Test Report

FCC Part15 Subpart C

Product Name	:	IP-STB
Model No.	:	3600X
FCC ID	:	TC2-RCB8
IC	:	5959A-RCB8

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

Date of Receipt	:	Dec. 25, 2015
Test Date	:	Dec. 26, 2015~ Jan. 12, 2016
Issued Date	:	Jan. 21 , 2016
Report No.	:	15C2073R-RF-US-P06V03
Report Version	:	V1.0

Test Report Certification

Issued Date : Jan. 21, 2016
Report No. : 15C2073R-RF-US-P06V03

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.	:	3600X
FCC ID	:	TC2-RCB8
IC		5959A-RCB8
EUT Voltage	:	DC 5V
Brand Name	:	Roku
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C: 2015 ANSI C63.4:2014; ANSI C63.10:2013; KDB 558074 D01v03r04 Industry Canada RSS-Gen Issue 4 Industry Canada RSS-247 Issue 1
Test Result	:	Complied
Performed Location	:	Quietek Corporation - Suzhou EMC Laboratory No.99 Hongye Rd., Suzhou Industrial Park, Suzhou,215006, Jiangsu, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Registration Number: 800392; IC Lab Code: 4075B

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(Engineering Manager : Harry Zhao)

Laboratory Information

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

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

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : http://www.quietek.com/english/about/certificates.aspx?bval=5
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/index_en.aspx
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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TABLE OF CONTENTS

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
15C2073R-RF-US-P06V03	V1.0	Initial Issued Report	Jan. 21, 2016

1. General Information

1.1. EUT Description

Product Name	IP-STB
Brand Name	Roku
Model No.	3600X
EUT Voltage	DC 5V
Frequency Range	**For 2.4GHz Band** 802.11b/g/n(20MHz): 2412~2462MHz 802.11n(40MHz): 2422~2452MHz **For 5GHz Band** 802.11a/n(20MHz):5180~5240MHz, 5745~5825MHz 802.11n(40MHz):5190MHz~5230MHz, 5755~5795MHz
Channel Number	**For 2.4GHz Band** 802.11b/g/n(20MHz): 11 802.11n(40MHz): 7 **For 5GHz 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	
Power Adapter #1	Brand Name: LEI M/N:MU08-P050150-A1 Input: AC 100-240V~50/60Hz 0.25A Output: DC 5V, 1.5A
Power Adapter #2	Brand Name: Chicony M/N:W15-007N1A Input: AC 100-120V~50/60Hz 0.5A Output: DC 5V, 1.5A

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

Antenna List

Antenna No.	Manufacturer	Model No.	Peak Gain
Antenna 1	TDK-EPC Corporation	ANT016008LCD2442 MA1	2.38dBi for 2.4GHz 5.54dBi for 5GHz
Antenna 2	TDK-EPC Corporation	ANT016008LCD2442 MA1	2.38dBi for 2.4GHz 5.54dBi for 5GHz

. Power Parameter Value of the test software

Test Mode	Test Channel	Ant1	Ant2	MIMO MODE(Ant1+2)
802.11b	2412	75	74	×
	2437	75	75	×
	2462	73	76	×
802.11g	2412	67	64	×
	2437	78	78	×
	2462	70	68	×
802.11n(20MHz)	2412	63	59	58
	2437	78	78	78
	2462	60	60	52
802.11n(40MHz)	2422	52	61	50
	2437	78	78	78
	2452	52	46	60

The test mode of the test software can support.

Test Mode	Test Channel	Ant1	Ant2	MIMO MODE(Ant1+2)
802.11b	2412	√	√	×
	2437	√	√	×
	2462	√	√	×
802.11g	2412	√	√	×
	2437	√	√	×
	2462	√	√	×
802.11n(20MHz)	2412	√	√	√
	2437	√	√	√
	2462	√	√	√
802.11n(40MHz)	2422	√	√	√
	2437	√	√	√
	2452	√	√	√

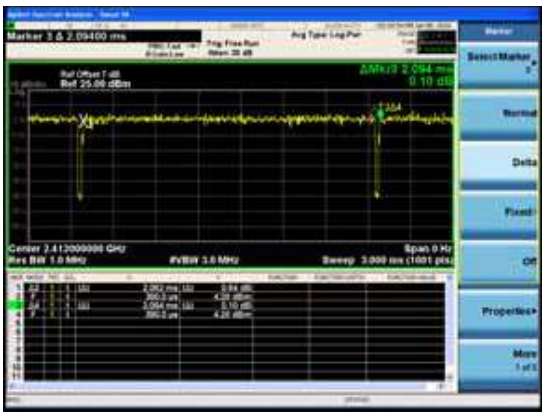
Duty Cycle

2.4GHz Band

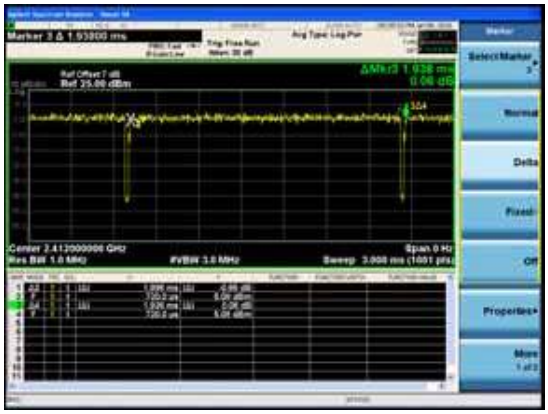
Test Mode	Duty Cycle
802.11b	99.9%
802.11g	98.0%
802.11n(20MHz)	97.8%
802.11n(40MHz)	95.6%

802.11b

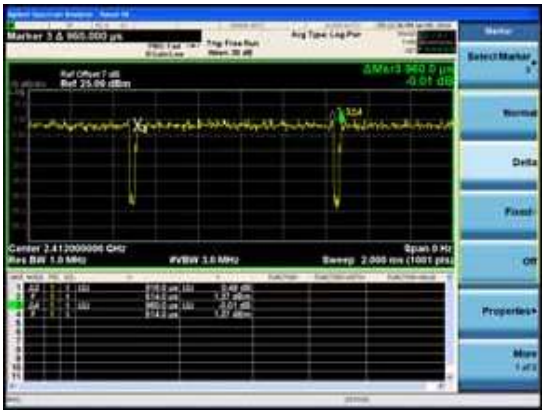
802.11g



802.11n(20MHz)



802.11n(40MHz)



1.2. Mode of Operation

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

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

Note:

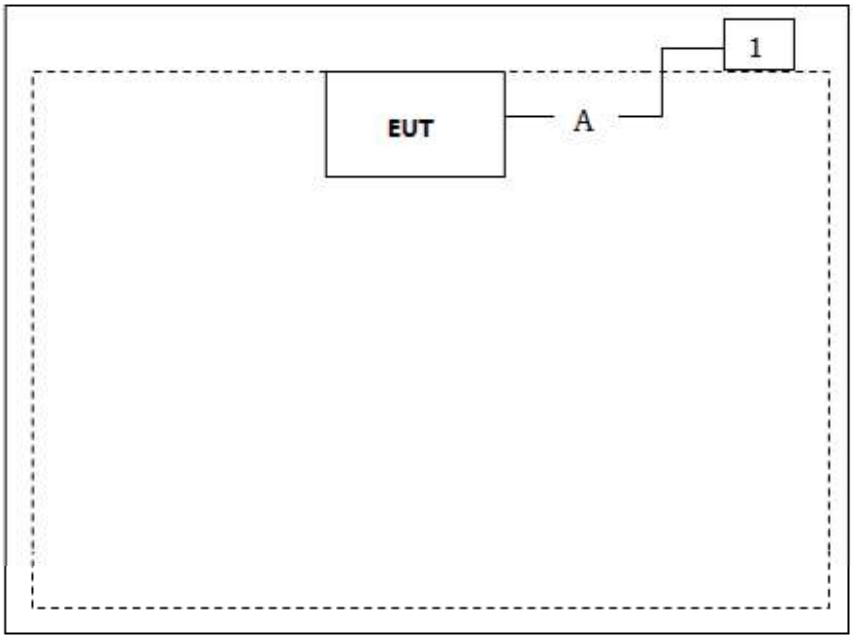
1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

2.1. Tested System Details

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

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Asus	N80V	8BN0AS226971468	N/A

2.2. Configuration of Tested System

Connection Diagram


Signal Cable Type		Signal cable Description
A	USB Cable	Control , 0.5m

2.3. EUT Exercise Software

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

3. Technical Test

3.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

For FCC

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.207	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.209	Yes	No
RF Antenna Conducted Spurious	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(d)	Yes	No
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2015 15.247(d)	Yes	No
Operation Frequency Range of 20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2015 15.215(c)	Yes	No
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(2)	Yes	No
Power Output	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(b)(3)	Yes	No
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(e)	Yes	No

For IC

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	RSS-Gen Issue 4 November 2014 Section 8.8	Yes	No
Radiated Emission	RSS-247 Issue 1 May 2015 Section 5.5	Yes	No
RF Antenna Conducted Spurious	RSS-247 Issue 1 May 2015 Section 5.5	Yes	No
Radiated Emission Band Edge	RSS-Gen Issue 4 November 2014 Section 8.10	Yes	No
Occupied Bandwidth	RSS-Gen Issue 4 November 2014 Section 6.6 RSS-247 Issue 1 May 2015 Section 5.2	Yes	No
Power Output	RSS-247 Issue 1 May 2015 Section 5.4	Yes	No
Power Spectral Density	RSS-247 Issue 1 May 2015 Section 5.2	Yes	No

3.2. 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

4. Conducted Emission

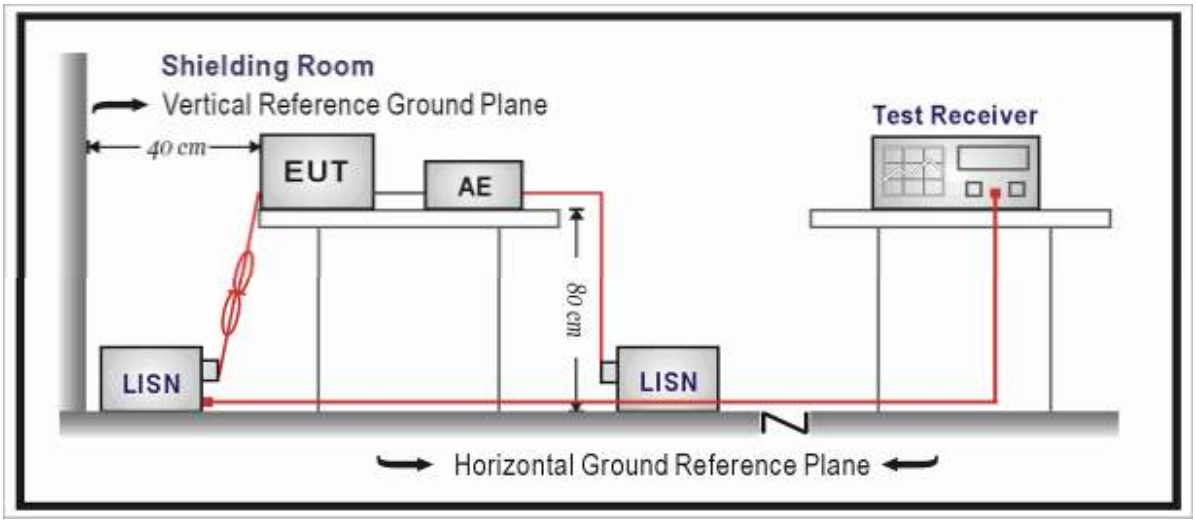
4.1. Test Equipment

Conducted Emission / TR-1

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100726	2016.03.28
Two-Line V-Network	R&S	ENV216	100043	2016.03.28
Two-Line V-Network	R&S	ENV216	100044	2016.09.16
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2016.03.01
50ohm Termination	SHX	TF2	07081401	2016.09.16
Temperature/Humidity Meter	zhicheng	ZC1-2	TR1-TH	2017.01.04

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

4.2. Test Setup



4.3. Limit

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

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

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

4.4. Test Procedure

According to FCC ANSI C63.4: 2014 & ANSI C63.10: 2013& FCC 47CFR 15.247& KDB 558074 D01v03r04& Industry Canada RSS-Gen Issue 4& RSS-247 Issue 1
According to KDB 174176 D01 Line Conducted FAQ v01r01, it is required to perform the AC power-line conducted emissions testing and demonstrate compliance with the AC power-line emission requirements in Sections 15.107 or 15.207.

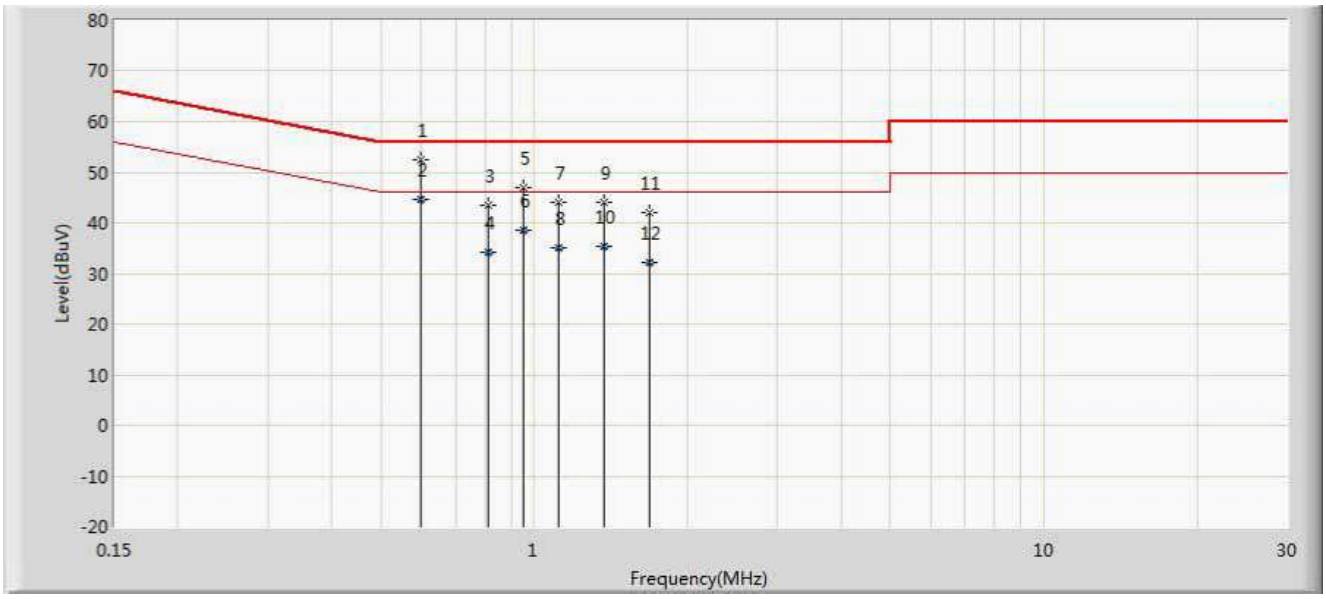
FCC&IC
The EUT was setup according to ANSI C63.4, 2014 for compliance to FCC 47CFR 15.247 requirements. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

4.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

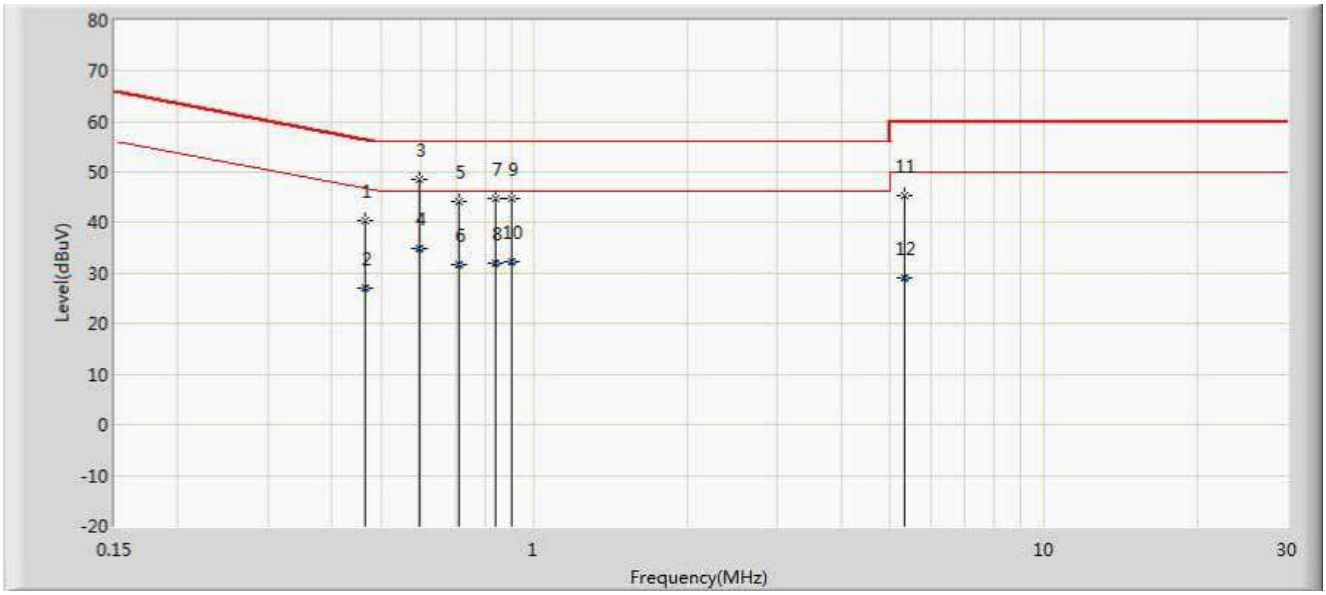
4.6. Test Result

Site: TR1	Time: 2016/01/05 - 14:35
Limit: FCC_Part15.207	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Line
EUT: IP-STB	Power: AC 120V/60HZ
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.598	52.534	42.896	-3.466	56.000	9.638	QP
2	*	0.598	44.751	35.113	-1.249	46.000	9.638	AV
3		0.814	43.565	33.918	-12.435	56.000	9.647	QP
4		0.814	34.331	24.684	-11.669	46.000	9.647	AV
5		0.954	46.975	37.314	-9.025	56.000	9.662	QP
6		0.954	38.428	28.767	-7.572	46.000	9.662	AV
7		1.114	44.099	34.436	-11.901	56.000	9.663	QP
8		1.114	35.146	25.483	-10.854	46.000	9.663	AV
9		1.374	44.074	34.401	-11.926	56.000	9.673	QP
10		1.374	35.406	25.733	-10.594	46.000	9.673	AV
11		1.686	42.132	32.445	-13.868	56.000	9.686	QP
12		1.686	32.284	22.597	-13.716	46.000	9.686	AV

Site: TR1	Time: 2016/01/05 - 14:39
Limit: FCC_Part15.207	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Neutral
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.466	40.307	30.685	-16.278	56.585	9.622	QP
2		0.466	26.834	17.212	-19.751	46.585	9.622	AV
3	*	0.594	48.423	38.782	-7.577	56.000	9.641	QP
4		0.594	34.679	25.037	-11.321	46.000	9.641	AV
5		0.710	44.102	34.440	-11.898	56.000	9.662	QP
6		0.710	31.489	21.827	-14.511	46.000	9.662	AV
7		0.838	44.577	34.925	-11.423	56.000	9.652	QP
8		0.838	31.839	22.188	-14.161	46.000	9.652	AV
9		0.902	44.496	34.848	-11.504	56.000	9.648	QP
10		0.902	32.133	22.486	-13.867	46.000	9.648	AV
11		5.314	45.076	35.314	-14.924	60.000	9.762	QP
12		5.314	28.954	19.192	-21.046	50.000	9.762	AV

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

5. Radiated Emission

5.1. Test Equipment

Radiated Emission / AC-2

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2016.03.28
Loop Antenna	R&S	HFH2-Z2	833799/003	2016.11.17
Bilog Chainenna	Teseq GmbH	CBL6112D	27611	2016.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2016.03.01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2017.01.04

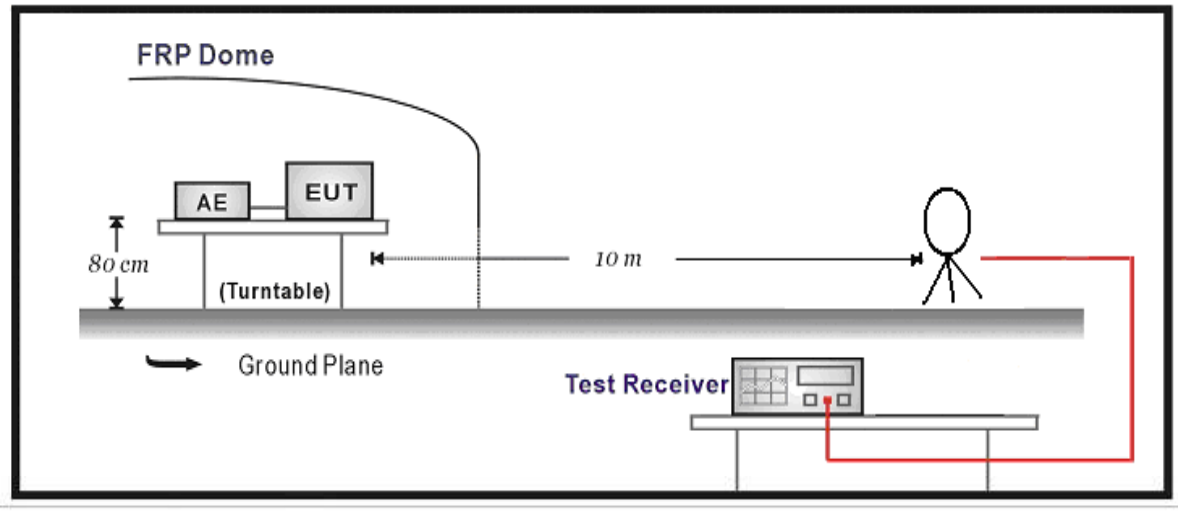
Radiated Emission / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	N9020A	MY49100159	2016.03.28
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.07
Preamplifier	Miteq	NSP1800-25	1364185	2016.05.05
Preamplifier	QuieTek	AP-040G	CHM-0906001	2016.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2016.01.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2016.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2016.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2016.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2016.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2016.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2017.01.04

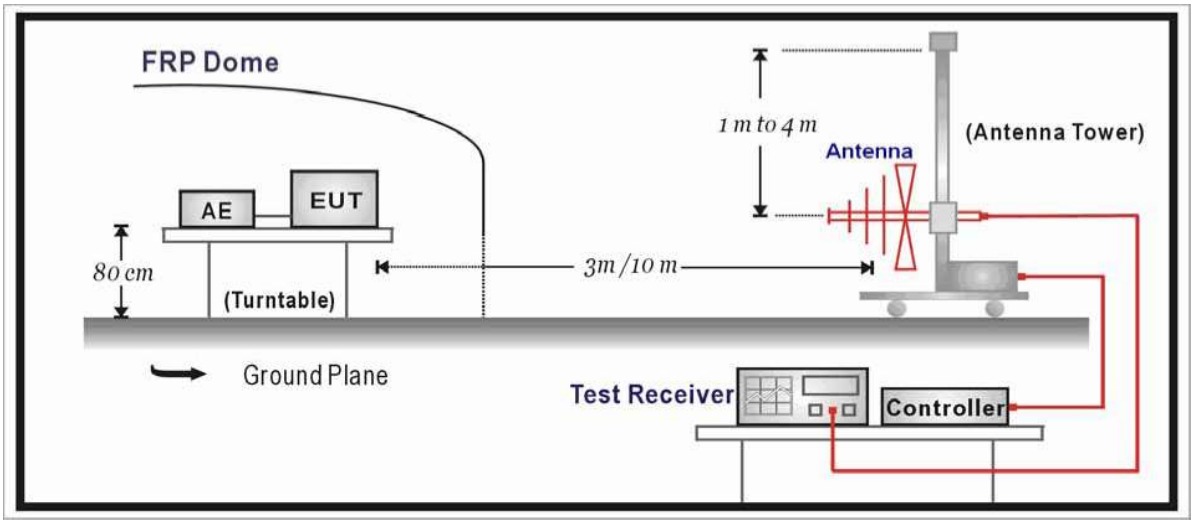
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

5.2. Test Setup

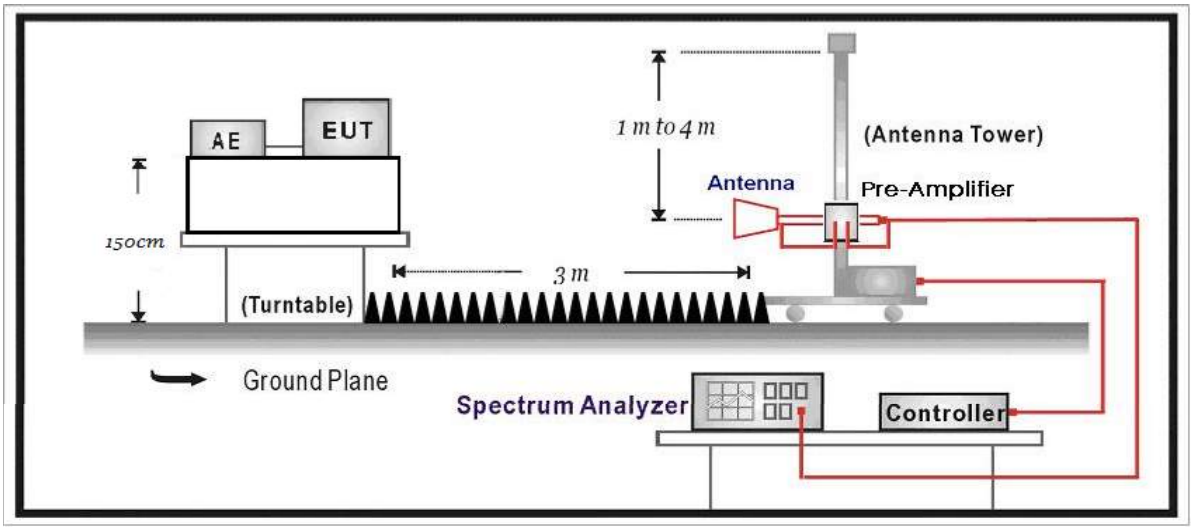
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



5.3. 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)

5.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2014 and tested according to ANSI C63.10, 2013.

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from Antenna to the EUT was 3 meters.

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

is repeated for both horizontal and vertical polarization of the Antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2014 on radiated measurement.

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

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

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.

If continuous transmission of the EUT (i.e., duty cycle ≥ 98 percent) cannot be achieved and the duty cycle is not constant (i.e., duty cycle variations exceed ± 2 percent), then the following procedure shall be used:

a) Set RBW = 1 MHz.

b) Set VBW ≥ 1/T.

c) Video bandwidth mode or display mode

1) The instrument shall be set to ensure that video filtering is applied in the power domain. Typically, this requires setting the detector mode to RMS and setting the Average-VBW Type to Power (RMS).

2) As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode.

d) Detector = Peak.

e) Sweep time = auto.

f) Trace mode = max hold.

g) Allow max hold to run for at least 50 times (1/duty cycle) traces.

5.5. Uncertainty

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

below 1G is defined as ± 3.8 dB

5.6. Test Result

Mode1: Transmit by 802.11b

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Ant 1	1	H	4824.0	38.2	8.0	46.2	54	-7.8	AV
		H	4824.0	48.8	8.0	56.8	74	-17.2	PK
		V	4824.0	43.7	8.0	51.7	54(note3)	-2.3	PK
		H	7236.0	37.3	13.0	50.3	54(note3)	-3.7	PK
		V	7236.0	36.3	13.0	49.3	54(note3)	-4.7	PK
		H	9648.0	34.3	16.1	50.4	54(note3)	-3.6	PK
		V	9648.0	30.5	16.0	46.5	54(note3)	-7.5	PK
	6	H	4874.0	36.8	8.1	44.9	54	-9.1	AV
		H	4874.0	47.1	8.2	55.3	74	-18.7	PK
		V	4874.0	41.6	8.2	49.8	54(note3)	-4.2	PK
		H	7311.0	37.4	12.5	49.9	54(note3)	-4.1	PK
		V	7311.0	33.7	12.5	46.2	54(note3)	-7.8	PK
		H	9748.0	32.2	15.9	48.1	54(note3)	-5.9	PK
		V	9748.0	30.0	15.9	45.9	54(note3)	-8.1	PK
	11	H	4924.0	45.2	8.3	53.5	54(note3)	-0.5	PK
		V	4924.0	36.7	8.3	45.0	54(note3)	-9.0	PK
		H	7386.0	38.7	12.7	51.4	54(note3)	-2.6	PK
		V	7386.0	33.7	12.7	46.4	54(note3)	-7.6	PK
		H	9848.0	31.3	16.3	47.6	54(note3)	-6.4	PK
		V	9848.0	30.4	16.3	46.7	54(note3)	-7.3	PK

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Ant 2	1	H	4824.0	40.2	8.0	48.2	54	-5.8	AV
		H	4824.0	50.4	8.0	58.4	74	-15.6	PK
		V	4824.0	41.1	8.0	49.1	54(note3)	-4.9	PK
		H	7236.0	37.8	13.0	50.8	54(note3)	-3.2	PK
		V	7236.0	33.8	13.0	46.8	54(note3)	-7.2	PK
		H	9648.0	32.1	16.0	48.1	54(note3)	-5.9	PK
		V	9648.0	30.1	16.0	46.1	54(note3)	-7.9	PK
	6	H	4874.0	39.0	8.1	47.1	54	-6.9	AV
		H	4874.0	49.6	8.2	57.8	74	-16.2	PK
		V	4874.0	37.7	8.1	45.8	54(note3)	-8.2	PK
		H	7311.0	36.5	12.7	49.2	54(note3)	-4.8	PK
		V	7311.0	33.2	12.6	45.8	54(note3)	-8.2	PK
		H	9748.0	33.6	15.9	49.5	54(note3)	-4.5	PK
		V	9748.0	30.4	15.9	46.3	54(note3)	-7.7	PK
	11	H	4924.0	45.5	8.3	53.8	54(note3)	-0.2	PK
		V	4924.0	35.4	8.3	43.7	54(note3)	-10.3	PK
		H	7386.0	44.3	12.8	57.1	74	-16.9	PK
		H	7386.0	33.5	12.7	46.2	54	-7.8	AV
		V	7386.0	36.3	12.7	49.0	54(note3)	-5.0	PK
		H	9848.0	32.2	16.3	48.5	54(note3)	-5.5	PK
		V	9848.0	31.0	16.3	47.3	54(note3)	-6.7	PK

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

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

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

Mode2: Transmit by 802.11g

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Ant 1	1	H	4824.0	44.7	8.0	52.7	54(note3)	-1.3	PK
		V	7236.0	38.1	8.0	46.1	54(note3)	-7.9	PK
		H	7236.0	32.5	13.0	45.5	54(note3)	-8.5	PK
		V	9648.0	32.7	13.0	45.7	54(note3)	-8.3	PK
		H	9648.0	30.3	16.0	46.3	54(note3)	-7.7	PK
		V	4824.0	30.3	16.0	46.3	54(note3)	-7.7	PK
	6	H	4824.0	44.1	8.2	52.3	54(note3)	-1.7	PK
		V	4824.0	38.9	8.1	47.0	54(note3)	-7.0	PK
		H	7236.0	36.1	12.6	48.7	54(note3)	-5.3	PK
		V	7236.0	32.6	12.6	45.2	54(note3)	-8.8	PK
		H	9648.0	30.9	15.9	46.8	54(note3)	-7.2	PK
		V	9648.0	30.5	15.9	46.4	54(note3)	-7.6	PK
	11	H	4924.0	44.2	8.3	52.5	54(note3)	-1.5	PK
		V	4924.0	36.6	8.3	44.9	54(note3)	-9.1	PK
		H	7386.0	34.6	12.7	47.3	54(note3)	-6.7	PK
		V	7386.0	32.2	12.7	44.9	54(note3)	-9.1	PK
		H	9848.0	30.3	16.3	46.6	54(note3)	-7.4	PK
		V	9848.0	30.4	16.3	46.7	54(note3)	-7.3	PK

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Ant 2	1	H	4824.0	45.9	8.0	53.9	54(note3)	-0.1	PK
		V	4824.0	36.2	8.0	44.2	54(note3)	-9.8	PK
		H	7236.0	33.3	13.0	46.3	54(note3)	-7.7	PK
		V	7236.0	32.3	13.0	45.3	54(note3)	-8.7	PK
		H	9648.0	30.2	16.0	46.2	54(note3)	-7.8	PK
		V	9648.0	29.7	16.0	45.7	54(note3)	-8.3	PK
	6	H	4874.0	45.8	8.1	53.9	54(note3)	0.1	PK
		V	4874.0	35.8	8.1	43.9	54(note3)	-10.1	PK
		H	7311.0	34.5	12.6	47.1	54(note3)	-6.9	PK
		V	7311.0	32.2	12.6	44.8	54(note3)	-9.2	PK
		H	9748.0	31.3	15.9	47.2	54(note3)	-6.8	PK
		V	9748.0	30.0	15.9	45.9	54(note3)	-8.1	PK
	11	H	4924.0	43.6	8.3	51.9	54(note3)	-2.1	PK
		V	4924.0	35.1	8.3	43.4	54(note3)	-10.6	PK
		H	7386.0	38.6	12.7	51.3	54(note3)	-2.7	PK
		V	7386.0	32.4	12.7	45.1	54(note3)	-8.9	PK
		H	9848.0	30.8	16.3	47.1	54(note3)	-6.9	PK
		V	9848.0	30.4	16.3	46.7	54(note3)	-7.3	PK

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

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

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

Mode3: Transmit by 802.11n(20MHz)

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Ant 1	1	H	4824.0	43.2	8.0	51.2	54(note3)	-2.8	PK
		V	4824.0	38.1	8.0	46.1	54(note3)	-7.9	PK
		H	7236.0	32.9	13.0	45.9	54(note3)	-8.1	PK
		V	7236.0	32.3	13.0	45.3	54(note3)	-8.7	PK
		H	9648.0	31.0	16.0	47.0	54(note3)	-7.0	PK
		V	9648.0	30.7	16.0	46.7	54(note3)	-7.3	PK
	6	H	4874.0	42.6	8.2	50.8	54(note3)	-3.2	PK
		V	4874.0	38.8	8.1	46.9	54(note3)	-7.1	PK
		H	7311.0	35.1	12.6	47.7	54(note3)	-6.3	PK
		V	7311.0	32.7	12.6	45.3	54(note3)	-8.7	PK
		H	9748.0	30.2	15.9	46.1	54(note3)	-7.9	PK
		V	9748.0	31.3	15.9	47.2	54(note3)	-6.8	PK
	11	H	4924.0	42.0	8.3	50.3	54(note3)	-3.7	PK
		V	4924.0	35.0	8.3	43.3	54(note3)	-10.7	PK
		H	7386.0	32.4	12.7	45.1	54(note3)	-8.9	PK
		V	7386.0	32.7	12.7	45.4	54(note3)	-8.6	PK
		H	9848.0	30.9	16.3	47.2	54(note3)	-6.8	PK
		V	9848.0	30.6	16.3	46.9	54(note3)	-7.1	PK

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Ant 2	1	H	4824.0	45.3	8.0	53.3	54(note3)	-0.7	PK
		V	4824.0	35.8	8.0	43.8	54(note3)	-10.2	PK
		H	7236.0	32.8	13.0	45.8	54(note3)	-8.2	PK
		V	7236.0	32.4	13.0	45.4	54(note3)	-8.6	PK
		H	9648.0	30.2	16.0	46.2	54(note3)	-7.8	PK
		V	9648.0	30.3	16.0	46.3	54(note3)	-7.7	PK
	6	H	4874.0	46.3	8.1	54.4	74	-19.6	PK
		H	4874.0	35.2	8.1	43.3	54	-10.7	AV
		V	4874.0	36.0	8.1	44.1	54(note3)	-9.9	PK
		H	7311.0	34.9	12.6	47.5	54(note3)	-6.5	PK
		V	7311.0	32.6	12.6	45.2	54(note3)	-8.8	PK
		H	9748.0	30.5	15.9	46.4	54(note3)	-7.6	PK
		V	9748.0	30.0	15.9	45.9	54(note3)	-8.1	PK
	11	H	4924.0	43.7	8.3	52.0	54(note3)	-2.0	PK
		V	4924.0	35.8	8.3	44.1	54(note3)	-9.9	PK
		H	7386.0	35.3	12.7	48.0	54(note3)	-6.0	PK
		V	7386.0	33.1	12.7	45.8	54(note3)	-8.2	PK
		H	9848.0	31.0	16.3	47.3	54(note3)	-6.7	PK
		V	9848.0	31.9	16.3	48.2	54(note3)	-5.8	PK

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Ant 1+2	1	H	4824.0	34.9	8.0	42.9	54(note3)	-11.1	PK
		V	4824.0	34.1	8.0	42.1	54(note3)	-11.9	PK
		H	7236.0	34.5	13.0	47.5	54(note3)	-6.5	PK
		V	7236.0	32.2	13.0	45.2	54(note3)	-8.8	PK
		H	9648.0	30.5	16.0	46.5	54(note3)	-7.5	PK
		V	9648.0	30.1	16.0	46.1	54(note3)	-7.9	PK
	6	H	4874.0	36.7	8.1	44.8	54(note3)	-9.2	PK
		V	4874.0	34.1	8.1	42.2	54(note3)	-11.8	PK
		H	7311.0	39.4	12.6	52.0	54(note3)	-2.0	PK
		V	7311.0	33.5	12.6	46.1	54(note3)	-7.9	PK
		H	9748.0	30.3	15.9	46.2	54(note3)	-7.8	PK
		V	9748.0	30.5	15.9	46.4	54(note3)	-7.6	PK
	11	H	4924.0	33.7	8.3	42.0	54(note3)	-12.0	PK
		V	4924.0	35.5	8.2	43.7	54(note3)	-10.3	PK
		H	7386.0	32.7	12.7	45.4	54(note3)	-8.6	PK
		V	7386.0	32.7	12.8	45.5	54(note3)	-8.5	PK
		H	9848.0	30.1	16.3	46.4	54(note3)	-7.6	PK
		V	9848.0	30.1	16.3	46.4	54(note3)	-7.6	PK

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

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

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

Mode4: Transmit by 802.11n(40MHz)

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Ant 1	3	H	4844.0	38.1	8.2	46.3	54(note3)	-7.7	PK
		V	4844.0	35.2	8.2	43.4	54(note3)	-10.6	PK
		H	7266.0	32.5	12.8	45.3	54(note3)	-8.7	PK
		V	7266.0	32.5	12.8	45.3	54(note3)	-8.7	PK
		H	9688.0	30.0	15.7	45.7	54(note3)	-8.3	PK
		V	9688.0	30.3	15.7	46.0	54(note3)	-8.0	PK
	6	H	4874.0	39.6	8.1	47.7	54(note3)	-6.3	PK
		V	4874.0	35.7	8.1	43.8	54(note3)	-10.2	PK
		H	7311.0	36.0	12.6	48.6	54(note3)	-5.4	PK
		V	7311.0	33.1	12.6	45.7	54(note3)	-8.3	PK
		H	9748.0	30.4	15.9	46.3	54(note3)	-7.7	PK
		V	9748.0	29.9	15.9	45.8	54(note3)	-8.2	PK
	9	H	4904.0	38.3	8.3	46.6	54(note3)	-7.4	PK
		V	4904.0	34.1	8.3	42.4	54(note3)	-11.6	PK
		H	7356.0	32.3	13.3	45.6	54(note3)	-8.4	PK
		V	7356.0	31.8	13.3	45.1	54(note3)	-8.9	PK
		H	9808.0	30.1	16.0	46.1	54(note3)	-7.9	PK
		V	9808.0	29.7	16.0	45.7	54(note3)	-8.3	PK

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Ant 2	3	H	4844.0	43.2	8.2	51.4	54(note3)	-2.6	PK
		V	4844.0	37.0	8.2	45.2	54(note3)	-8.8	PK
		H	7266.0	32.0	12.8	44.8	54(note3)	-9.2	PK
		V	7266.0	32.1	12.8	44.9	54(note3)	-9.1	PK
		H	9688.0	29.9	15.7	45.6	54(note3)	-8.4	PK
		V	9688.0	30.1	15.7	45.8	54(note3)	-8.2	PK
	6	H	4874.0	43.2	8.1	51.3	54(note3)	-2.7	PK
		V	4874.0	36.7	8.1	44.8	54(note3)	-9.2	PK
		H	7311.0	33.6	12.6	46.2	54(note3)	-7.8	PK
		V	7311.0	32.6	12.6	45.2	54(note3)	-8.8	PK
		H	9748.0	30.9	15.9	46.8	54(note3)	-7.2	PK
		V	9748.0	30.6	15.9	46.5	54(note3)	-7.5	PK
	9	H	4904.0	40.9	8.3	49.2	54(note3)	-4.8	PK
		V	4904.0	35.0	8.3	43.3	54(note3)	-10.7	PK
		H	7356.0	32.3	13.3	45.6	54(note3)	-8.4	PK
		V	7356.0	32.4	13.3	45.7	54(note3)	-8.3	PK
		H	9808.0	30.2	16.0	46.2	54(note3)	-7.8	PK
		V	9808.0	30.1	16.0	46.1	54(note3)	-7.9	PK

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Ant 1+2	3	H	4844.0	35.5	8.2	43.7	54(note3)	-10.3	PK
		V	4844.0	34.1	8.2	42.3	54(note3)	-11.7	PK
		H	7266.0	32.7	12.8	45.5	54(note3)	-8.5	PK
		V	7266.0	32.1	12.8	44.9	54(note3)	-9.1	PK
		H	9688.0	30.1	15.7	45.8	54(note3)	-8.2	PK
		V	9688.0	29.5	15.7	45.2	54(note3)	-8.8	PK
	6	H	4874.0	35.7	8.1	43.8	54(note3)	-10.2	PK
		V	4874.0	34.1	8.1	42.2	54(note3)	-11.8	PK
		H	7311.0	38.3	12.6	50.9	54(note3)	-3.1	PK
		V	7311.0	33.2	12.6	45.8	54(note3)	-8.2	PK
		H	9748.0	29.9	15.9	45.8	54(note3)	-8.2	PK
		V	9748.0	30.7	15.9	46.6	54(note3)	-7.4	PK
	9	H	4904.0	34.5	8.3	42.8	54(note3)	-11.2	PK
		V	4904.0	34.3	8.3	42.6	54(note3)	-11.4	PK
		H	7356.0	34.0	13.3	47.3	54(note3)	-6.7	PK
		V	7356.0	32.6	13.3	45.9	54(note3)	-8.1	PK
		H	9808.0	29.5	16.0	45.5	54(note3)	-8.5	PK
		V	9808.0	29.6	16.0	45.6	54(note3)	-8.4	PK

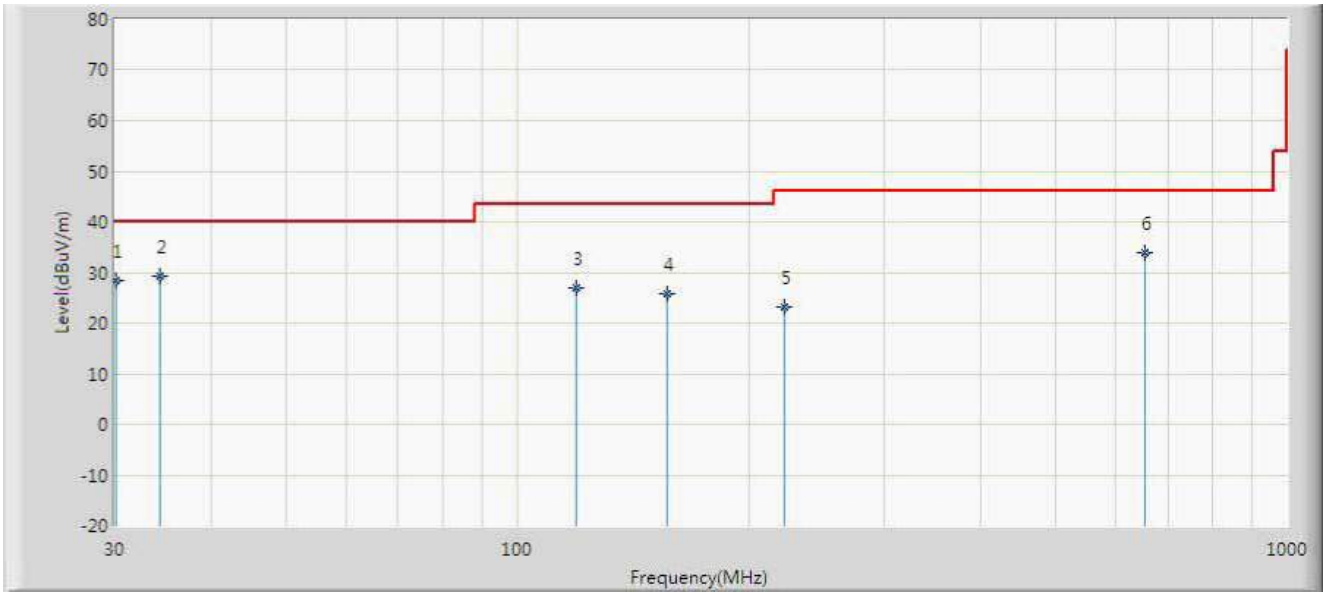
Note: 1. Measure Level = Reading Level + Factor.

