Test Report

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

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, 2014~Jan. 27, 2015
Issued Date	:	Feb. 10, 2015
Report No.	:	1510320R-RF-US-P09V01
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.
This report must not be used to claim product endorsement by TAF or any agency of the government.
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Test Report Certification

Issued Date : Feb. 10, 2015
Report No. : 1510320R-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.	:	4210X, 4230X
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
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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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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1510320R-RF-US-P09V01	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
802.11a	5180	65	62	×
	5200	80	80	×
	5240	60	60	×
802.11n (20MHz)	5180	66	62	60
	5200	80	80	60
	5240	60	60	56
802.11n (40MHz)	5190	60	60	60
	5230	60	60	60

The test mode of the test software can support.

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 802.11a
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.

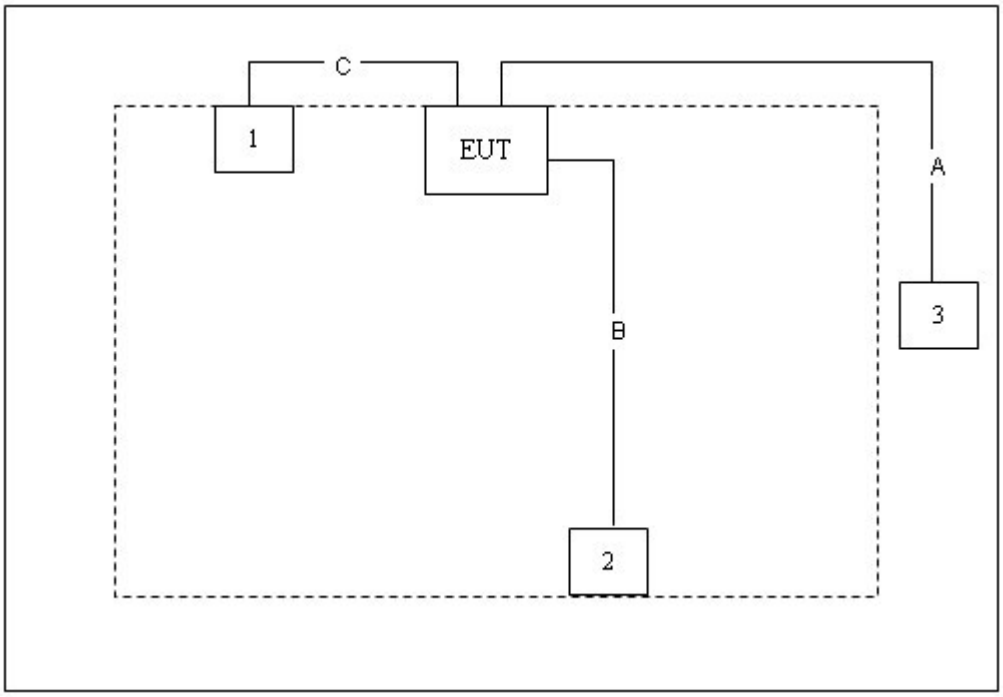
1.3. Tested System Details

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: 2014 Section 15.207	No	N/A
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.209	Yes	No
Operation Frequency Range of 20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2014 15.215(c)	No	N/A
26dB Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.407(a)	No	N/A
Power Output	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.407(a)	No	N/A
Peak Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.407(a)	No	N/A
Peak Excursion	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.407(a)(6)	No	N/A
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.205, 15.407(b)	Yes	No
Frequency Stability	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.407(g)	No	N/A

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	RSS-Gen Issue 4 November 2014 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 4 November 2014 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

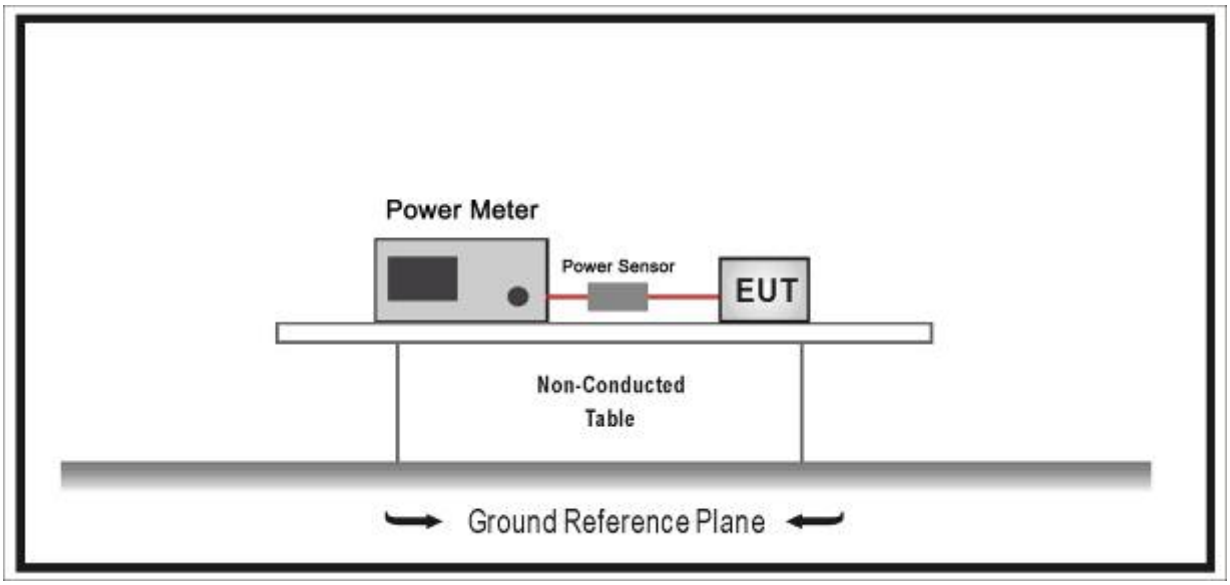
3.1. Test Equipment

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. <u>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.</u>
- 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	16.46
				24	16.42
				54	16.44
802.11n(Chain 1)	20	5200	40	HT0	16.43
				HT4	16.42
				HT7	16.41
802.11n(Chain 1)	40	5190	38	HT0	16.46
				HT4	16.29
				HT7	16.37

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	16.47	N/A	16.47	17.00	Pass	17.47
40	5200	16.46	N/A	16.46	17.00	Pass	17.46
48	5240	16.53	N/A	16.53	17.00	Pass	17.53

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	16.45	N/A	16.45	17.00	Pass	17.45
40	5200	16.43	N/A	16.43	17.00	Pass	17.43
48	5240	16.51	N/A	16.51	17.00	Pass	17.51

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	16.46	N/A	16.46	17.00	Pass	17.46
46	5230	16.27	N/A	16.27	17.00	Pass	17.27

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	16.31	16.31	17.00	Pass	17.31
40	5200	N/A	16.45	16.45	17.00	Pass	17.45
48	5240	N/A	16.36	16.36	17.00	Pass	17.36

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	16.32	16.32	17.00	Pass	17.32
40	5200	N/A	16.31	16.31	17.00	Pass	17.31
48	5240	N/A	16.44	16.44	17.00	Pass	17.44

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	16.33	16.33	17.00	Pass	17.33
46	5230	N/A	16.46	16.46	17.00	Pass	17.46

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	14.32	12.35	16.46	17.00	Pass	17.46
40	5200	14.56	12.23	16.56	17.00	Pass	17.56
48	5240	14.87	12.25	16.76	17.00	Pass	17.76

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	14.33	12.43	16.49	17.00	Pass	17.49
46	5230	14.45	12.32	16.52	17.00	Pass	17.52

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

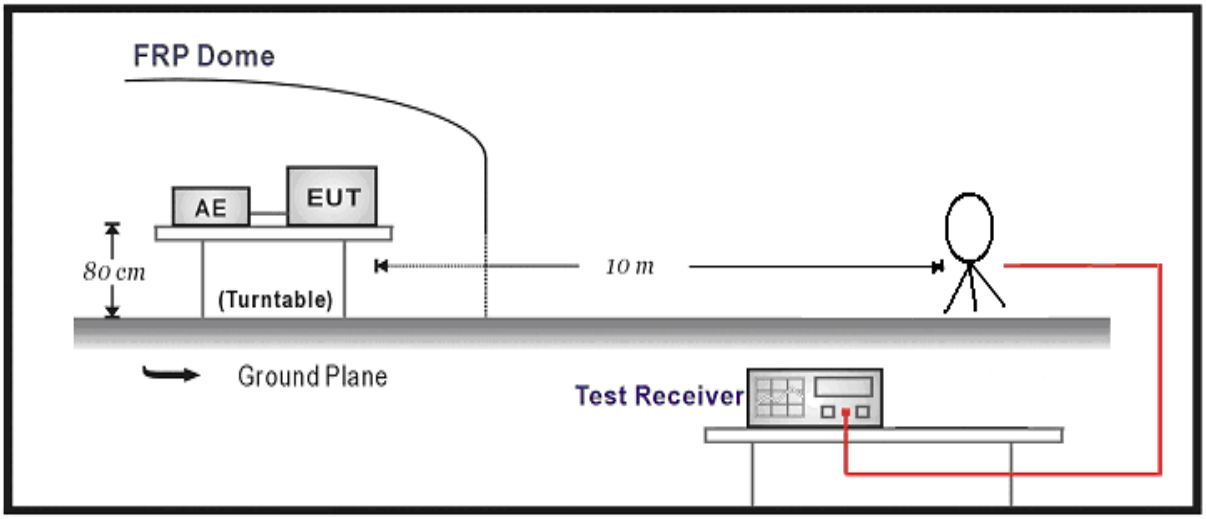
Radiated Emission / AC-5

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

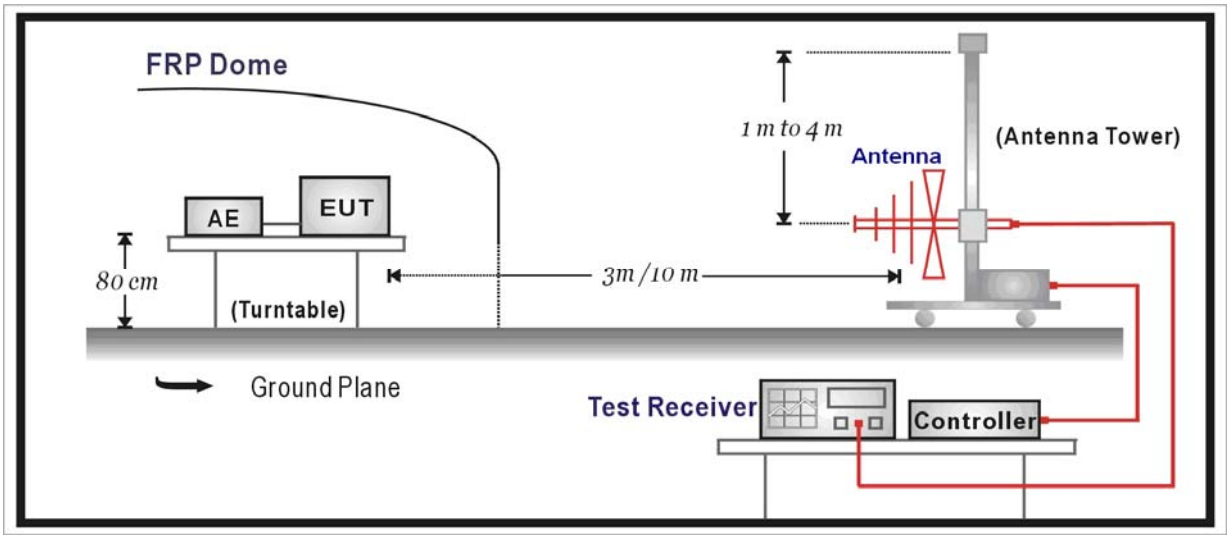
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

4.2. Test Setup

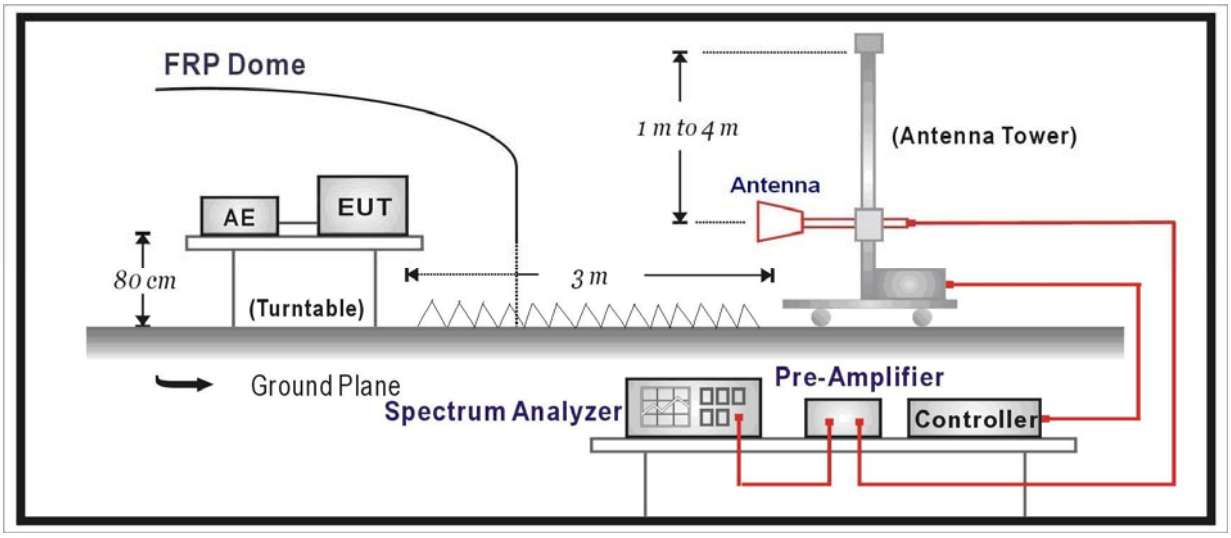
Below 30MHz Test Setup:



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	294.2	12.2	14.8	27.0	46	-19.0	QP
		H	567.2	14.4	21.3	35.7	46	-10.3	QP
		V	10360.2	42.2	6.6	48.8	54(Note3)	-5.2	PK
		V	13000.4	37.4	9.8	47.2	54(Note3)	-6.8	PK
		V	15540.1	40.1	7.2	47.3	54(Note3)	-6.7	PK
		H	24000	59.3	-8.9	50.4	54(Note3)	-3.6	PK
	40	H	284.2	13.4	14.6	28.0	46	-18.0	QP
		H	500.3	14.2	19.7	33.9	46	-12.1	QP
		V	10400.1	42.3	6.7	49.0	54(Note3)	-5.0	PK
		V	13000.2	38.6	9.8	48.4	54(Note3)	-5.6	PK
		H	15600.3	40.2	7.4	47.6	54(Note3)	-6.4	PK
		H	24000	59.3	-8.9	50.4	54(Note3)	-3.6	PK
	48	V	289.2	12.2	14.8	27.0	46	-19.0	QP
		V	594.1	13.4	21.2	34.6	46	-11.4	QP
		H	10480.3	43.3	6.9	50.2	54(Note3)	-3.8	PK
		H	13000.1	39.2	9.8	49.0	54(Note3)	-5.0	PK
		H	15720.2	40.4	7.2	47.6	54(Note3)	-6.4	PK
		H	24000	59.2	-8.9	50.3	54(Note3)	-3.7	PK
Chain 2	36	H	296.4	13.3	14.7	28.0	46	-18.0	QP
		H	563.2	13.2	21.2	34.4	46	-11.6	QP
		V	10358.1	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
		H	15540.2	40.2	7.2	47.4	54(Note3)	-6.6	PK
		H	24000	59.7	-8.9	50.8	54(Note3)	-3.2	PK
	40	V	318.4	12.8	15.2	28.0	46	-18.0	QP
		H	480.2	13.3	19.3	32.6	46	-13.4	QP
		V	10400.1	40.2	6.7	46.9	54(Note3)	-7.1	PK

		V	13000.1	37.3	9.8	47.1	54(Note3)	-6.9	PK
		V	15540.5	40.1	7.2	47.3	54(Note3)	-6.7	PK
		H	24000	59.4	-8.9	50.5	54(Note3)	-3.5	PK
	48	H	318.3	13.2	15.2	28.4	46	-17.6	QP
		H	551.5	13.3	21.2	34.5	46	-11.5	QP
		V	10480.2	40.6	6.9	47.5	54(Note3)	-6.5	PK
		V	13000.4	38.7	9.8	48.5	54(Note3)	-5.5	PK
		V	15720.1	40.5	7.2	47.7	54(Note3)	-6.3	PK
		H	24000	59.6	-8.9	50.7	54(Note3)	-3.3	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	322.4	12.1	15.4	27.5	46	-18.5	QP
		H	582.3	12.2	21.2	33.4	46	-12.6	QP
		V	10360.1	42.2	6.6	48.8	54(Note3)	-5.2	PK
		V	13000.3	37.1	9.8	46.9	54(Note3)	-7.1	PK
		V	15540.2	40.4	7.2	47.6	54(Note3)	-6.4	PK
		H	24000.4	59.5	-8.9	50.6	54(Note3)	-3.4	PK
	40	H	340.7	12.6	15.4	28	46	-18.0	QP
		H	544.3	13.2	21.2	34.4	46	-11.6	QP
		V	10400.2	38.3	6.6	44.9	54(Note3)	-9.1	PK
		V	13000.1	38.1	9.8	47.9	54(Note3)	-6.1	PK
		V	15600.7	39.6	7.2	46.8	54(Note3)	-7.2	PK
		H	24000	59.7	-8.9	50.8	54(Note3)	-3.2	PK
	48	H	322.4	12.1	15.4	27.5	46	-18.5	QP
		H	582.3	12.2	21.2	33.4	46	-12.6	QP
		H	10360.1	42.2	6.6	48.8	54(Note3)	-5.2	PK
		H	13000.3	37.1	9.8	46.9	54(Note3)	-7.1	PK
		H	15540.2	40.4	7.2	47.6	54(Note3)	-6.4	PK
		H	24000.4	59.5	-8.9	50.6	54(Note3)	-3.4	PK

Chain 2	36	H	318.1	12.1	15.2	27.3	46	-18.7	QP
		H	500.3	14.2	19.7	33.9	46	-12.1	QP
		V	10360.2	40.7	6.6	47.3	54(Note3)	-6.7	PK
		H	13000	37.4	9.8	47.2	54(Note3)	-6.8	PK
		V	15540.1	40.3	7.2	47.5	54(Note3)	-6.5	PK
		H	24000	59.5	-8.9	50.6	54(Note3)	-3.4	PK
	40	H	333.6	13.1	15.8	28.9	46	-17.1	QP
		H	565.7	12.6	21.2	33.8	46	-12.2	QP
		V	10400.1	40.2	6.7	46.9	54(Note3)	-7.1	PK
		V	13000.2	37.4	9.8	47.2	54(Note3)	-6.8	PK
		V	15600.3	39.3	7.4	46.7	54(Note3)	-7.3	PK
		H	24000	59.7	-8.9	50.8	54(Note3)	-3.2	PK
	48	V	318.2	12.3	15.3	27.6	46	-18.4	QP
		V	564.1	13.4	21.2	34.6	46	-11.4	QP
		V	10480.6	42.1	6.9	49	54(Note3)	-5.0	PK
		V	13000.4	37.5	9.8	47.3	54(Note3)	-6.7	PK
		V	15720.2	40.2	7.2	47.4	54(Note3)	-6.6	PK
		H	24000	59.7	-8.9	50.8	54(Note3)	-3.2	PK
Chain 1+2	36	V	349.1	13.2	16.3	29.5	46	-16.5	QP
		H	500.6	13.5	19.7	33.2	46	-12.8	QP
		V	10360.7	43.3	6.6	49.9	54(Note3)	-4.1	PK
		V	13000.2	37.1	9.8	46.9	54(Note3)	-7.1	PK
		V	15540.3	40.6	7.2	47.8	54(Note3)	-6.2	PK
		H	24000	59.7	-8.9	50.8	54	-3.2	PK
	40	H	290.7	12.1	14.8	26.9	46	-19.1	QP
		H	560.2	13.6	21.2	34.8	46	-11.2	QP
		V	10400.6	42.7	6.7	49.4	54(Note3)	-4.6	PK
		V	13000.1	36.1	9.8	45.9	54(Note3)	-8.1	PK
		V	15600.3	38.8	7.4	46.2	54(Note3)	-7.8	PK
		H	24000	59.6	-8.9	50.7	54(Note3)	-3.3	PK
	48	V	307.7	12.4	15	27.4	46	-18.6	QP
		V	576.3	13.3	21.2	34.5	46	-11.5	QP
		V	10480.2	42.2	6.9	49.1	54(Note3)	-4.9	PK
		V	13000.4	37.6	9.8	47.4	54(Note3)	-6.6	PK
		V	15720.1	40.2	7.2	47.4	54(Note3)	-6.6	PK
		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.

802.11n(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	339.2	13.2	15.9	29.1	46	-16.9	QP
		V	658.3	13.4	21.3	34.7	46	-11.3	QP
		V	10380.2	43.3	6.6	49.9	54(Note3)	-4.1	PK
		H	13000.4	38.1	9.8	47.9	54(Note3)	-6.1	PK
		H	15570.5	40.4	7.3	47.7	54(Note3)	-6.3	PK
		H	24000.1	59.5	-8.9	50.6	54(Note3)	-3.4	PK
	46	H	336.4	13.6	15.8	29.4	46	-16.6	QP
		H	555.6	12.2	21.2	33.4	46	-12.6	QP
		V	10460.7	37.7	6.8	44.5	54(Note3)	-9.5	PK
		V	13000.2	38.2	9.8	48	54(Note3)	-6.0	PK
		V	15690.1	39.6	7.2	46.8	54(Note3)	-7.2	PK
		H	24000	59.4	-8.9	50.5	54(Note3)	-3.5	PK
Chain 2	38	V	391.7	12.3	17.4	29.7	46	-16.3	QP
		V	594.2	13.4	21.2	34.6	46	-11.4	QP
		V	10380.3	43.7	6.6	50.3	54(Note3)	-3.7	PK
		V	13000.1	37.2	9.8	47	54(Note3)	-7.0	PK
		V	15570.4	40.7	7.3	48	54(Note3)	-6.0	PK
		H	24000.2	59.6	-8.9	50.7	54(Note3)	-3.3	PK
	46	V	370.7	13.3	16.8	30.1	46	-15.9	QP
		V	557.1	13.2	21.2	34.4	46	-11.6	QP
		V	10460.2	38.7	6.8	45.5	54(Note3)	-8.5	PK
		V	13000.5	38.6	9.8	48.4	54(Note3)	-5.6	PK
		V	15690.6	39.2	7.2	46.4	54(Note3)	-7.6	PK
		H	24000	59.1	-8.9	50.2	54(Note3)	-3.8	PK
Chain 1+2	38	H	337.4	13.5	15.8	29.3	46	-16.7	QP
		H	500.3	14.7	19.7	34.4	46	-11.6	QP
		V	10380.7	40.3	6.6	46.9	54(Note3)	-7.1	PK
		V	13000.5	38.1	9.8	47.9	54(Note3)	-6.1	PK

		V	15570.2	40.3	7.3	47.6	54(Note3)	-6.4	PK
		H	24000.1	59.7	-8.9	50.8	54(Note3)	-3.2	PK
	46	H	336.2	14.6	15.8	30.4	46	-15.6	QP
		H	579.3	12.3	21.2	33.5	46	-12.5	QP
		V	10460.1	40.1	6.8	46.9	54(Note3)	-7.1	PK
		V	13000.3	37.5	9.8	47.3	54(Note3)	-6.7	PK
		H	15690.1	38.3	7.2	45.8	54(Note3)	-8.2	PK
		H	24000	59.4	-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.

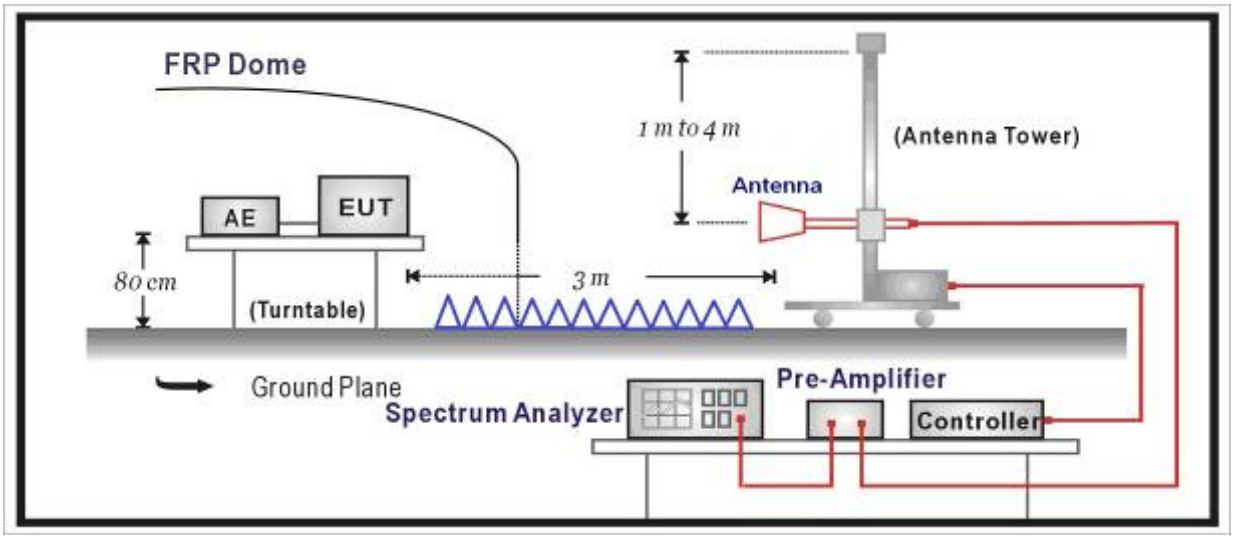
5. Radiated Emission Band Edge

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.

