHz by 802.11n40 chain 2	



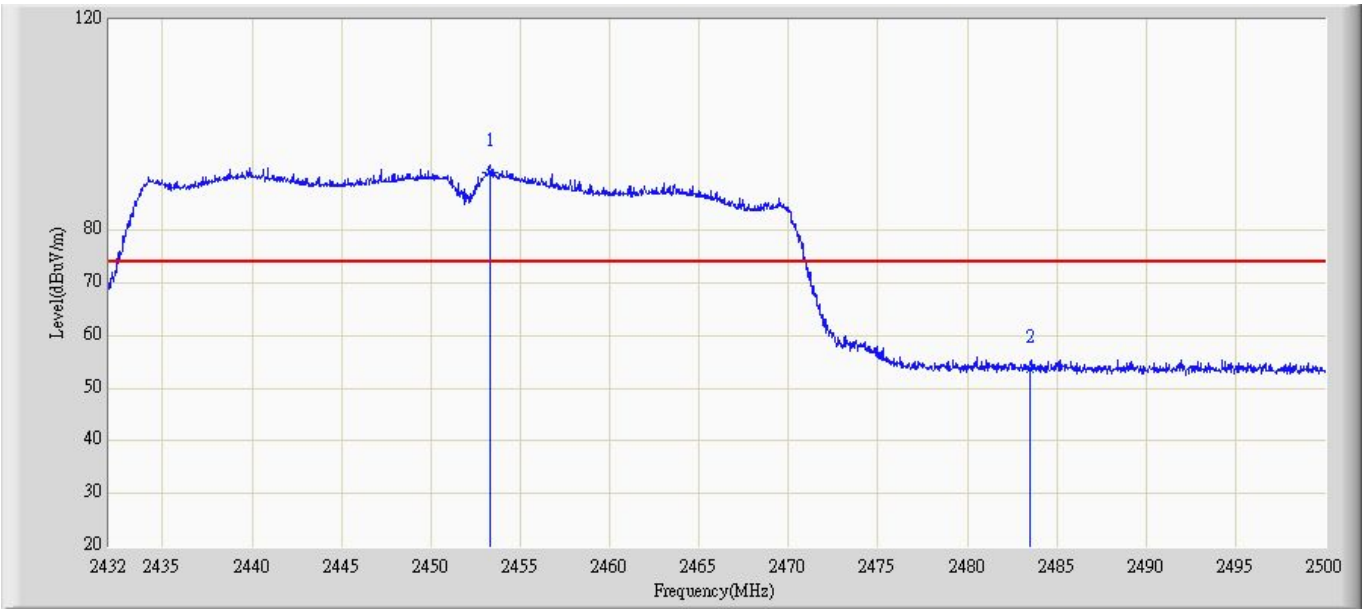
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.741	90.634	60.124	N/A	N/A	30.51	PK
2		2483.5	54.310	23.325	-19.690	74	30.985	PK

Site: AC5	Time: 2014/12/19 - 15:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2452MHz by 802.11n40 chain 2	