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

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

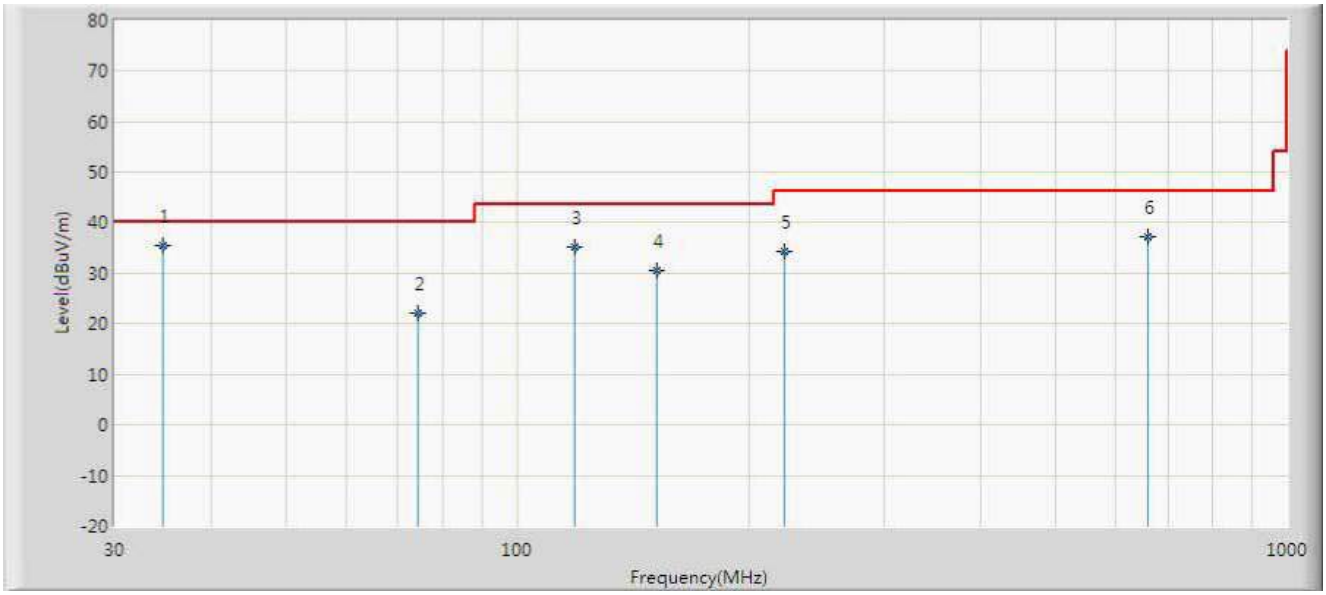
The worst case of Radiated Emission below 1GHz:

Site: AC2	Time: 2015/12/30
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: AC2_10M(30-1000M)20150408	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		30.154	28.516	0.840	-11.484	40.000	27.676	QP
2	*	34.365	29.362	2.010	-10.638	40.000	27.352	QP
3		119.240	26.936	10.230	-16.564	43.500	16.706	QP
4		156.320	25.708	8.560	-17.792	43.500	17.148	QP
5		222.356	23.289	5.430	-22.711	46.000	17.858	QP
6		654.316	33.887	5.230	-12.113	46.000	28.657	QP

Site: AC2	Time: 2015/12/30
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: AC2_10M(30-1000M)20150408	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	34.719	35.243	12.253	-4.757	40.000	22.991	QP
2		74.256	22.159	8.110	-17.841	40.000	14.049	QP
3		118.750	34.979	14.230	-8.521	43.500	20.749	QP
4		152.065	30.577	12.330	-12.923	43.500	18.247	QP
5		222.360	34.251	12.060	-11.749	46.000	22.190	QP
6		658.260	36.969	7.650	-9.031	46.000	29.319	QP

6. RF Antenna Conducted Spurious

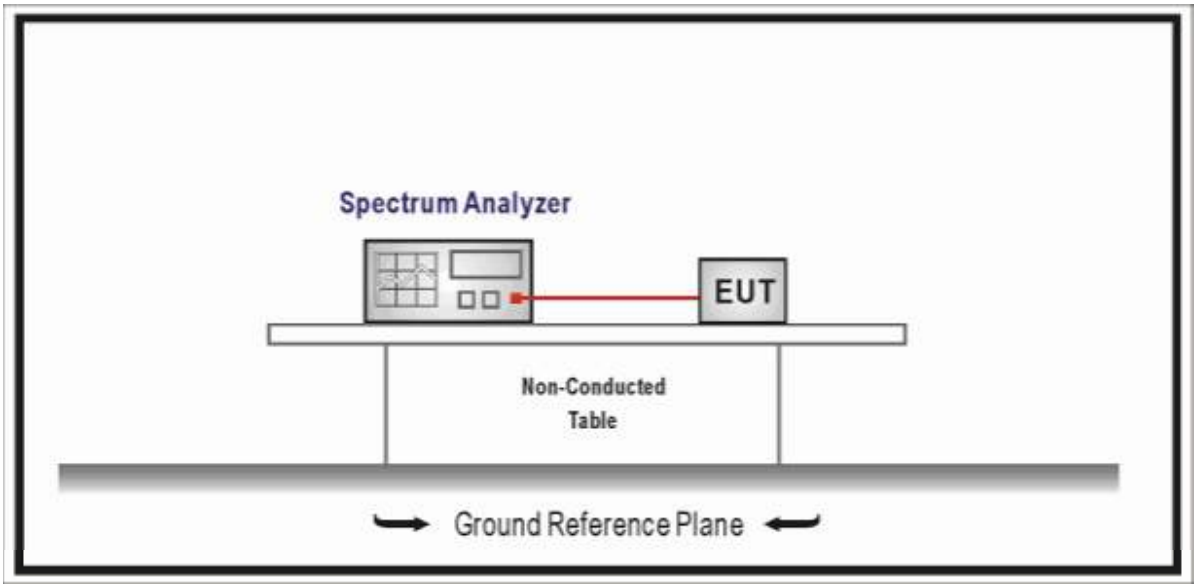
6.1. Test Equipment

RF Antenna Conducted Spurious / TR-8

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

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

6.2. Test Setup



6.3. Limit

FCC&IC

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

6.4. Test Procedure

According to FCC ANSI C63.4: 2014 & ANSI C63.10: 2013& FCC 47CFR 15.247& KDB 558074 D01v03r04& Industry Canada RSS-Gen Issue 4& RSS-247 Issue 1

Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

6.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

6.6. Test Result

Product	:	IP-STB
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

Channel 01 (2412MHz)-Ant 1

Reference Level – Frequency L

Low Band Edge - Frequency L

Spurious Emission 30MHz ~ 25GHz - Frequency L

Channel 06 (2437MHz)-Ant 1

Reference Level – Frequency M

Spurious Emission 30MHz ~ 25GHz - Frequency M

Channel 11 (2462MHz)-Ant 1

Reference Level – Frequency H

High Band Edge - Frequency H

Spurious Emission 30MHz ~ 25GHz - Frequency H

Channel 01 (2412MHz)-Ant 2

Reference Level – Frequency L

Low Band Edge - Frequency L

Spurious Emission 30MHz ~ 25GHz - Frequency L

Channel 06 (2437MHz)-Ant 2

Reference Level – Frequency M

Spurious Emission 30MHz ~ 25GHz - Frequency M

Channel 11 (2462MHz)-Ant 2

Reference Level – Frequency H

High Band Edge - Frequency H

Spurious Emission 30MHz ~ 25GHz - Frequency H

Product	:	IP-STB
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

Channel 01 (2412MHz)-Ant 1

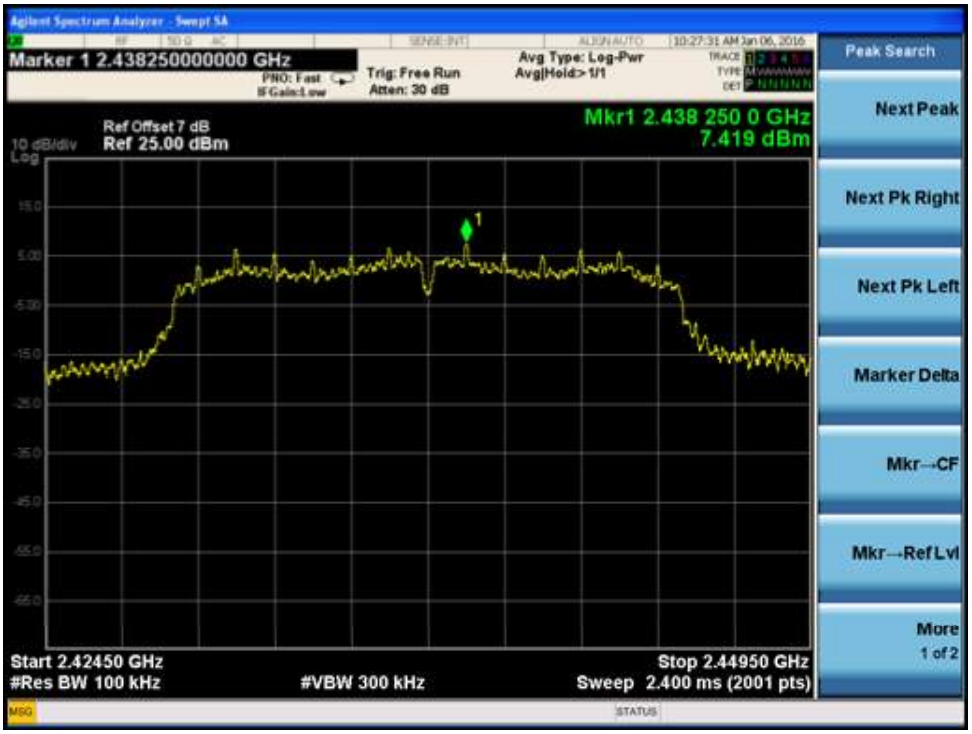
Reference Level – Frequency L

Low Band Edge - Frequency L

Spurious Emission 30MHz ~ 25GHz - Frequency L

Channel 06 (2437MHz)-Ant 1

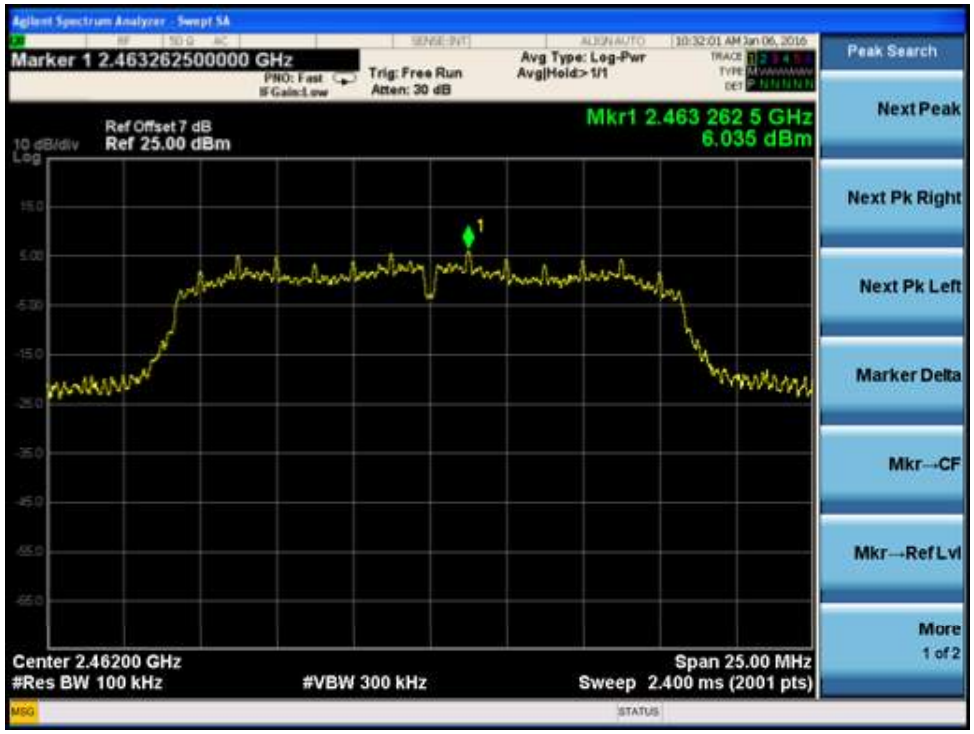
Reference Level – Frequency M



Spurious Emission 30MHz ~ 25GHz - Frequency M

Channel 11 (2462MHz)-Ant 1

Reference Level – Frequency H

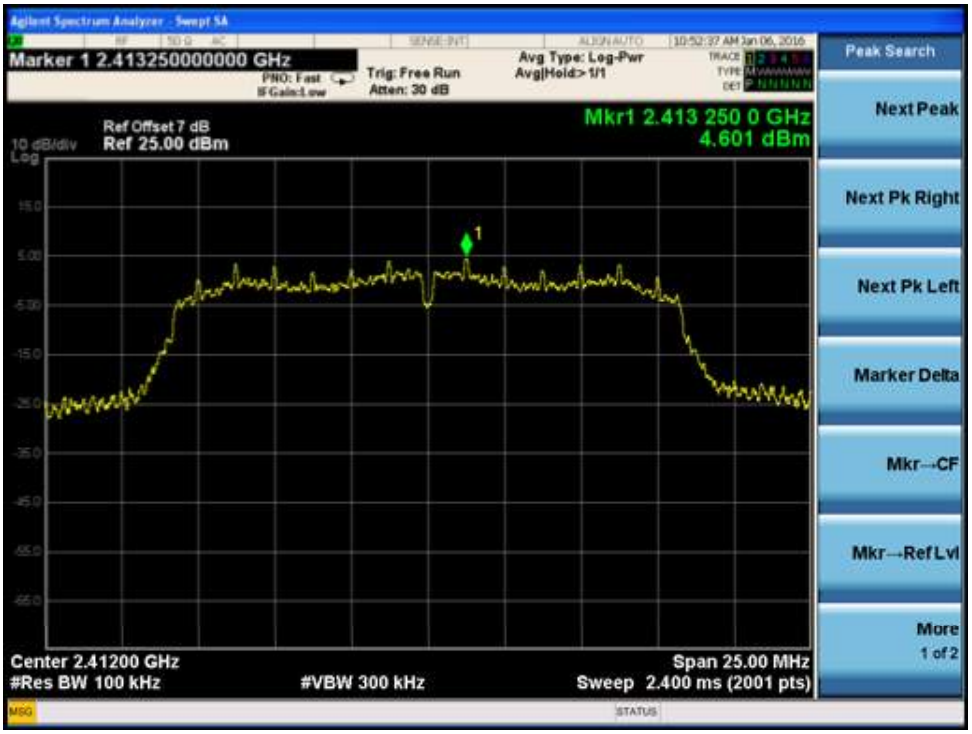


High Band Edge - Frequency H

Spurious Emission 30MHz ~ 25GHz - Frequency H

Channel 01 (2412MHz) –Ant 2

Reference Level – Frequency L

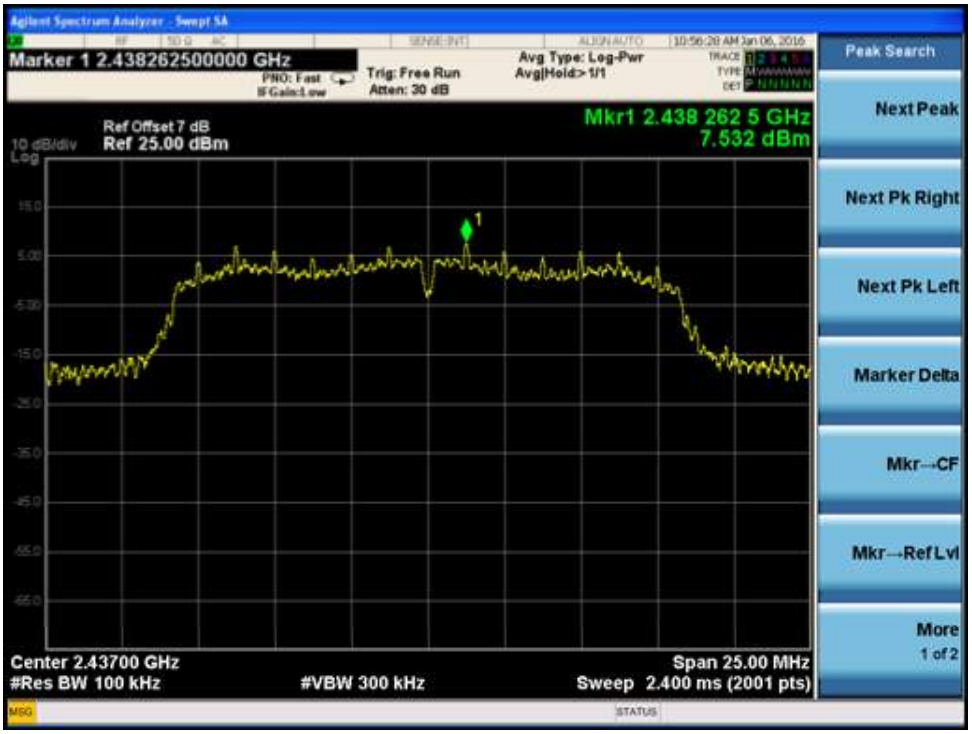


Low Band Edge - Frequency L

Spurious Emission 30MHz ~ 25GHz - Frequency L

Channel 06 (2437MHz) –Ant 2

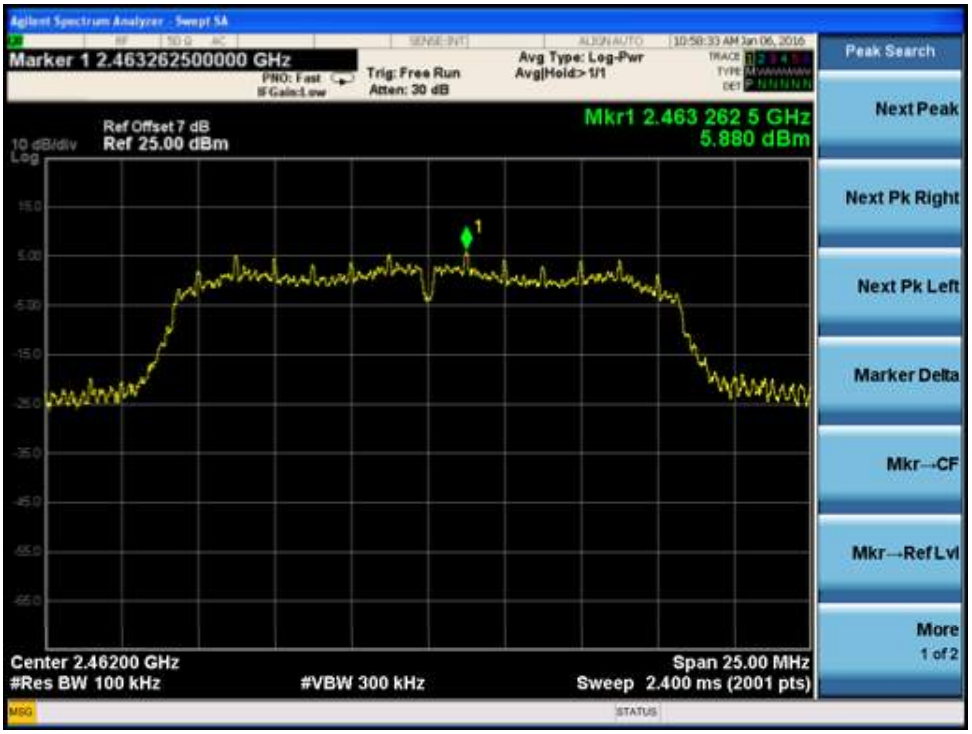
Reference Level – Frequency M



Spurious Emission 30MHz ~ 25GHz - Frequency M

Channel 11 (2462MHz) –Ant 2

Reference Level – Frequency H



High Band Edge - Frequency H

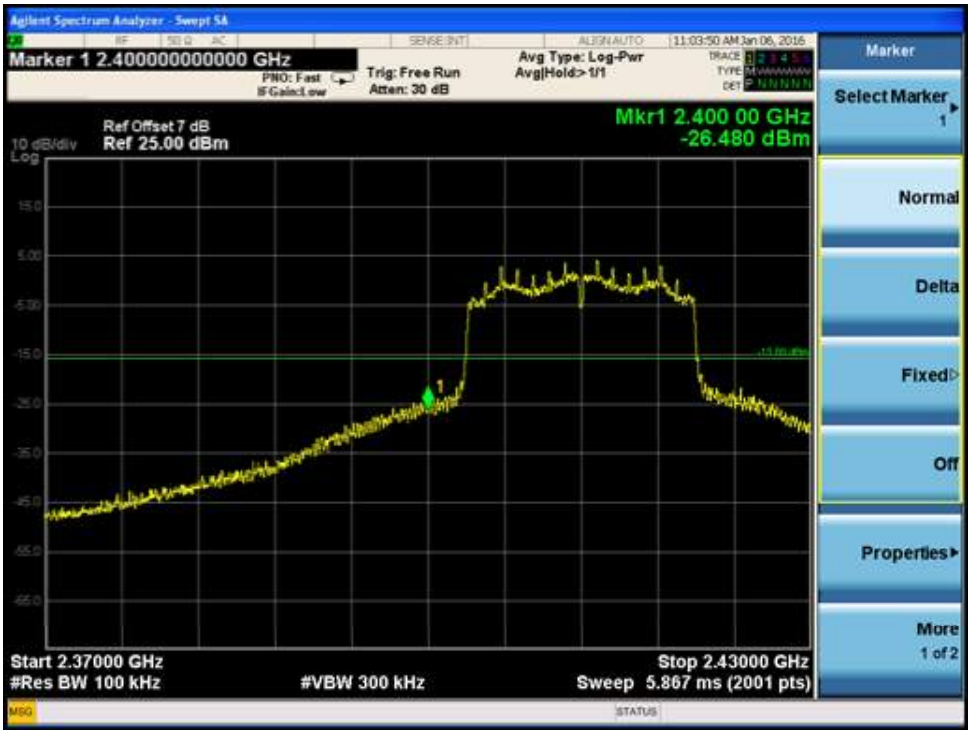
Spurious Emission 30MHz ~ 25GHz - Frequency H

Product	:	IP-STB
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel 01 (2412MHz)-Ant 1

Reference Level – Frequency L

Low Band Edge - Frequency L



Spurious Emission 30MHz ~ 25GHz - Frequency L

Channel 06(2437MHz)-Ant 1

Reference Level – Frequency M

Spurious Emission 30MHz ~ 25GHz - Frequency M

Channel 11 (2462MHz)-Ant 1

Reference Level – Frequency H

High Band Edge - Frequency H

Spurious Emission 30MHz ~ 25GHz - Frequency H

Channel 01 (2412MHz)-Ant 2

Reference Level – Frequency L

Low Band Edge - Frequency L

Spurious Emission 30MHz ~ 25GHz - Frequency L

Channel 06 (2437MHz)-Ant 2

Reference Level – Frequency M

Spurious Emission 30MHz ~ 25GHz - Frequency M

Channel 11 (2462MHz)-Ant 2

Reference Level – Frequency H

High Band Edge - Frequency H

SSpurious Emission 30MHz ~ 25GHz - Frequency H

Channel 01 (2412MHz)-MIMO-Ant 1

Reference Level – Frequency L

Low Band Edge - Frequency L

Spurious Emission 30MHz ~ 25GHz - Frequency L

Channel 06(2437MHz)-MIMO-Ant 1

Reference Level – Frequency M

Spurious Emission 30MHz ~ 25GHz - Frequency M

Channel 11 (2462MHz) -MIMO-Ant 1

Reference Level – Frequency H

High Band Edge - Frequency H

Spurious Emission 30MHz ~ 25GHz - Frequency H

Channel 01 (2412MHz) -MIMO-Ant 2

Reference Level – Frequency L

Low Band Edge - Frequency L

Spurious Emission 30MHz ~ 25GHz - Frequency L

Channel 06 (2437MHz) -MIMO-Ant 2

Reference Level – Frequency M

Spurious Emission 30MHz ~ 25GHz - Frequency M

Channel 11 (2462MHz) -MIMO-Ant 2

Reference Level – Frequency H

High Band Edge - Frequency H

SSpurious Emission 30MHz ~ 25GHz - Frequency H

Product	:	IP-STB
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

Channel 03 (2422MHz)-Ant 1

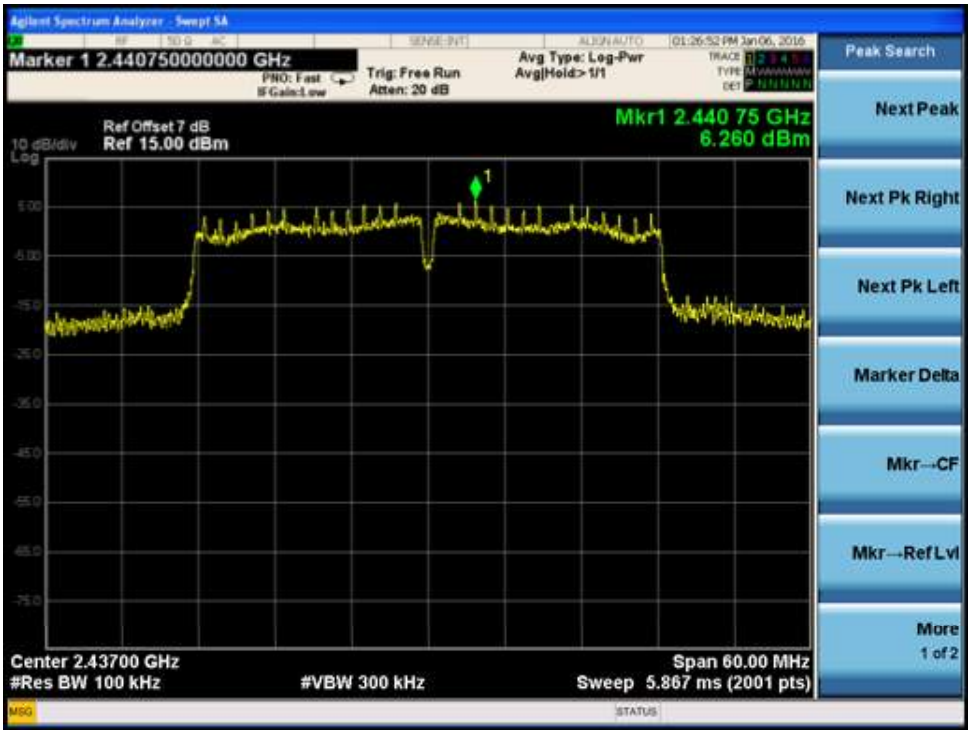
Reference Level – Frequency L

Low Band Edge - Frequency L

Spurious Emission 30MHz ~ 25GHz - Frequency L

Channel 06 (2437MHz)-Ant 1

Reference Level – Frequency M



Spurious Emission 30MHz ~ 25GHz - Frequency M

Channel 09 (2452MHz)-Ant 1

Reference Level – Frequency H

High Band Edge - Frequency H

Spurious Emission 30MHz ~ 25GHz - Frequency H

Channel 03 (2422MHz)-Ant 2

Reference Level – Frequency L

Low Band Edge - Frequency L

Spurious Emission 30MHz ~ 25GHz - Frequency L

Channel 06 (2437MHz)-Ant 2

Reference Level – Frequency M

Spurious Emission 30MHz ~ 25GHz - Frequency M

Channel 09 (2452MHz)-Ant 2

Reference Level – Frequency H

High Band Edge - Frequency H

Spurious Emission 30MHz ~ 25GHz - Frequency H

Channel 03 (2422MHz) -MIMO-Ant 1

Reference Level – Frequency L

Low Band Edge - Frequency L

Spurious Emission 30MHz ~ 25GHz - Frequency L

Channel 06 (2437MHz) -MIMO-Ant 1

Reference Level – Frequency M

Spurious Emission 30MHz ~ 25GHz - Frequency M

Channel 09 (2452MHz) -MIMO-Ant 1

Reference Level – Frequency H

High Band Edge - Frequency H

Spurious Emission 30MHz ~ 25GHz - Frequency H

Channel 03 (2422MHz) -MIMO-Ant 2

Reference Level – Frequency L

Low Band Edge - Frequency L

Spurious Emission 30MHz ~ 25GHz - Frequency L

Channel 06 (2437MHz) -MIMO-Ant 2

Reference Level – Frequency M

Spurious Emission 30MHz ~ 25GHz - Frequency M

Channel 09 (2452MHz)-MIMO-Ant 2

Reference Level – Frequency H

High Band Edge - Frequency H

Spurious Emission 30MHz ~ 25GHz - Frequency H

7. Radiated Emission Band Edge

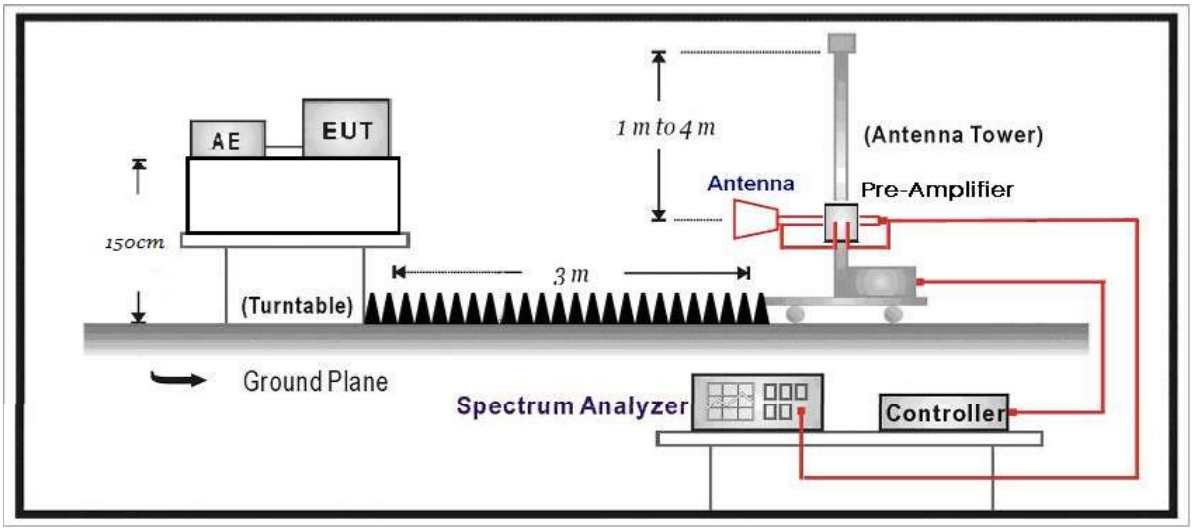
7.1. Test Equipment

☒Radiated Emission Band Edge / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.03.10
Preamplifier	Miteq	NSP1800-25	1364185	2016.05.03
Preamplifier	QuieTek	AP-040G	CHM-0906001	2016.05.03
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2016.10.15
DRG Horn	ETS-Lindgren	3117	00123988	2016.01.07
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2016.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2016.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2016.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2016.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2017.01.04

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

7.2. Test Setup



7.3. Limit

FCC&IC

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

7.4. Test Procedure

According to FCC ANSI C63.4: 2014 & ANSI C63.10: 2013& FCC 47CFR 15.247& KDB 558074 D01v03r04& Industry Canada RSS-Gen Issue 4& RSS-247 Issue 1

This test is required for any spurious emission or modulation product that falls in a Restricted Band, as defined in Section 15.205 of FCC part 15. It must be performed with the highest gain of each type of antenna proposed for use with the EUT. Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for f $\geq$ 1 GHz, 100 kHz for f < 1GHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Follow the guidelines in ANSI C63.4 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization, etc. A pre-amp and a

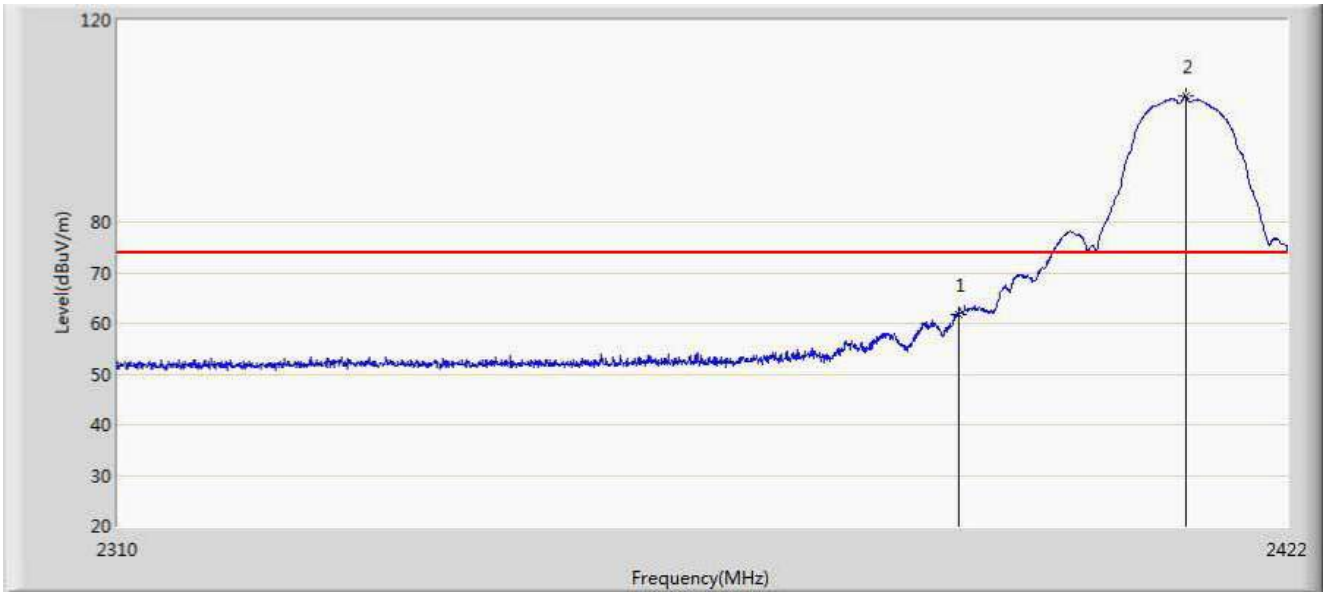
high pass filter are required for this test, in order to provide the measuring system with sufficient sensitivity. Allow the trace to stabilize. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, which must comply with the limit specified in Section 15.35(b) of FCC part 15.
Now set the VBW ≥ 1 / T (the minimum transmission duration), while maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209 of FCC Part 15.
If the emission on which a radiated measurement must be made is located at the edge of the authorized band of operation, then the alternative “marker-IP-STB” method may be employed.

7.5. Uncertainty

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

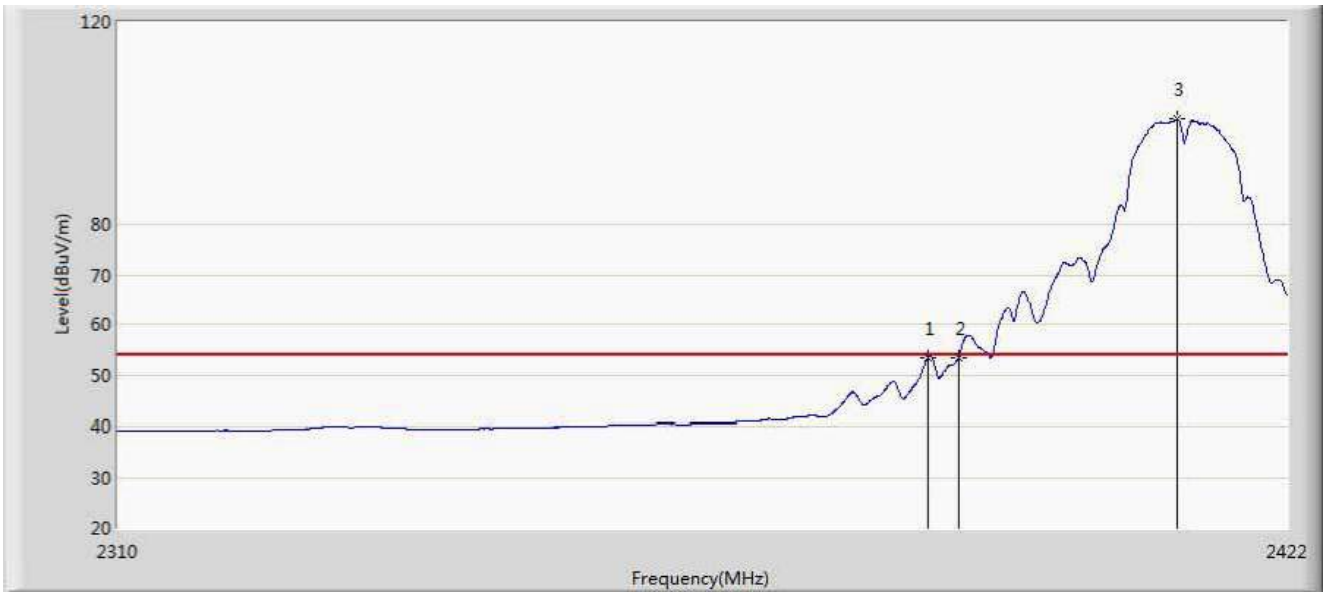
7.6. Test Result

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 09:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412MHz by 802.11b ant1	



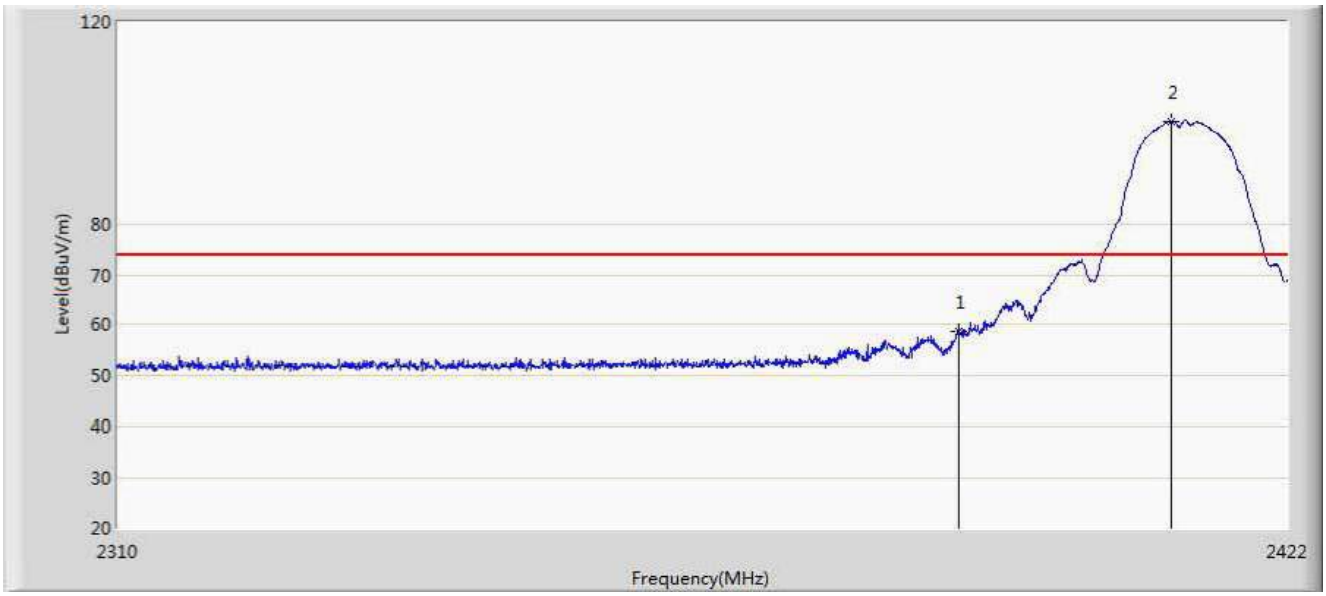
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	61.853	24.498	-12.147	74.000	37.355	PK
2	*	2412.088	104.878	67.543	30.878	74.000	37.335	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 09:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412MHz by 802.11b ant1	



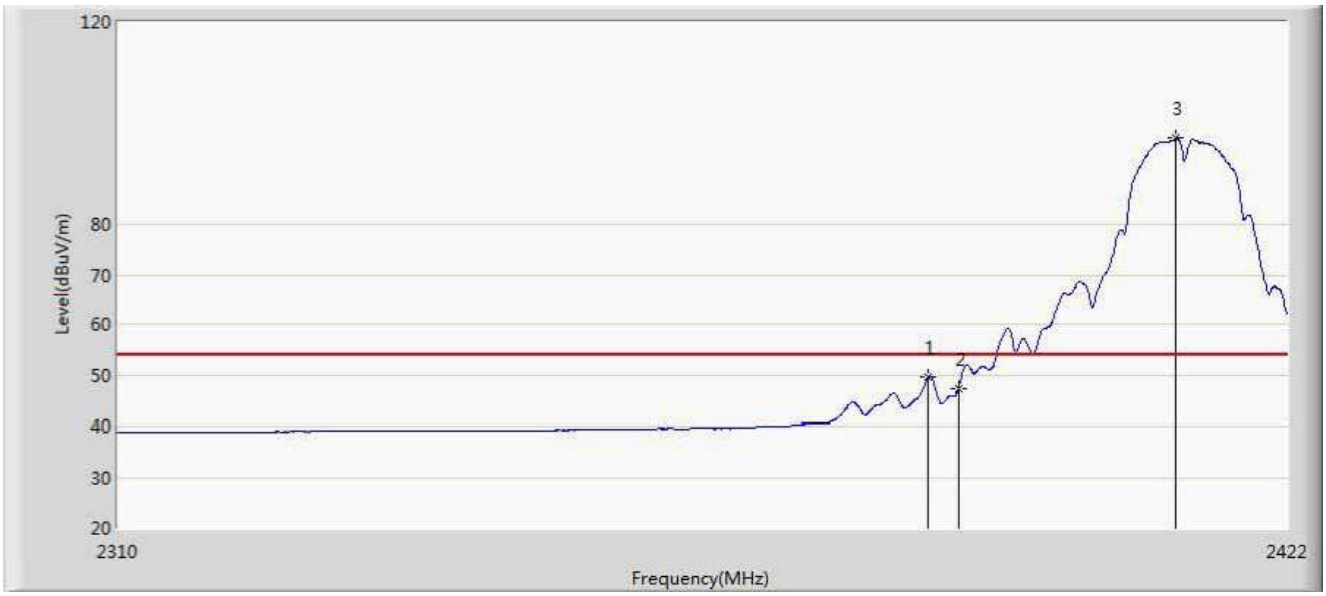
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2387.056	53.390	16.034	-0.610	54.000	37.356	AV
2		2390.000	53.287	15.932	-0.713	54.000	37.355	AV
3	*	2411.192	100.747	63.418	46.747	54.000	37.329	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412MHz by 802.11b ant1	



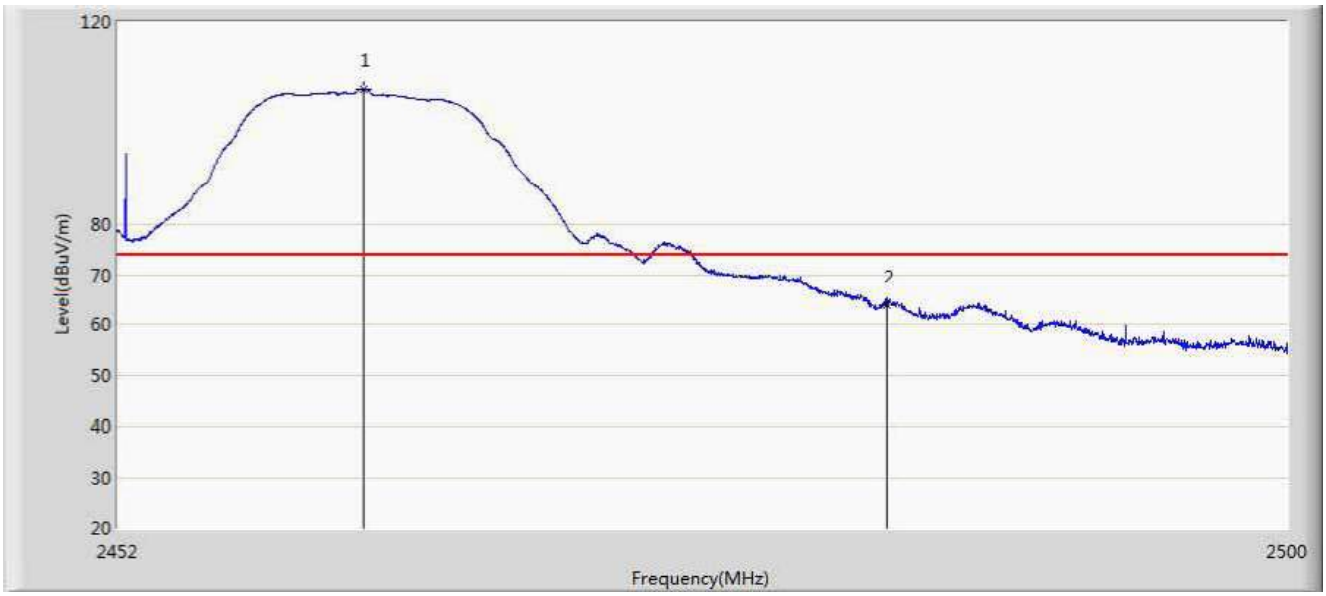
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	58.463	21.108	-15.537	74.000	37.355	PK
2	*	2410.688	100.288	62.960	26.288	74.000	37.328	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412MHz by 802.11b ant1	



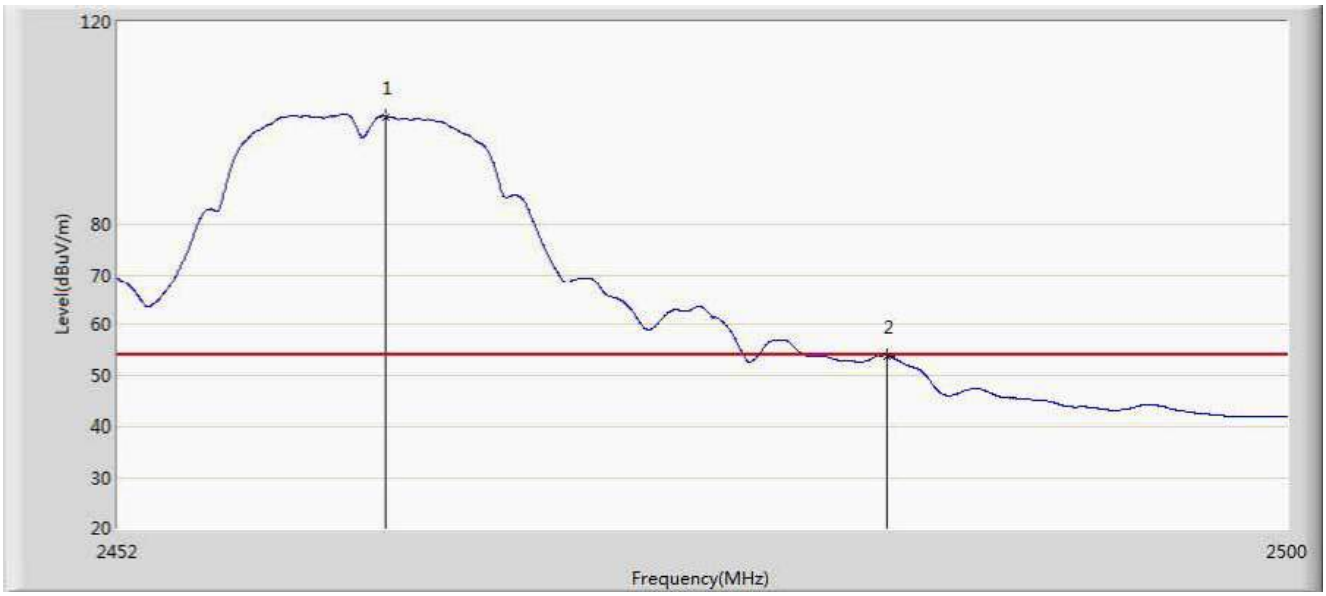
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2387.112	49.426	12.070	-4.574	54.000	37.356	AV
2		2390.000	47.294	9.939	-6.706	54.000	37.355	AV
3	*	2411.080	96.981	59.653	42.981	54.000	37.328	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 802.11b ant1	



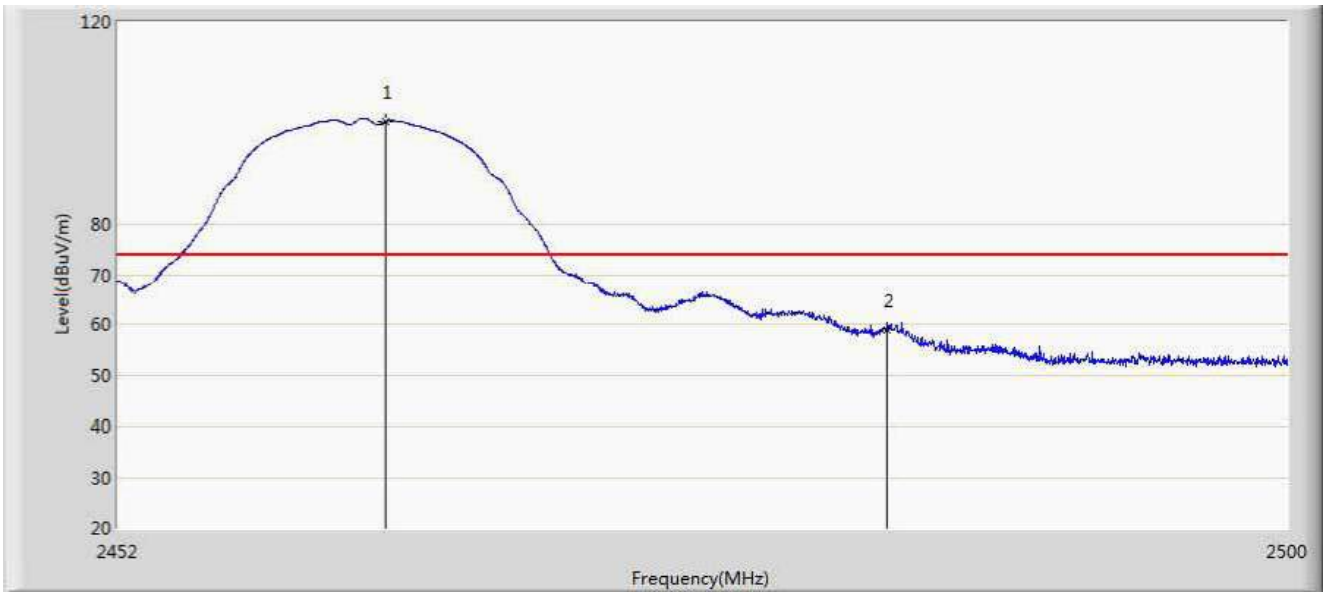
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.032	106.730	69.310	32.730	74.000	37.420	PK
2		2483.500	63.870	26.359	-10.130	74.000	37.511	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 802.11b ant1	



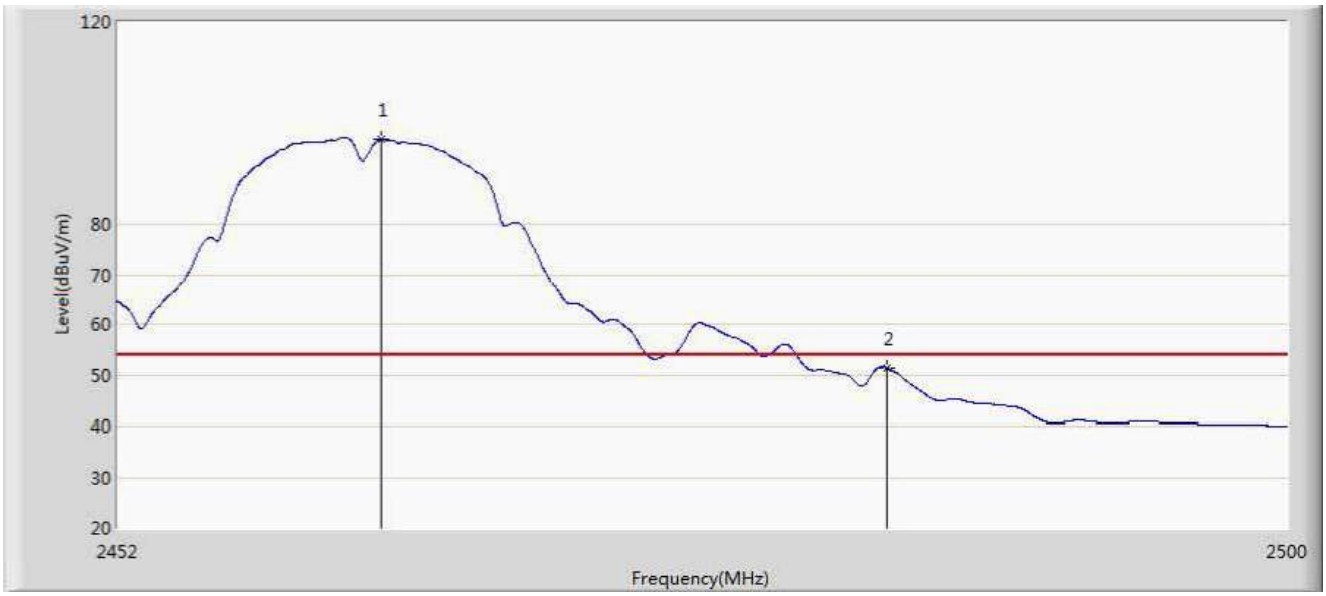
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.944	101.261	63.837	47.261	54.000	37.423	AV
2		2483.500	53.741	16.230	-0.259	54.000	37.511	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 802.11b ant1	



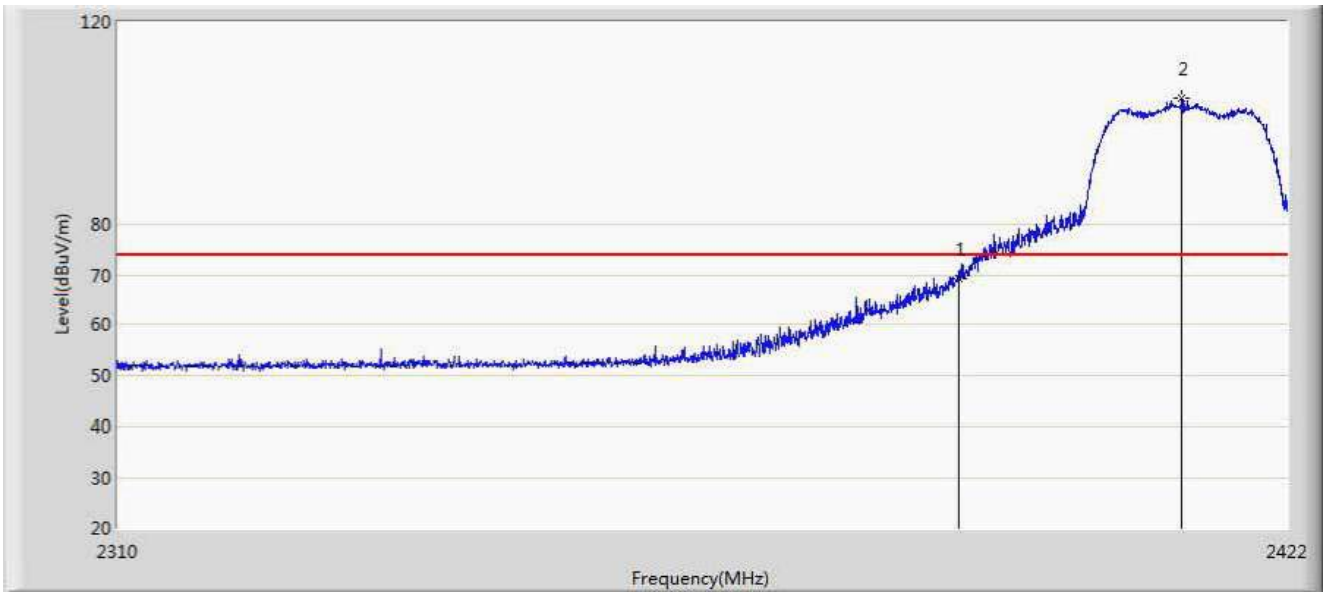
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.944	100.397	62.973	26.397	74.000	37.423	PK
2		2483.500	58.923	21.412	-15.077	74.000	37.511	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 802.11b ant1	



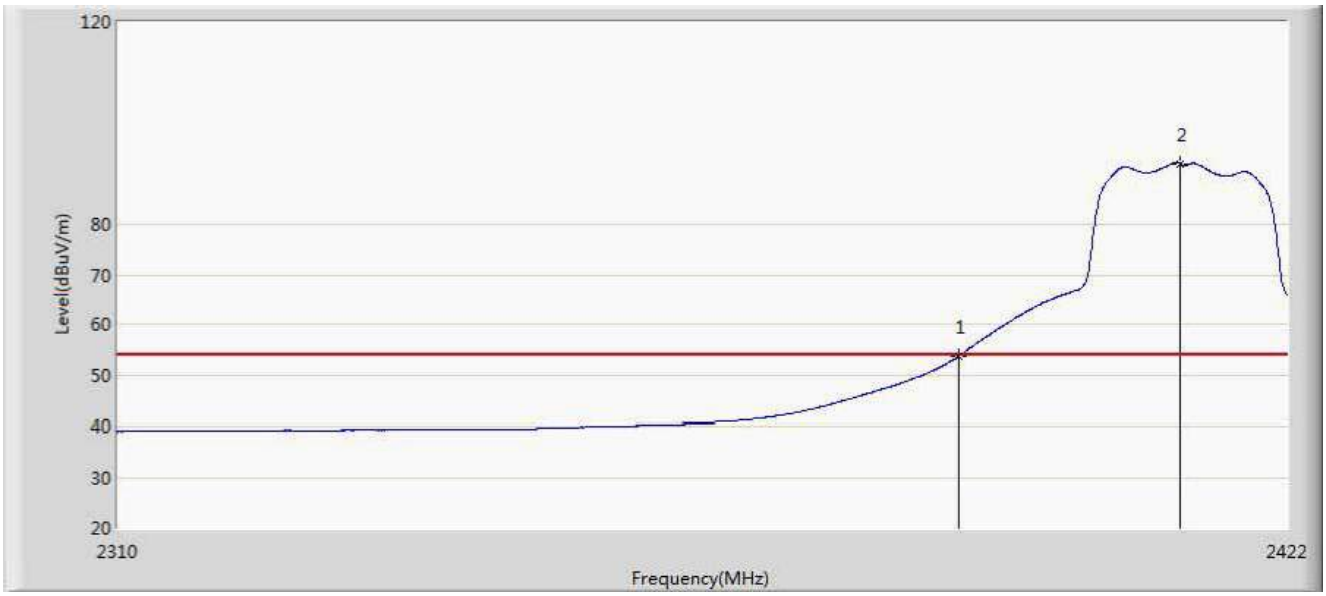
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.728	96.894	59.471	42.894	54.000	37.423	AV
2		2483.500	51.266	13.755	-2.734	54.000	37.511	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412MHz by 802.11g ant1	