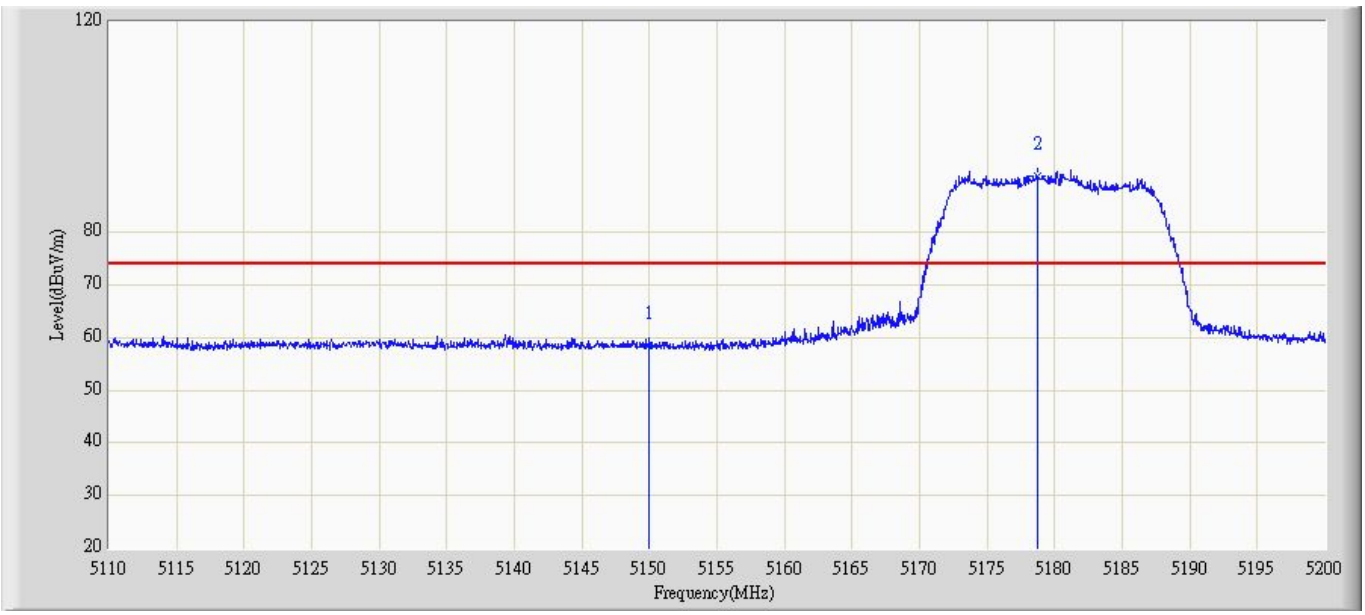
5.5. Uncertainty

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

5.6. Test Result

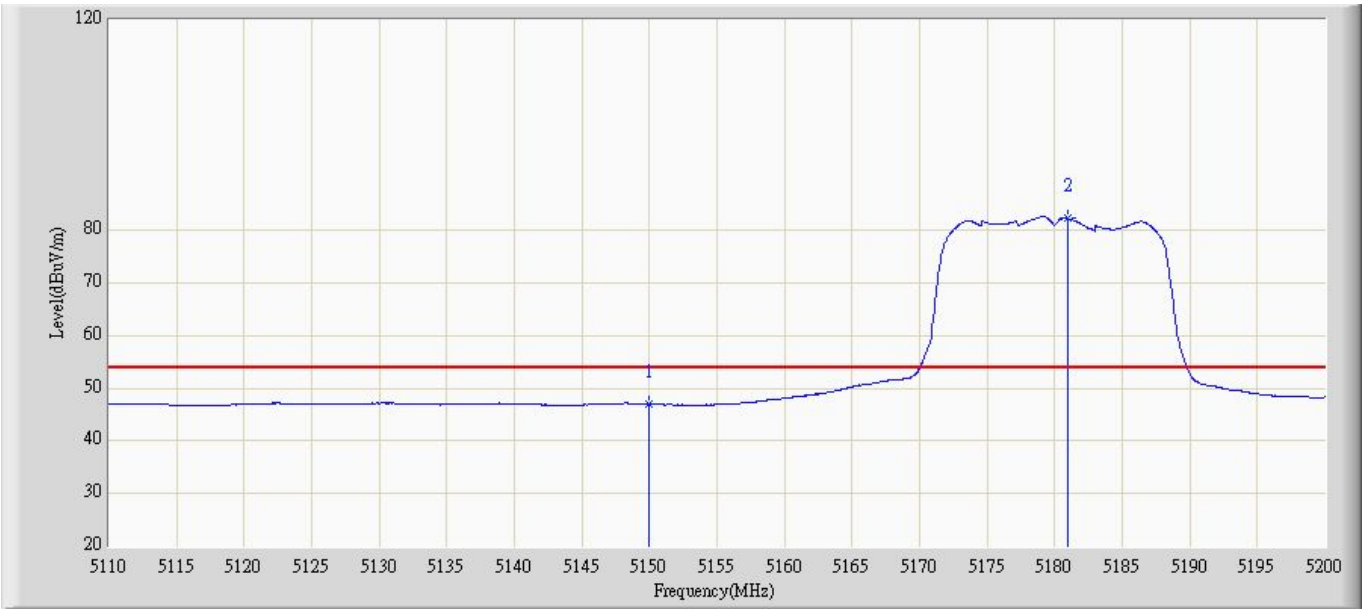
Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;
Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Site: AC5	Time: 2015/01/02 - 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	



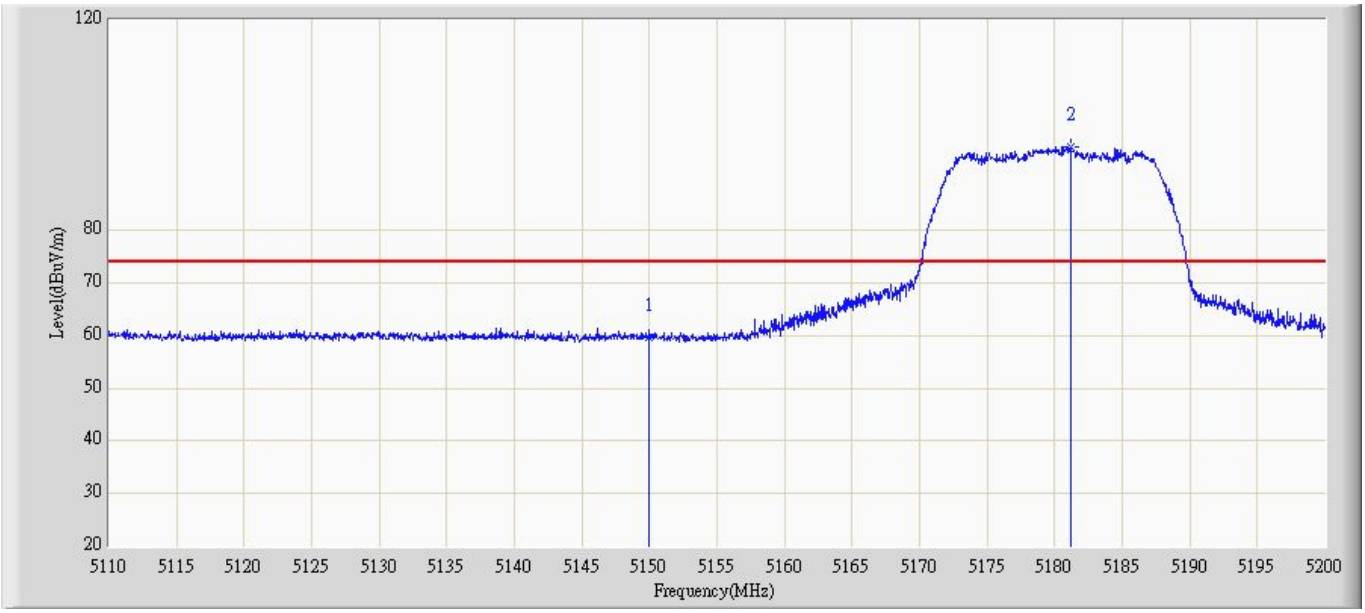
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	58.125	66.345	-15.875	74	-8.22	PK
2	*	5178.234	91.208	100.656	N/A	N/A	-9.448	PK

Site: AC5	Time: 2015/01/02 - 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	



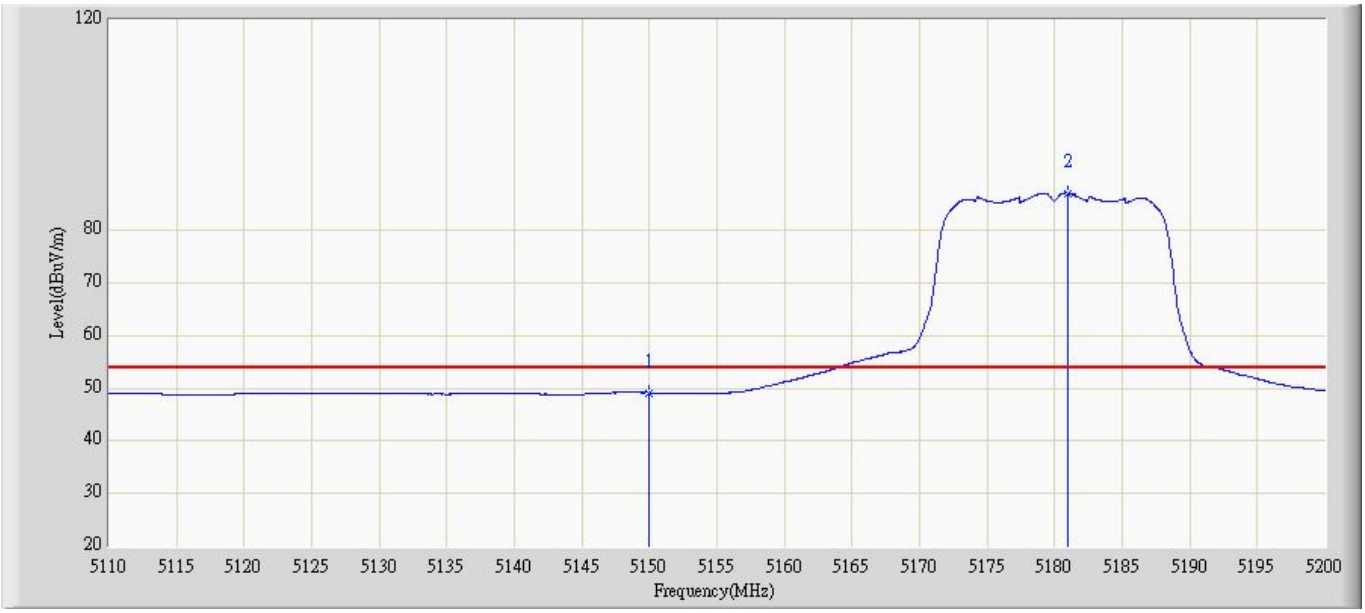
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	46.903	55.123	-7.097	54	-8.22	AV
2	*	5180.451	82.100	91.563	N/A	N/A	-9.463	AV

Site: AC5	Time: 2015/01/02 - 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	



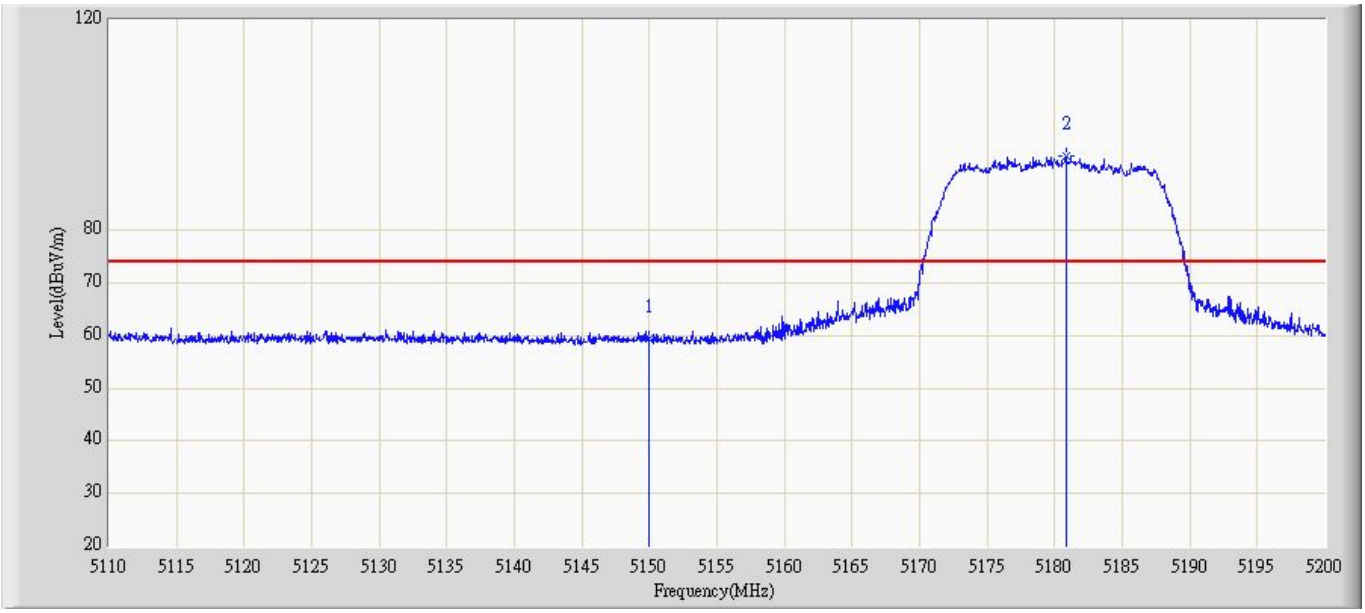
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	58.344	66.564	-15.656	74	-8.22	PK
2	*	5181.178	94.933	104.397	N/A	N/A	-9.464	PK

Site: AC5	Time: 2015/01/02 - 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	



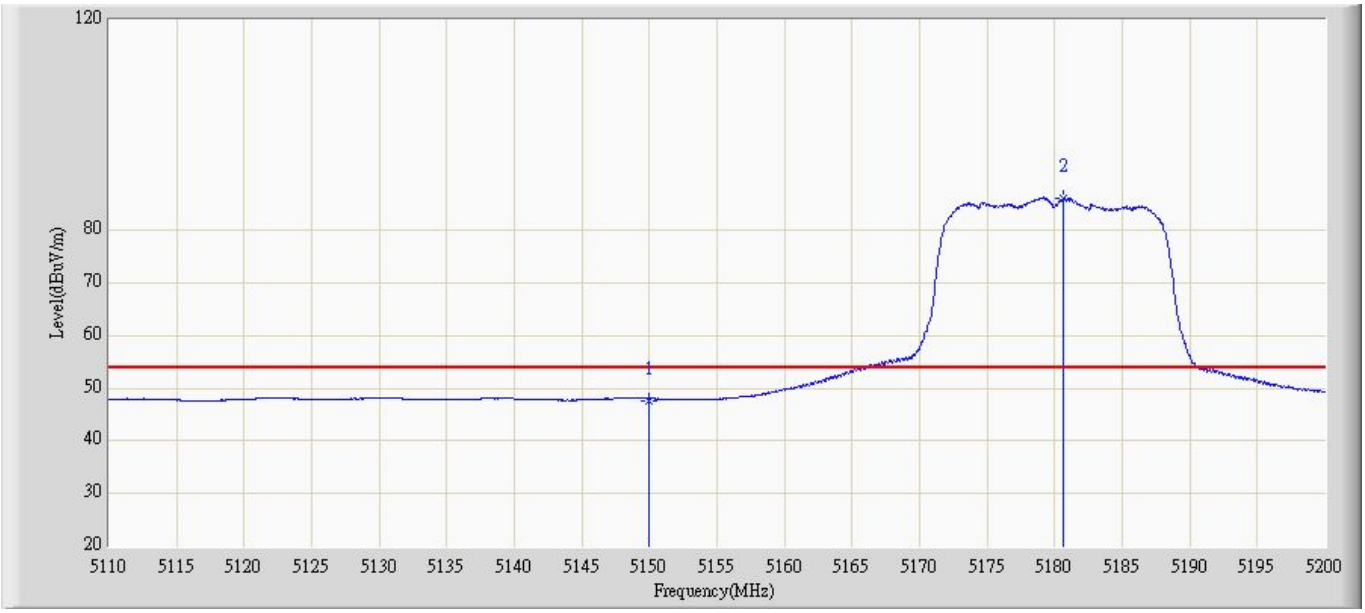
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	48.234	56.454	-5.766	54	-8.22	AV
2	*	5180.454	86.792	96.255	N/A	N/A	-9.463	AV

Site: AC5	Time: 2015/01/02 - 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	



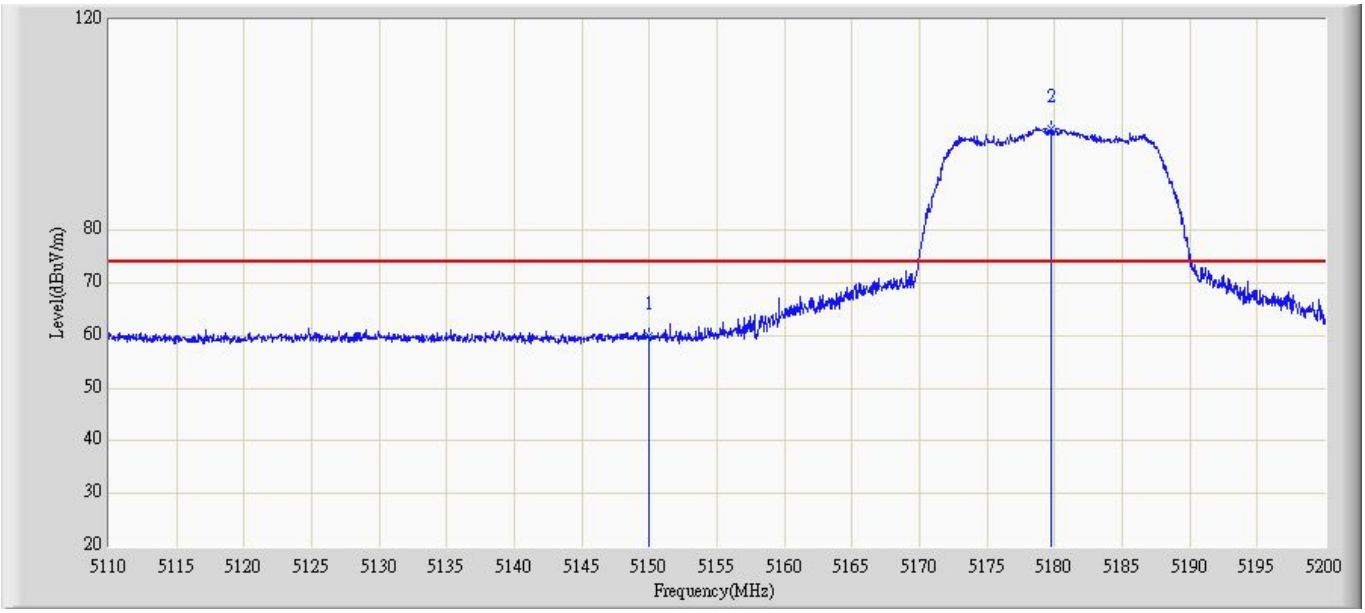
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	58.932	67.152	-15.068	74	-8.22	PK
2	*	5180.857	93.990	103.452	N/A	N/A	-9.462	PK

Site: AC5	Time: 2015/01/02 - 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	



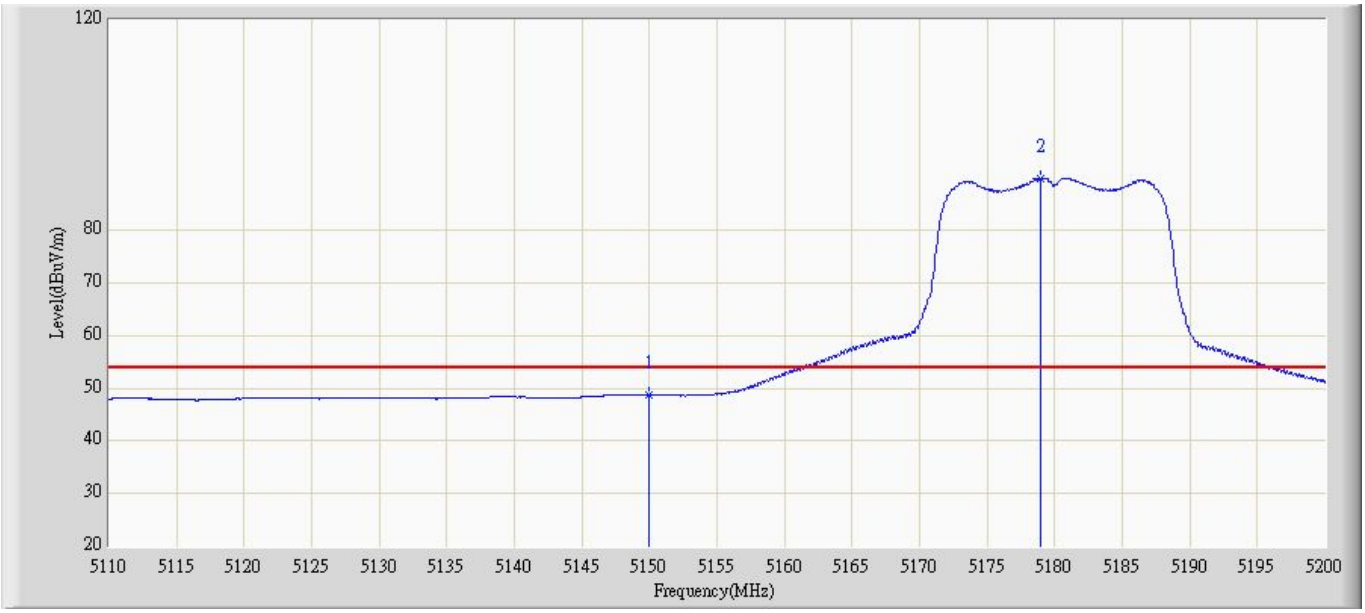
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	45.995	54.215	-8.005	54	-8.22	AV
2	*	5180.871	85.996	95.457	N/A	N/A	-9.461	AV

Site: AC5	Time: 2015/01/02 - 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	



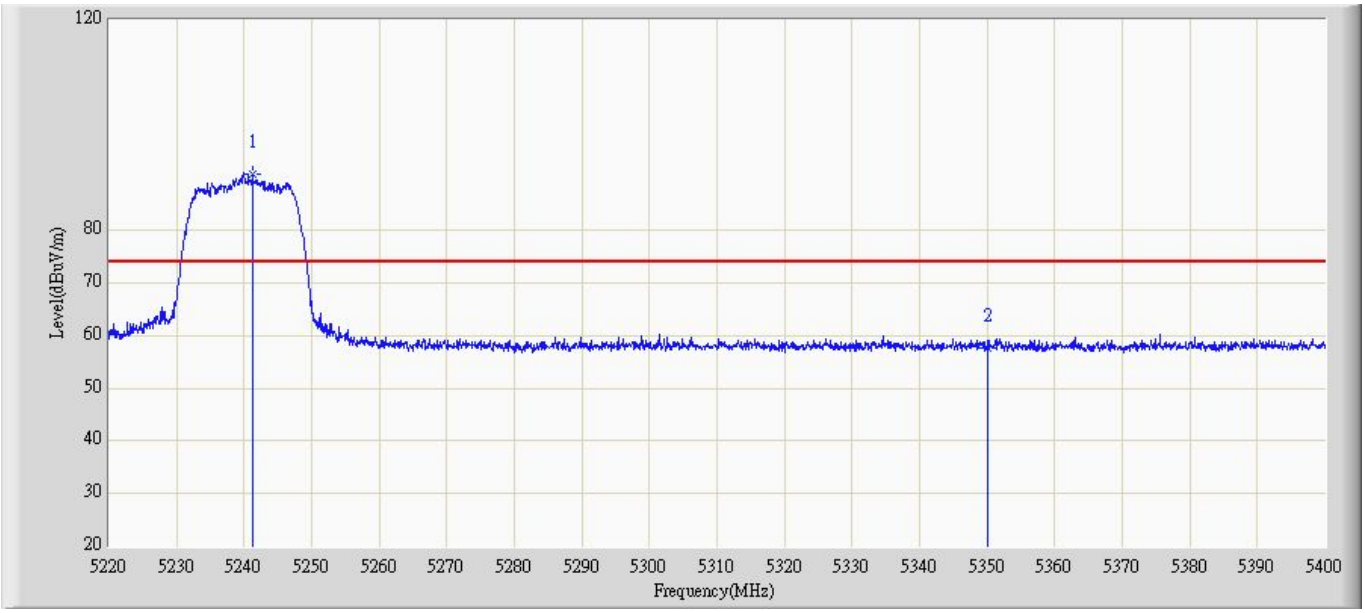
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	59.037	67.257	-14.963	74	-8.22	PK
2	*	5179.785	98.233	107.687	N/A	N/A	-9.454	PK

Site: AC5	Time: 2015/01/02 - 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	