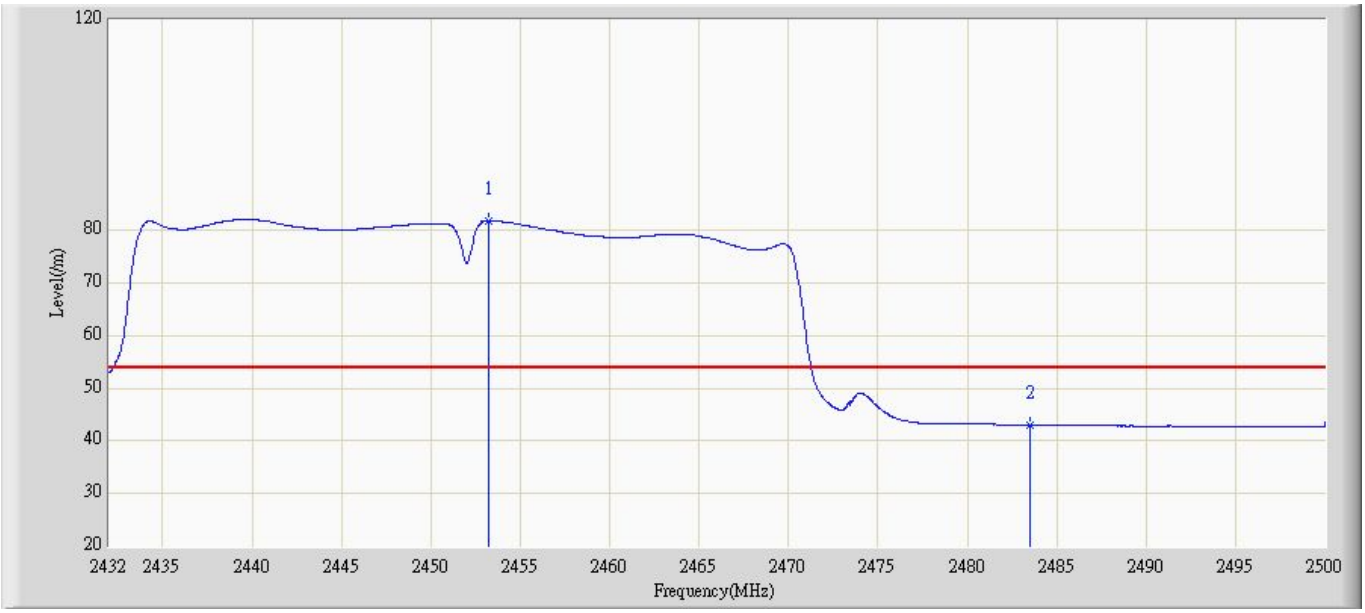
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.456	82.635	52.125	N/A	N/A	30.51	AV
2		2483.5	43.442	12.457	-10.558	54	30.985	AV

Site: AC5	Time: 2014/12/19 - 15:11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2452MHz by 802.11n40 chain 2	



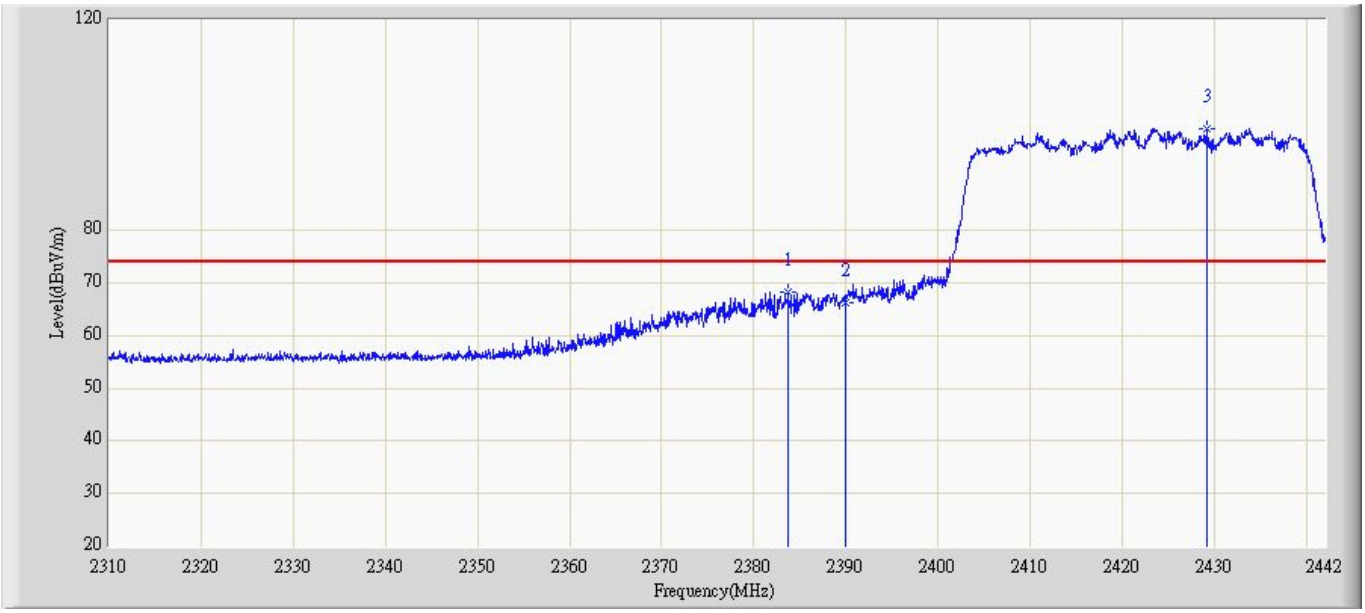
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.635	90.855	60.345	N/A	N/A	30.51	PK
2		2483.5	53.112	22.127	-20.888	74	30.985	PK

