Test Report

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

Product Name	:	IP-STB
Model No.	:	4200X
FCC ID	:	TC2-R1004
IC	:	5959A-R1004

Applicant	:	Roku Inc.
Address	:	12980 Saratoga Ave, Suite D Saratoga, CA 95070

Date of Receipt	:	Jul. 08, 2014
Test Date	:	Jul. 08, 2014~Dec. 22, 2014
Issued Date	:	Jan. 20, 2015
Report No.	:	1470218R-RF-US-P09V01
Report Version	:	V1.1

Test Report Certification

Issued Date : Jan. 20, 2015
Report No. : 1470218R-RF-US-P09V01

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.	:	4200X
FCC ID	:	TC2-R1004
IC	:	5959A-R1004
EUT Voltage	:	12V
Brand Name	:	Roku
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart E: 2014 ANSI C63.4: 2009; KDB 789033 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:

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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

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1470218R-RF-US-P09V01	V1.0	Initial Issued Report	Dec. 24, 2014
1470218R-RF-US-P09V01	V1.1	Add the power measurement	Jan. 20, 2015

1. General Information

1.1. EUT Description

Product Name	IP-STB
Brand Name	Roku
Model No.	4200X
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: AmpowerTek M/N: T99A123.00 Input: 100-120V~0.5A 50/60Hz Output: 12V, 1A
Adapter #2	Brand Name: Roku M/N: FA-1201000SUC Input: 120V~60Hz 0.5A Output: 12V, 1.0A

Adapter #3	Brand Name: Roku M/N: MU12AB120100-A1 Input: 100-240V~50/60Hz 0.3A Output: 12V, 1A

Note

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

2: This is IP STB, streaming players deliver an affordable, fun and friendly way to instantly stream entertainment to a TV, embody 2.4/5GHz dual band 2 by 2 antenna WiFi function.

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.

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

1.2. Mode of Operation

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

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

Note:

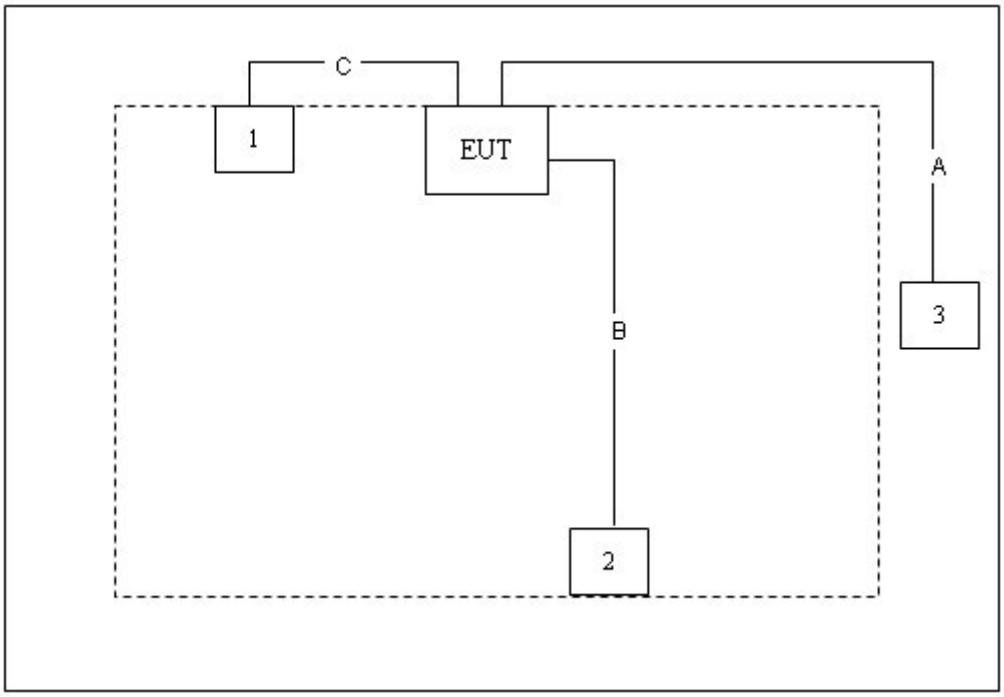
1. Regards to the frequency band operation: the lowest、middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. This device is a composite device in accordance with Part 15 Subpart B regulations. The function for the receiver was measured and made a test 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: 2012 Section 15.207	No	N/A
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.209	Yes	No
Operation Frequency Range of 20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2012 15.215(c)	No	N/A
26dB Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.407(a)	No	N/A
Power Output	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.407(a)	No	N/A
Peak Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.407(a)	No	N/A
Peak Excursion	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.407(a)(6)	No	N/A
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.205, 15.407(b)	Yes	No
Frequency Stability	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.407(g)	No	N/A

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	RSS-Gen Issue 3 December 2010 Table 2	No	N/A
Radiated Emission	RSS-210 Issue 8 December 2010 Section 2.7 Table 2 and Table 3	Yes	No
99% Occupied Bandwidth	RSS-Gen Issue 3 December 2010 Section 4.6.1 and 4.6.2	No	N/A
Power Output	RSS-210 Issue 8 December 2010 A9.2	No	N/A
Peak Power Spectral Density	RSS-210 Issue 8 December 2010 A9.2/A9.5	No	N/A
Radiated Emission Band Edge	RSS-210 Issue 8 December 2010 A9.3	Yes	No
Frequency Stability	RSS-210 Issue 8 December 2010 A9.5(5)	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

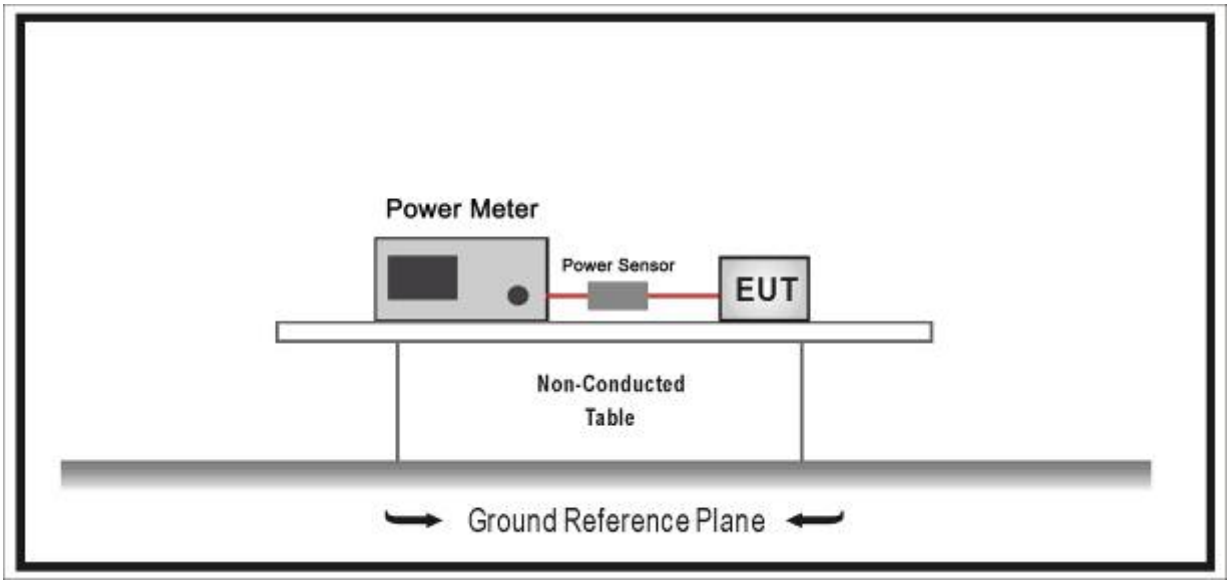
3.1. Test Equipment

Power Output / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2013.04.18
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

- For the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10log B, where B is the 26 dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- For the band 5.25-5.35 GHz and 5.47-5725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10log B, where B is the 26 dB emission bandwidth in megahertz. If transmitting antenna of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6

dBi.

- For the band 5.725-5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10log B, where B is the 26 dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain up to 23 dBi without any corresponding reduction in the transmitter peak output power. For fixed, point-to-point U-NII transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in peak transmitter power for each 1 dB of antenna gain in excess of 23 dBi would be required.

3.4. Test Procedure

The EUT was tested according to ANSI C63.10: 2009 and KDB 789033 for compliance to FCC 47CFR 15.407 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)				
		802.11a	20MHz Bandwidth		40MHz Bandwidth	
			800ns GI	400ns GI	800ns GI	400ns GI
0	1	6	6.5	7.2	13.5	15.0
1	1	9	13.0	14.4	27.0	30.0
2	1	12	19.5	21.7	40.5	45.0
3	1	18	26.0	28.9	54.0	60.0
4	1	24	39.0	43.3	81.0	90.0
5	1	36	52.0	57.8	108.0	120.0
6	1	48	58.5	65.0	121.5	135.0
7	1	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)
802.11a(Chain 1)	20	5200	40	6	16.53
				24	16.51
				54	16.49
802.11n(Chain 1)	20	5200	40	HT0	16.42
				HT4	16.40
				HT7	16.41
802.11n(Chain 1)	40	5190	38	HT0	16.32
				HT4	16.28
				HT7	16.31

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 1: 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				
36	5180	16.51	N/A	16.51	17.00	Pass	17.51
40	5200	16.53	N/A	16.53	17.00	Pass	17.53
48	5240	16.64	N/A	16.64	17.00	Pass	17.64

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 2: 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				
36	5180	16.33	N/A	16.33	17.00	Pass	17.33
40	5200	16.42	N/A	16.42	17.00	Pass	17.42
48	5240	16.57	N/A	16.57	17.00	Pass	17.57

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 3: 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				

38	5190	16.32	N/A	16.32	17.00	Pass	17.32
46	5230	16.24	N/A	16.24	17.00	Pass	17.24

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 1: 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				
36	5180	N/A	16.23	16.23	17.00	Pass	17.23
40	5200	N/A	16.47	16.47	17.00	Pass	17.47
48	5240	N/A	16.43	16.43	17.00	Pass	17.43

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 2: 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				
36	5180	N/A	16.67	16.67	17.00	Pass	17.67
40	5200	N/A	16.34	16.34	17.00	Pass	17.34
48	5240	N/A	16.43	16.43	17.00	Pass	17.43

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 3: 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				
38	5190	N/A	16.37	16.37	17.00	Pass	17.37
46	5230	N/A	16.62	16.62	17.00	Pass	17.62

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 2: 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				
36	5180	14.45	12.43	16.57	17.00	Pass	17.57
40	5200	14.76	12.21	16.68	17.00	Pass	17.68
48	5240	14.93	12.32	16.83	17.00	Pass	17.83

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 3: 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				
38	5190	14.34	12.54	16.54	17.00	Pass	17.54
46	5230	14.46	12.36	16.55	17.00	Pass	17.55

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

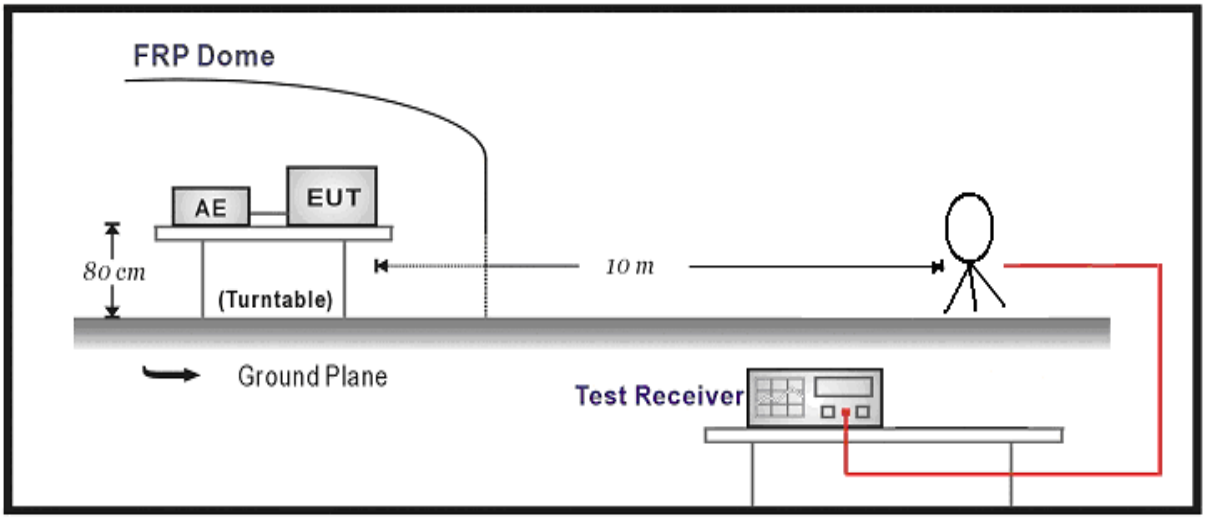
Radiated Emission / AC-5

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

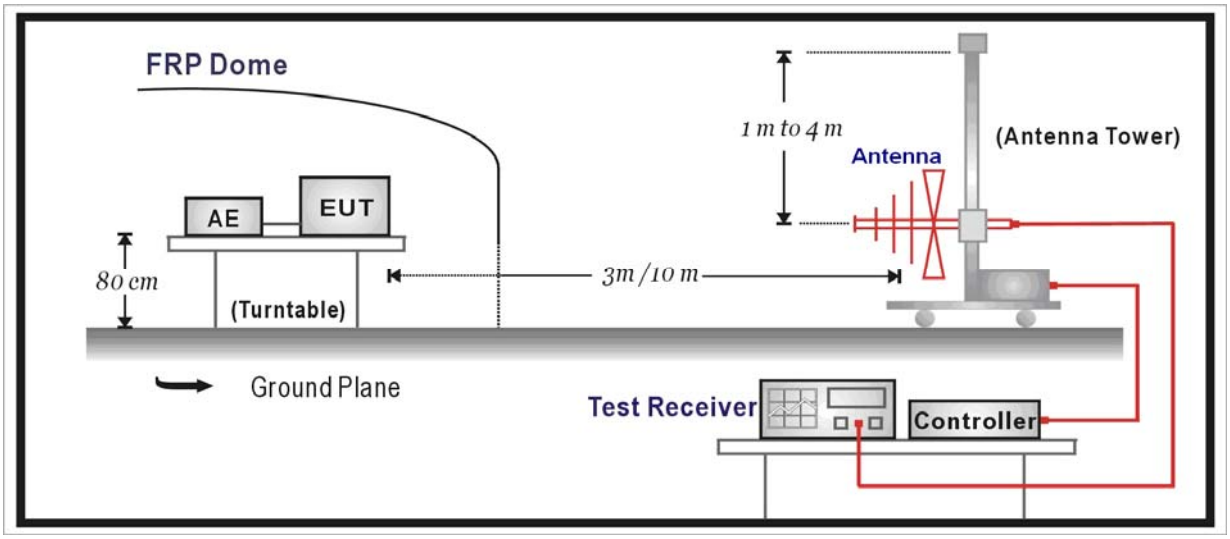
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

4.2. Test Setup

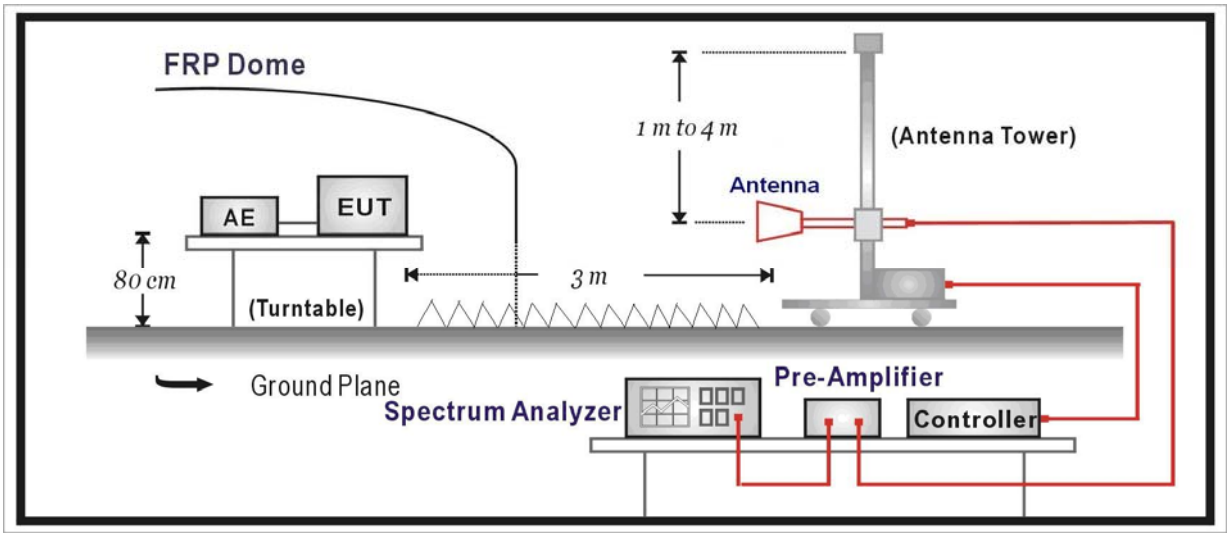
Below 30MHz Test Setup:



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 & ANSI C63.10: 2009 & KDB 789033. 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 60~10 degrees for H-plane and 90~10 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.

802.11a

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
	36	H	293.1	12.7	14.8	27.5	46	-18.5	QP
		H	567.3	14.3	21.3	35.6	46	-10.4	QP
		V	10360.1	42.3	6.6	48.9	54(Note3)	-5.1	PK
		V	13000.3	37.6	9.8	47.4	54(Note3)	-6.6	PK
		V	15540.4	40.2	7.2	47.4	54(Note3)	-6.6	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	40	H	285.3	13.1	14.6	27.7	46	-18.3	QP
		H	500.1	14.7	19.7	34.4	46	-11.6	QP
		V	10400.7	42.9	6.7	49.6	54(Note3)	-4.4	PK
		V	13000.3	38.2	9.8	48.0	54(Note3)	-6.0	PK
		H	15600.2	40.6	7.4	48.0	54(Note3)	-6.0	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	48	V	289.1	12.3	14.8	27.1	46	-18.9	QP
		V	594.3	13.7	21.2	34.9	46	-11.1	QP
		H	10480.1	43.5	6.9	50.4	54(Note3)	-3.6	PK
		H	13000.2	39.5	9.8	49.3	54(Note3)	-4.7	PK
		H	15720.4	40.7	7.2	47.9	54(Note3)	-6.1	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
Chain 2	36	H	296.2	13.2	14.7	27.9	46	-18.1	QP
		H	563.1	13.4	21.2	34.6	46	-11.4	QP
		V	10358.3	43.2	6.6	49.8	54(Note3)	-4.2	PK
		V	13000.2	37.3	9.8	47.1	54(Note3)	-6.9	PK
		H	15540.7	40.1	7.2	47.3	54(Note3)	-6.7	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	40	V	318.3	12.6	15.2	27.8	46	-18.2	QP
		H	480.1	13.7	19.3	33.0	46	-13.0	QP
		V	10400.2	40.1	6.7	46.8	54(Note3)	-7.2	PK

		V	13000.3	37.2	9.8	47.0	54(Note3)	-7.0	PK
		V	15540.7	40.3	7.2	47.5	54(Note3)	-6.5	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	48	H	318.1	13.7	15.2	28.9	46	-17.1	QP
		H	551.7	13.9	21.2	35.1	46	-10.9	QP
		V	10480.1	40.1	6.9	47.0	54(Note3)	-7.0	PK
		V	13000	38.2	9.8	48.0	54(Note3)	-6.0	PK
		V	15720.3	40.3	7.2	47.5	54(Note3)	-6.5	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	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
	36	H	321.3	12.7	15.4	28.1	46	-17.9	QP
		H	582.1	13.2	21.2	34.4	46	-11.6	QP
		V	10360.2	42.5	6.6	49.1	54(Note3)	-4.9	PK
		V	13000.4	37.3	9.8	47.1	54(Note3)	-6.9	PK
		V	15540.1	40.2	7.2	47.4	54(Note3)	-6.6	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	40	H	340.1	12.8	15.4	28.2	46	-17.8	QP
		H	544.2	13.1	21.2	34.3	46	-11.7	QP
		V	10400.1	38.7	6.6	45.3	54(Note3)	-8.7	PK
		V	13000.5	38.3	9.8	48.1	54(Note3)	-5.9	PK
		V	15600.3	39.1	7.2	46.3	54(Note3)	-7.7	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	48	H	281.1	12.8	14.5	27.3	46	-18.7	QP
		H	561.3	13.2	21.2	34.4	46	-11.6	QP
		H	10480.7	39.5	6.9	46.4	54(Note3)	-7.6	PK
		H	13000.5	37.3	9.8	47.1	54(Note3)	-6.9	PK
		H	15720.1	38.6	7.2	45.8	54(Note3)	-8.2	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK

Chain 2	36	H	318.3	12.7	15.2	27.9	46	-18.1	QP
		H	500.2	14.3	19.7	34.0	46	-12.0	QP
		V	10360.1	40.2	6.6	46.8	54(Note3)	-7.2	PK
		H	13000	37.6	9.8	47.4	54(Note3)	-6.6	PK
		V	15540.3	40.5	7.2	47.7	54(Note3)	-6.3	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	40	H	333.3	13.2	15.8	29.0	46	-17.0	QP
		H	565.1	12.4	21.2	33.6	46	-12.4	QP
		V	10400.2	40.3	6.7	47.0	54(Note3)	-7.0	PK
		V	13000.4	37.1	9.8	46.9	54(Note3)	-7.1	PK
		V	15600.1	39.5	7.4	46.9	54(Note3)	-7.1	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	48	V	318.4	12.7	15.3	28.0	46	-18.0	QP
		V	564.3	13.2	21.2	34.4	46	-11.6	QP
		V	10480.1	42.9	6.9	49.8	54(Note3)	-4.2	PK
		V	13000.3	37.7	9.8	47.5	54(Note3)	-6.5	PK
		V	15720.4	40.3	7.2	47.5	54(Note3)	-6.5	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
Chain 1+2	36	V	349.2	13.1	16.3	29.4	46	-16.6	QP
		H	500.1	13.7	19.7	33.4	46	-12.6	QP
		V	10360.1	43.5	6.6	50.1	54(Note3)	-3.9	PK
		V	13000.3	37.6	9.8	47.4	54(Note3)	-6.6	PK
		V	15540.4	40.3	7.2	47.5	54(Note3)	-6.5	PK
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	40	H	290.1	12.3	14.8	27.1	46	-18.9	QP
		H	560.3	13.1	21.2	34.3	46	-11.7	QP
		V	10400.1	42.8	6.7	49.5	54(Note3)	-4.5	PK
		V	13000.4	36.4	9.8	46.2	54(Note3)	-7.8	PK
		V	15600.2	38.7	7.4	46.1	54(Note3)	-7.9	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	48	V	307.9	12.9	15.0	27.9	46	-18.1	QP
		V	576.1	13.9	21.2	35.1	46	-10.9	QP
		V	10480.0	42.7	6.9	49.6	54(Note3)	-4.4	PK
		V	13000.0	37.1	9.8	46.9	54(Note3)	-7.1	PK
		V	15720.0	40.1	7.2	47.3	54(Note3)	-6.7	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	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	38	V	339.7	13.3	15.9	29.2	46	-16.8	QP
		V	658.1	13.1	21.3	34.4	46	-11.6	QP
		V	10380.3	43.1	6.6	49.7	54(Note3)	-4.3	PK
		H	13000.1	38.6	9.8	48.4	54(Note3)	-5.6	PK
		H	15570.6	40.2	7.3	47.5	54(Note3)	-6.5	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	46	H	336.1	13.1	15.8	28.9	46	-17.1	QP
		H	555.7	12.4	21.2	33.6	46	-12.4	QP
		V	10460.1	37.8	6.8	44.6	54(Note3)	-9.4	PK
		V	13000.3	38.6	9.8	48.4	54(Note3)	-5.6	PK
		V	15690.2	39.4	7.2	46.6	54(Note3)	-7.4	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
Chain 2	38	V	391.4	12.8	17.4	30.2	46	-15.8	QP
		V	594.3	13.1	21.2	34.3	46	-11.7	QP
		V	10380.1	43.2	6.6	49.8	54(Note3)	-4.2	PK
		V	13000.3	37.4	9.8	47.2	54(Note3)	-6.8	PK
		V	155707	40.5	7.3	47.8	54(Note3)	-6.2	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	46	V	370.1	13.1	16.8	29.9	46	-16.1	QP
		V	557.3	13.4	21.2	34.6	46	-11.4	QP
		V	10460.3	38.9	6.8	45.7	54(Note3)	-8.3	PK
		V	13000.7	38.4	9.8	48.2	54(Note3)	-5.8	PK
		V	15690.1	39.2	7.2	46.4	54(Note3)	-7.6	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
Chain 1+2	38	H	337.1	13.5	15.8	29.3	46	-16.7	QP
		H	500.4	14.7	19.7	34.4	46	-11.6	QP
		V	10380.2	40.3	6.6	46.9	54(Note3)	-7.1	PK
		V	13000.3	38.1	9.8	47.9	54(Note3)	-6.1	PK

		V	15570.4	40.2	7.3	47.5	54(Note3)	-6.5	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	46	H	336.5	14.2	15.8	30.0	46	-16.0	QP
		H	579.1	12.9	21.2	34.1	46	-11.9	QP
		V	10460.2	40.5	6.8	47.3	54(Note3)	-6.7	PK
		V	13000.4	37.3	9.8	47.1	54(Note3)	-6.9	PK
		H	15690.3	38.6	7.2	45.8	54(Note3)	-8.2	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	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.