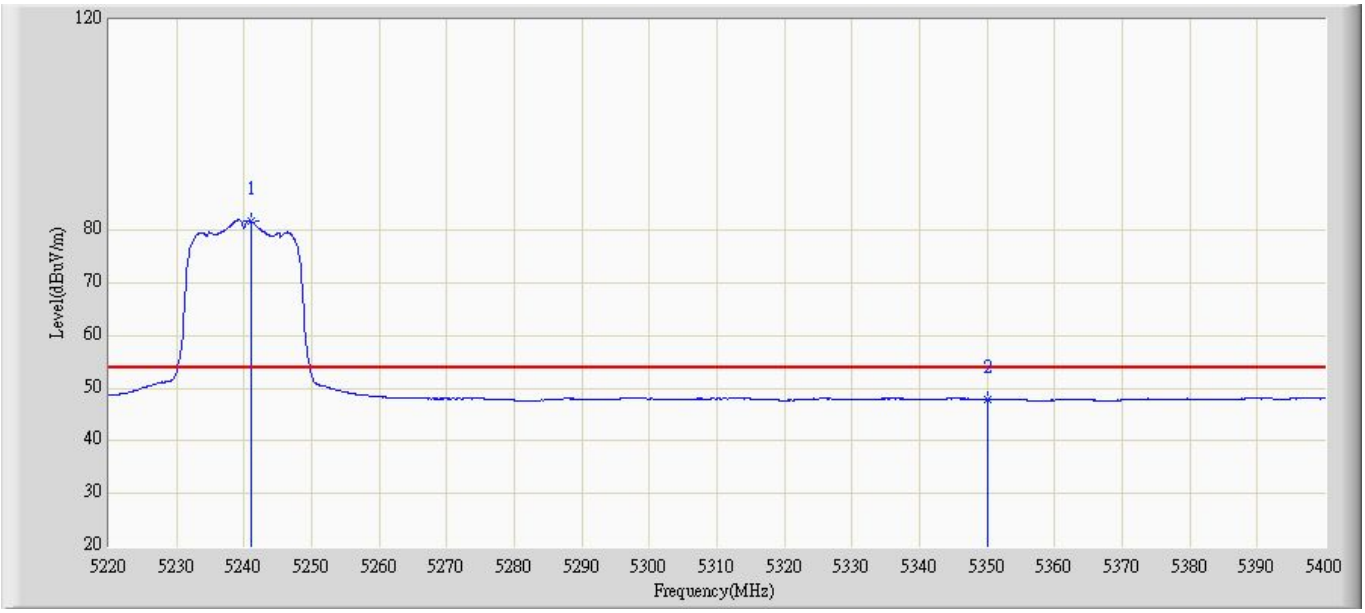
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	49.024	57.244	-4.976	54	-8.22	AV
2	*	5178.315	88.928	97.156	N/A	N/A	-8.228	AV

Site: AC5	Time: 2015/01/02 - 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	



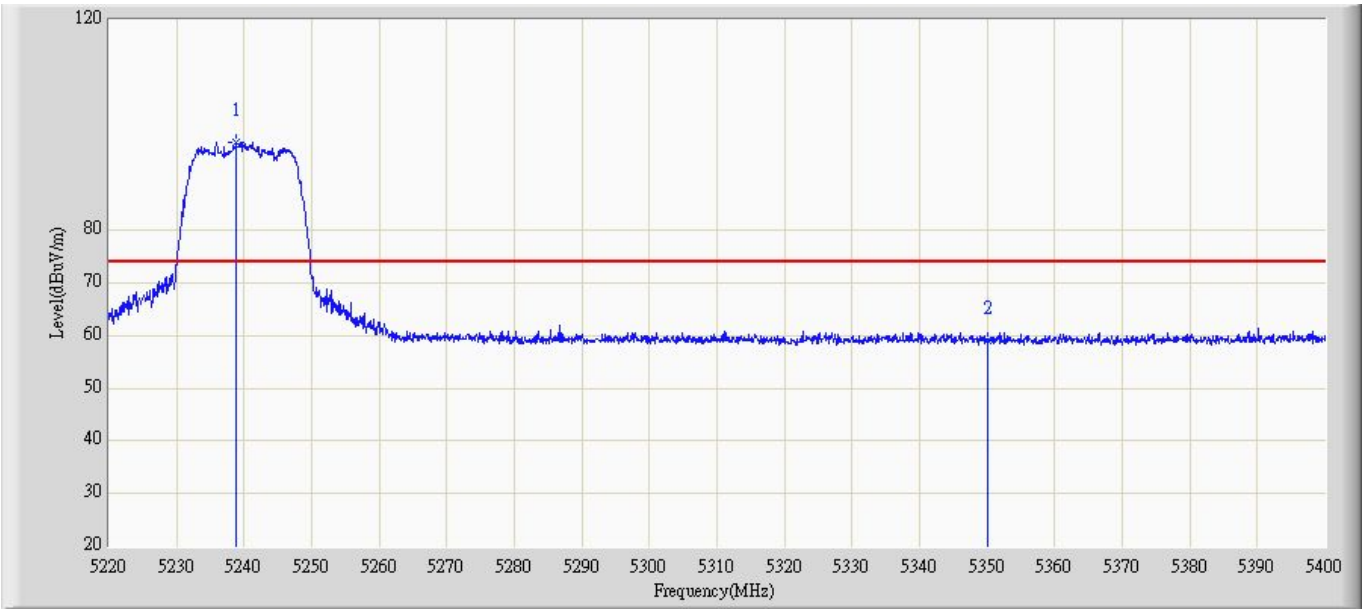
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5241.784	91.520	101.021	N/A	N/A	-9.501	PK
2		5350	57.323	65.524	-16.677	74	-8.201	PK

Site: AC5	Time: 2015/01/02 - 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	



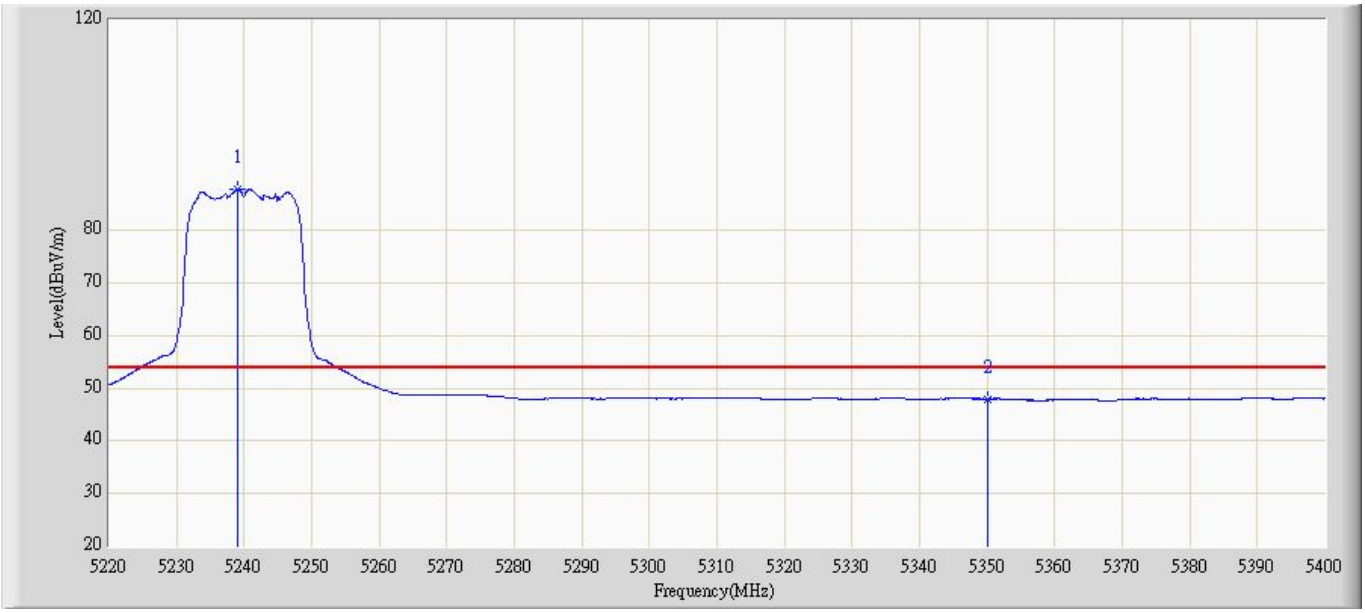
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5241.787	81.922	91.425	N/A	N/A	-9.503	AV
2		5350	48.153	56.354	-5.847	54	-8.201	AV

Site: AC5	Time: 2015/01/02 - 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	



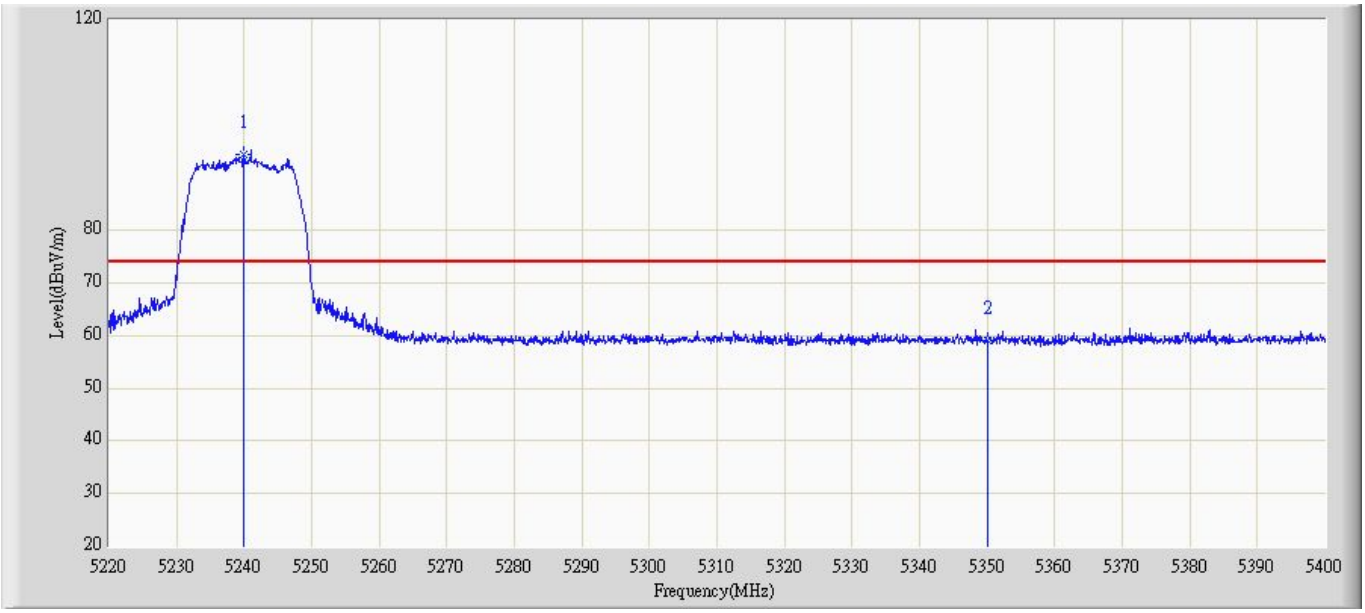
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5238.147	95.810	105.324	N/A	N/A	-9.514	PK
2		5350	59.124	67.325	-14.876	74	-8.201	PK

Site: AC5	Time: 2015/01/02 - 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	



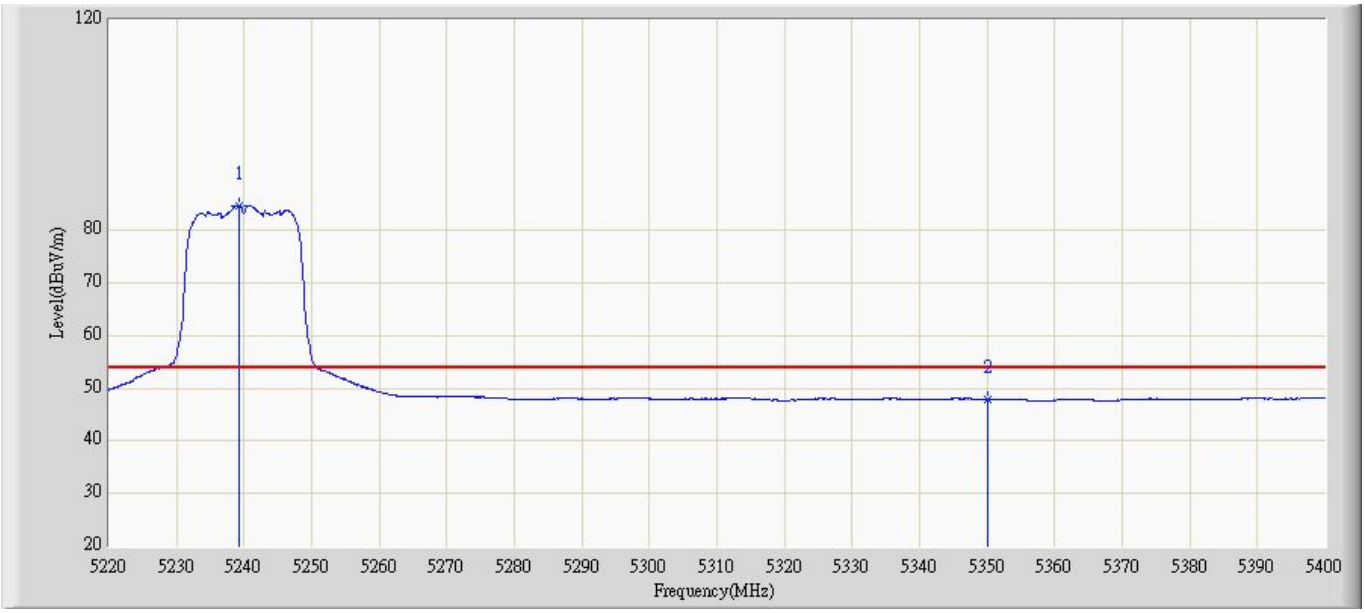
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5239.573	87.923	97.436	N/A	N/A	-9.513	AV
2		5350	48.228	56.429	-5.772	54	-8.201	AV

Site: AC5	Time: 2015/01/02 - 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	



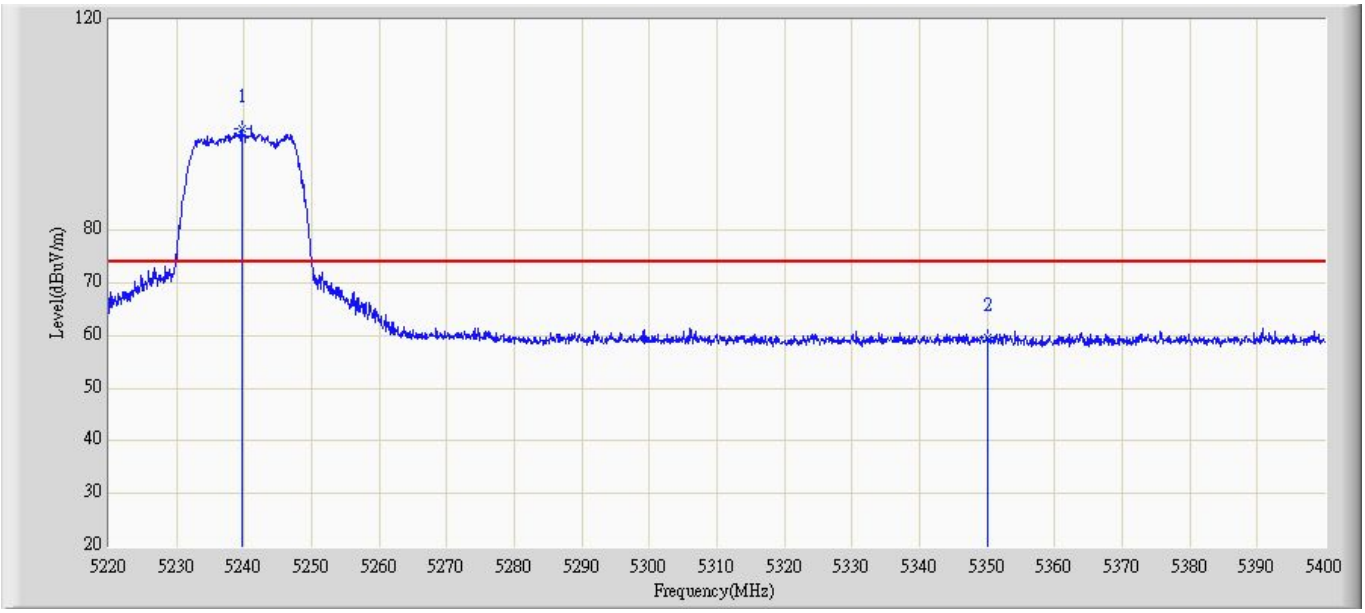
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5239.127	94.817	104.326	N/A	N/A	-9.509	PK
2		5350	59.363	67.564	-14.637	74	-8.201	PK

Site: AC5	Time: 2015/01/02 - 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	



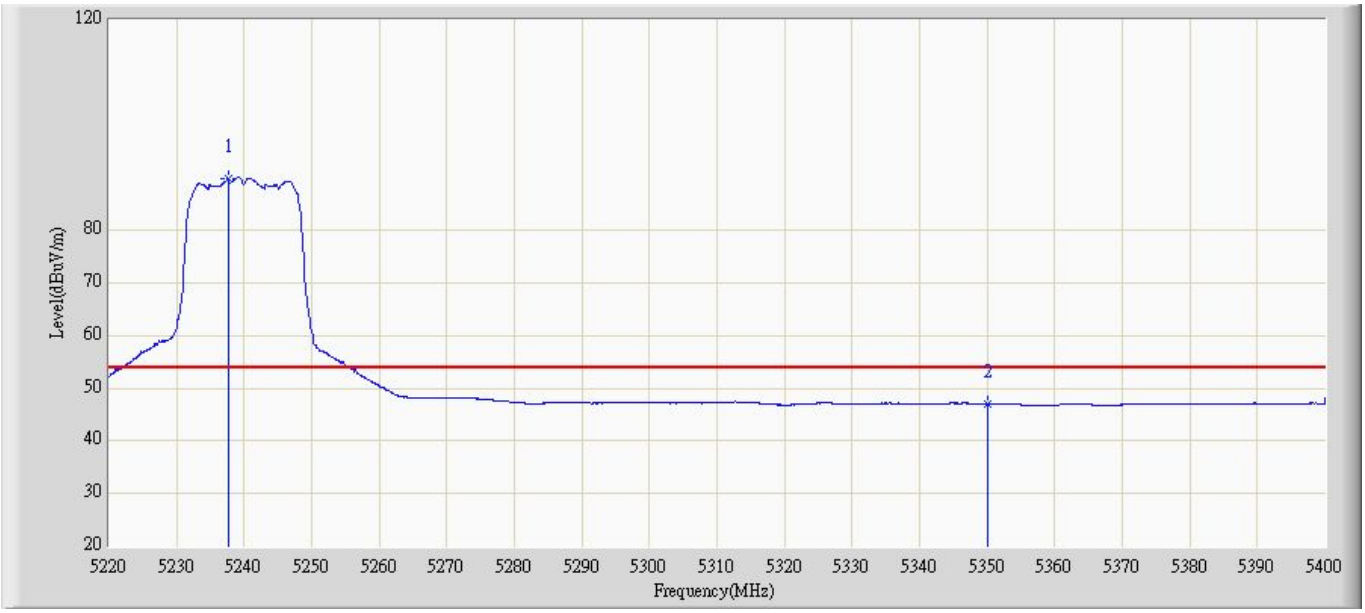
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5239.783	85.029	94.541	N/A	N/A	-9.512	AV
2		5350	48.453	56.654	-5.547	54	-8.201	AV

Site: AC5	Time: 2015/01/02 - 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	



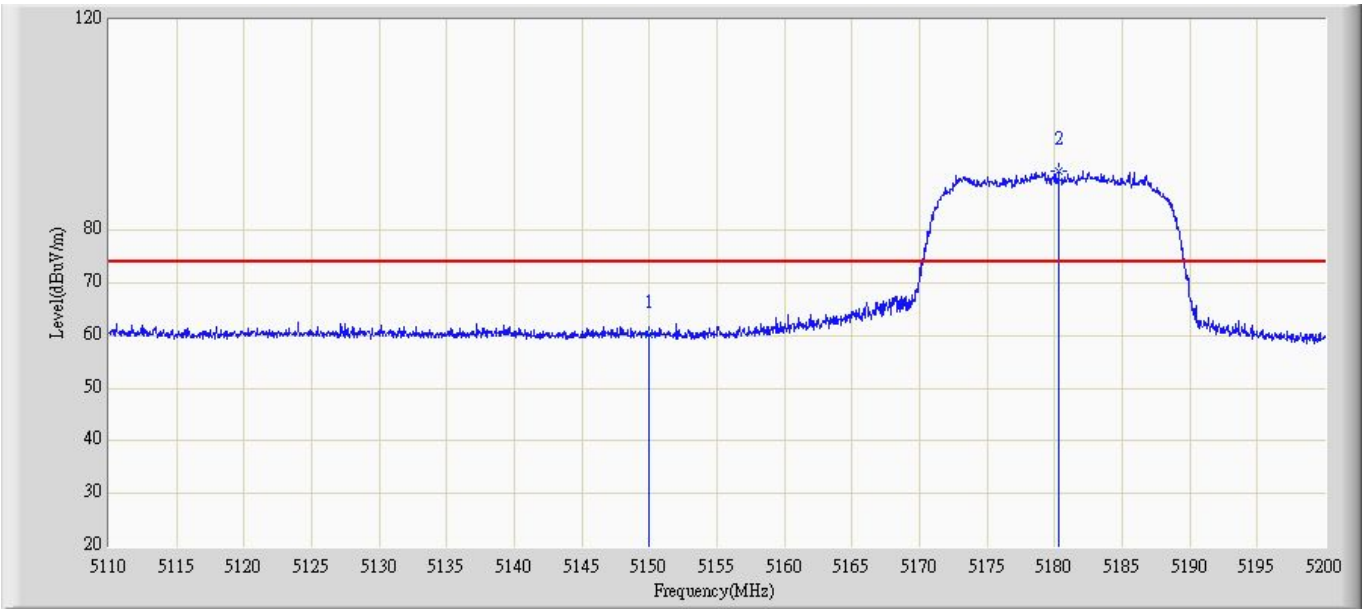
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5239.857	98.615	108.125	N/A	N/A	-9.51	PK
2		5350	58.920	67.121	-15.080	74	-8.201	PK

Site: AC5	Time: 2015/01/02 - 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	



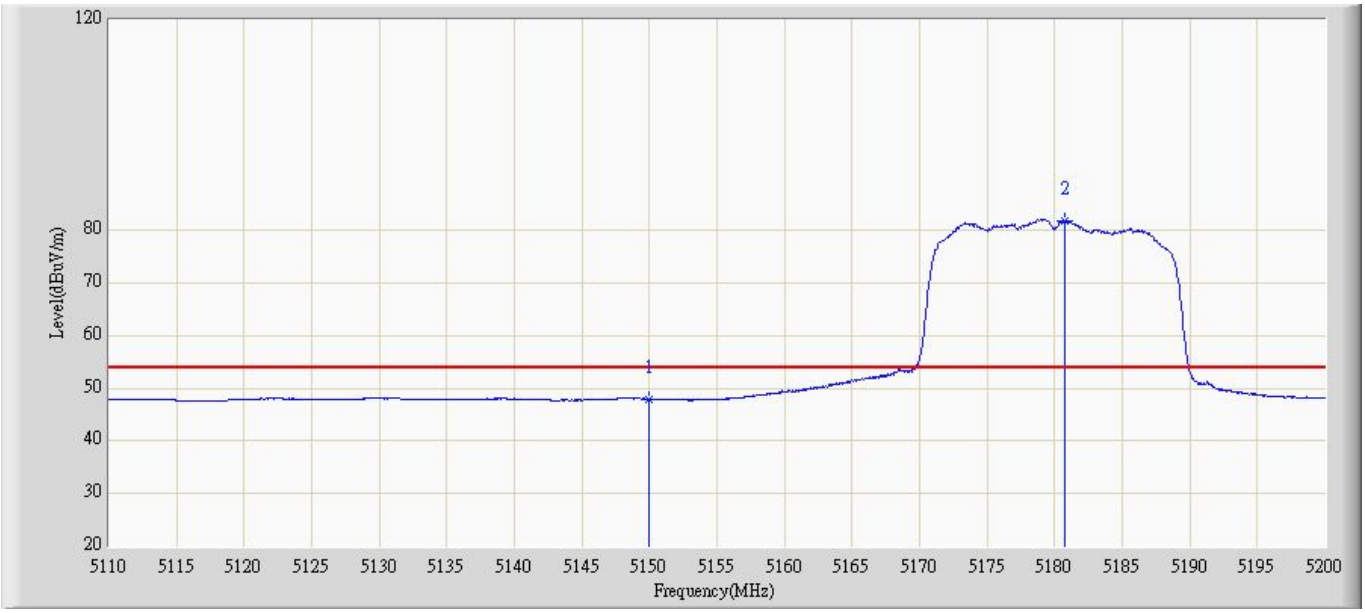
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5237.571	89.138	98.659	N/A	N/A	-9.521	AV
2		5350	47.030	55.231	-6.970	54	-8.201	AV

Site: AC5	Time: 2015/01/02 - 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	