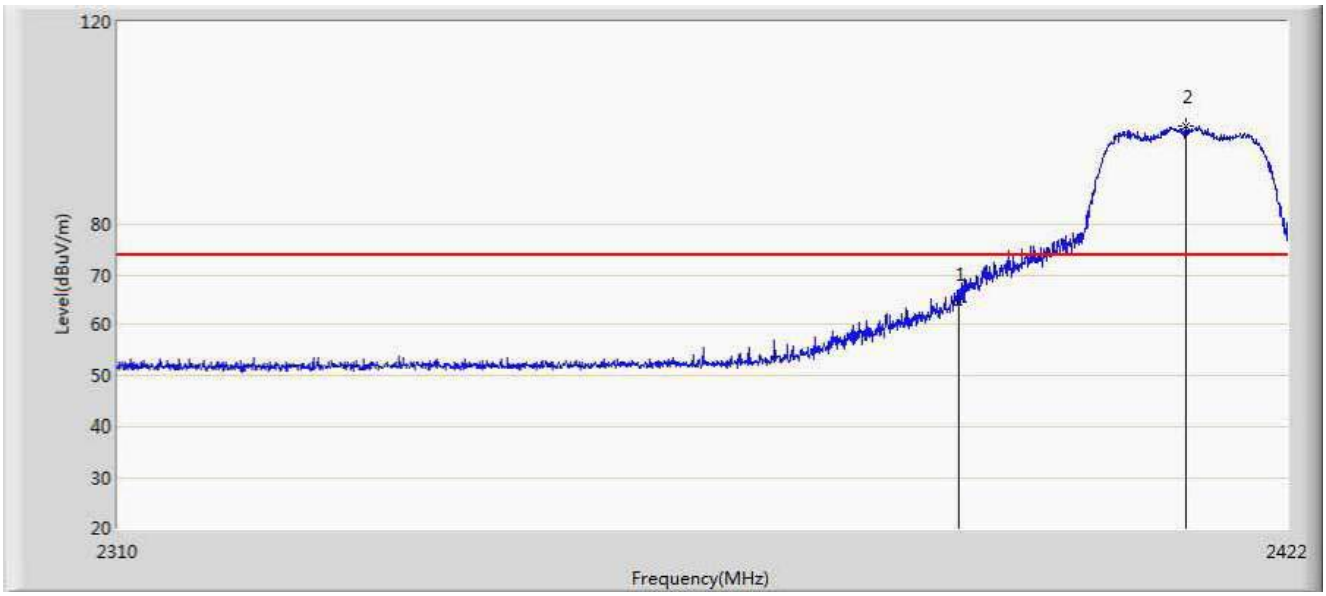
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	69.235	31.880	-4.765	74.000	37.355	PK
2	*	2411.696	105.064	67.732	31.064	74.000	37.332	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412MHz by 802.11g ant1	



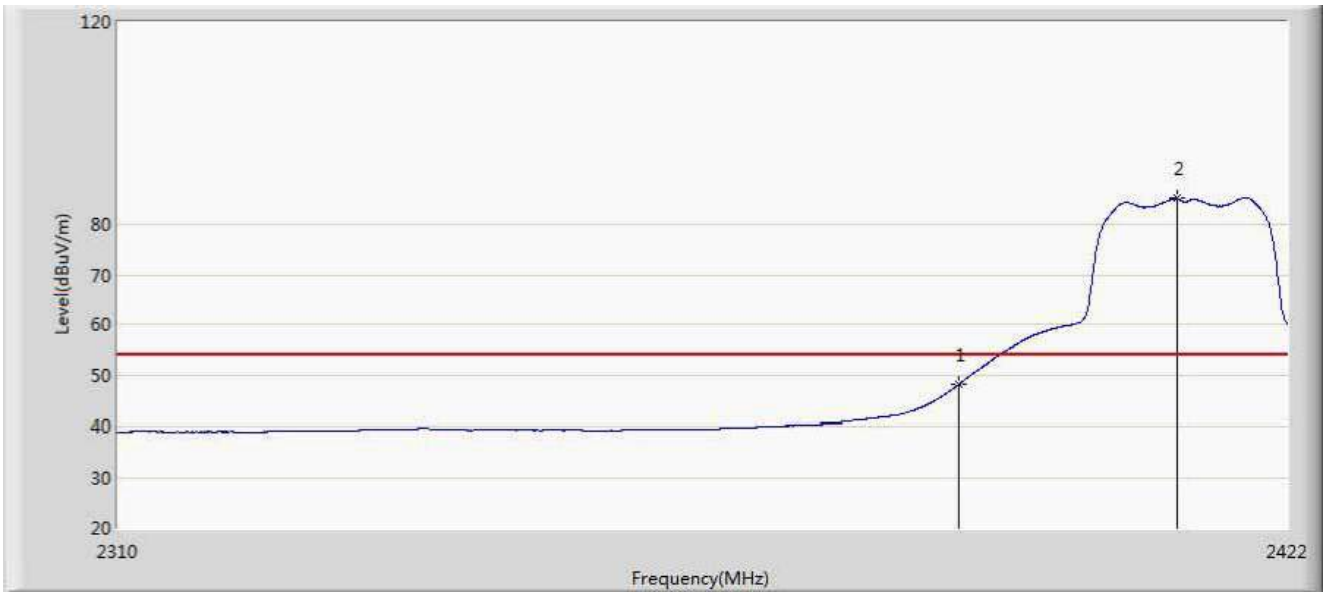
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.639	16.284	-0.361	54.000	37.355	AV
2	*	2411.528	91.996	54.665	37.996	54.000	37.331	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412MHz by 802.11g ant1	



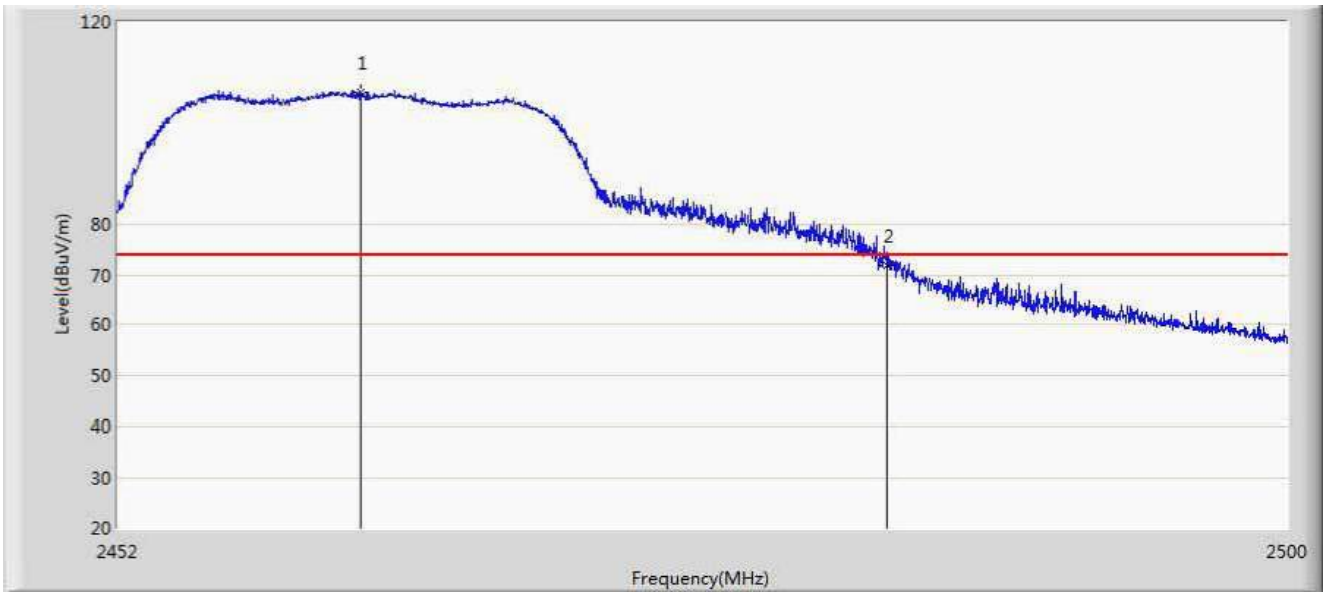
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	64.284	26.929	-9.716	74.000	37.355	PK
2	*	2412.088	99.462	62.127	25.462	74.000	37.335	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:31
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412MHz by 802.11g ant1	



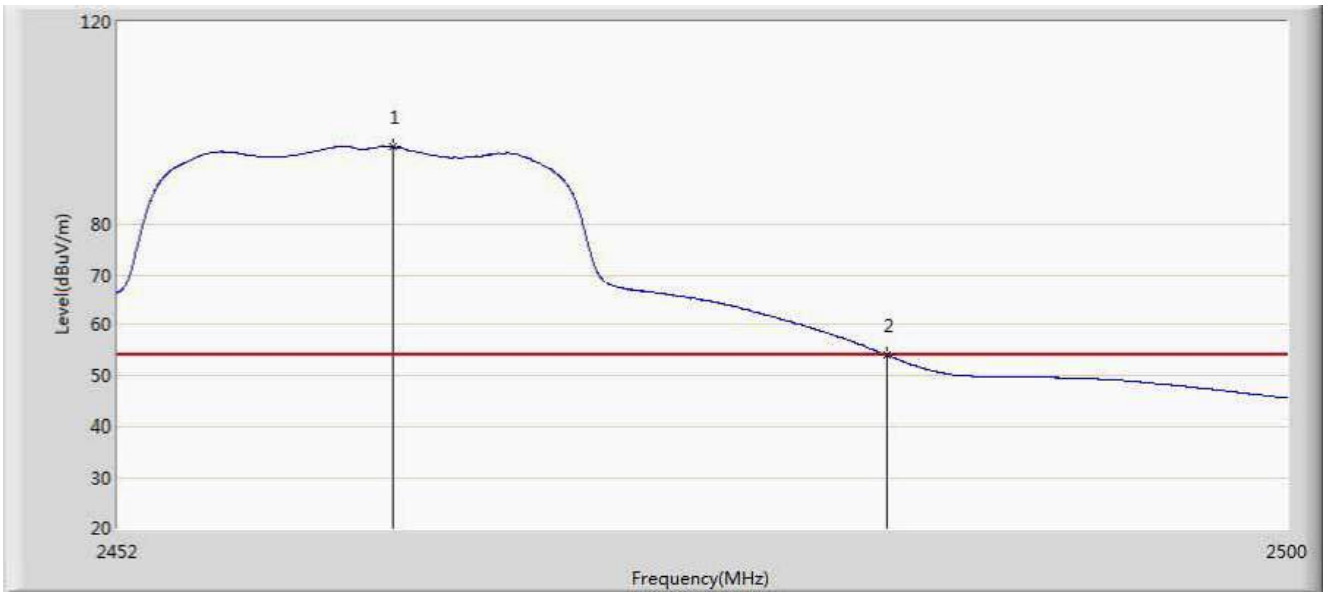
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	48.016	10.661	-5.984	54.000	37.355	AV
2	*	2411.192	85.088	47.759	31.088	54.000	37.329	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:40
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 802.11g ant1	



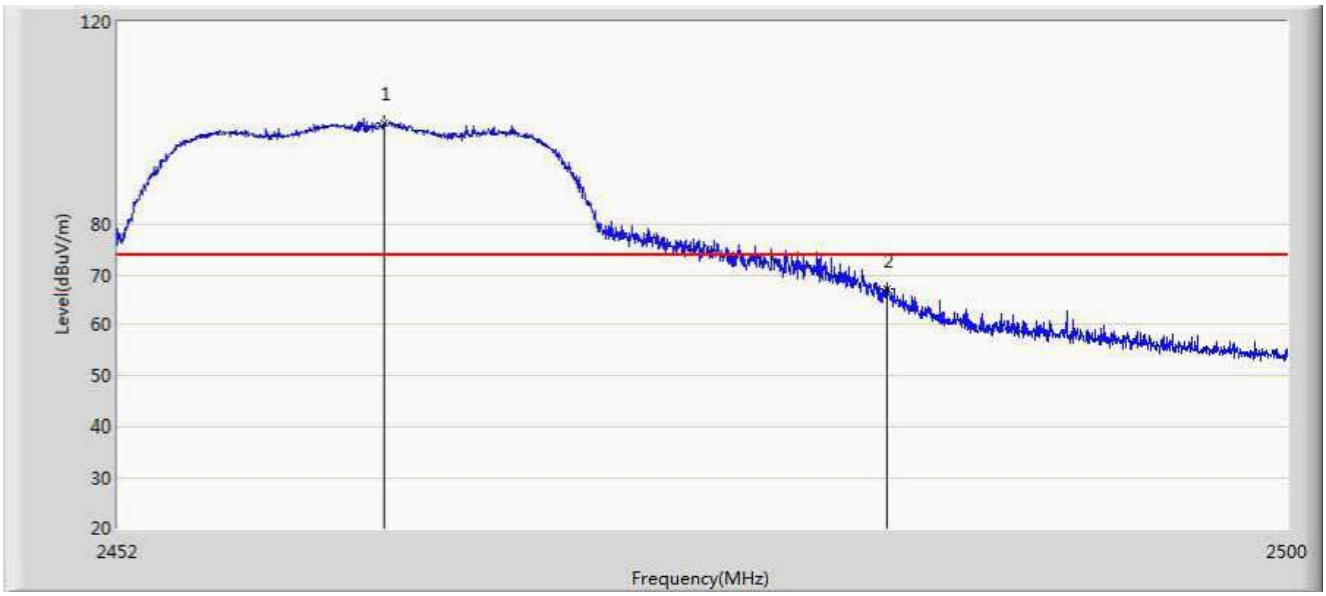
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.888	106.206	68.786	32.206	74.000	37.421	PK
2		2483.500	71.904	34.393	-2.096	74.000	37.511	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 802.11g ant1	



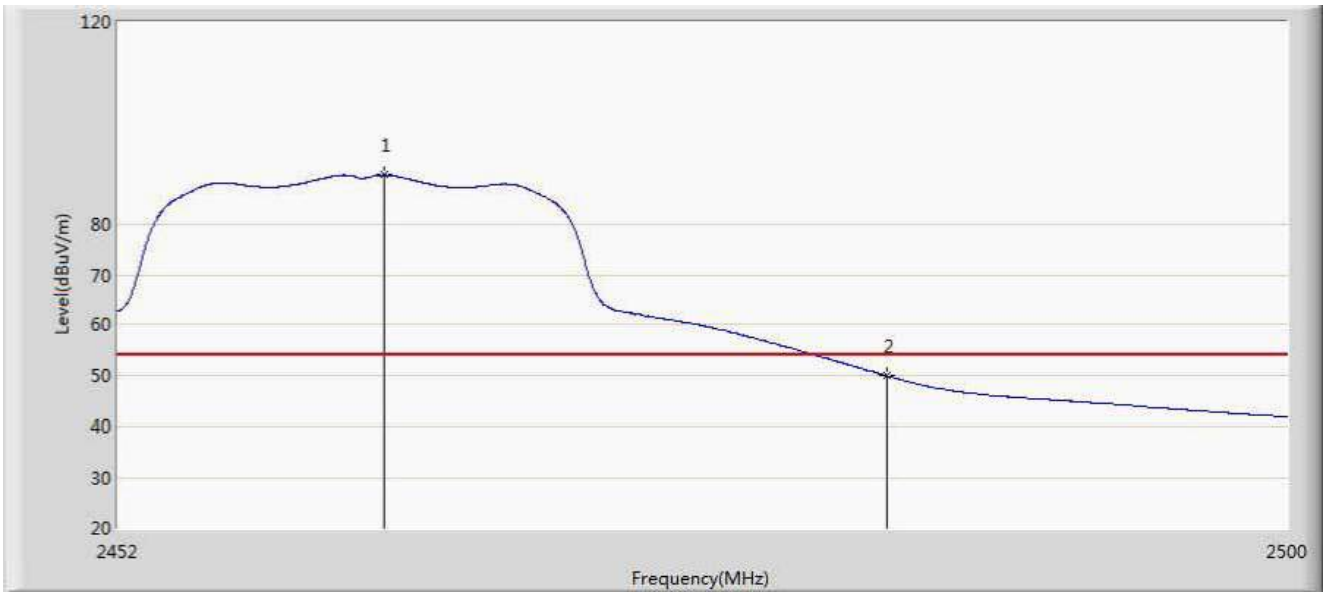
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.232	95.354	57.929	41.354	54.000	37.425	AV
2		2483.500	53.835	16.324	-0.165	54.000	37.511	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 802.11g ant1	



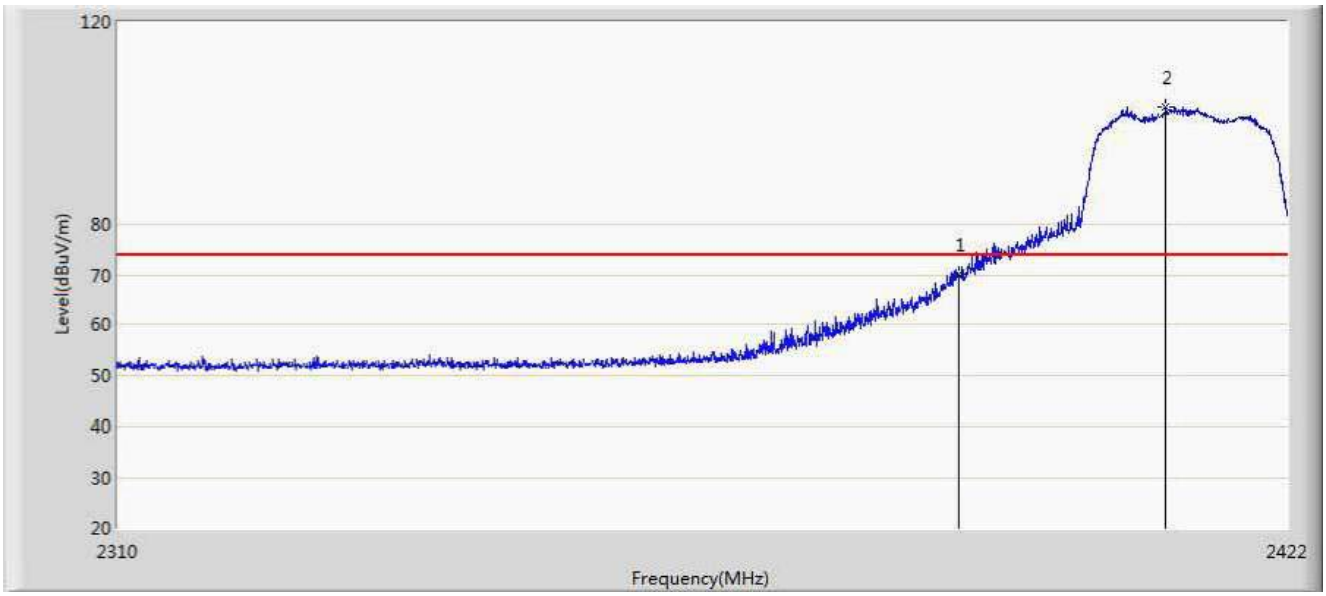
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.872	100.138	62.715	26.138	74.000	37.423	PK
2		2483.500	67.063	29.552	-6.937	74.000	37.511	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 802.11g ant1	



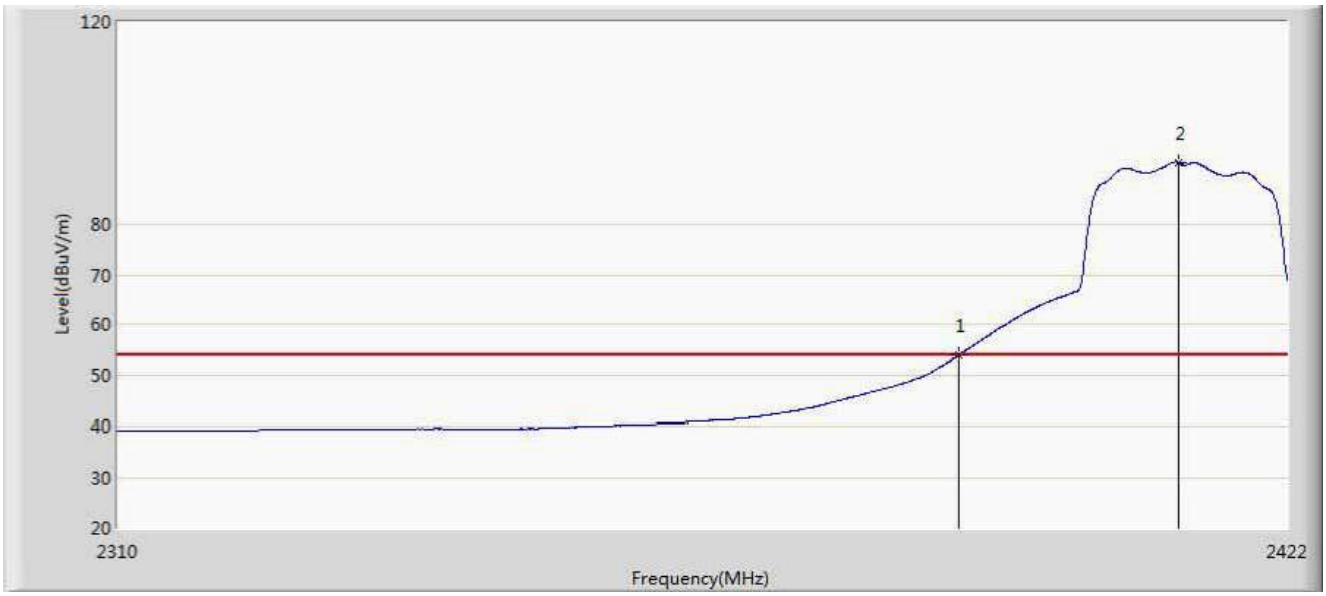
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.848	89.749	52.326	35.749	54.000	37.423	AV
2		2483.500	49.714	12.203	-4.286	54.000	37.511	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 802.11n20 ant1	



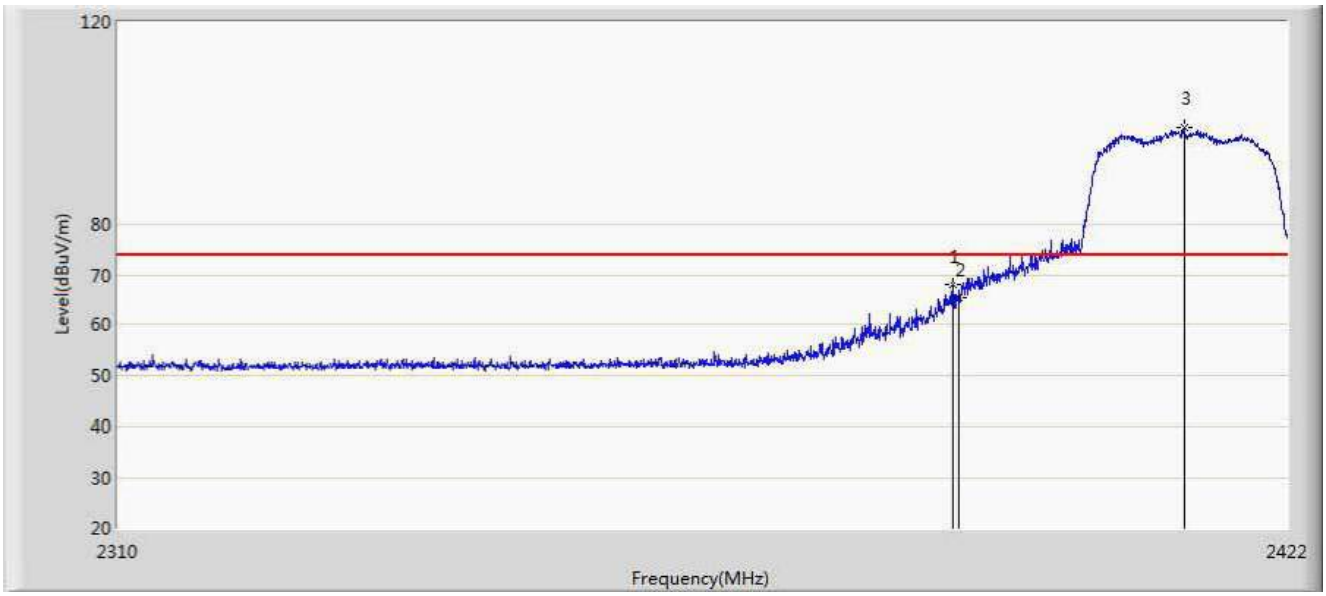
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	70.079	32.724	-3.921	74.000	37.355	PK
2	*	2410.128	103.177	65.848	29.177	74.000	37.329	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:51
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 802.11n20 ant1	



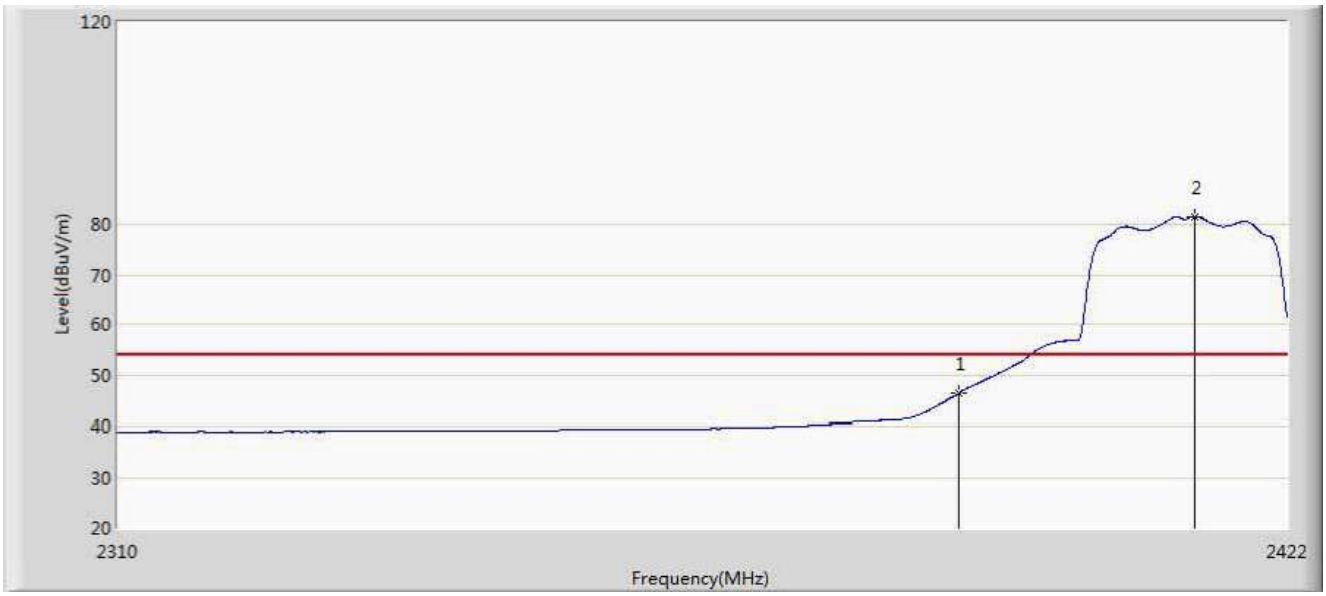
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.836	16.481	-0.164	54.000	37.355	AV
2	*	2411.360	92.290	54.960	38.290	54.000	37.330	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 802.11n20 ant1	



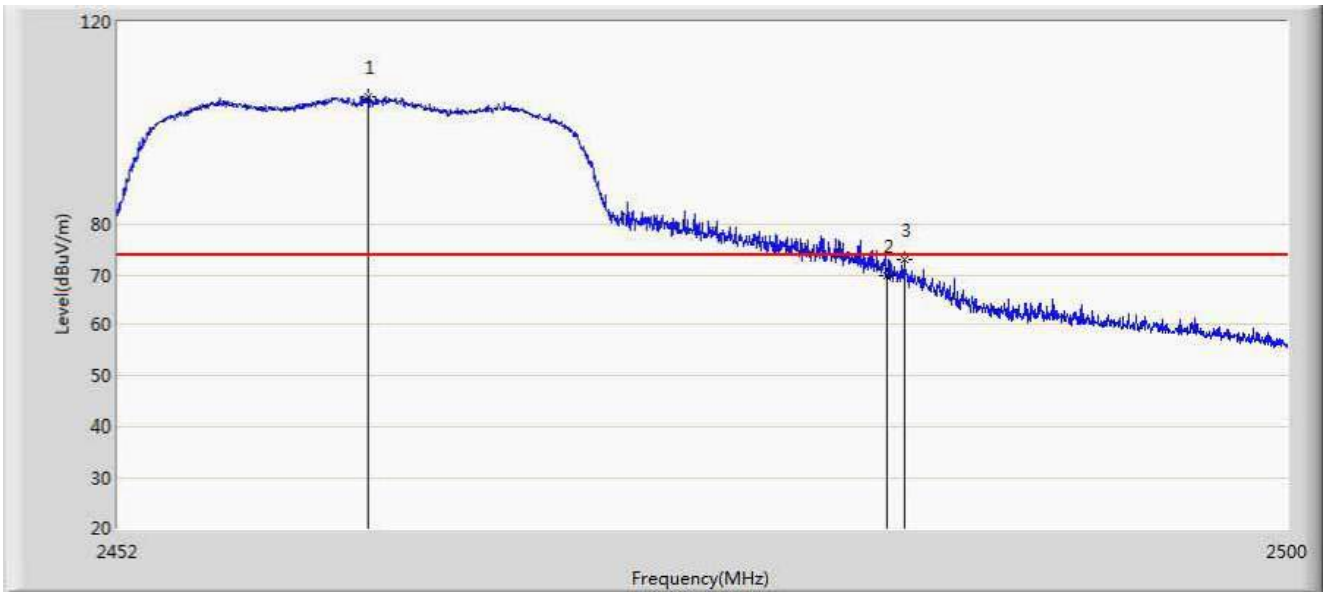
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2389.464	67.819	30.463	-6.181	74.000	37.355	PK
2		2390.000	65.202	27.847	-8.798	74.000	37.355	PK
3	*	2411.920	99.099	61.765	25.099	74.000	37.334	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 10:58
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 802.11n20 ant1	



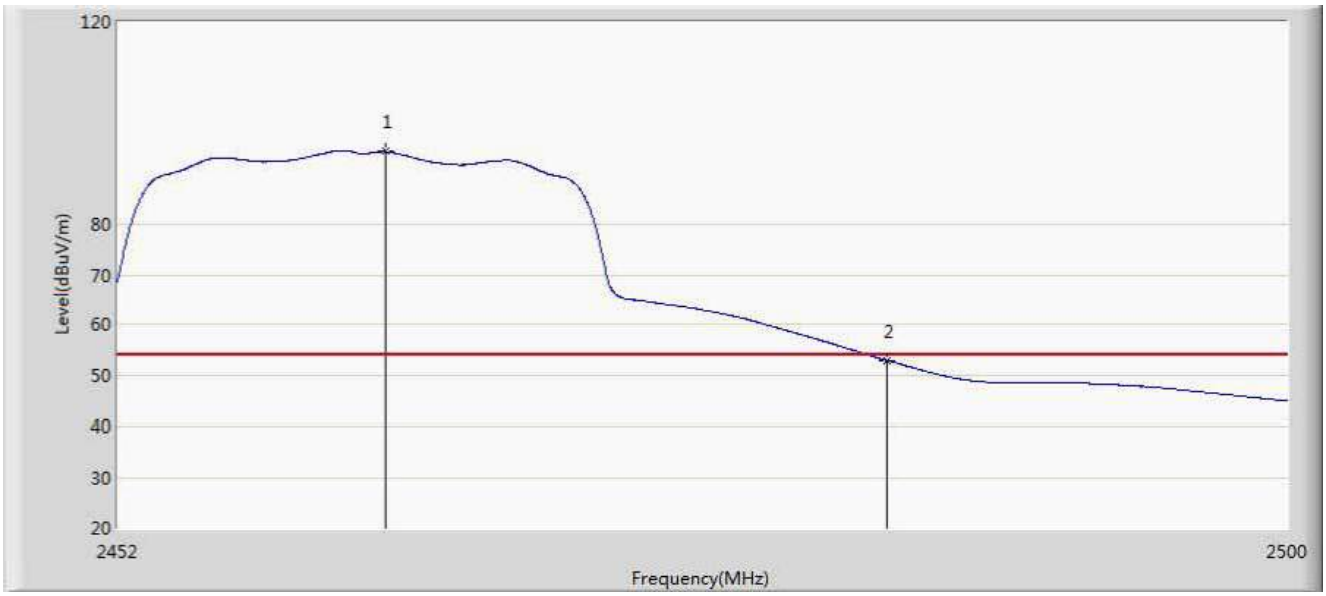
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	46.330	8.975	-7.670	54.000	37.355	AV
2	*	2412.984	81.584	44.243	27.584	54.000	37.340	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 11:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 802.11n20 ant1	



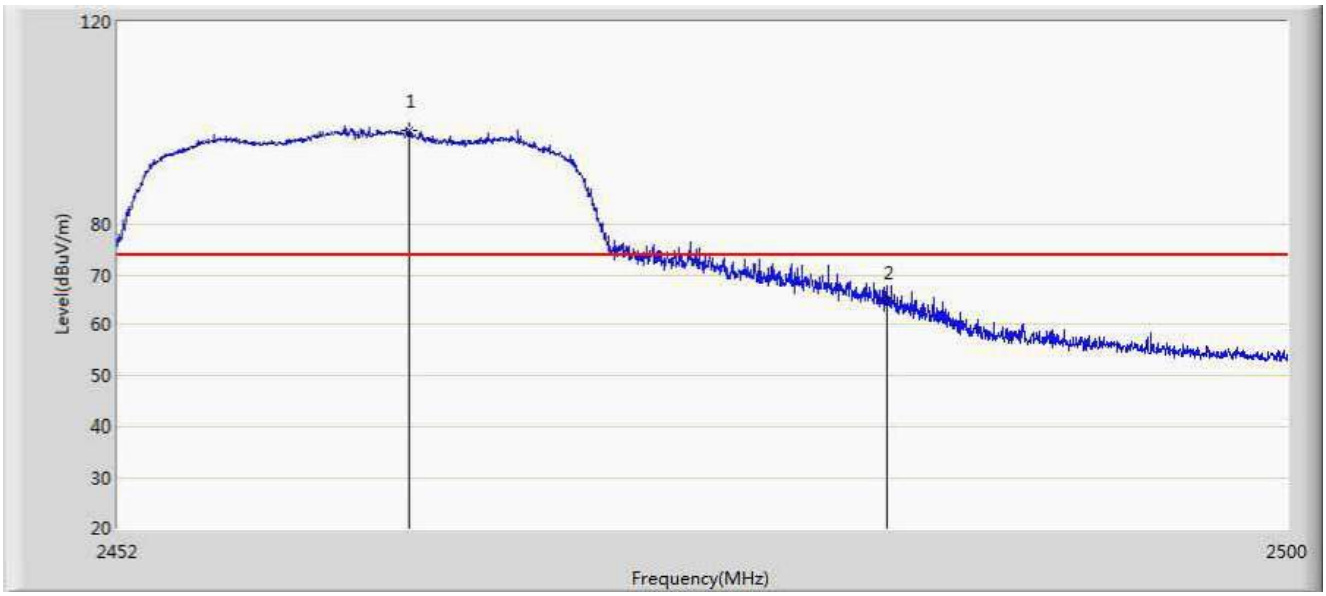
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.200	105.286	67.865	31.286	74.000	37.421	PK
2		2483.500	69.779	32.268	-4.221	74.000	37.511	PK
3		2484.184	73.155	35.639	-0.845	74.000	37.516	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 11:06
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 802.11n20 ant1	



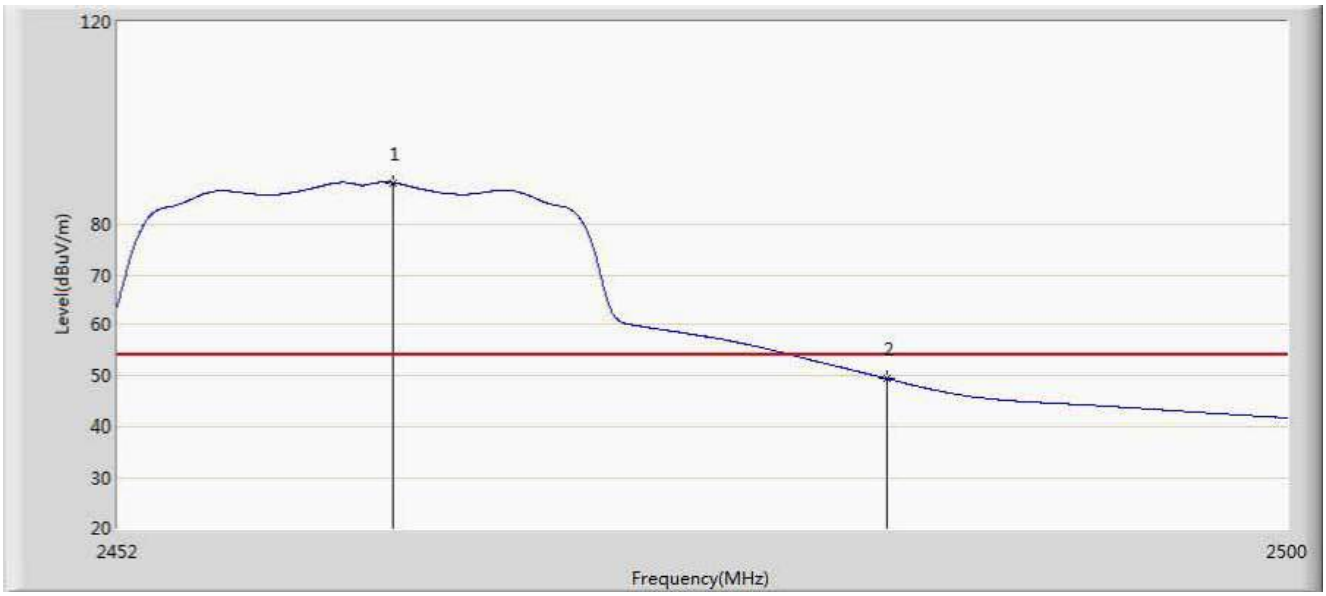
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.920	94.383	56.959	40.383	54.000	37.423	AV
2		2483.500	52.779	15.268	-1.221	54.000	37.511	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 11:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 802.11n20 ant1	



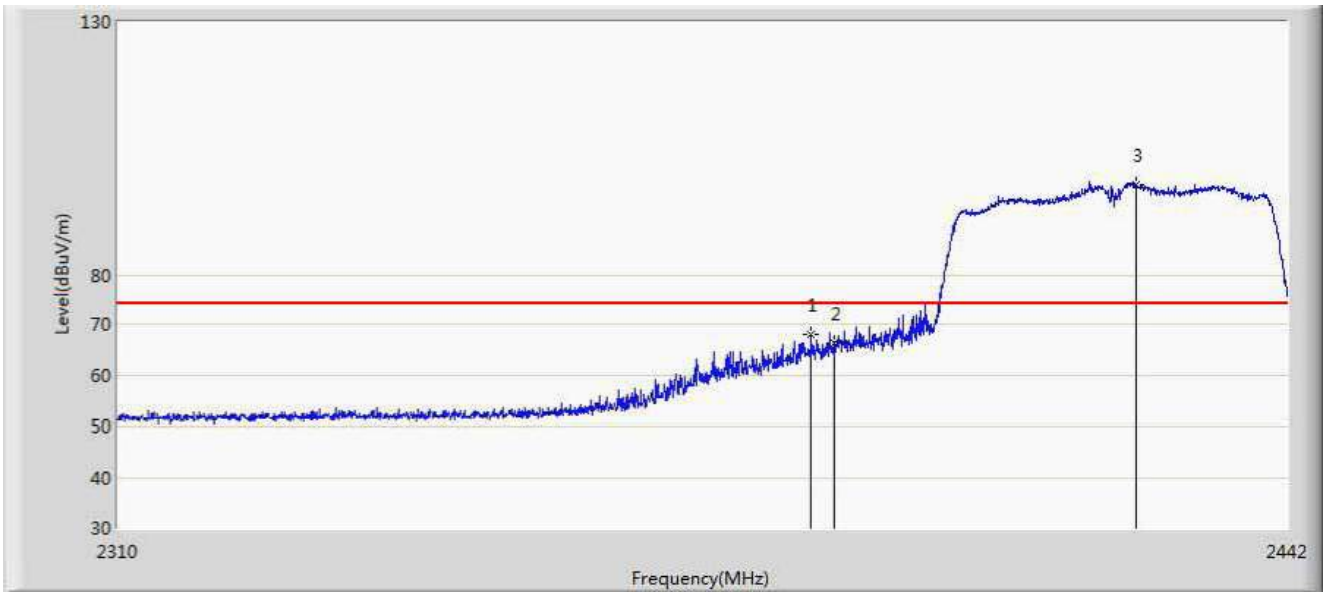
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.856	98.510	61.083	24.510	74.000	37.426	PK
2		2483.500	64.624	27.113	-9.376	74.000	37.511	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/28 - 11:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 802.11n20 ant1	



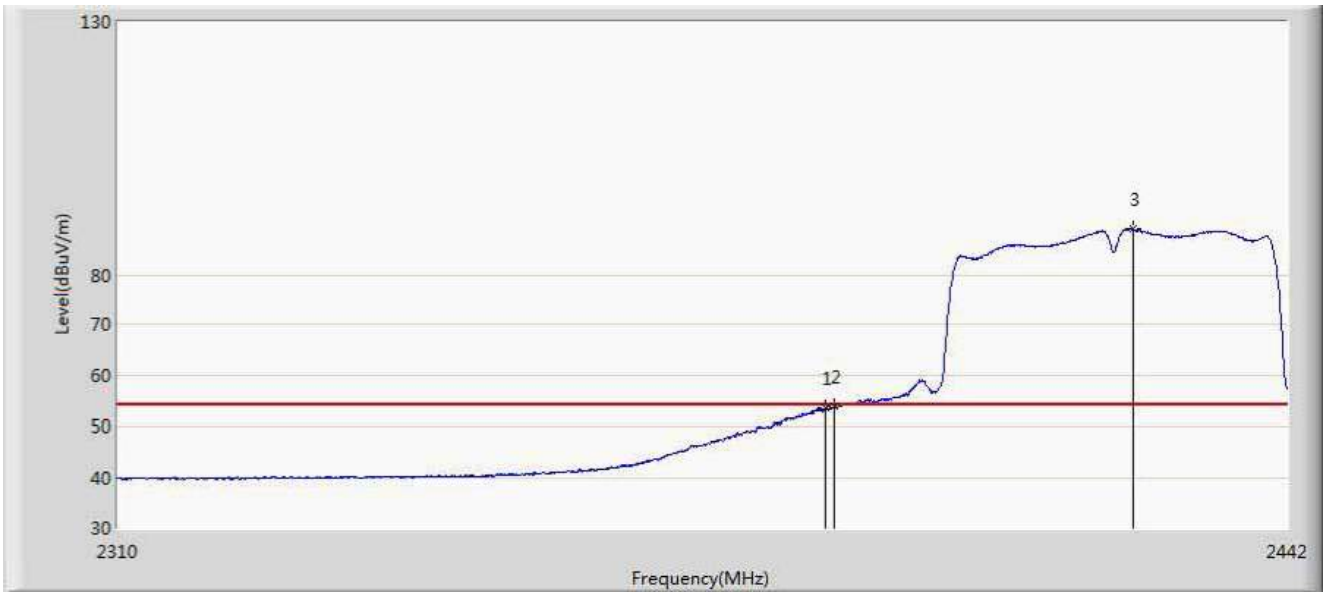
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.232	88.185	50.760	34.185	54.000	37.425	AV
2		2483.500	49.202	11.691	-4.798	54.000	37.511	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 10:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 802.11n40 ant1	



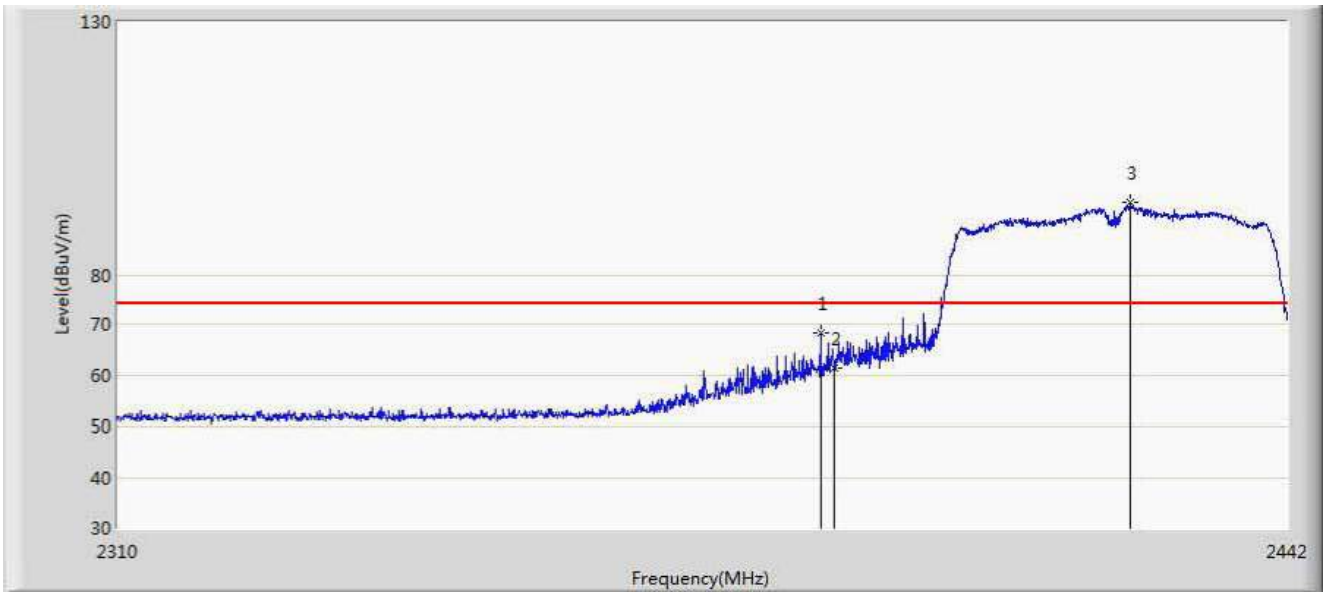
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2387.418	67.993	30.637	-6.007	74.000	37.356	PK
2		2390.000	66.120	28.765	-7.880	74.000	37.355	PK
3	*	2424.576	97.858	60.439	23.858	74.000	37.419	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 10:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 802.11n40 ant1	



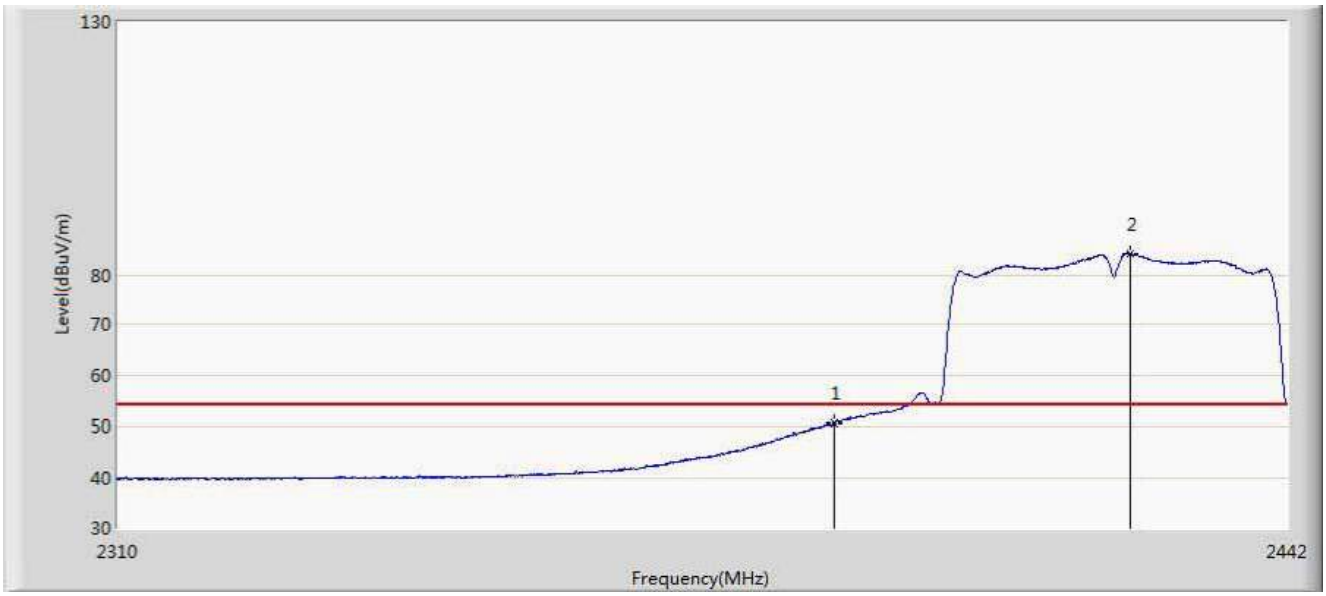
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2388.936	53.555	16.199	-0.445	54.000	37.356	AV
2		2390.000	53.746	16.391	-0.254	54.000	37.355	AV
3	*	2424.180	88.997	51.581	34.997	54.000	37.416	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 10:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 802.11n40 ant1	



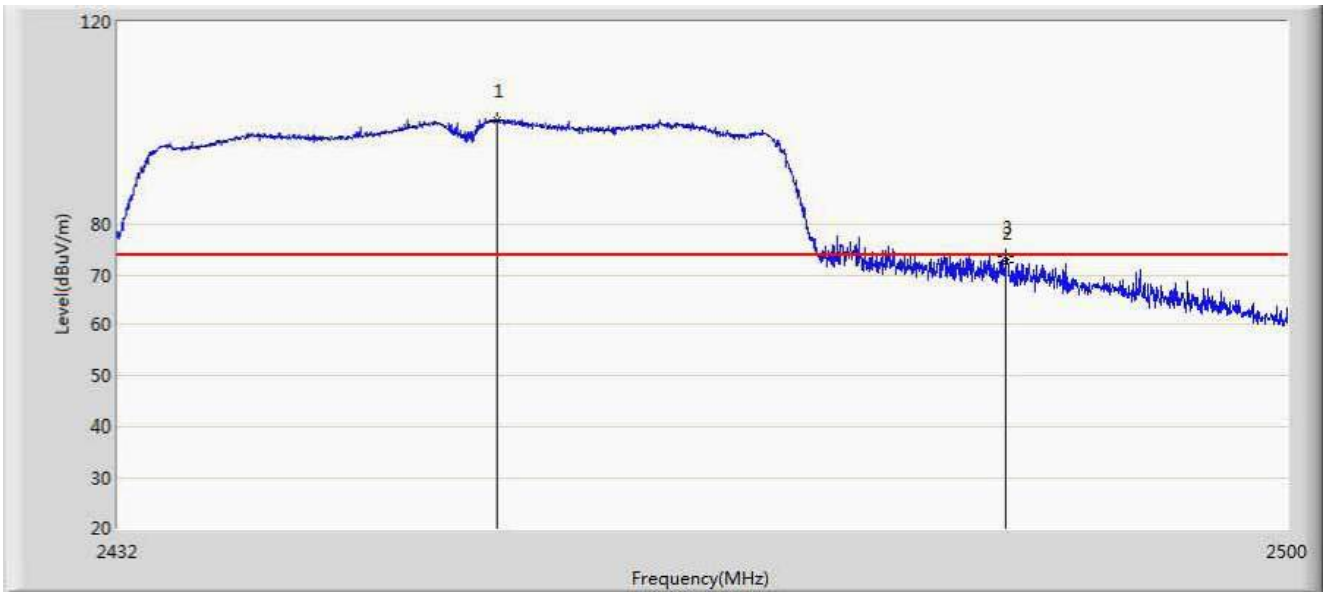
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2388.474	68.255	30.899	-5.745	74.000	37.356	PK
2		2390.000	61.188	23.833	-12.812	74.000	37.355	PK
3	*	2423.850	94.316	56.902	20.316	74.000	37.414	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 10:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 802.11n40 ant1	



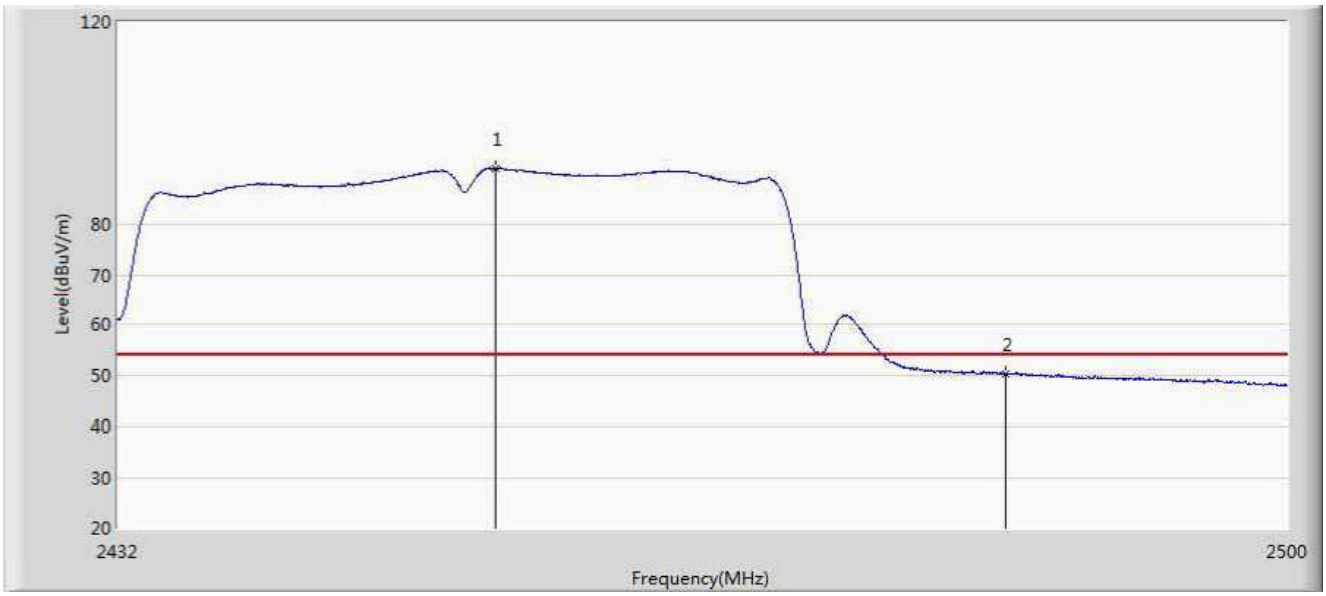
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.584	13.229	-3.416	54.000	37.355	AV
2	*	2423.916	84.254	46.839	30.254	54.000	37.415	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 10:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452MHz by 802.11n40 ant1	