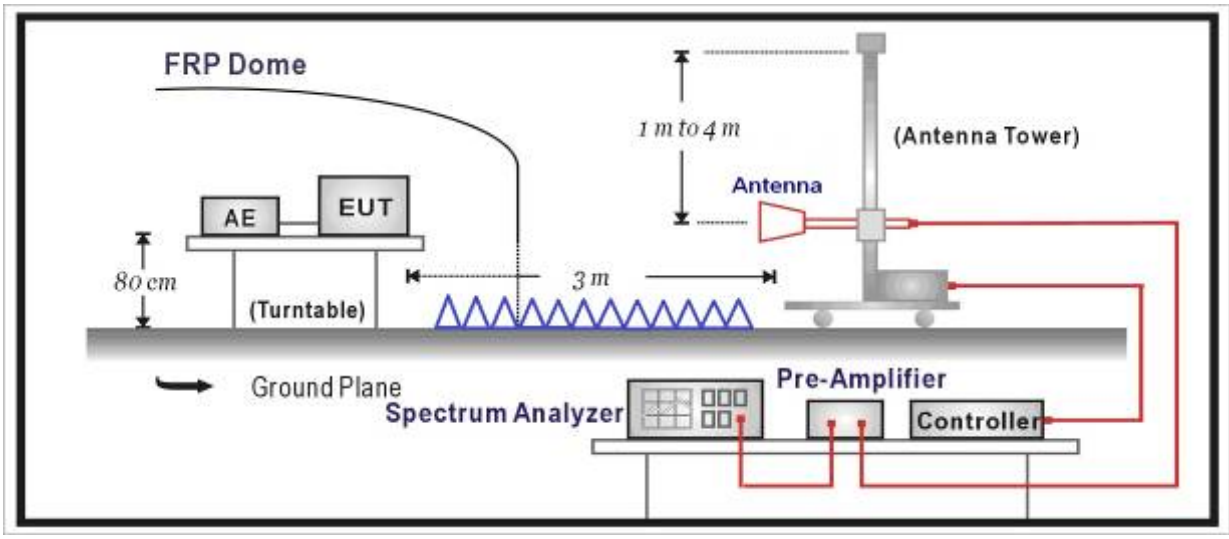
5. Radiated Emission Band Edge

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

5.2. Test Setup



5.3. Limit

For 15.205 requirement:

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

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

For 15.407(b) requirement:

- For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.
- For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27dBm/MHz in the 5.15-5.25 GHz band.
- For transmitters operating in the 5.47-5.725 GHz band: all emission outside of the 5.47-5725 GHz band shall not exceed an EIRP of -27 dBm/MHz.
- For transmitters operating in the 5.725-5.825 GHz band: all emission within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz.

Operating Frequency Band (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength at 3m (dBuV/m)
5150 - 5250	-27	68.3
5250 - 5350	-27	68.3
5470 - 5725	-27	68.3
5725 - 5825	-27 [Note(1)]	68.3
	-17 [Note(2)]	78.3
Note(1): Outsitde the frequency range 5715 - 5835MHz. Note(2): Within the frequency range from the band edge to 10MHz below or above the band edge, 5715 – 5725MHz and 5825 - 5835MHz.		

5.4. Test Procedure

The EUT was tested according to ANSI C63.10: 2009 and KDB 789033 for compliance to FCC 47CFR 15.407 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.
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 10~60 degrees for H-plane and 10~90 degrees for E-plane.

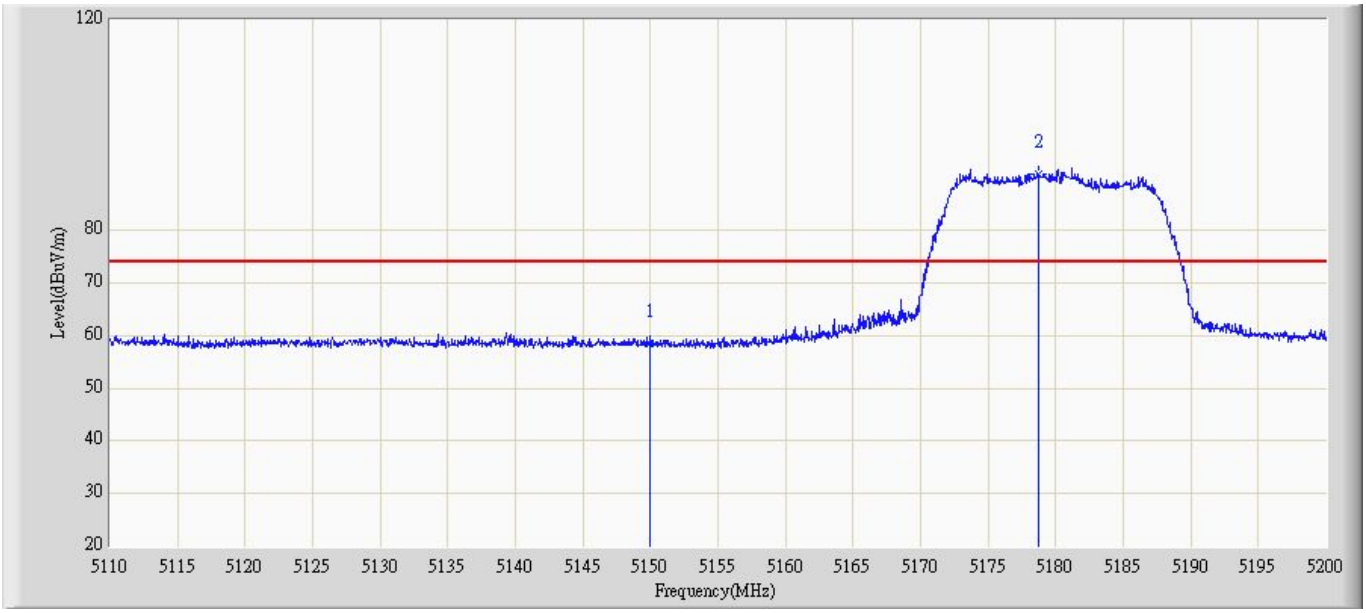
5.5. Uncertainty

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

5.6. Test Result

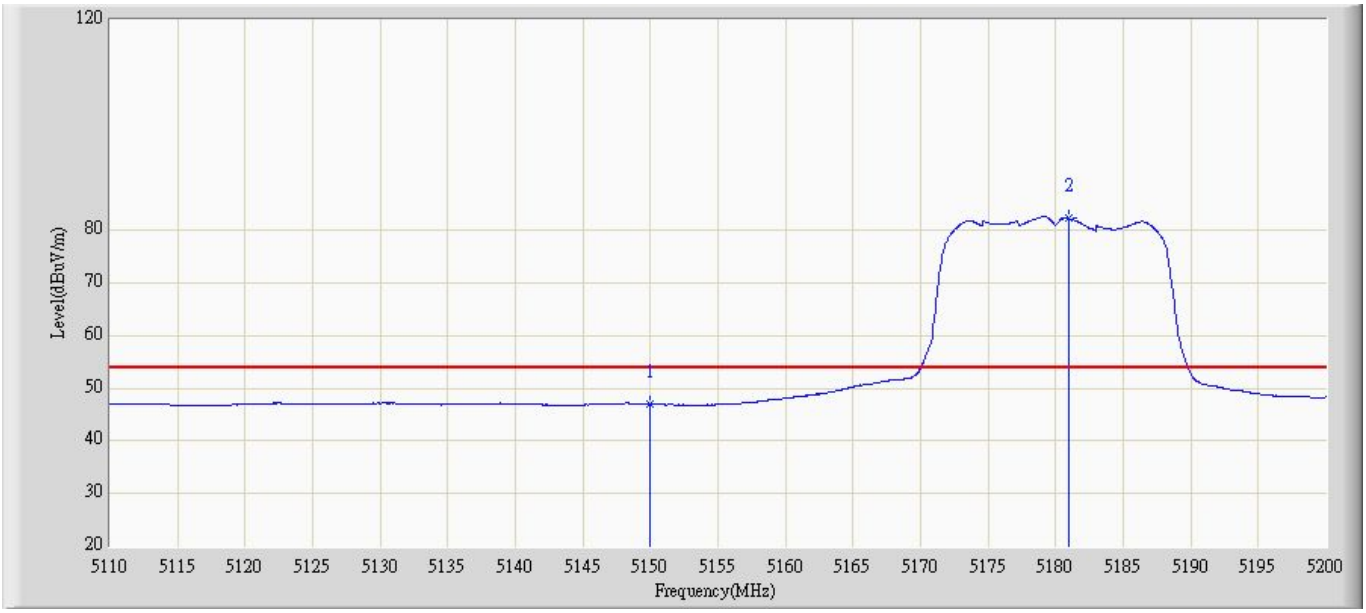
Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;
Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Site: AC5	Time: 2014/12/22 - 15:29
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 5180MHz by 802.11a chain 1	



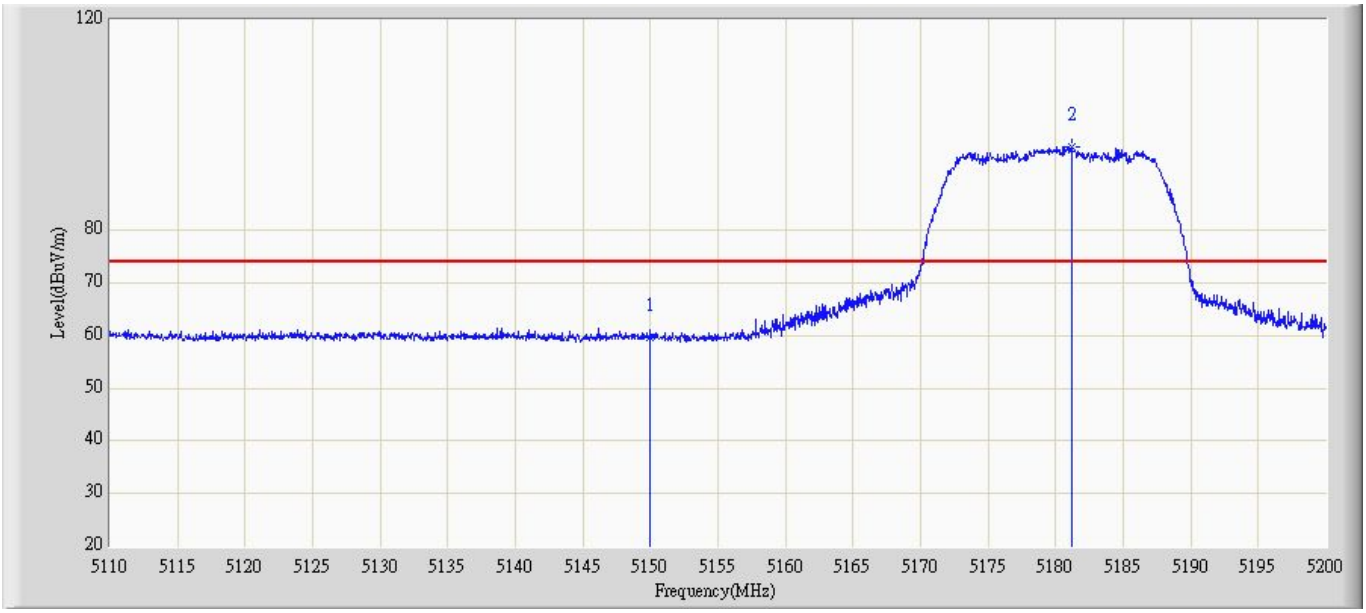
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	58.366	66.586	-15.634	74.000	-8.220	PK
2	*	5178.760	90.786	100.234	N/A	N/A	-9.448	PK

Site: AC5	Time: 2014/12/22 - 15:29
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 5180MHz by 802.11a chain 1	



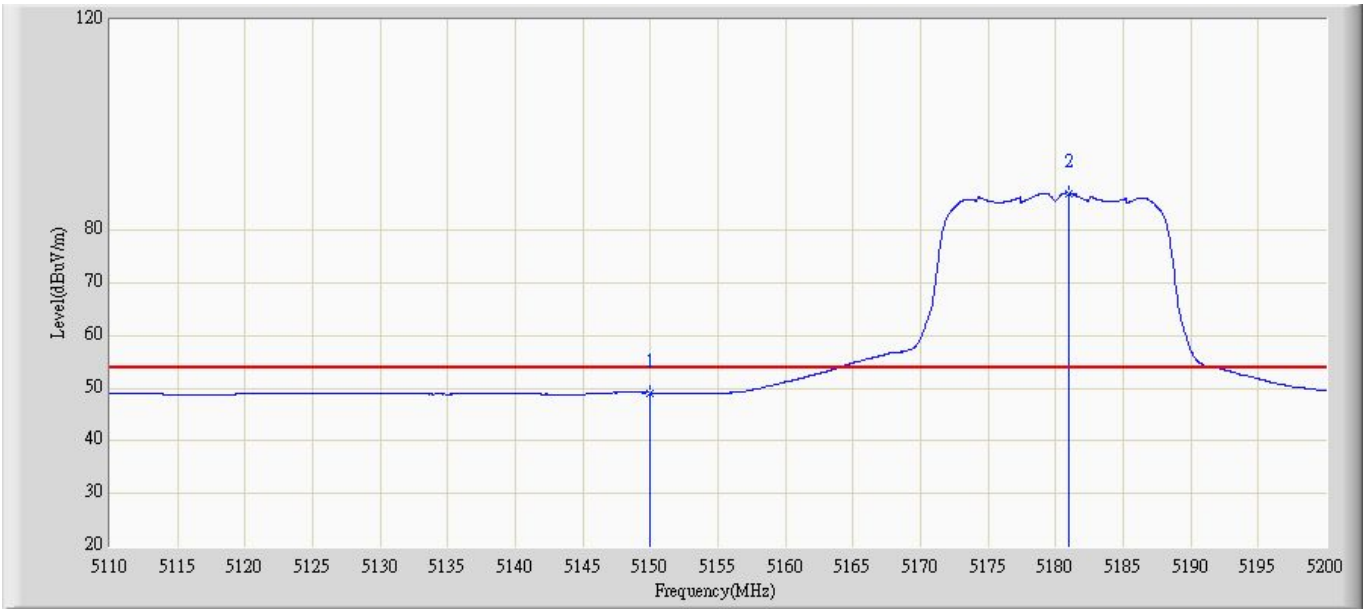
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	47.056	55.276	-6.944	54.000	-8.220	AV
2	*	5180.920	82.294	91.757	N/A	N/A	-9.463	AV

Site: AC5	Time: 2014/12/22 - 15:58
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 5180MHz by 802.11a chain 1	



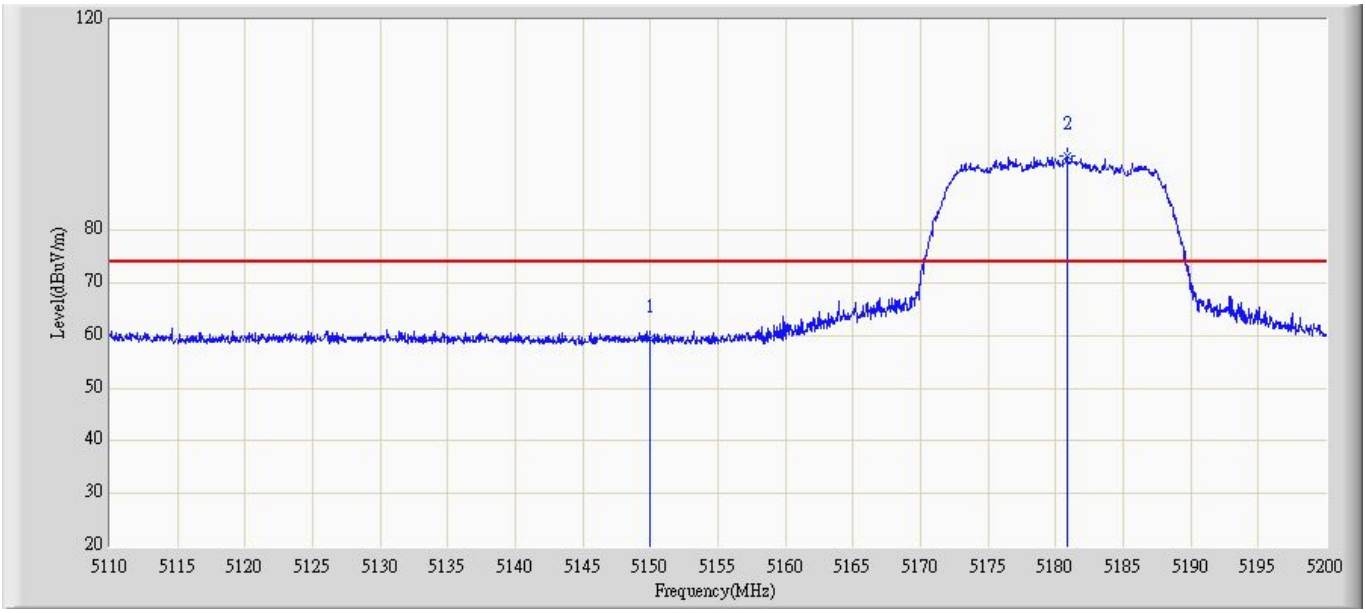
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	59.634	67.854	-14.366	74.000	-8.220	PK
2	*	5181.190	95.851	105.316	N/A	N/A	-9.464	PK

Site: AC5	Time: 2014/12/22 - 15:58
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 5180MHz by 802.11a chain 1	



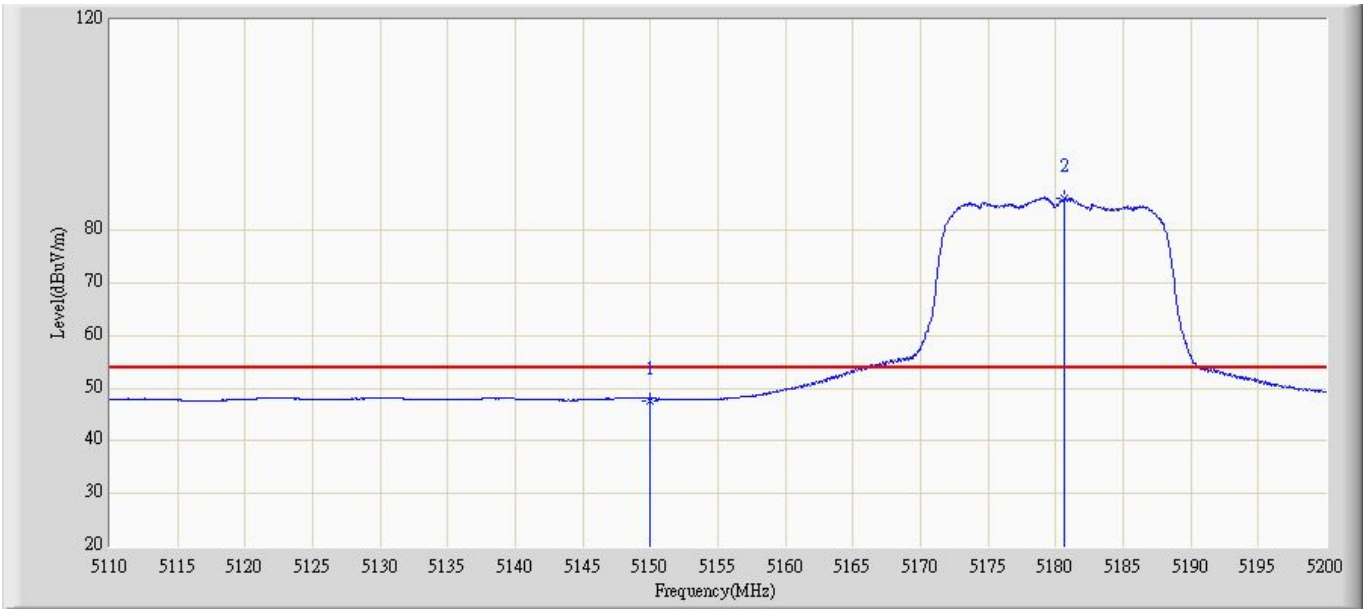
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	49.136	57.356	-4.864	54.000	-8.220	AV
2	*	5180.920	87.089	96.552	N/A	N/A	-9.463	AV

Site: AC5	Time: 2014/12/22 - 16:00
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 5180MHz by 802.11a chain 2	



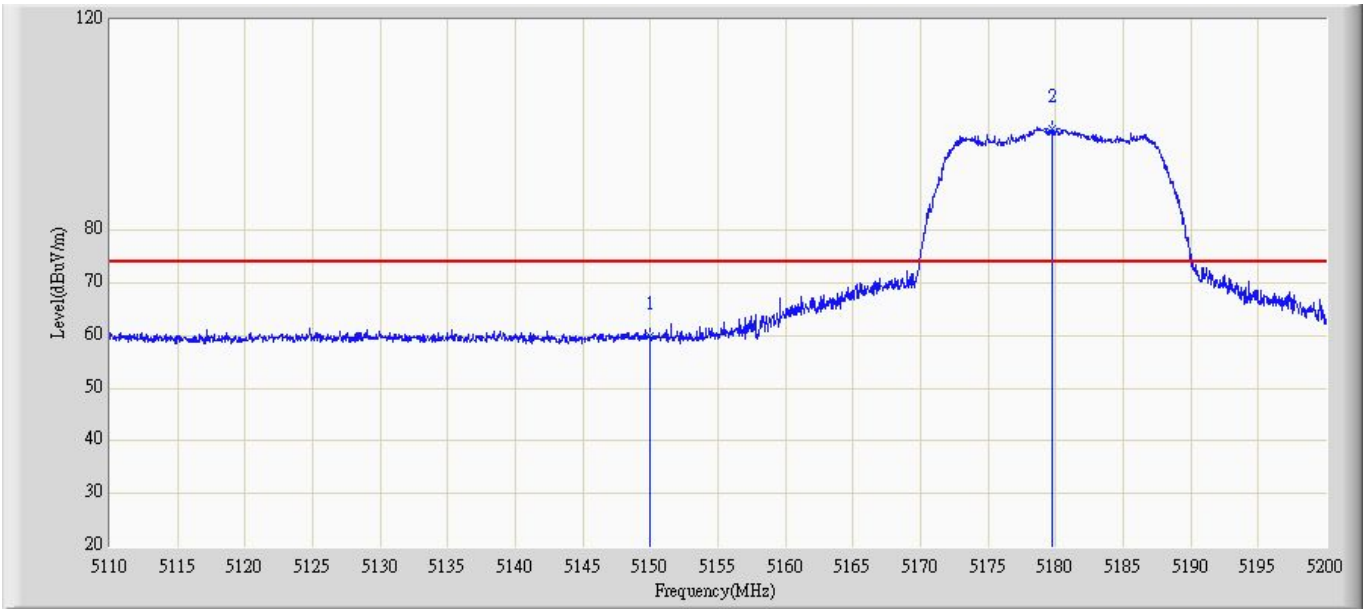
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	59.478	67.698	-14.522	74.000	-8.220	PK
2	*	5180.830	94.171	103.633	N/A	N/A	-9.462	PK

Site: AC5	Time: 2014/12/22 - 16:01
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 5180MHz by 802.11a chain 2	



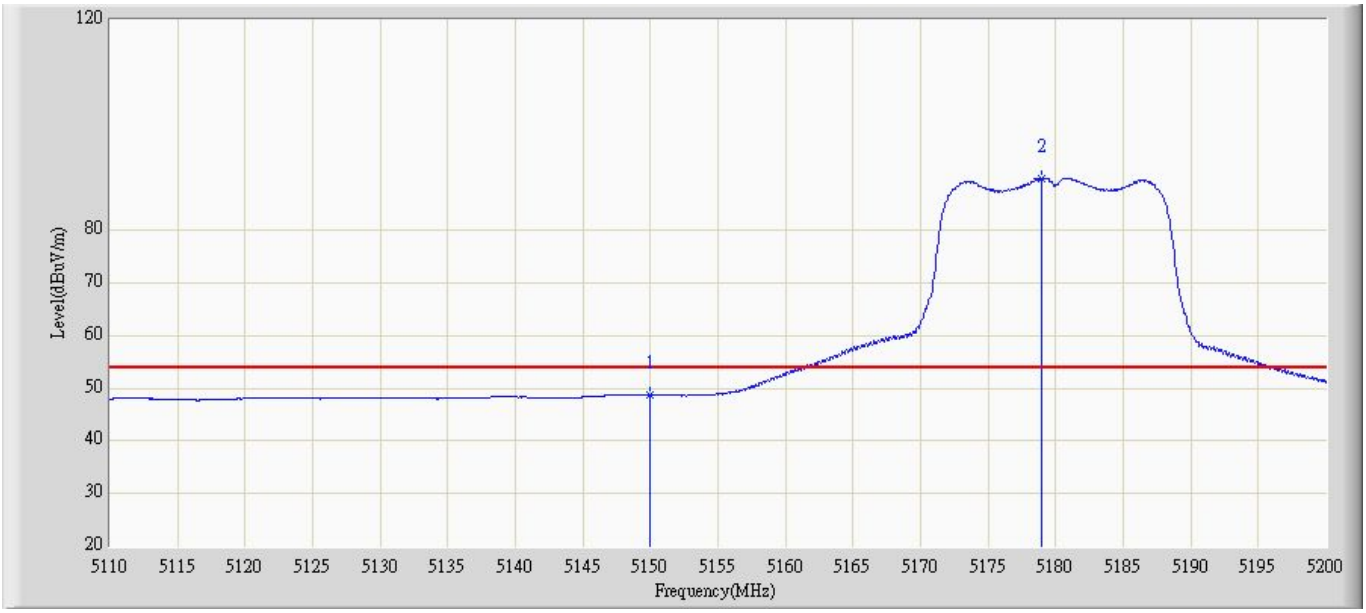
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	47.557	55.777	-6.443	54.000	-8.220	AV
2	*	5180.650	86.070	95.531	N/A	N/A	-9.461	AV

Site: AC5	Time: 2014/12/22 - 16:02
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 5180MHz by 802.11a chain 2	



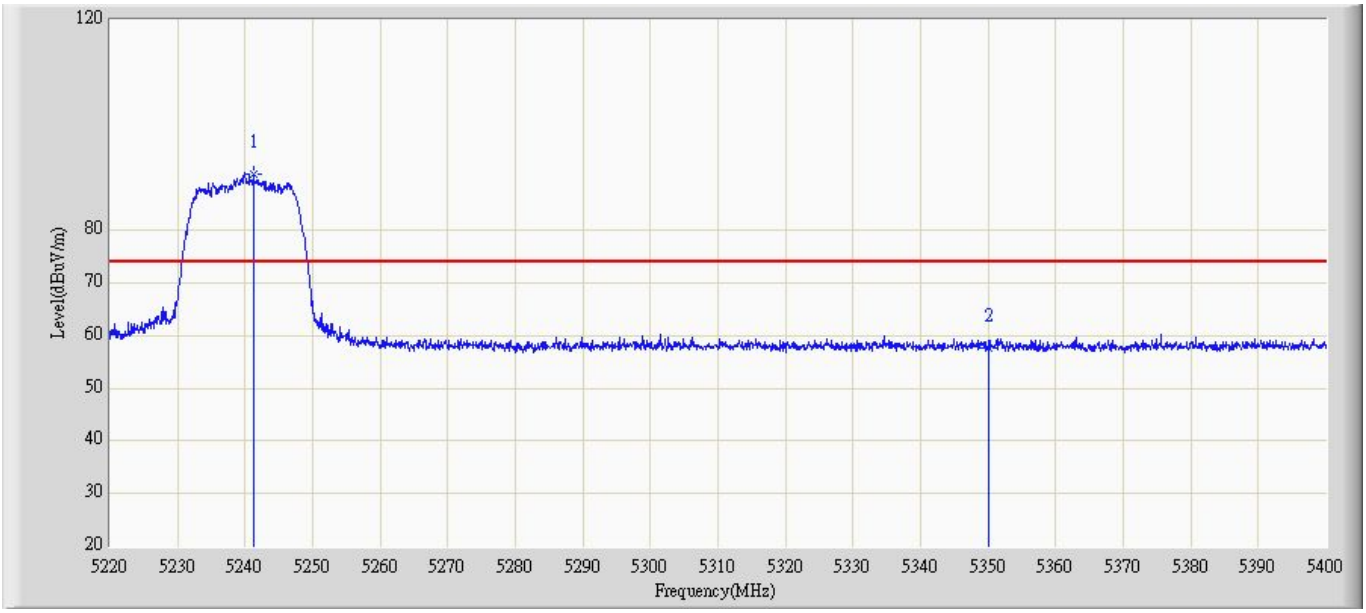
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	59.889	68.109	-14.111	74.000	-8.220	PK
2	*	5179.705	99.450	108.905	N/A	N/A	-9.454	PK