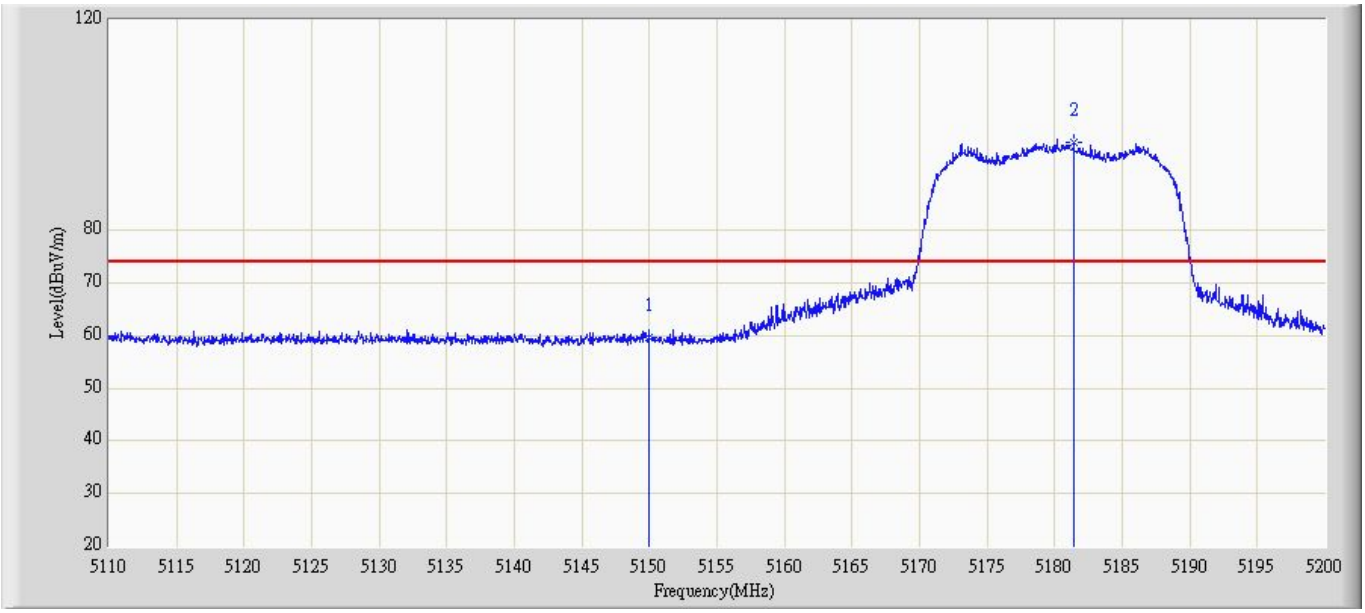
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	59.905	68.125	-14.095	74	-8.22	PK
2	*	5180.787	90.962	100.421	N/A	N/A	-9.459	PK

Site: AC5	Time: 2015/01/02 - 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	



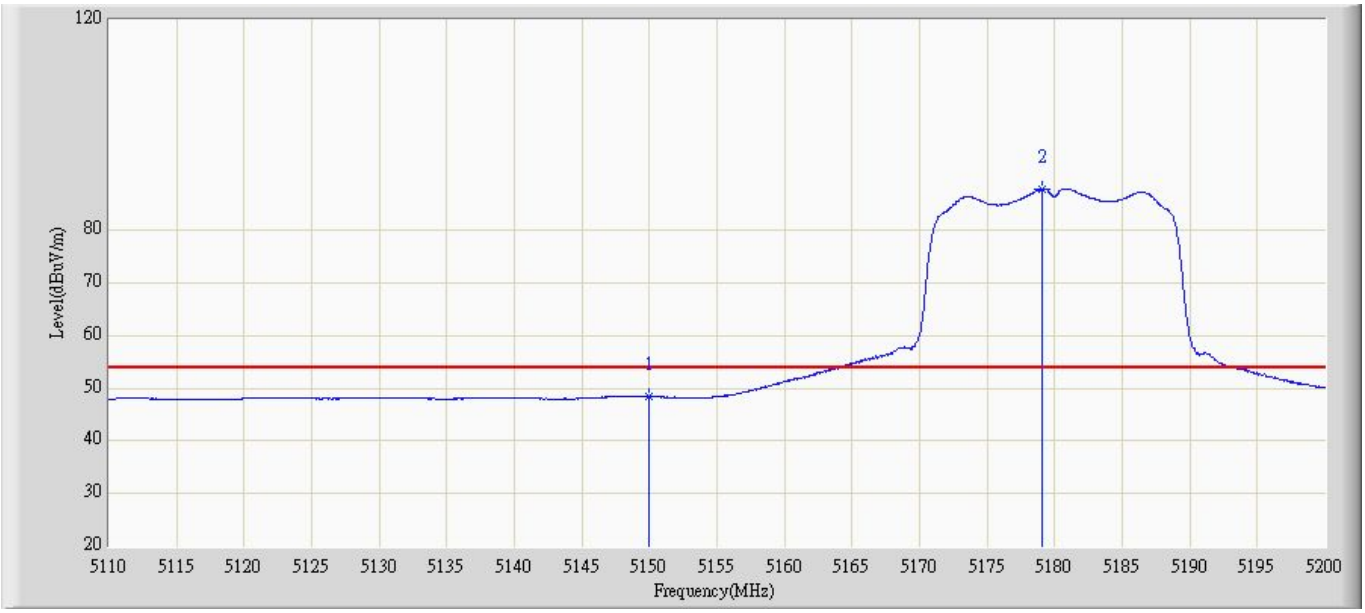
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	48.125	56.345	-5.875	54	-8.22	AV
2	*	5180.215	82.290	91.752	N/A	N/A	-9.462	AV

Site: AC5	Time: 2015/01/02 - 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	



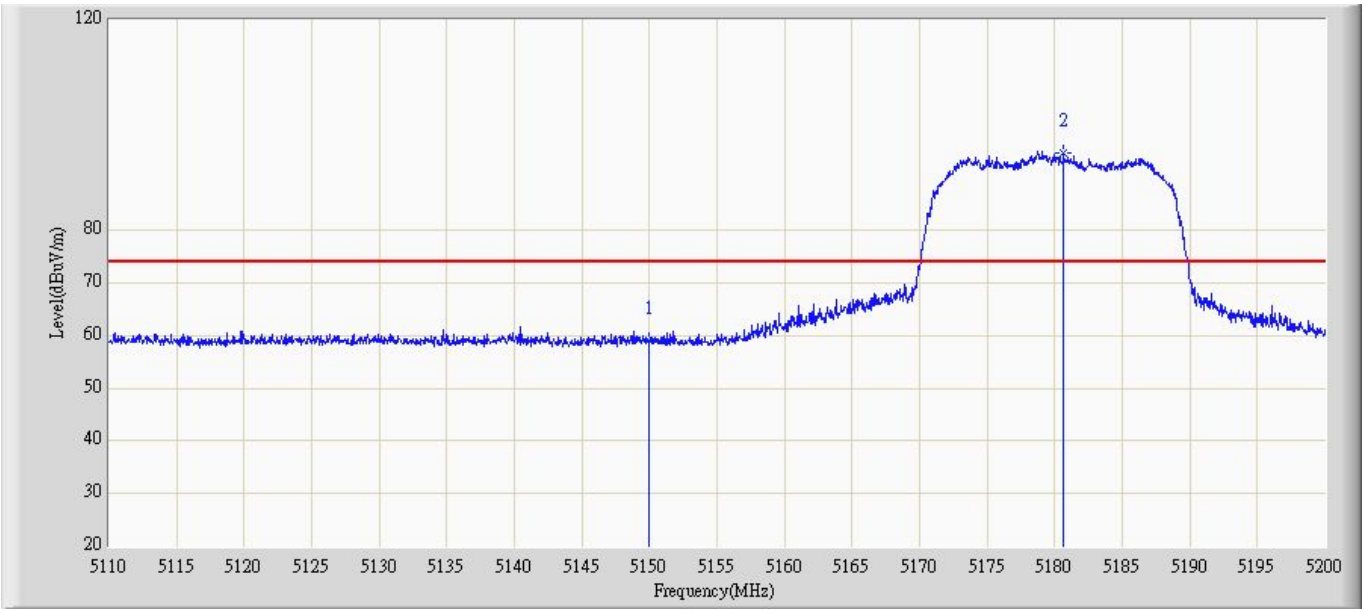
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	59.326	67.546	-14.674	74	-8.22	PK
2	*	5181.524	96.661	106.128	N/A	N/A	-9.467	PK

Site: AC5	Time: 2015/01/02 - 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	



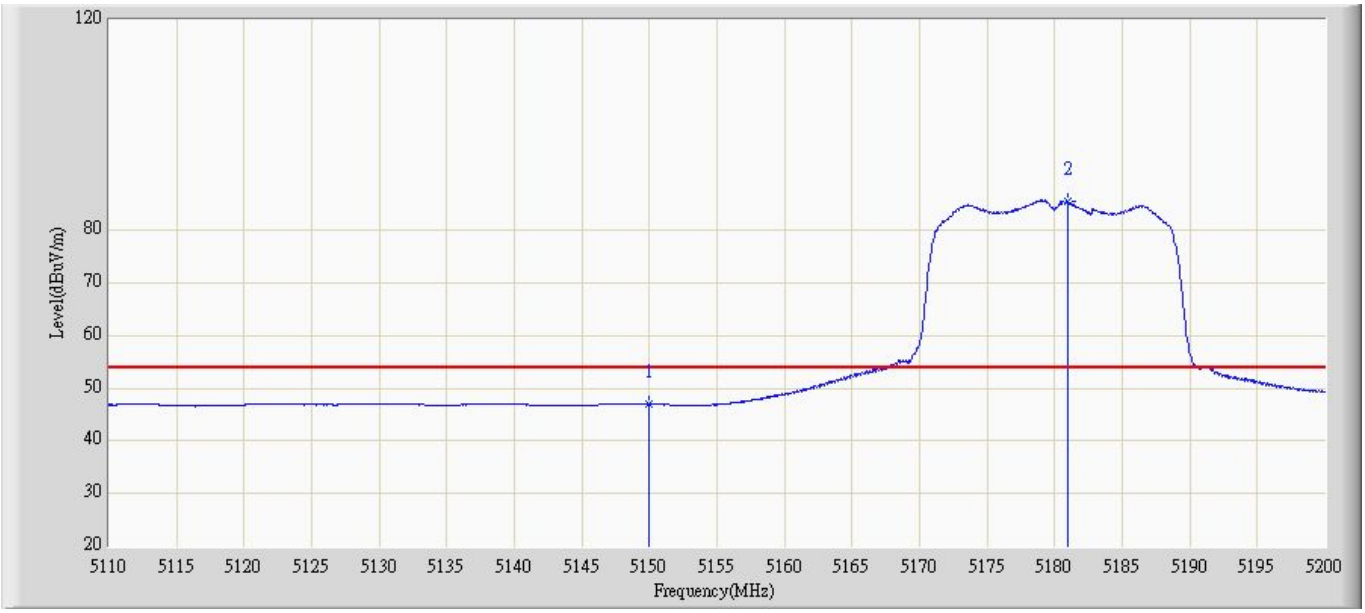
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	48.545	56.765	-5.455	54	-8.22	AV
2	*	5179.571	88.095	97.546	N/A	N/A	-9.451	AV

Site: AC5	Time: 2015/01/02 - 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	



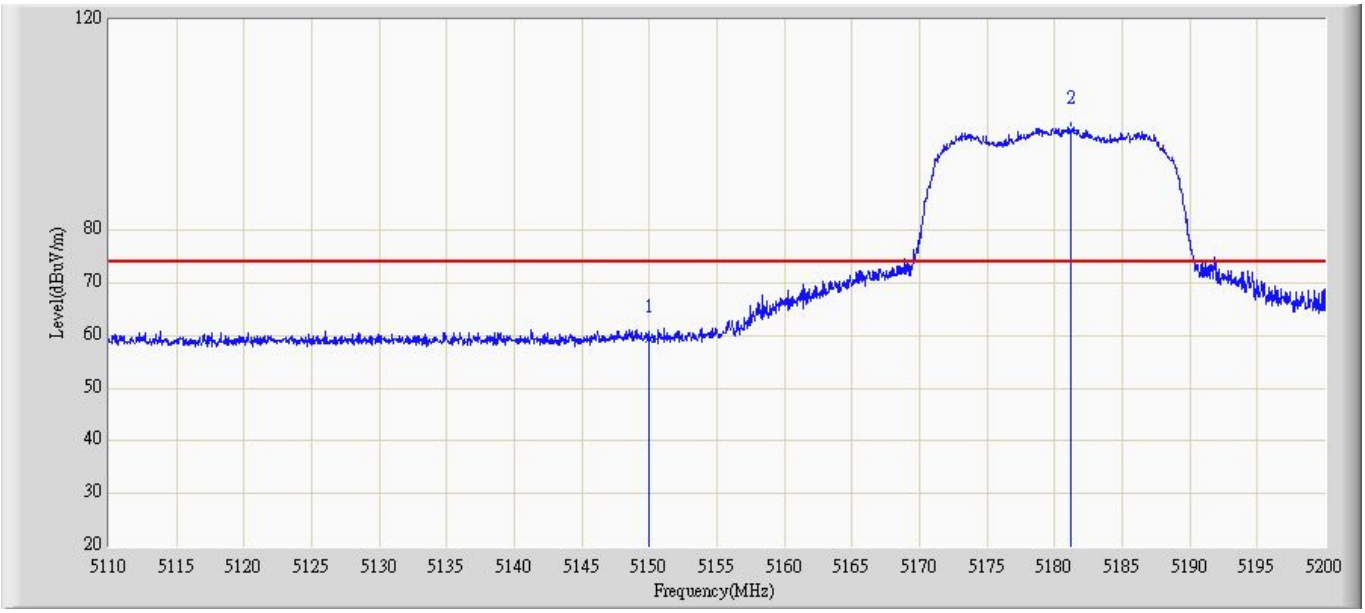
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	59.236	67.456	-14.764	74	-8.22	PK
2	*	5180.896	94.775	104.236	N/A	N/A	-9.461	PK

Site: AC5	Time: 2015/01/02 - 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	



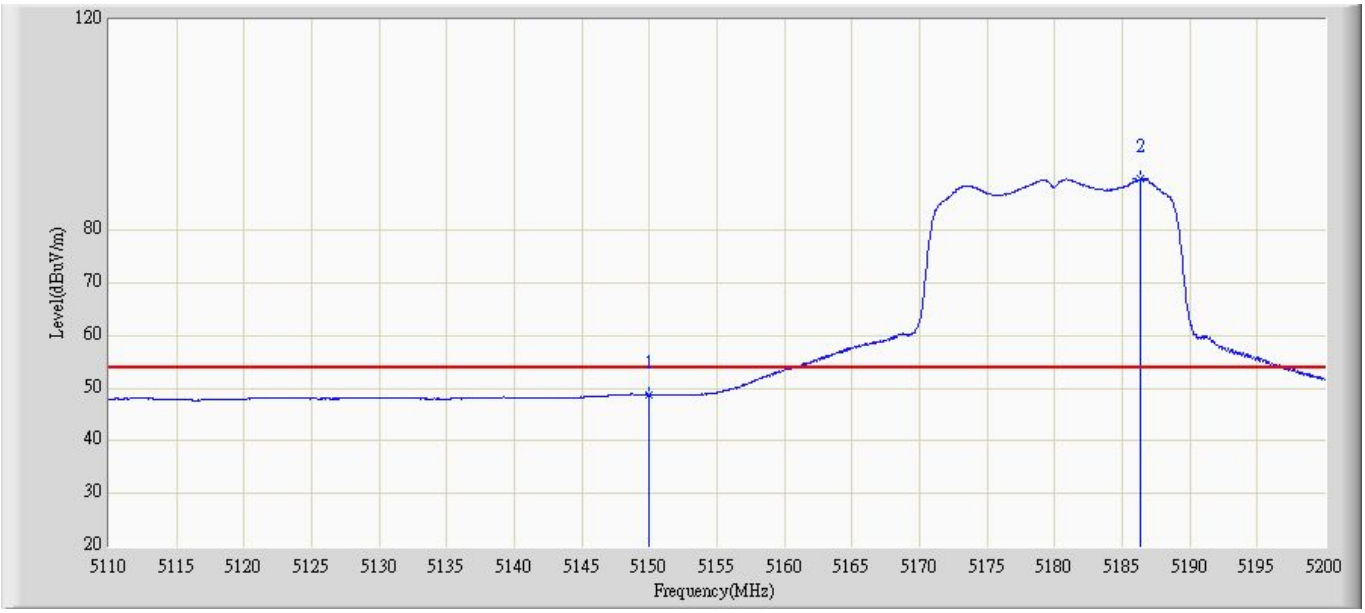
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	47.232	55.452	-6.768	54	-8.22	AV
2	*	5180.678	84.664	94.127	N/A	N/A	-9.463	AV

Site: AC5	Time: 2015/01/02 - 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	



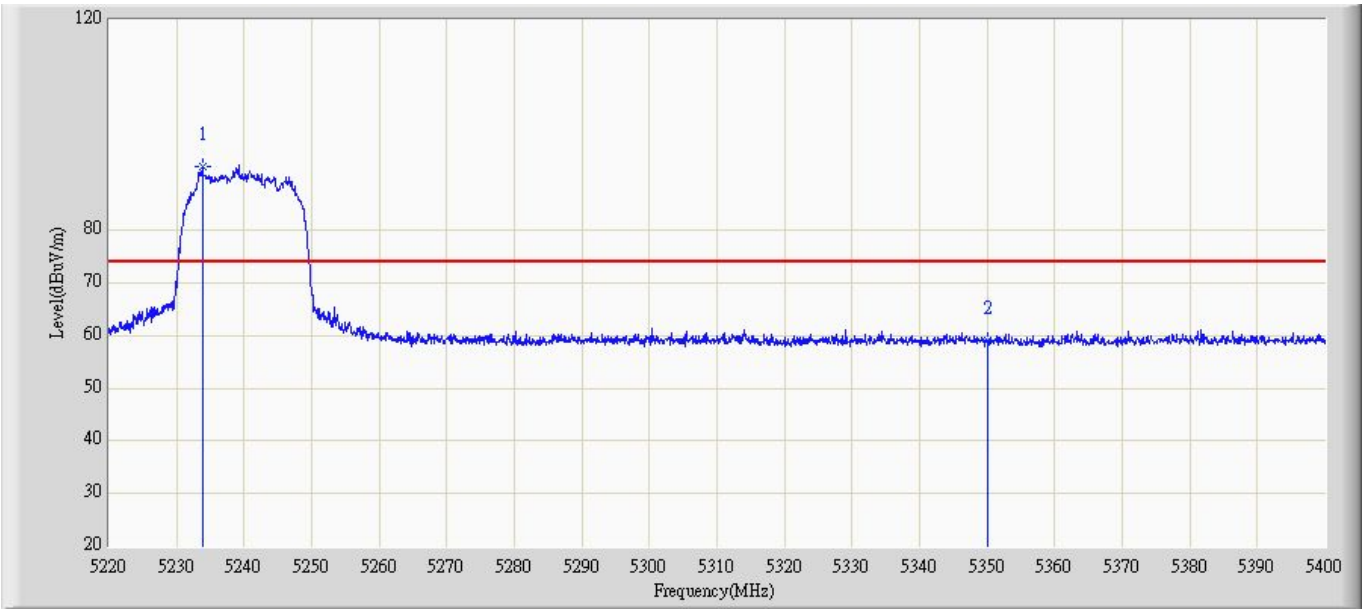
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	59.234	67.454	-14.766	74	-8.22	PK
2	*	5181.896	98.682	108.146	N/A	N/A	-9.464	PK

Site: AC5	Time: 2015/01/02 - 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	



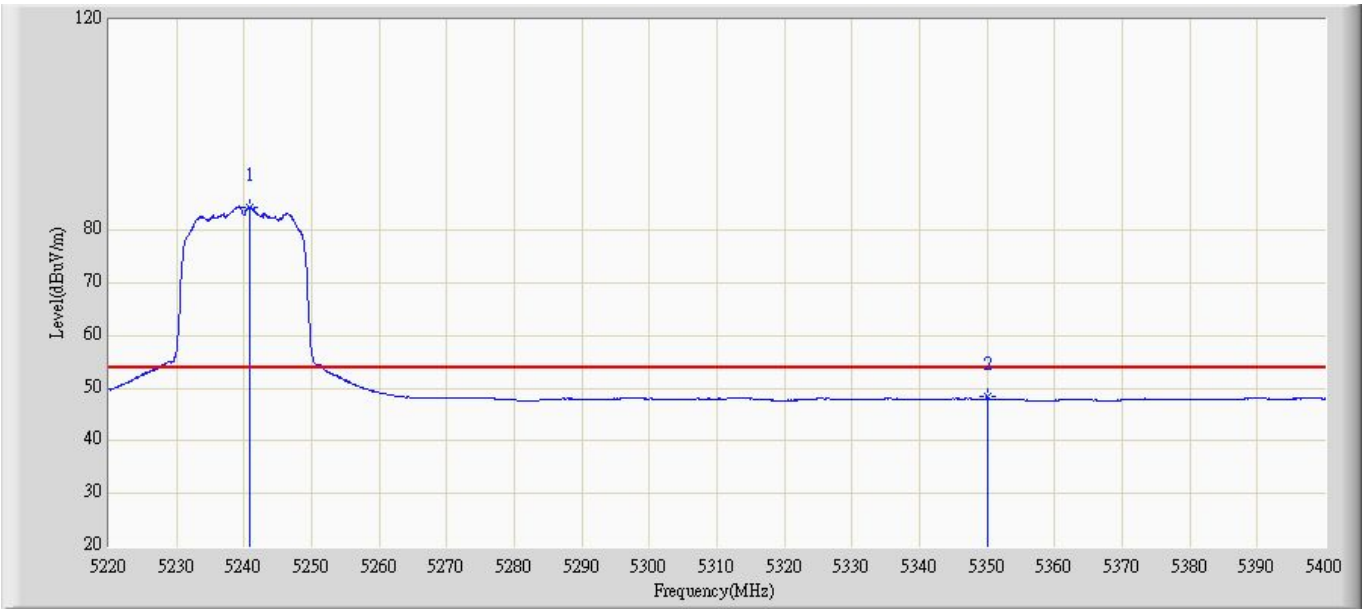
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	49.237	57.457	-4.763	54	-8.22	AV
2	*	5186.385	89.682	99.138	N/A	N/A	-9.456	AV

Site: AC5	Time: 2015/01/02 - 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	



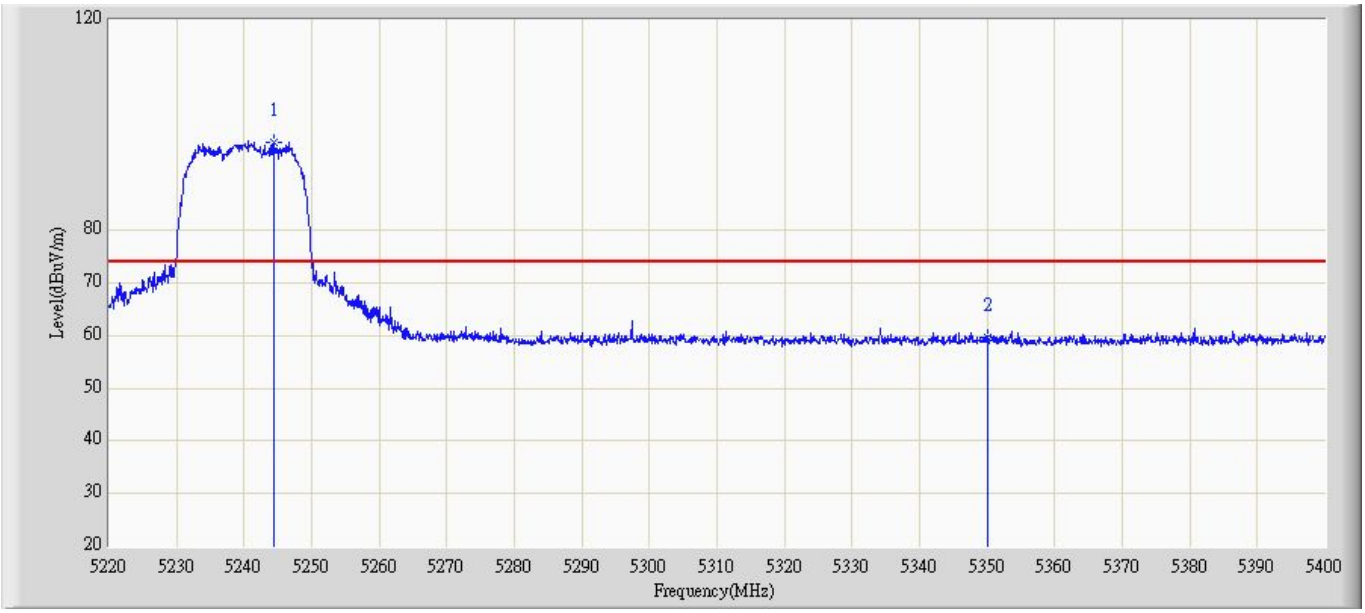
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5233.896	90.690	100.231	N/A	N/A	-9.541	PK
2		5350	59.586	67.787	-14.414	74	-8.201	PK

Site: AC5	Time: 2015/01/02 - 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	



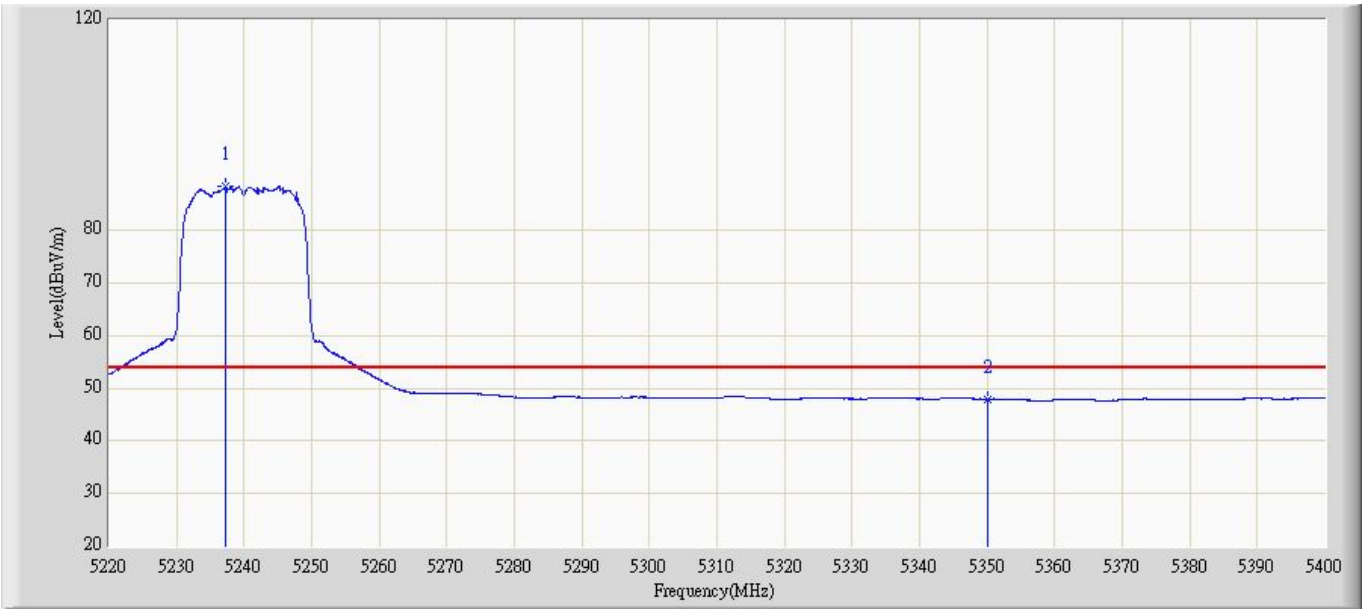
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5240.352	83.650	93.154	N/A	N/A	-9.504	AV
2		5350	48.586	56.787	-5.414	54	-8.201	AV