Site: AC5	Time: 2014/12/19 - 15:11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2452MHz by 802.11n40 chain 2	



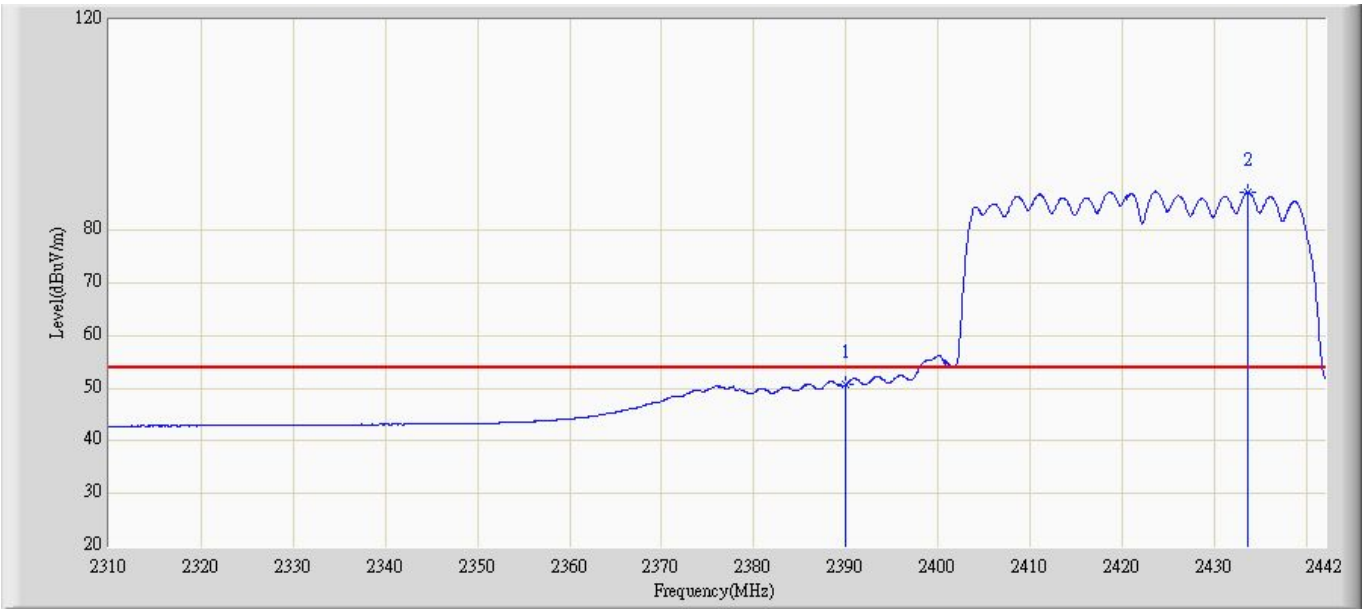
No	Mark	Frequency (MHz)	Measure Level (/m)	Reading Level ()	Over Limit (dB)	Limit (/m)	Factor (dB)	Type
1	*	2453.265	81.637	51.127	N/A	N/A	30.51	AV
2		2483.5	43.219	12.234	-10.781	54	30.985	AV

Site: AC5	Time: 2014/12/19 - 15:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2422MHz by 802.11n40 chain 1+2	