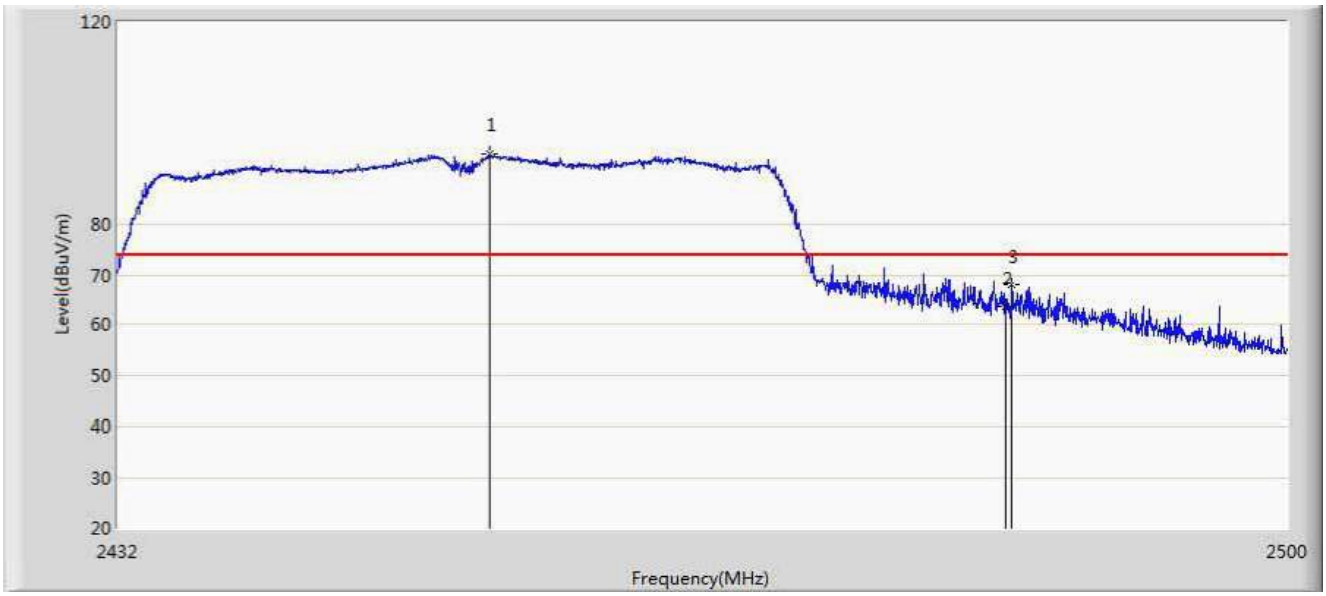
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.896	100.655	63.229	26.655	74.000	37.426	PK
2		2483.500	72.602	35.091	-1.398	74.000	37.511	PK
3		2483.510	73.733	36.222	-0.267	74.000	37.511	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 10:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452MHz by 802.11n40 ant1	



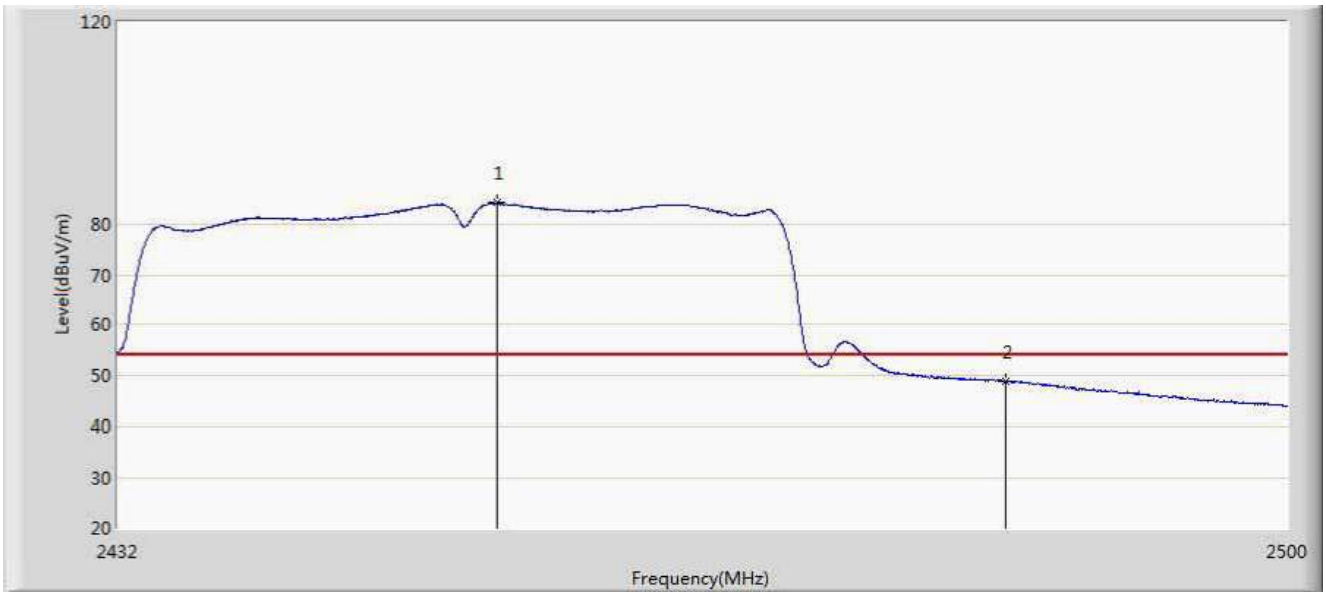
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.794	91.093	53.666	37.093	54.000	37.426	AV
2		2483.500	50.119	12.608	-3.881	54.000	37.511	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 10:40
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452MHz by 802.11n40 ant1	



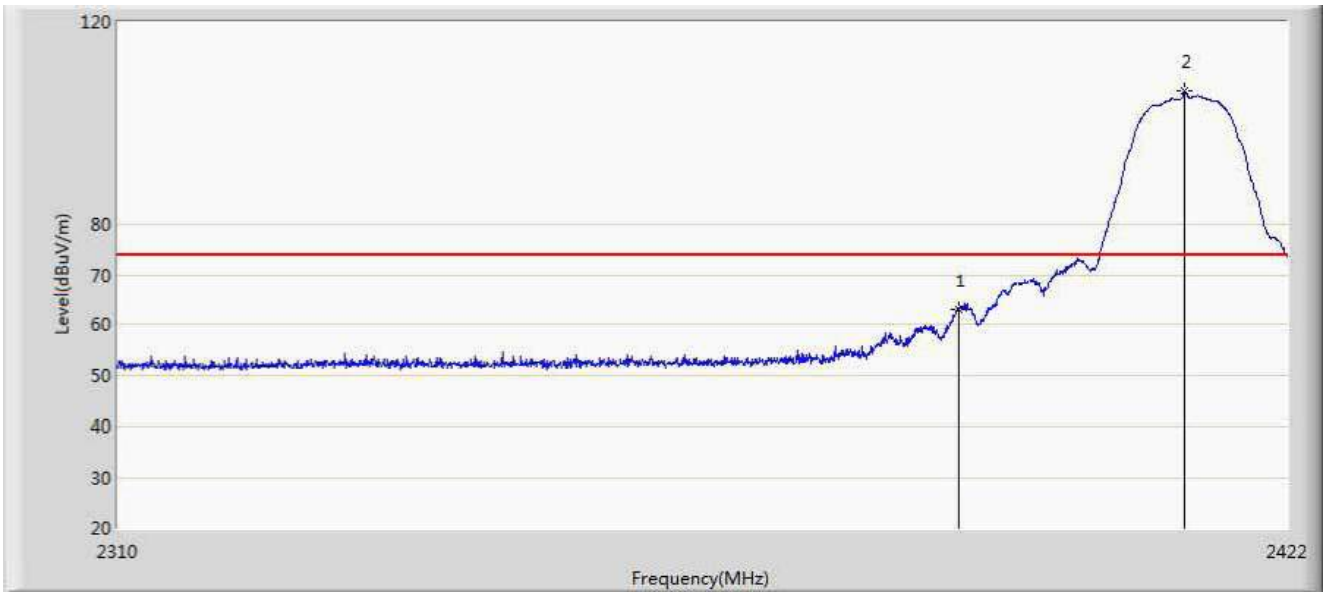
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.420	93.789	56.362	19.789	74.000	37.427	PK
2		2483.500	63.394	25.883	-10.606	74.000	37.511	PK
3		2483.850	67.938	30.424	-6.062	74.000	37.514	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 10:40
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452MHz by 802.11n40 ant1	



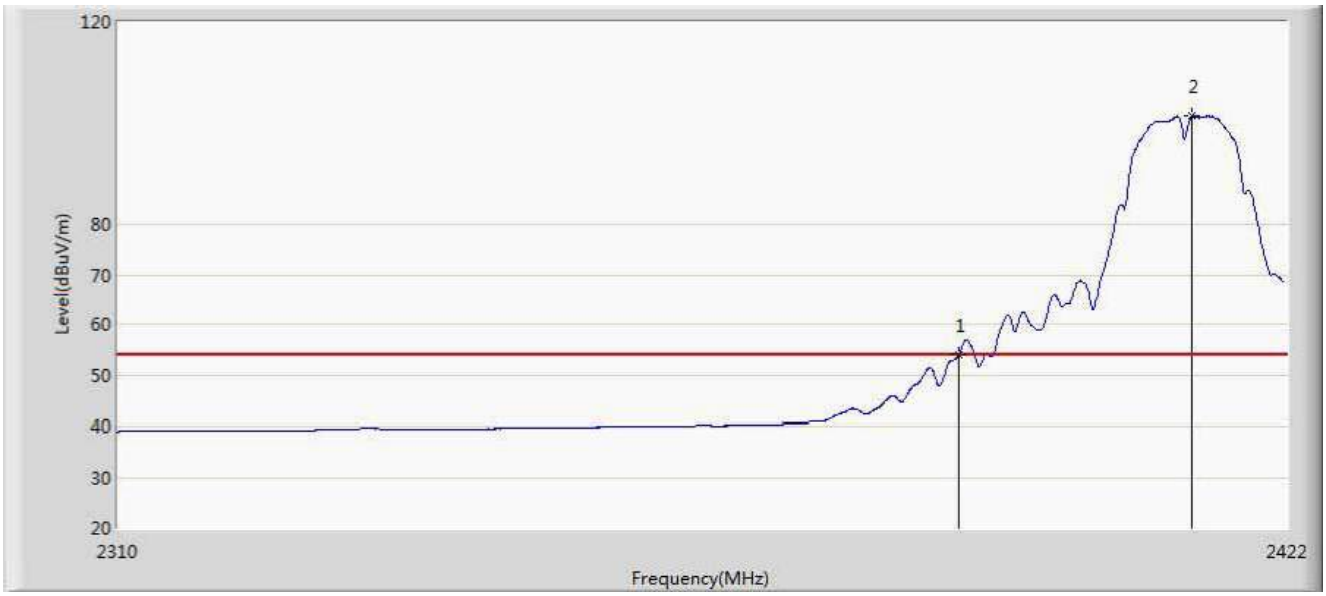
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.896	84.222	46.795	30.222	54.000	37.426	AV
2		2483.500	48.616	11.105	-5.384	54.000	37.511	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 10:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412MHz by 802.11b ant2	



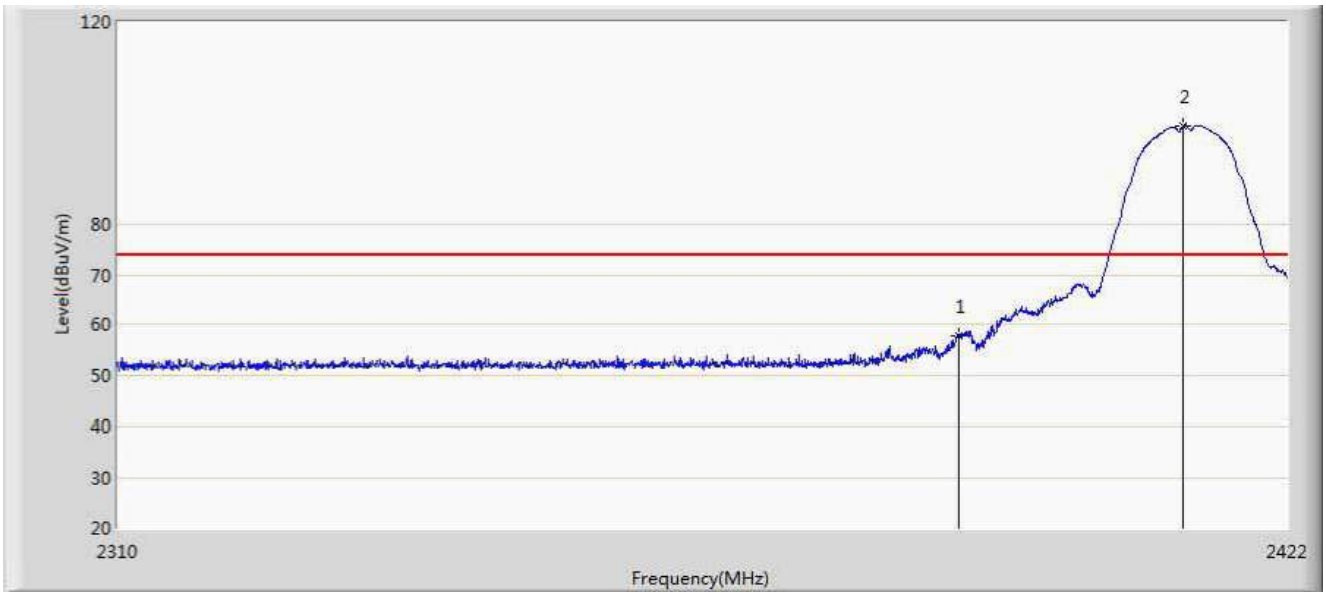
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	62.959	25.604	-11.041	74.000	37.355	PK
2	*	2411.976	106.276	68.942	32.276	74.000	37.334	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 10:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412MHz by 802.11b ant2	



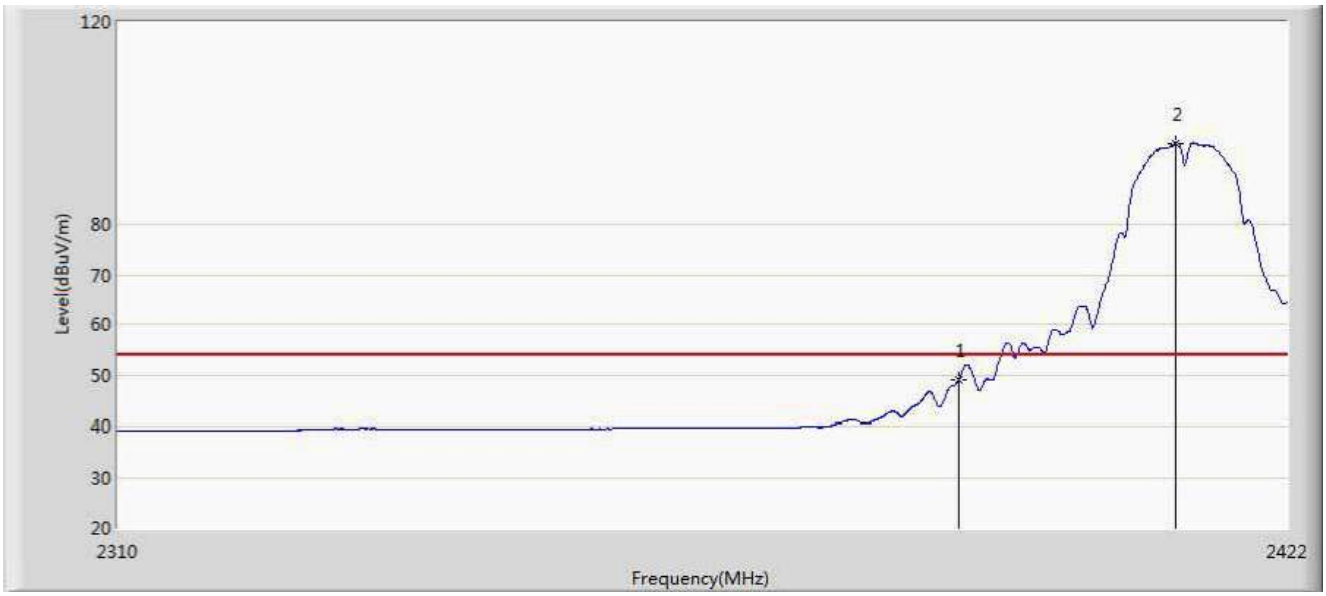
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.986	16.631	-0.014	54.000	37.355	AV
2	*	2412.648	101.314	63.975	47.314	54.000	37.339	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 10:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412MHz by 802.11b ant2	



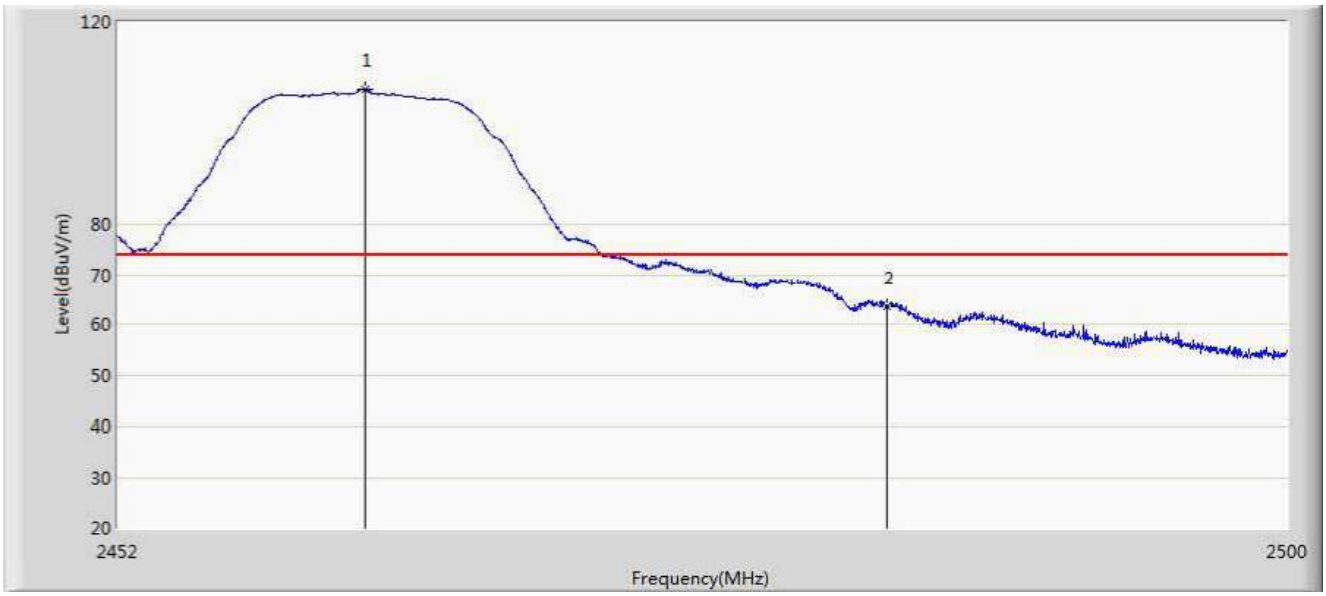
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	57.800	20.445	-16.200	74.000	37.355	PK
2	*	2411.808	99.371	62.038	25.371	74.000	37.333	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 10:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2412MHz by 802.11b ant2	



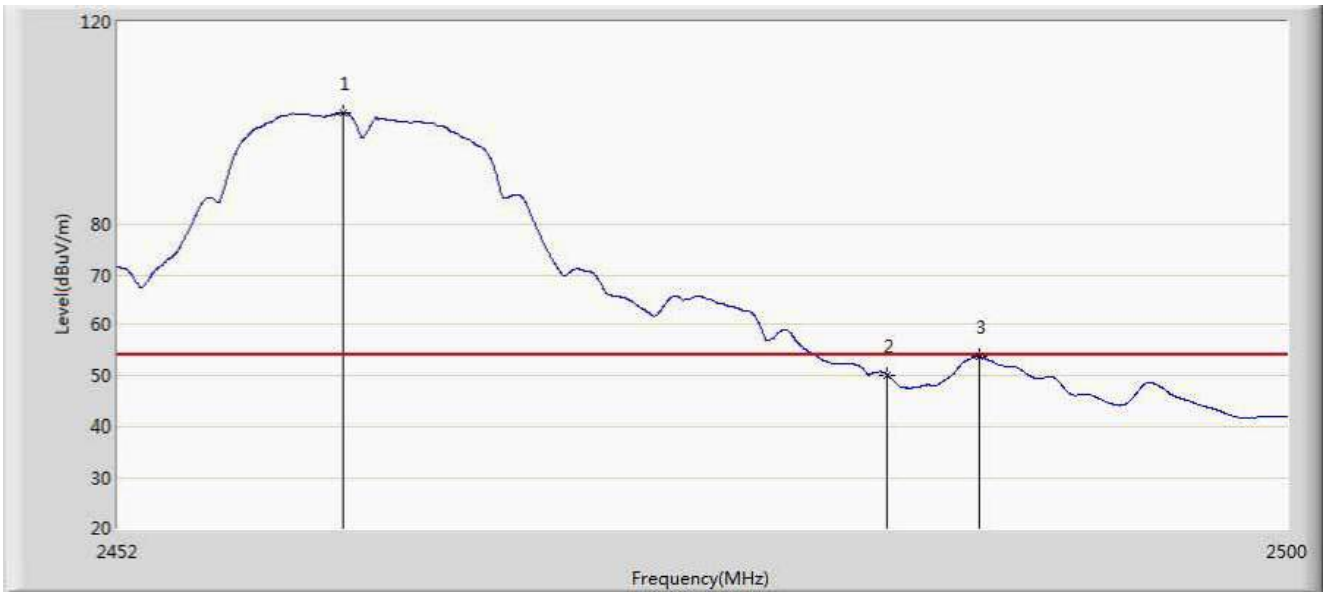
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	49.000	11.645	-5.000	54.000	37.355	AV
2	*	2411.080	96.020	58.692	42.020	54.000	37.328	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 10:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 802.11b ant2	



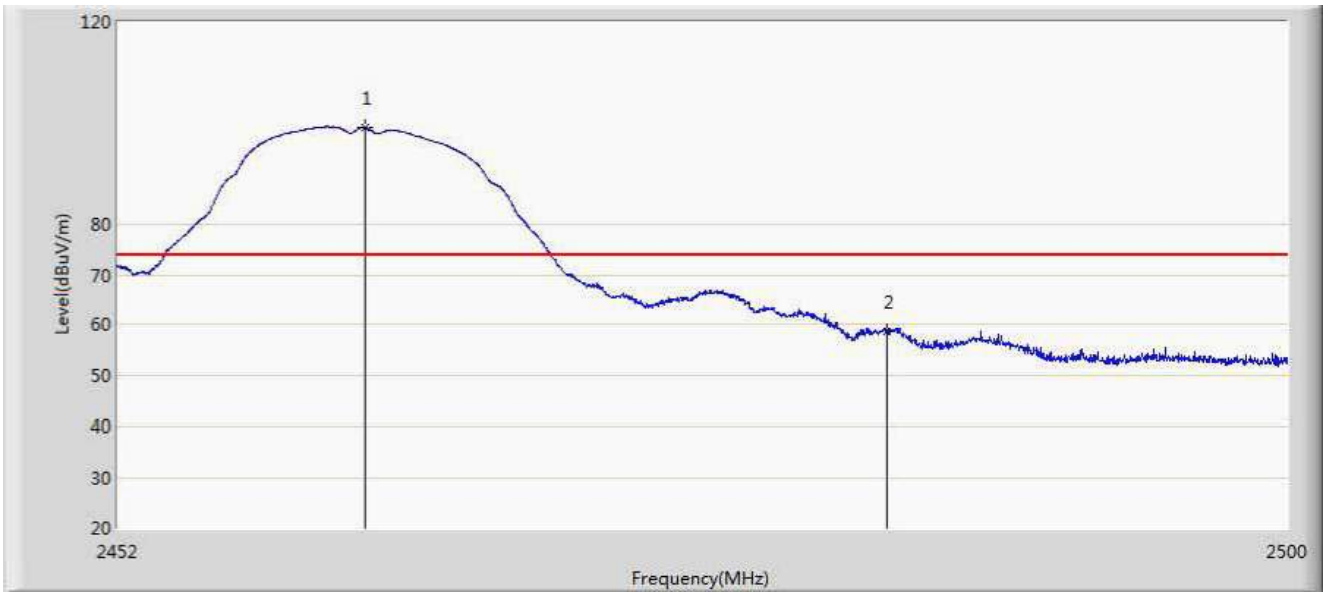
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.104	106.708	69.287	32.708	74.000	37.421	PK
2		2483.500	63.566	26.055	-10.434	74.000	37.511	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 10:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 802.11b ant2	



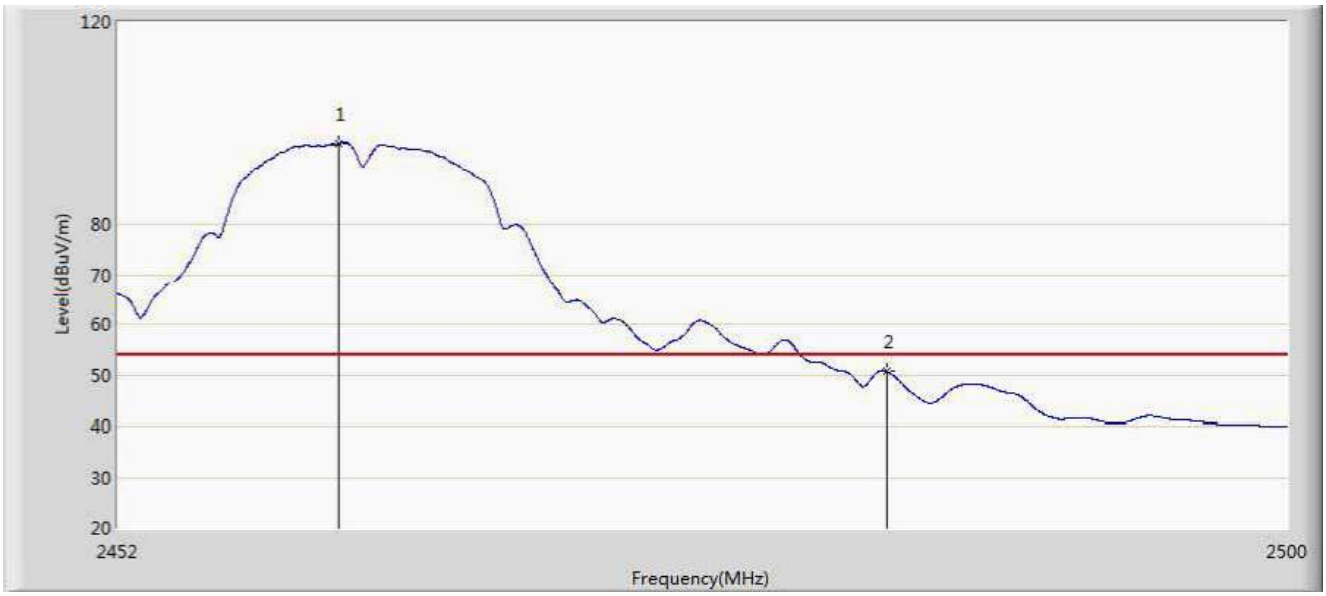
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.216	102.082	64.661	48.082	54.000	37.421	AV
2		2483.500	49.962	12.451	-4.038	54.000	37.511	AV
3		2487.256	53.551	16.013	-0.449	54.000	37.539	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 10:59
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 802.11b ant2	



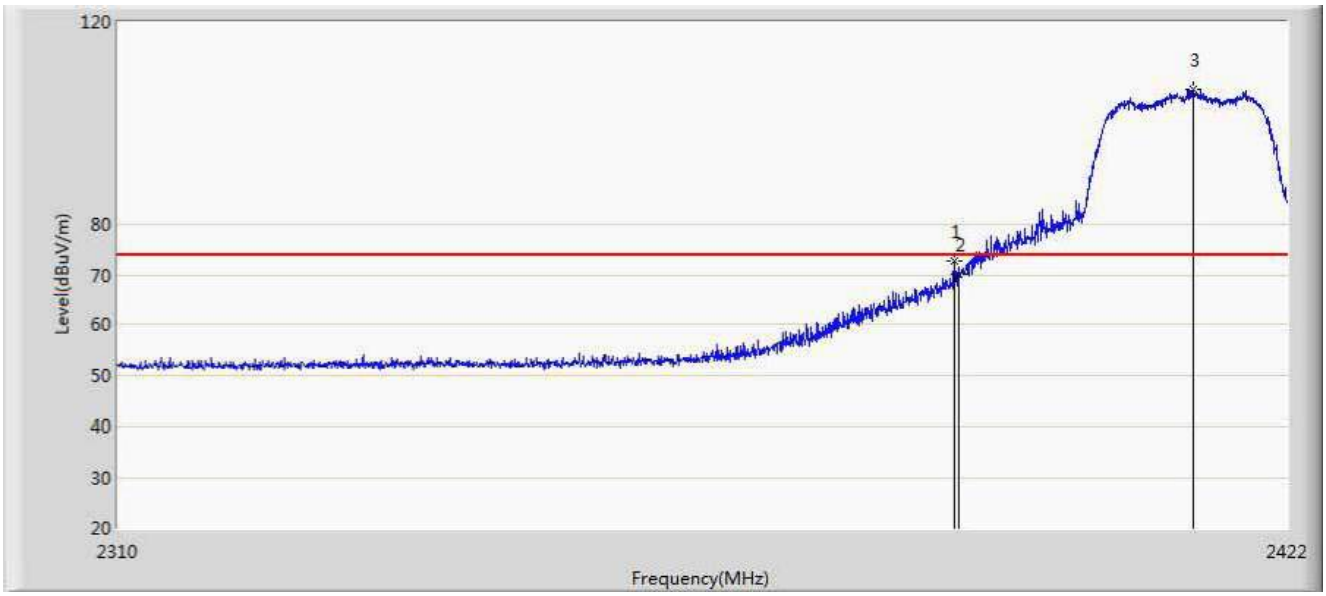
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.104	99.108	61.687	25.108	74.000	37.421	PK
2		2483.500	58.596	21.085	-15.404	74.000	37.511	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 10:59
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2462MHz by 802.11b ant2	



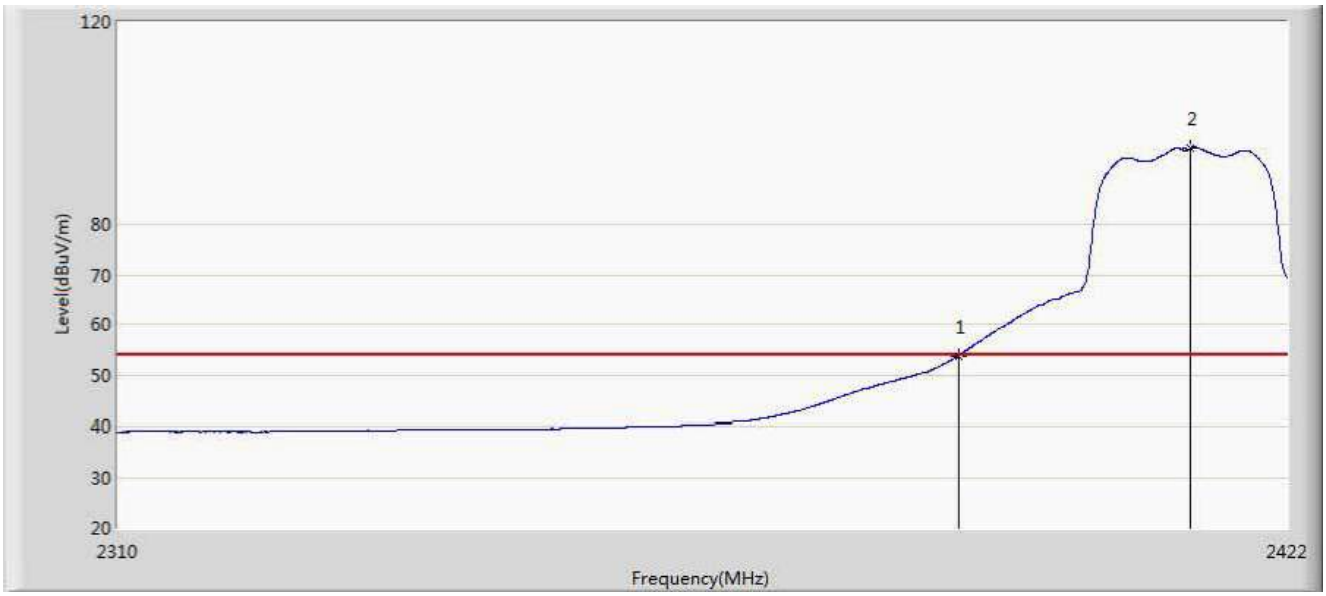
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.024	95.964	58.543	41.964	54.000	37.421	AV
2		2483.500	50.588	13.077	-3.412	54.000	37.511	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 11:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412MHz by 802.11g ant2	



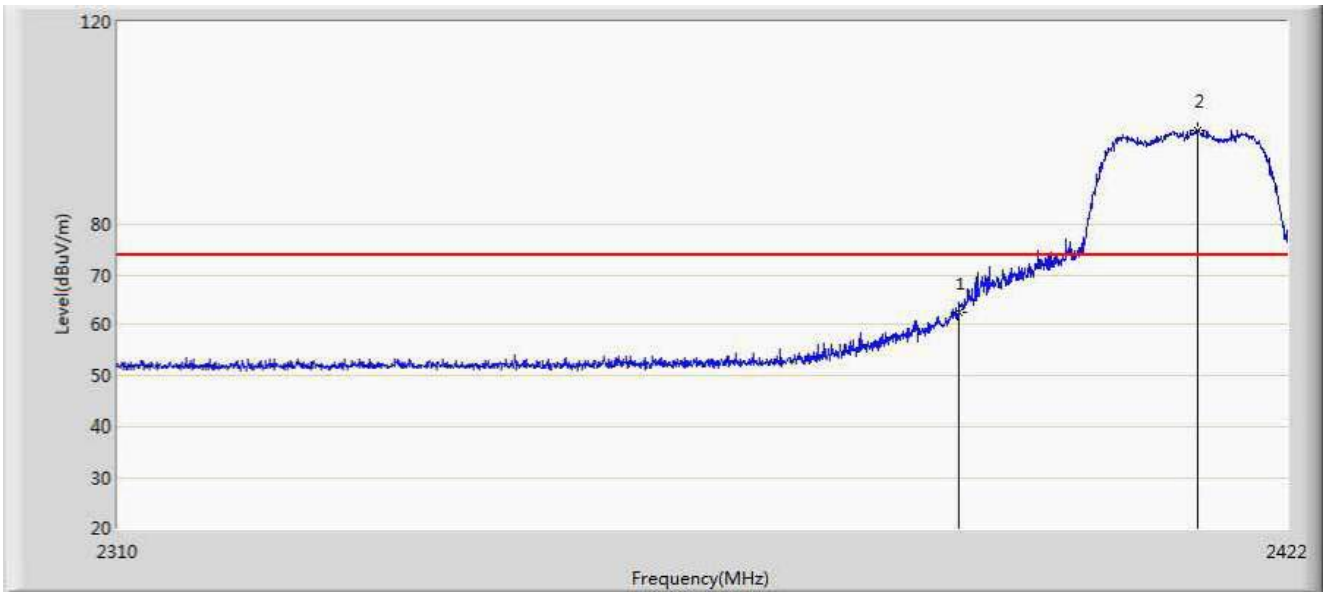
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2389.632	72.616	35.260	-1.384	74.000	37.356	PK
2		2390.000	70.111	32.756	-3.889	74.000	37.355	PK
3	*	2412.760	106.807	69.468	32.807	74.000	37.339	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 11:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412MHz by 802.11g ant2	



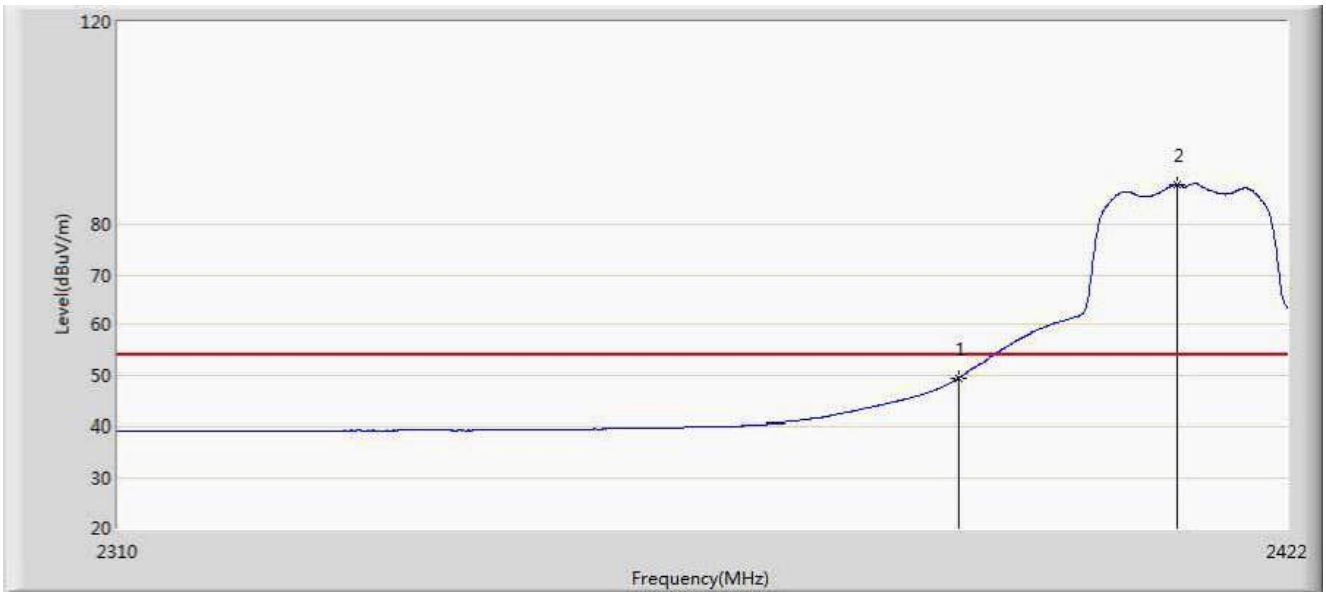
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.716	16.361	-0.284	54.000	37.355	AV
2	*	2412.536	95.024	57.686	41.024	54.000	37.338	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 11:11
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412MHz by 802.11g ant2	



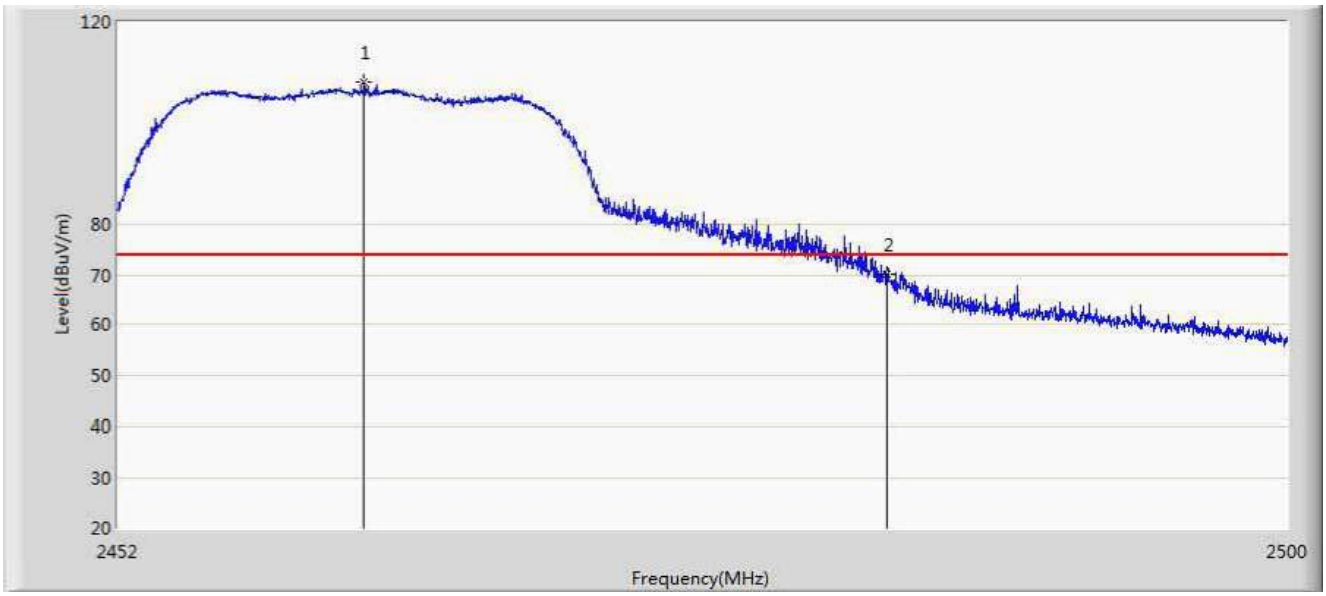
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	62.354	24.999	-11.646	74.000	37.355	PK
2	*	2413.264	98.446	61.103	24.446	74.000	37.343	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 11:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2412MHz by 802.11g ant2	



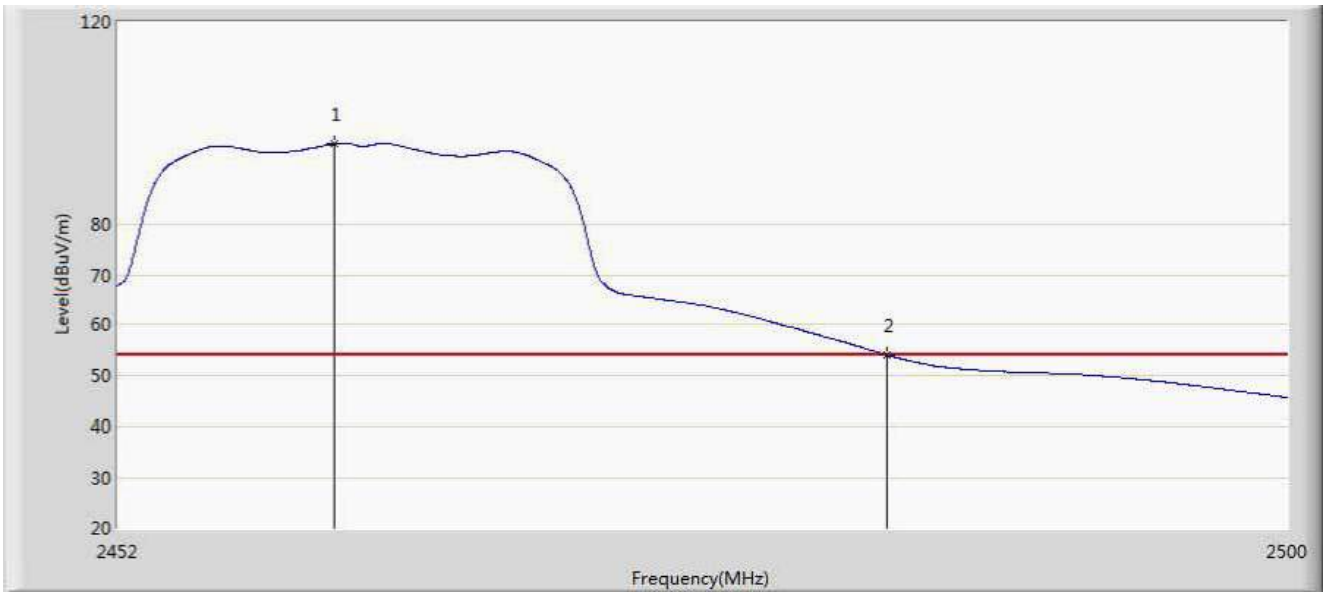
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	49.353	11.998	-4.647	54.000	37.355	AV
2	*	2411.192	87.862	50.533	33.862	54.000	37.329	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 11:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2462MHz by 802.11g ant2	



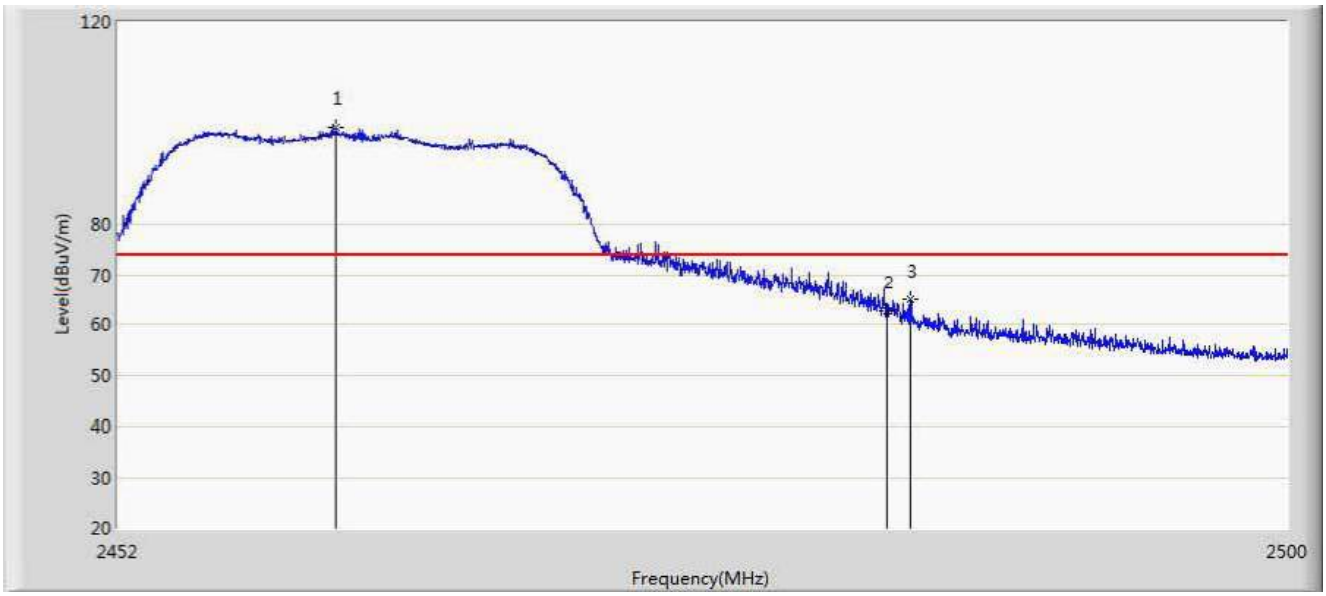
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.056	108.027	70.606	34.027	74.000	37.421	PK
2		2483.500	70.004	32.493	-3.996	74.000	37.511	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 11:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2462MHz by 802.11g ant2	



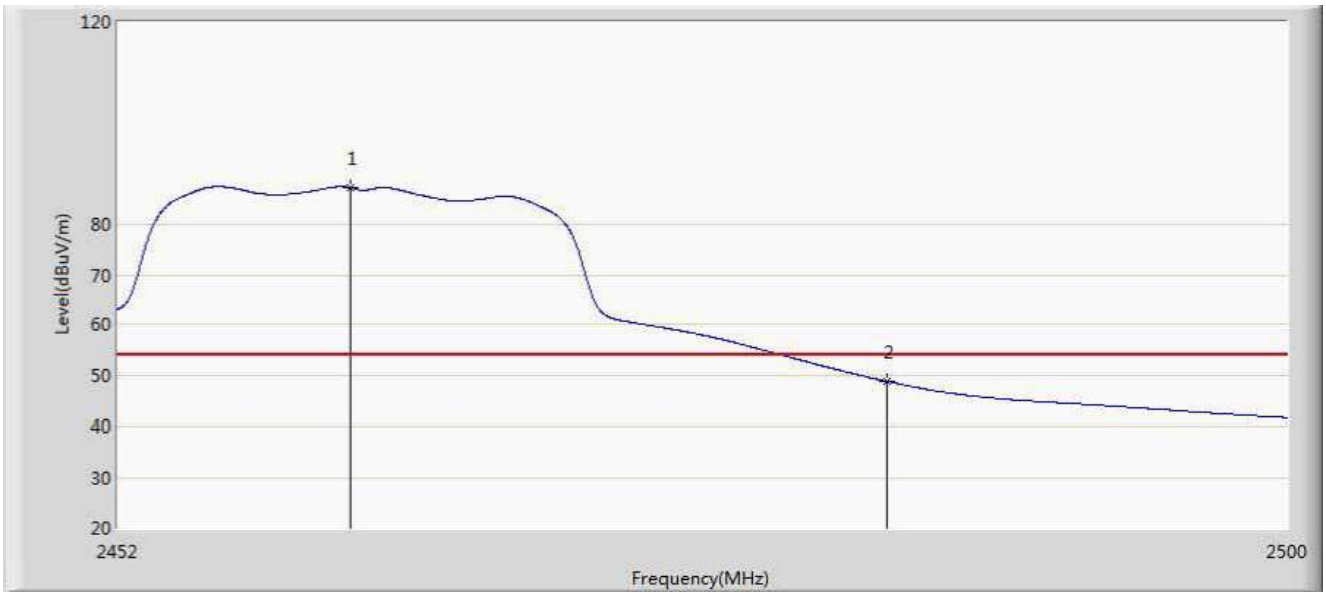
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.856	95.936	58.515	41.936	54.000	37.422	AV
2		2483.500	53.871	16.360	-0.129	54.000	37.511	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 11:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2462MHz by 802.11g ant2	



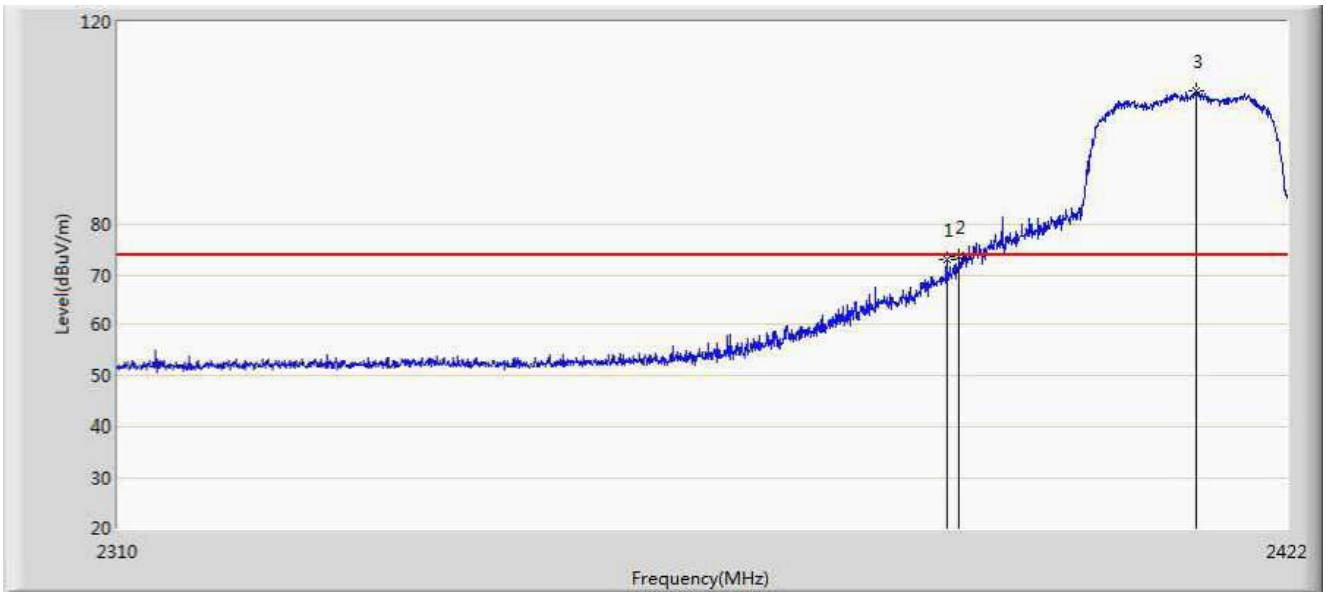
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.880	99.037	61.616	25.037	74.000	37.422	PK
2		2483.500	62.517	25.006	-11.483	74.000	37.511	PK
3		2484.448	64.976	27.458	-9.024	74.000	37.518	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 11:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2462MHz by 802.11g ant2	