Site: AC5	Time: 2014/12/22 - 16:03
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 5180MHz by 802.11a chain 2	



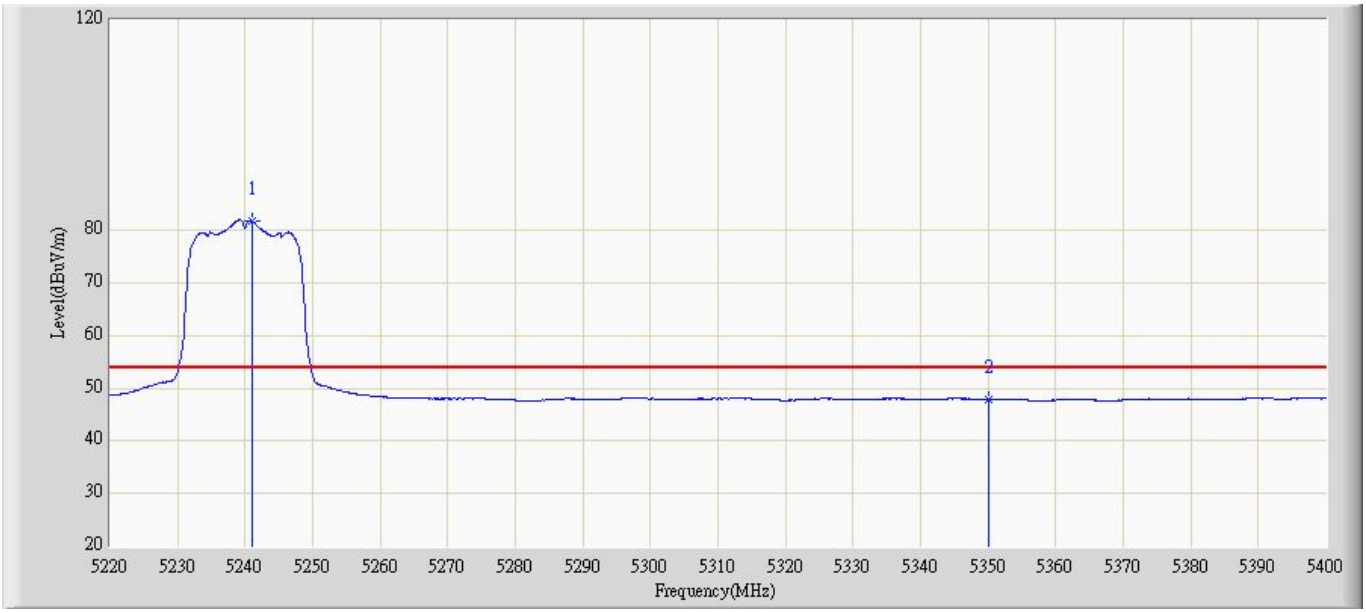
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	48.780	57.000	-5.220	54.000	-8.220	AV
2	*	5178.985	89.757	97.985	N/A	N/A	-8.228	AV

Site: AC5	Time: 2014/12/22 - 16:03
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 5240MHz by 802.11a chain 1	



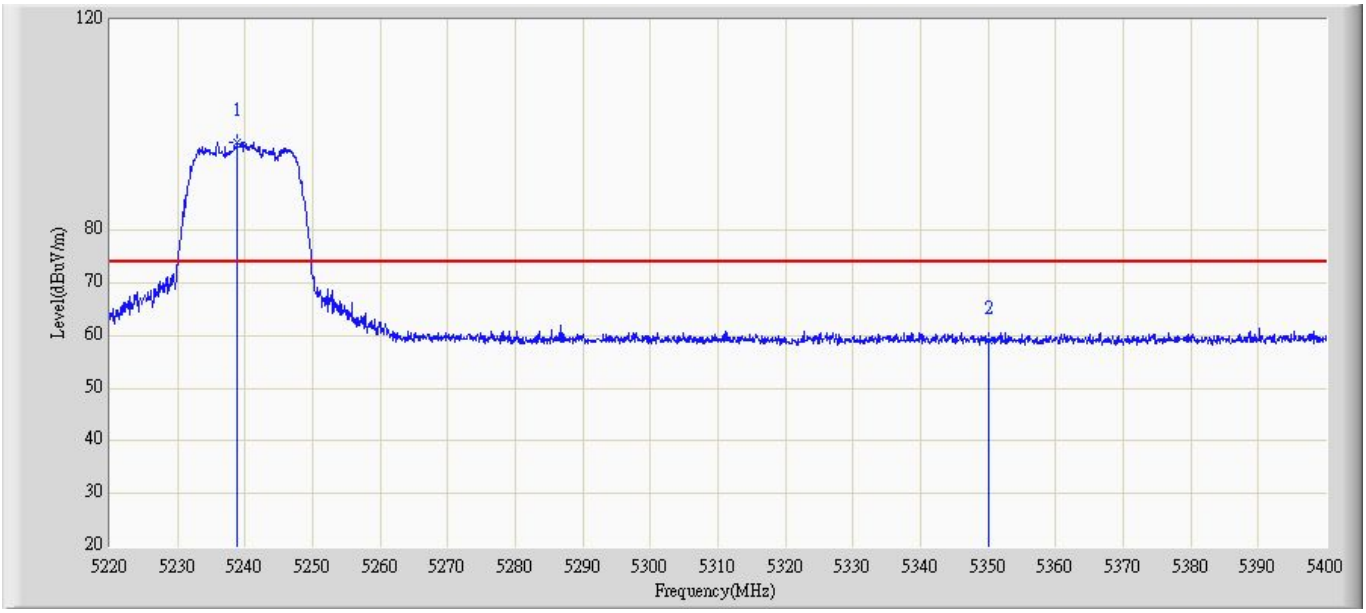
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5241.240	90.715	100.216	N/A	N/A	-9.501	PK
2		5350.000	57.771	65.972	-16.229	74.000	-8.201	PK

Site: AC5	Time: 2014/12/22 - 16:04
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 5240MHz by 802.11a chain 1	



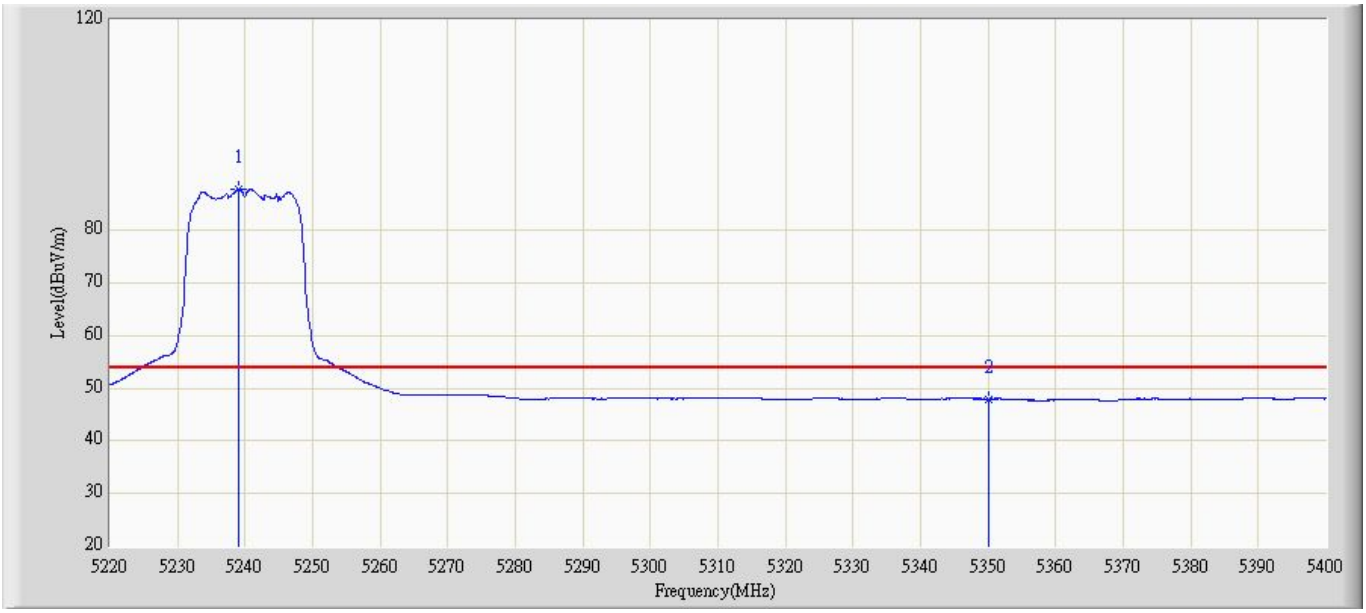
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5241.060	81.741	91.243	N/A	N/A	-9.503	AV
2		5350.000	47.953	56.154	-6.047	54.000	-8.201	AV

Site: AC5	Time: 2014/12/22 - 16:05
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 5240MHz by 802.11a chain 1	



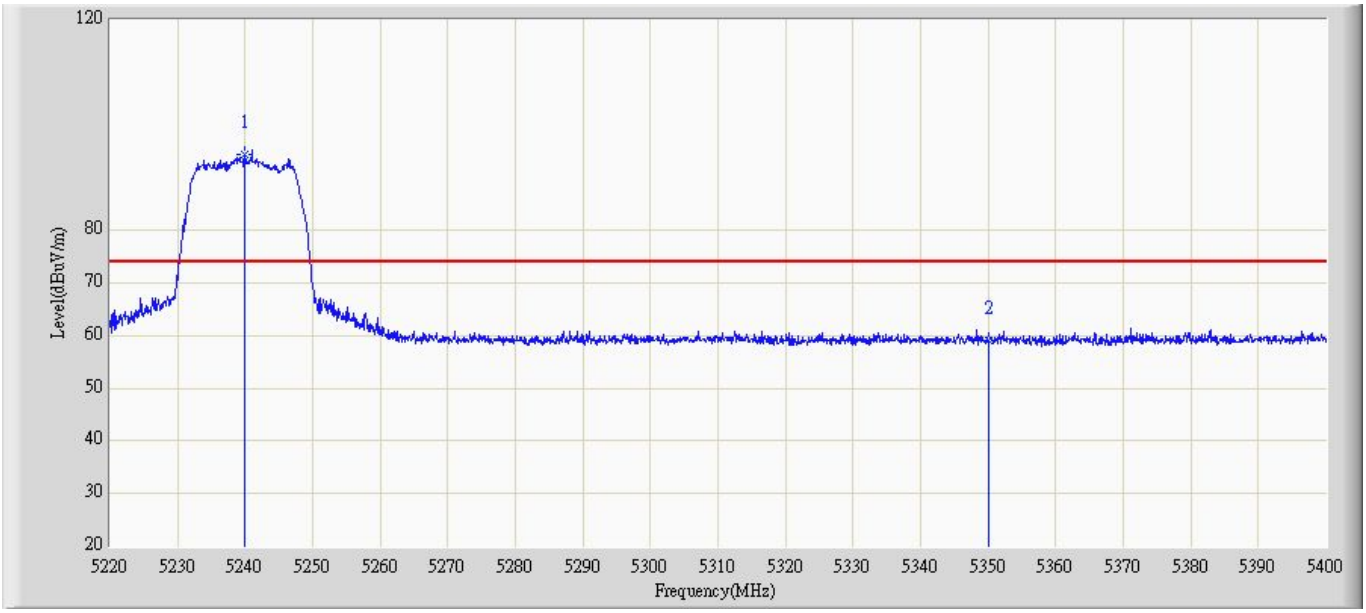
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5238.810	96.862	106.376	N/A	N/A	-9.514	PK
2		5350.000	59.072	67.273	-14.928	74.000	-8.201	PK

Site: AC5	Time: 2014/12/22 - 16:06
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 5240MHz by 802.11a chain 1	



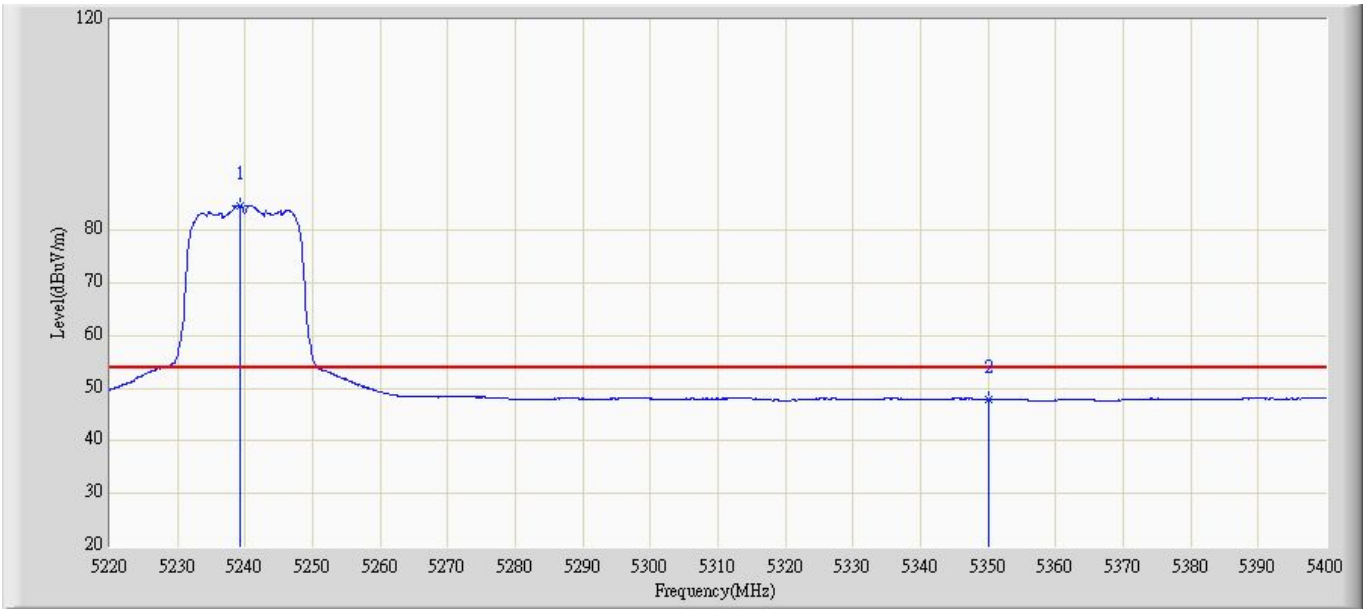
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5239.080	87.799	97.312	N/A	N/A	-9.513	AV
2		5350.000	47.999	56.200	-6.001	54.000	-8.201	AV

Site: AC5	Time: 2014/12/22 - 16:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 5240MHz by 802.11a chain 2	



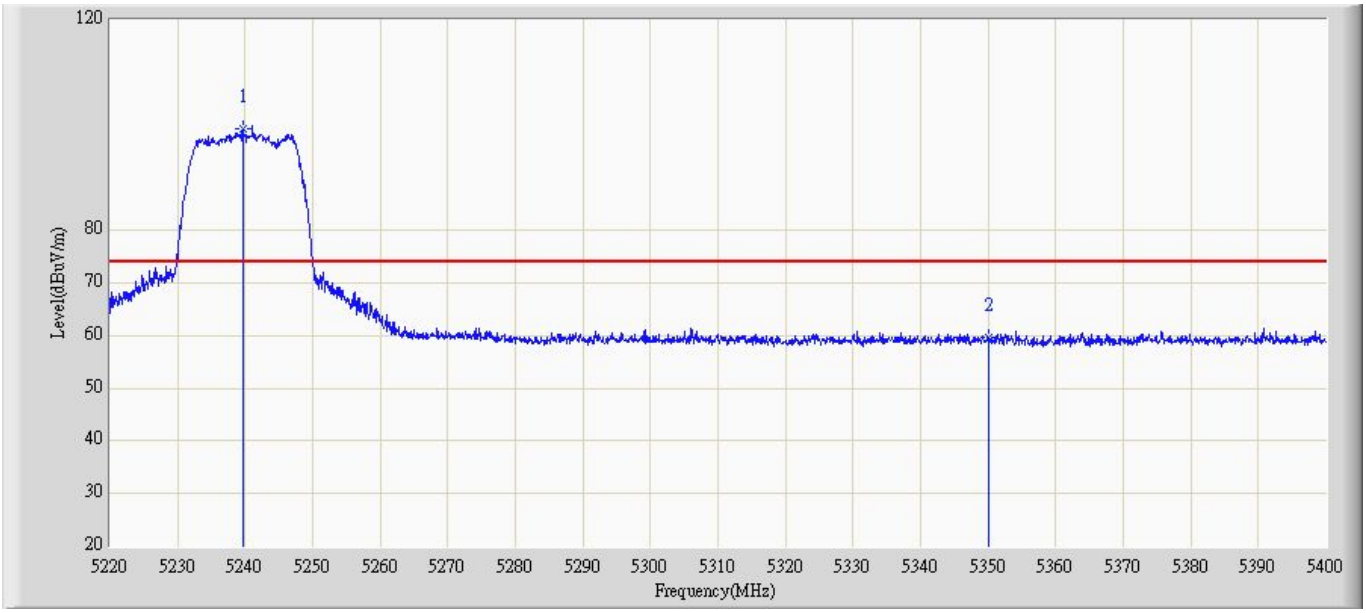
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5239.890	94.555	104.064	N/A	N/A	-9.509	PK
2		5350.000	59.113	67.314	-14.887	74.000	-8.201	PK

Site: AC5	Time: 2014/12/22 - 16:08
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 5240MHz by 802.11a chain 2	



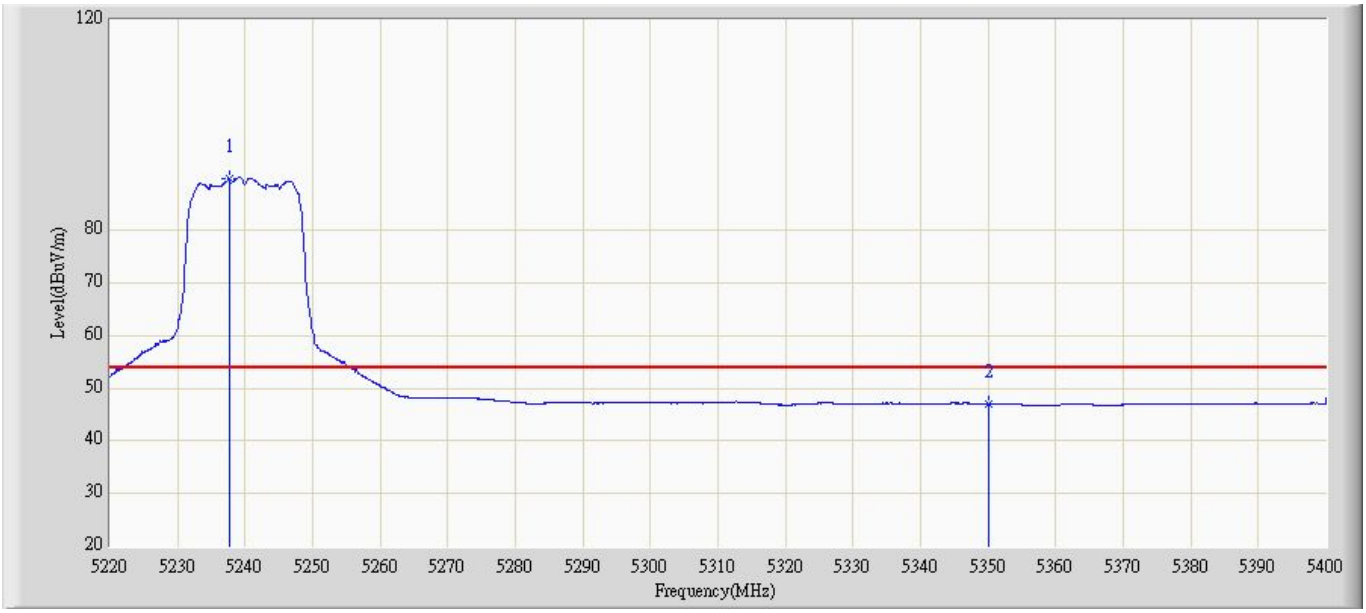
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5239.260	84.766	94.278	N/A	N/A	-9.512	AV
2		5350.000	47.957	56.158	-6.043	54.000	-8.201	AV

Site: AC5	Time: 2014/12/22 - 16:25
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 5240MHz by 802.11a chain 2	



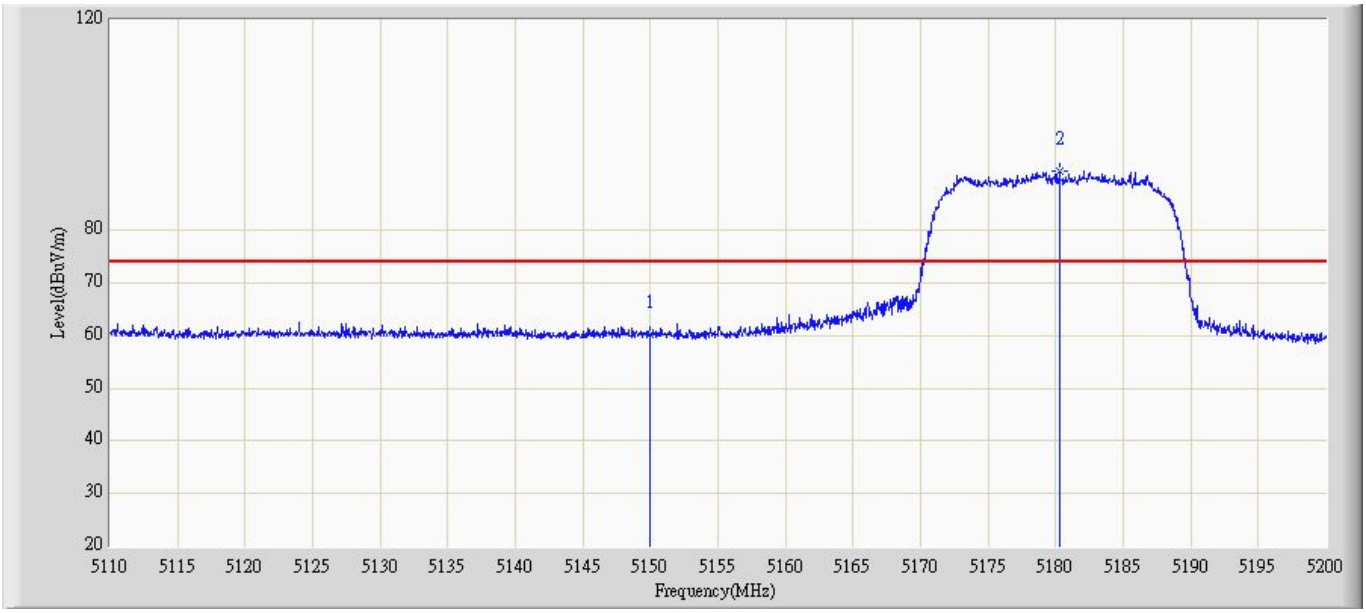
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5239.710	99.282	108.791	N/A	N/A	-9.510	PK
2		5350.000	59.575	67.776	-14.425	74.000	-8.201	PK

Site: AC5	Time: 2014/12/22 - 16:26
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 5240MHz by 802.11a chain 2	



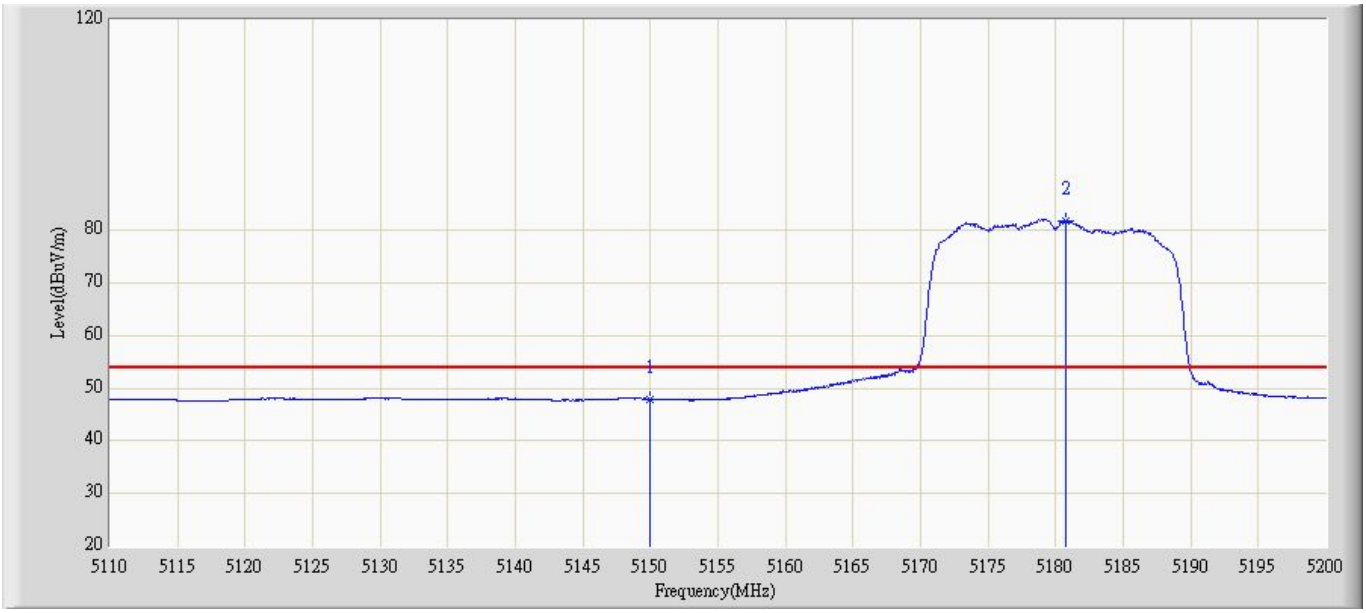
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5237.640	89.741	99.261	N/A	N/A	-9.521	AV
2		5350.000	47.059	55.260	-6.941	54.000	-8.201	AV