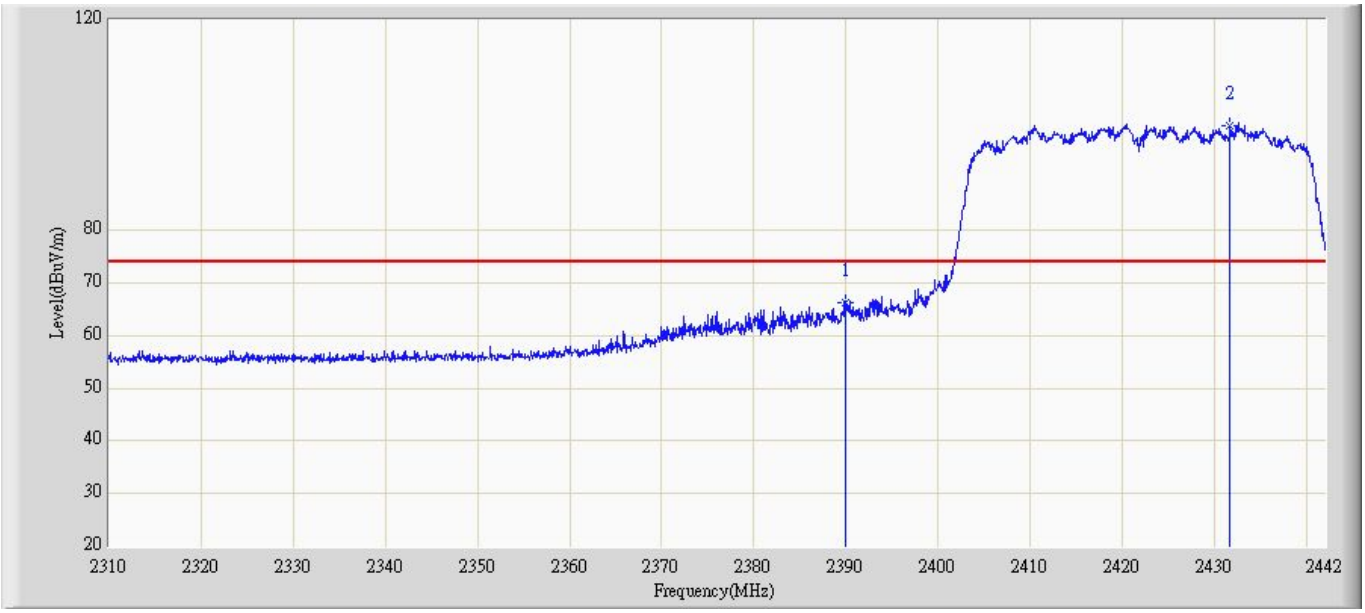
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2383.342	67.565	37.234	-6.435	74	30.331	PK
2		2390	66.175	35.435	-7.825	74	30.74	PK
3	*	2429.152	99.277	68.642	N/A	N/A	30.449	PK

Site: AC5	Time: 2014/12/19 - 15:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2422MHz by 802.11n40 chain 1+2	



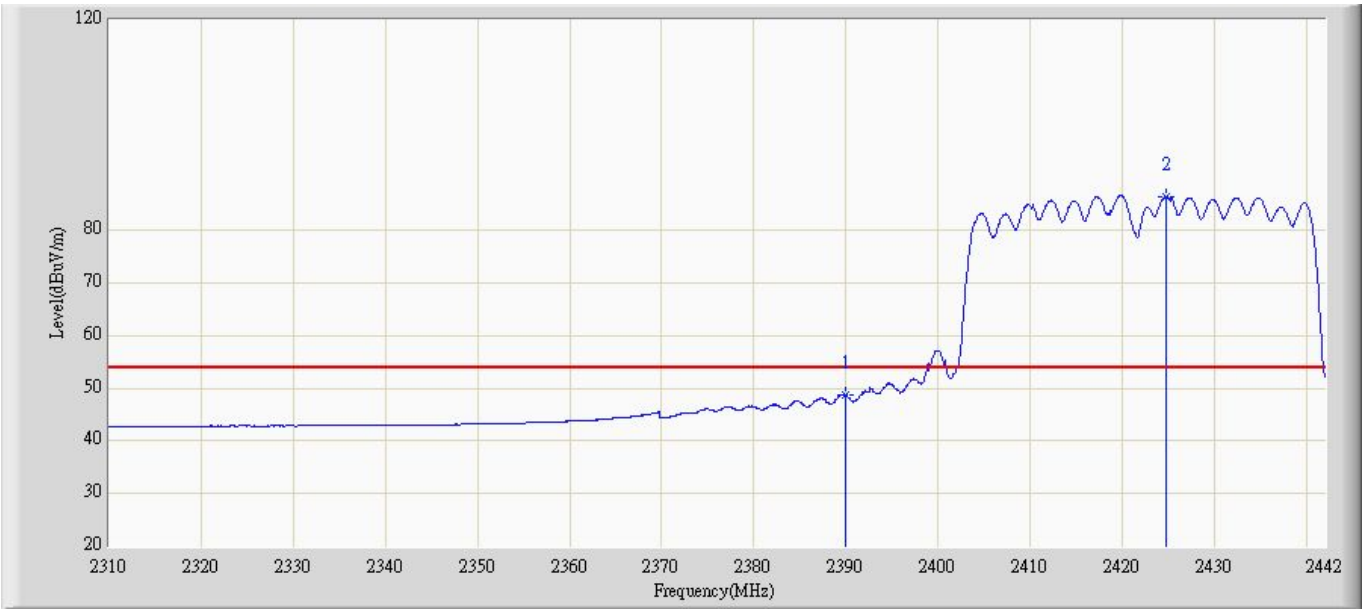
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	50.081	19.341	-3.919	54	30.74	AV
2	*	2433.543	86.901	56.442	N/A	N/A	30.459	AV