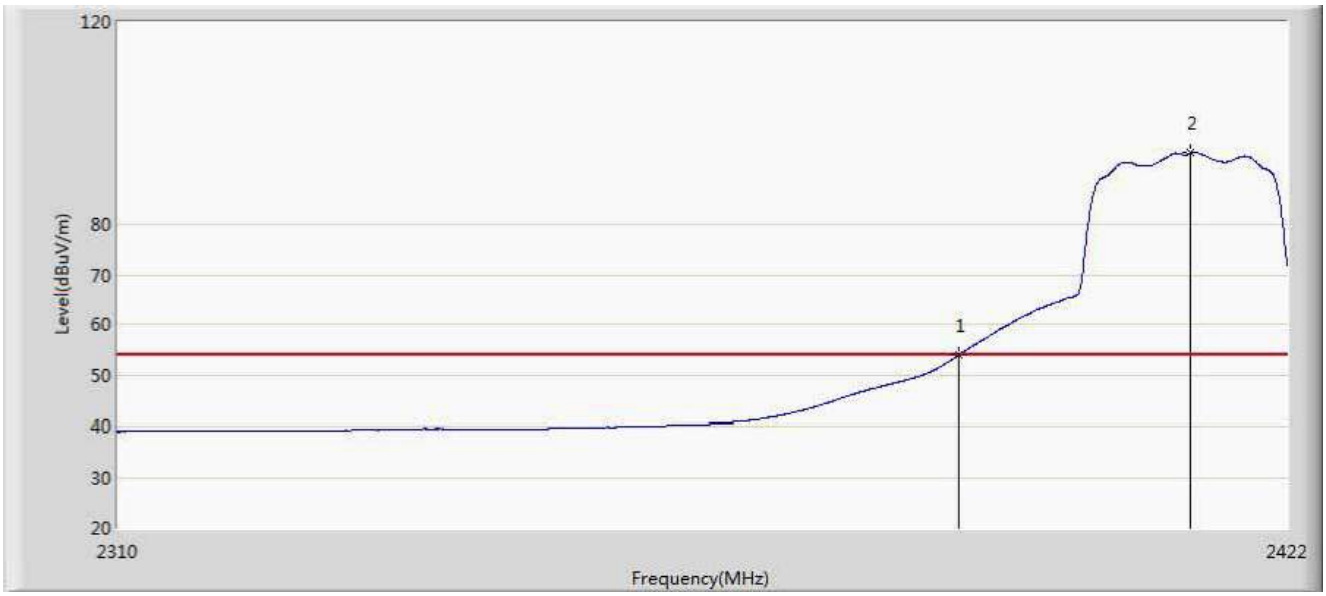
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.504	87.240	49.819	33.240	54.000	37.420	AV
2		2483.500	48.695	11.184	-5.305	54.000	37.511	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 11:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 802.11n20 ant2	



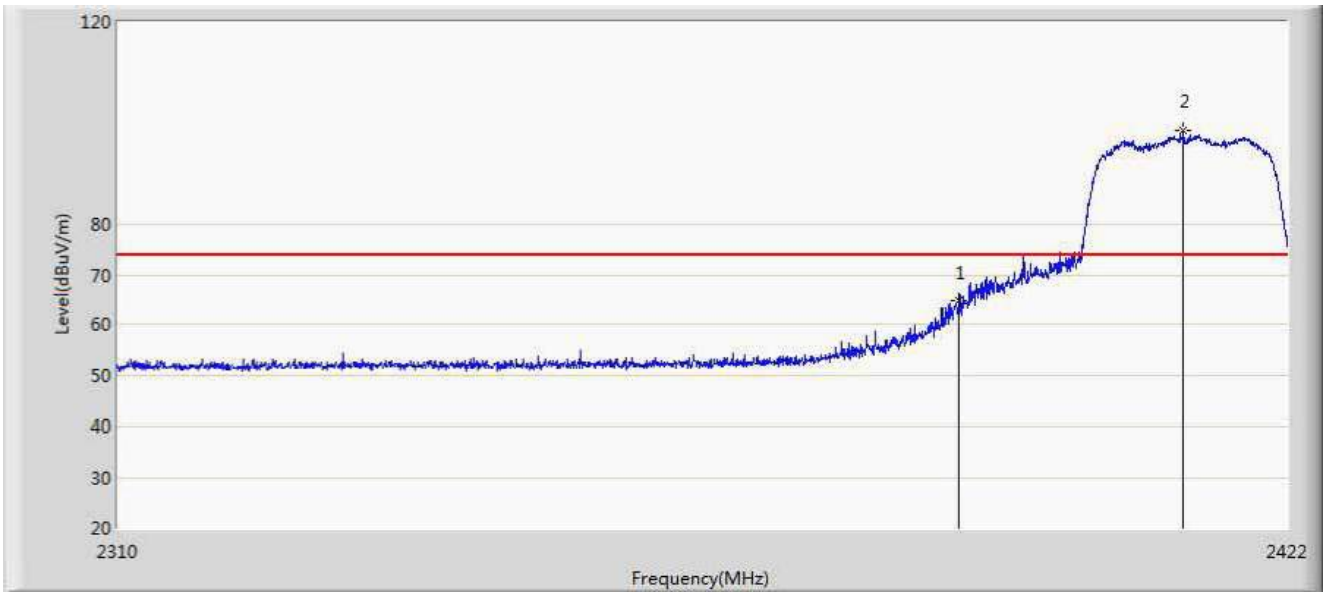
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2388.848	73.028	35.672	-0.972	74.000	37.356	PK
2		2390.000	73.626	36.271	-0.374	74.000	37.355	PK
3	*	2413.096	106.304	68.962	32.304	74.000	37.342	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 11:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 802.11n20 ant2	



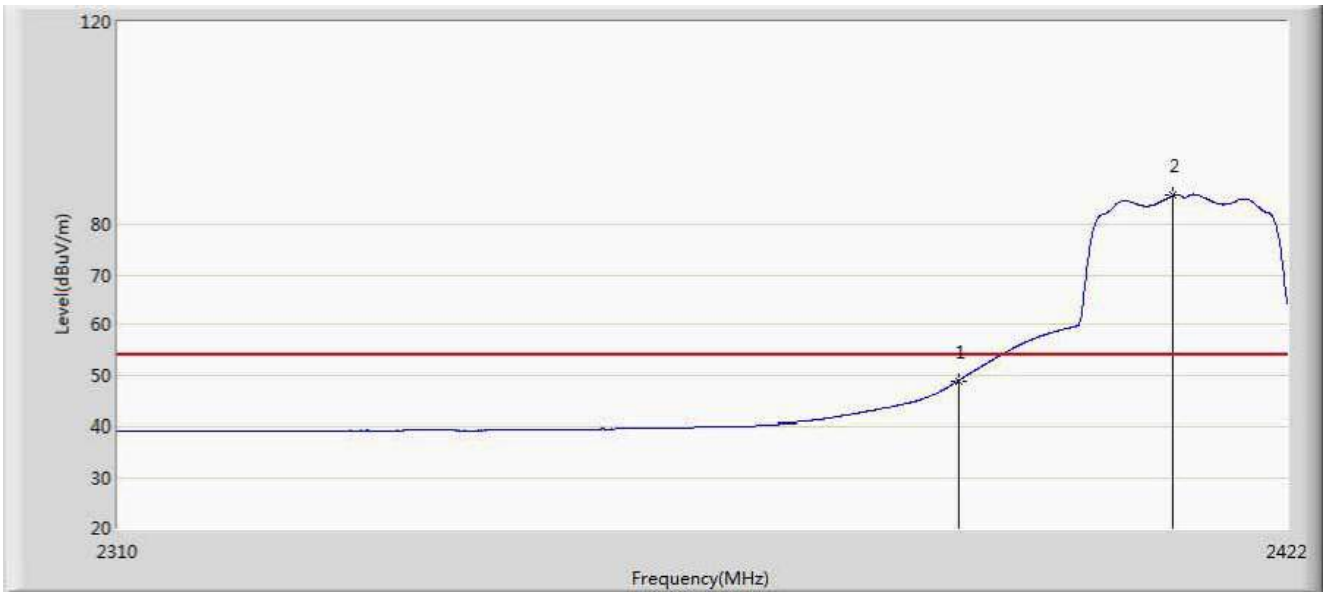
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.846	16.491	-0.154	54.000	37.355	AV
2	*	2412.536	94.081	56.743	40.081	54.000	37.338	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 11:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 802.11n20 ant2	



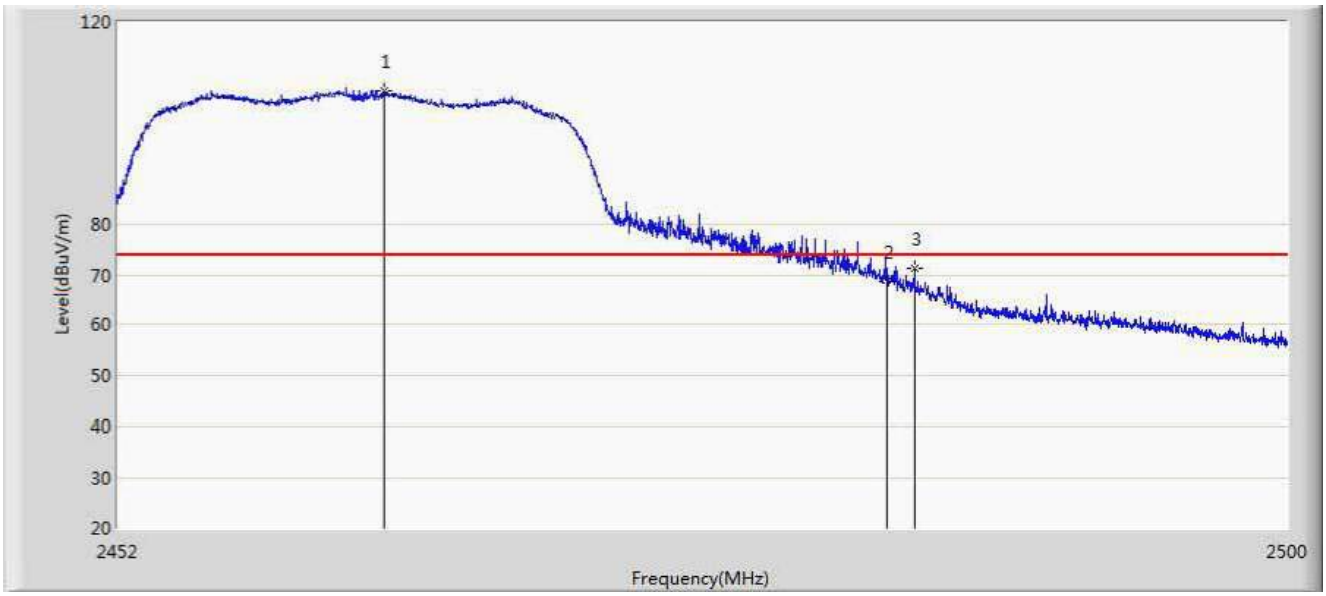
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	64.536	27.181	-9.464	74.000	37.355	PK
2	*	2411.808	98.528	61.195	24.528	74.000	37.333	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 11:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 802.11n20 ant2	



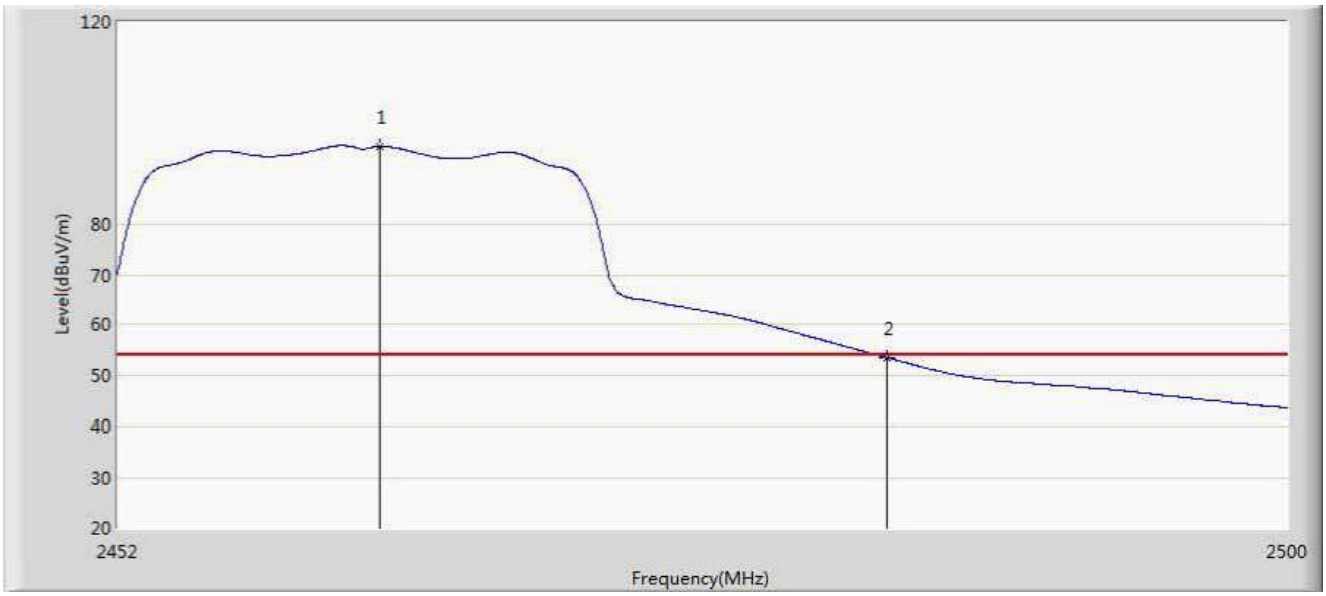
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	48.817	11.462	-5.183	54.000	37.355	AV
2	*	2410.800	85.685	48.357	31.685	54.000	37.328	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 11:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 802.11n20 ant2	



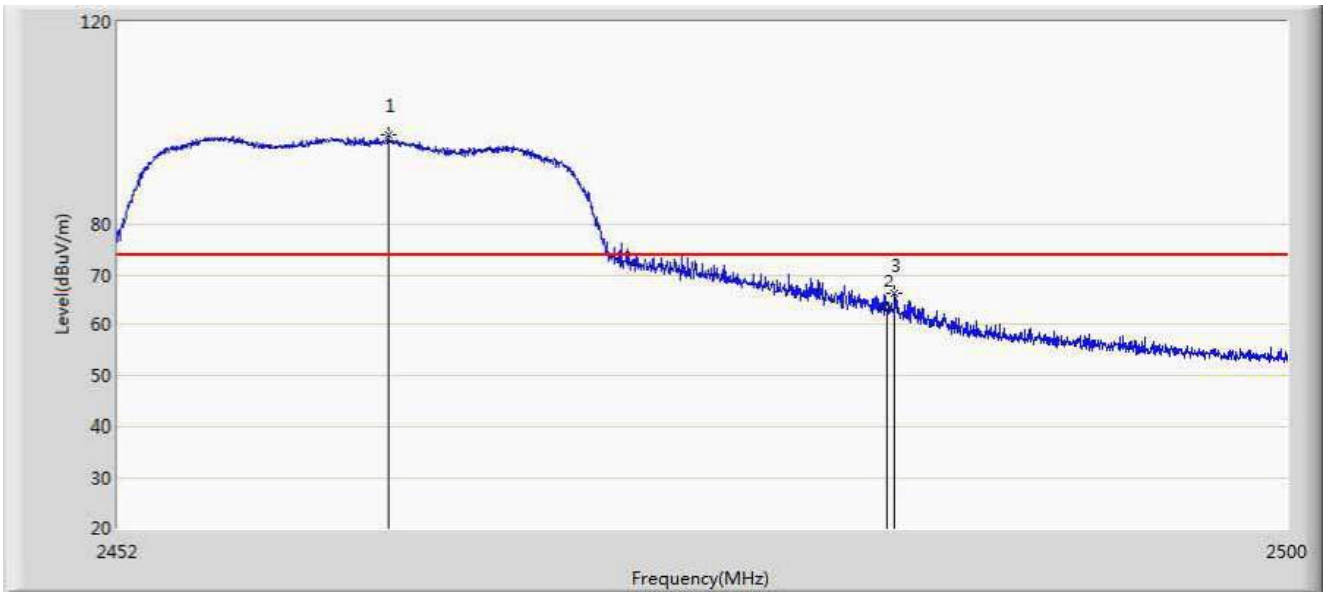
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.872	106.242	68.819	32.242	74.000	37.423	PK
2		2483.500	68.735	31.224	-5.265	74.000	37.511	PK
3		2484.592	71.230	33.711	-2.770	74.000	37.520	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 11:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 802.11n20 ant2	



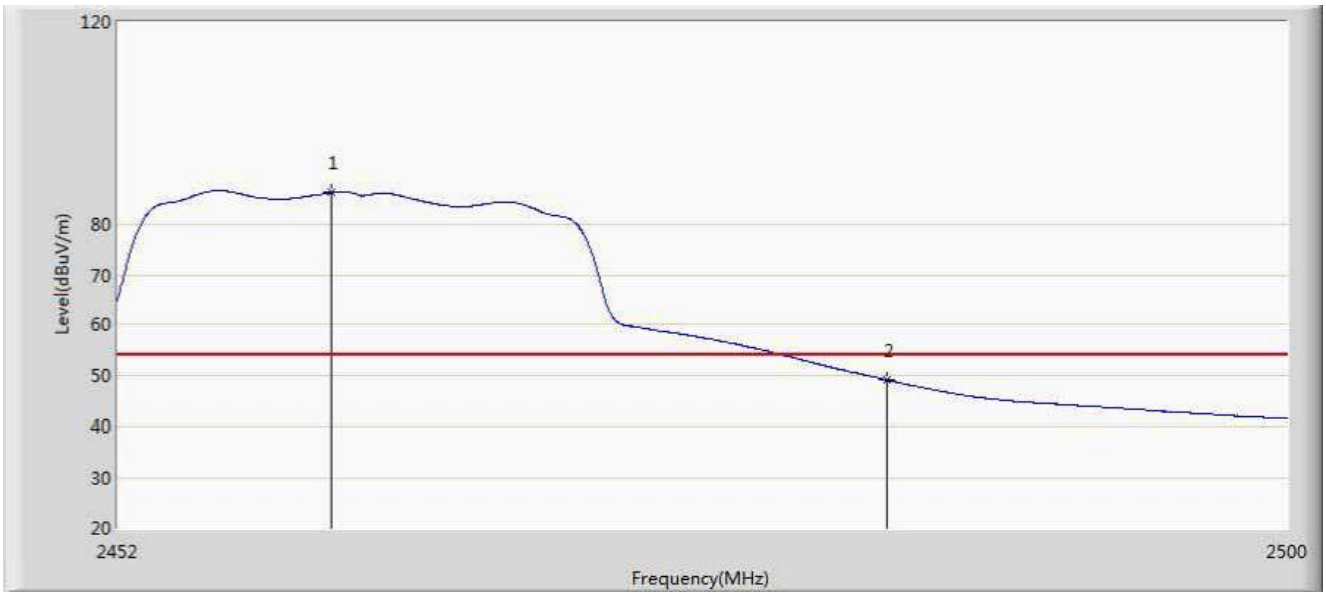
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.704	95.400	57.977	41.400	54.000	37.423	AV
2		2483.500	53.354	15.843	-0.646	54.000	37.511	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 12:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 802.11n20 ant2	



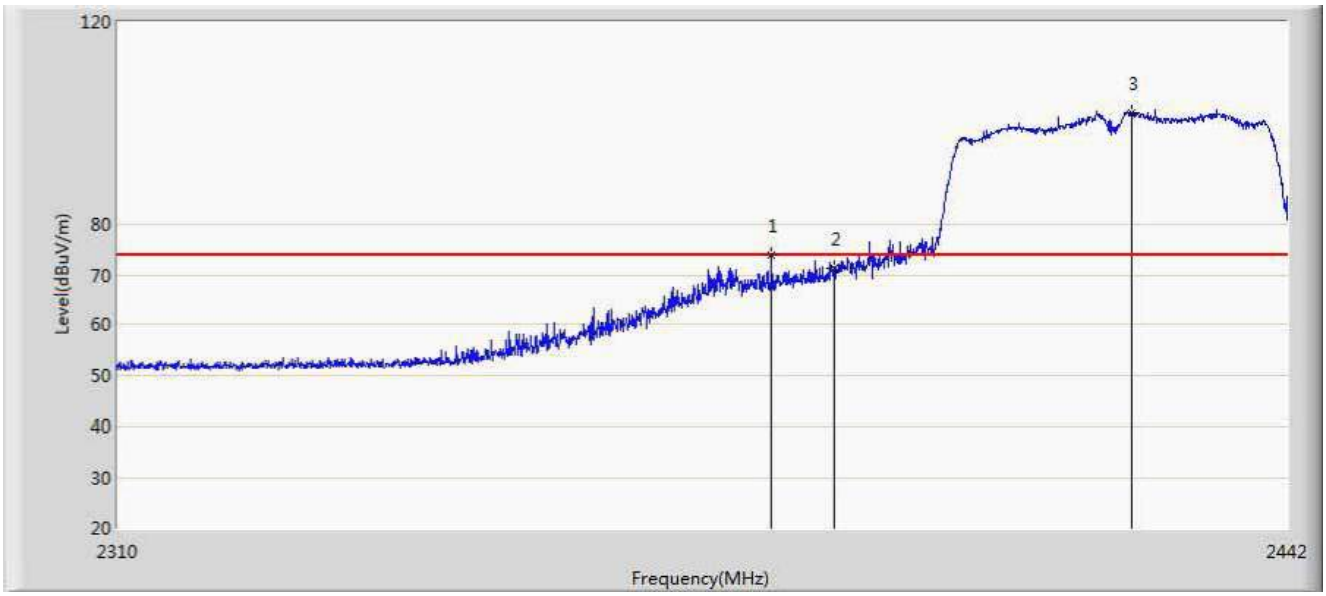
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.016	97.642	60.218	23.642	74.000	37.424	PK
2		2483.500	62.906	25.395	-11.094	74.000	37.511	PK
3		2483.800	66.147	28.634	-7.853	74.000	37.514	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/29 - 12:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 802.11n20 ant2	



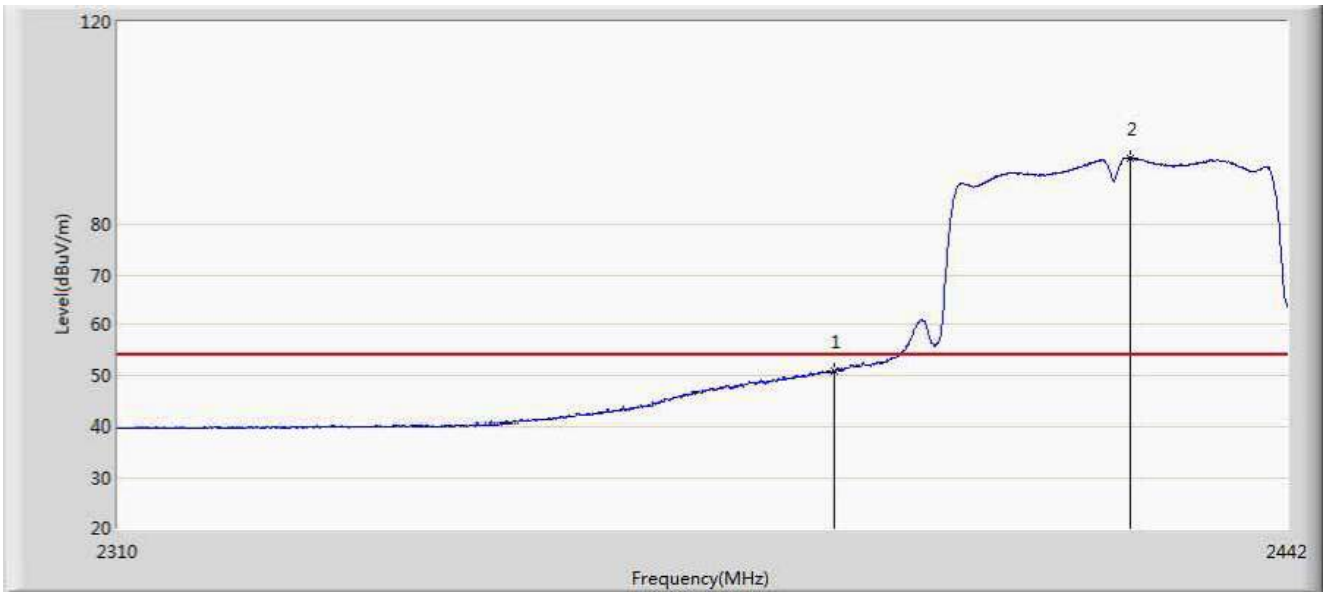
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2460.736	86.309	48.888	32.309	54.000	37.422	AV
2		2483.500	48.965	11.454	-5.035	54.000	37.511	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 09:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 802.11n40 ant2	



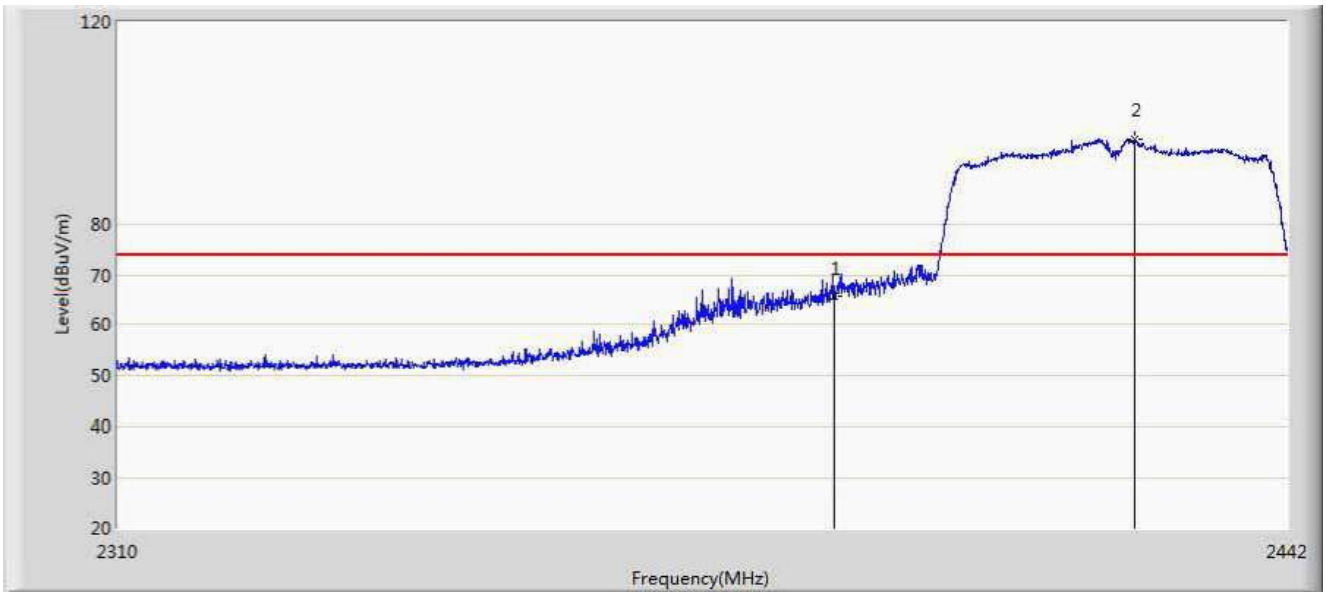
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2382.930	73.806	36.449	-0.194	74.000	37.357	PK
2		2390.000	71.433	34.078	-2.567	74.000	37.355	PK
3	*	2424.048	102.169	64.754	28.169	74.000	37.415	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 09:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 802.11n40 ant2	



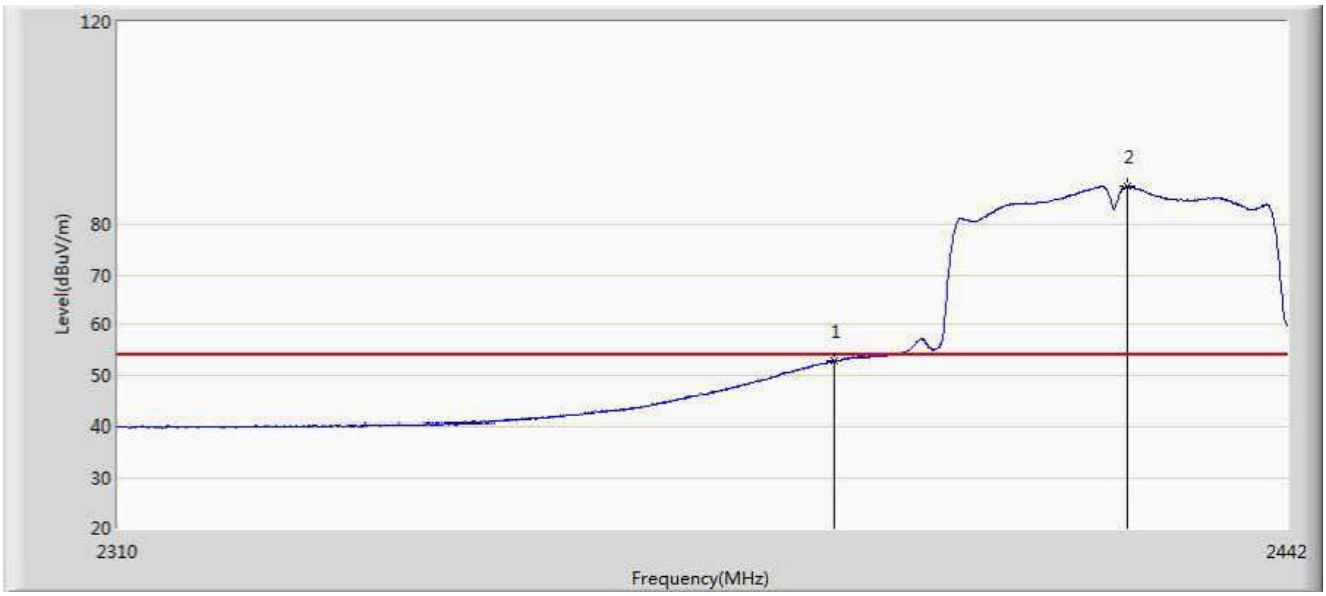
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.706	13.351	-3.294	54.000	37.355	AV
2	*	2423.916	93.175	55.760	39.175	54.000	37.415	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 09:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 802.11n40 ant2	



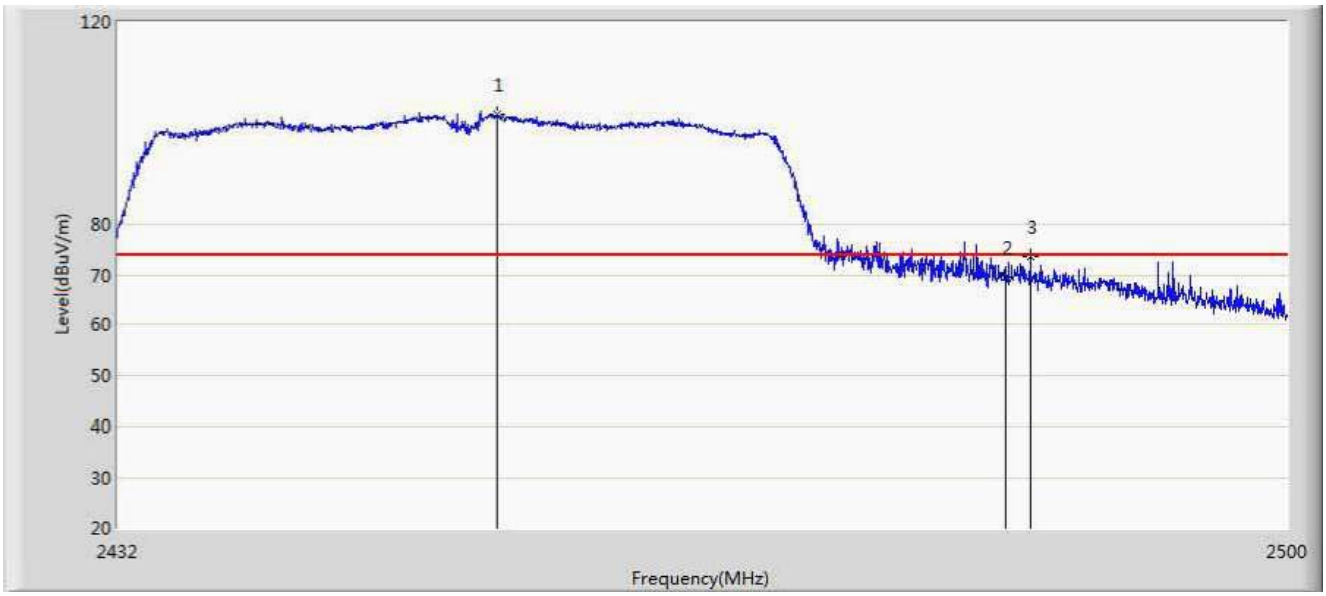
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	65.621	28.266	-8.379	74.000	37.355	PK
2	*	2424.378	96.846	59.428	22.846	74.000	37.418	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 09:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 802.11n40 ant2	



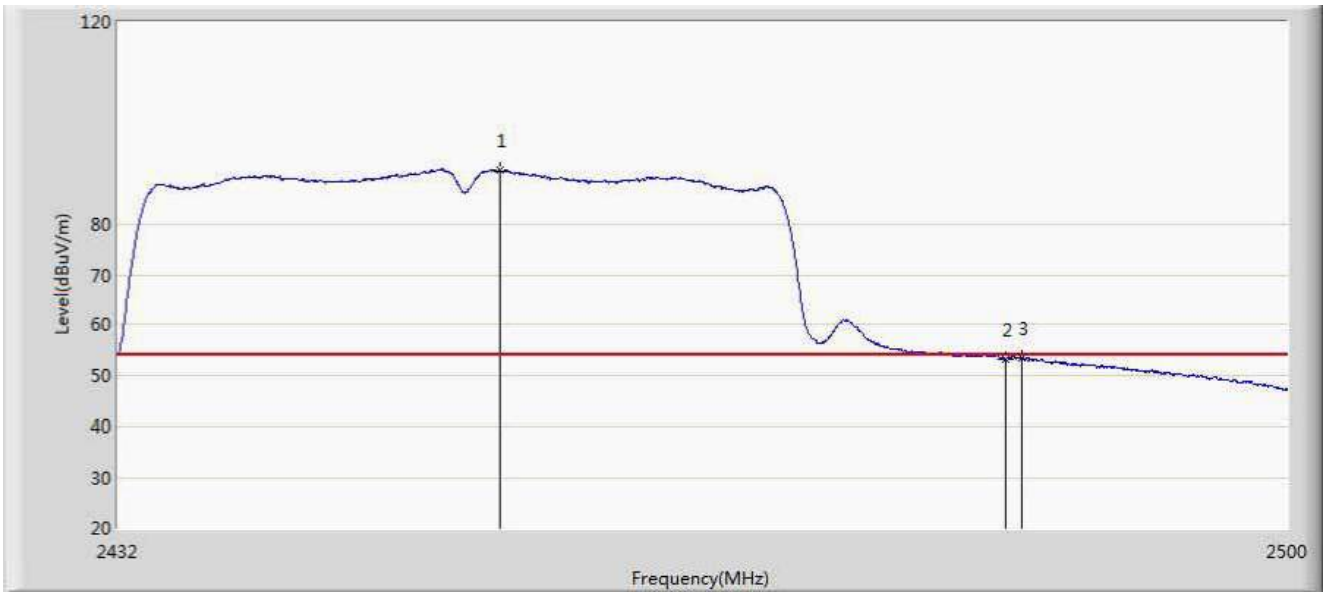
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.671	15.316	-1.329	54.000	37.355	AV
2	*	2423.454	87.603	50.192	33.603	54.000	37.411	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 09:55
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452MHz by 802.11n40 ant2	



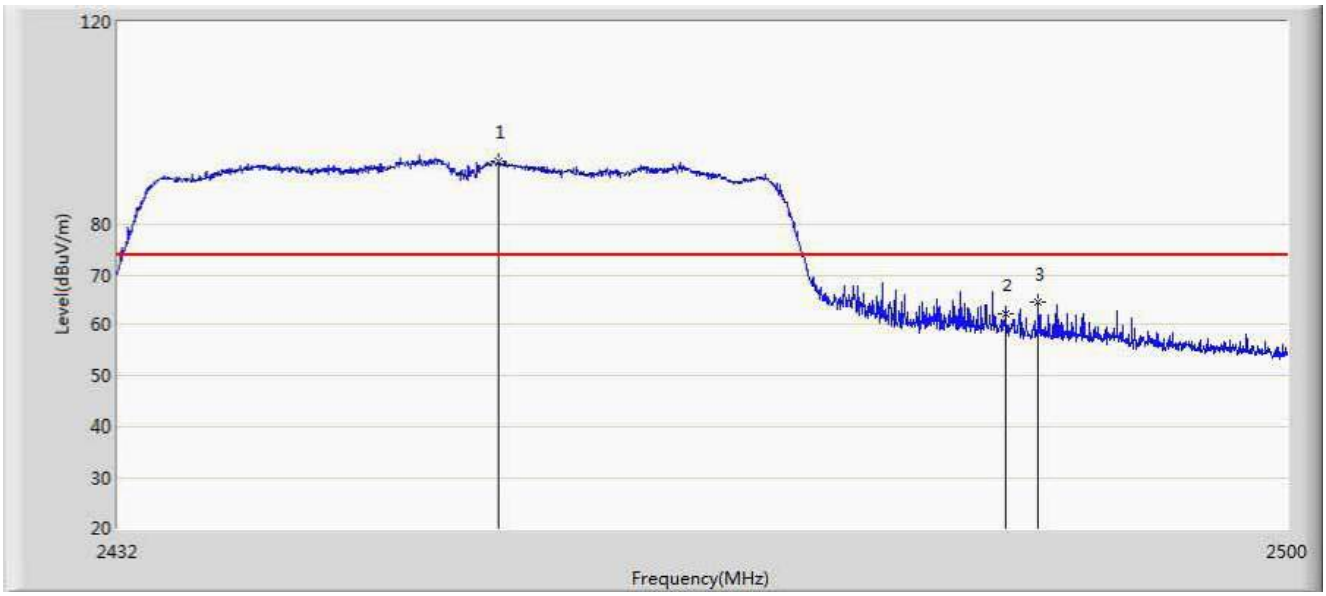
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.828	101.643	64.216	27.643	74.000	37.426	PK
2		2483.500	69.624	32.113	-4.376	74.000	37.511	PK
3		2484.904	73.689	36.168	-0.311	74.000	37.521	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 09:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452MHz by 802.11n40 ant2	



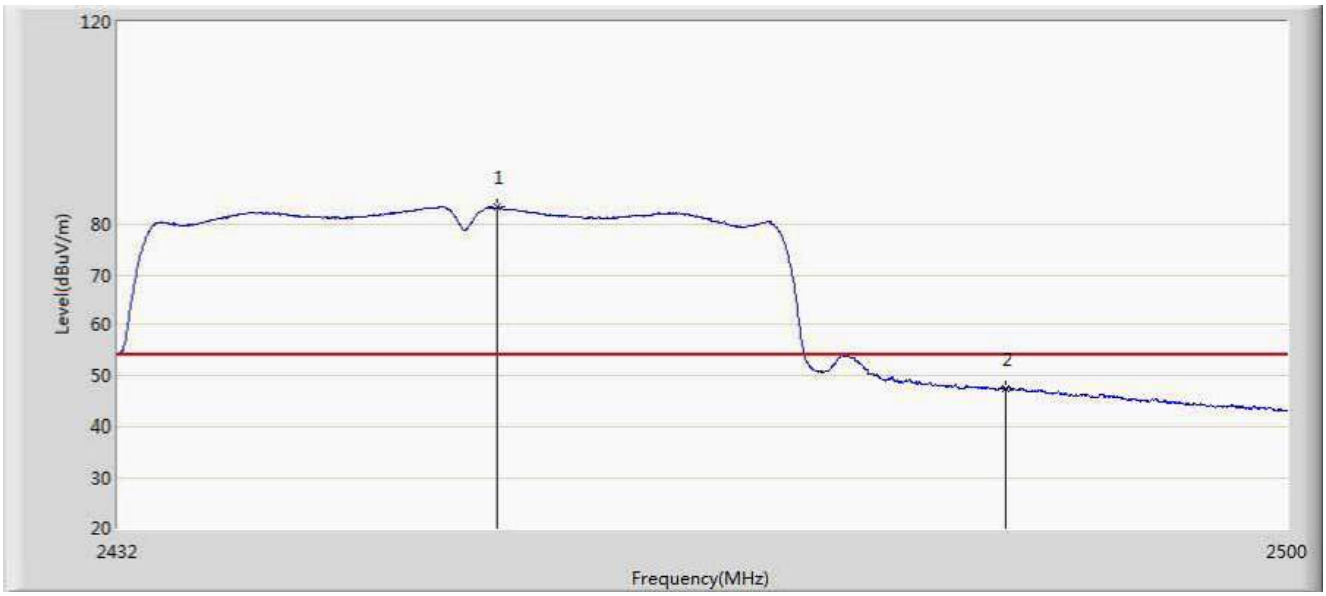
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2454.032	90.664	53.237	36.664	54.000	37.427	AV
2		2483.500	53.124	15.613	-0.876	54.000	37.511	AV
3		2484.394	53.416	15.898	-0.584	54.000	37.517	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 10:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452MHz by 802.11n40 ant2	



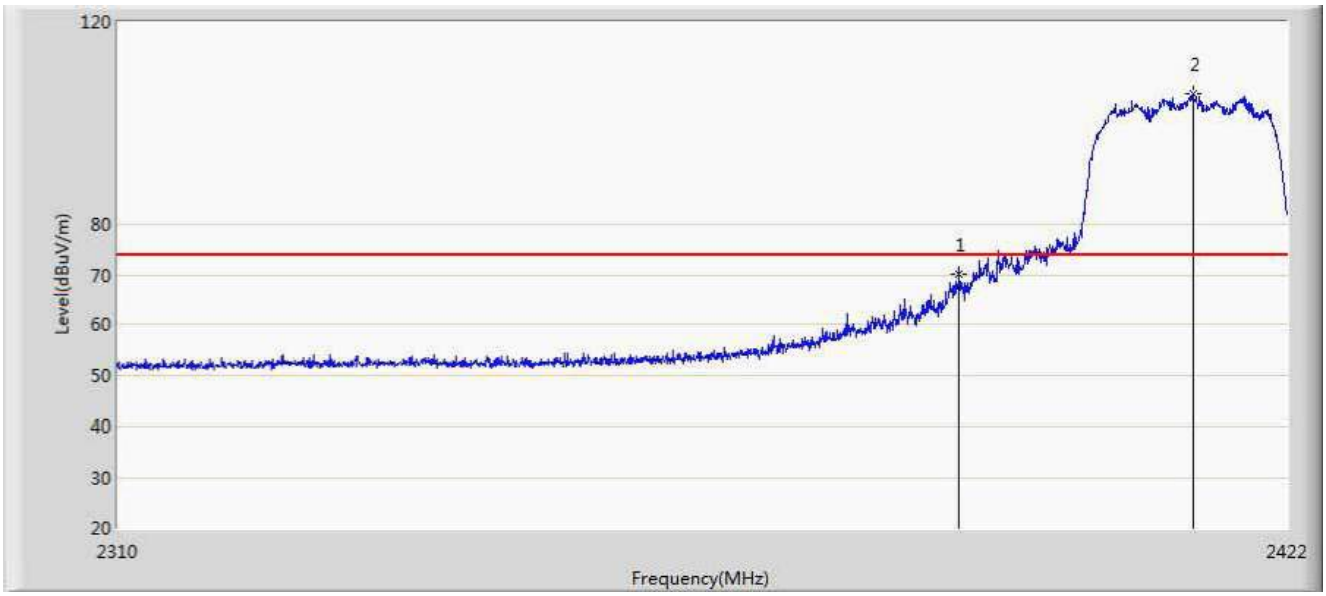
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.964	92.517	55.090	18.517	74.000	37.427	PK
2		2483.500	61.991	24.480	-12.009	74.000	37.511	PK
3		2485.380	64.320	26.795	-9.680	74.000	37.525	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 10:19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452MHz by 802.11n40 ant2	



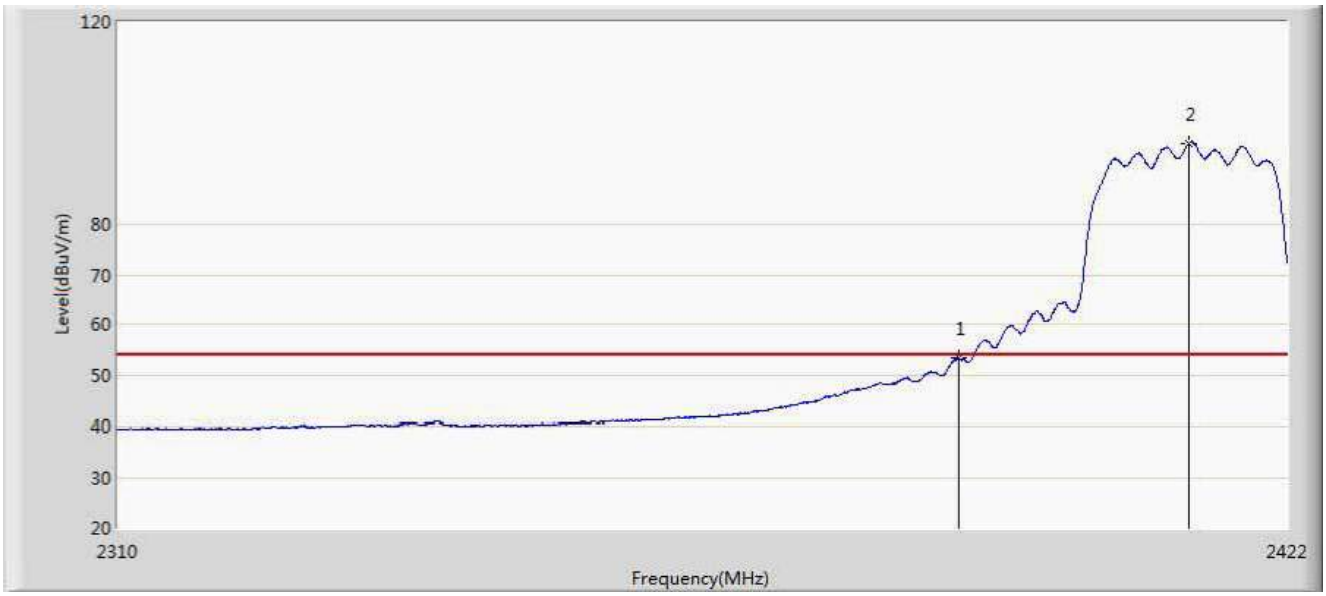
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.896	83.392	45.965	29.392	54.000	37.426	AV
2		2483.500	47.180	9.669	-6.820	54.000	37.511	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 10:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 802.11n20 ant1+2	



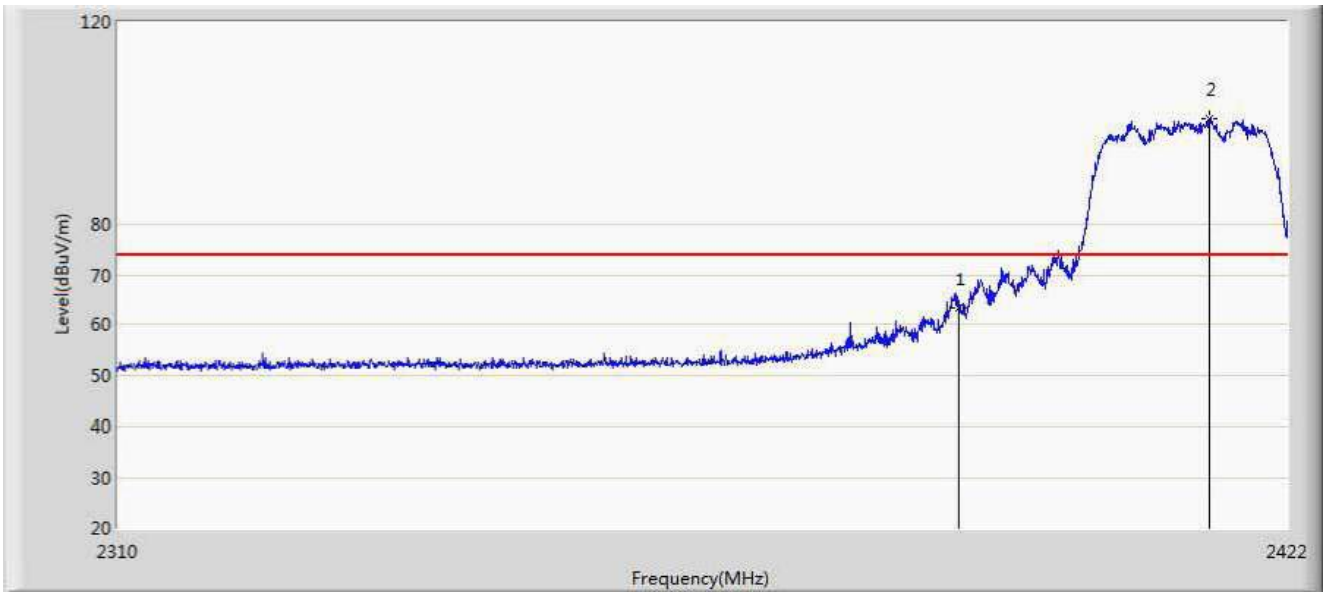
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	70.046	32.691	-3.954	74.000	37.355	PK
2	*	2412.760	105.674	68.335	31.674	74.000	37.339	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 10:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 802.11n20 ant1+2	



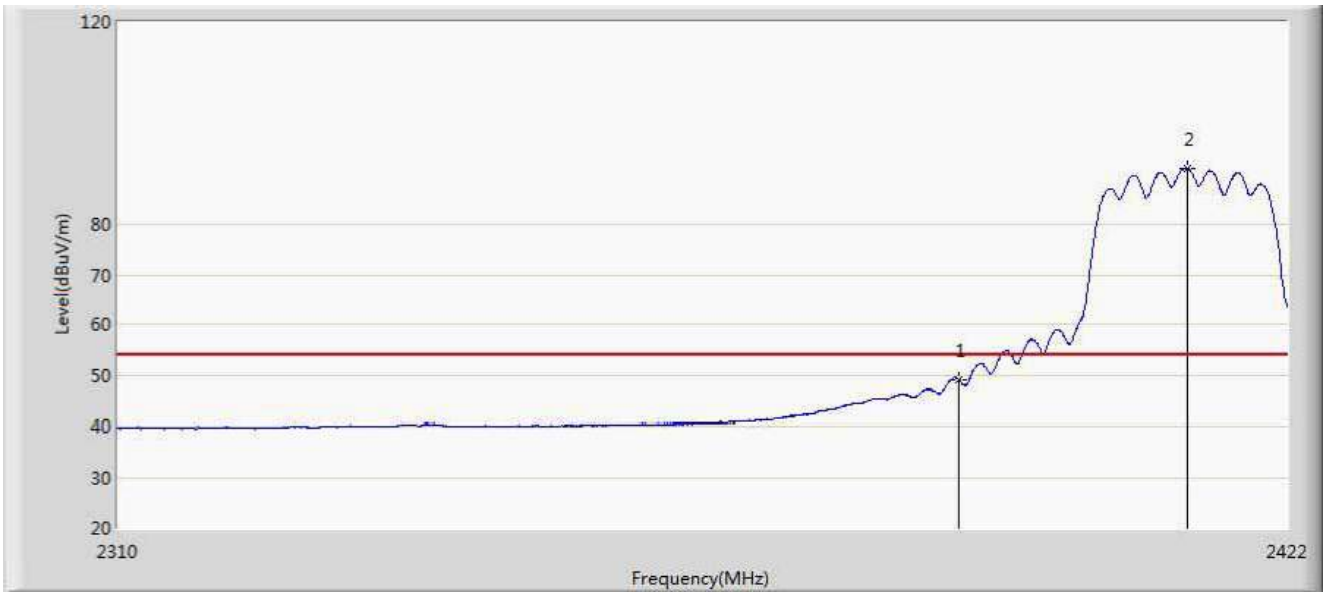
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.255	15.900	-0.745	54.000	37.355	AV
2	*	2412.424	96.054	58.717	42.054	54.000	37.337	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 10:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 802.11n20 ant1+2	