Site: AC5	Time: 2014/12/22 - 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: Mode2: Transmit at channel 5180MHz by 802.11n20 chain 1	



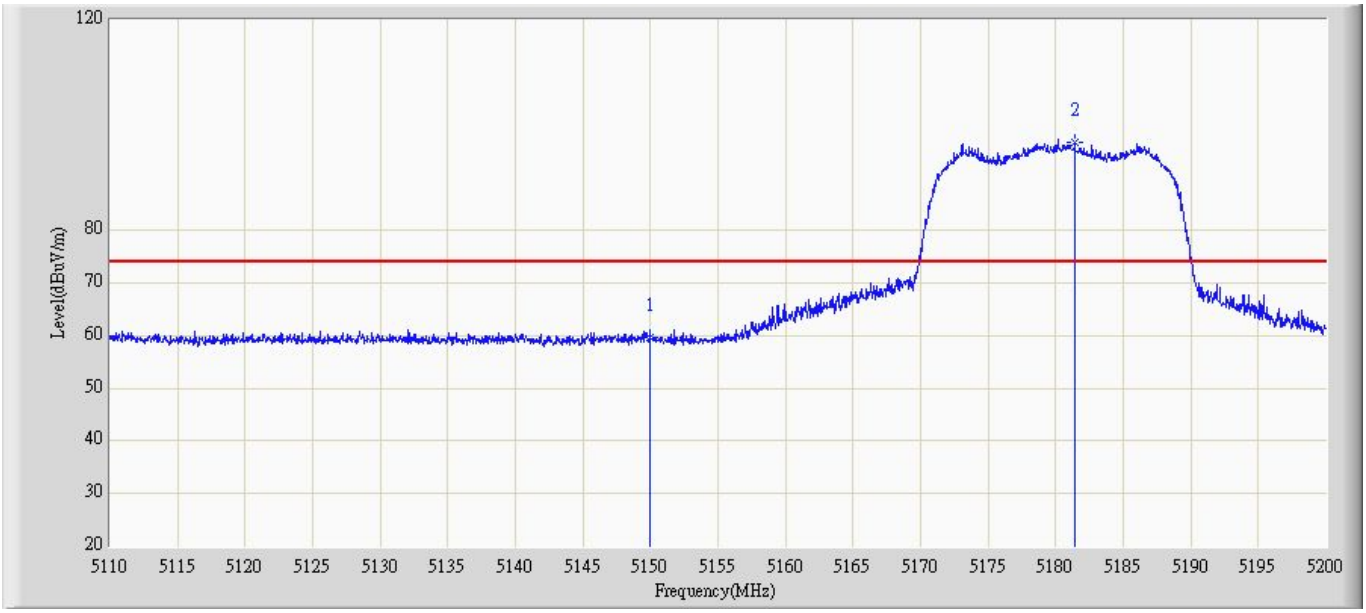
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	60.185	68.405	-13.815	74.000	-8.220	PK
2	*	5180.290	91.361	100.820	N/A	N/A	-9.459	PK

Site: AC5	Time: 2014/12/22 - 16:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5180MHz by 802.11n20 chain 1	



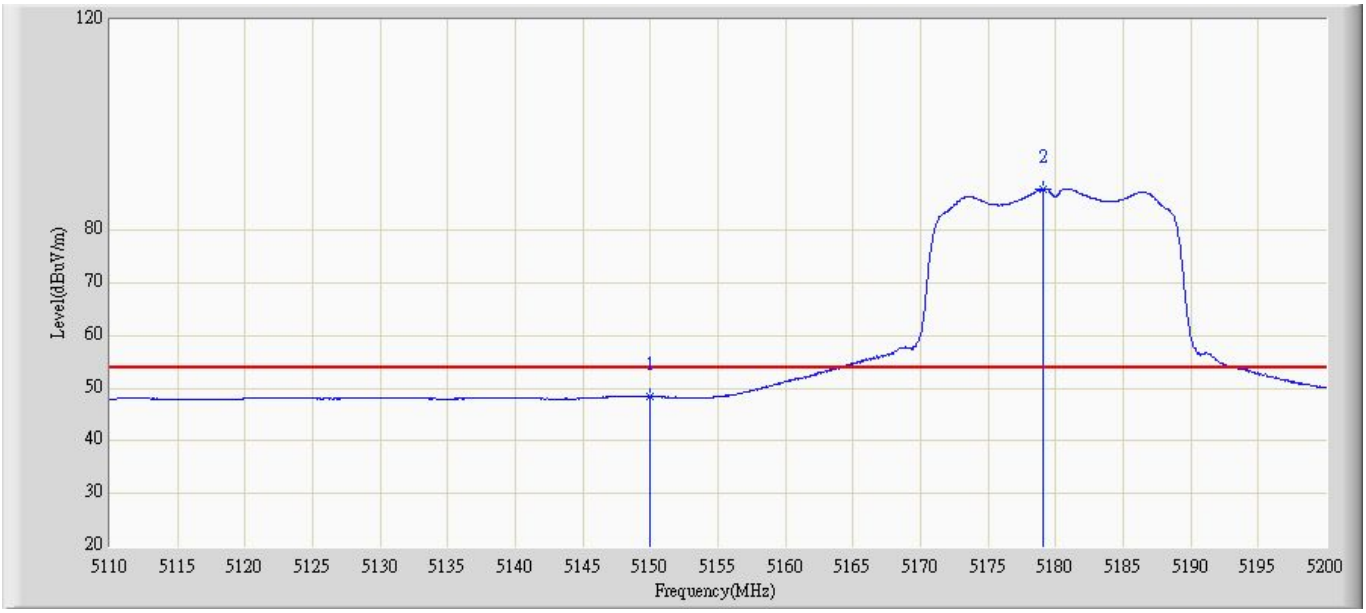
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	48.006	56.226	-5.994	54.000	-8.220	AV
2	*	5180.785	81.727	91.189	N/A	N/A	-9.462	AV

Site: AC5	Time: 2014/12/22 - 16:28
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 5180MHz by 802.11n20 chain 1	



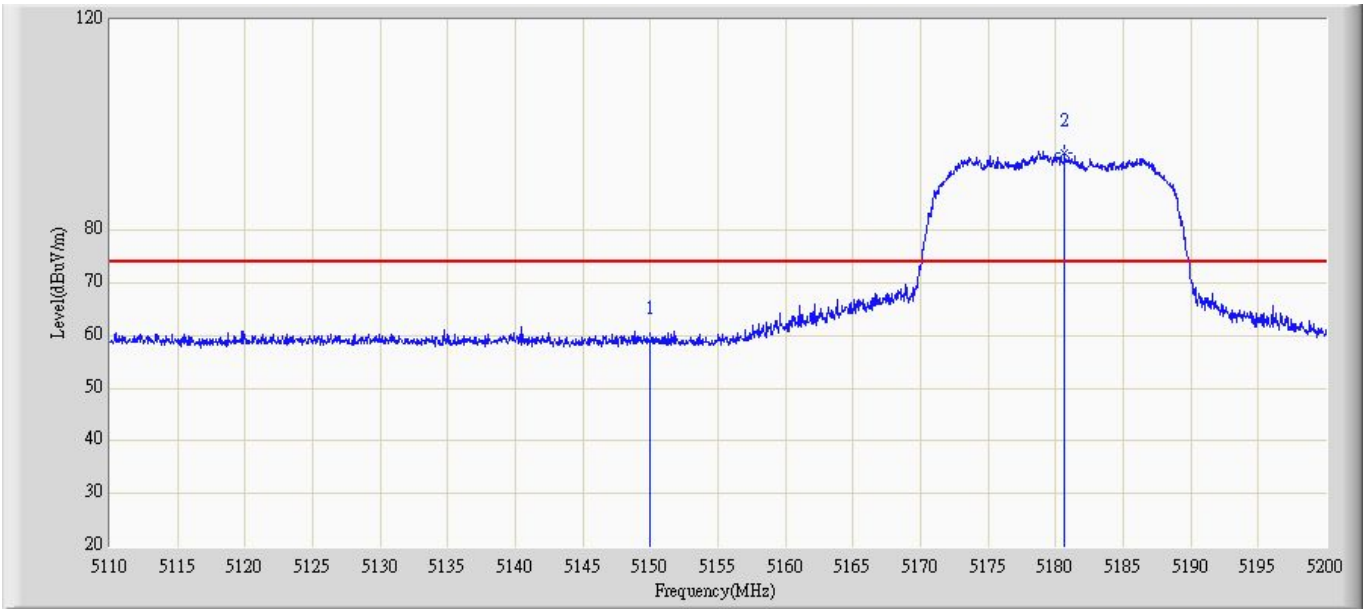
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	59.529	67.749	-14.471	74.000	-8.220	PK
2	*	5181.415	96.799	106.265	N/A	N/A	-9.467	PK

Site: AC5	Time: 2014/12/22 - 16:28
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 5180MHz by 802.11n20 chain 1	



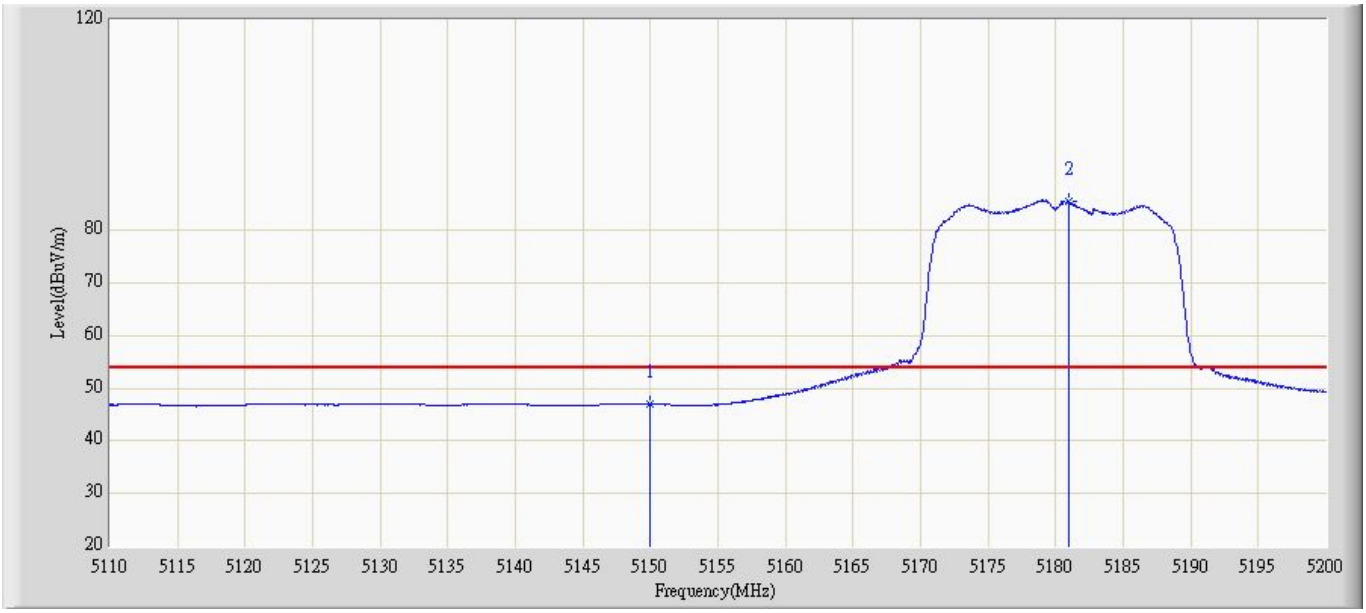
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	48.411	56.631	-5.589	54.000	-8.220	AV
2	*	5179.120	87.815	97.266	N/A	N/A	-9.451	AV

Site: AC5	Time: 2014/12/22 - 16:29
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 5180MHz by 802.11n20 chain 2	



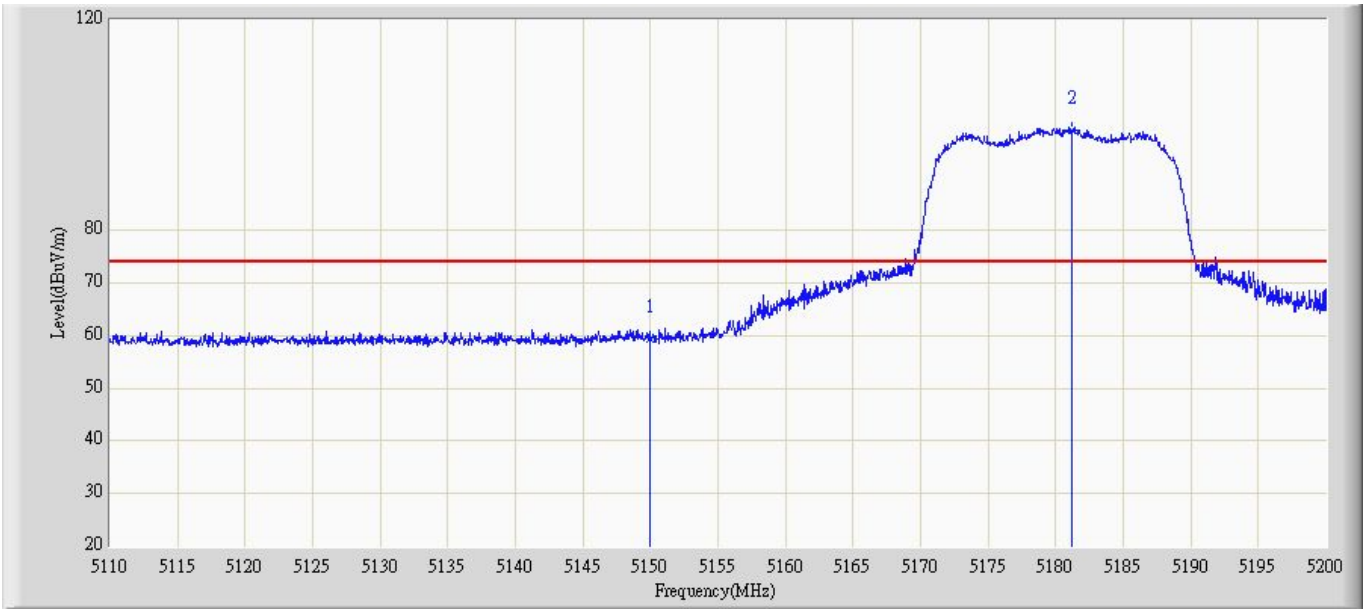
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	59.165	67.385	-14.835	74.000	-8.220	PK
2	*	5180.650	94.663	104.124	N/A	N/A	-9.461	PK

Site: AC5	Time: 2014/12/22 - 16:30
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 5180MHz by 802.11n20 chain 2	



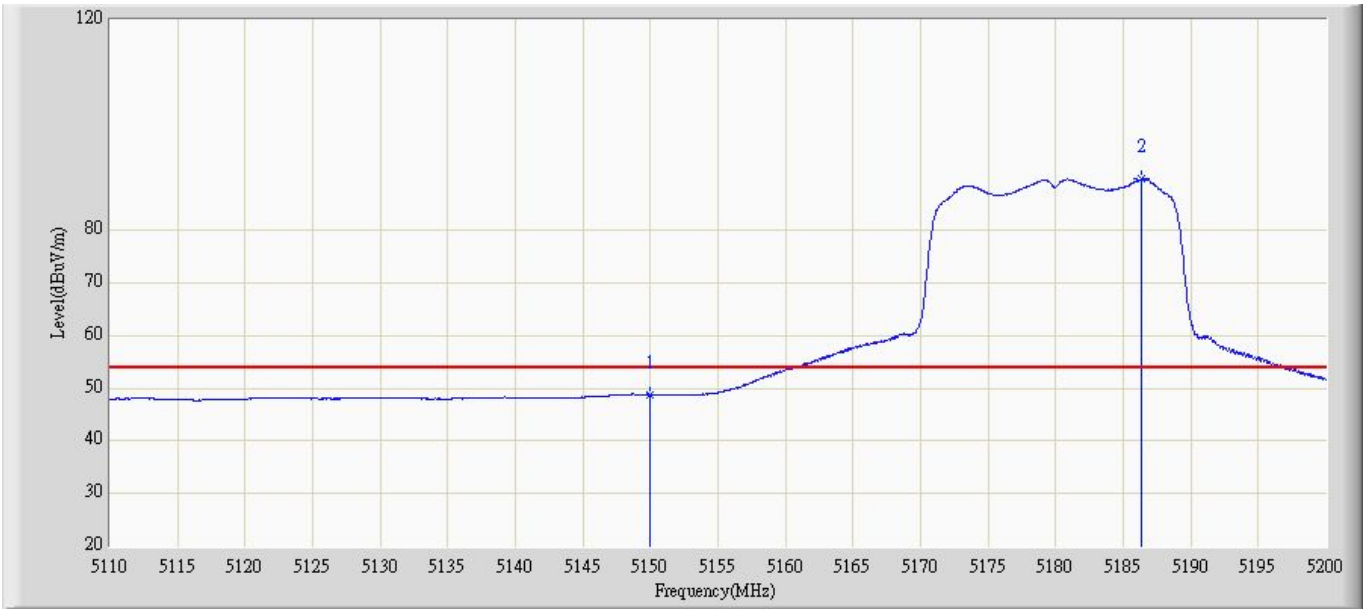
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	46.972	55.192	-7.028	54.000	-8.220	AV
2	*	5180.920	85.433	94.896	N/A	N/A	-9.463	AV

Site: AC5	Time: 2014/12/22 - 16:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5180MHz by 802.11n20 chain 2	



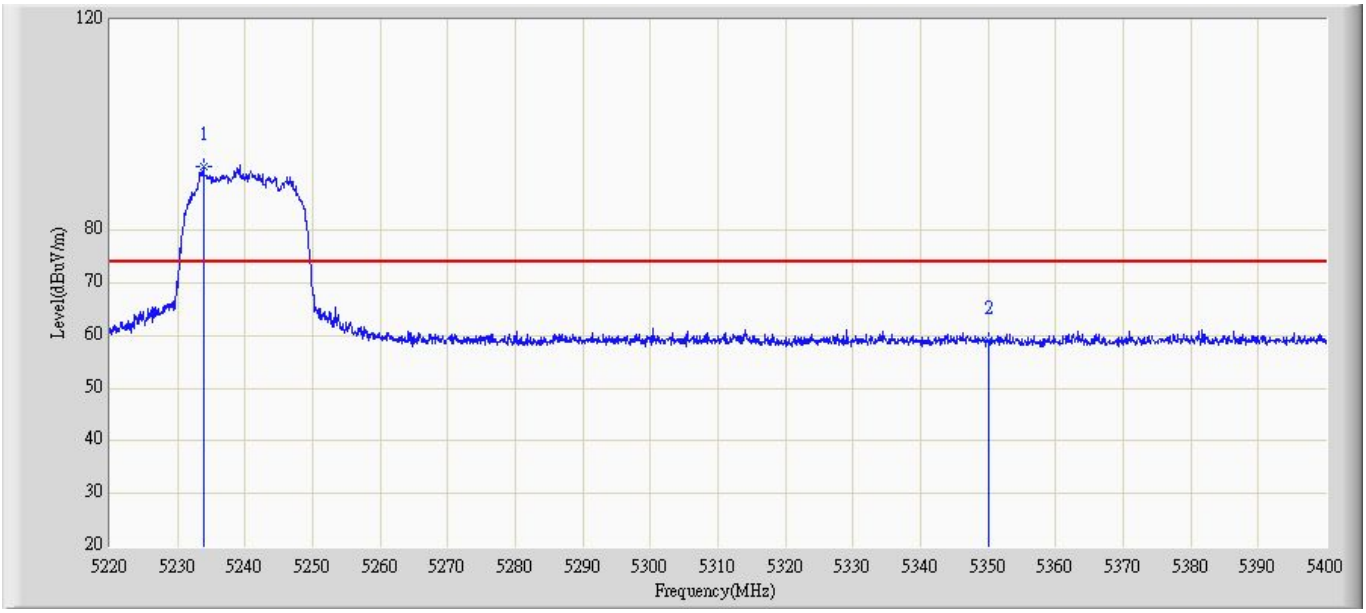
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	59.301	67.521	-14.699	74.000	-8.220	PK
2	*	5181.145	99.051	108.515	N/A	N/A	-9.464	PK

Site: AC5	Time: 2014/12/22 - 16:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5180MHz by 802.11n20 chain 2	



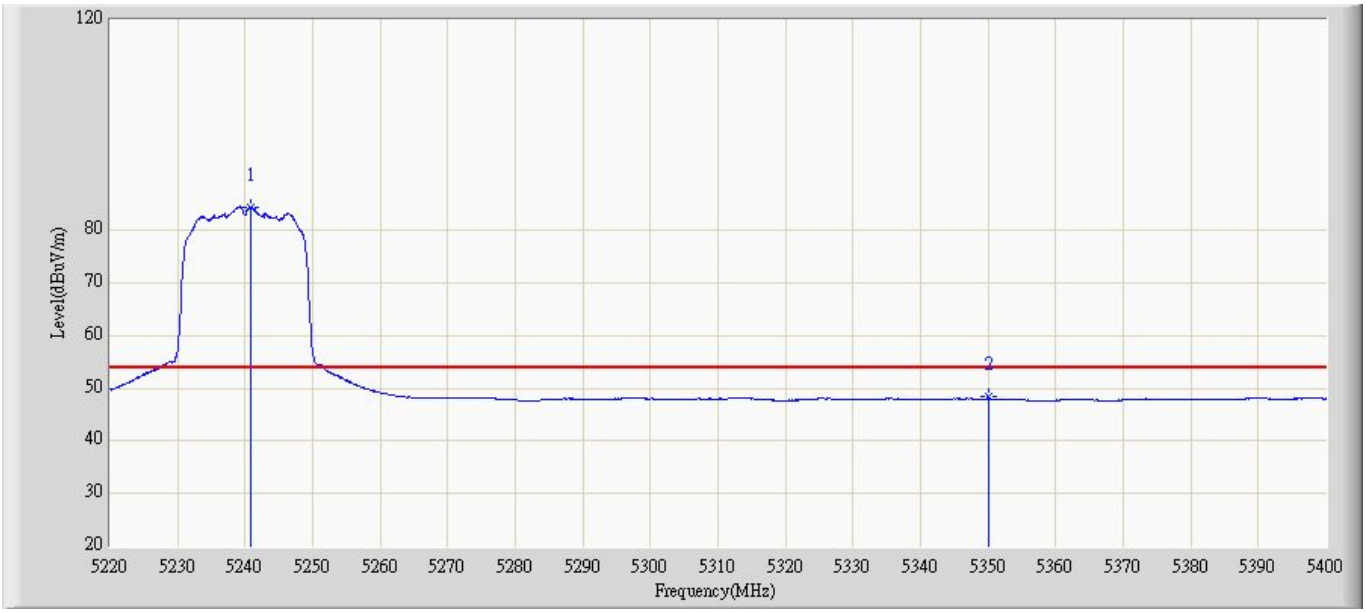
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	48.847	57.067	-5.153	54.000	-8.220	AV
2	*	5186.365	89.760	99.216	N/A	N/A	-9.456	AV

Site: AC5	Time: 2014/12/22 - 16:31
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 5240MHz by 802.11n20 chain 1	



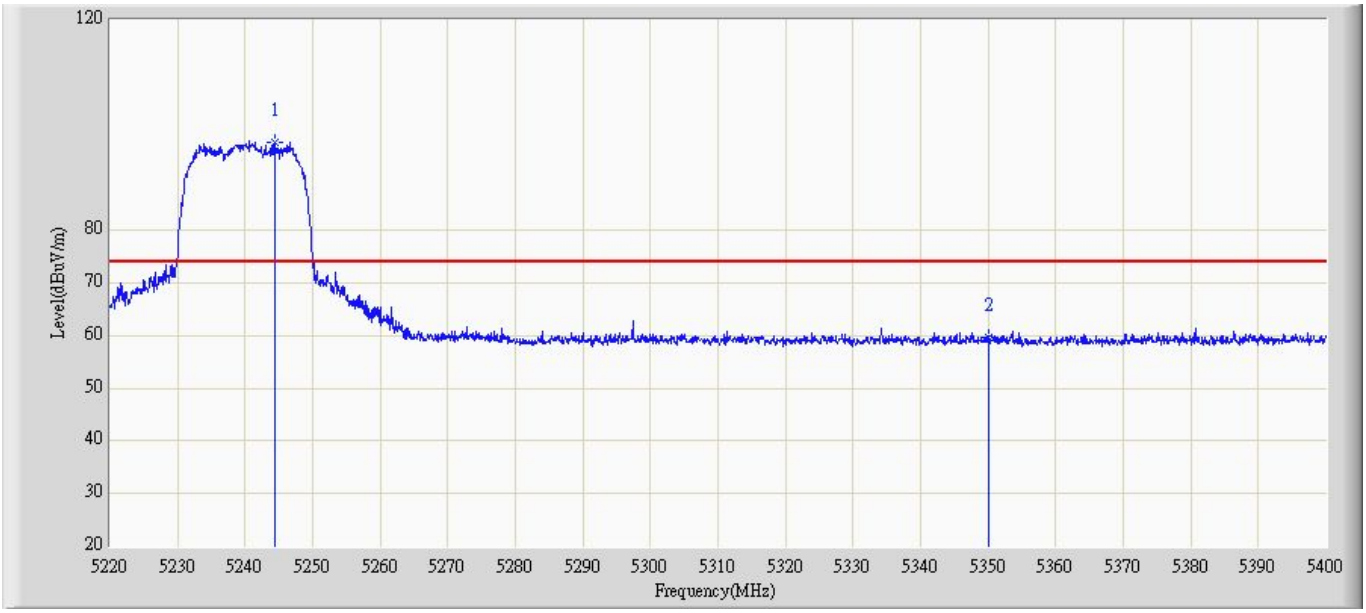
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5233.770	92.214	101.755	N/A	N/A	-9.541	PK
2		5350.000	59.126	67.327	-14.874	74.000	-8.201	PK

Site: AC5	Time: 2014/12/22 - 16:32
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 5240MHz by 802.11n20 chain 1	