Site: AC5	Time: 2014/12/19 - 15:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2422MHz by 802.11n40 chain 1+2	



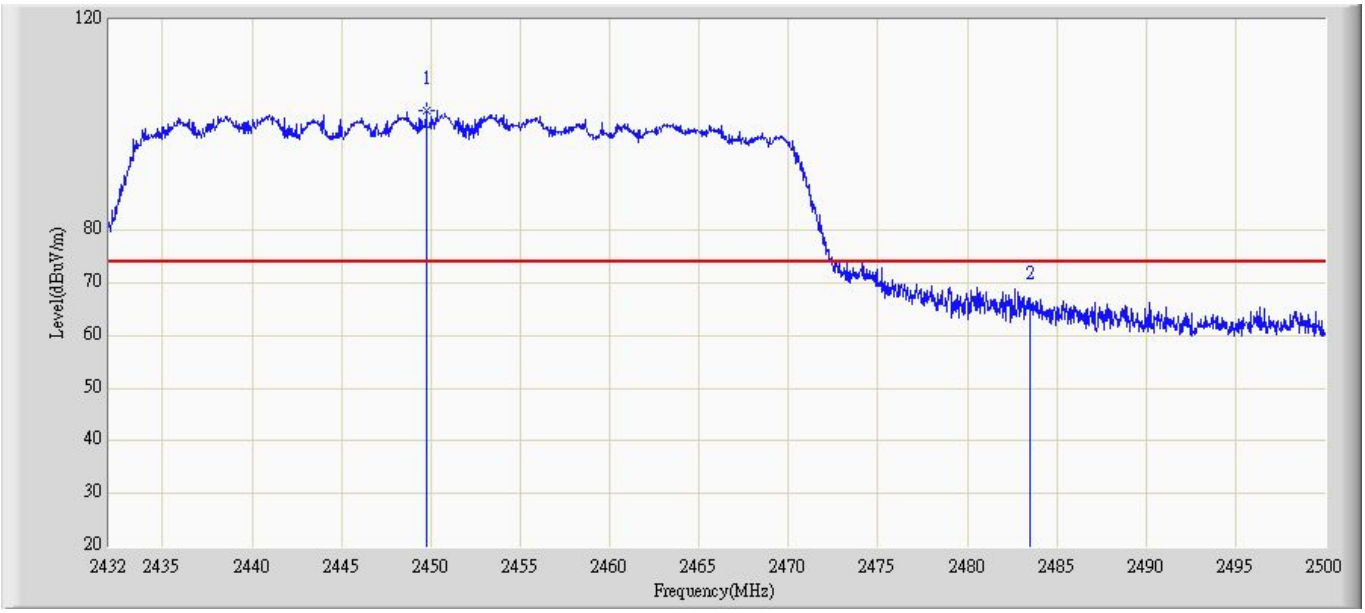
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	66.161	35.421	-7.839	74	30.74	PK
2	*	2431.453	99.991	69.536	N/A	N/A	30.455	PK

Site: AC5	Time: 2014/12/19 - 15:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2422MHz by 802.11n40 chain 1+2	