Site: AC5	Time: 2015/01/02 - 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	



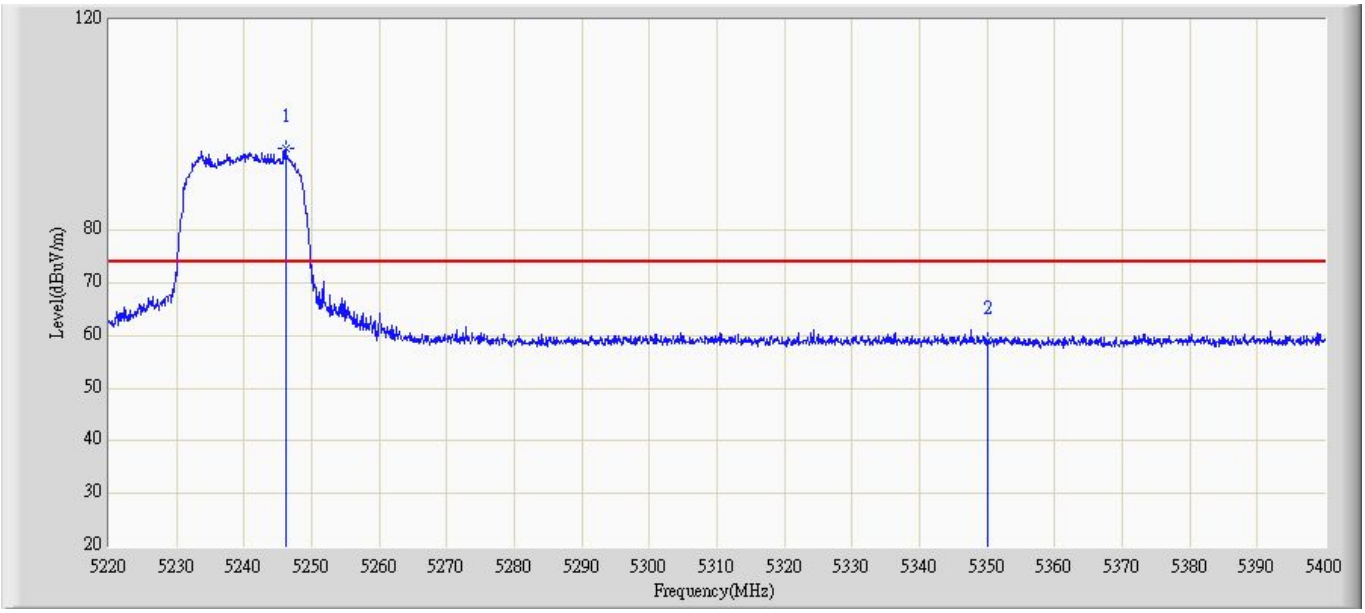
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5244.787	95.749	105.234	N/A	N/A	-9.485	PK
2		5350	58.944	67.145	-15.056	74	-8.201	PK

Site: AC5	Time: 2015/01/02 - 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	



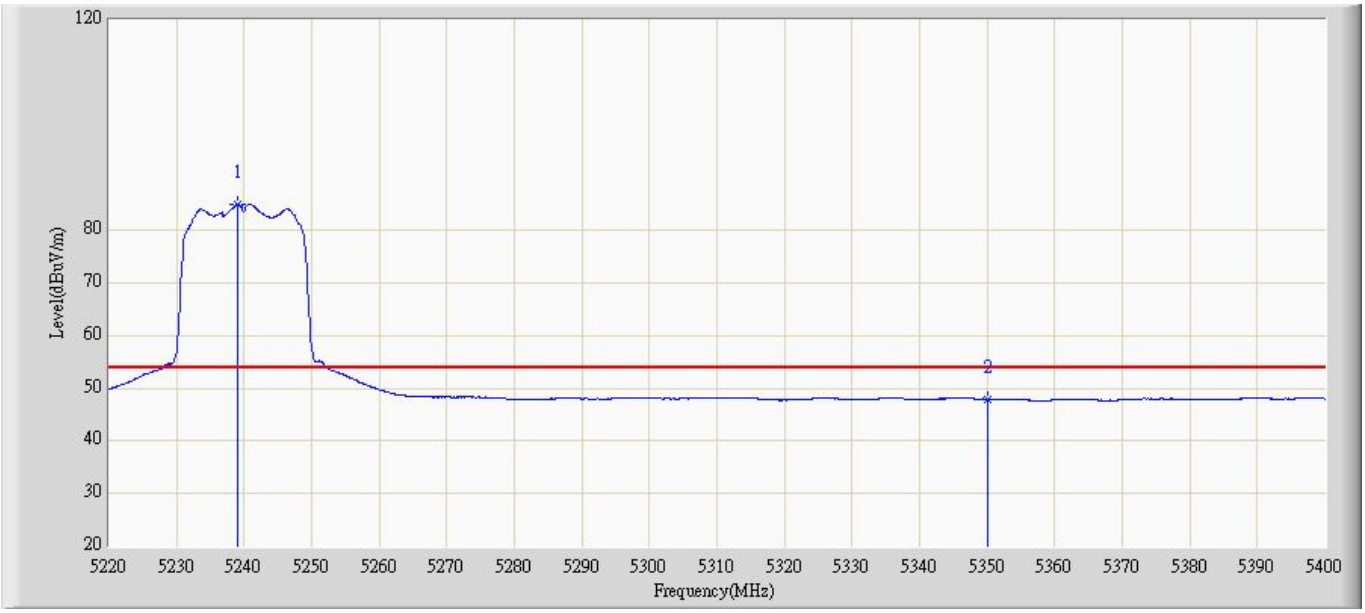
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5237.721	87.601	97.124	N/A	N/A	-9.523	AV
2		5350	48.643	56.844	-5.357	54	-8.201	AV

Site: AC5	Time: 2015/01/02 - 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	



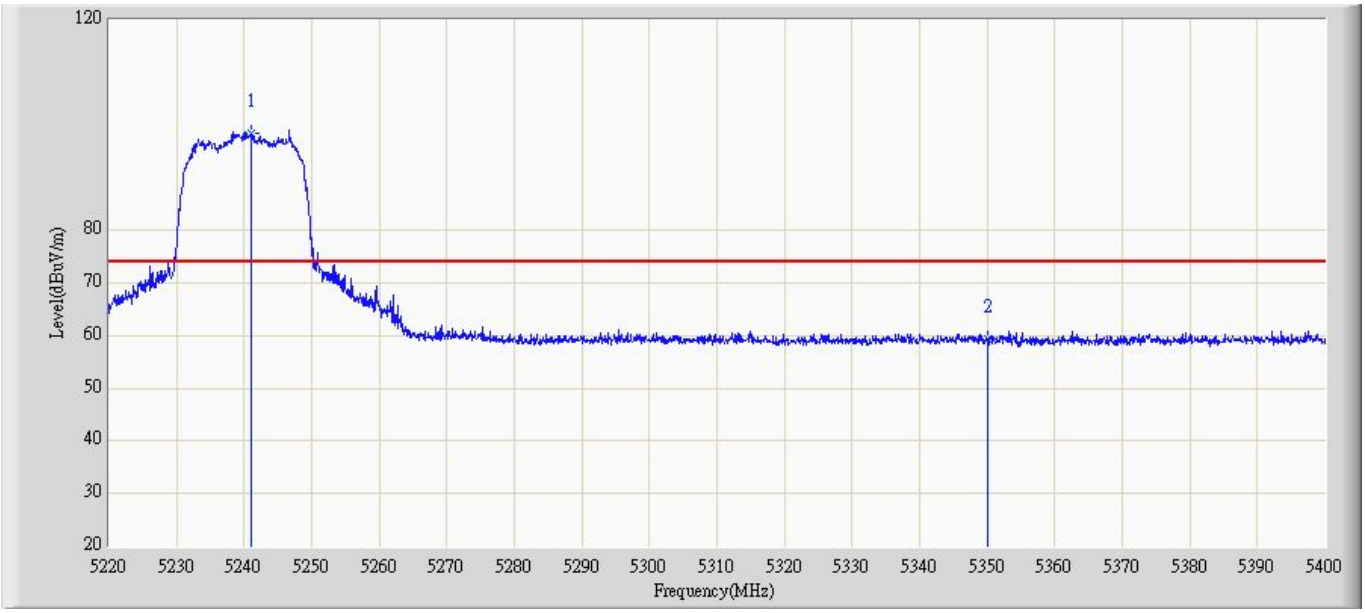
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5246.534	94.423	103.898	N/A	N/A	-9.475	PK
2		5350	59.547	67.748	-14.453	74	-8.201	PK

Site: AC5	Time: 2015/01/02 - 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	



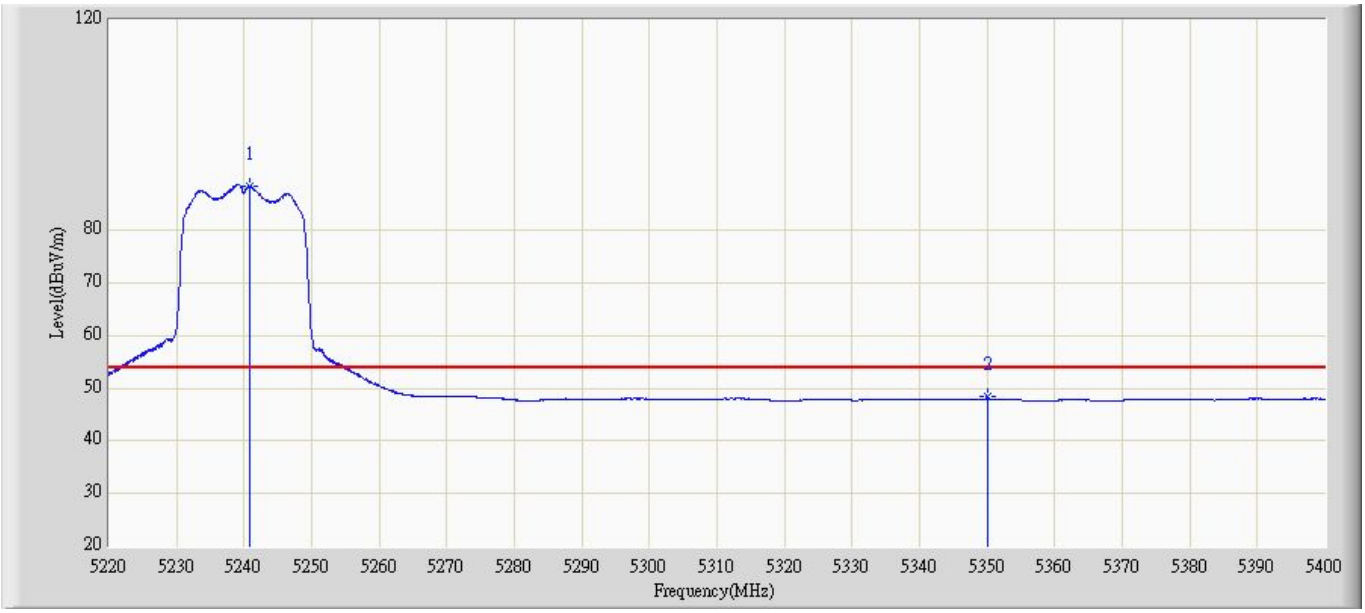
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5239.524	84.943	94.456	N/A	N/A	-9.513	AV
2		5350	48.674	56.875	-5.326	54	-8.201	AV

Site: AC5	Time: 2015/01/02 - 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	



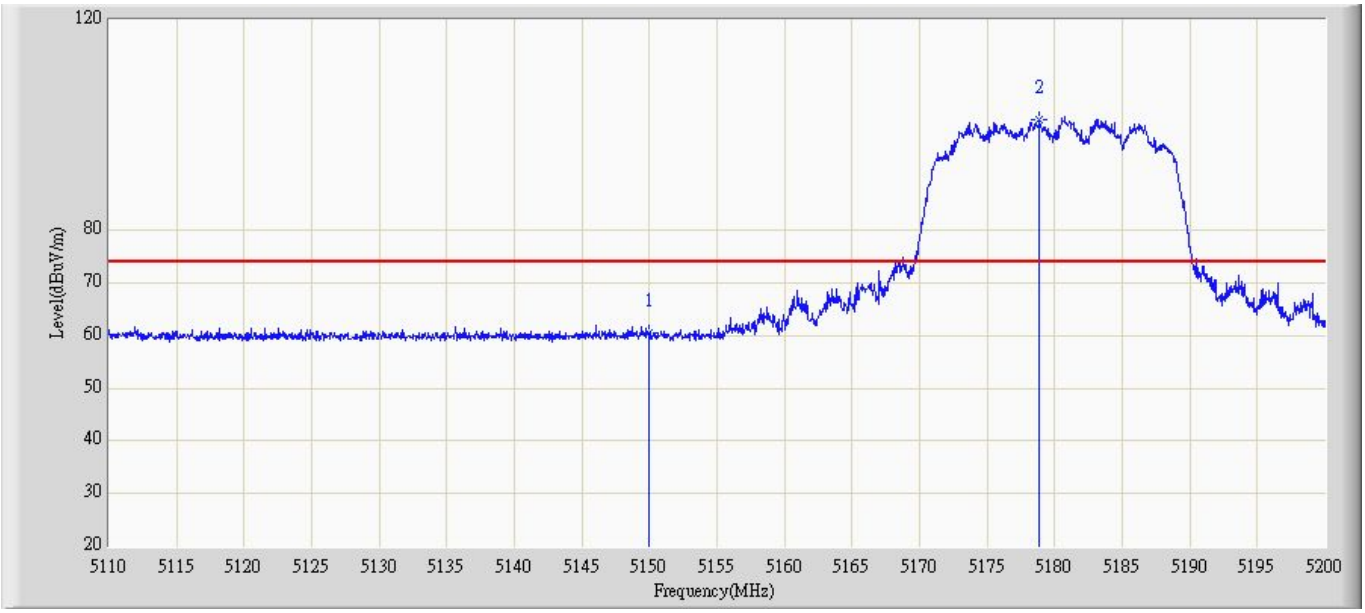
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5241.451	98.955	108.457	N/A	N/A	-9.502	PK
2		5350	59.674	67.875	-14.326	74	-8.201	PK

Site: AC5	Time: 2015/01/02 - 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	



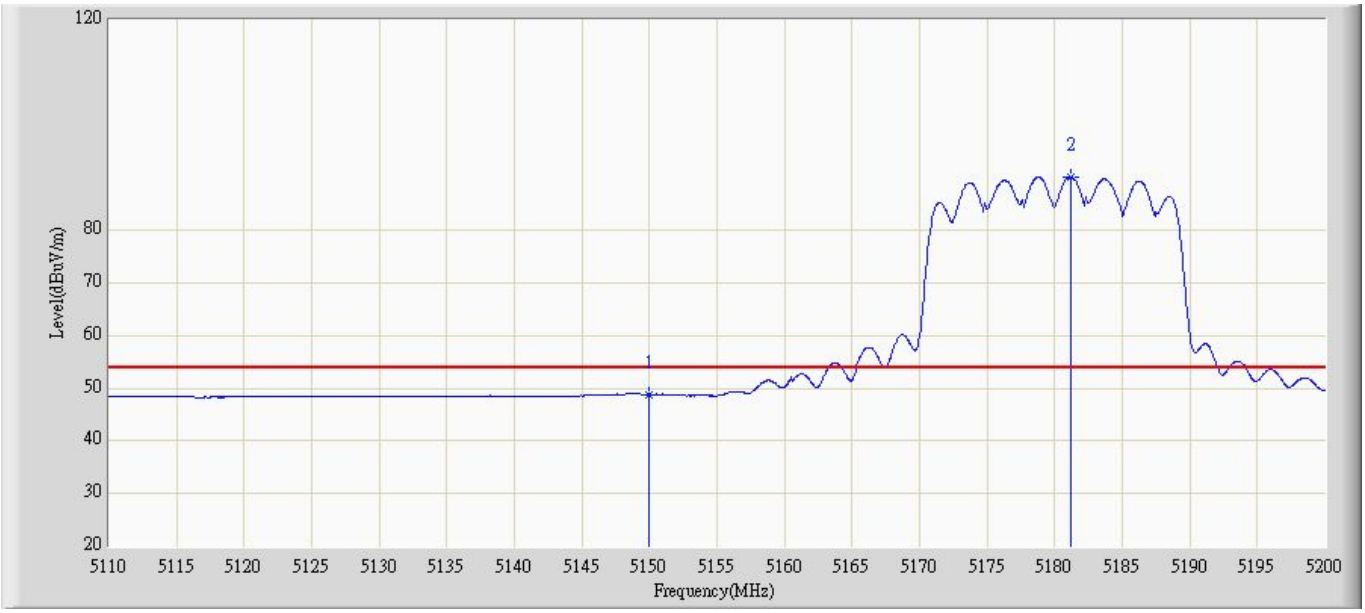
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5240.843	88.067	97.571	N/A	N/A	-9.504	AV
2		5350	48.036	56.237	-5.964	54	-8.201	AV

Site: AC5	Time: 2015/01/02 - 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 802.11n20 chain 1+2	



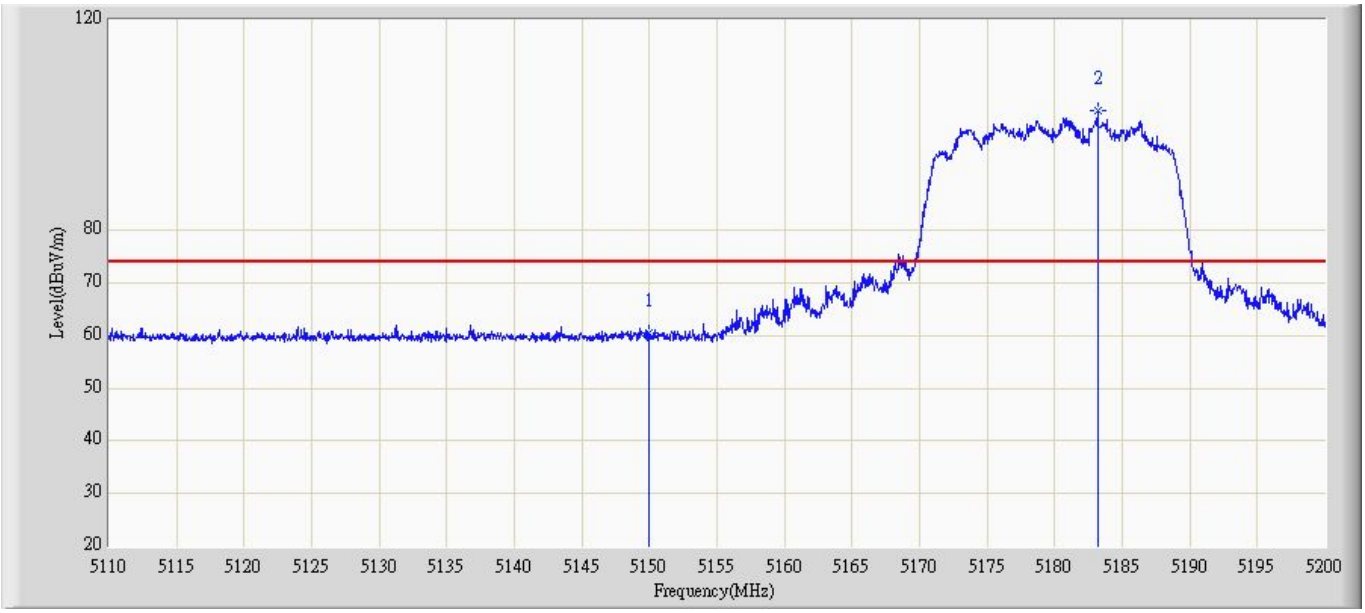
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	60.792	69.012	-13.208	74	-8.22	PK
2	*	5178.157	101.297	110.745	N/A	N/A	-9.448	PK

Site: AC5	Time: 2015/01/02 - 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 802.11n20 chain 1+2	



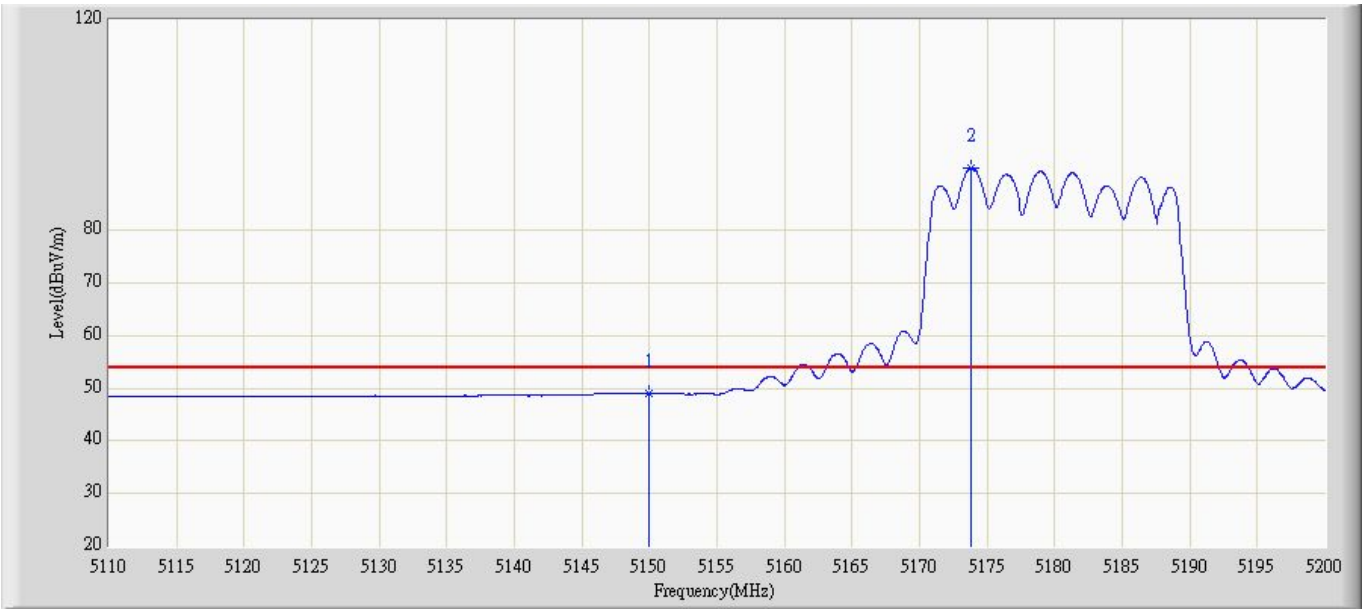
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	49.561	57.781	-4.439	54	-8.22	AV
2	*	5181.541	89.892	99.357	N/A	N/A	-9.465	AV

Site: AC5	Time: 2015/01/02 - 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 802.11n20 chain 1+2	



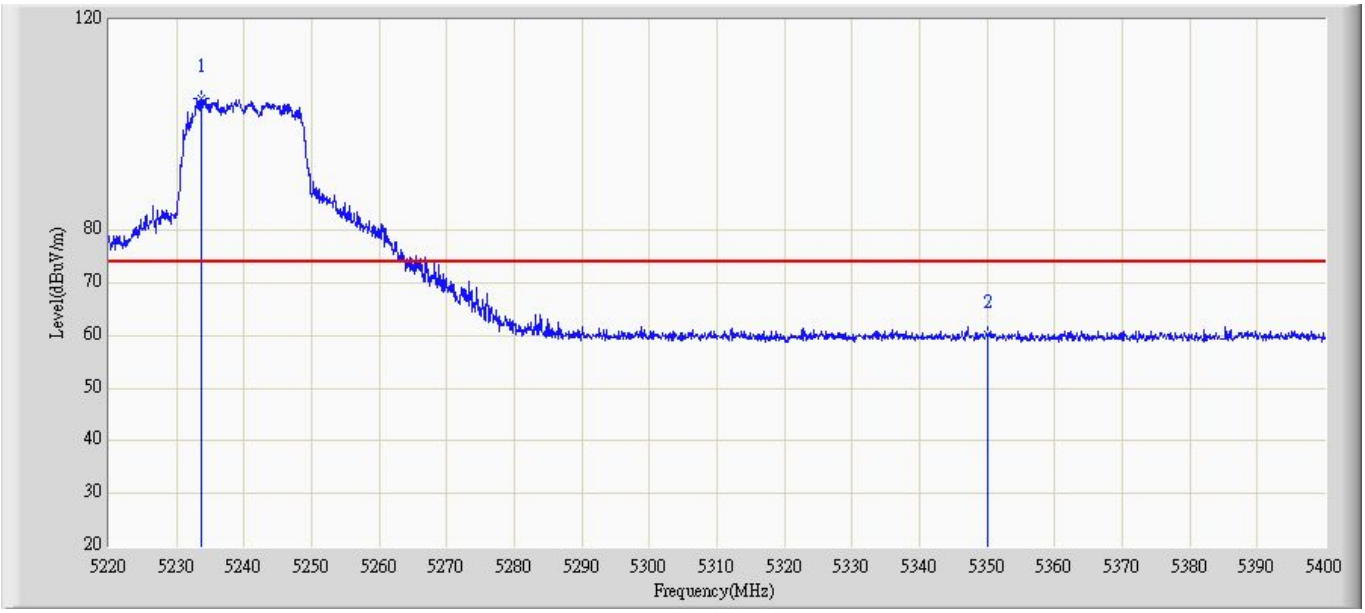
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	60.792	69.012	-13.208	74	-8.22	PK
2	*	5183.331	102.855	112.321	N/A	N/A	-9.466	PK