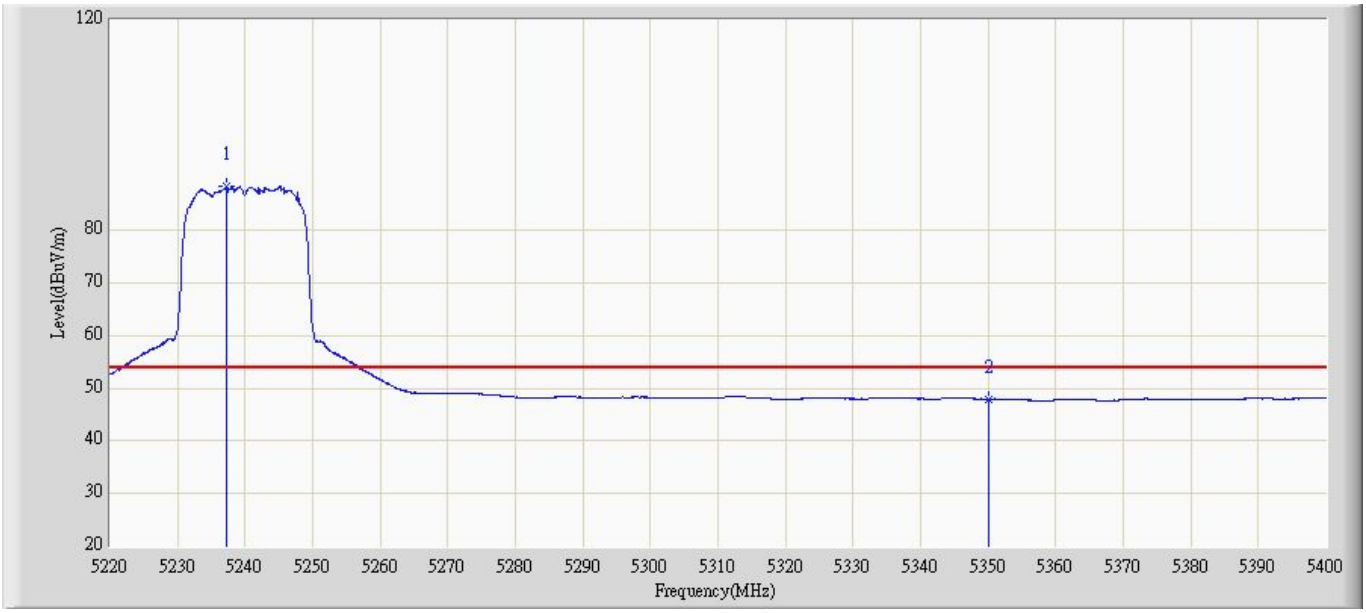
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5240.790	84.402	93.906	N/A	N/A	-9.504	AV
2		5350.000	48.356	56.557	-5.644	54.000	-8.201	AV

Site: AC5	Time: 2014/12/22 - 16:33
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 5240MHz by 802.11n20 chain 1	



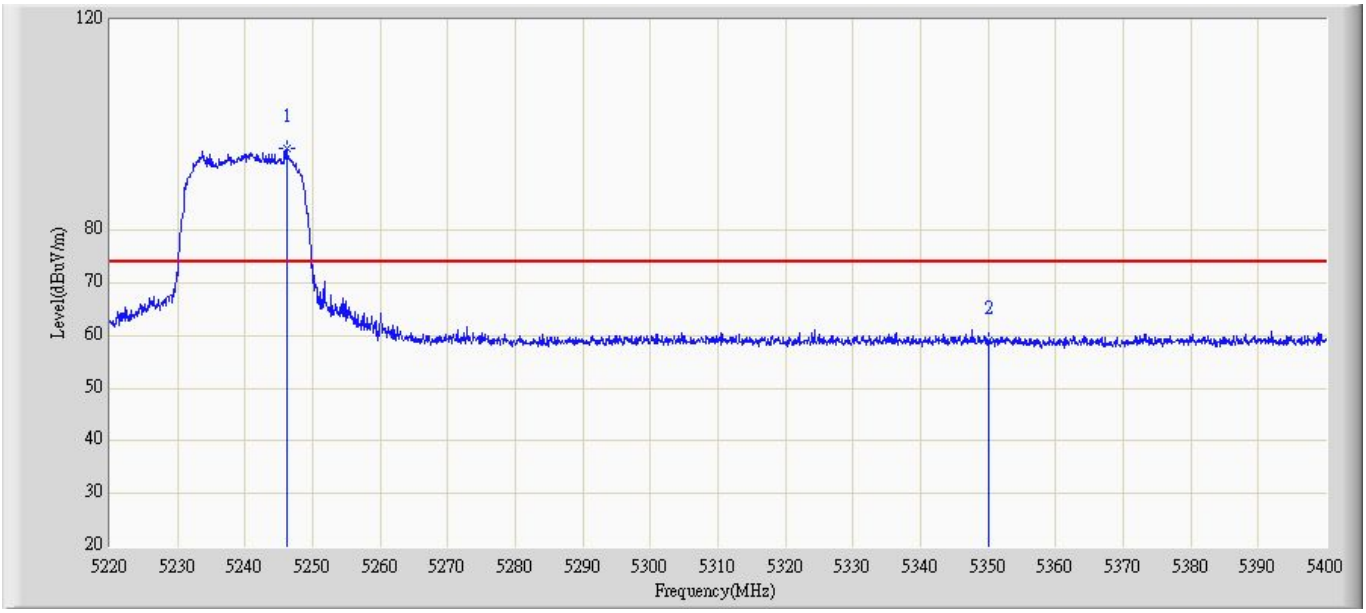
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5244.300	96.829	106.314	N/A	N/A	-9.485	PK
2		5350.000	59.708	67.909	-14.292	74.000	-8.201	PK

Site: AC5	Time: 2014/12/22 - 16:35
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 5240MHz by 802.11n20 chain 1	



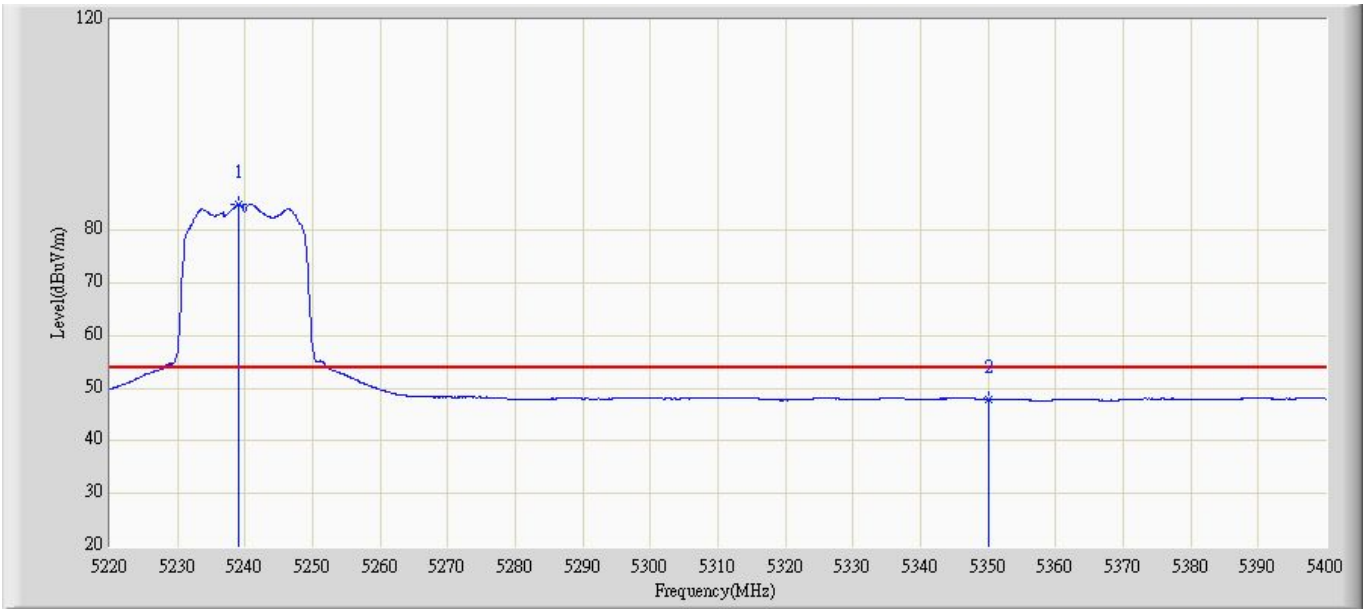
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5237.280	88.318	97.840	N/A	N/A	-9.523	AV
2		5350.000	47.990	56.191	-6.010	54.000	-8.201	AV

Site: AC5	Time: 2014/12/22 - 16:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 chain 2	



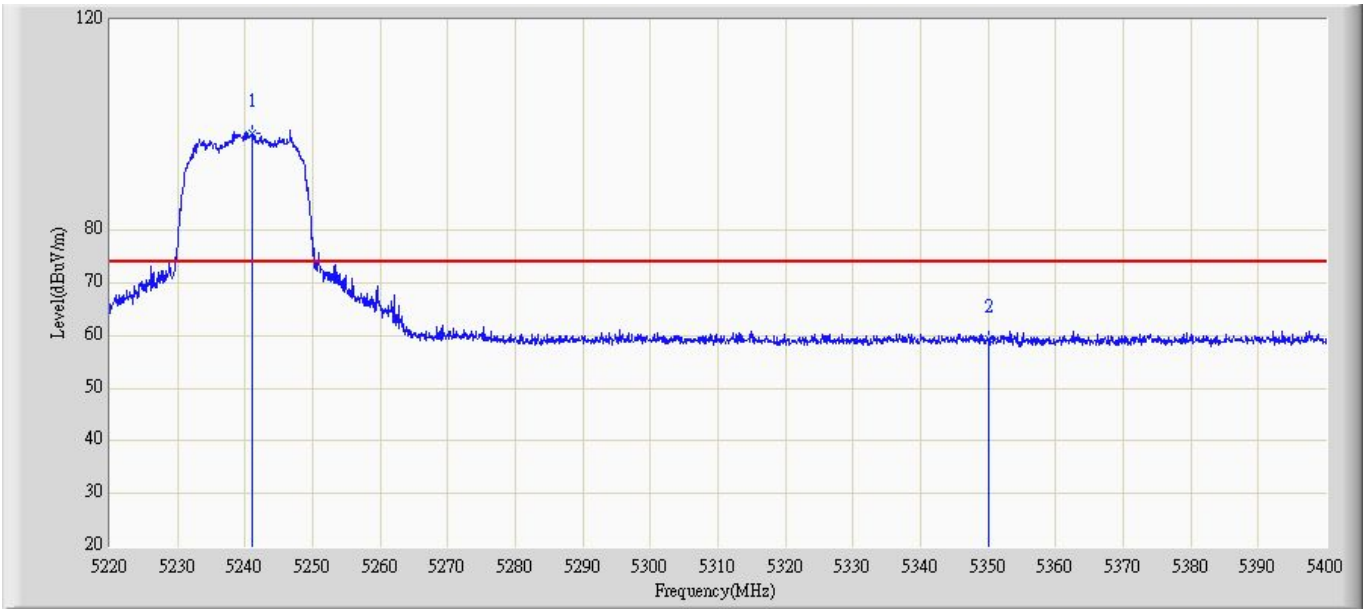
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5246.190	95.522	104.997	N/A	N/A	-9.475	PK
2		5350.000	58.997	67.198	-15.003	74.000	-8.201	PK

Site: AC5	Time: 2014/12/22 - 16:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 chain 2	



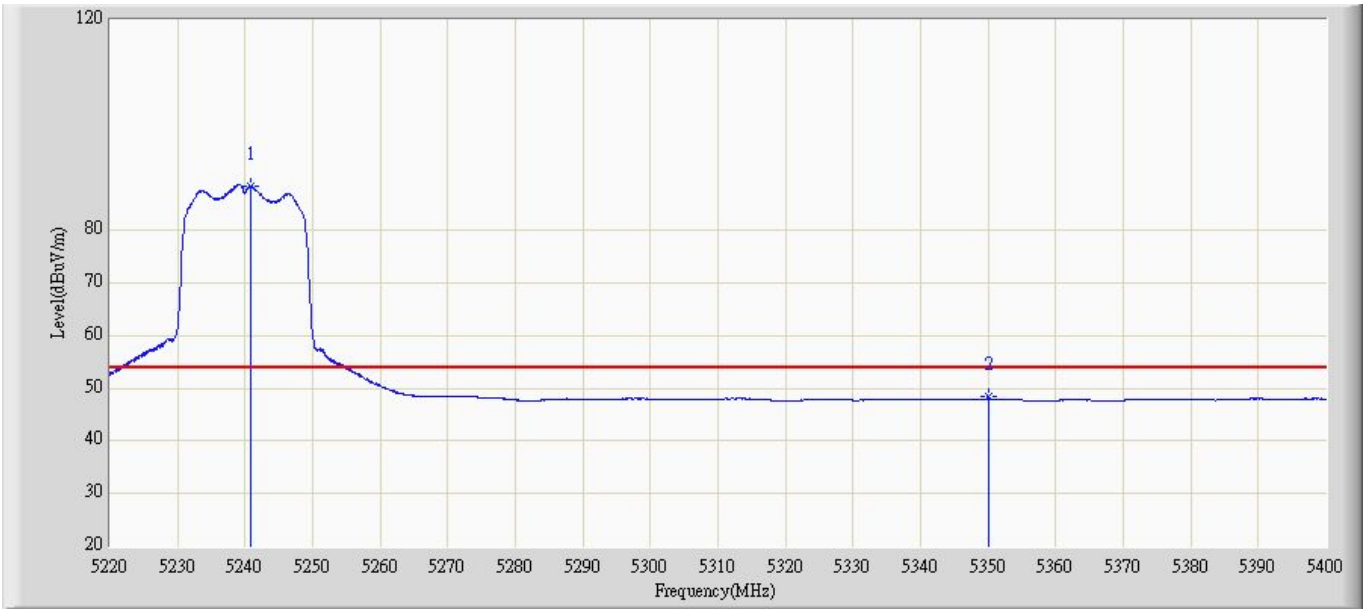
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5239.080	84.987	94.500	N/A	N/A	-9.513	AV
2		5350.000	47.972	56.173	-6.028	54.000	-8.201	AV

Site: AC5	Time: 2014/12/22 - 16:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 chain 2	



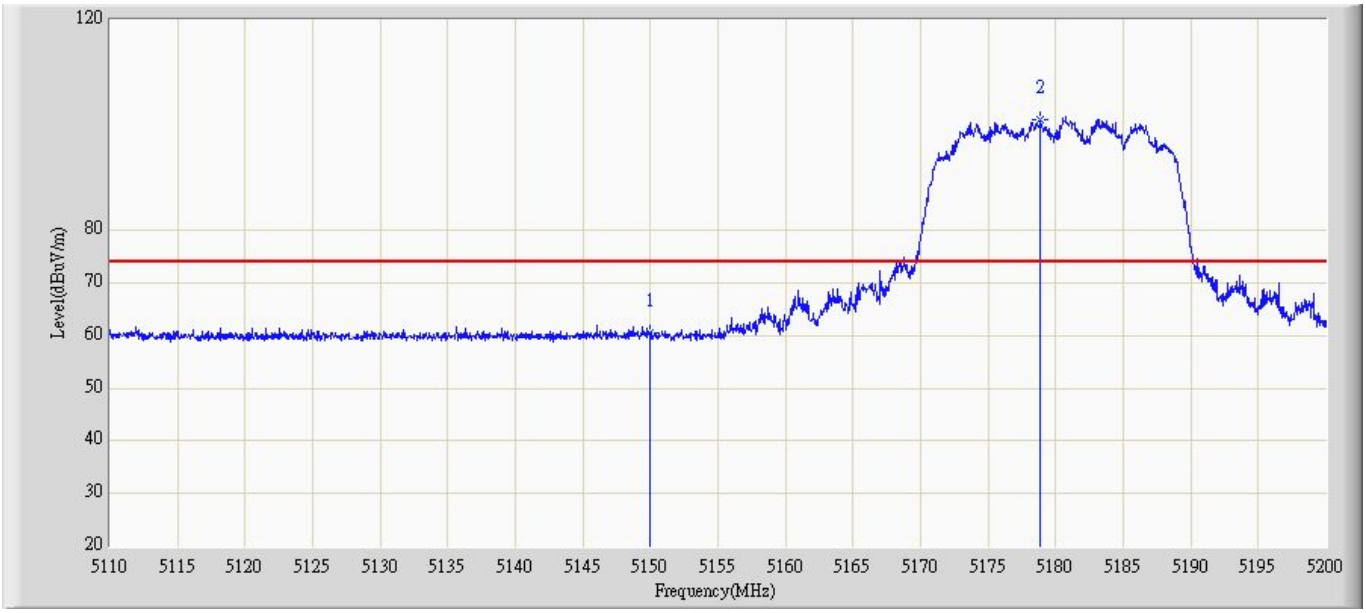
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5241.150	98.558	108.060	N/A	N/A	-9.502	PK
2		5350.000	59.249	67.450	-14.751	74.000	-8.201	PK

Site: AC5	Time: 2014/12/22 - 16:43
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 5240MHz by 802.11n20 chain 2	



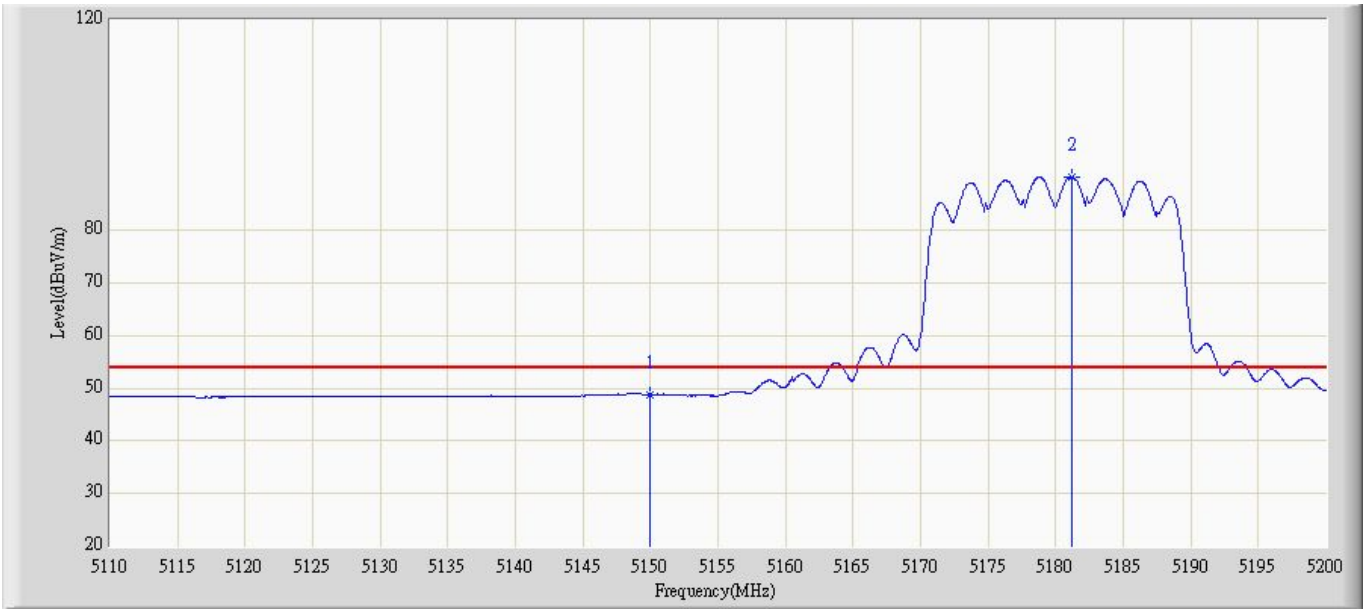
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5240.790	88.289	97.793	N/A	N/A	-9.504	AV
2		5350.000	48.306	56.507	-5.694	54.000	-8.201	AV

Site: AC5	Time: 2014/12/22 - 16:44
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 5180MHz by 802.11a chain 1+2	



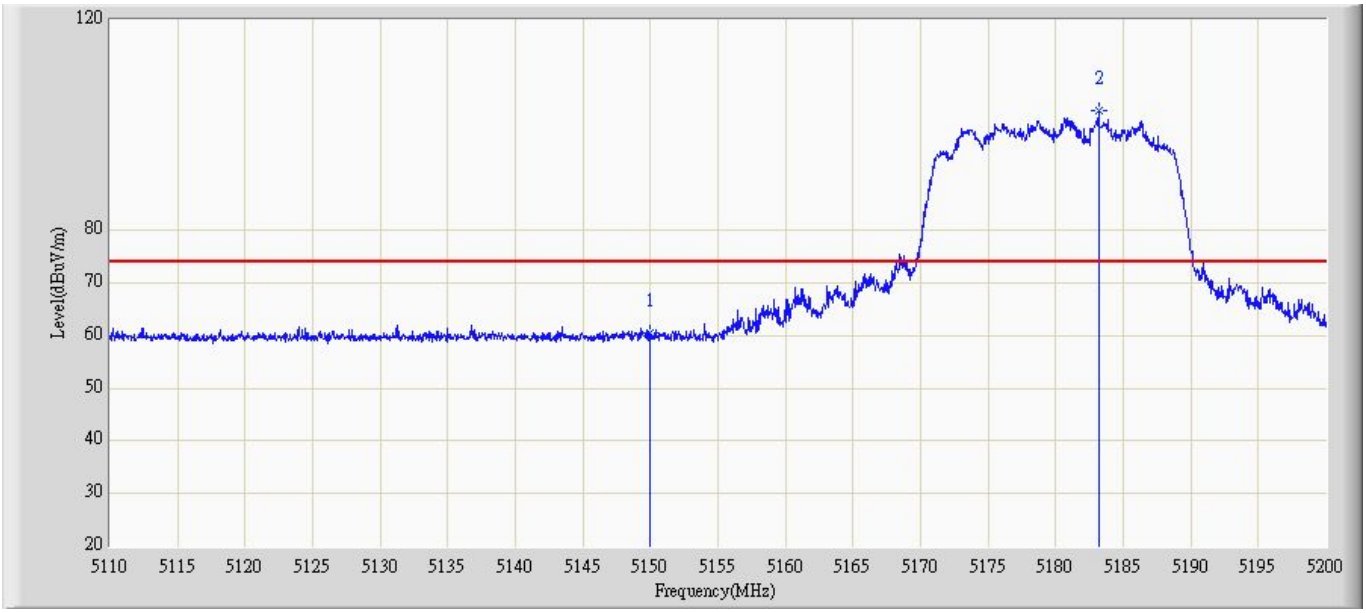
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	60.557	68.777	-13.443	74.000	-8.220	PK
2	*	5178.850	100.891	110.340	N/A	N/A	-9.448	PK

Site: AC5	Time: 2014/12/22 - 16:46
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 5180MHz by 802.11a chain 1+2	



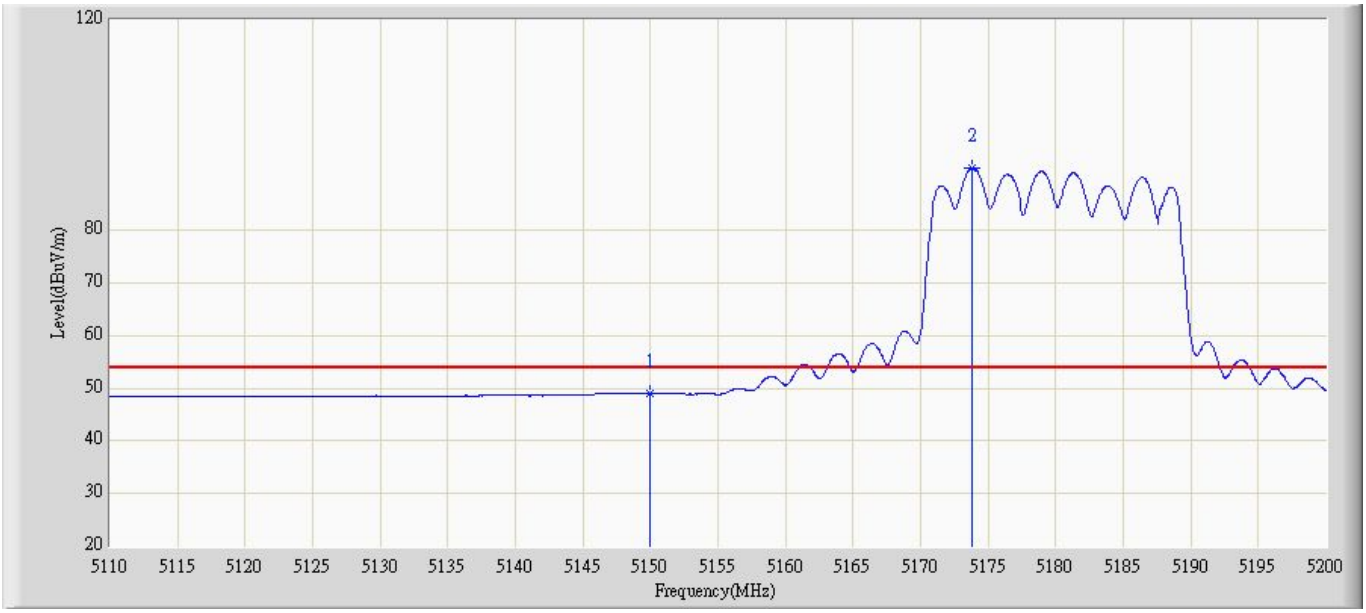
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	48.862	57.082	-5.138	54.000	-8.220	AV
2	*	5181.235	90.097	99.562	N/A	N/A	-9.465	AV

Site: AC5	Time: 2014/12/22 - 16:49
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 5180MHz by 802.11a chain 1+2	