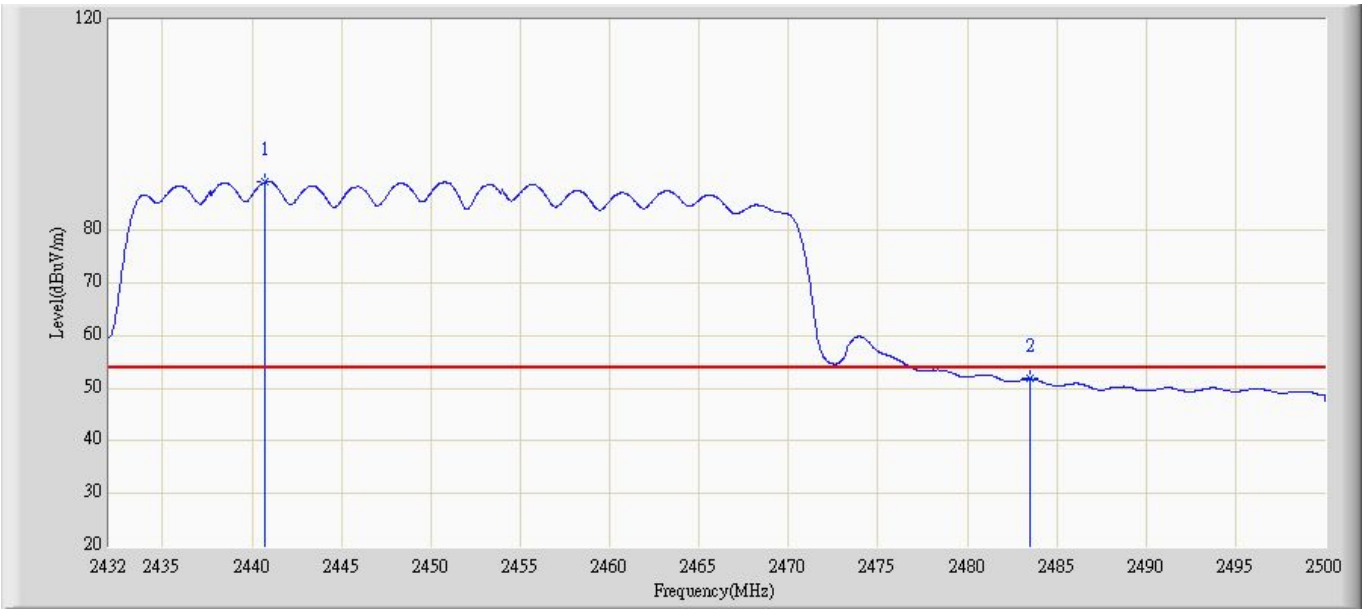
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390	47.971	17.231	-6.029	54	30.74	AV
2	*	2424.674	86.222	55.785	N/A	N/A	30.437	AV

Site: AC5	Time: 2014/12/19 - 15:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2452MHz by 802.11n40 chain 1+2	



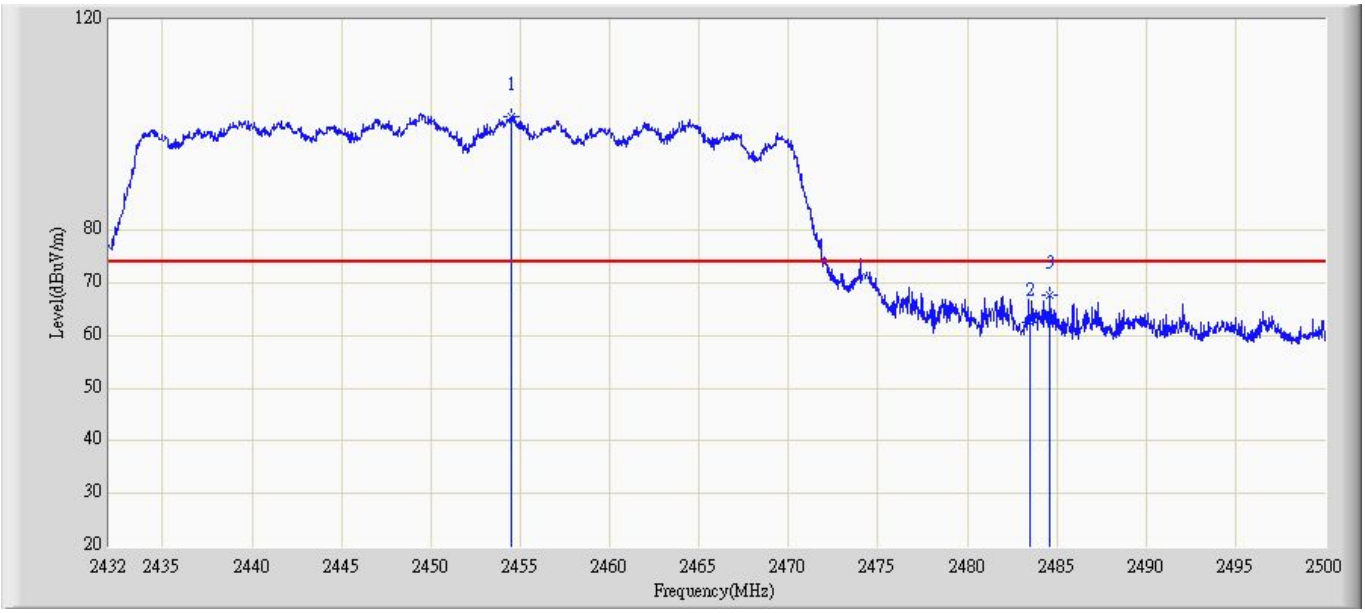
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2449.753	103.032	72.532	N/A	N/A	30.5	PK
2		2483.5	65.223	34.238	-8.777	74	30.985	PK