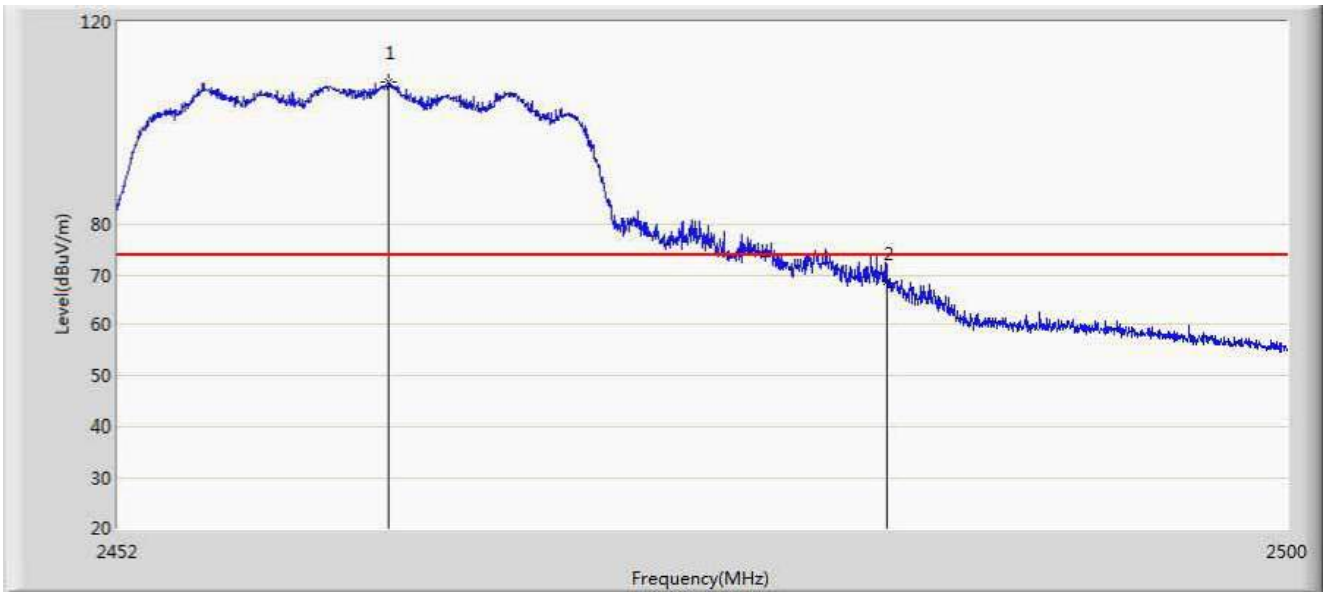
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	63.231	25.876	-10.769	74.000	37.355	PK
2	*	2414.440	100.916	63.565	26.916	74.000	37.350	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 10:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2412MHz by 802.11n20 ant1+2	



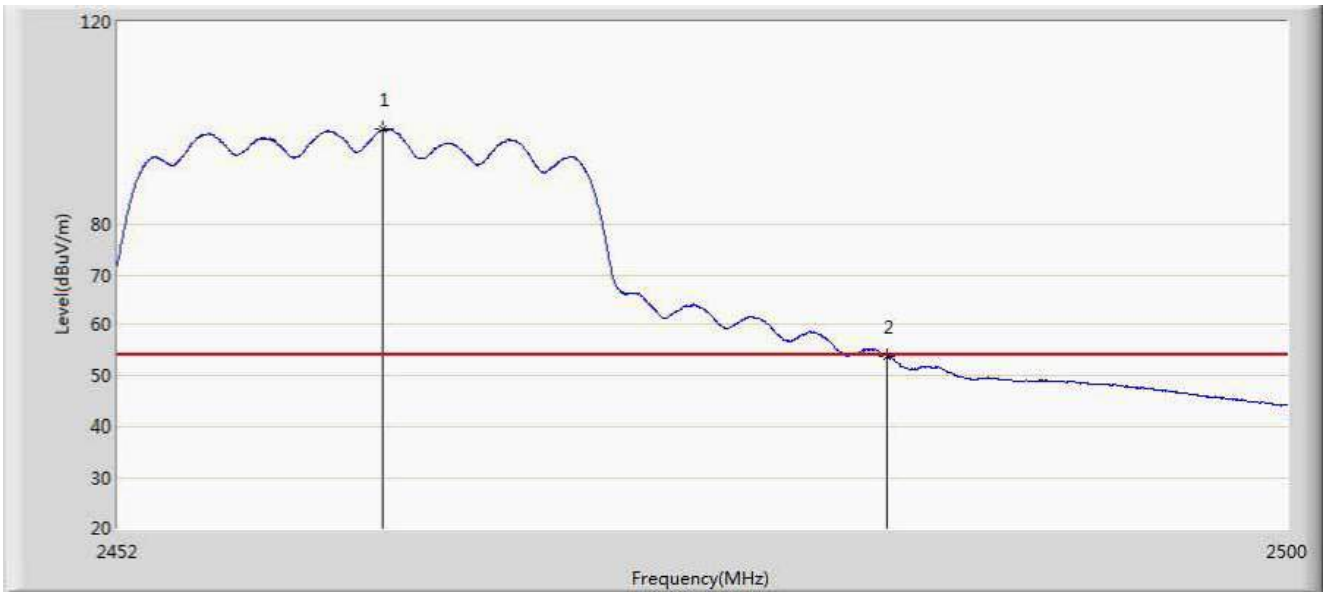
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	49.005	11.650	-4.995	54.000	37.355	AV
2	*	2412.200	90.980	53.644	36.980	54.000	37.335	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 10:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 802.11n20 ant1+2	



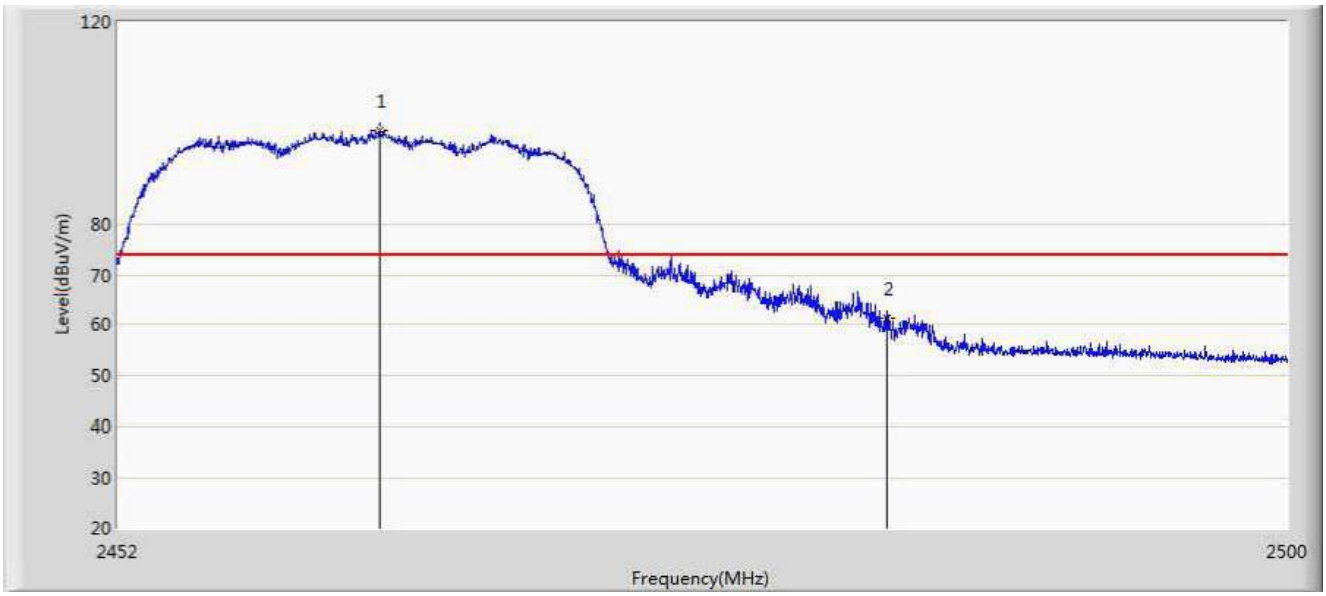
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.064	108.135	70.711	34.135	74.000	37.424	PK
2		2483.500	68.412	30.901	-5.588	74.000	37.511	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 10:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 802.11n20 ant1+2	



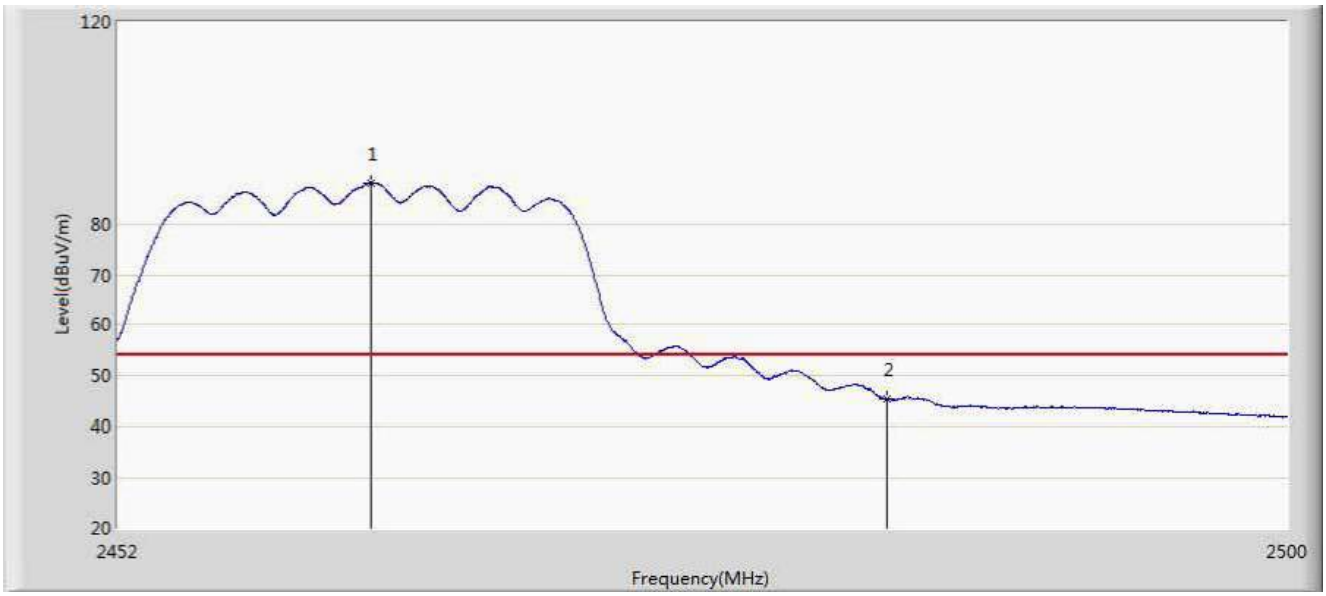
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.776	98.736	61.313	44.736	54.000	37.423	AV
2		2483.500	53.720	16.209	-0.280	54.000	37.511	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 10:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 802.11n20 ant1+2	



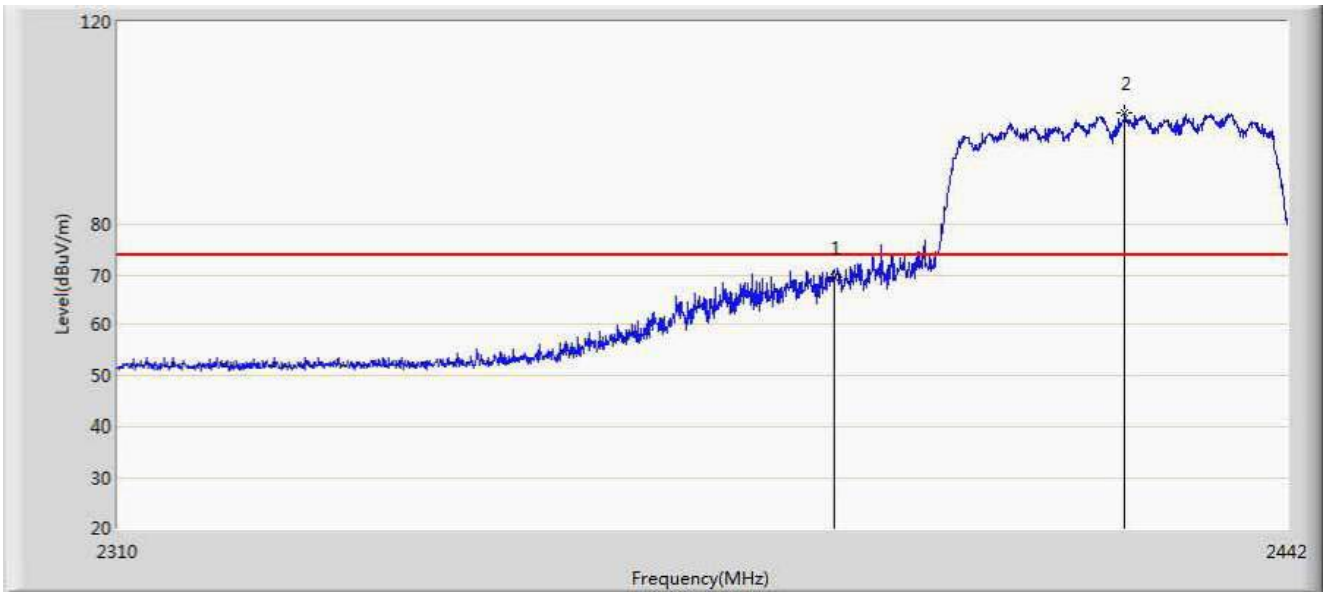
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.680	98.590	61.167	24.590	74.000	37.423	PK
2		2483.500	61.121	23.610	-12.879	74.000	37.511	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 10:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2462MHz by 802.11n20 ant1+2	



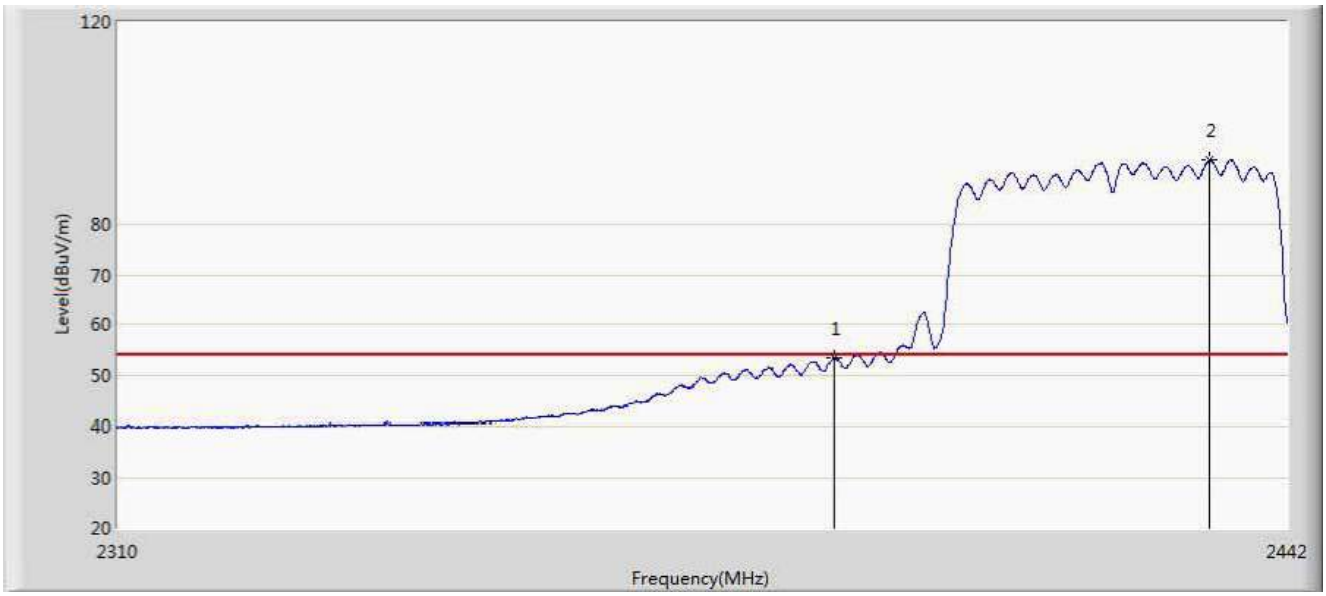
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.320	88.258	50.837	34.258	54.000	37.421	AV
2		2483.500	45.110	7.599	-8.890	54.000	37.511	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 10:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 802.11n40 ant1+2	



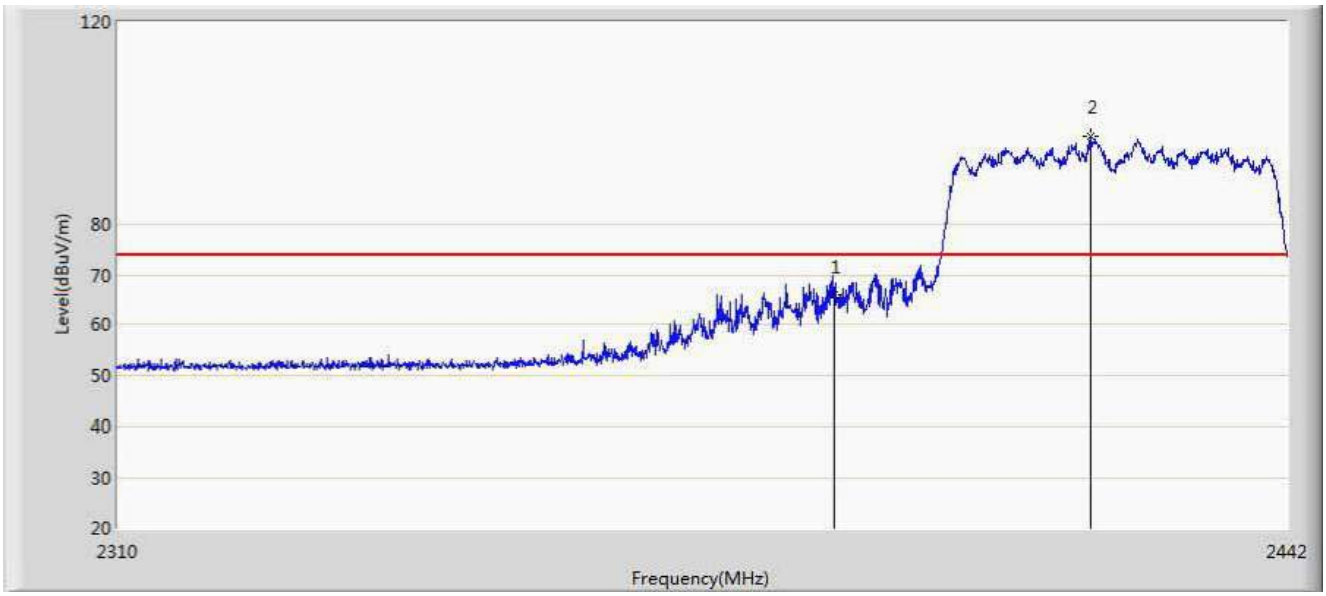
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	69.595	32.240	-4.405	74.000	37.355	PK
2	*	2423.256	101.927	64.517	27.927	74.000	37.410	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 10:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 802.11n40 ant1+2	



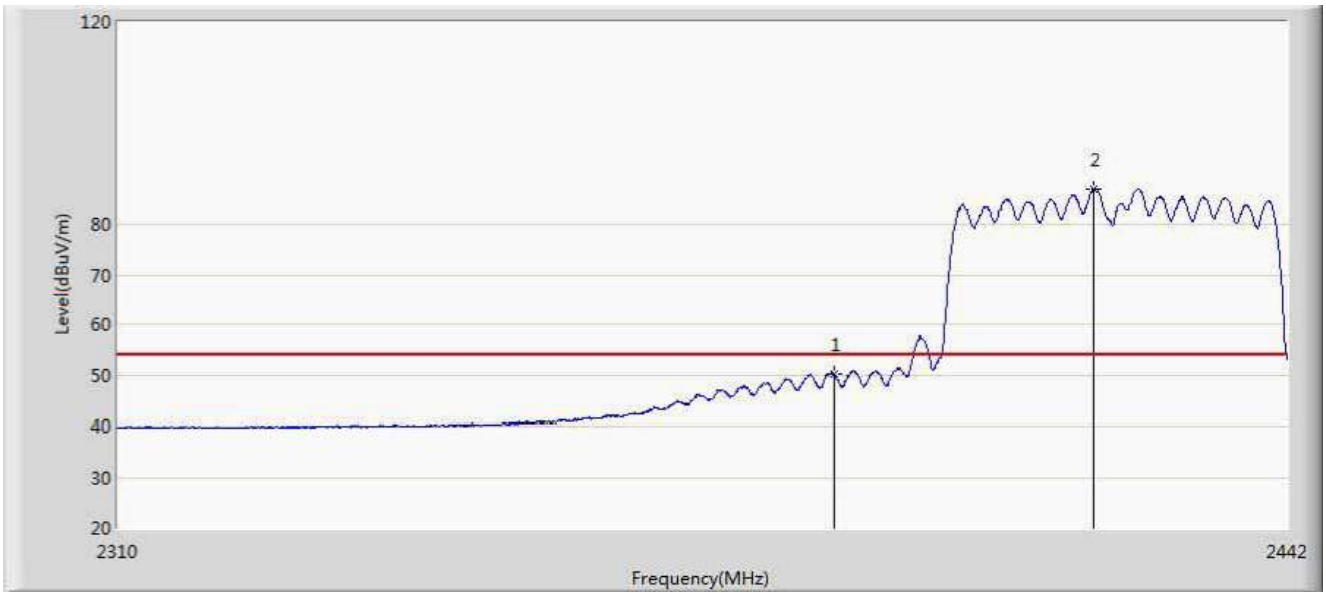
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.277	15.922	-0.723	54.000	37.355	AV
2	*	2432.958	92.647	55.207	38.647	54.000	37.440	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 10:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 802.11n40 ant1+2	



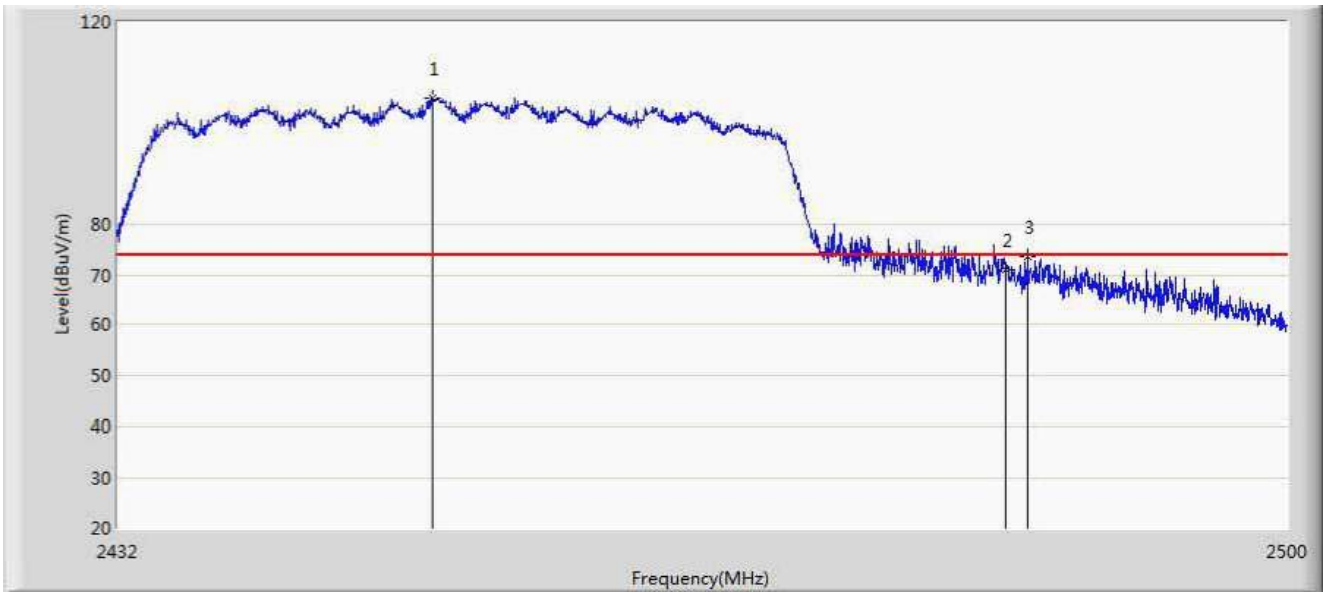
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	65.733	28.378	-8.267	74.000	37.355	PK
2	*	2419.362	97.255	59.871	23.255	74.000	37.384	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 10:55
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2422MHz by 802.11n40 ant1+2	



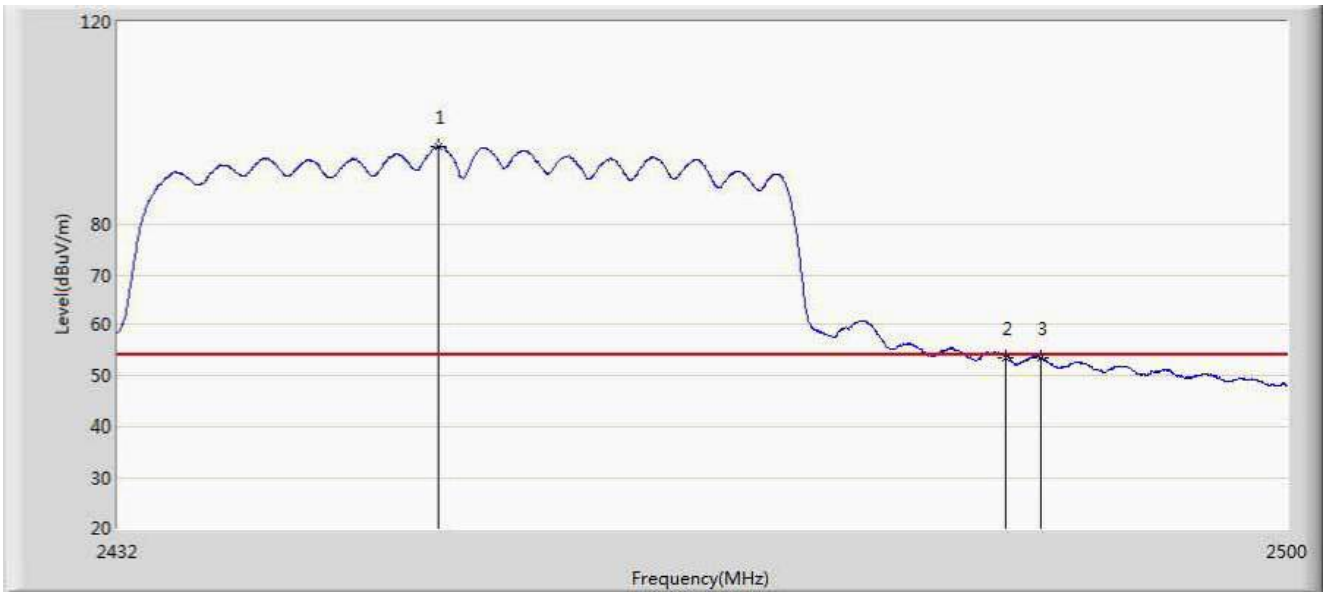
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.105	12.750	-3.895	54.000	37.355	AV
2	*	2419.692	87.023	49.637	33.023	54.000	37.386	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 11:10
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452MHz by 802.11n40 ant1+2	



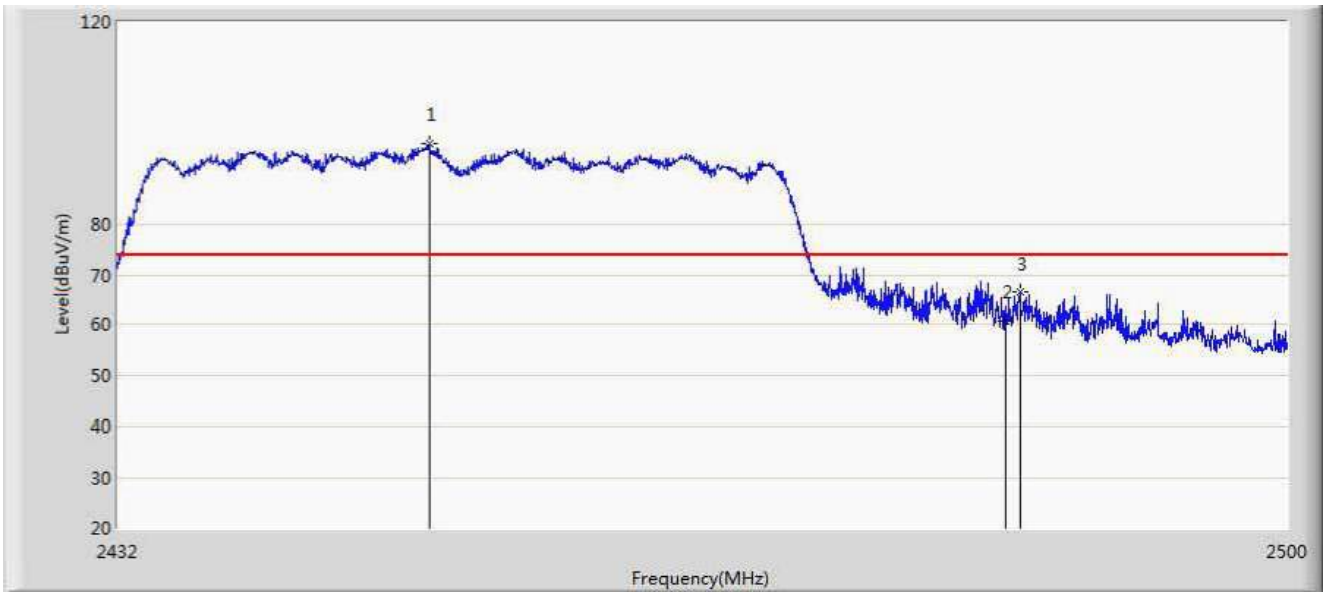
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2450.156	104.963	67.534	30.963	74.000	37.429	PK
2		2483.500	71.135	33.624	-2.865	74.000	37.511	PK
3		2484.734	73.742	36.222	-0.258	74.000	37.520	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 11:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452MHz by 802.11n40 ant1+2	



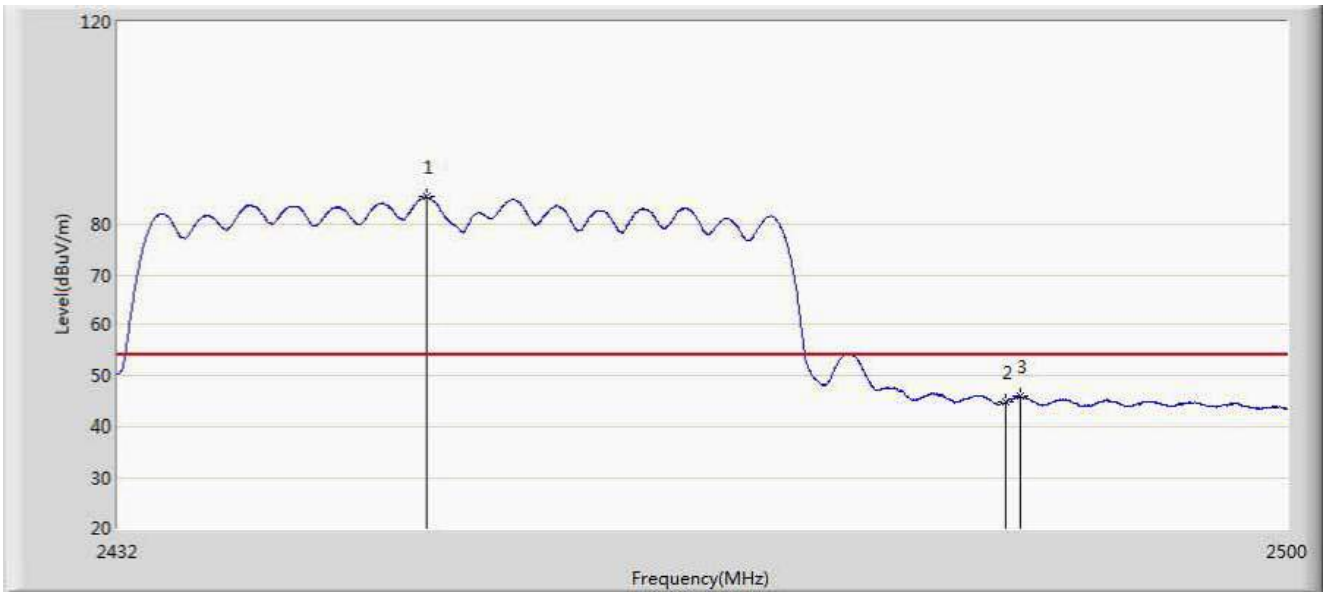
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2450.462	95.347	57.918	41.347	54.000	37.429	AV
2		2483.500	53.458	15.947	-0.542	54.000	37.511	AV
3		2485.550	53.461	15.935	-0.539	54.000	37.526	AV

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 11:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452MHz by 802.11n40 ant1+2	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2449.952	95.882	58.452	21.882	74.000	37.430	PK
2		2483.500	60.679	23.168	-13.321	74.000	37.511	PK
3		2484.326	66.356	28.839	-7.644	74.000	37.517	PK

Engineer: Scott	
Site: AC5	Time: 2015/12/30 - 11:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 2452MHz by 802.11n40 ant1+2	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2449.782	85.466	48.036	31.466	54.000	37.430	AV
2		2483.500	44.632	7.121	-9.368	54.000	37.511	AV
3		2484.360	45.713	8.196	-8.287	54.000	37.517	AV

8. Occupied Bandwidth

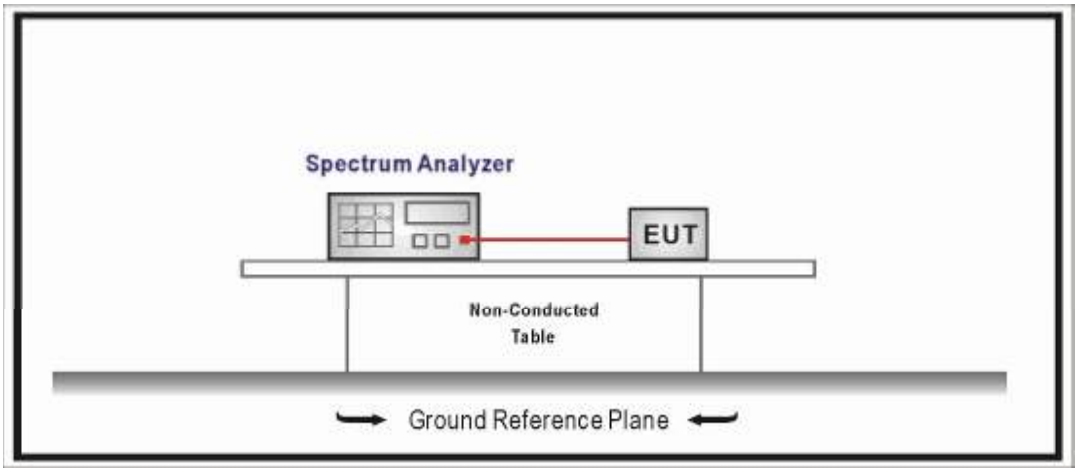
8.1. Test Equipment

Occupied Bandwidth / TR-8

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

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

8.2. Test Setup



8.3. Limit

For IC & FCC

The minimum 6dB bandwidth shall be at least 500 kHz.

8.4. Test Procedure

According to FCC ANSI C63.4: 2014 & ANSI C63.10: 2013& FCC 47CFR 15.247& KDB 558074 D01v03r04& Industry Canada RSS-Gen Issue 4& RSS-247 Issue 1

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.

e) Sweep = auto couple.

f) Allow the trace to stabilize.

g) Use the -6dBm function of the instrument (if available) and report the measured bandwidth.

8.5. Uncertainty

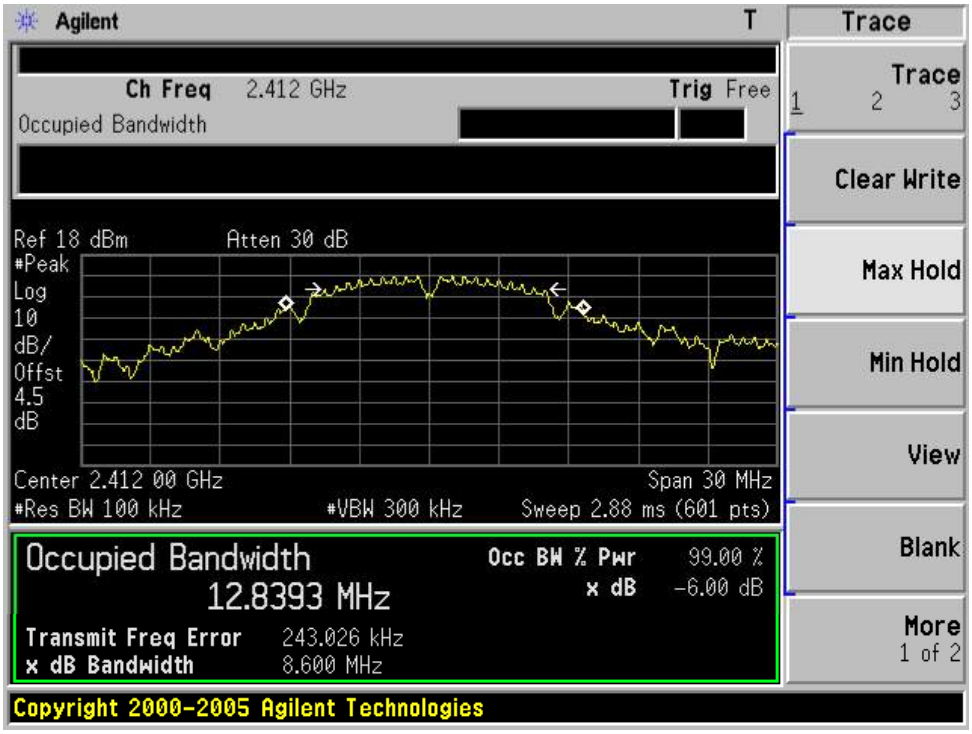
The measurement uncertainty is defined as ± 1 kHz

8.6. Test Result

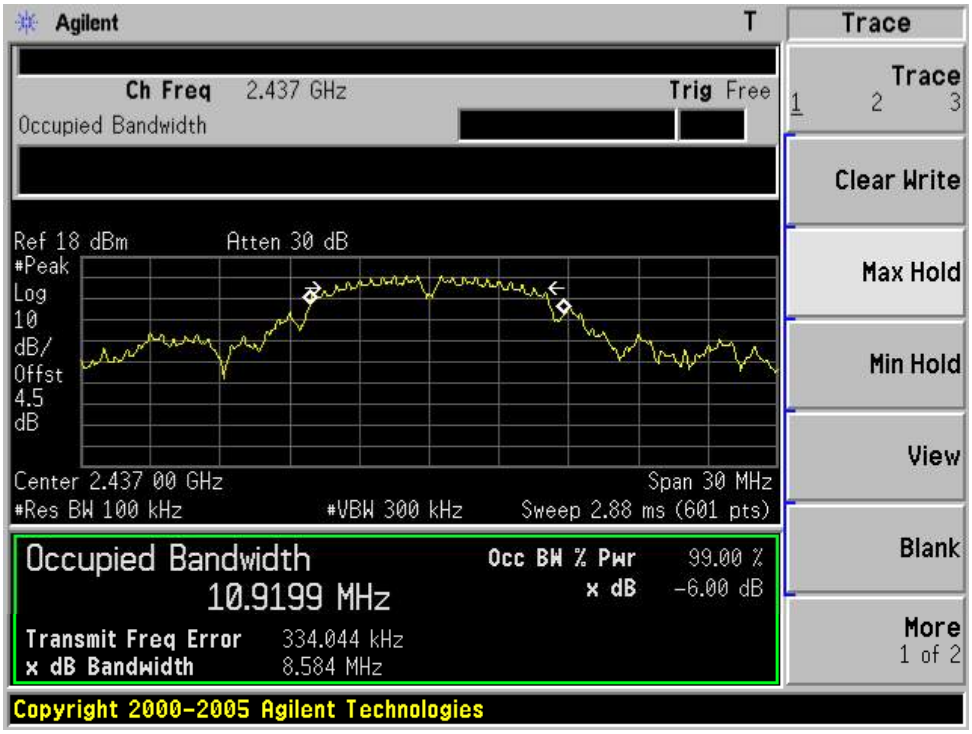
Product	:	IP-STB
Test Item	:	6dB Occupied Bandwidth
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	8600	500	Pass
06	2437	8584	500	Pass
11	2462	8572	500	Pass

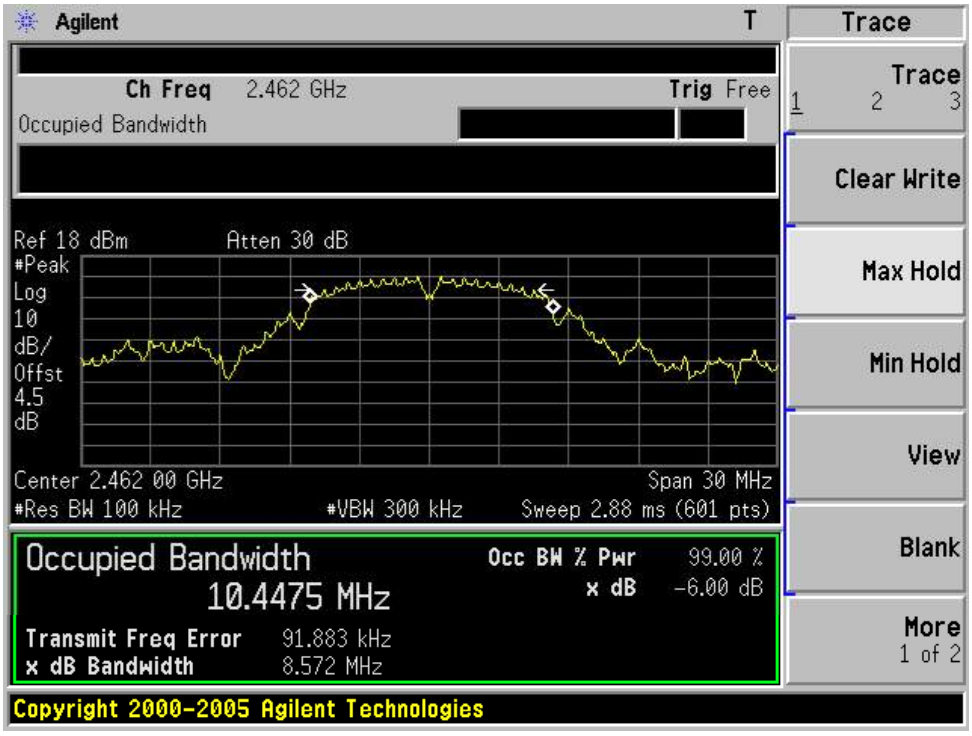
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



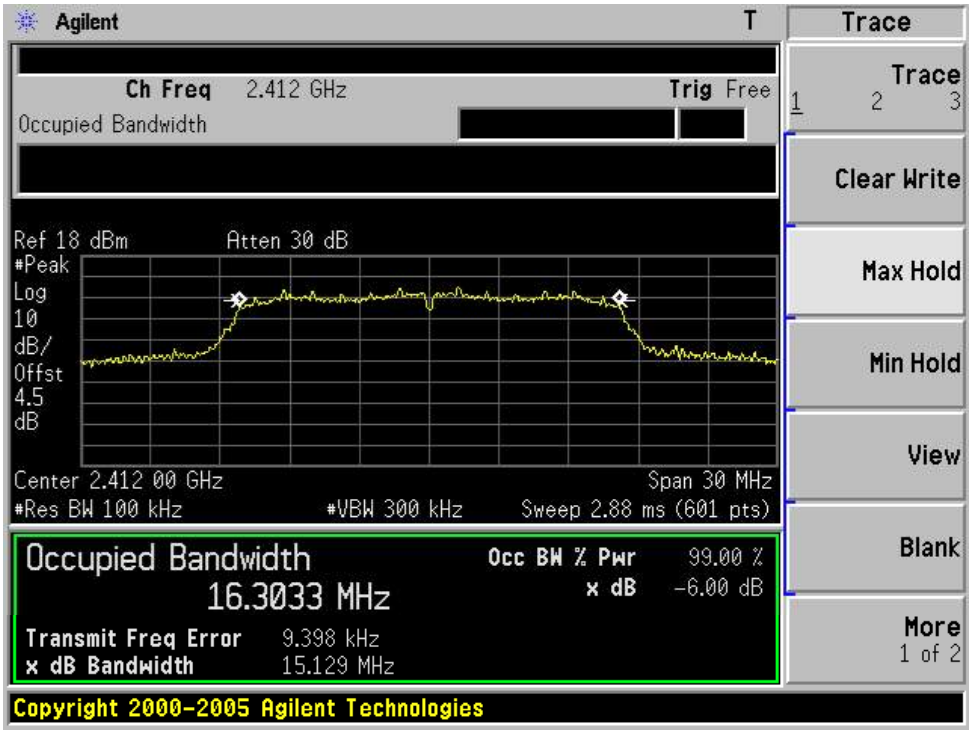
Note: For this test item, each modulation we have evaluated two antennas, presented data in the

report is the worst case.

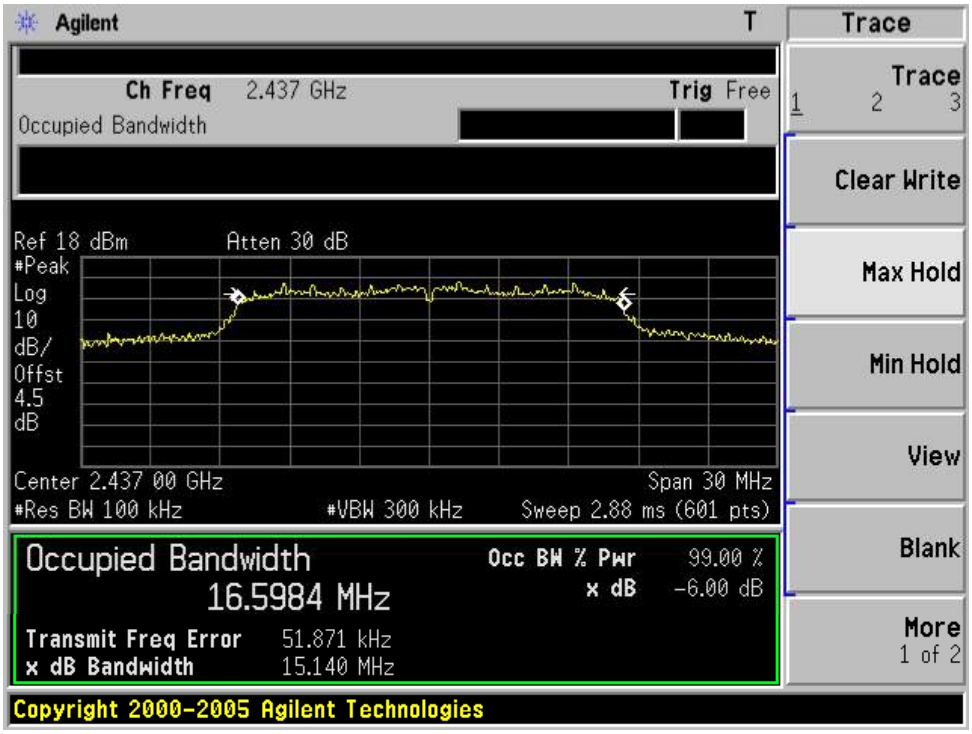
Product	:	IP-STB
Test Item	:	6dB Occupied Bandwidth
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	15129	500	Pass
06	2437	15140	500	Pass
11	2462	15104	500	Pass

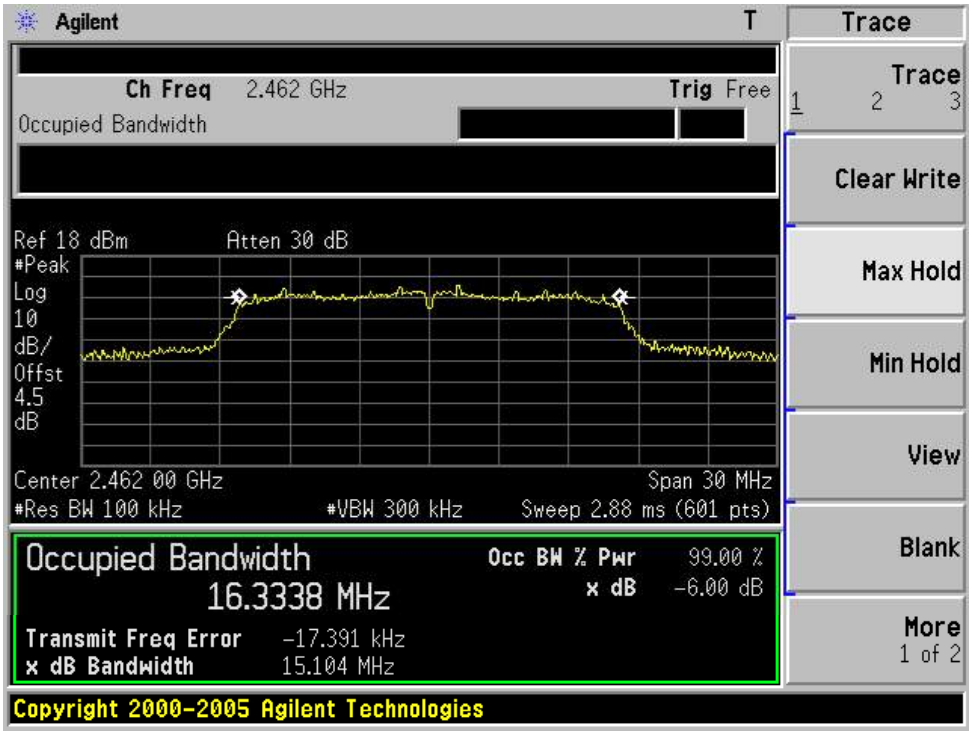
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



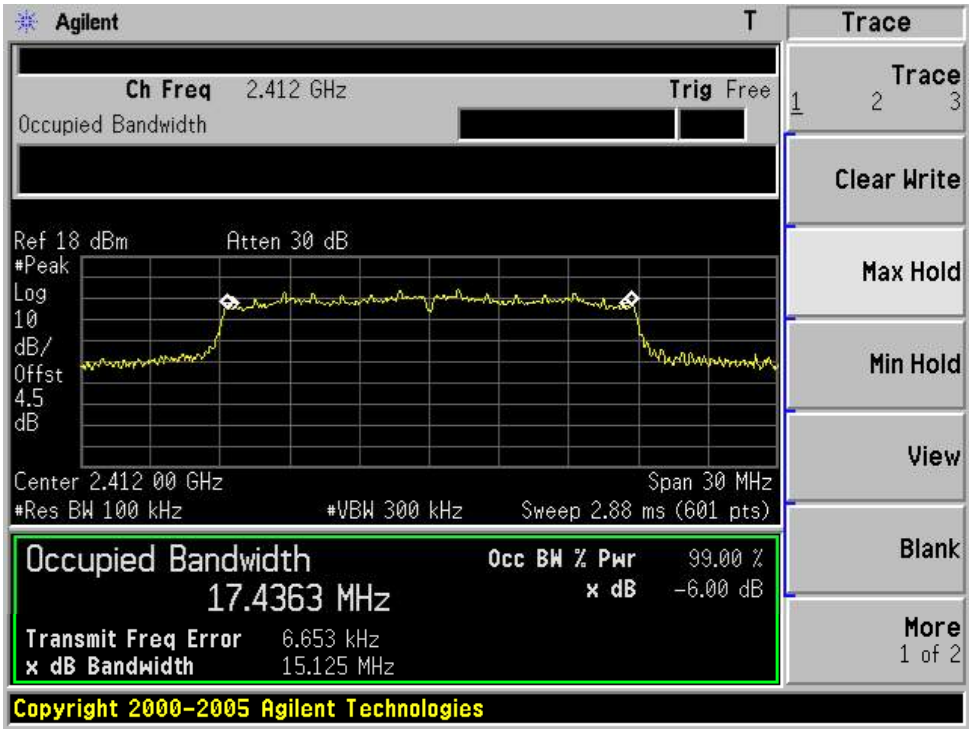
Note: For this test item, each modulation we have evaluated two antennas, presented data in the

report is the worst case.