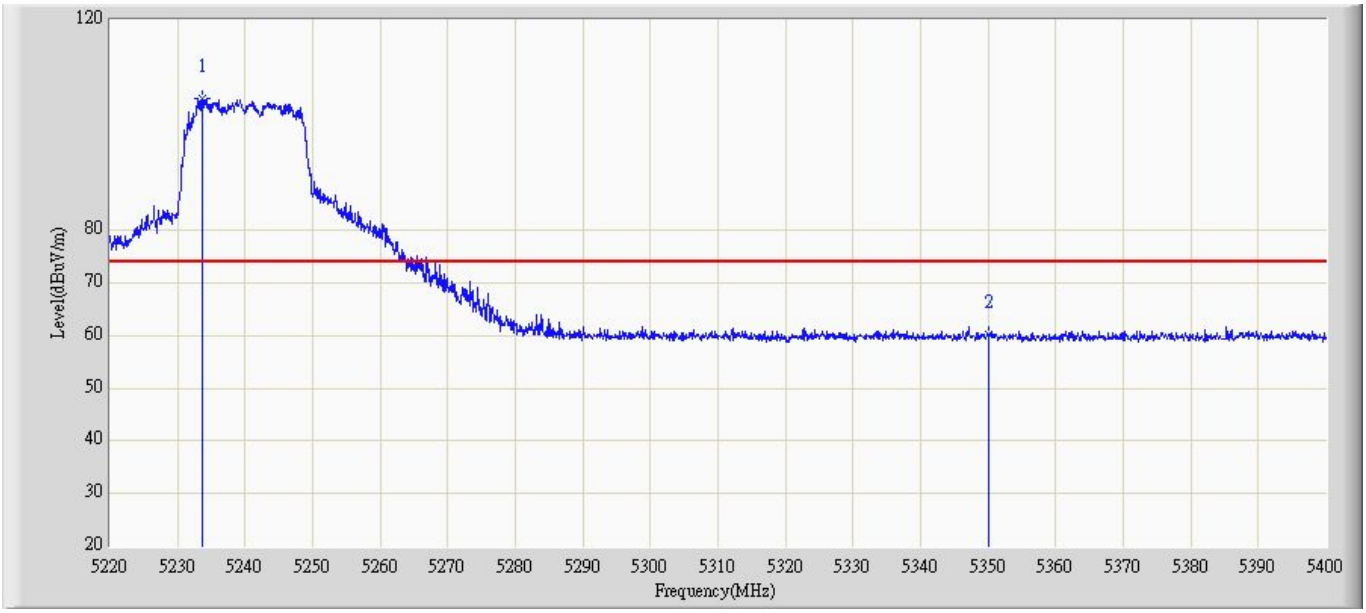
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	60.501	68.721	-13.499	74.000	-8.220	PK
2	*	5183.170	102.662	112.128	N/A	N/A	-9.466	PK

Site: AC5	Time: 2014/12/22 - 16:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5180MHz by 802.11a chain 1+2	



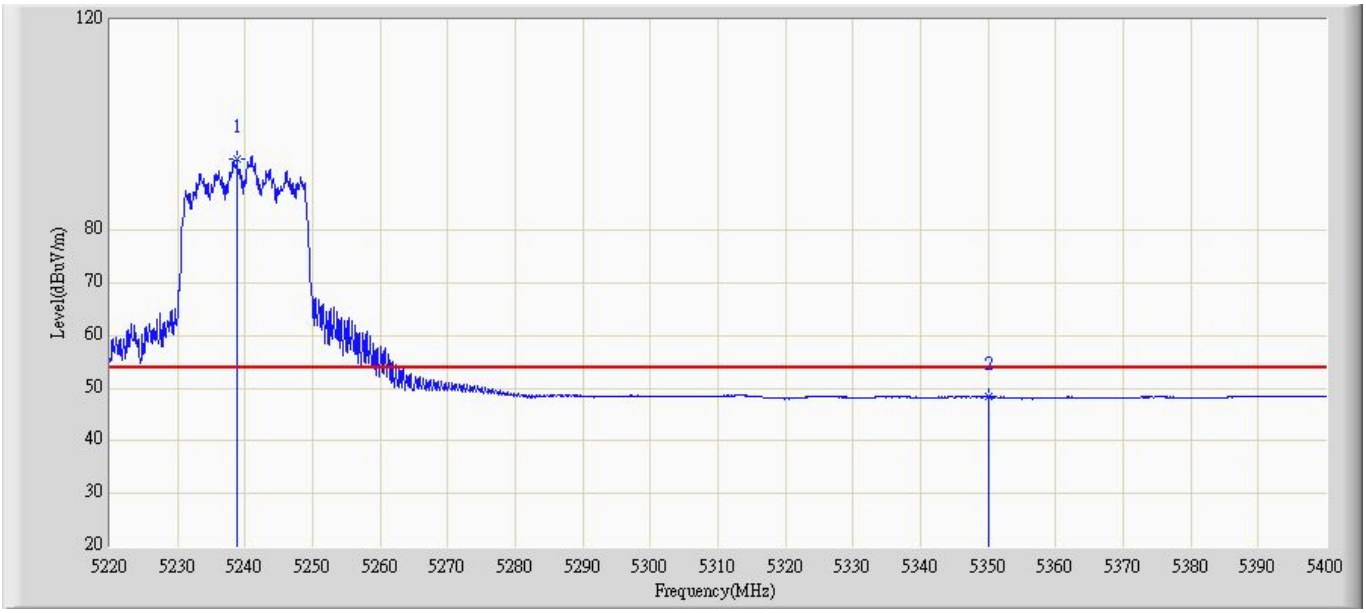
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	49.027	57.247	-4.973	54.000	-8.220	AV
2	*	5173.765	91.934	101.349	N/A	N/A	-9.415	AV

Site: AC5	Time: 2014/12/23 - 09:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 chain 1+2	



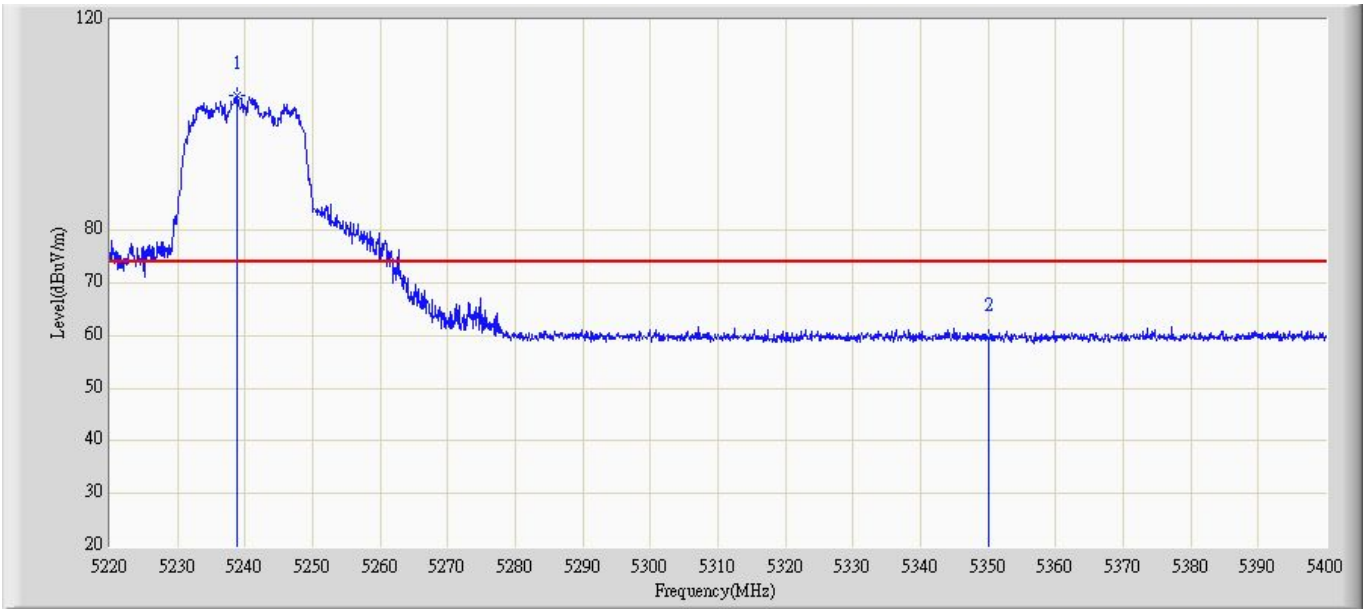
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5233.590	104.938	114.480	N/A	N/A	-9.541	PK
2		5350.000	60.151	68.352	-13.849	74.000	-8.201	PK

Site: AC5	Time: 2014/12/23 - 09:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 chain 1+2	



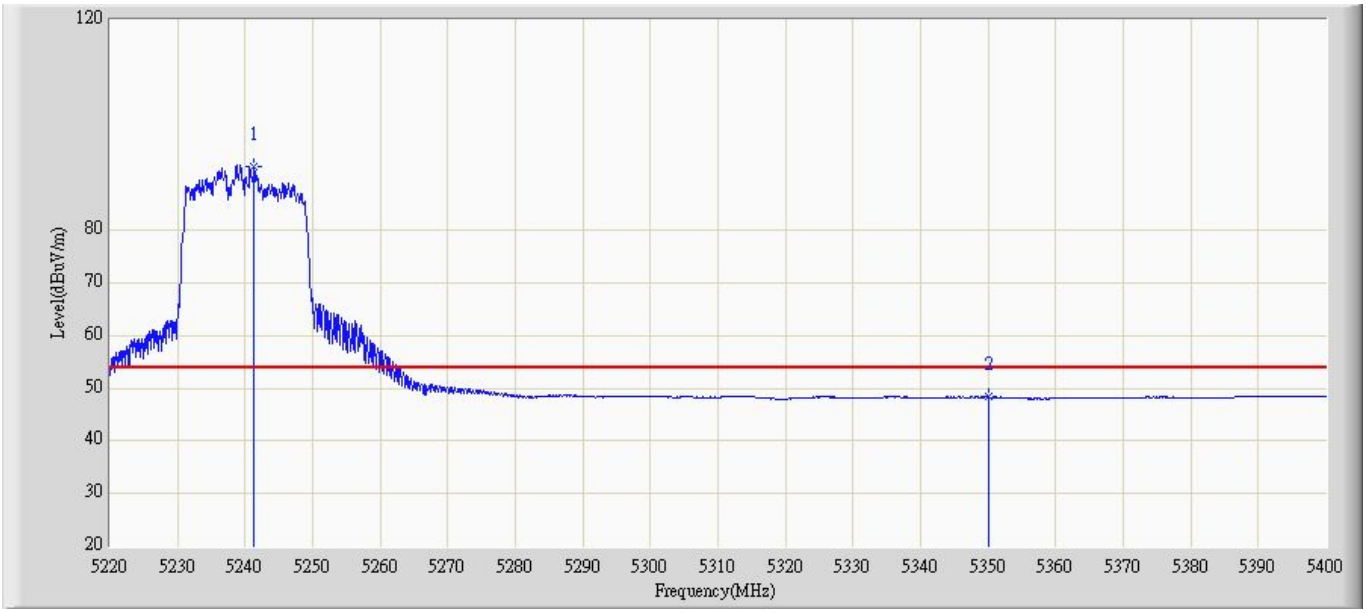
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5238.810	93.543	103.057	N/A	N/A	-9.514	AV
2		5350.000	48.325	56.526	-5.675	54.000	-8.201	AV

Site: AC5	Time: 2014/12/23 - 09:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 chain 1+2	



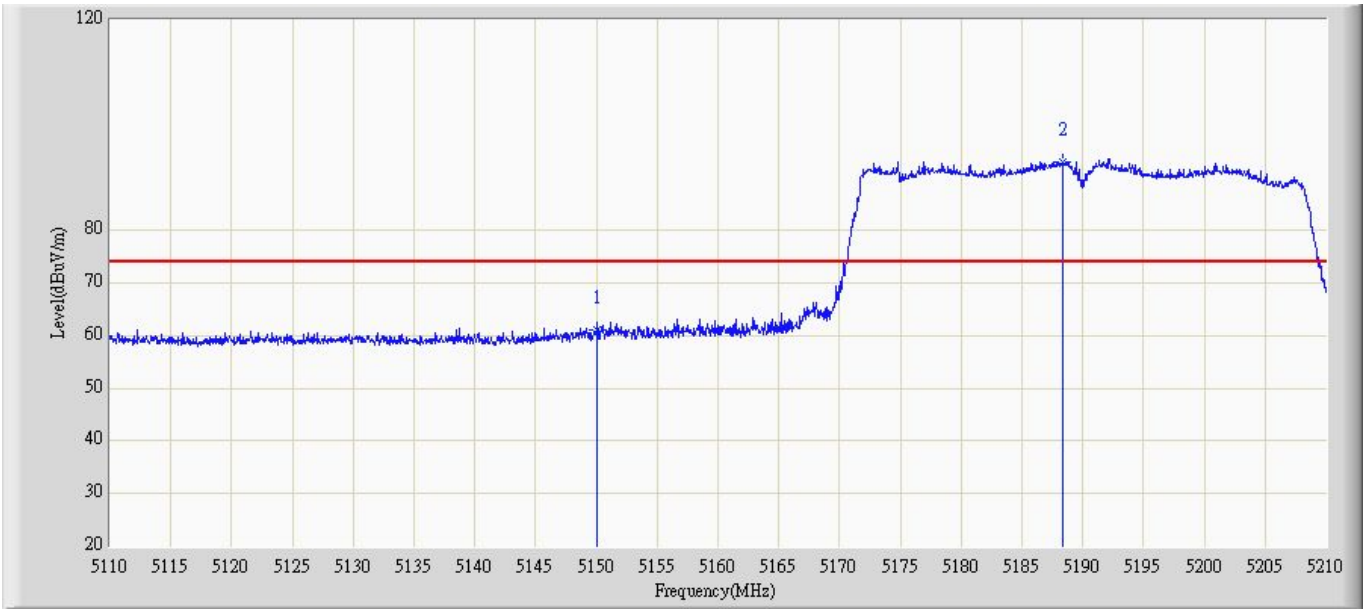
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5238.720	105.718	115.233	N/A	N/A	-9.515	PK
2		5350.000	59.706	67.907	-14.294	74.000	-8.201	PK

Site: AC5	Time: 2014/12/23 - 09:38
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 5240MHz by 802.11n20 chain 1+2	



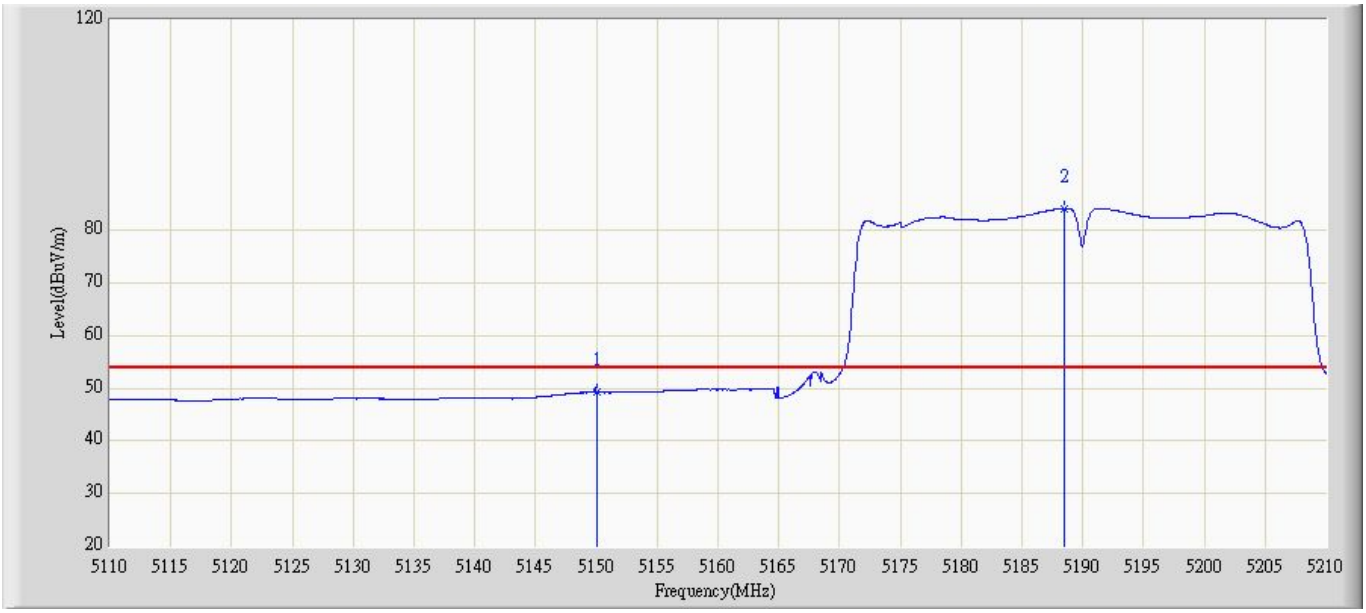
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5241.330	91.984	101.485	N/A	N/A	-9.501	AV
2		5350.000	48.314	56.515	-5.686	54.000	-8.201	AV

Site: AC5	Time: 2014/12/23 - 09:44
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 5190MHz by 802.11n40 chain 1	



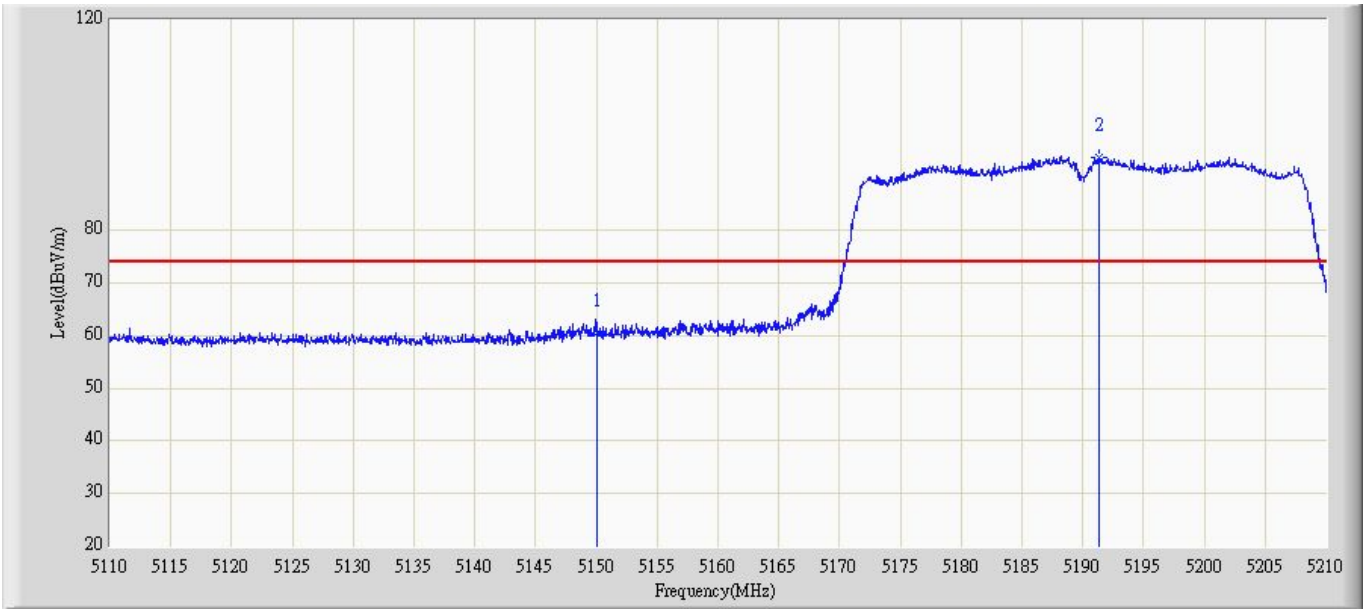
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	61.086	69.306	-12.914	74.000	-8.220	PK
2	*	5188.350	92.983	102.432	N/A	N/A	-9.449	PK

Site: AC5	Time: 2014/12/23 - 09:47
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 5190MHz by 802.11n40 chain 1	



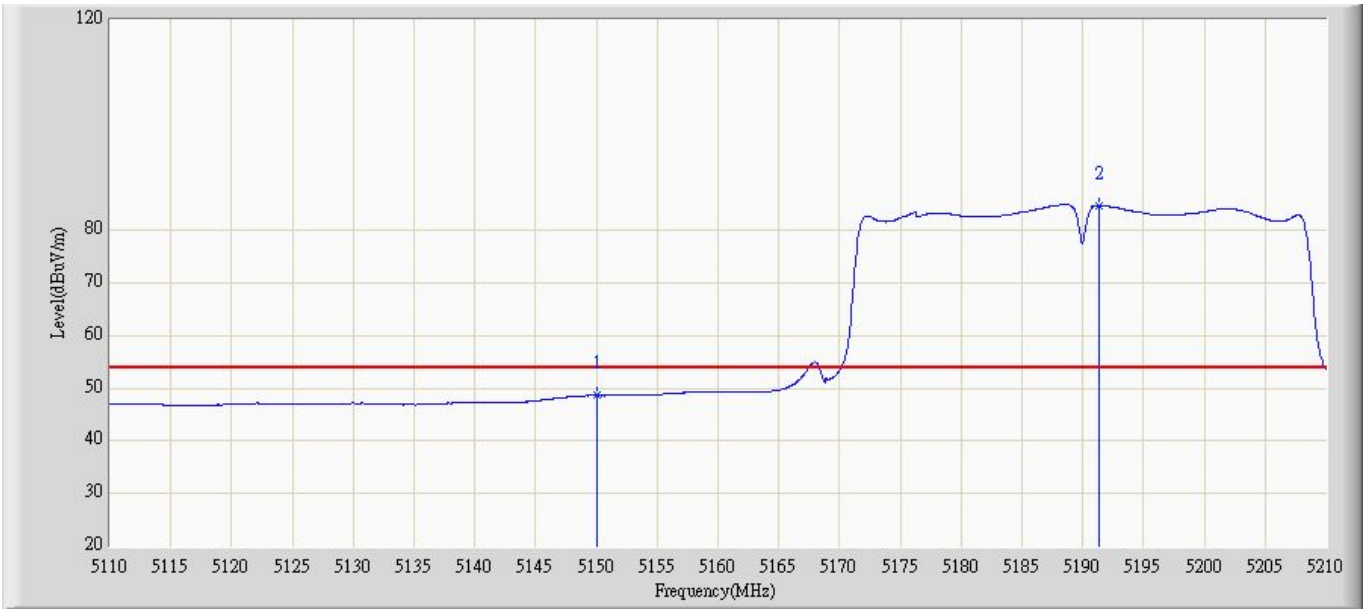
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	49.199	57.419	-4.801	54.000	-8.220	AV
2	*	5188.500	84.156	93.605	N/A	N/A	-9.449	AV

Site: AC5	Time: 2014/12/23 - 09:47
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 5190MHz by 802.11n40 chain 1	



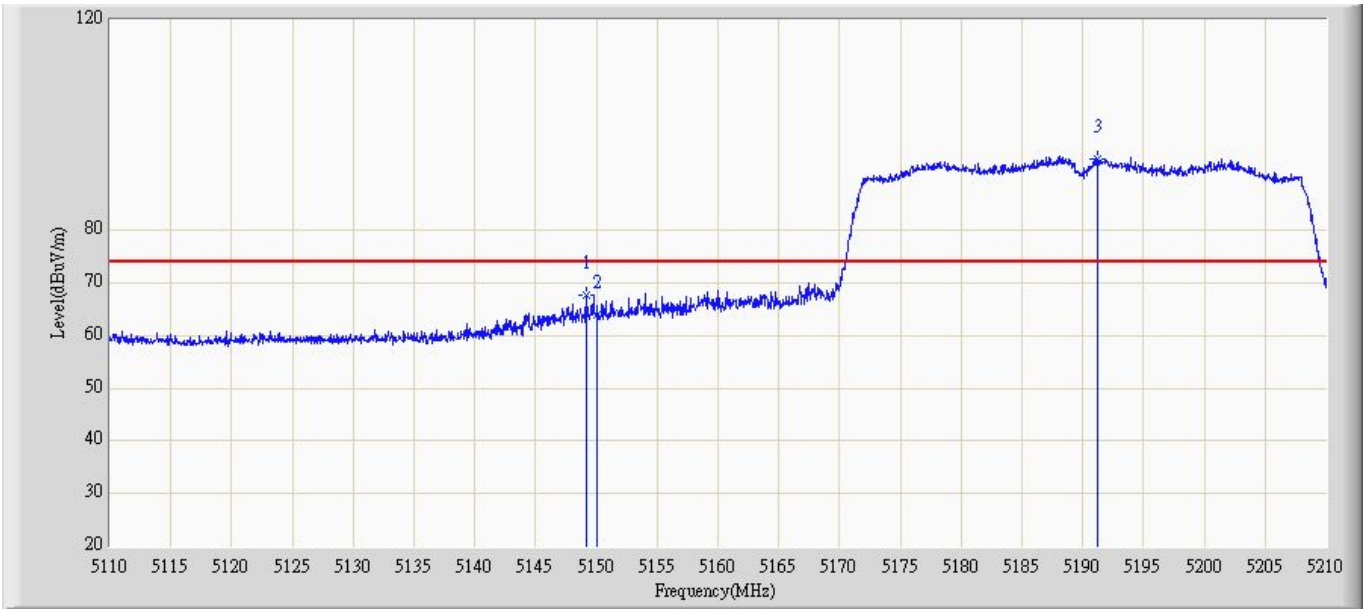
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	60.623	68.843	-13.377	74.000	-8.220	PK
2	*	5191.300	93.830	103.269	N/A	N/A	-9.439	PK

Site: AC5	Time: 2014/12/23 - 09:48
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 5190MHz by 802.11n40 chain 1	



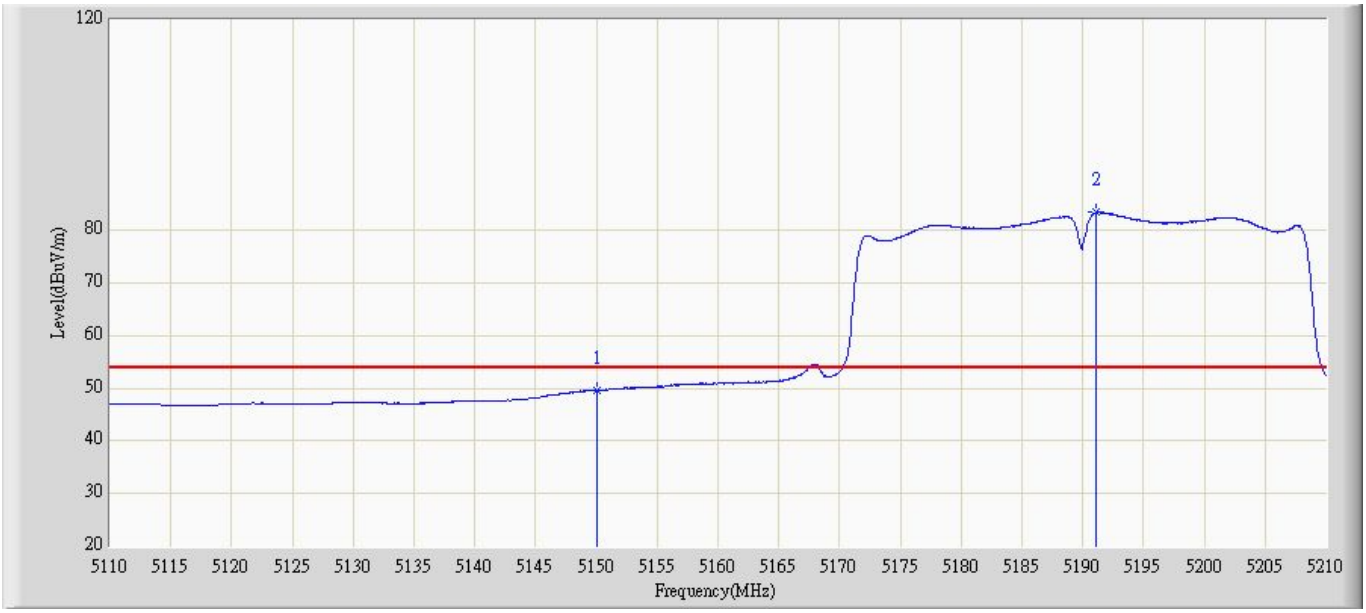
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	48.599	56.819	-5.401	54.000	-8.220	AV
2	*	5191.300	84.766	94.205	N/A	N/A	-9.439	AV