Site: AC5	Time: 2014/12/19 - 15:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2452MHz by 802.11n40 chain 1+2	



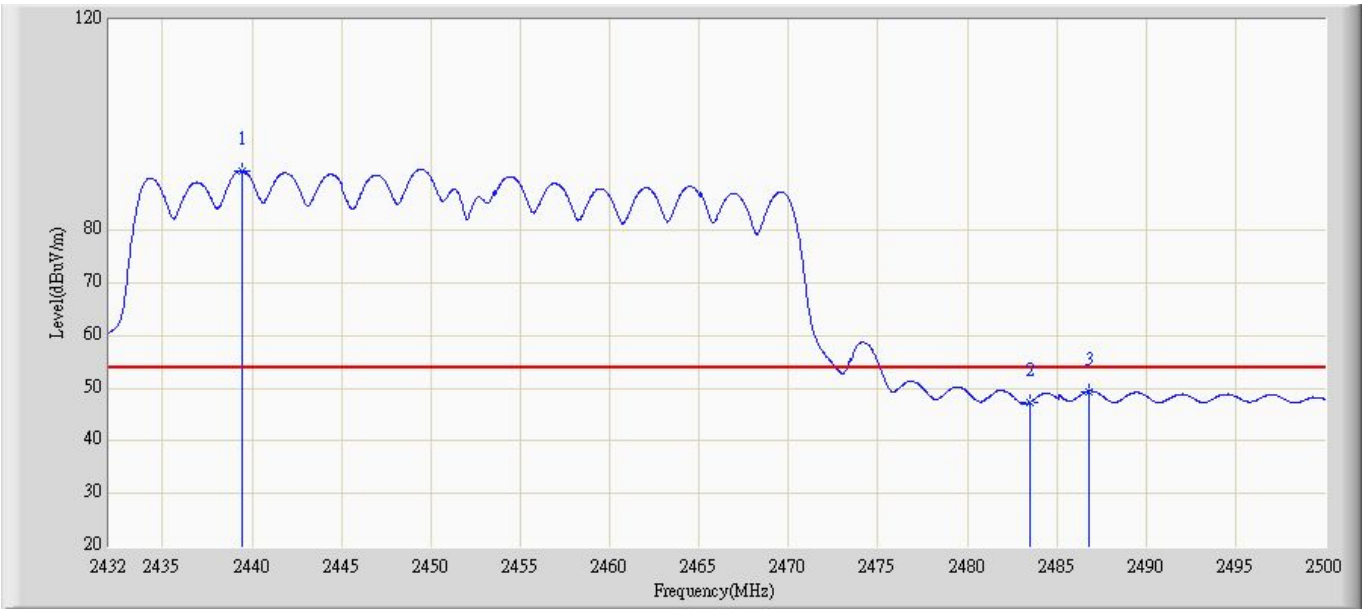
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2440.742	88.817	58.341	N/A	N/A	30.476	AV
2		2483.5	51.737	20.752	-2.263	54	30.985	AV

Site: AC5	Time: 2014/12/19 - 15:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2452MHz by 802.11n40 chain 1+2	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2454.676	101.837	71.324	N/A	N/A	30.513	PK
2		2483.5	62.316	31.331	-11.684	74	30.985	PK
3		2484.632	67.71	37.567	-6.290	74	30.595	PK

Site: AC5	Time: 2014/12/19 - 15:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode4:Transmit at channel 2452MHz by 802.11n40 chain 1+2	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2439.324	90.714	60.241	N/A	N/A	30.473	AV
2		2483.5	47.439	16.454	-6.561	54	30.985	AV
3		2486.457	49.396	18.485	-4.604	54	30.602	AV

The End