Site: AC5	Time: 2015/01/02 - 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 802.11n20 chain 1+2	



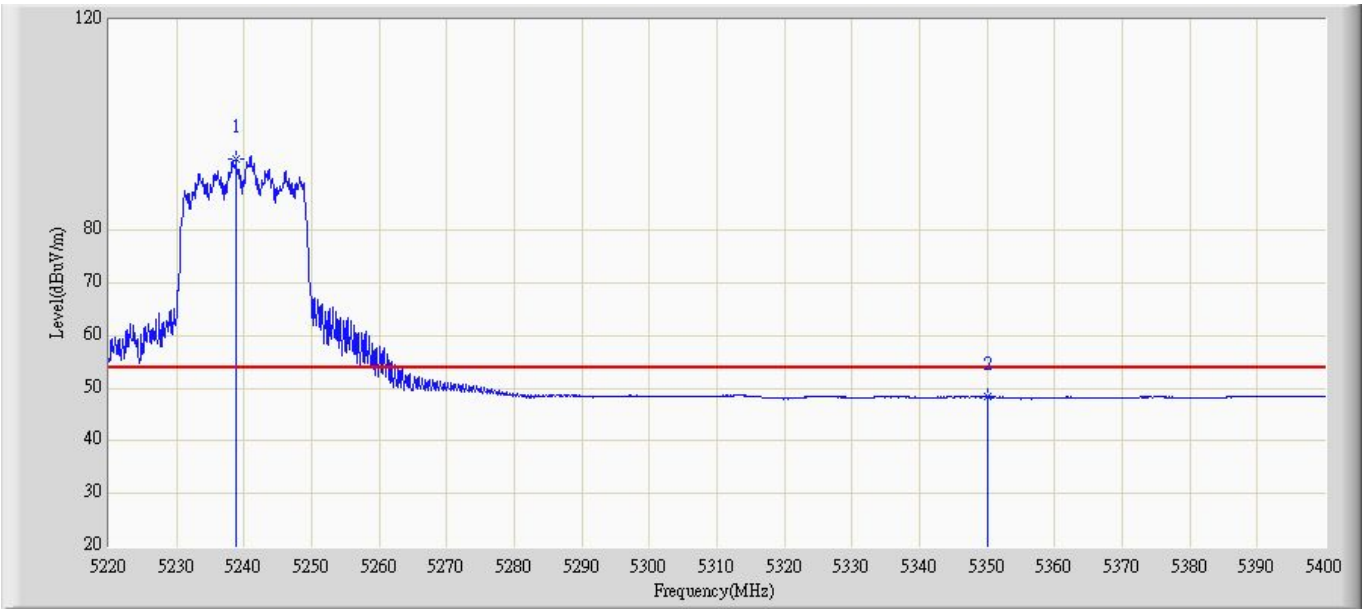
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	48.907	57.127	-5.093	54	-8.22	AV
2	*	5173.43	92.374	101.789	N/A	N/A	-9.415	AV

Site: AC5	Time: 2015/01/03 - 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	



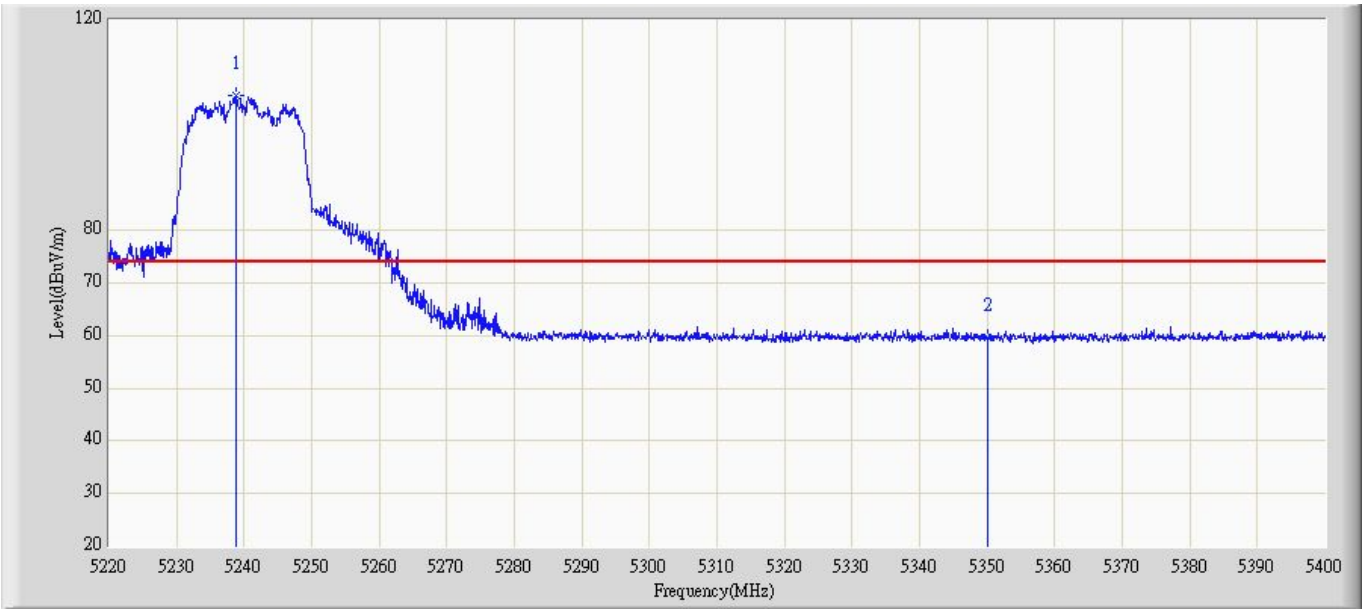
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5233.735	103.634	113.175	N/A	N/A	-9.541	PK
2		5350	60.673	68.874	-13.327	74	-8.201	PK

Site: AC5	Time: 2015/01/03 - 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	



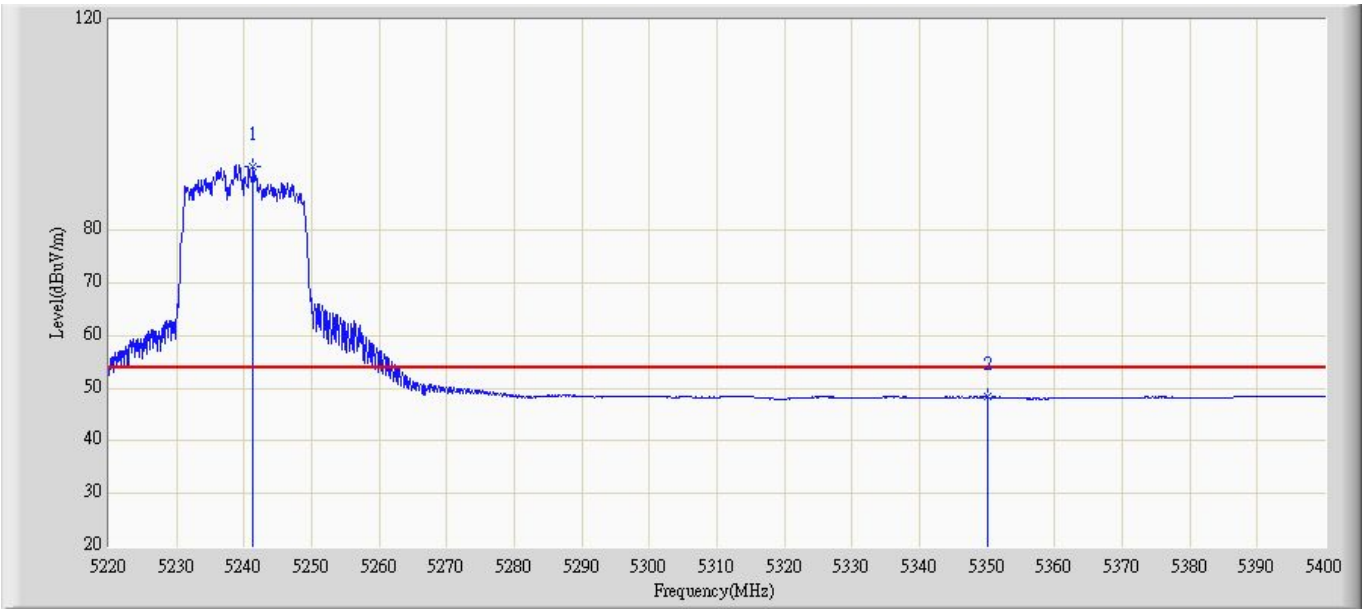
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5238.784	93.943	103.457	N/A	N/A	-9.514	AV
2		5350	48.173	56.374	-5.827	54	-8.201	AV

Site: AC5	Time: 2015/01/03 - 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	



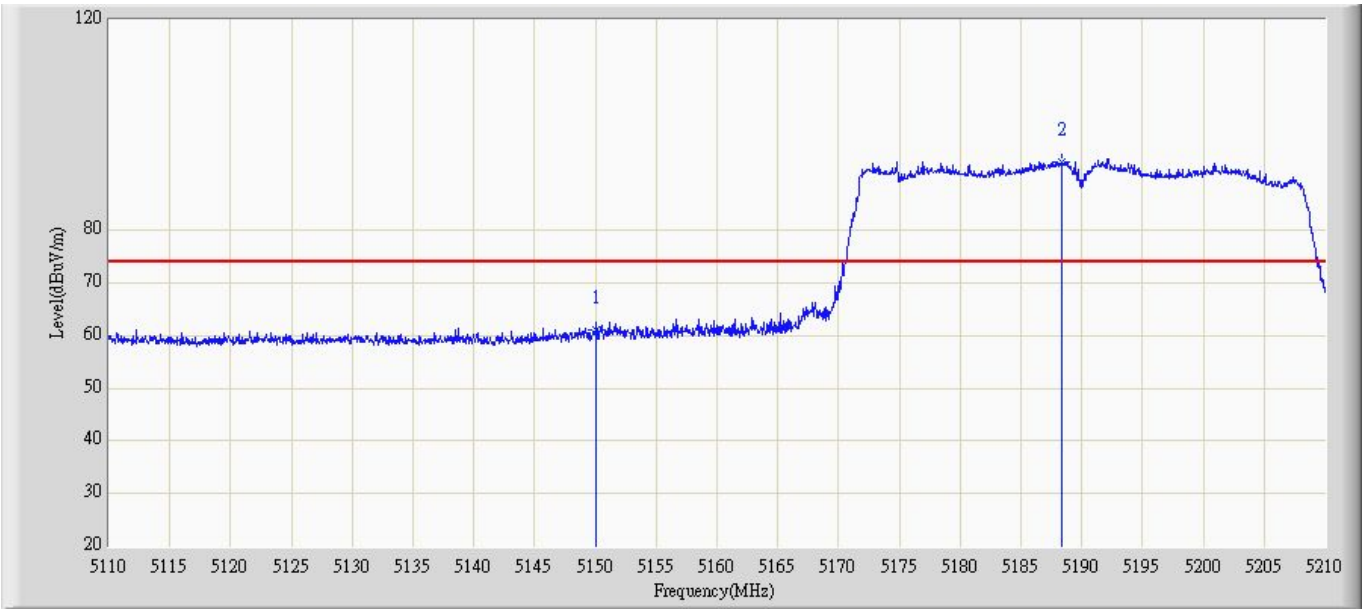
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5238.158	105.426	114.941	N/A	N/A	-9.515	PK
2		5350	58.926	67.127	-15.074	74	-8.201	PK

Site: AC5	Time: 2015/01/03 - 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	



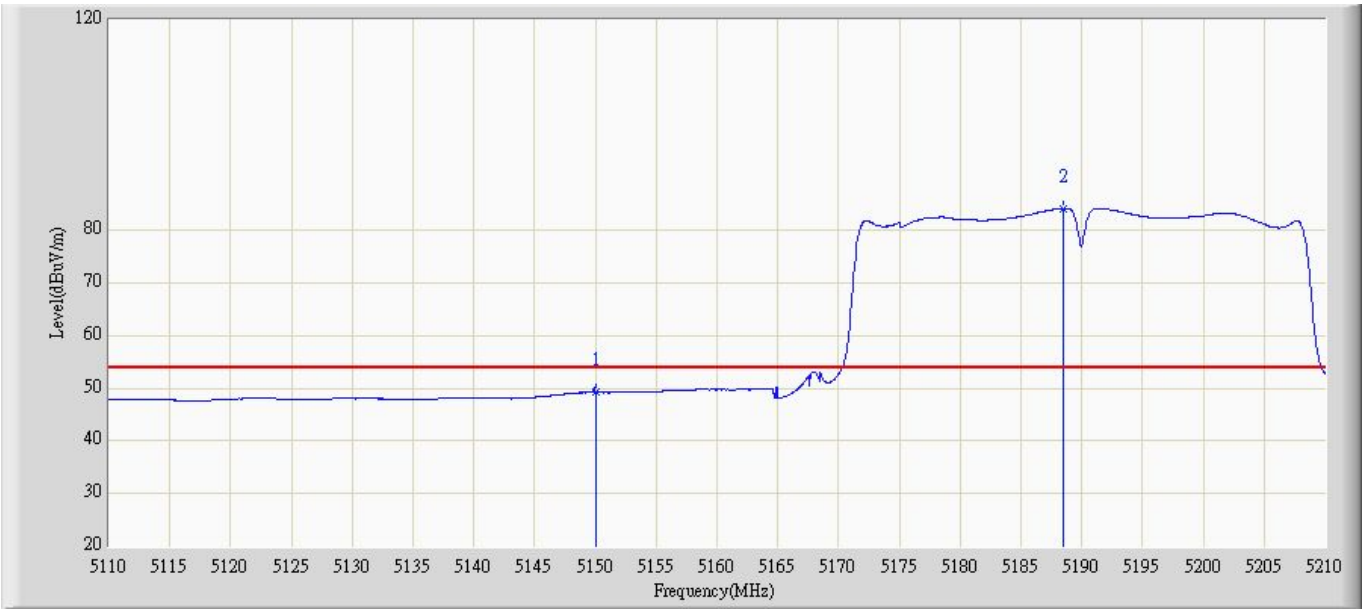
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5241.124	91.646	101.147	N/A	N/A	-9.501	AV
2		5350	48.047	56.248	-5.953	54	-8.201	AV

Site: AC5	Time: 2015/01/03 - 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	



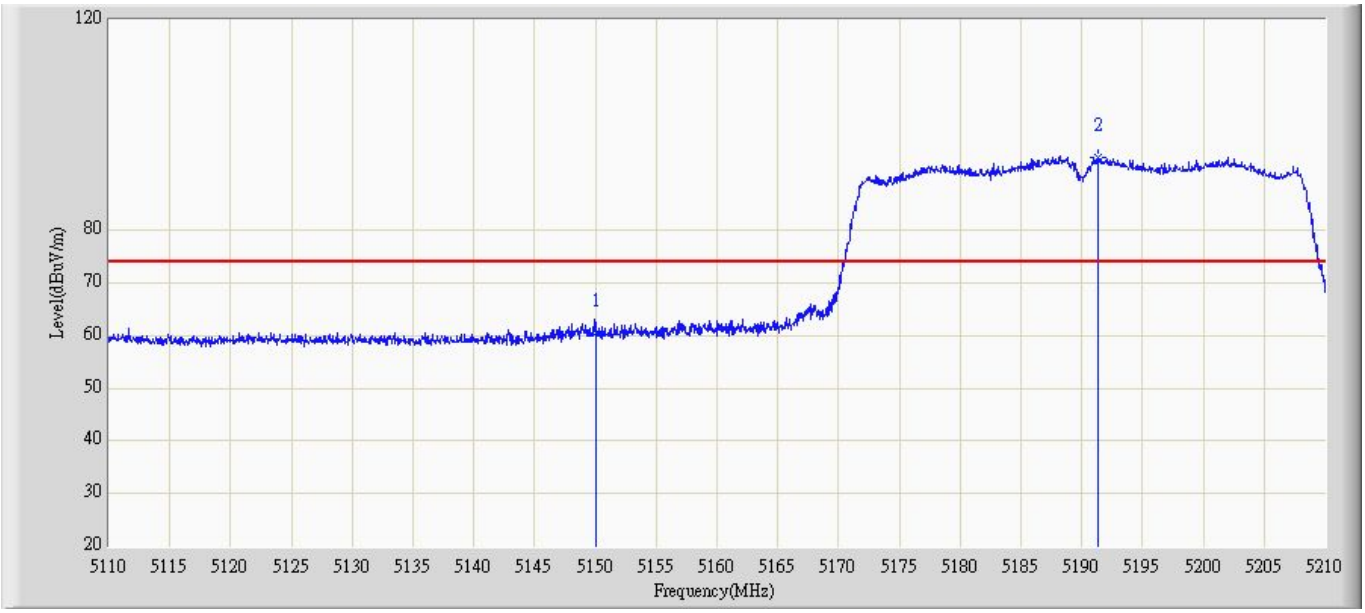
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	61.569	69.789	-12.431	74	-8.22	PK
2	*	5188.157	92.680	102.129	N/A	N/A	-9.449	PK

Site: AC5	Time: 2015/01/03 - 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	



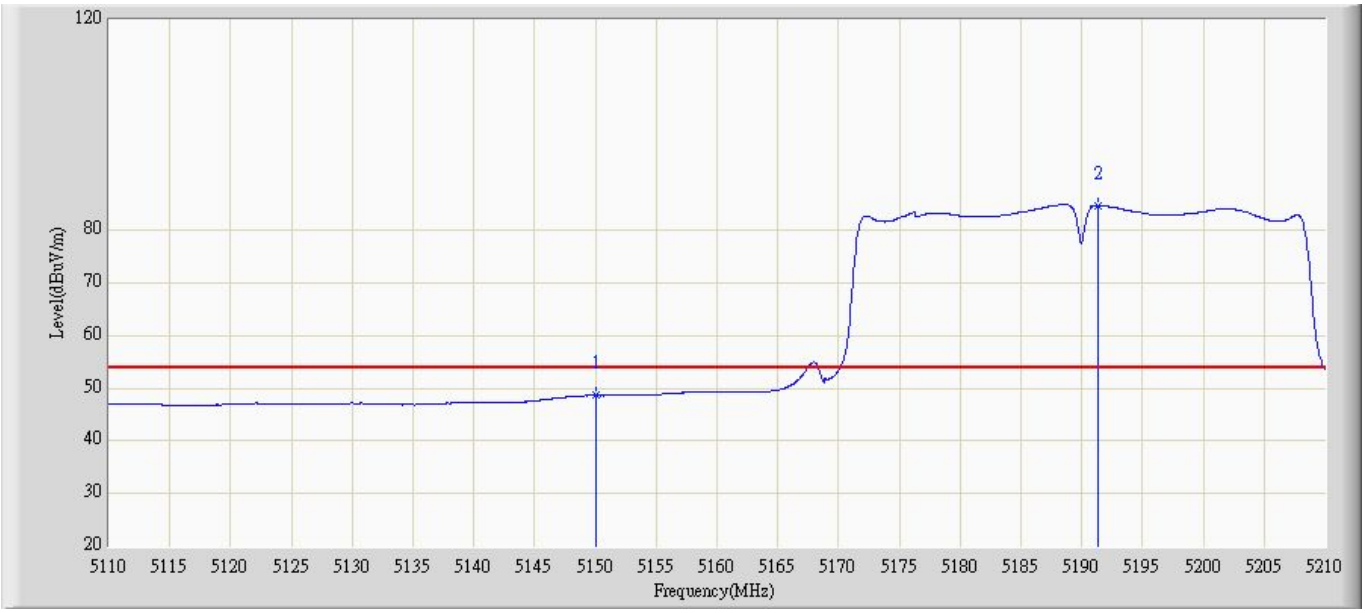
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	49.201	57.421	-4.799	54	-8.22	AV
2	*	5188.453	84.183	93.632	N/A	N/A	-9.449	AV

Site: AC5	Time: 2015/01/03 - 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	



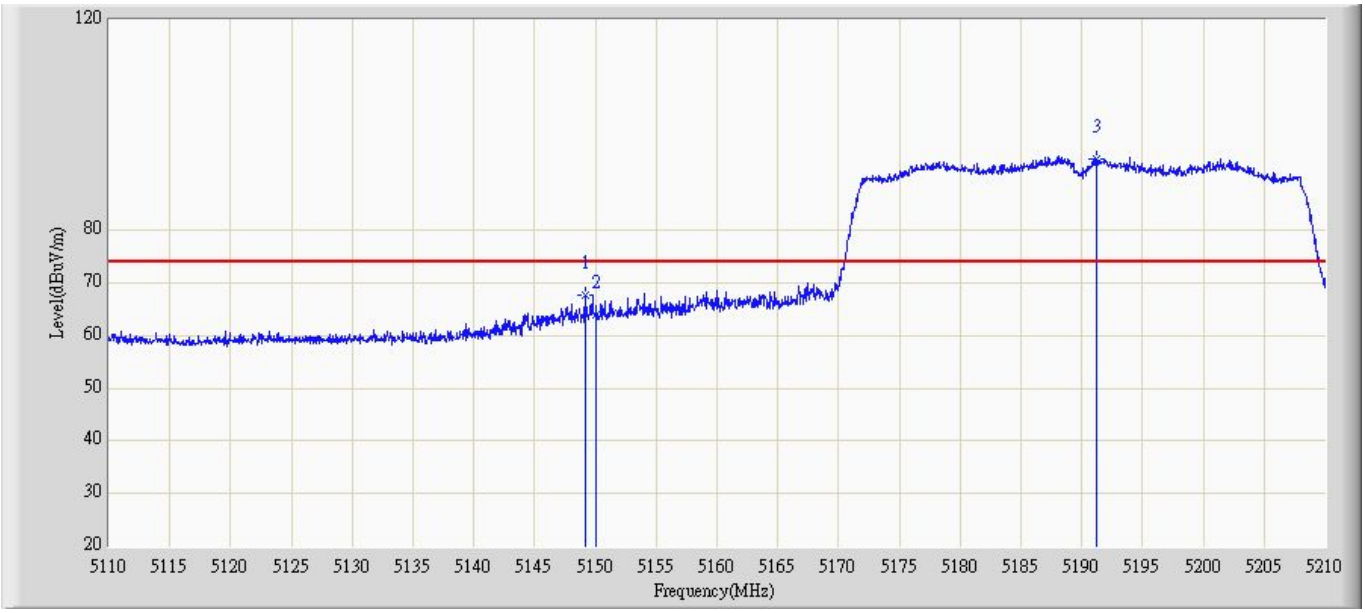
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	60.125	68.345	-13.875	74	-8.22	PK
2	*	5190.485	94.384	103.823	N/A	N/A	-9.439	PK

Site: AC5	Time: 2015/01/03 - 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	



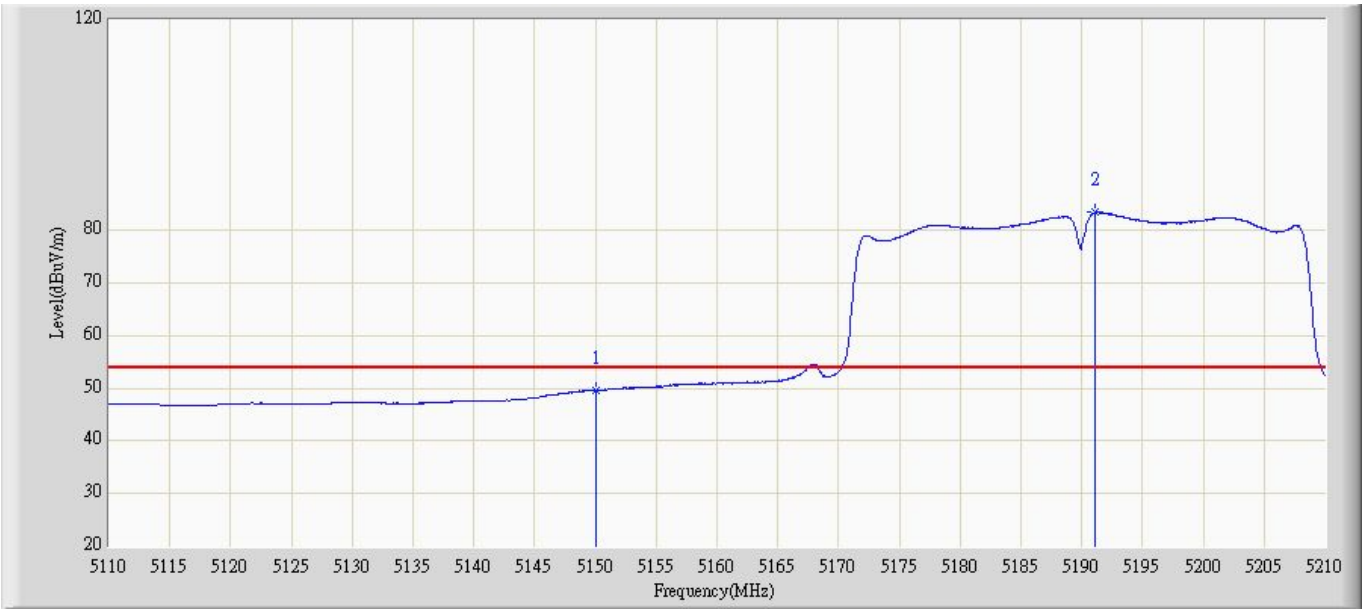
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	48.034	56.254	-5.966	54	-8.22	AV
2	*	5191.475	85.350	94.789	N/A	N/A	-9.439	AV