Site: AC5	Time: 2014/12/23 - 13:16
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 5190MHz by 802.11n40 chain 2	



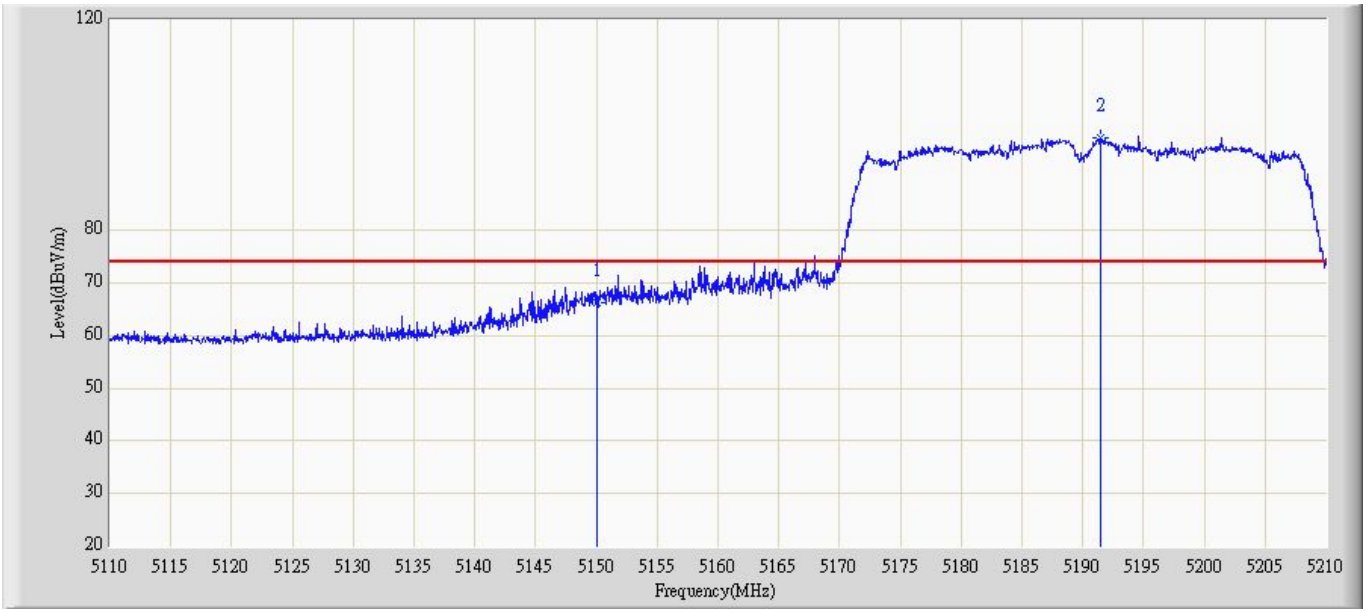
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5149.150	67.607	76.950	-6.393	74.000	-9.343	PK
2		5150.000	63.842	72.062	-10.158	74.000	-8.220	PK
3	*	5191.250	93.538	102.978	N/A	N/A	-9.439	PK

Site: AC5	Time: 2014/12/23 - 13:16
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 5190MHz by 802.11n40 chain 2	



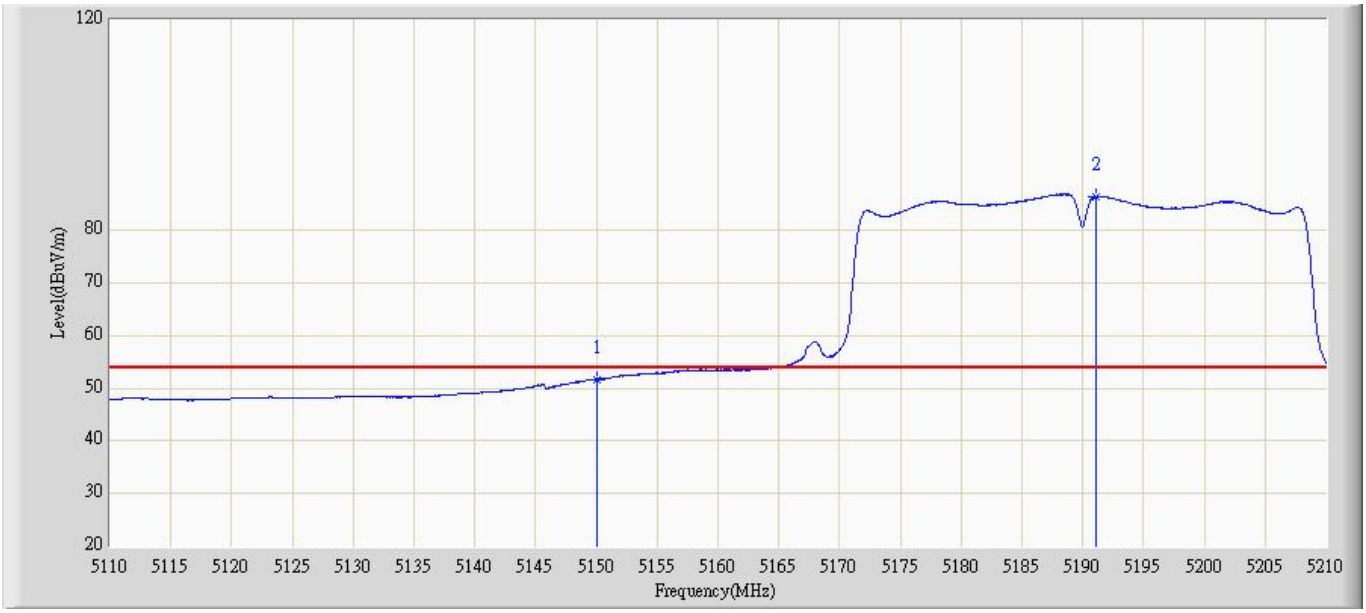
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	49.597	57.817	-4.403	54.000	-8.220	AV
2	*	5191.150	83.368	92.808	N/A	N/A	-9.440	AV

Site: AC5	Time: 2014/12/23 - 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 5190MHz by 802.11n40 chain 2	



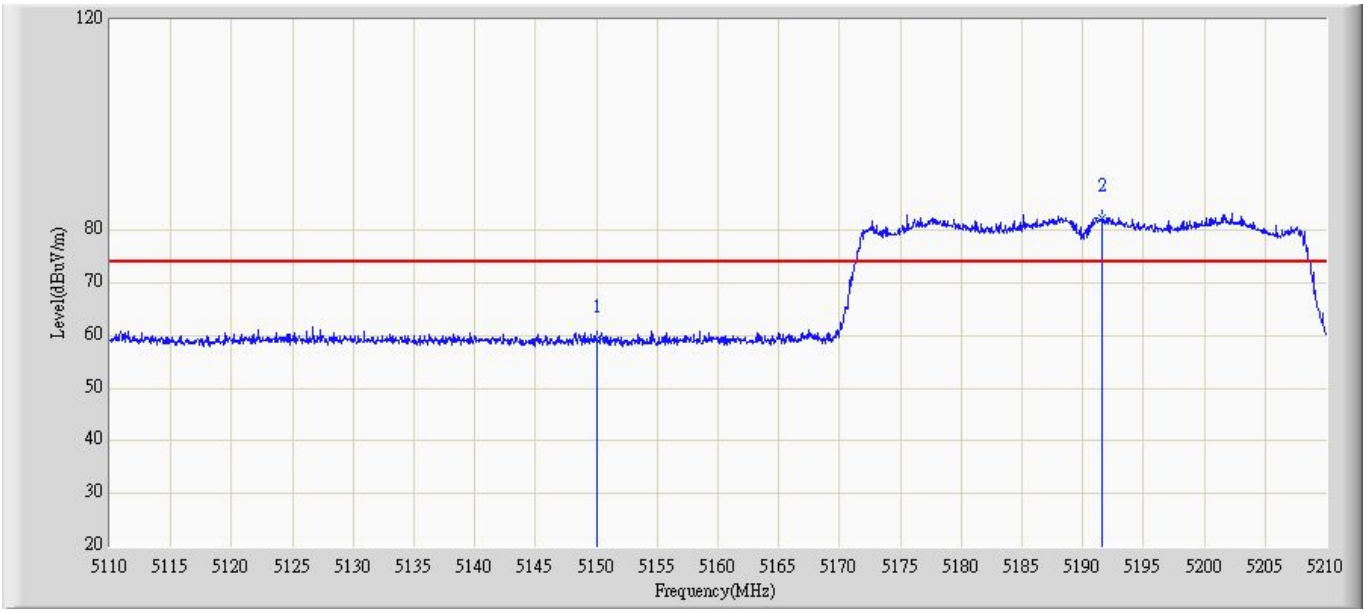
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	66.360	74.580	-7.640	74.000	-8.220	PK
2	*	5191.500	97.553	106.992	N/A	N/A	-9.438	PK

Site: AC5	Time: 2014/12/23 - 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 5190MHz by 802.11n40 chain 2	



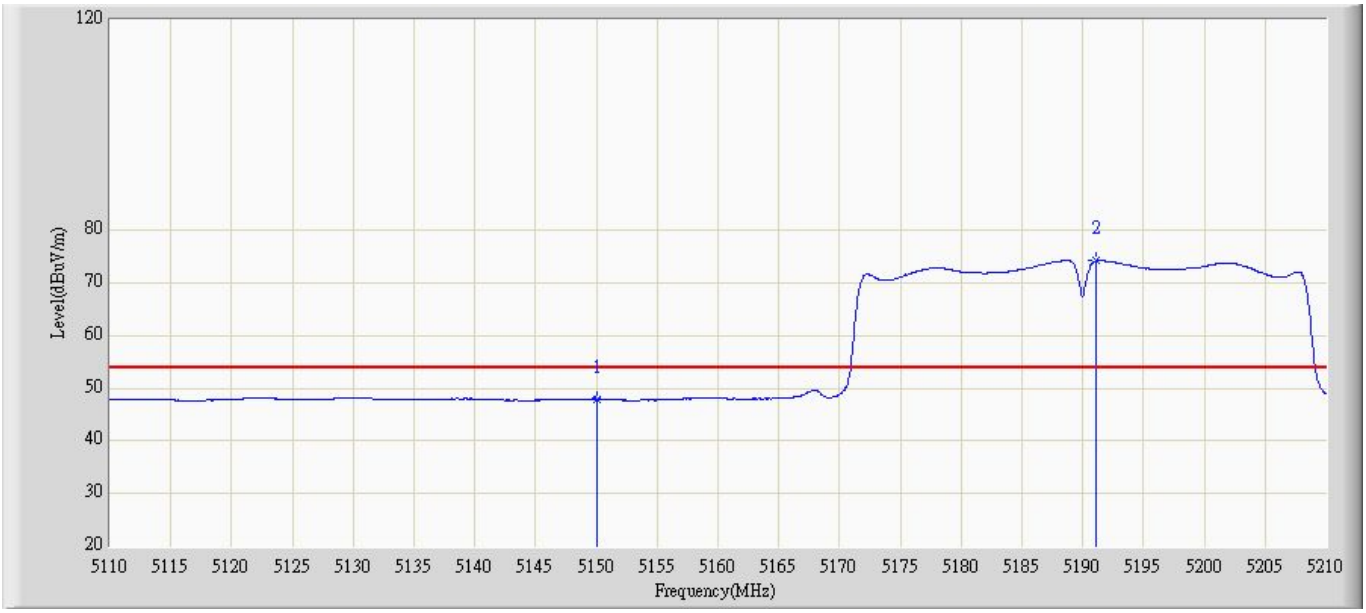
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	51.689	59.909	-2.311	54.000	-8.220	AV
2	*	5191.150	86.408	95.848	N/A	N/A	-9.440	AV

Site: AC5	Time: 2014/12/23 - 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 5190MHz by 802.11n40 chain 1+2	



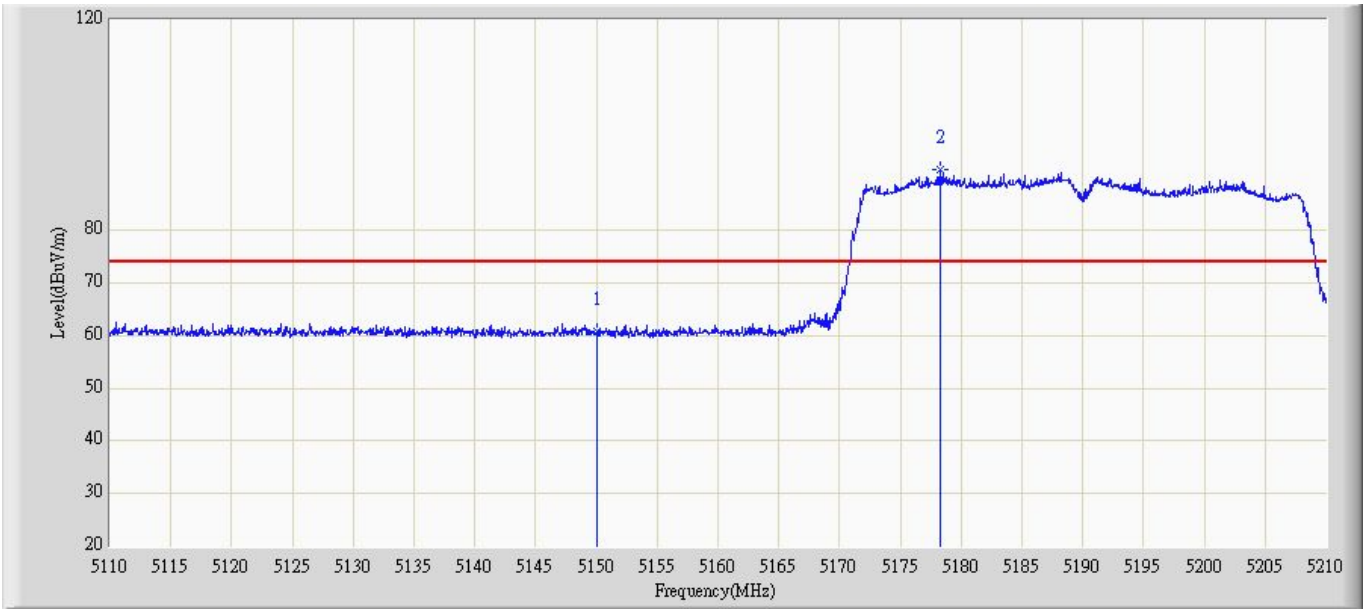
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	59.293	67.513	-14.707	74.000	-8.220	PK
2	*	5191.550	82.383	91.822	N/A	N/A	-9.438	PK

Site: AC5	Time: 2014/12/23 - 13:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5190MHz by 802.11n40 chain 1+2	



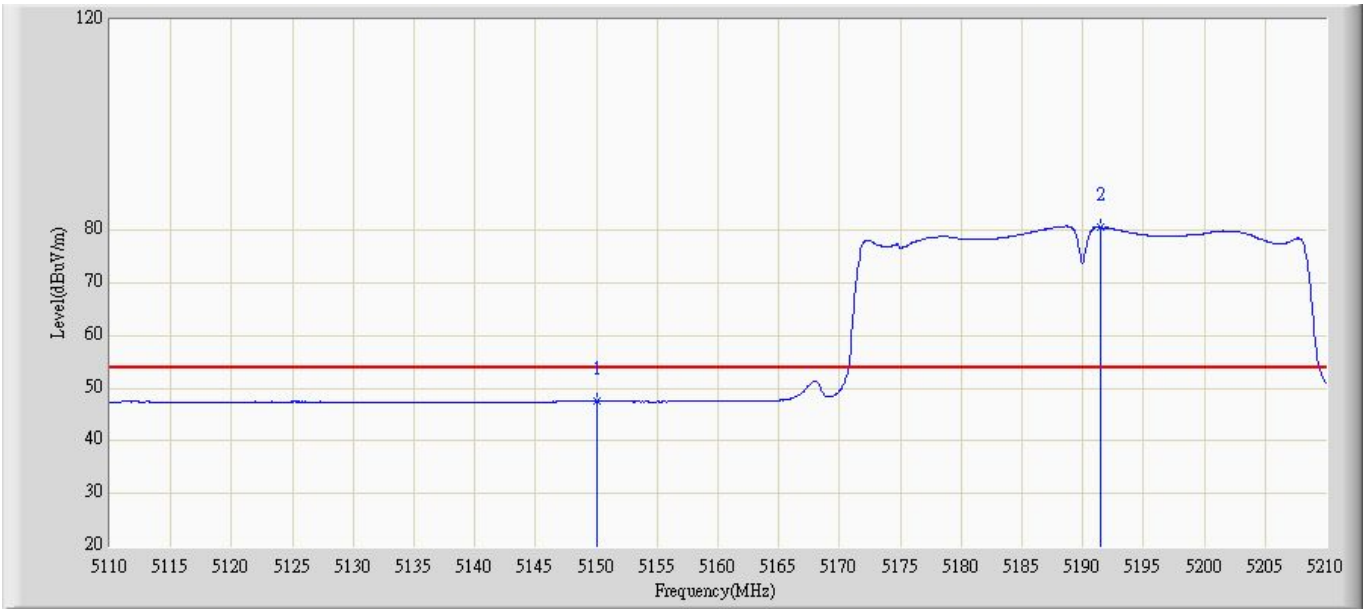
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	47.901	56.121	-6.099	54.000	-8.220	AV
2	*	5191.150	74.245	83.685	N/A	N/A	-9.440	AV

Site: AC5	Time: 2014/12/23 - 13:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5190MHz by 802.11n40 chain 1+2	



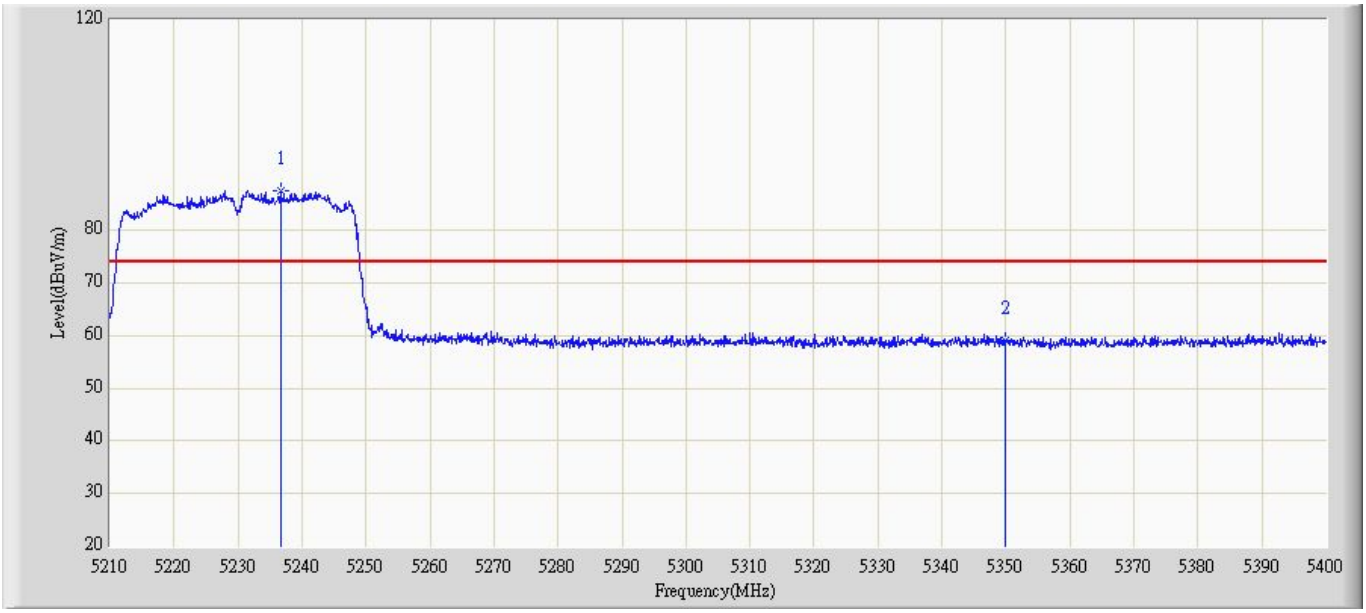
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	60.833	69.053	-13.167	74.000	-8.220	PK
2	*	5178.250	91.444	100.889	N/A	N/A	-9.445	PK

Site: AC5	Time: 2014/12/23 - 13:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5190MHz by 802.11n40 chain 1+2	



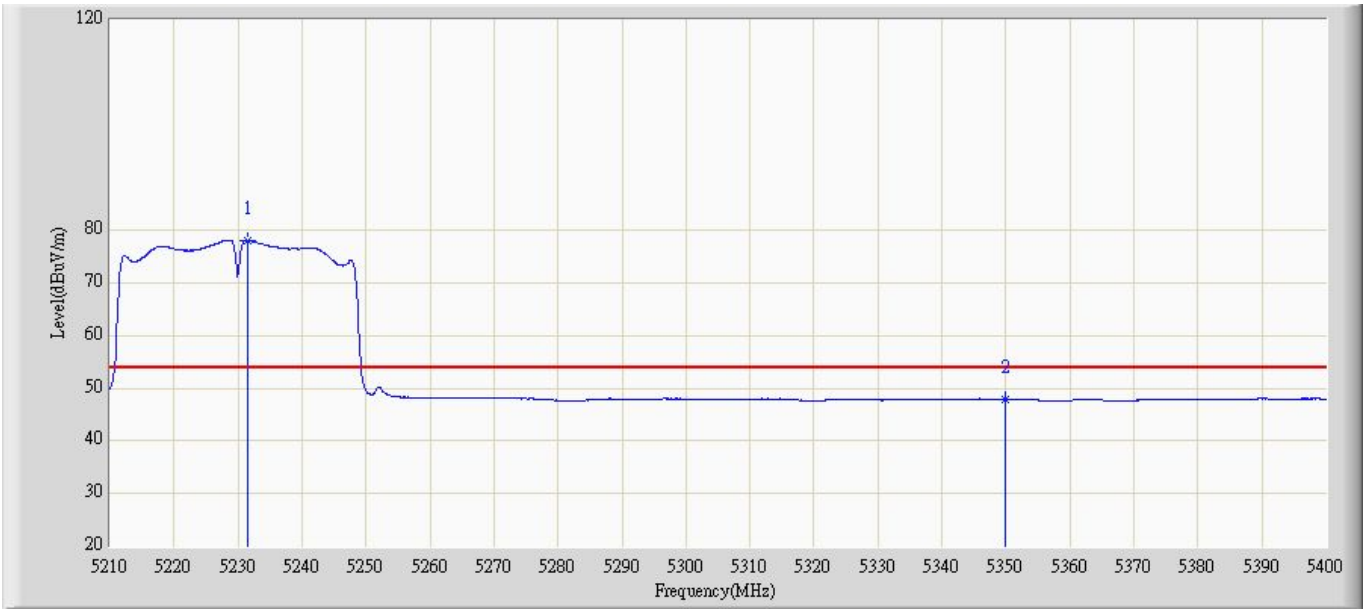
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	47.599	55.819	-6.401	54.000	-8.220	AV
2	*	5191.500	80.518	89.957	N/A	N/A	-9.438	AV

Site: AC5	Time: 2014/12/23 - 13:21
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 5230MHz by 802.11n40 chain 1	



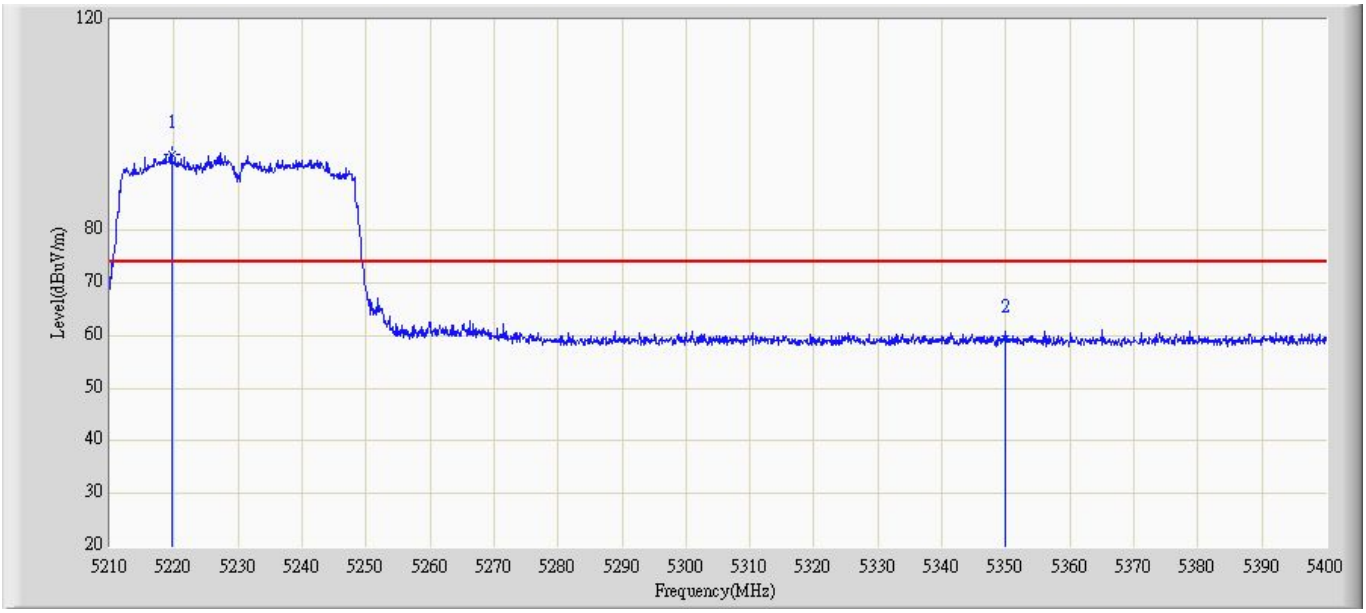
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5236.695	87.544	97.069	N/A	N/A	-9.526	PK
2		5350.000	58.991	67.192	-15.009	74.000	-8.201	PK