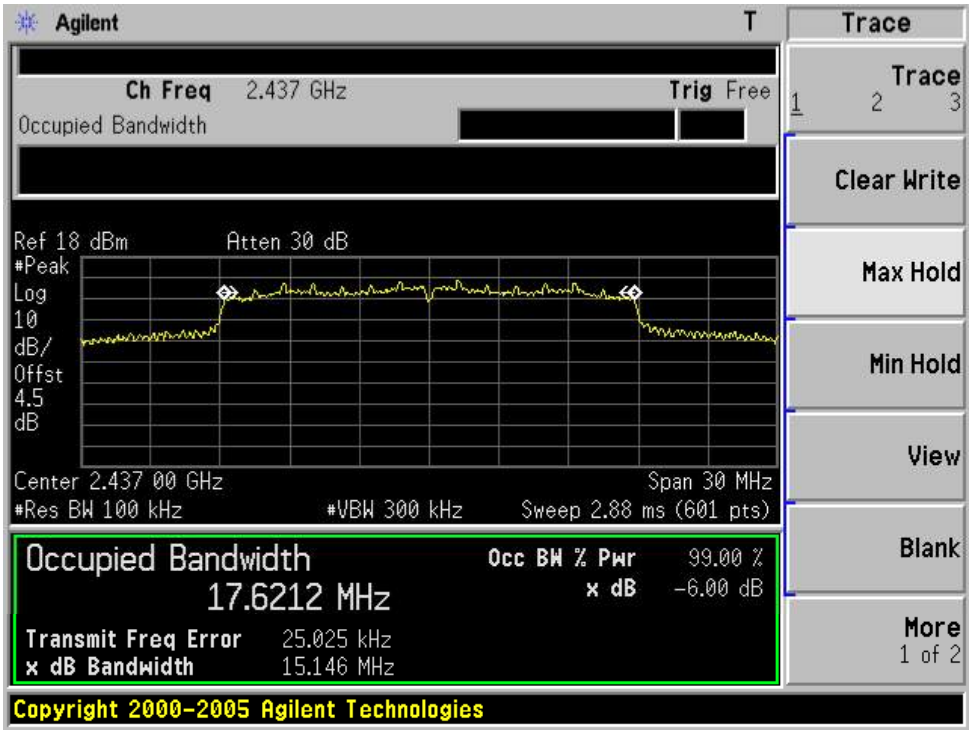
Product	:	IP-STB
Test Item	:	6dB Occupied Bandwidth
Test Mode	:	Mode 3: Transmit by 802.11 n(20MHz)

Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	15125	500	Pass
06	2437	15146	500	Pass
11	2462	15114	500	Pass

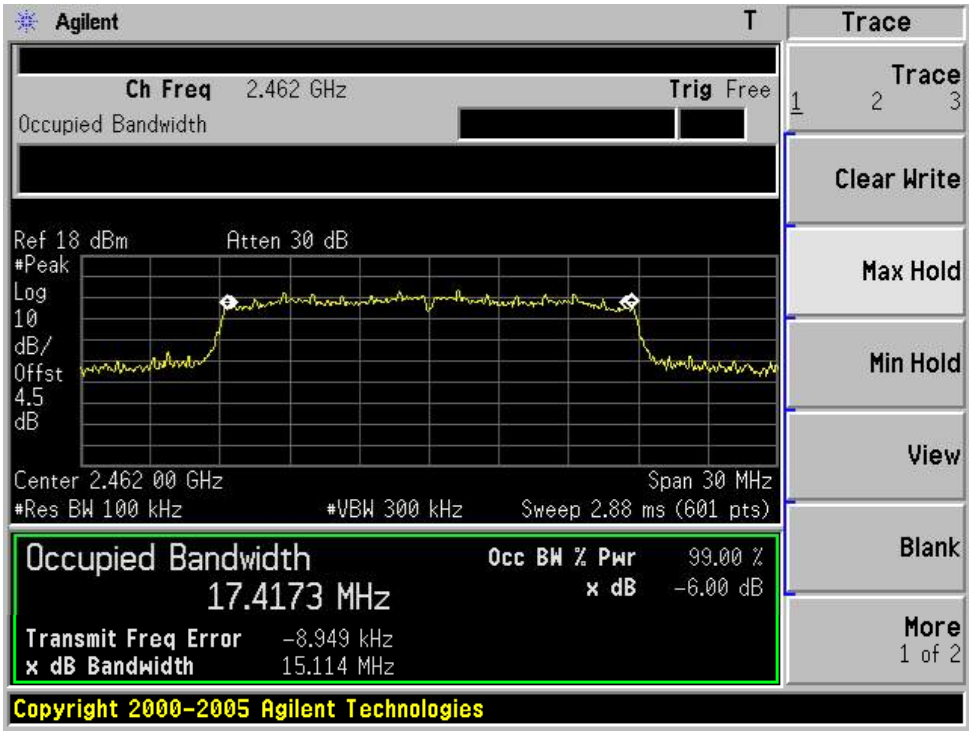
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



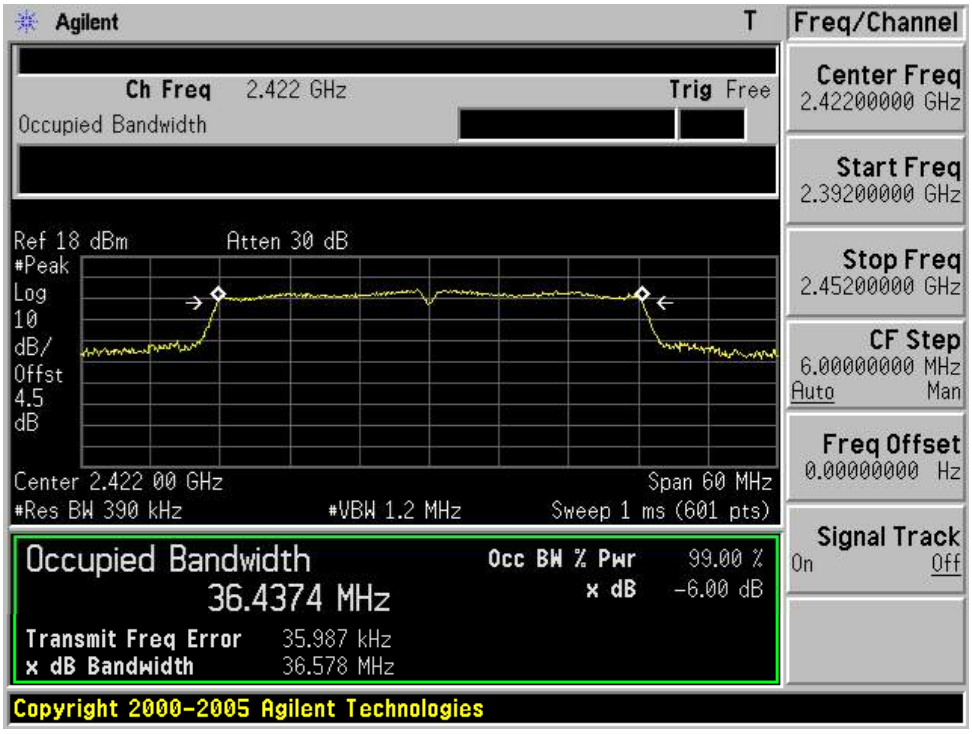
Note: For this test item, each modulation we have evaluated two antennas, presented data in the

report is the worst case.

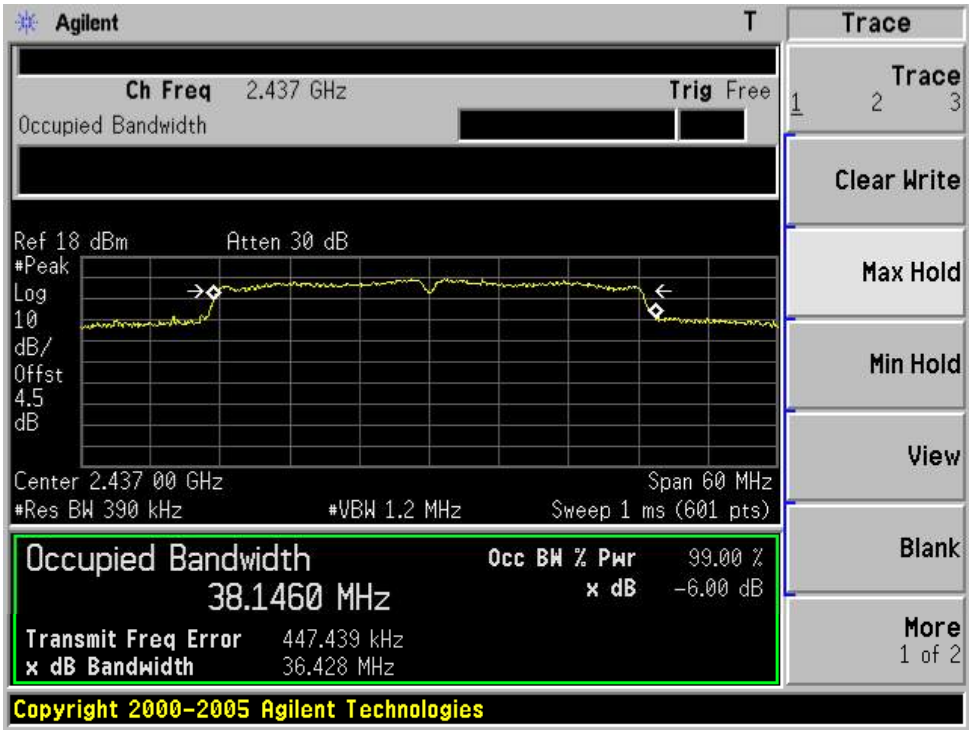
Product	:	IP-STB
Test Item	:	6dB Occupied Bandwidth
Test Mode	:	Mode 4: Transmit by 802.11 n(40MHz)

Channel No.	Frequency (MHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result
03	2422	36578	500	Pass
06	2437	36428	500	Pass
09	2452	36505	500	Pass

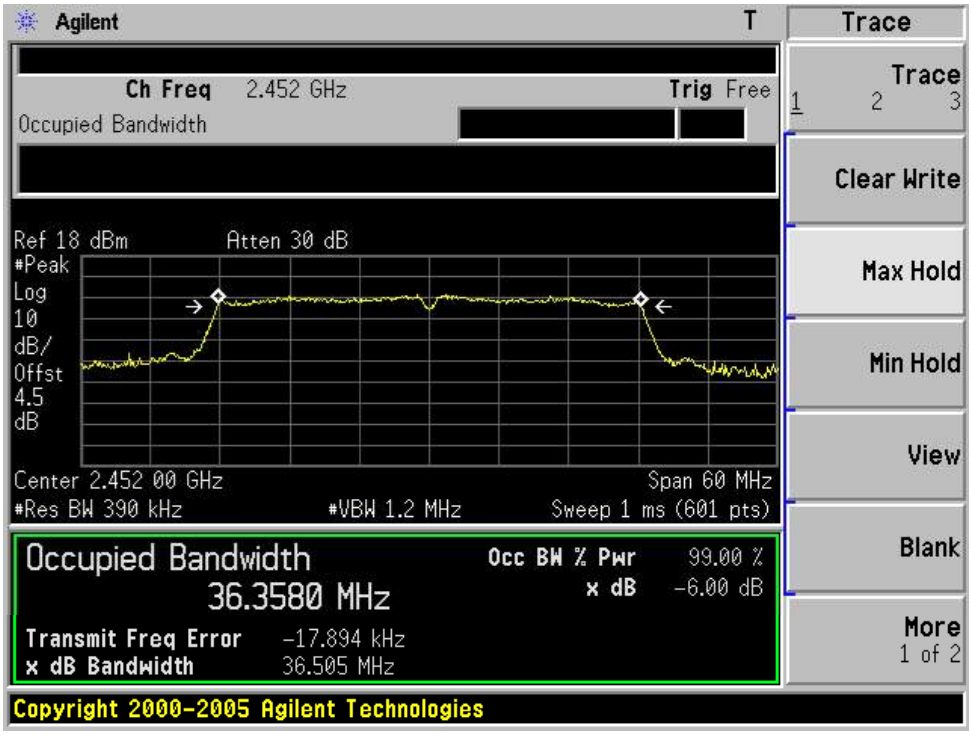
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)



Note: For this test item, each modulation we have evaluated two antennas, presented data in the

report is the worst case.

9. Power Output

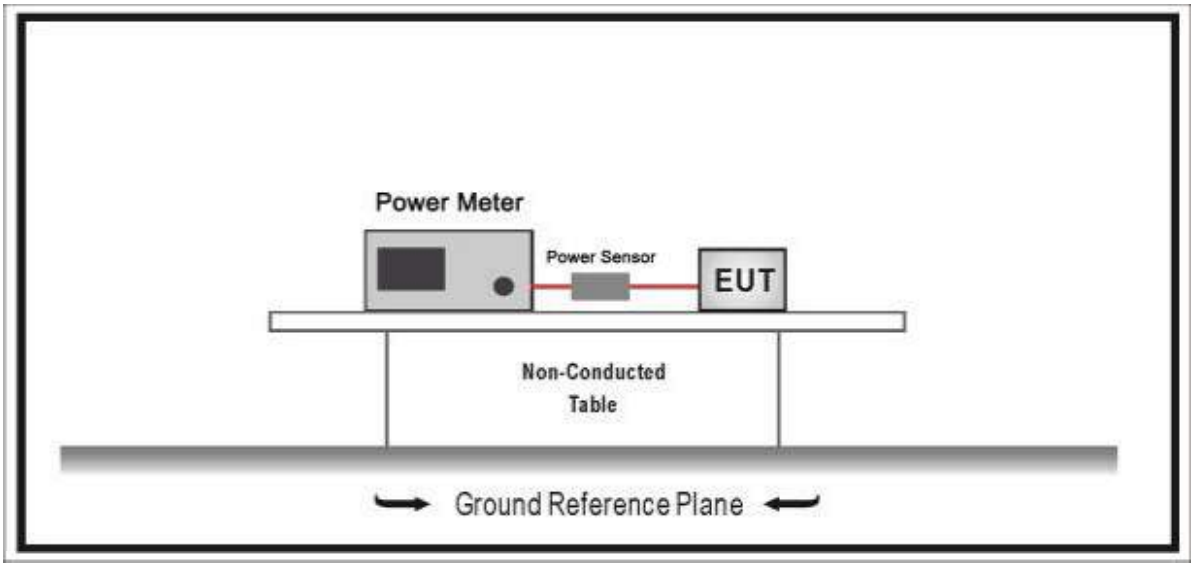
9.1. Test Equipment

Power Output / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2016.11.10
Power Sensor	Anritsu	MA2411B	0846014	2016.11.10
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2016.04.09

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

9.2. Test Setup



9.3. Limit

For FCC&IC

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

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

9.4. Test Procedure

According to FCC ANSI C63.4: 2014 & ANSI C63.10: 2013& FCC 47CFR 15.247& KDB 558074 D01v03r04& Industry Canada RSS-Gen Issue 4& RSS-247 Issue 1

1. Power meter and sensor's minimum video bandwidth is 50MHz, larger than 802.11n(40MHz) bandwidth;
2. Fast responding diode sensors respond immediately to changes in power level to reduce total test time.
3. Use PK detector to test.

9.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

9.6. Test Result

Power output test was verified at Antenna1 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.

Power output at various data rates:

Test Mode	Bandwidth	Frequency (MHz)	Channel	Data Rate	Peak Power (dBm)
802.11b	20	2437	6	1	21.85
				5.5	21.81
				11	21.72
802.11g	20	2437	6	6	21.74
				24	21.69
				54	21.63
802.11n	20	2437	6	MCS0	21.95
				MCS4	21.91
				MCS7	21.87
802.11n	40	2437	6	MCS0	22.70
				MCS4	22.64
				MCS7	22.59

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

Ant 1

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
1	2412	21.72	N/A	21.72	30.00	Pass
6	2437	21.85	N/A	21.85	30.00	Pass
11	2462	20.91	N/A	20.91	30.00	Pass

Ant 2

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
1	2412	N/A	20.63	20.63	30.00	Pass
6	2437	N/A	20.85	20.85	30.00	Pass
11	2462	N/A	21.09	21.09	30.00	Pass

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

Ant 1

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
1	2412	18.53	N/A	18.53	30.00	Pass
6	2437	21.74	N/A	21.74	30.00	Pass
11	2462	19.61	N/A	19.61	30.00	Pass

Ant 2

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
1	2412	N/A	18.28	18.28	30.00	Pass
6	2437	N/A	20.84	20.84	30.00	Pass
11	2462	N/A	19.34	19.34	30.00	Pass

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Ant 1

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
1	2412	17.86	N/A	17.86	30.00	Pass
6	2437	21.95	N/A	21.95	30.00	Pass
11	2462	17.31	N/A	17.31	30.00	Pass

Ant 2

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
1	2412	N/A	17.60	17.60	30.00	Pass
6	2437	N/A	21.31	21.31	30.00	Pass
11	2462	N/A	17.83	17.83	30.00	Pass

Ant 1+2

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
1	2412	16.76	17.08	19.93	30.00	Pass
6	2437	21.12	20.75	23.95	30.00	Pass
11	2462	15.31	15.82	18.58	30.00	Pass

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

Ant 1

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
3	2422	15.16	N/A	15.16	30.00	Pass
6	2437	22.70	N/A	22.70	30.00	Pass
9	2452	15.15	N/A	15.15	30.00	Pass

Ant 2

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
3	2422	N/A	17.92	17.92	30.00	Pass
6	2437	N/A	21.91	21.91	30.00	Pass
9	2452	N/A	14.52	14.52	30.00	Pass

Ant 1+2

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
3	2422	14.74	15.69	18.25	30.00	Pass
6	2437	21.63	21.57	24.61	30.00	Pass
9	2452	17.65	18.12	20.90	30.00	Pass

10. Power Spectral Density

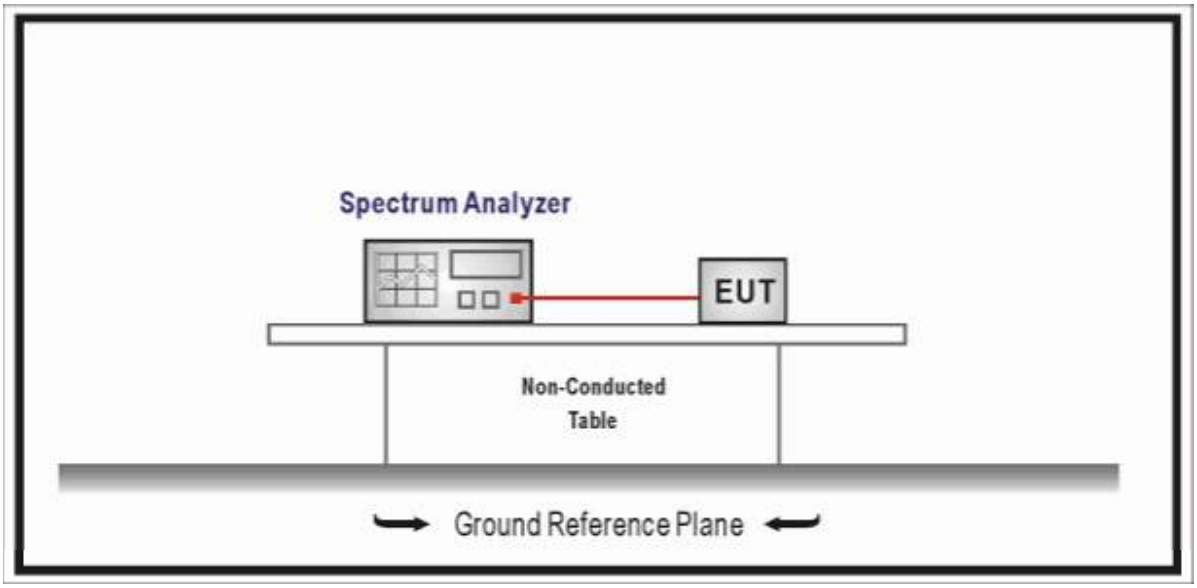
10.1. Test Equipment

Power Spectral Density / TR-8

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

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

10.2. Test Setup



10.3. Limit

For FCC&IC

For digitally modulated systems, the power spectral density conducted from the intentional radiated to the Antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

10.4. Test Procedure

According to ANSI C63.4: 2014 & ANSI C63.10: 2013& FCC 47CFR 15.247& KDB 558074 D01v03r04& Industry Canada RSS-Gen Issue 4& RSS-247 Issue 1

a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 times the DTS bandwidth.
c) Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz. (Actually we use 3kHz RBW)
d) Set the VBW ≥ 3 × RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the band.
j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

10.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

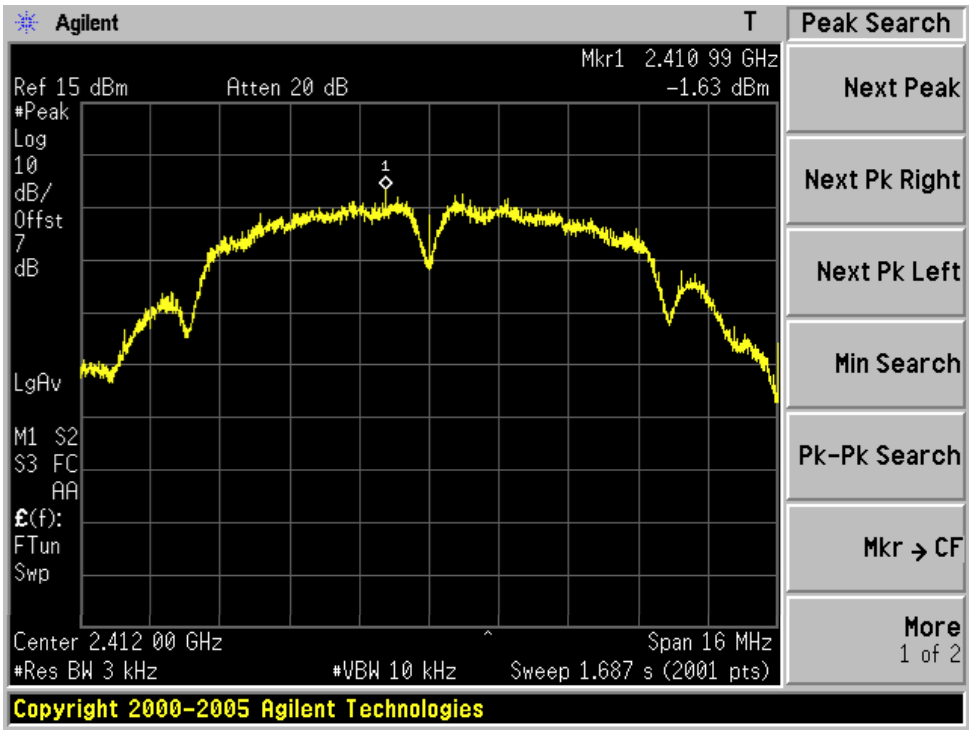
10.6. Test Result

Product	:	IP-STB
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b

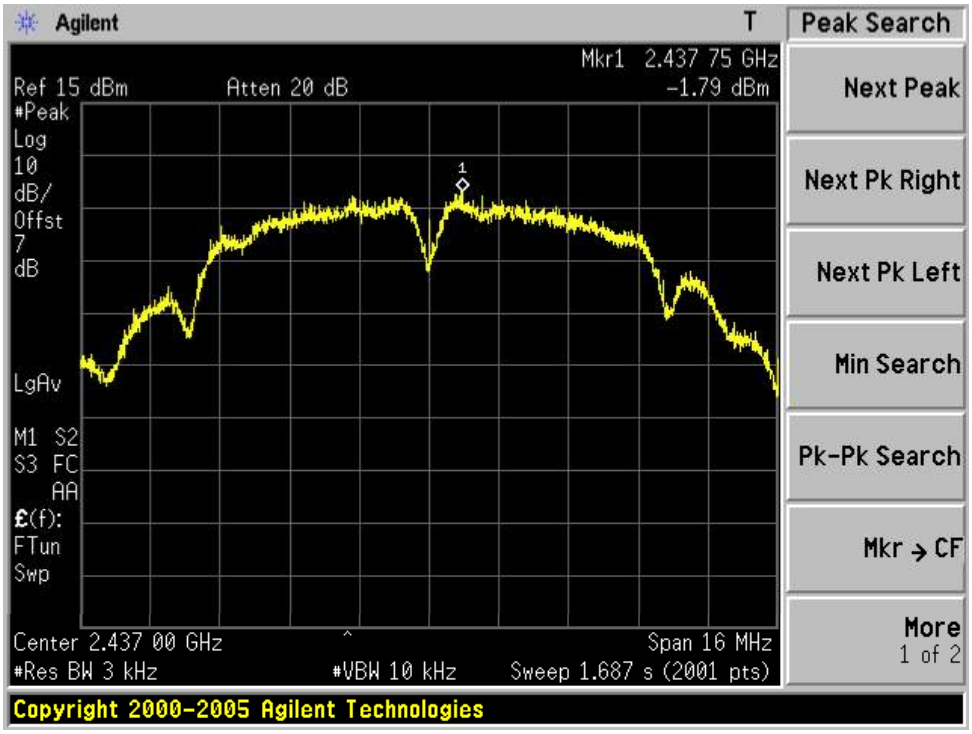
Channel No.	Frequency (MHz)	Measurement PPSD (dBm)		Limit (dBm)	Result
		Ant 1	Ant 2		
01	2412	-1.63	-2.04	8	Pass
06	2437	-1.79	-3.91	8	Pass
11	2462	-3.30	-2.48	8	Pass

Ant 1

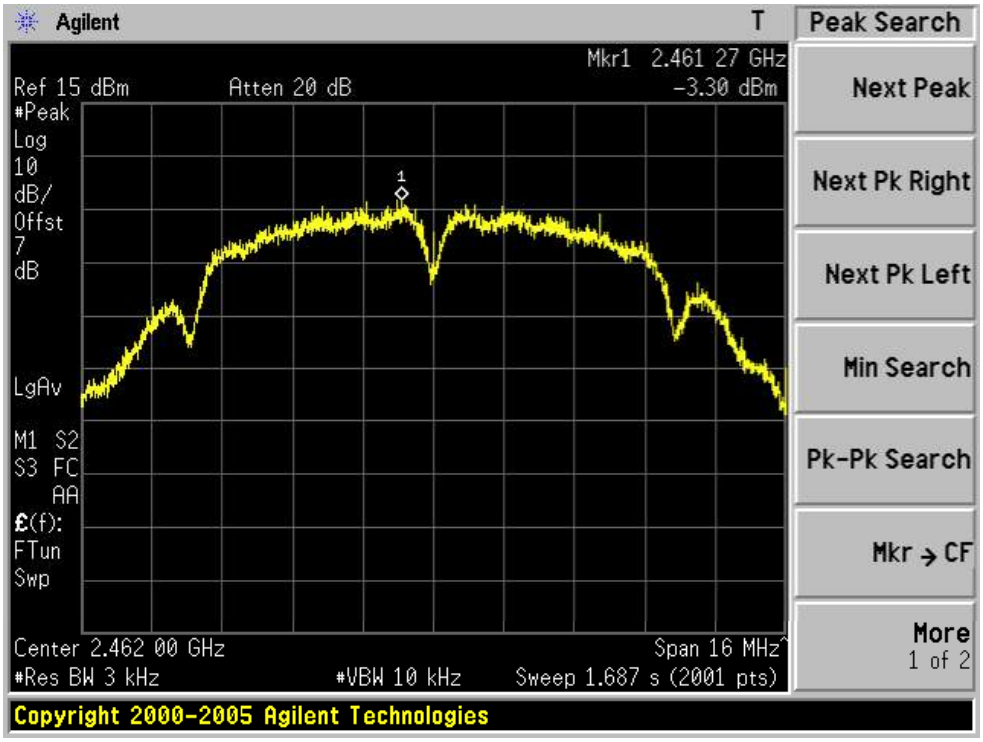
Channel 01 (2412MHz)



Channel 06 (2437MHz)

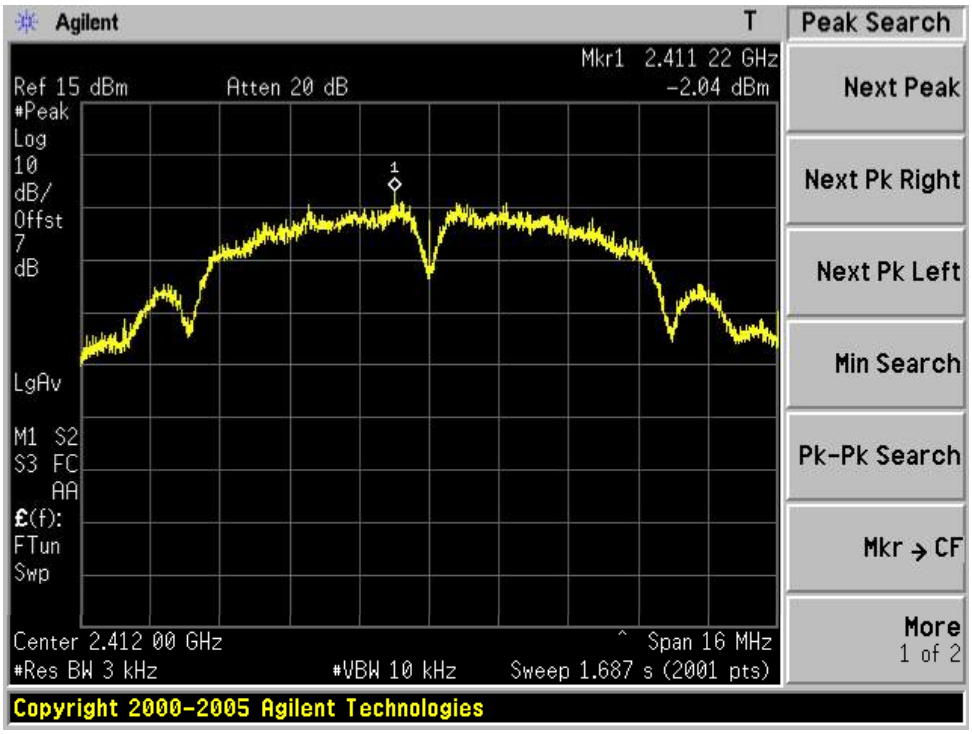


Channel 11 (2462MHz)

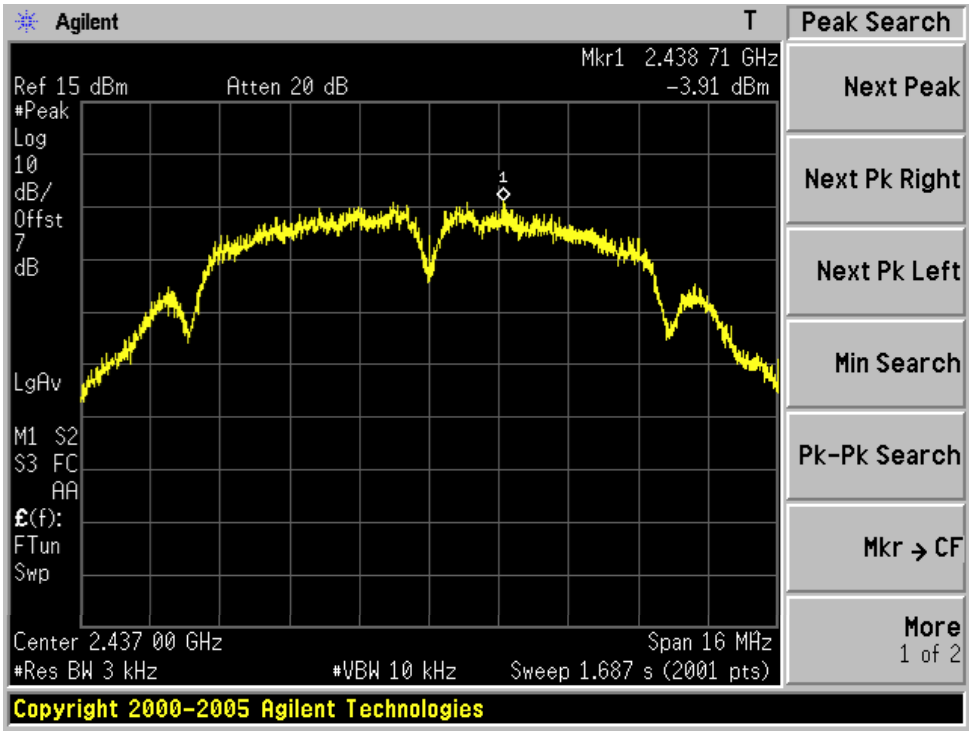


Ant 2

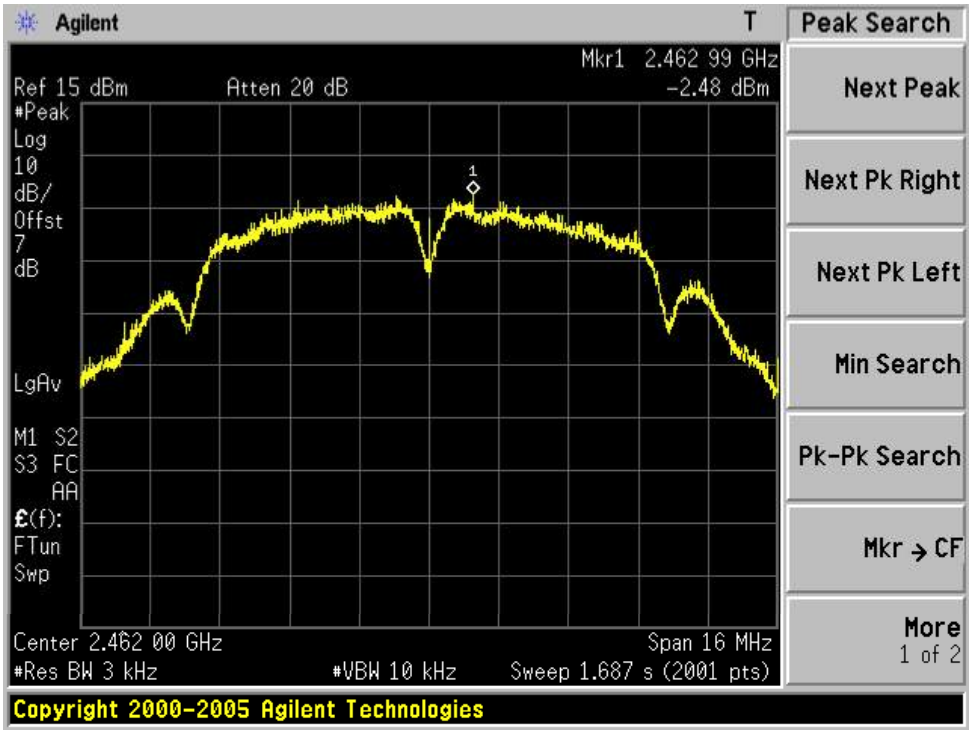
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)

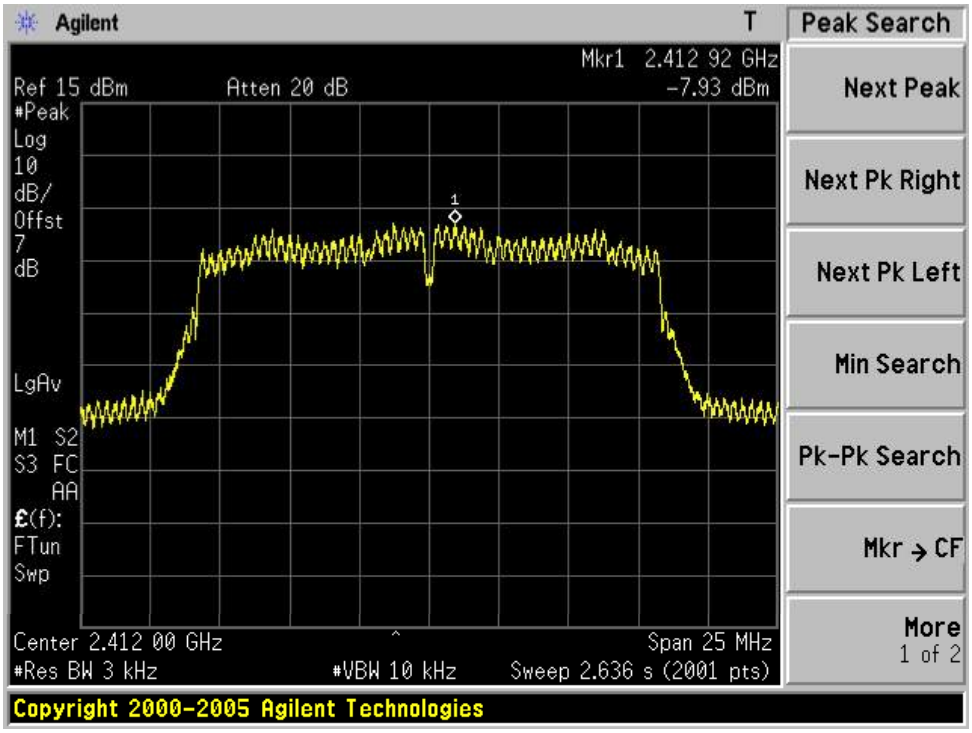


Product	:	IP-STB
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g

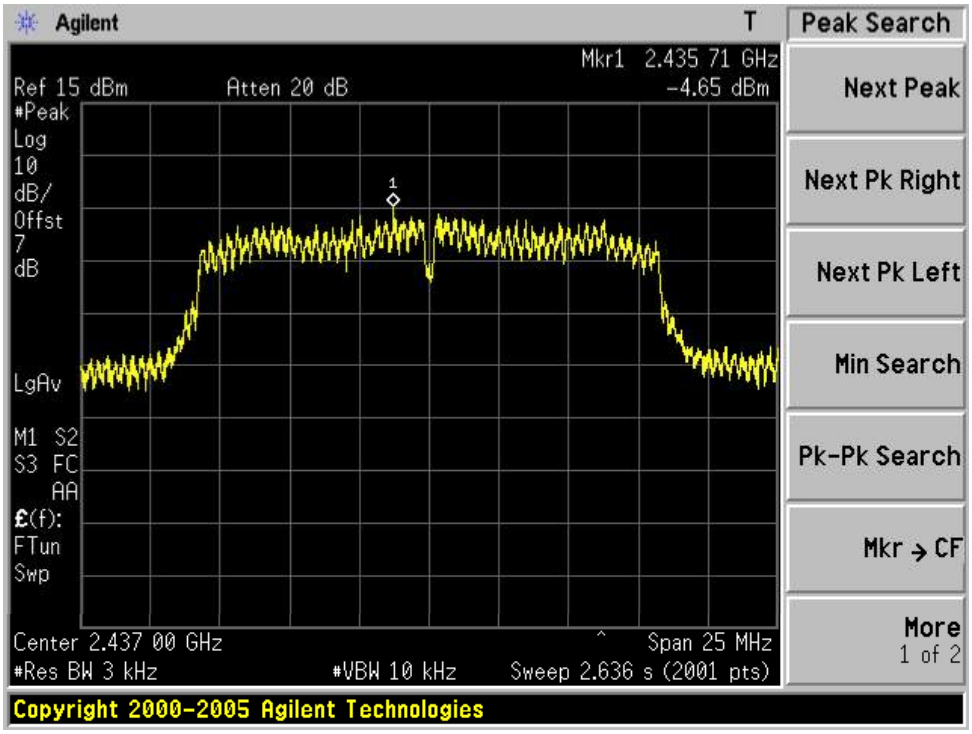
Channel No.	Frequency (MHz)	Measurement PPSD (dBm)		Limit (dBm)	Result
		Ant 1	Ant 2		
01	2412	-7.93	-10.26	8	Pass
06	2437	-4.65	-6.61	8	Pass
11	2462	-7.47	-8.47	8	Pass

Ant 1

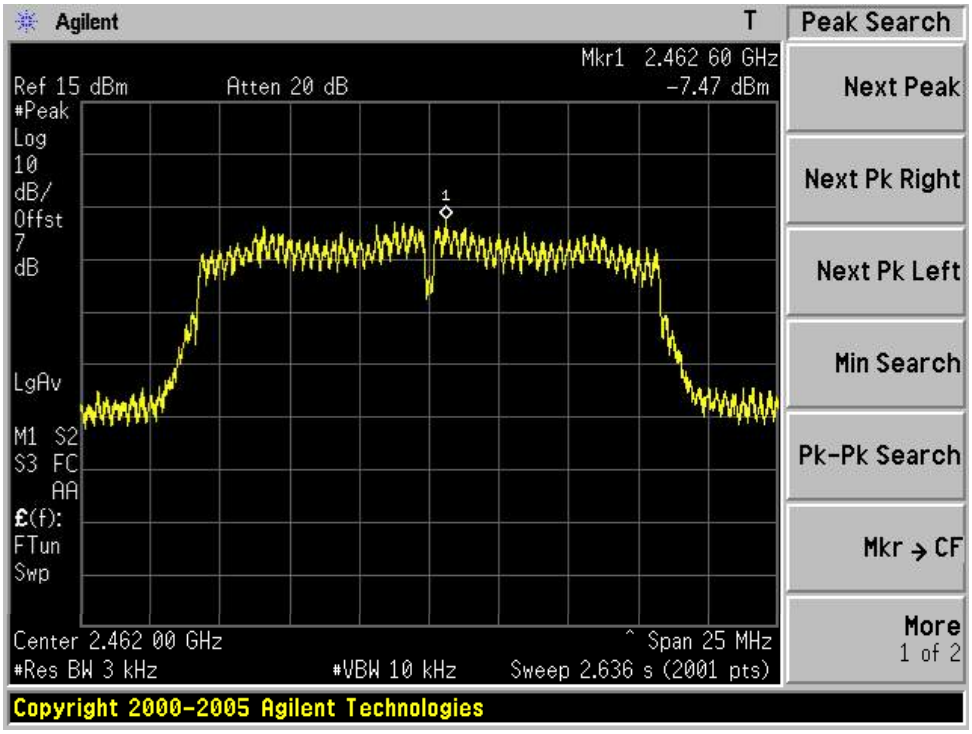
Channel 01 (2412MHz)



Channel 06 (2437MHz)

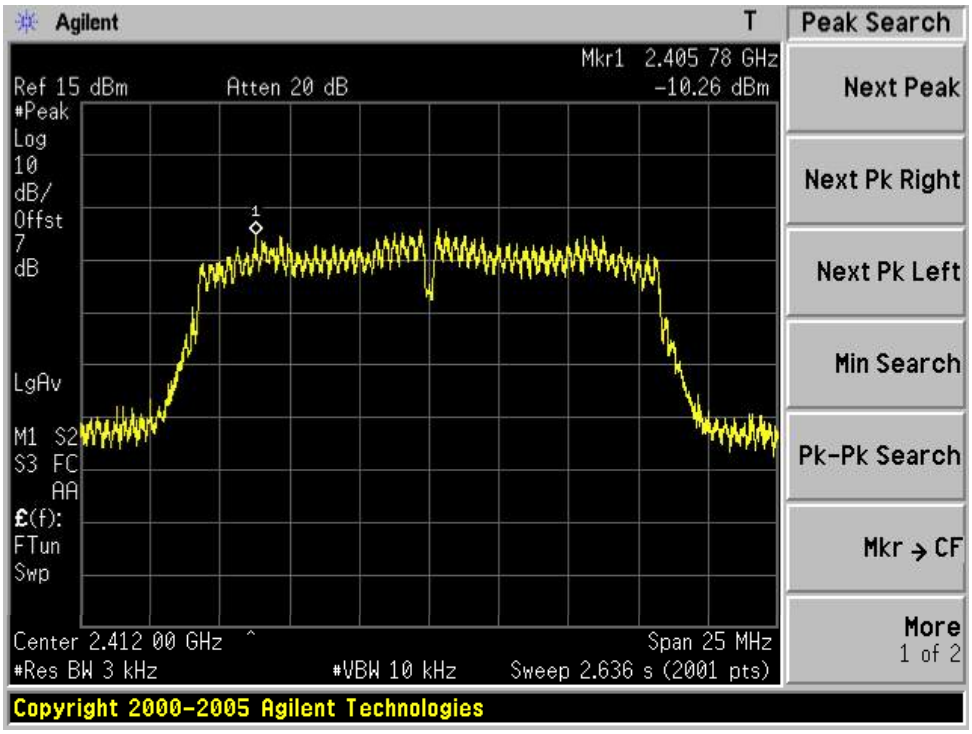


Channel 11 (2462MHz)

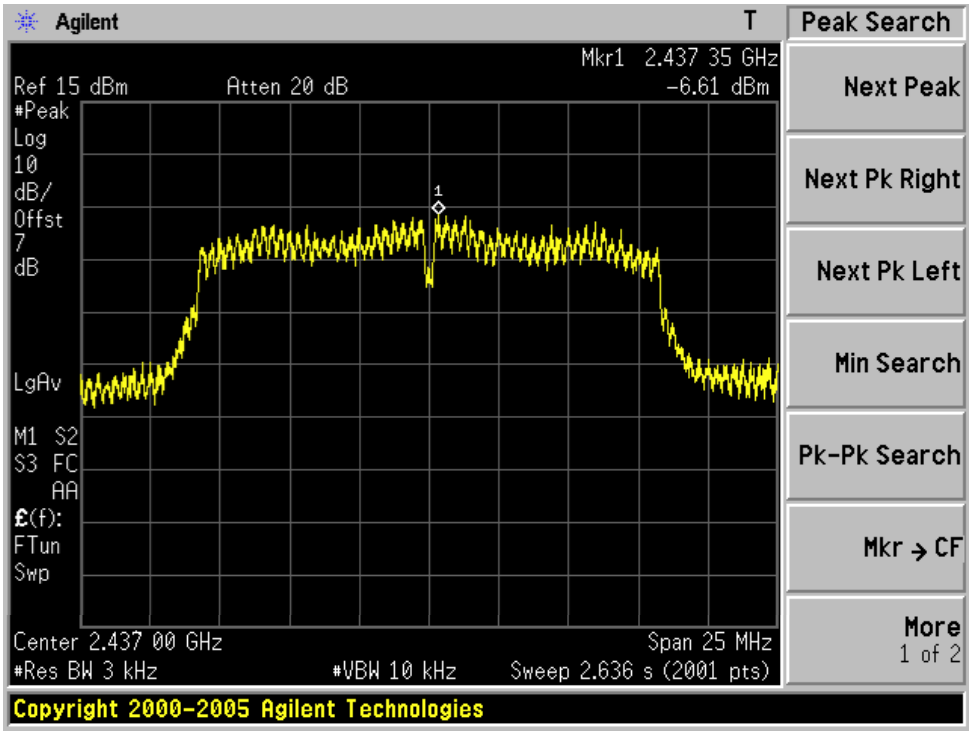


Ant 2

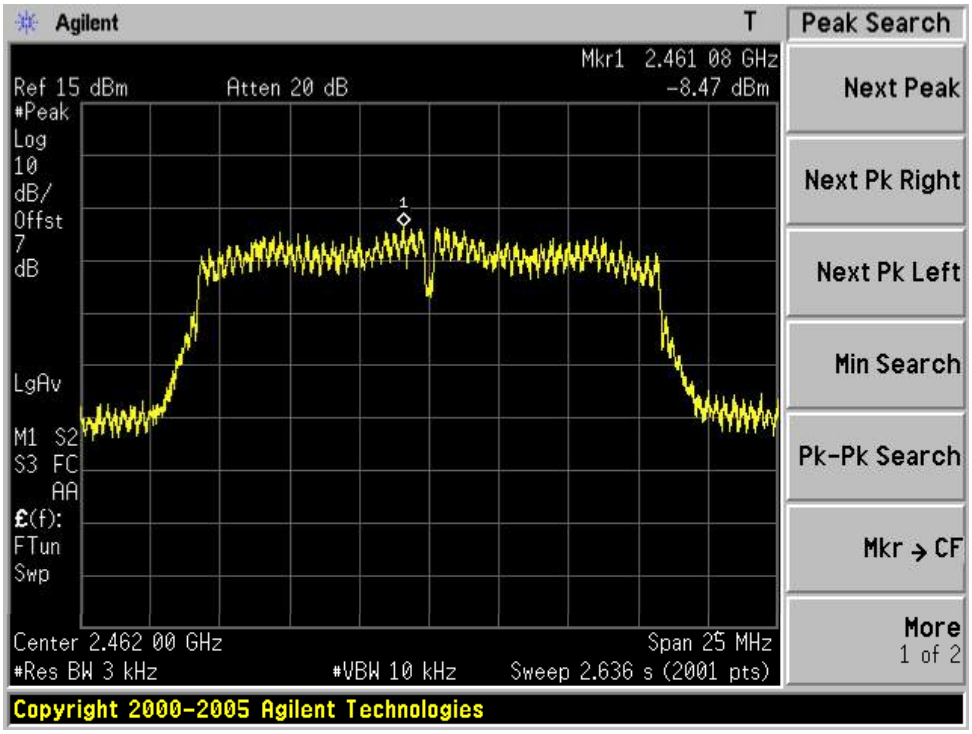
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)

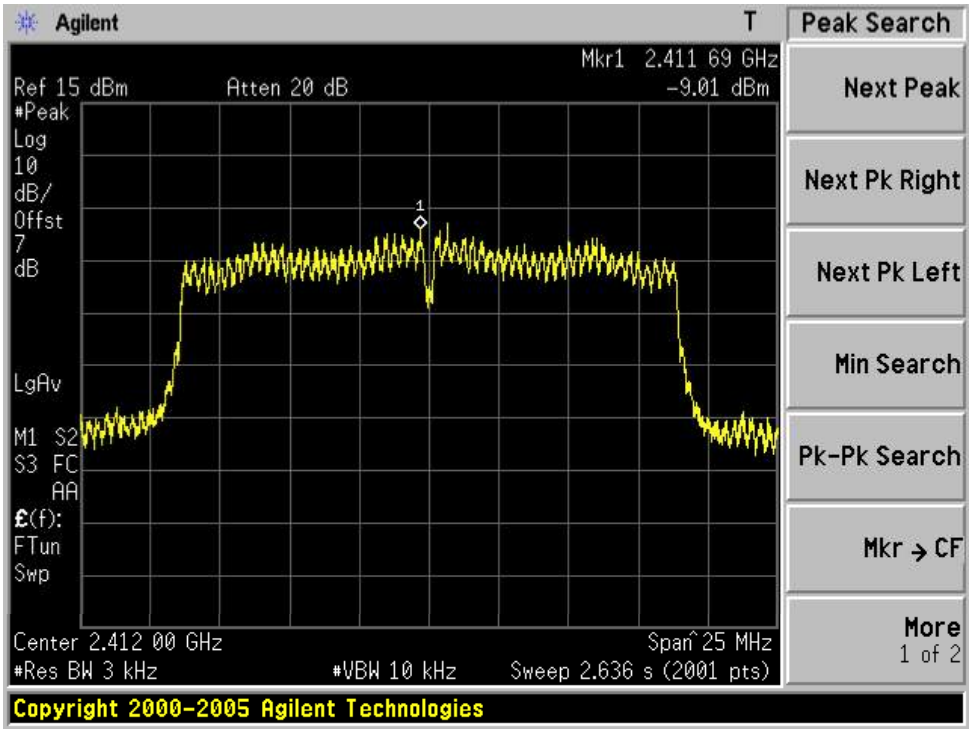


Product	:	IP-STB
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

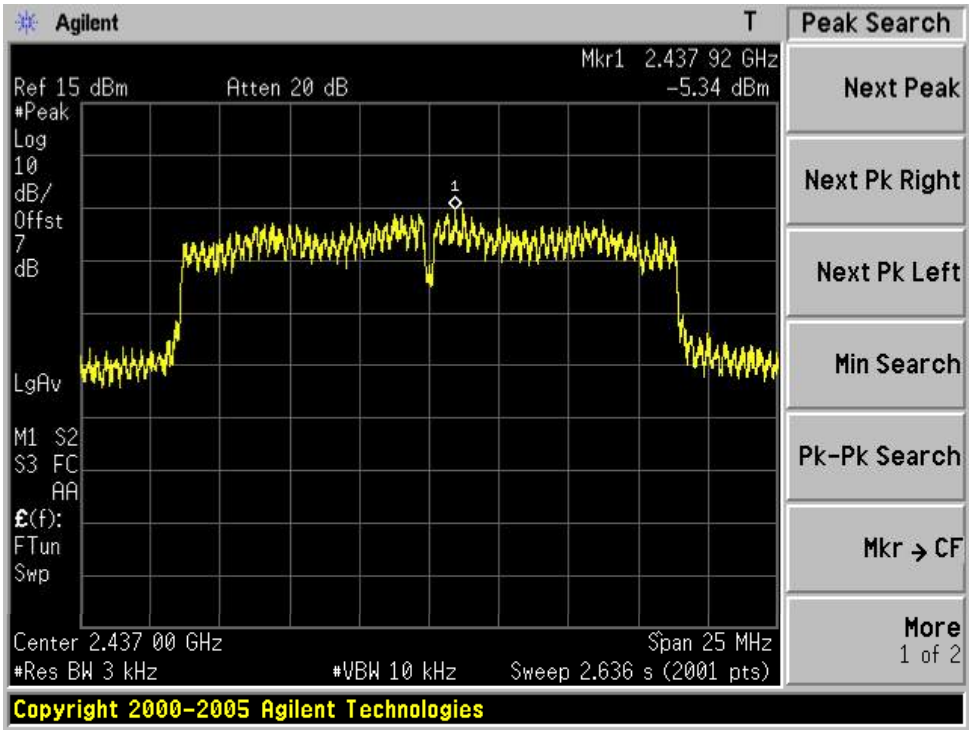
Channel No.	Frequency (MHz)	Measurement PPSD (dBm)		Limit (dBm)	Result
		Ant 1	Ant 2		
01	2412	-9.01	-10.76	8	Pass
06	2437	-5.34	-6.89	8	Pass
11	2462	-9.95	-10.74	8	Pass