Site: AC5	Time: 2015/01/03 - 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	



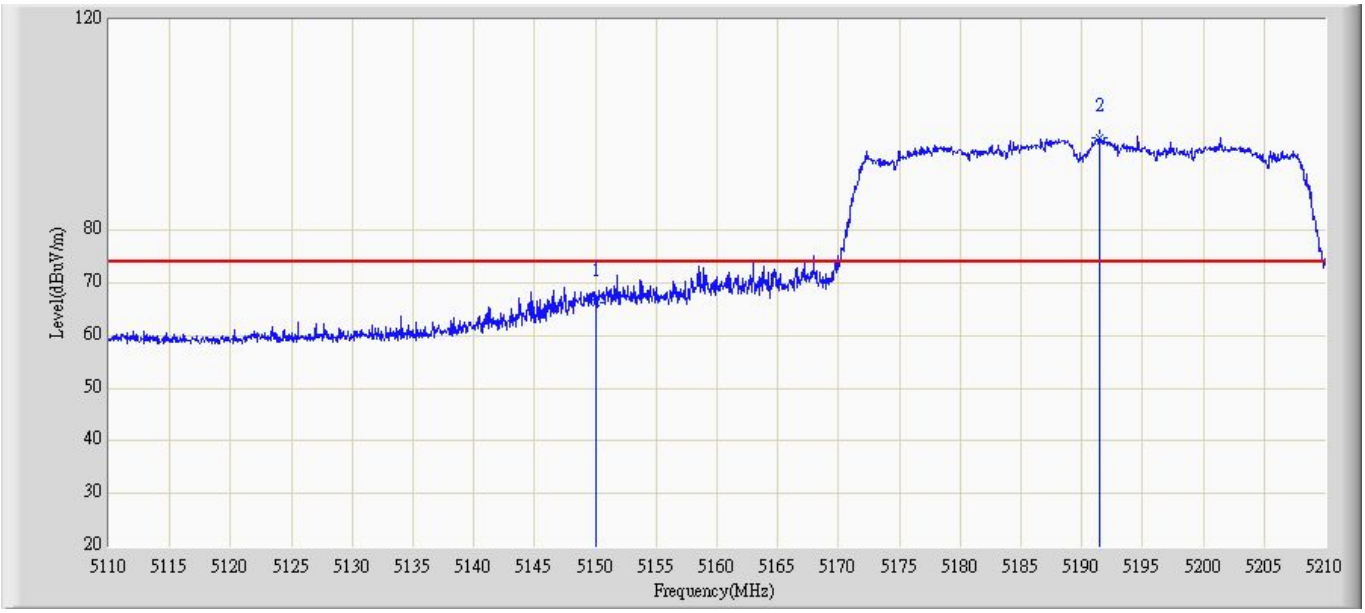
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5149.13	67.331	76.674	-6.669	74	-9.343	PK
2		5150	64.343	72.563	-9.657	74	-8.22	PK
3	*	5191.42	93.538	102.144	N/A	N/A	-9.439	PK

Site: AC5	Time: 2015/01/03 - 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	



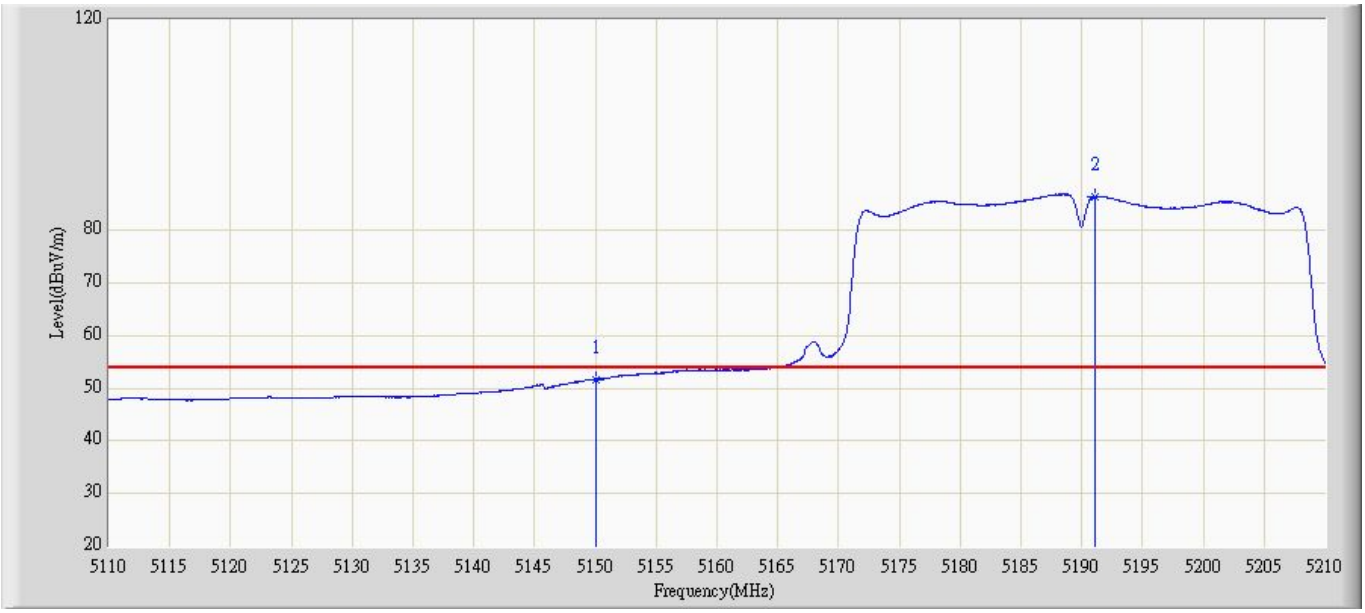
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	49.011	57.231	-4.989	54	-8.22	AV
2	*	5191.657	83.214	92.654	N/A	N/A	-9.44	AV

Site: AC5	Time: 2015/01/03 - 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	



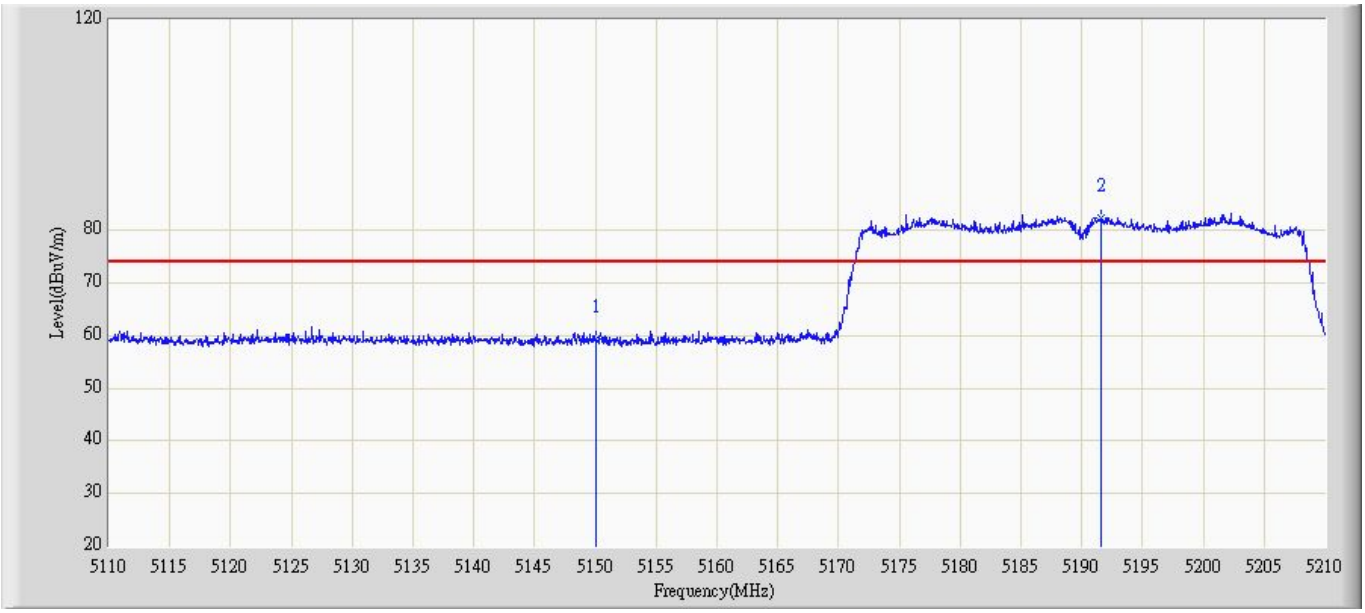
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	66.011	74.231	-7.989	74	-8.22	PK
2	*	5191.82	96.686	106.124	N/A	N/A	-9.438	PK

Site: AC5	Time: 2015/01/03 - 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	



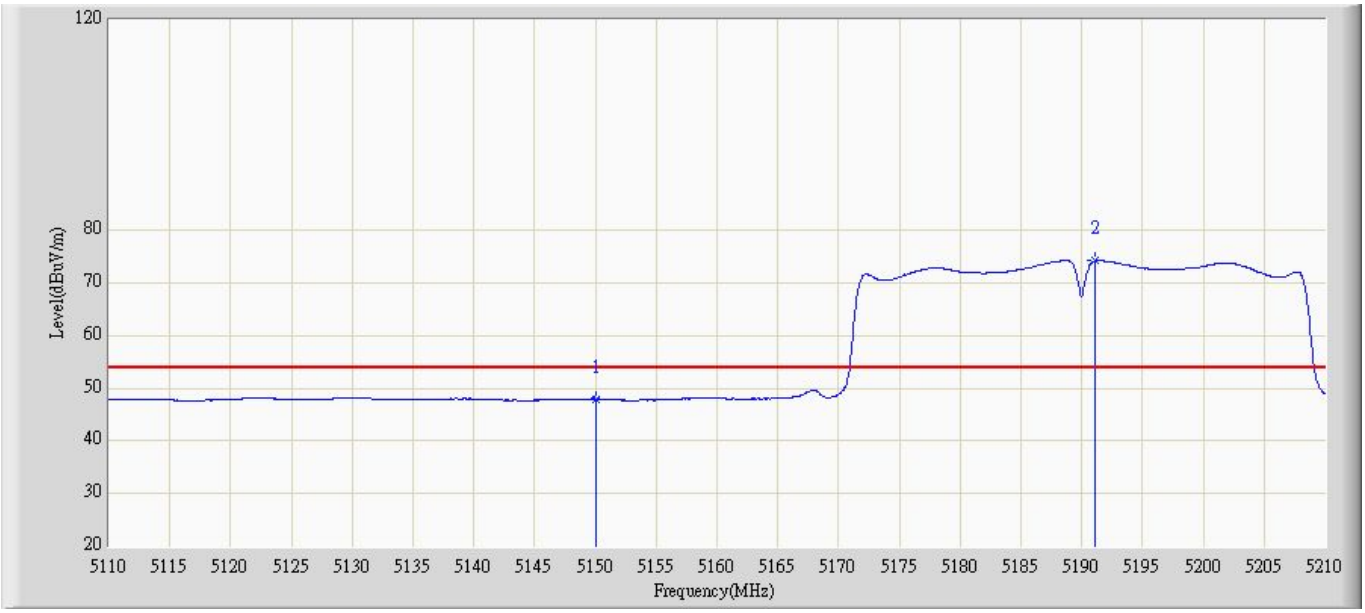
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	50.915	59.135	-3.085	54	-8.22	AV
2	*	5191.781	86.134	95.574	N/A	N/A	-9.44	AV

Site: AC5	Time: 2015/01/03 - 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	



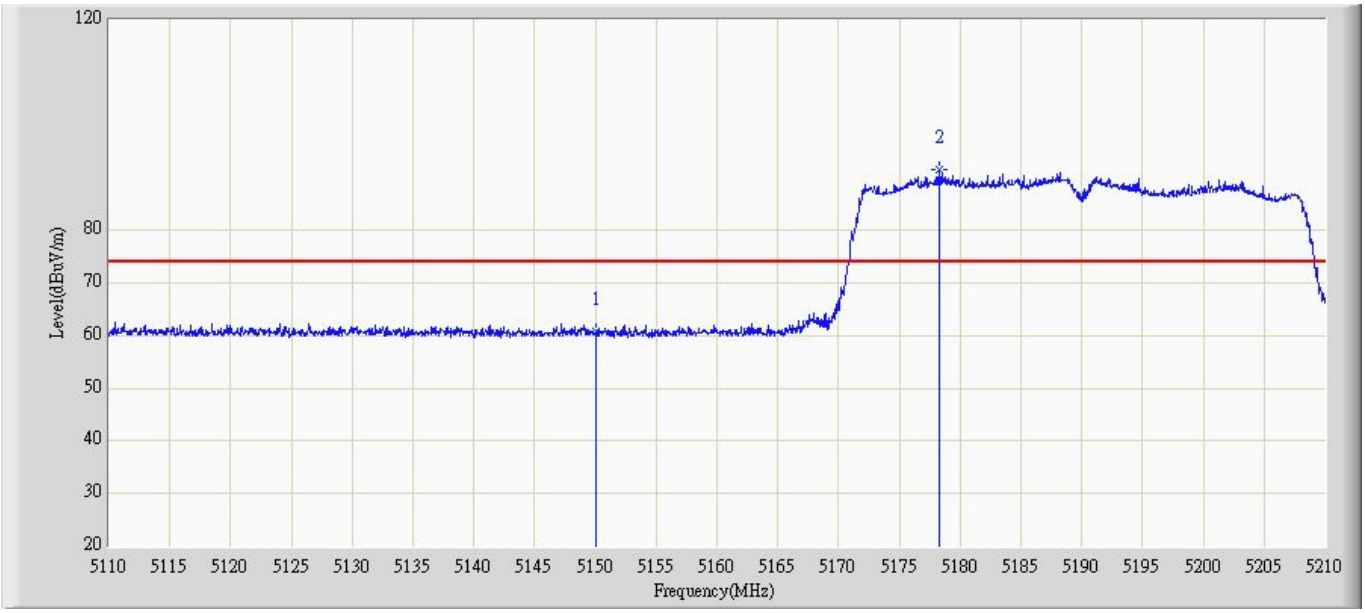
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150.000	58.905	67.125	-15.095	74	-8.22	PK
2	*	5191.125	82.375	91.813	N/A	N/A	-9.438	PK

Site: AC5	Time: 2015/01/03 - 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	



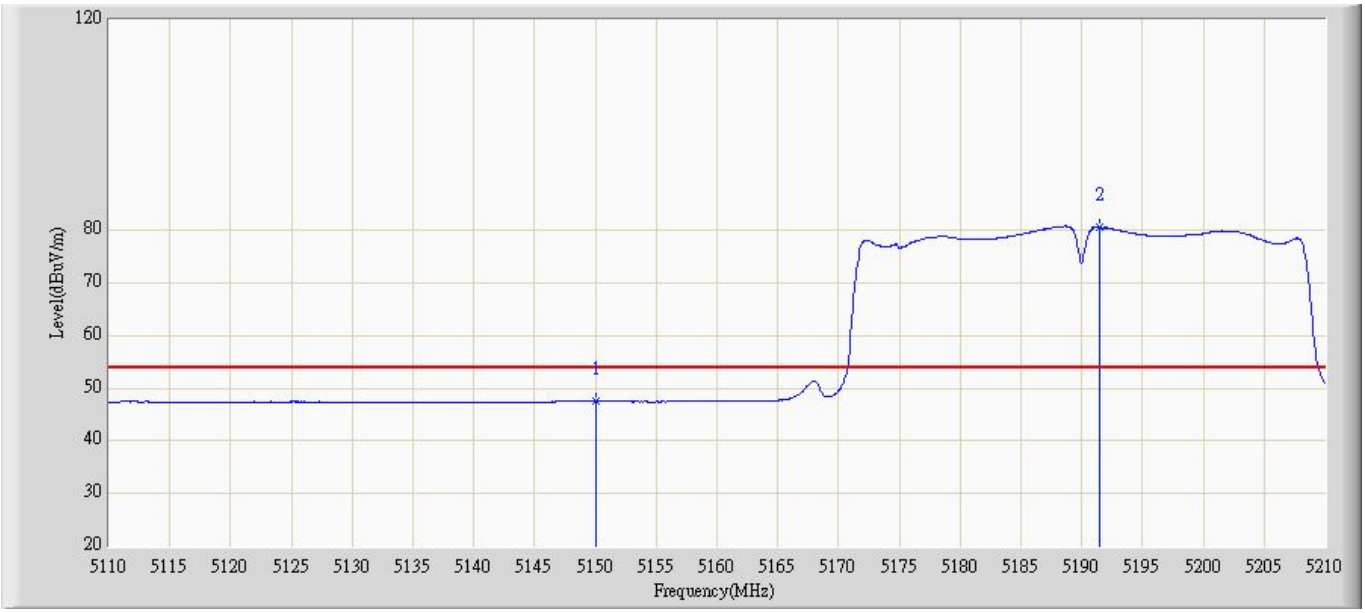
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	47.904	56.124	-6.096	54	-8.22	AV
2	*	5191.257	74.141	83.581	N/A	N/A	-9.44	AV

Site: AC5	Time: 2015/01/03 - 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	



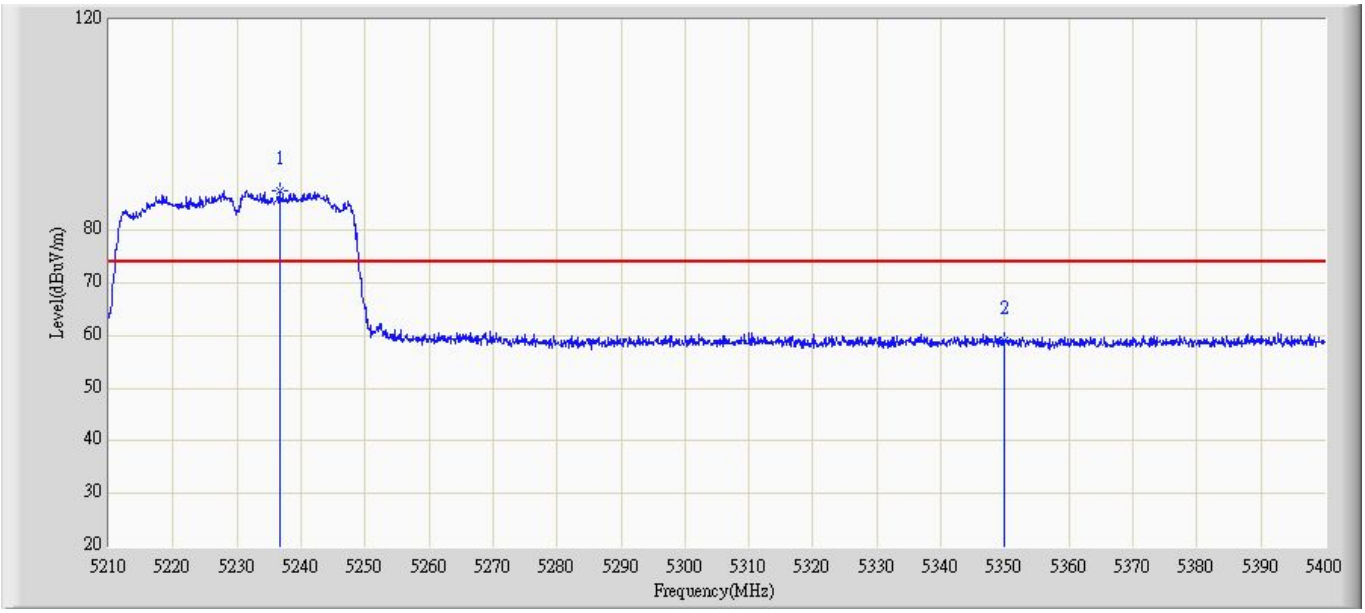
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	61.458	69.678	-12.542	74	-8.22	PK
2	*	5178.432	90.690	100.135	N/A	N/A	-9.445	PK

Site: AC5	Time: 2015/01/03 - 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	



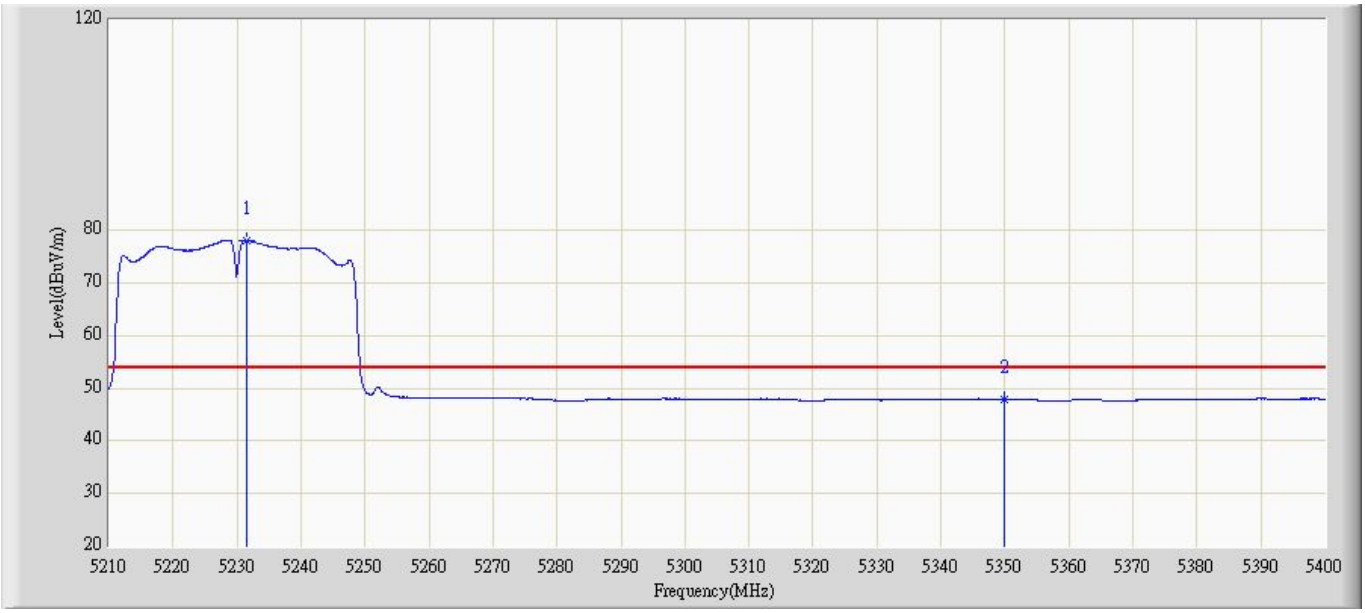
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5150	47.105	55.325	-6.895	54	-8.22	AV
2	*	5191.952	79.699	89.137	N/A	N/A	-9.438	AV

Site: AC5	Time: 2015/01/03 - 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	



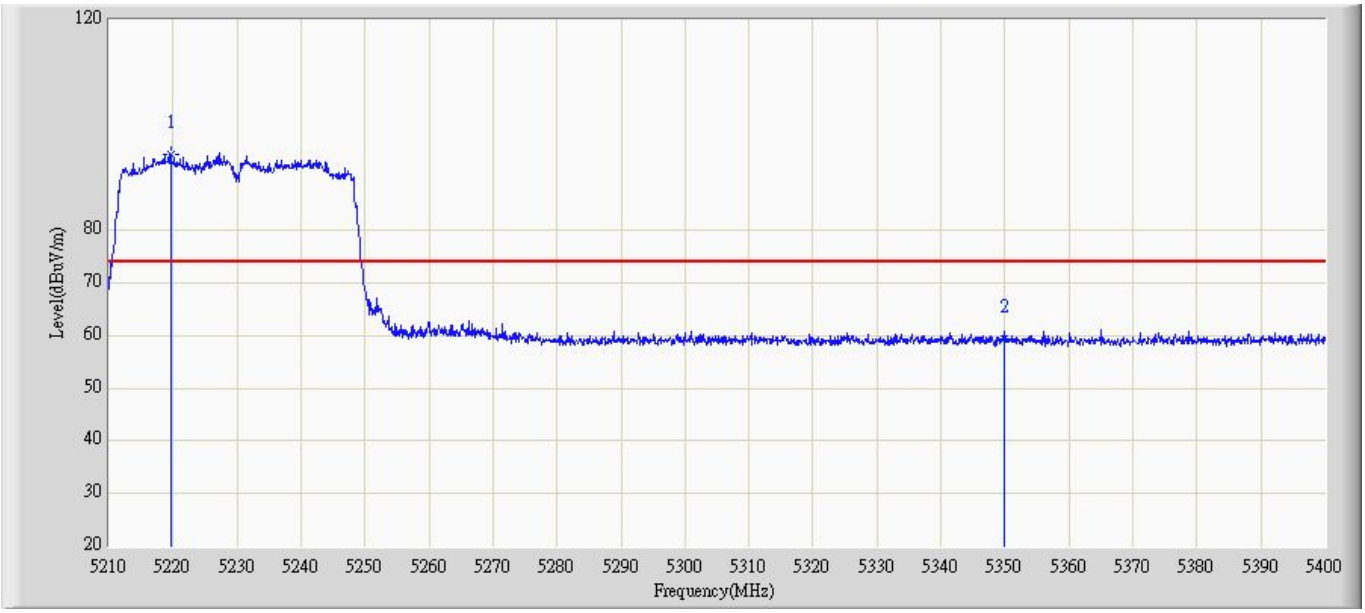
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5236.135	88.132	97.658	N/A	N/A	-9.526	PK
2		5350	59.651	67.852	-14.349	74	-8.201	PK