Site: AC5	Time: 2014/12/23 - 13:21
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 5230MHz by 802.11n40 chain 1	



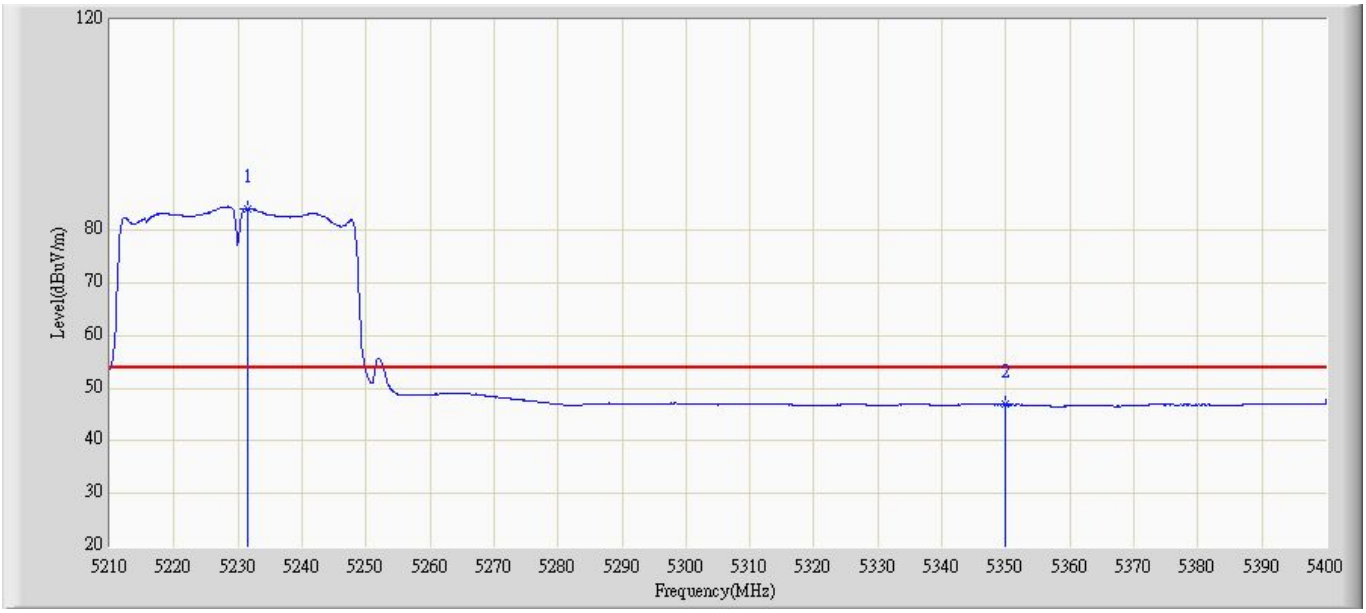
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5231.565	78.044	87.585	N/A	N/A	-9.541	AV
2		5350.000	47.892	56.093	-6.108	54.000	-8.201	AV

Site: AC5	Time: 2014/12/23 - 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 5230MHz by 802.11n40 chain 1	



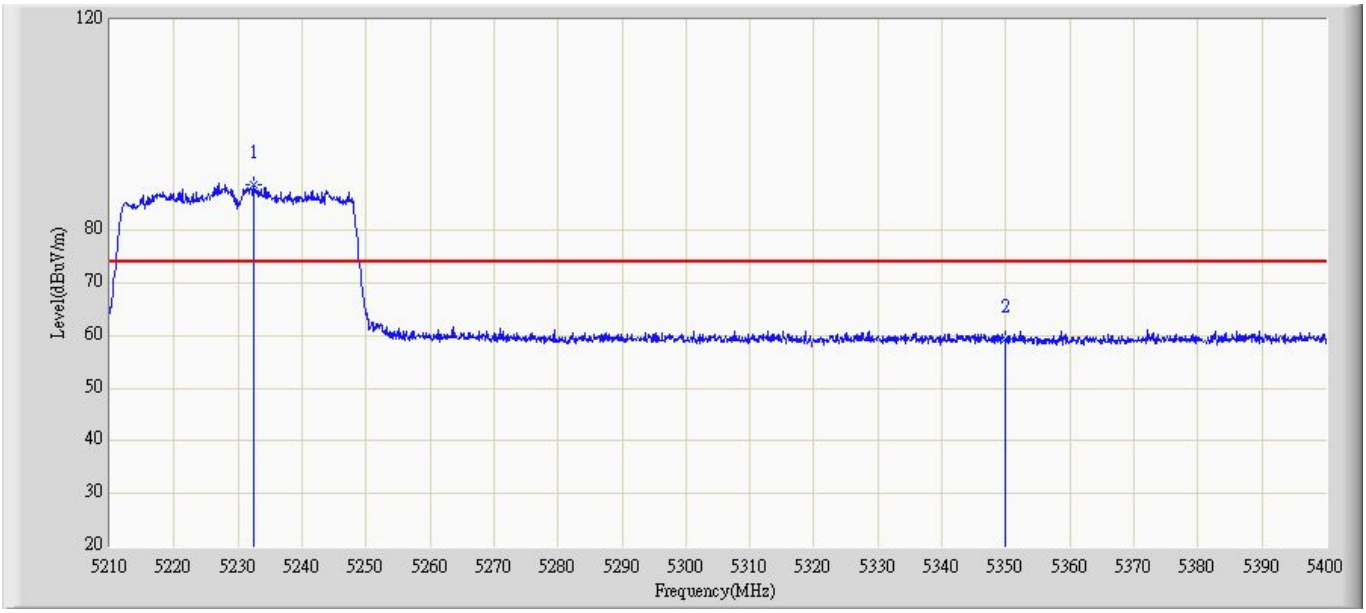
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5219.690	94.546	104.055	N/A	N/A	-9.509	PK
2		5350.000	59.397	67.598	-14.603	74.000	-8.201	PK

Site: AC5	Time: 2014/12/23 - 13:23
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 5230MHz by 802.11n40 chain 1	



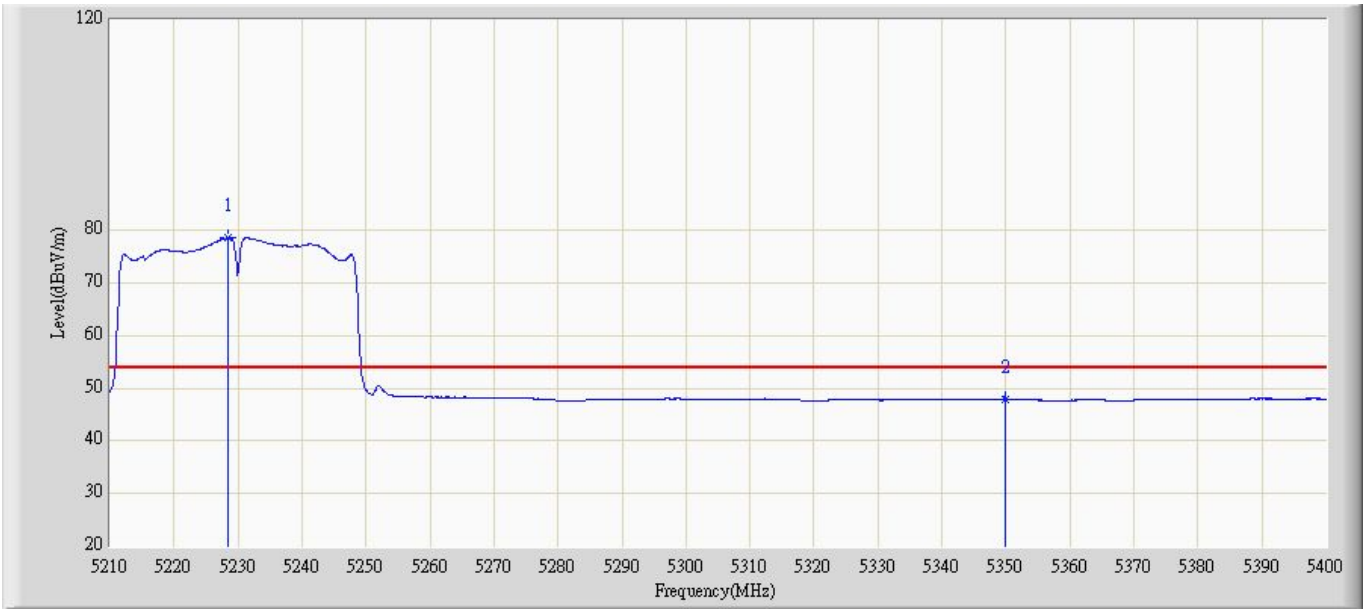
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5231.565	84.132	93.673	N/A	N/A	-9.541	AV
2		5350.000	46.894	55.095	-7.106	54.000	-8.201	AV

Site: AC5	Time: 2014/12/23 - 13:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5230MHz by 802.11n40 chain 2	



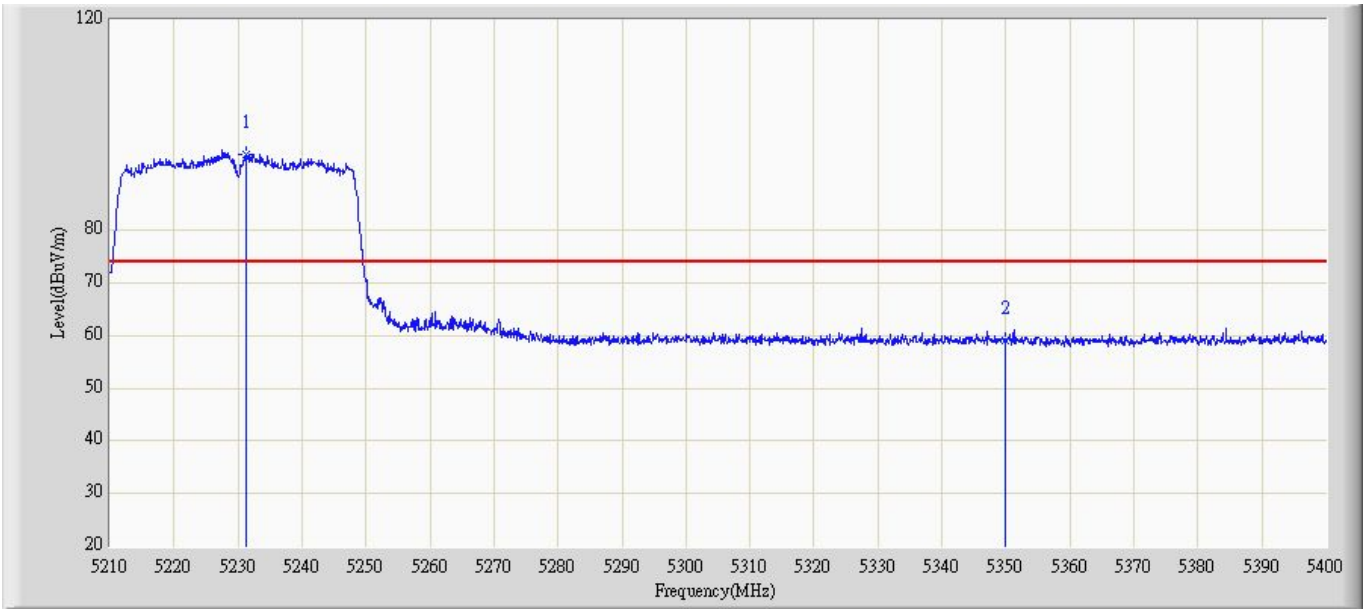
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5232.515	88.608	98.152	N/A	N/A	-9.544	PK
2		5350.000	59.451	67.652	-14.549	74.000	-8.201	PK

Site: AC5	Time: 2014/12/23 - 13:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5230MHz by 802.11n40 chain 2	



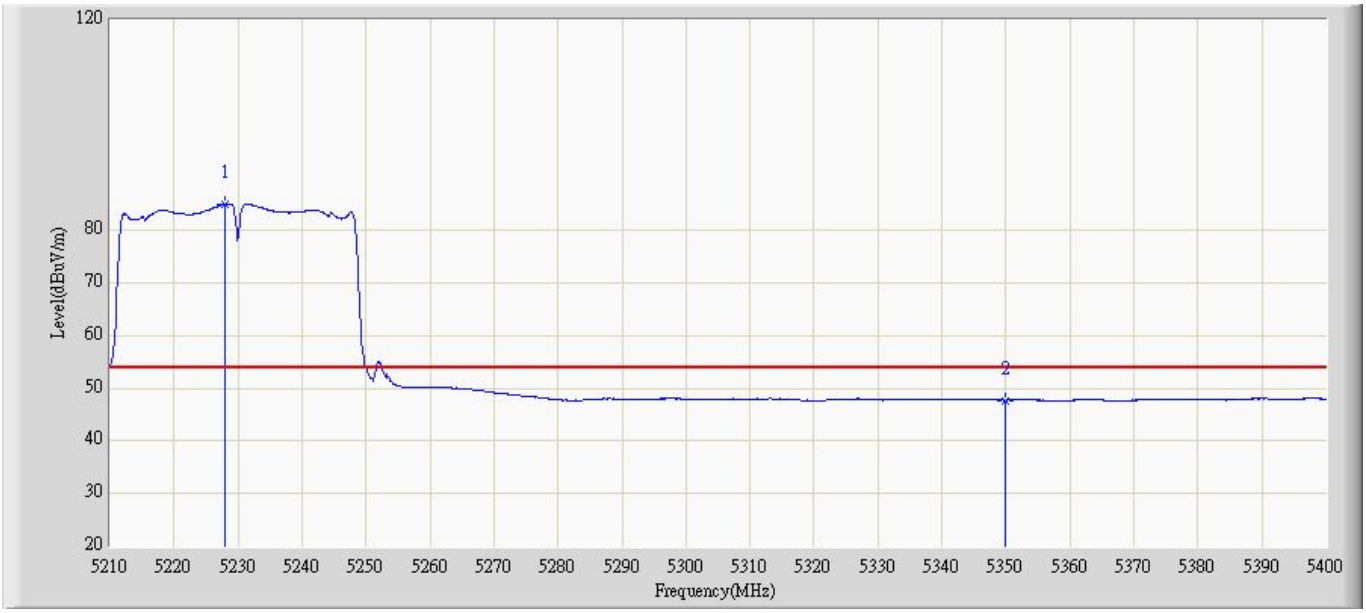
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5228.525	78.544	88.077	N/A	N/A	-9.533	AV
2		5350.000	47.911	56.112	-6.089	54.000	-8.201	AV

Site: AC5	Time: 2014/12/23 - 13:33
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 5230MHz by 802.11n40 chain 2	



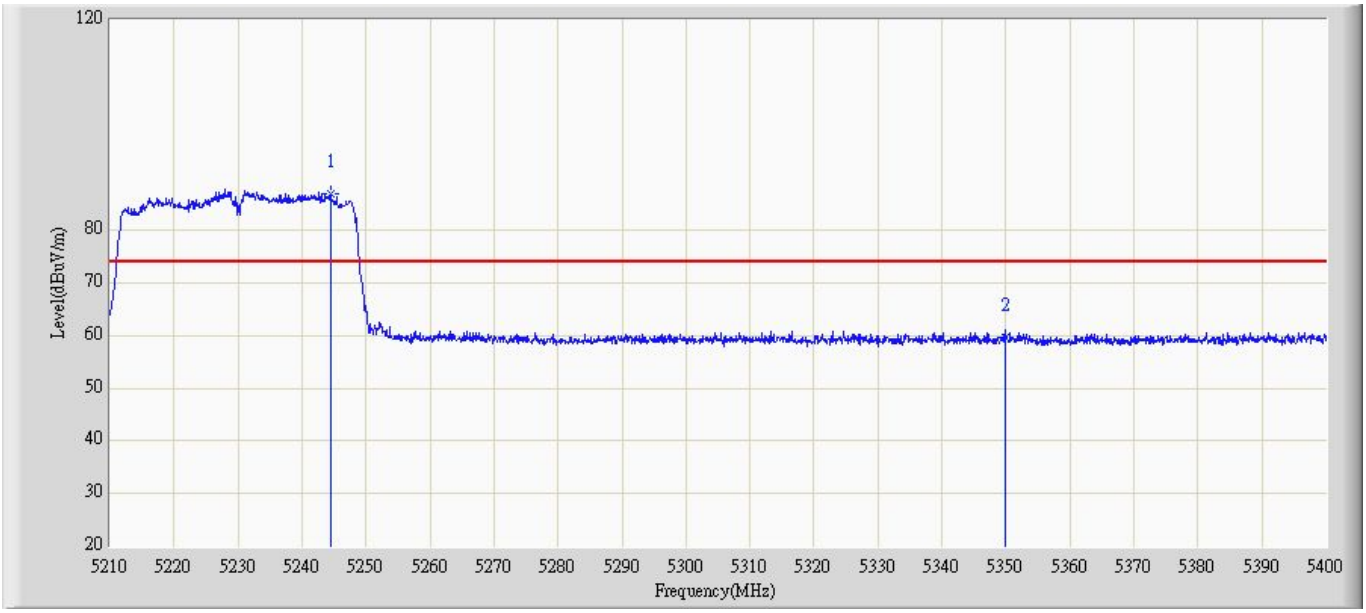
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5231.280	94.497	104.037	N/A	N/A	-9.541	PK
2		5350.000	59.026	67.227	-14.974	74.000	-8.201	PK

Site: AC5	Time: 2014/12/23 - 13:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5230MHz by 802.11n40 chain 2	



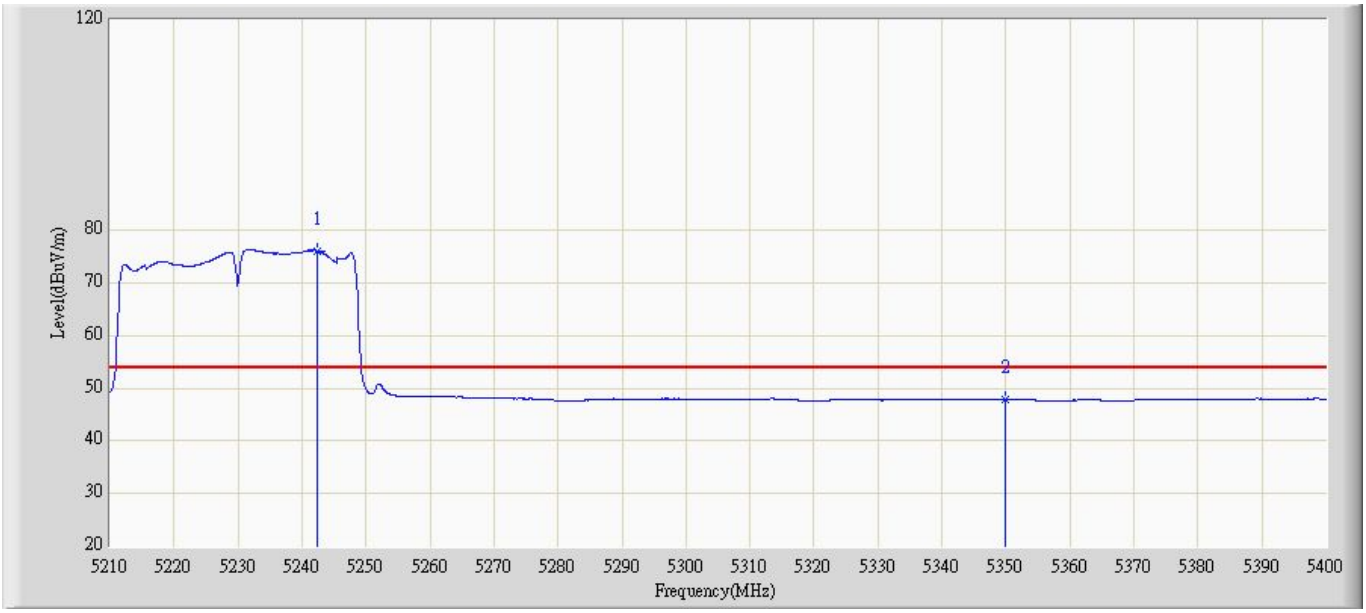
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5228.050	84.993	94.525	N/A	N/A	-9.531	AV
2		5350.000	47.568	55.769	-6.432	54.000	-8.201	AV

Site: AC5	Time: 2014/12/23 - 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 5230MHz by 802.11n40 chain 1+2	



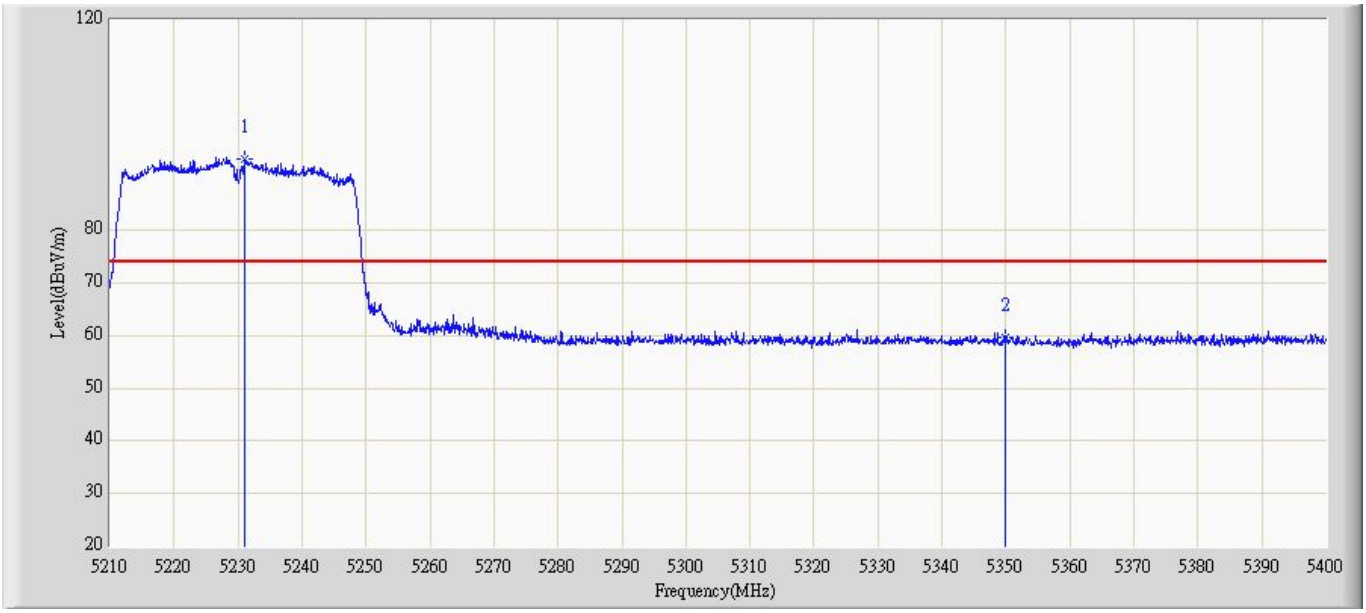
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5244.390	87.070	96.555	N/A	N/A	-9.485	PK
2		5350.000	59.767	67.968	-14.233	74.000	-8.201	PK

Site: AC5	Time: 2014/12/23 - 13:37
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 5230MHz by 802.11n40 chain 1+2	



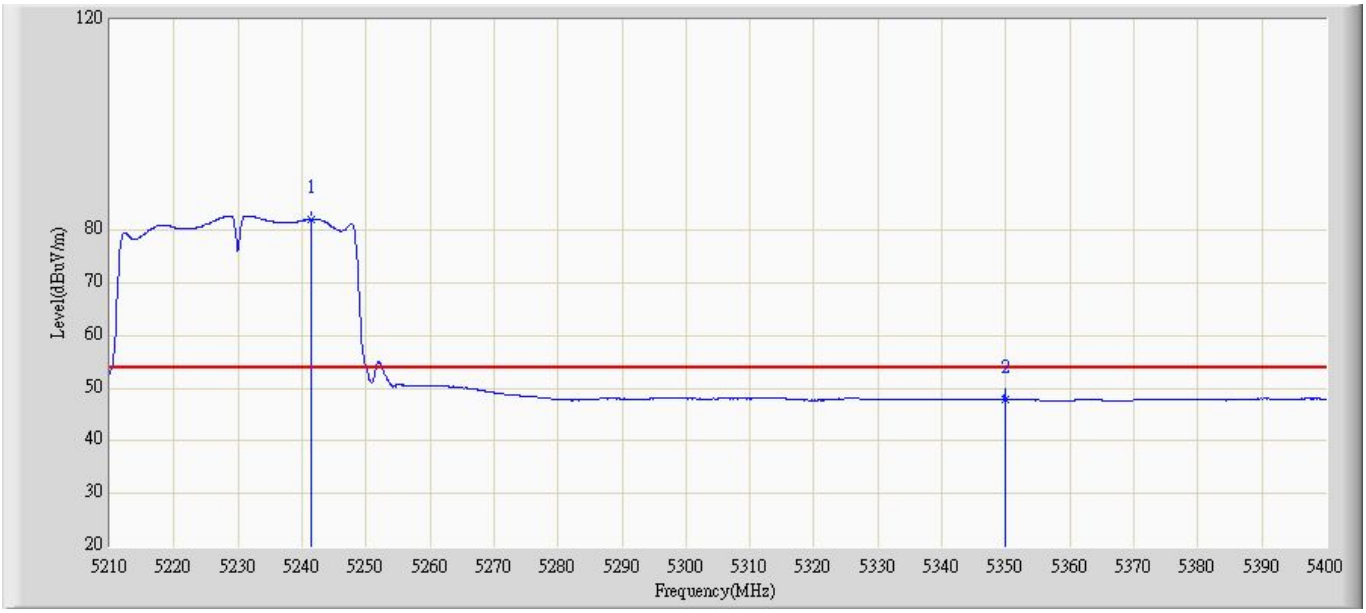
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5242.300	76.154	85.650	N/A	N/A	-9.496	AV
2		5350.000	47.868	56.069	-6.132	54.000	-8.201	AV

Site: AC5	Time: 2014/12/23 - 13:38
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 5230MHz 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	*	5231.090	93.583	103.123	N/A	N/A	-9.540	PK
2		5350.000	59.684	67.885	-14.316	74.000	-8.201	PK

Site: AC5	Time: 2014/12/23 - 13:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP--STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5230MHz 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	*	5241.445	82.207	91.707	N/A	N/A	-9.500	AV
2		5350.000	47.853	56.054	-6.147	54.000	-8.201	AV

The End