Ant 1

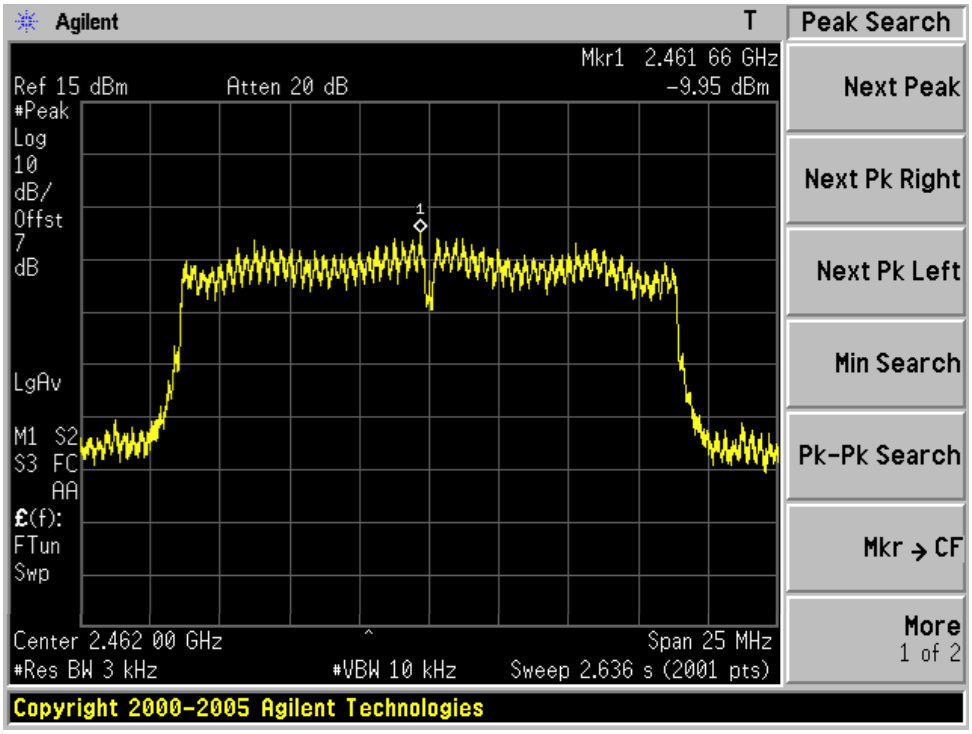
Channel 01 (2412MHz)



Channel 06 (2437MHz)

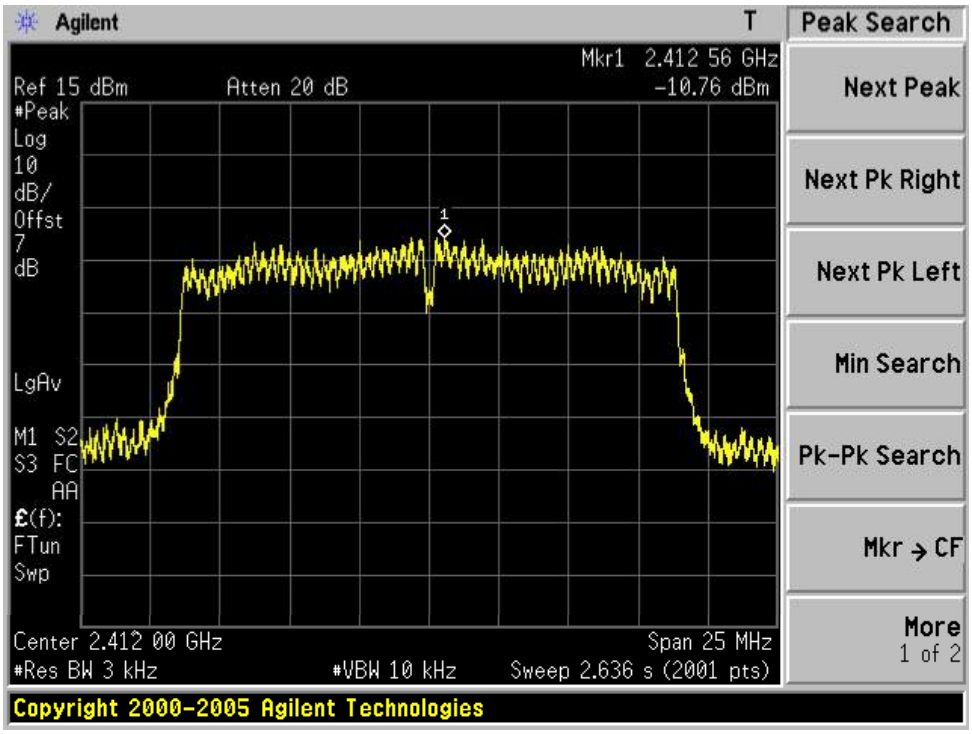


Channel 11 (2462MHz)

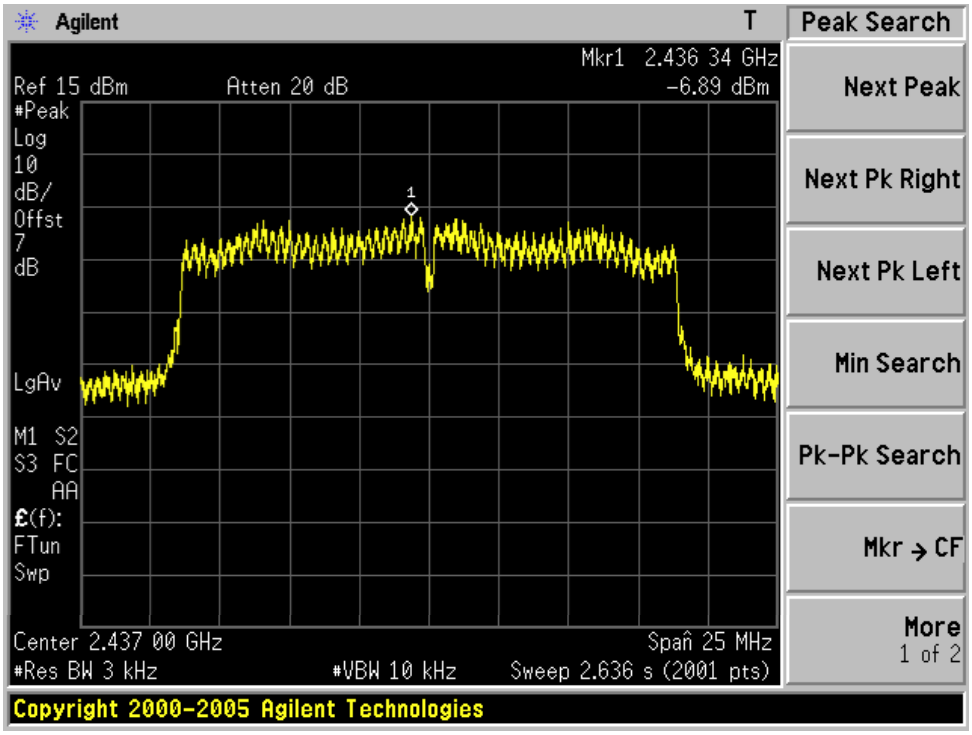


Ant 2

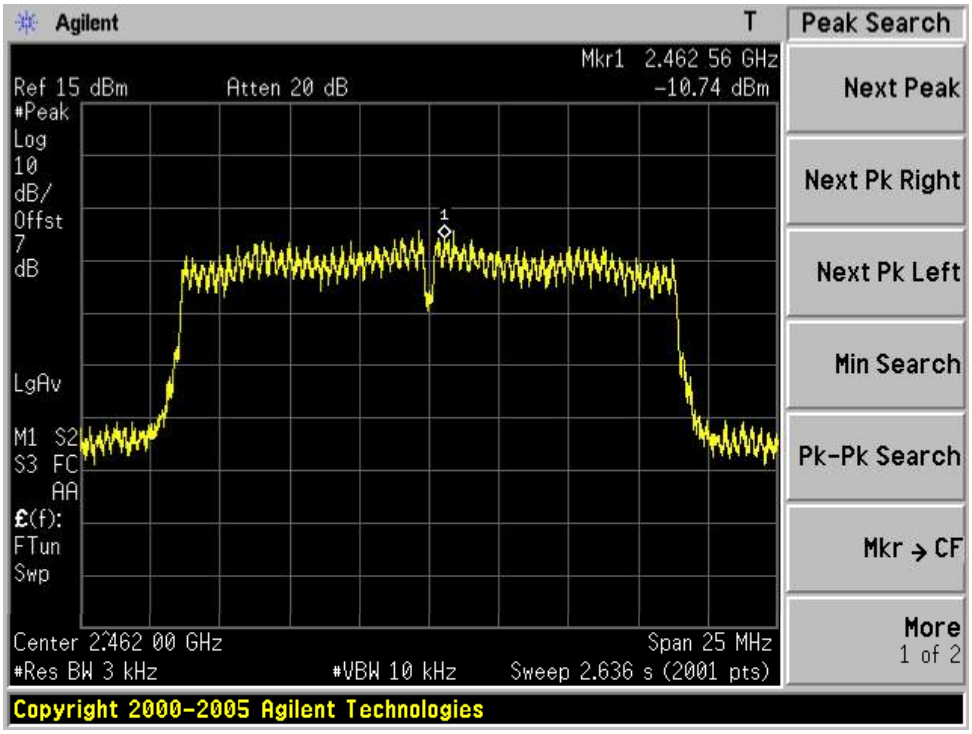
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)

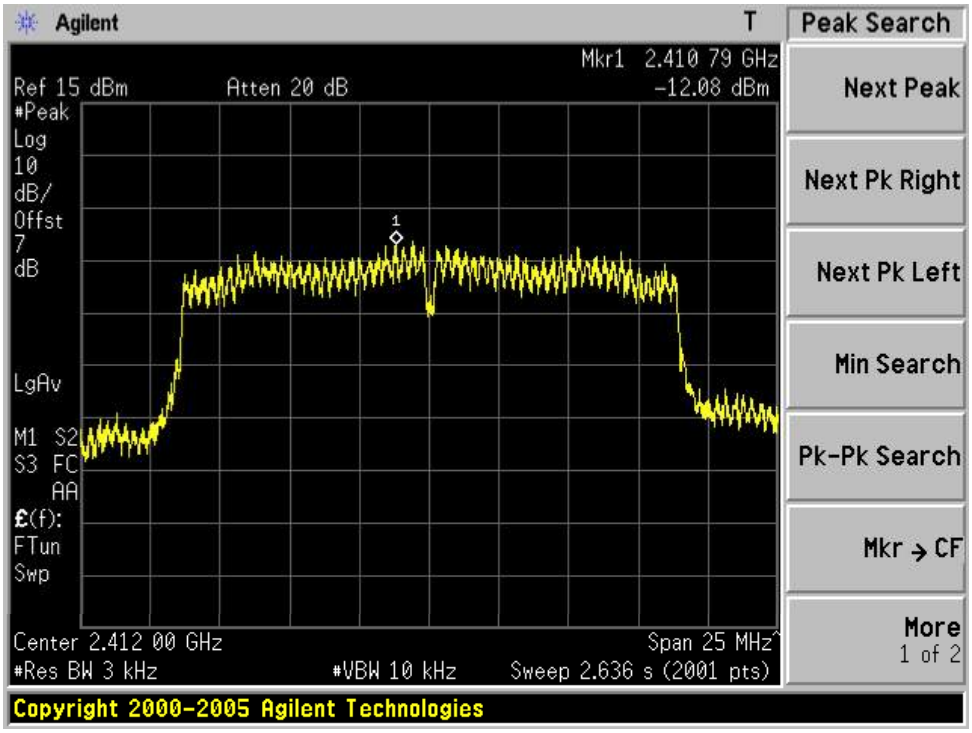


Product	:	IP-STB
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz) MIMO

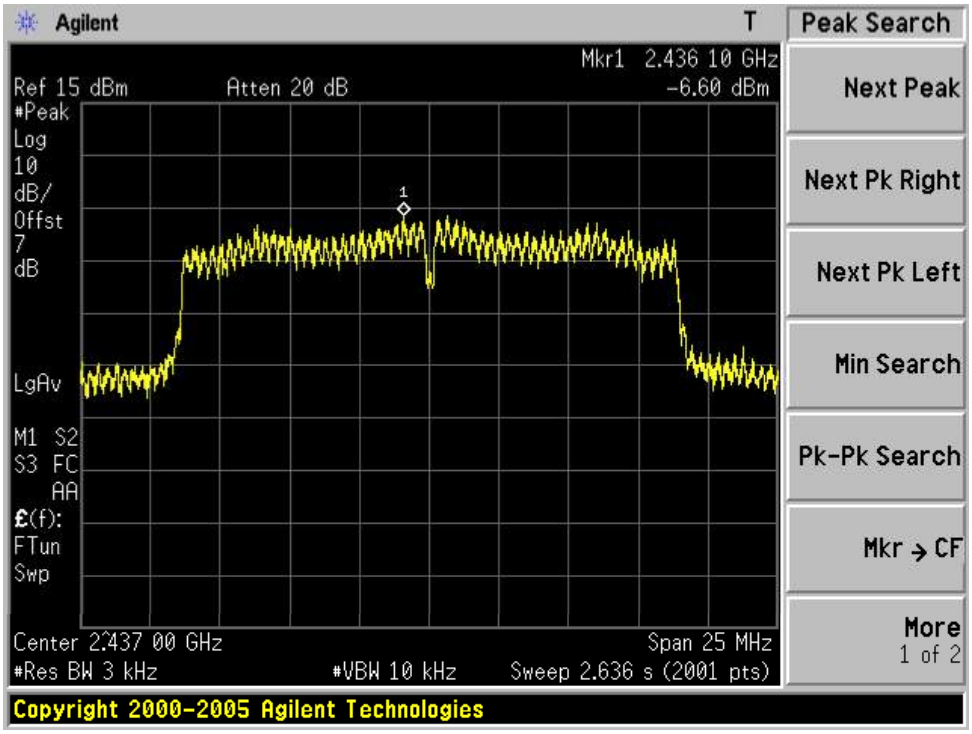
Channel No.	Frequency (MHz)	Measurement PPSD (dBm)		Total PPSD (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
01	2412	-12.08	-11.27	-8.05	8	Pass
06	2437	-6.60	-7.95	-4.21	8	Pass
11	2462	-12.68	-10.80	-8.63	8	Pass

Ant 1

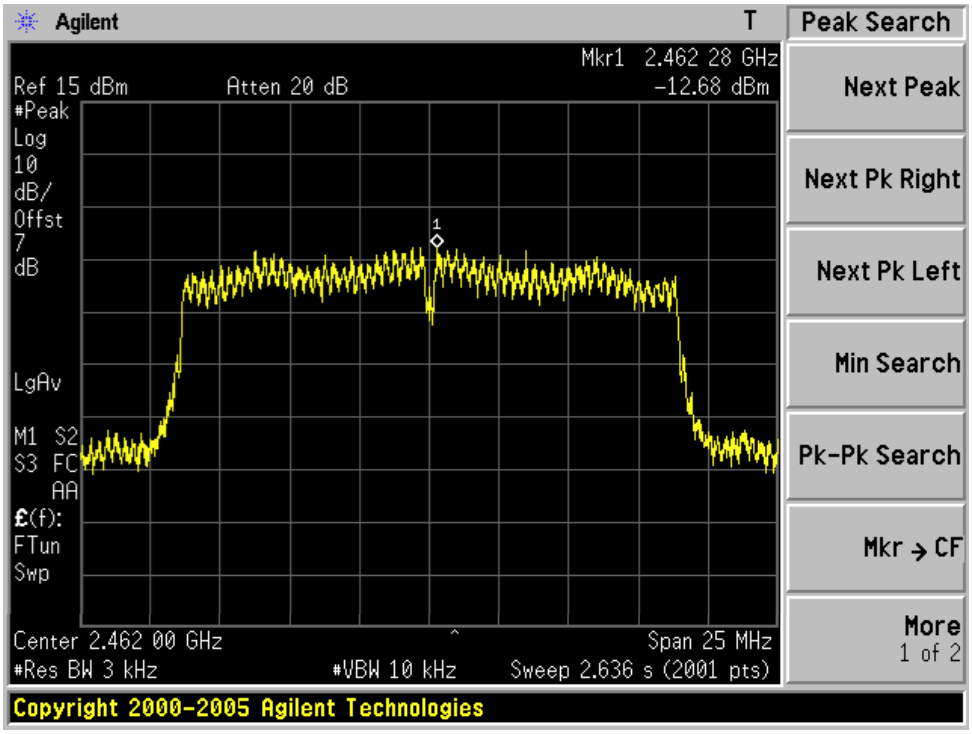
Channel 01 (2412MHz)



Channel 06 (2437MHz)

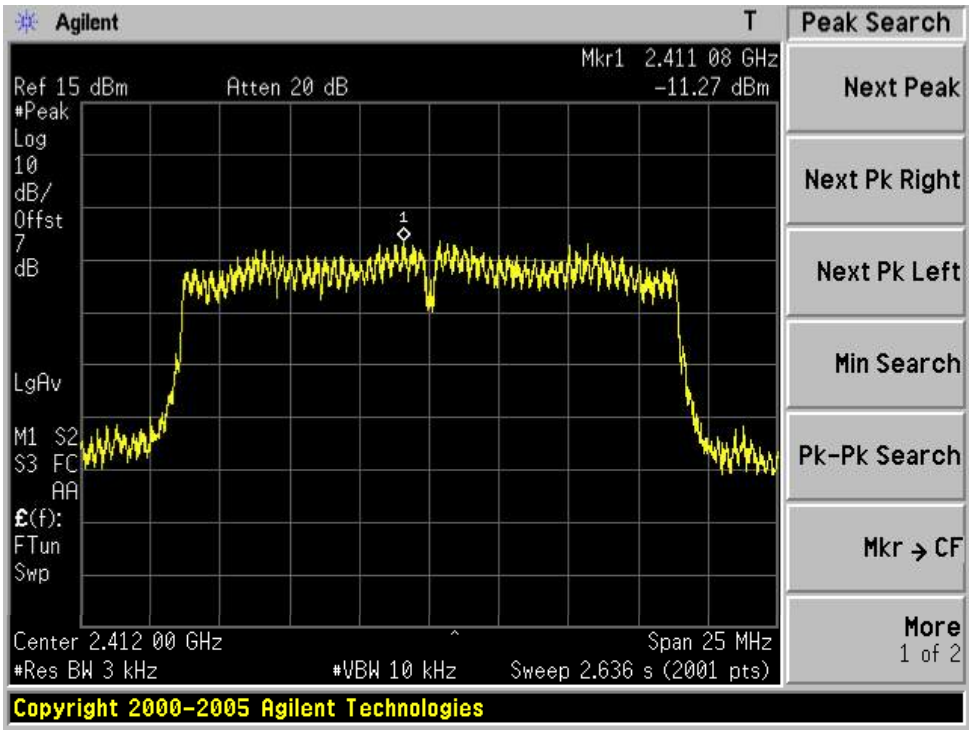


Channel 11 (2462MHz)

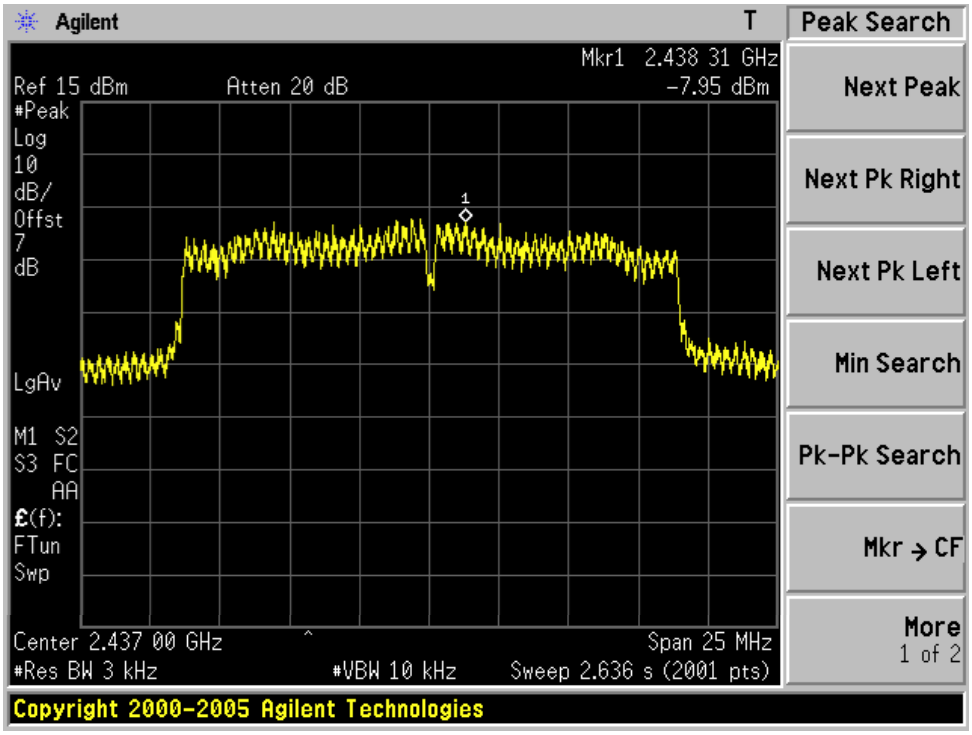


Ant 2

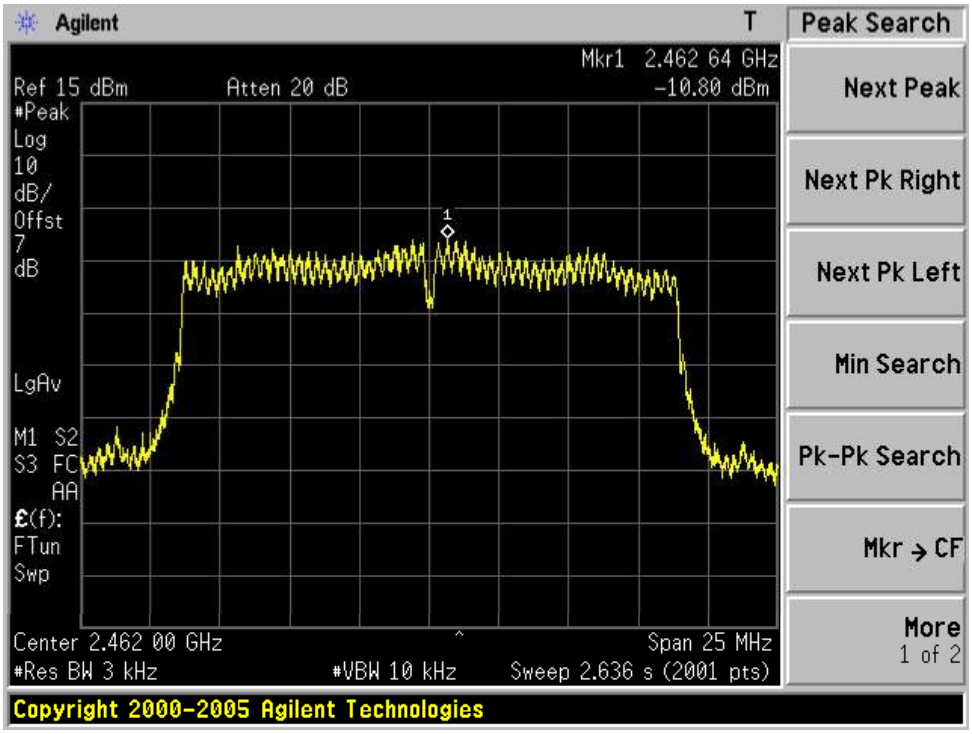
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)

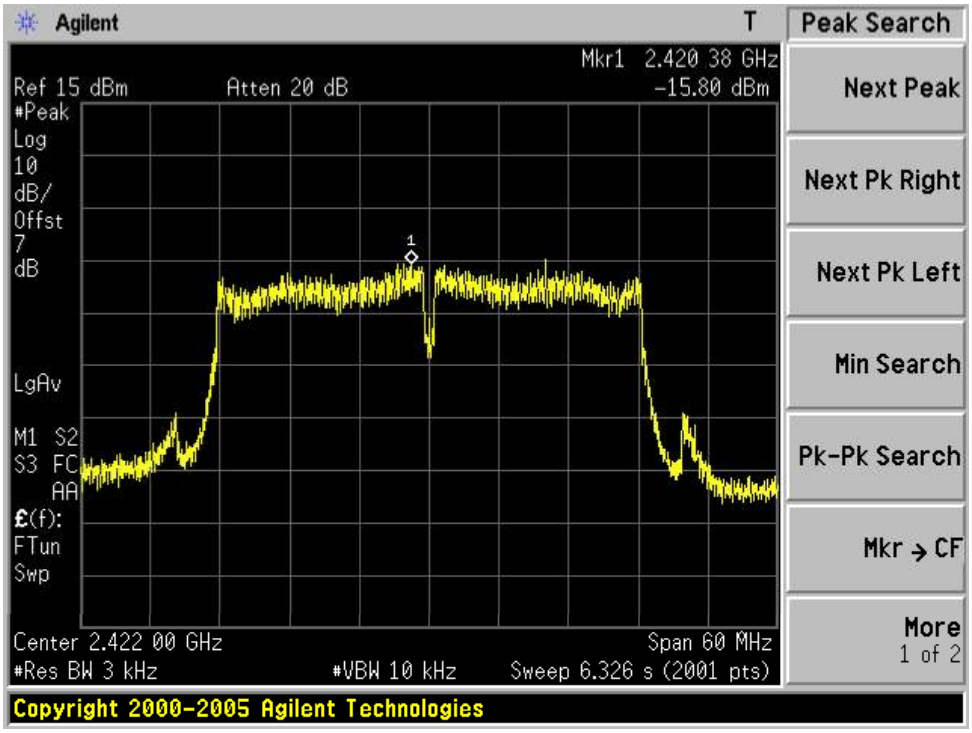


Product	:	IP-STB
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

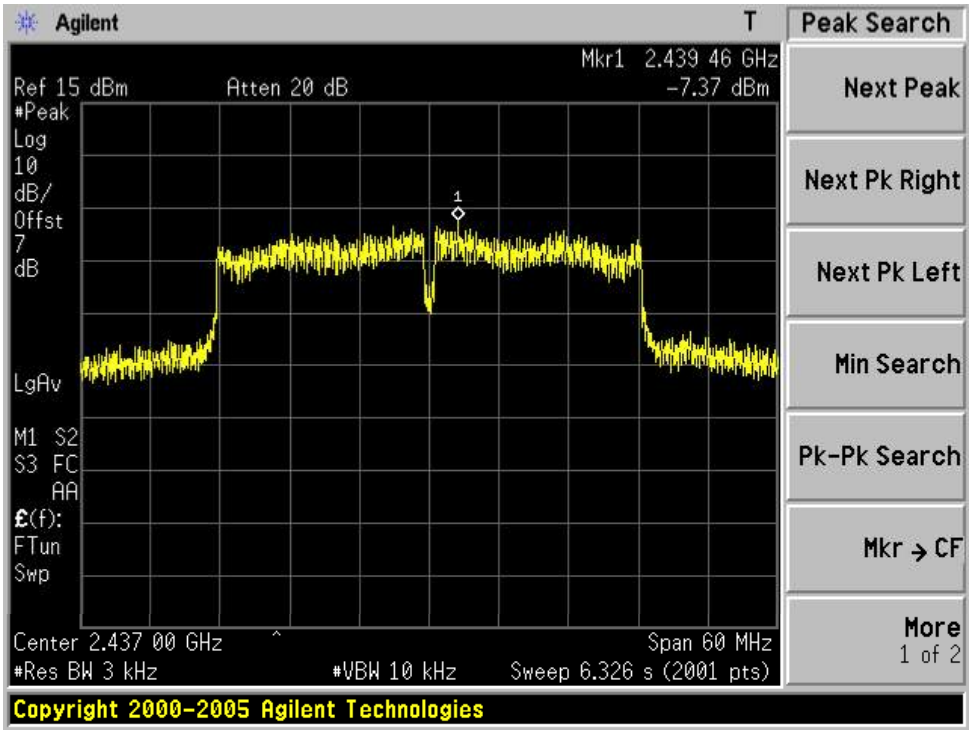
Channel No.	Frequency (MHz)	Measurement PPSD (dBm)		Limit (dBm)	Result
		Ant 1	Ant 2		
03	2422	-15.80	-12.56	8	Pass
06	2437	-7.37	-8.55	8	Pass
09	2452	-15.13	-15.86	8	Pass

Ant 1

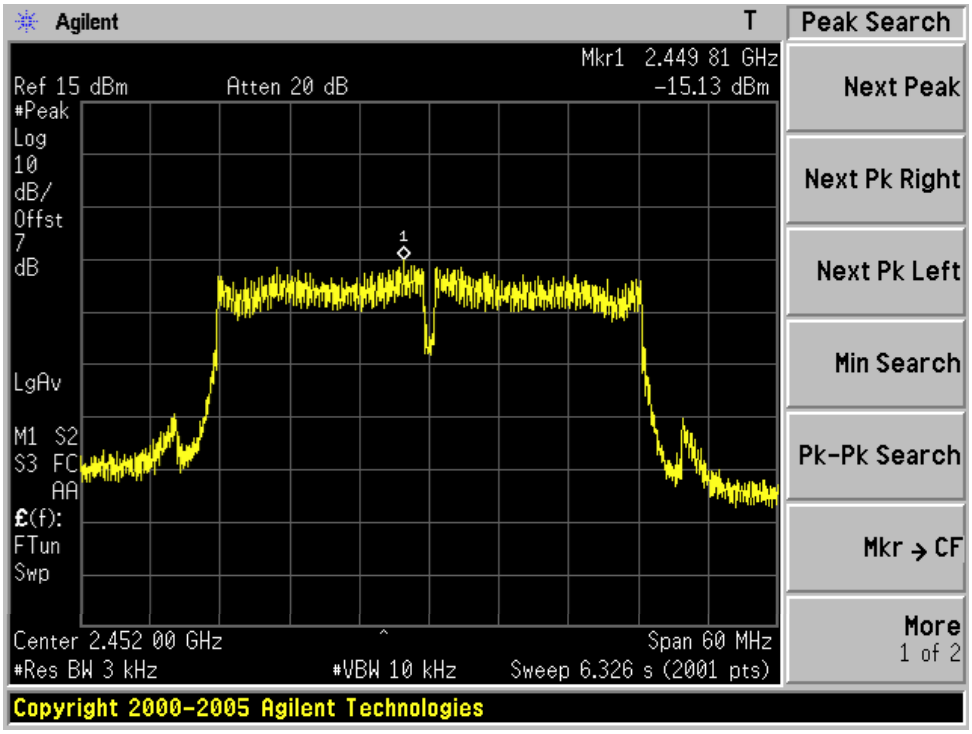
Channel 03 (2422MHz)



Channel 06 (2437MHz)

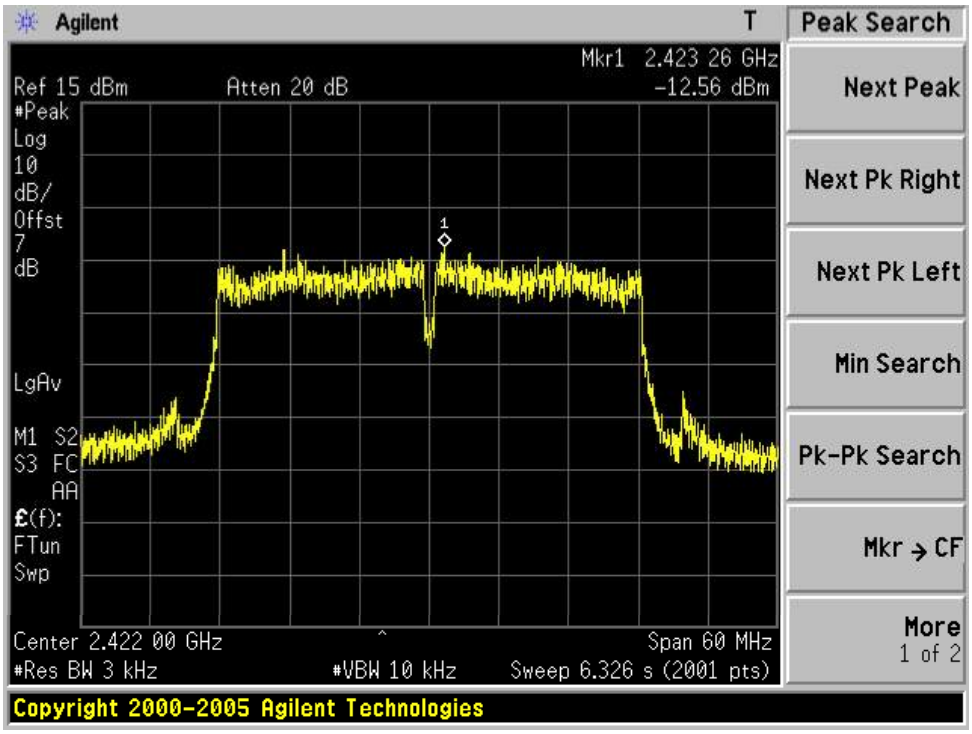


Channel 09 (2452MHz)

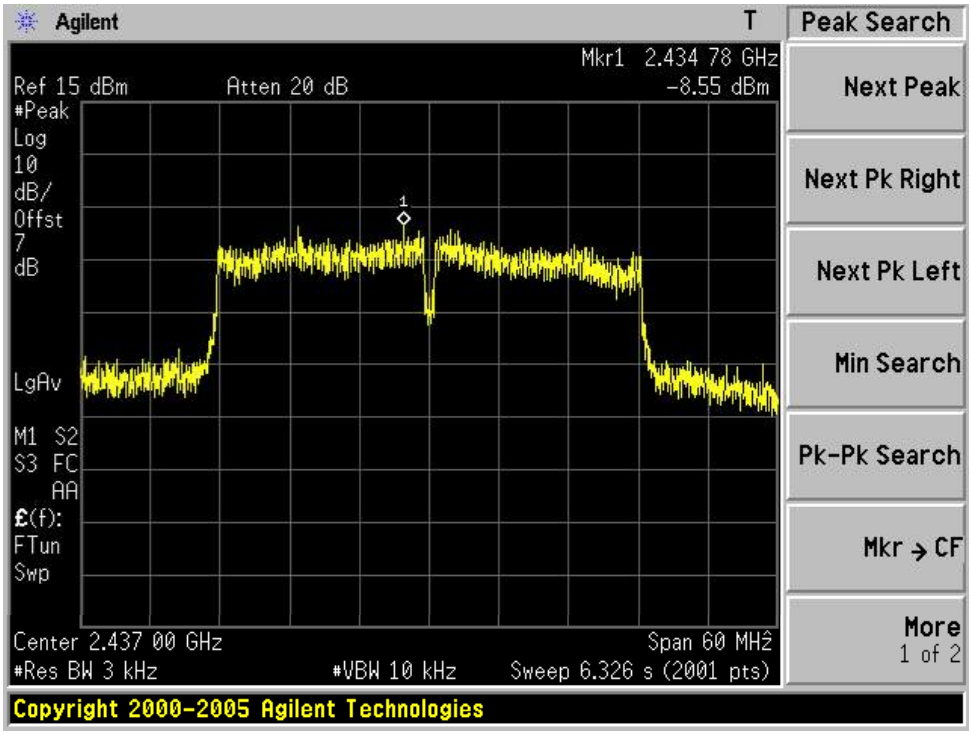


Ant 2

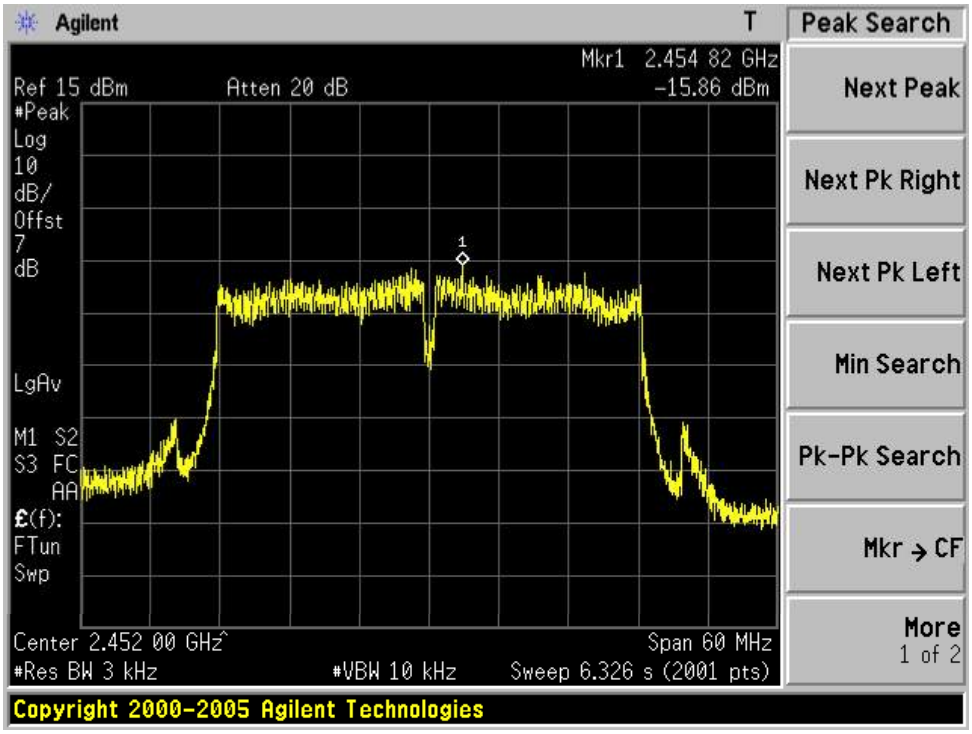
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)

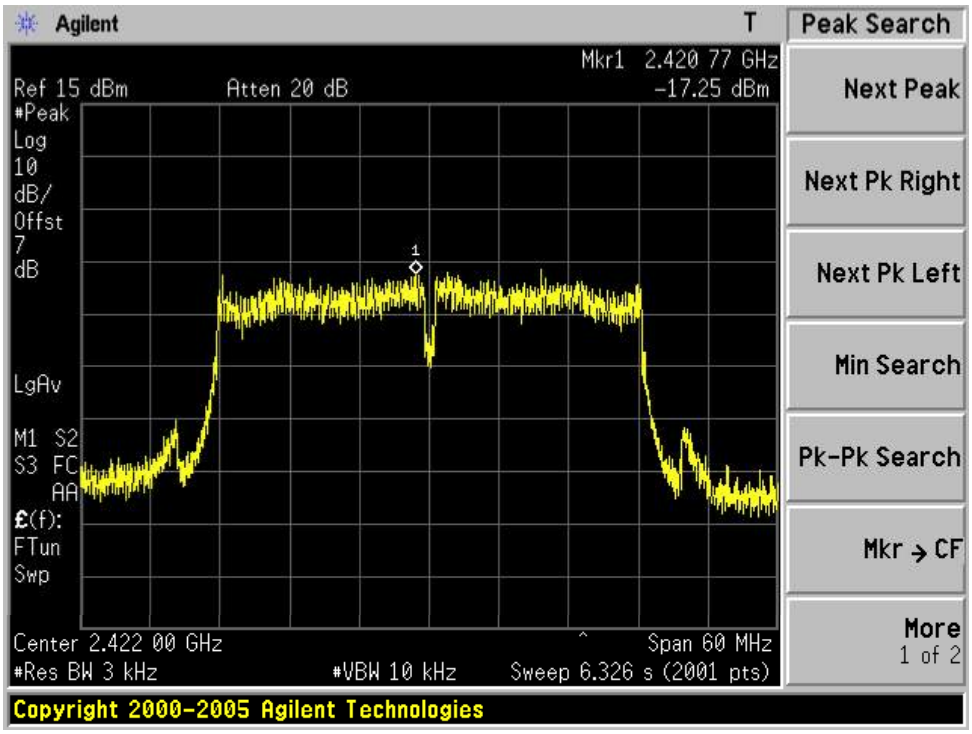


Product	:	IP-STB
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz) MIMO

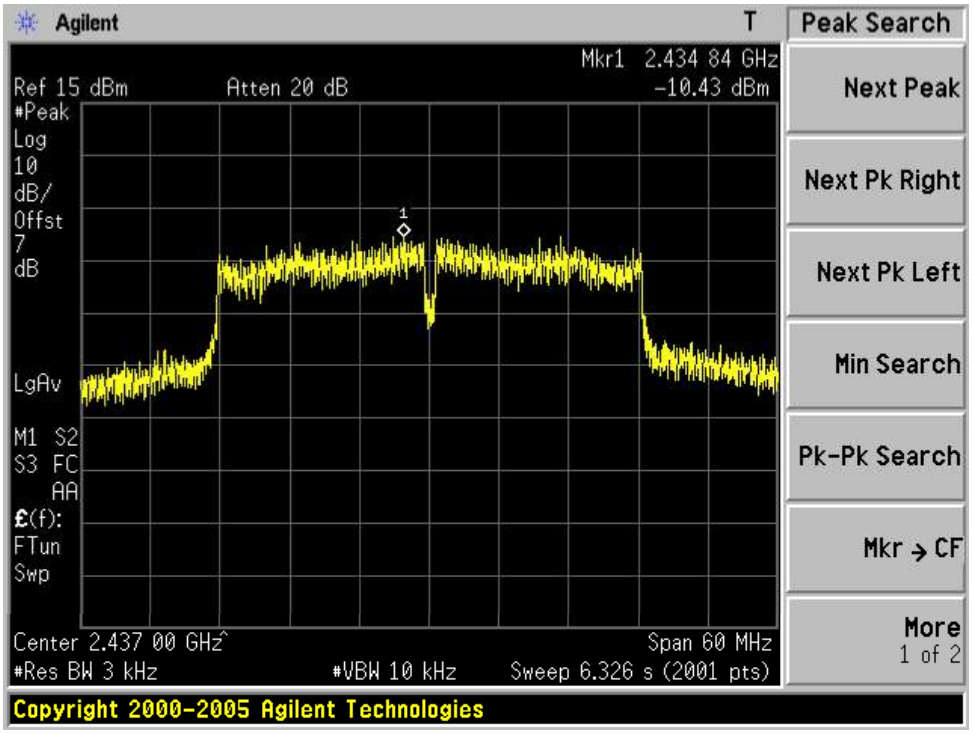
Channel No.	Frequency (MHz)	Measurement PPSD (dBm)		Total PPSD (dBm)	Limit (dBm)	Result
		Ant 1	Ant 2			
03	2422	-17.25	-15.37	-13.20	8	Pass
06	2437	-10.43	-10.31	-7.36	8	Pass
09	2452	-13.16	-13.67	-10.40	8	Pass

Ant 1

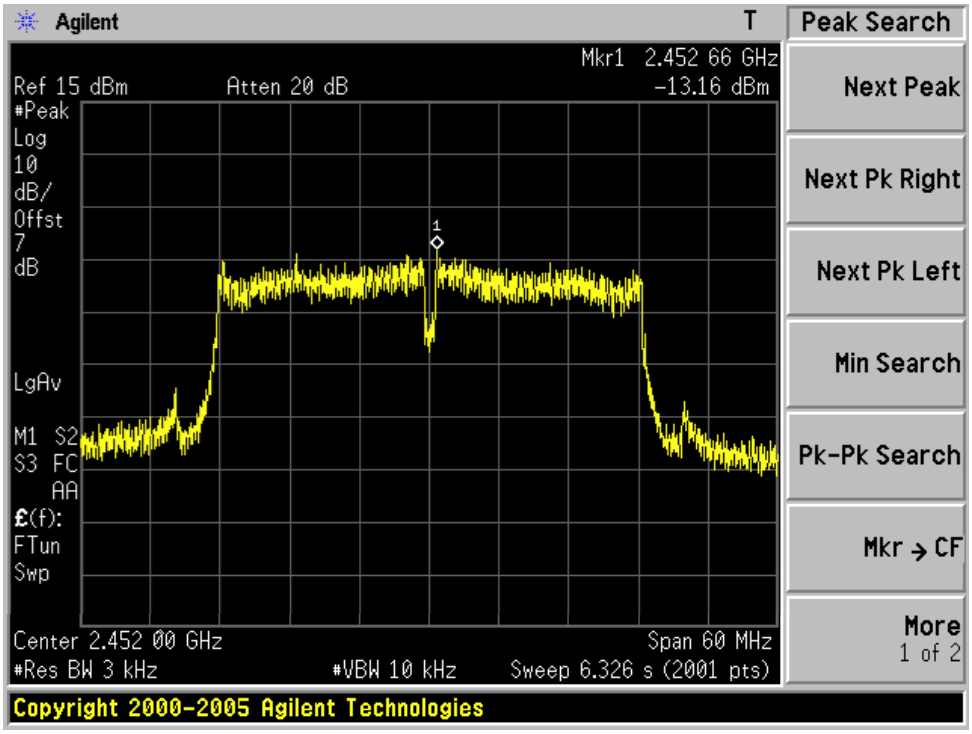
Channel 03 (2422MHz)



Channel 06 (2437MHz)

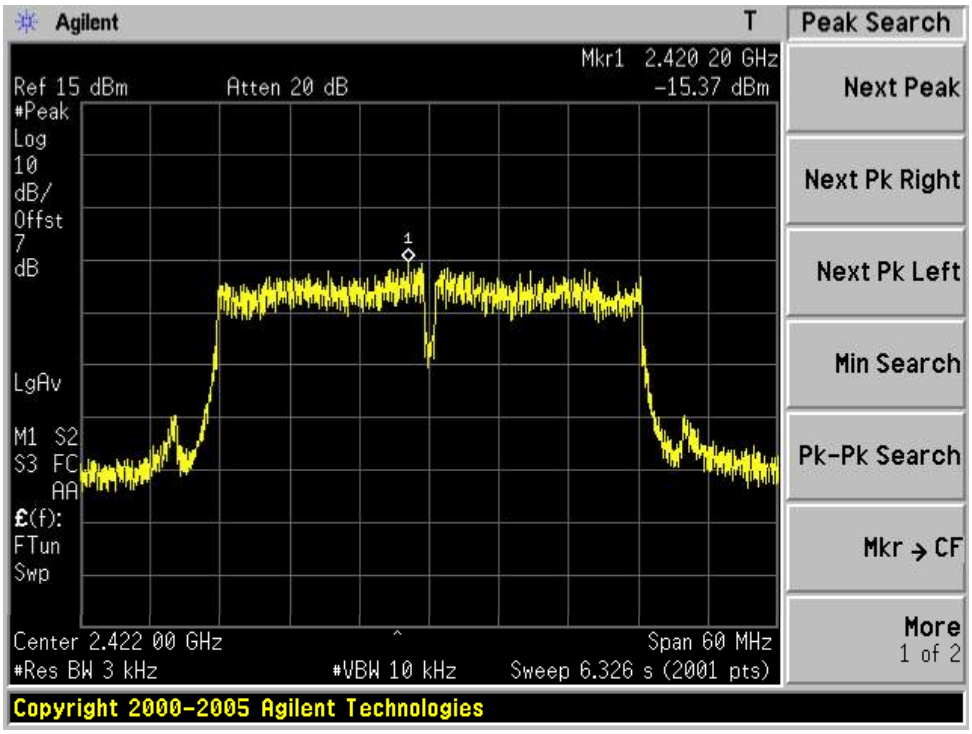


Channel 09 (2452MHz)

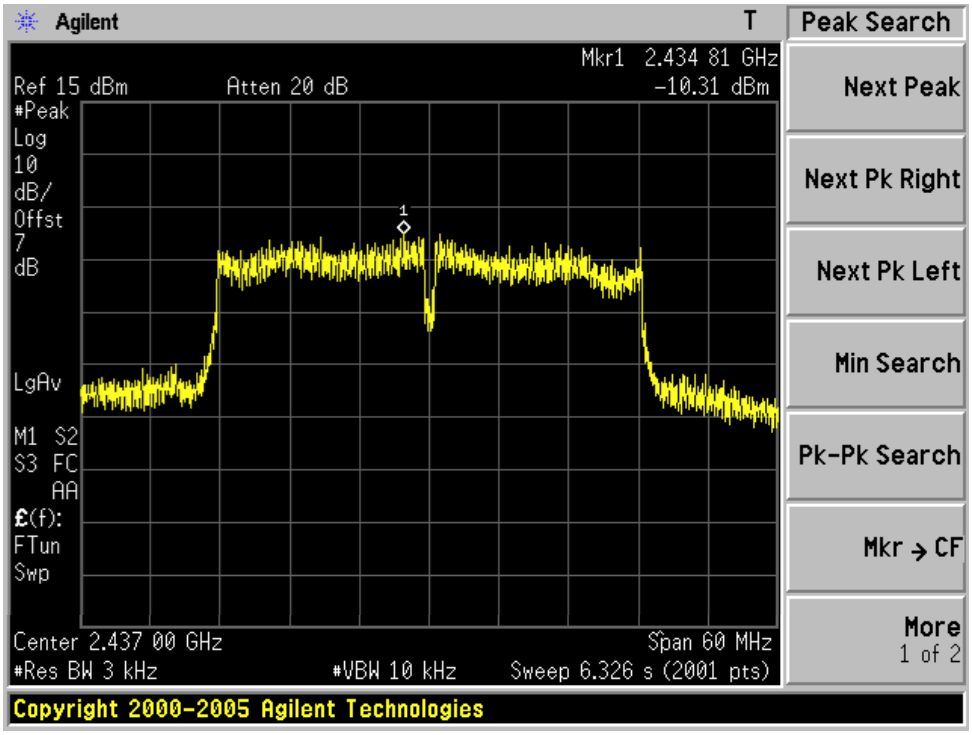


Ant 2

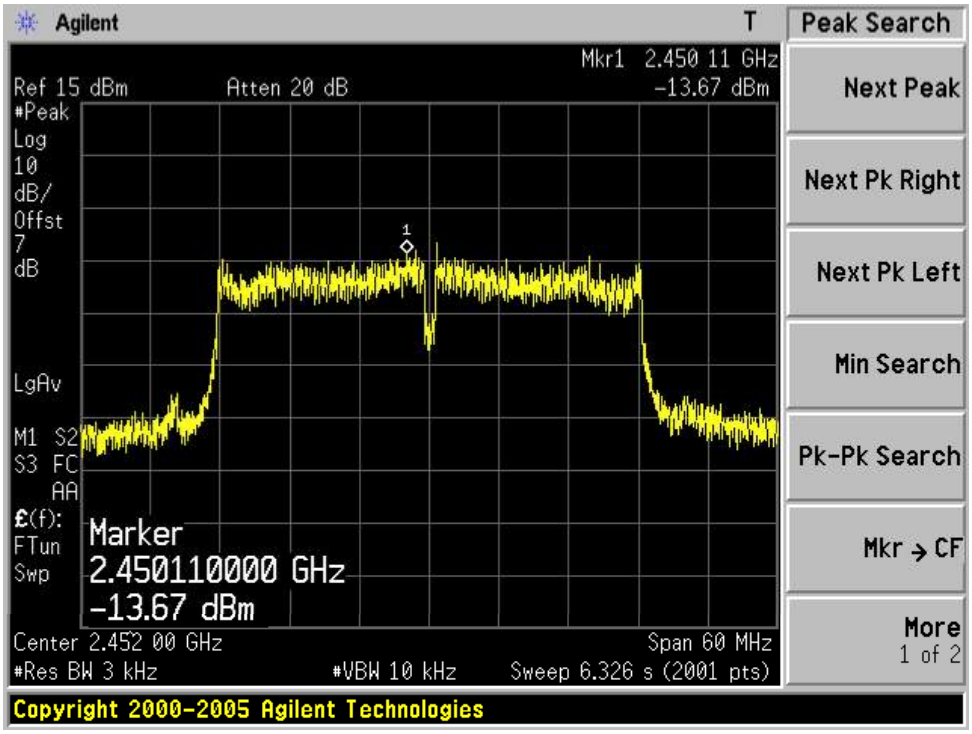
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)



The End