Site: AC5	Time: 2015/01/03 - 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	



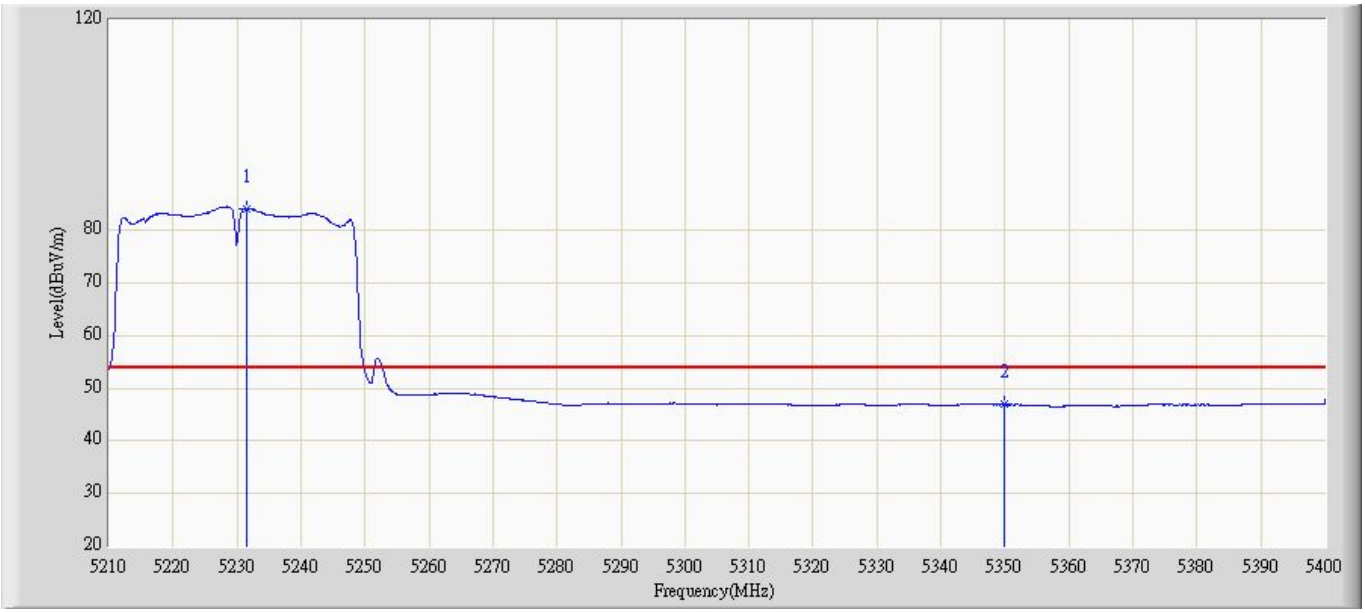
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5231.546	77.591	87.132	N/A	N/A	-9.541	AV
2		5350	48.555	56.756	-5.445	54	-8.201	AV

Site: AC5	Time: 2015/01/03 - 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	



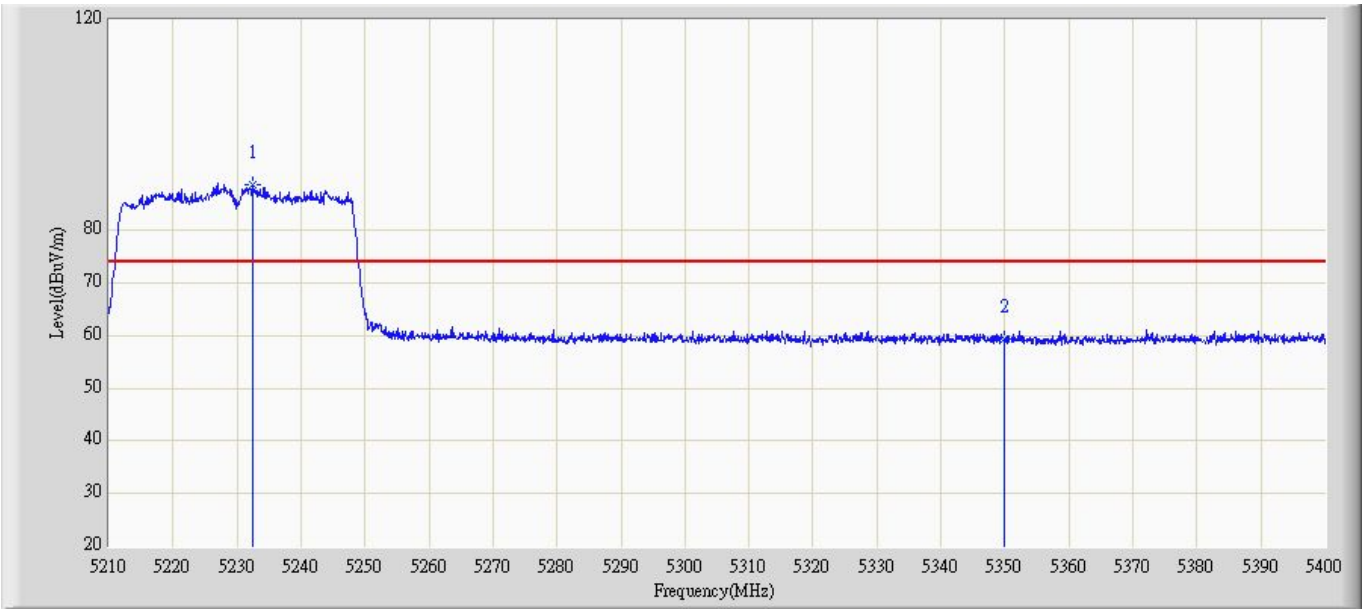
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5219.315	94.819	104.328	N/A	N/A	-9.509	PK
2		5350	59.597	67.798	-14.403	74	-8.201	PK

Site: AC5	Time: 2015/01/03 - 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	



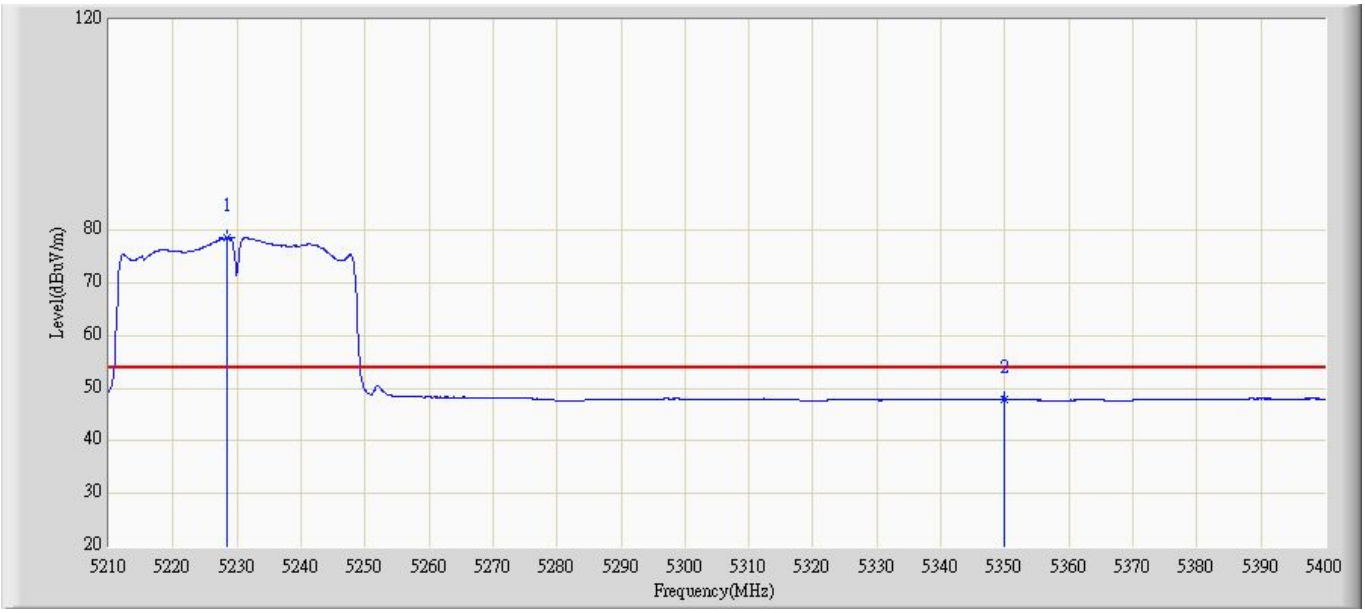
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5231.751	84.023	93.564	N/A	N/A	-9.541	AV
2		5350	47.144	55.345	-6.856	54	-8.201	AV

Site: AC5	Time: 2015/01/03 - 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	



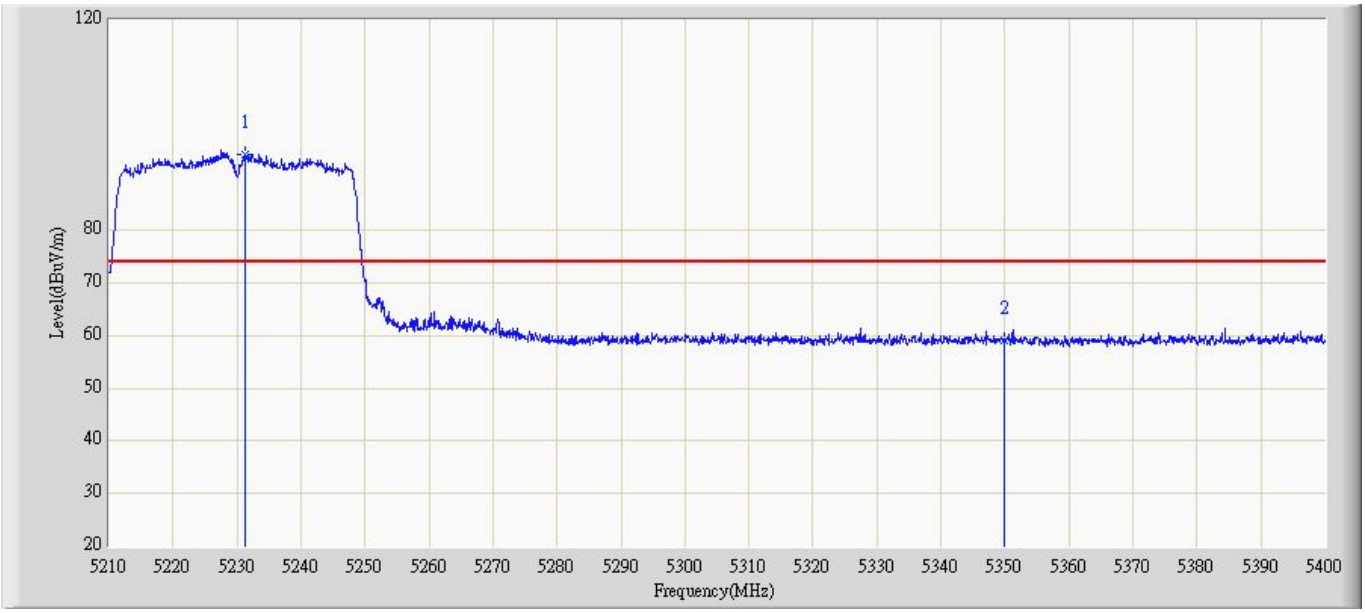
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5232.328	89.034	98.578	N/A	N/A	-9.544	PK
2		5350	58.934	67.135	-15.066	74	-8.201	PK

Site: AC5	Time: 2015/01/03 - 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	



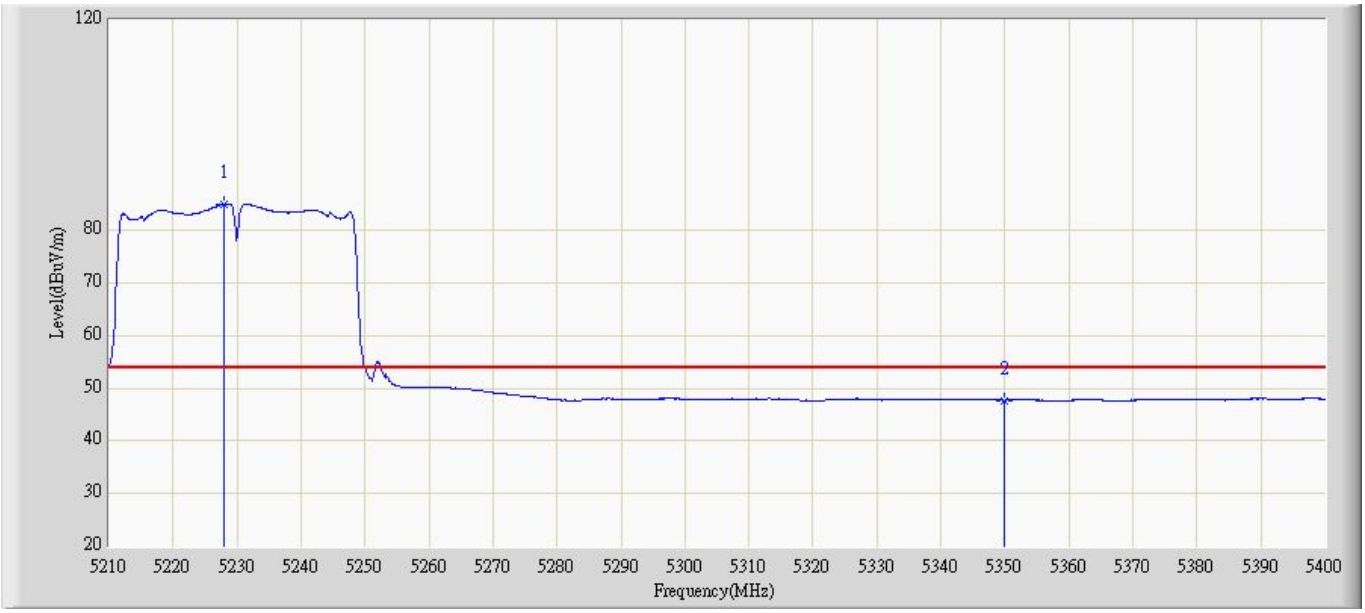
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5228.132	78.918	88.451	N/A	N/A	-9.533	AV
2		5350	48.784	56.985	-5.216	54	-8.201	AV

Site: AC5	Time: 2015/01/03 - 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	



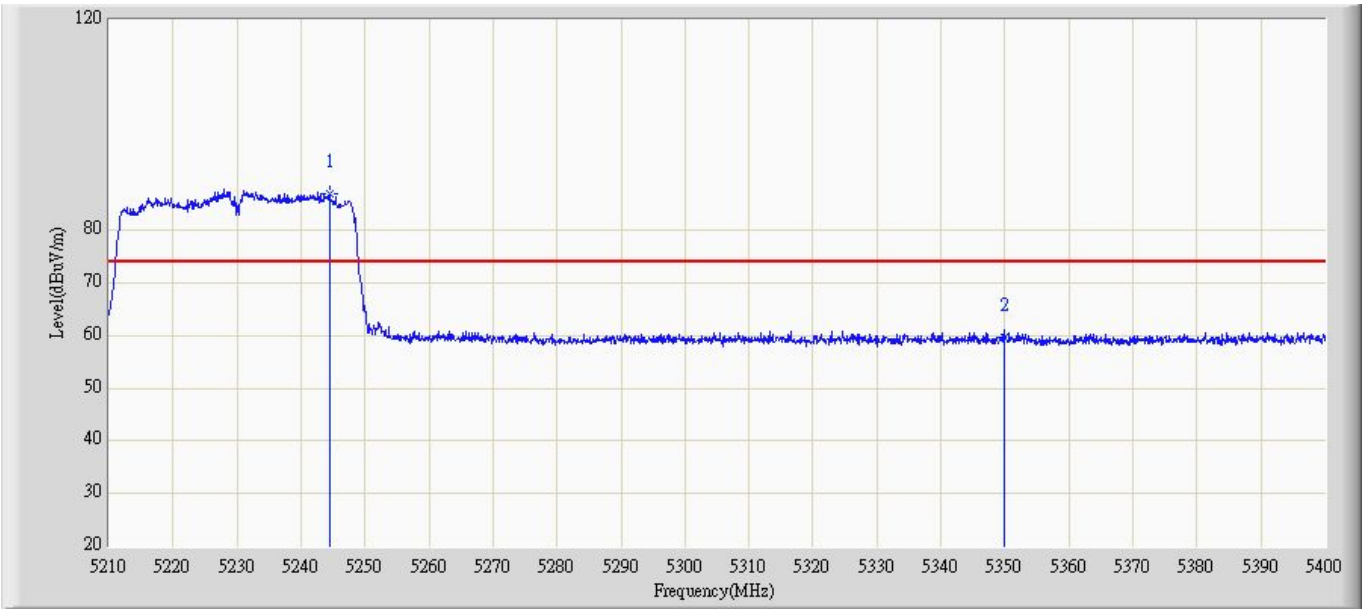
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5231.897	95.023	104.564	N/A	N/A	-9.541	PK
2		5350	59.787	67.988	-14.213	74	-8.201	PK

Site: AC5	Time: 2015/01/03 - 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	



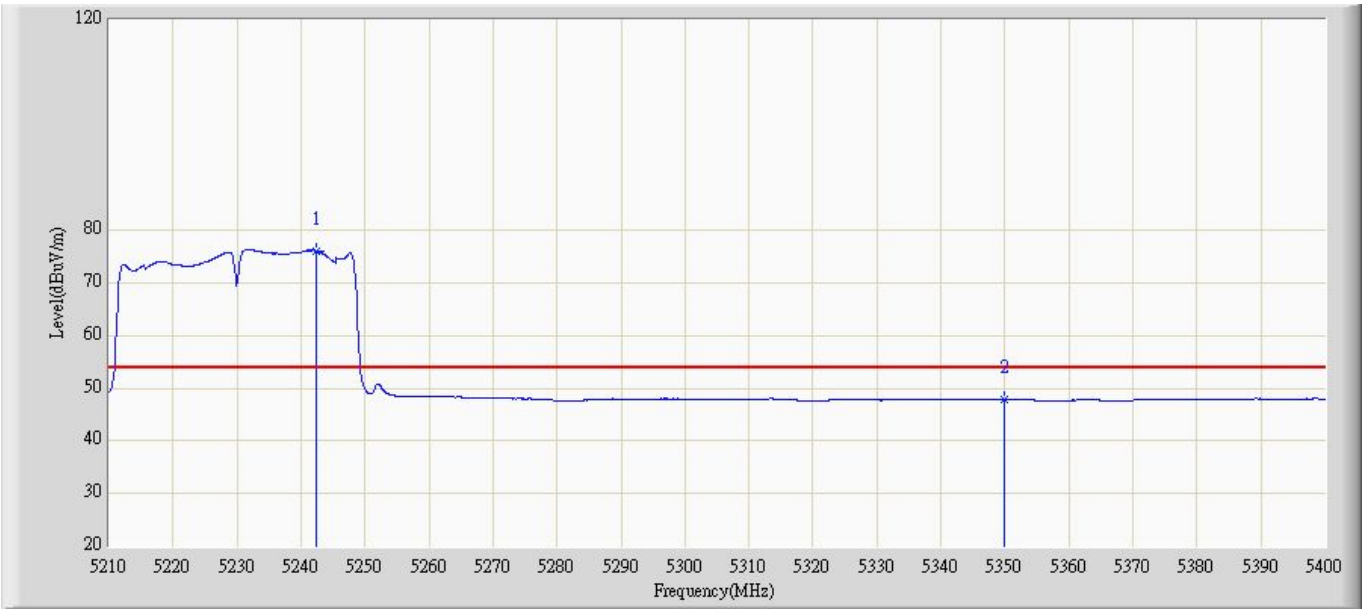
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5228.565	84.700	94.231	N/A	N/A	-9.531	AV
2		5350	47.644	55.845	-6.356	54	-8.201	AV

Site: AC5	Time: 2015/01/03 - 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	



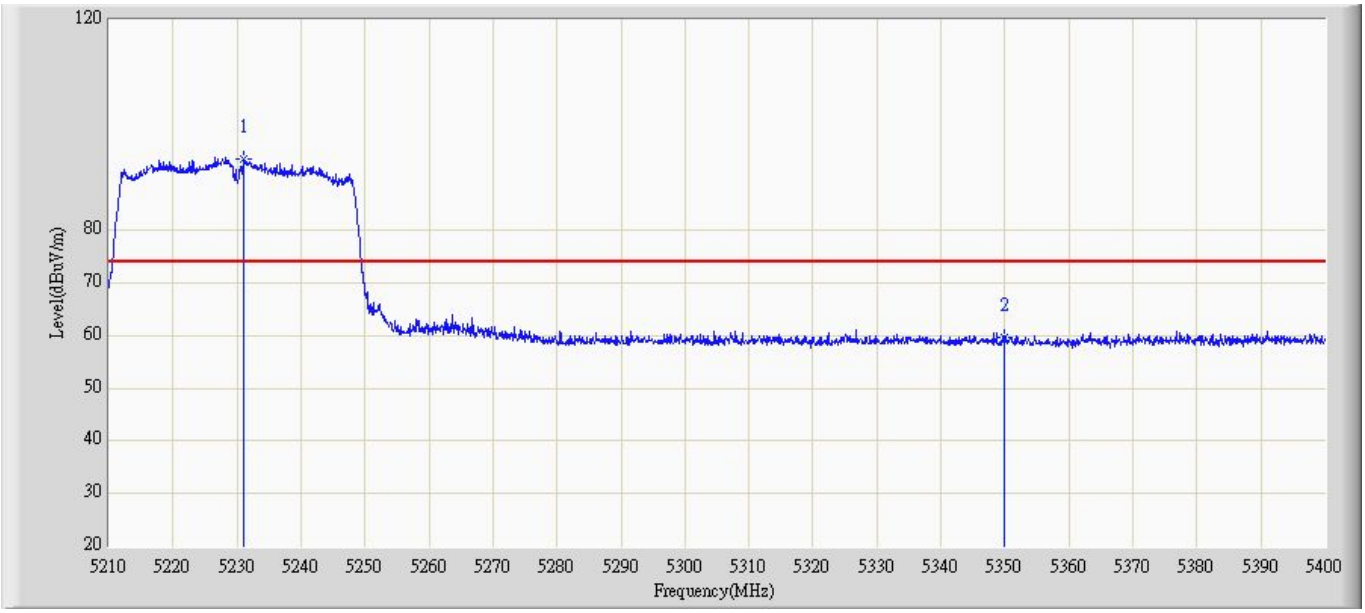
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5244.384	86.969	96.454	N/A	N/A	-9.485	PK
2		5350	58.926	67.127	-15.074	74	-8.201	PK

Site: AC5	Time: 2015/01/03 - 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	



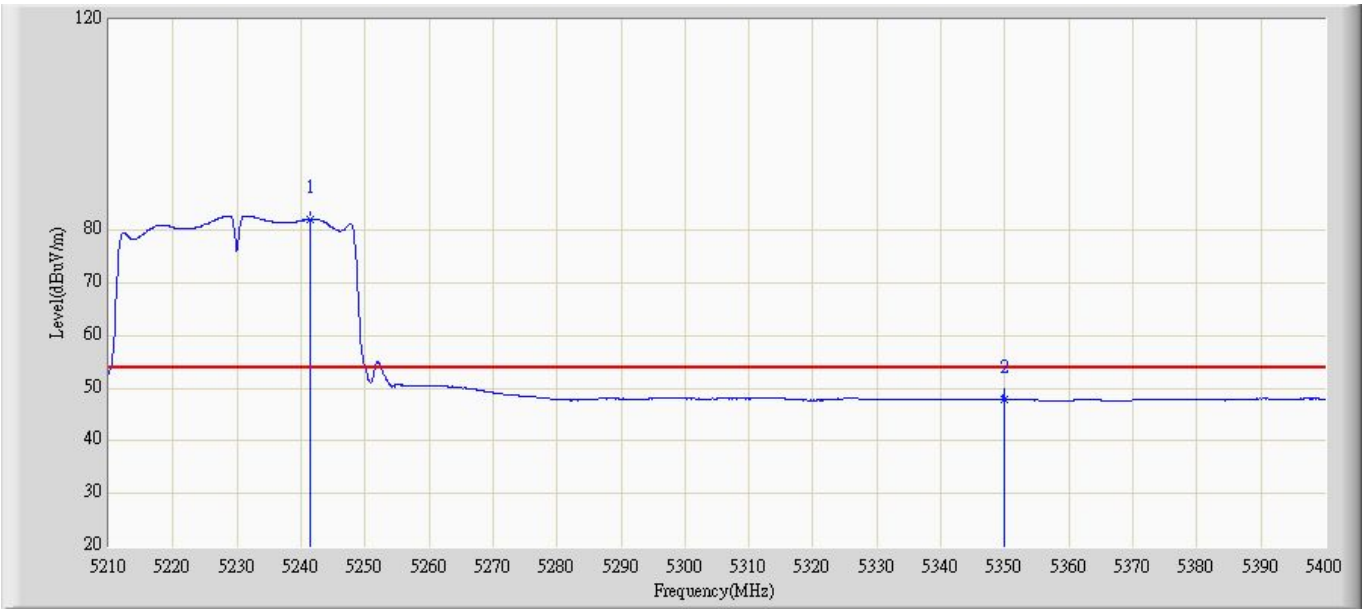
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5242.851	75.832	85.328	N/A	N/A	-9.496	AV
2		5350	47.923	56.124	-6.077	54	-8.201	AV

Site: AC5	Time: 2015/01/03 - 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	*	5231.465	93.705	103.245	N/A	N/A	-9.54	PK
2		5350	59.033	67.234	-14.967	74	-8.201	PK

Site: AC5	Time: 2015/01/03 - 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	*	5241.564	82.061	91.561	N/A	N/A	-9.5	AV
2		5350	48.363	56.564	-5.637	54	-8.201	AV

The End