

Test Report

FCC 15.247

Product Name : IP-STB
Model No. : 4210X, 4230X, 4210X1,4230X1,4200X1,4205X1
FCC ID : TC2-R1011

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

Date of Receipt : Jul.07, 2015
Test Date : Jul.09, 2015~Aug.24, 2015
Issued Date : Sept.18, 2015
Report No. : 1570212R-RF-US-P05V01
Report Version : V2.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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Test Report Certification

Issued Date : Sept.18, 2015

Report No. : 1570212R-RF-US-P05V01



Product Name : IP-STB
Applicant : Roku Inc.
Address : 12980 Saratoga Ave, Suite D Saratoga, CA 95070
Manufacturer : Ambit Mircosystems (Shanghai) LTD.
Address : 1925, Nanle Road, Songjiang Export Processing Zone,
Shanghai, China 201613
Model No. : 4210X, 4230X, 4210X1,4230X1,4200X1,4205X1
FCC ID : TC2-R1011
EUT Voltage : 12V DC
Brand Name : Roku
Applicable Standard : ANSI C63.4:2014;
ANSI C63.10:2013;
FCC 15.247: 2014
Test Result : Complied
Performed Location : Suzhou EMC Laboratory
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FCC Registration Number: 800392; IC Lab Code: 4075B

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Laboratory Information

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

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

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site :<http://www.quietek.com/tw/ctg/cts/accreditations.htm>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site :
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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1570212R-RF-US-P05V01	V1.0	Initial Issued Report	Aug. 24, 2015
1570212R-RF-US-P05V01	V2.0	Update the model list	Sept.18, 2015

1. General Information

1.1. EUT Description

Product Name	IP-STB
Brand Name	Roku
Model No.	4210X, 4230X, 4210X1,4230X1,4200X1,4205X1
EUT Voltage	12V DC
Frequency Range	For 2.4GHz Band 802.11b/g/n(20MHz): 2412~2462MHz 802.11n(40MHz): 2422~2452MHz For 5.0GHz Band 802.11a/n(20MHz): 5180~5240MHz, 5745~5825MHz 802.11n(40MHz): 5190~5230MHz, 5755~5795MHz
Channel Number	For 2.4GHz Band 802.11b/g/n(20MHz): 11 802.11n(40MHz): 7 For 5.0GHz Band 802.11a/n(20MHz): 9 802.11n(40MHz): 4
Type of Modulation	802.11b: DSSS 802.11a/g/n: OFDM
Data Rate	802.11a/g: 6/9/12/18/24/36/48/54 Mbps 802.11b: 1/2/5.5/11 Mbps 802.11n: up to 300 Mbps
Channel Control	Auto
Antenna Delivery	2*T _x + 2*R _x
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List
Components	
Power Adapter	MFR: Roku M/N:FA-1201000SUD Input: AC 120~60Hz, 0.5A Output: DC 12V, 1.0A

Note: The RF specifications of these models are identical. The difference is the marketing sale. We choose model 4210X1 to perform all the test items.

For 2.4GHz Band

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

For 5.0GHz Band

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

802.11a/b/g/n Antenna List

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

1.2. Mode of Operation

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

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

Note:

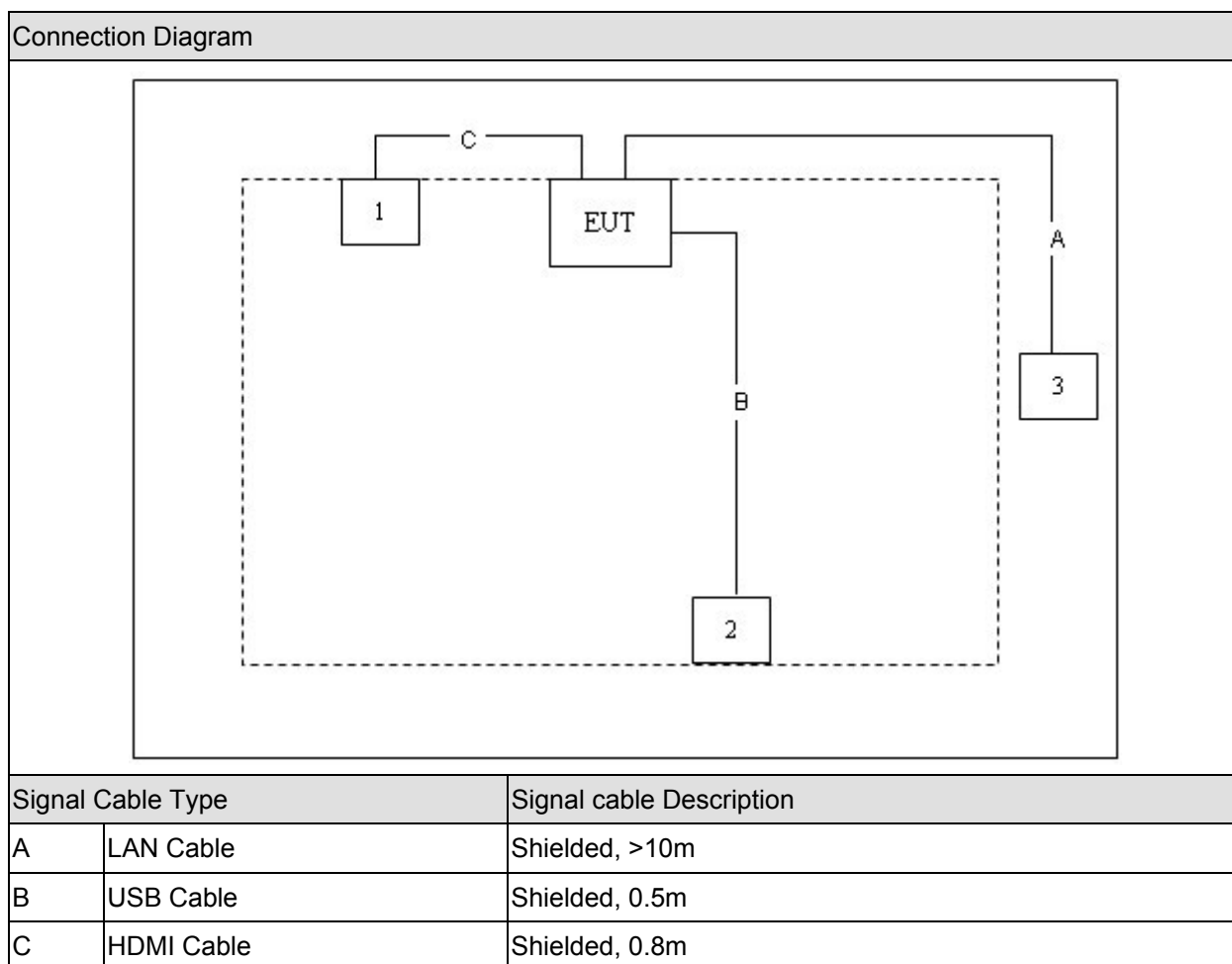
1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

1.3. Tested System Details

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

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

1.4. Configuration of Tested System



1.5. EUT Exercise Software

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

2. Technical Test

2.1. Summary of Test Result

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

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

2.2. Test Environment

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

3. Conducted Emission

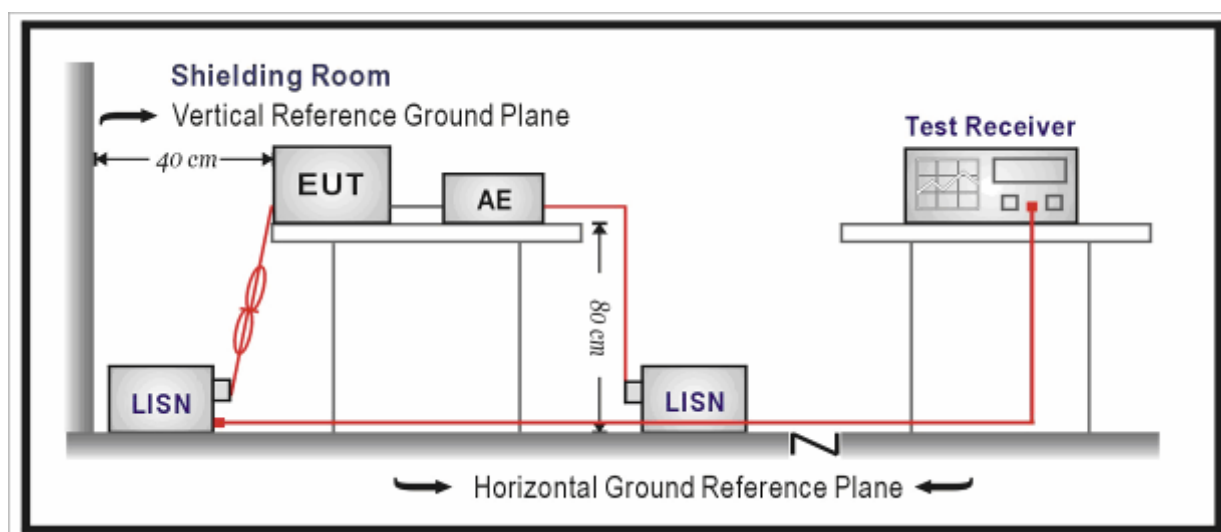
3.1. Test Equipment

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	2015.09.16
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2016.03.01
50ohm Termination	SHX	TF2	07081401	2015.09.16
Temperature/Humidity Meter	zhichen	ZC1-2	TR1-TH	2016.01.08

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

3.2. Test Setup



3.3. Limit

RSS-Gen Issue 4 December 2010 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.

3.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to ANSI C63.10: 2013 for compliance to RSS-Gen Issue 4 December 2010 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.

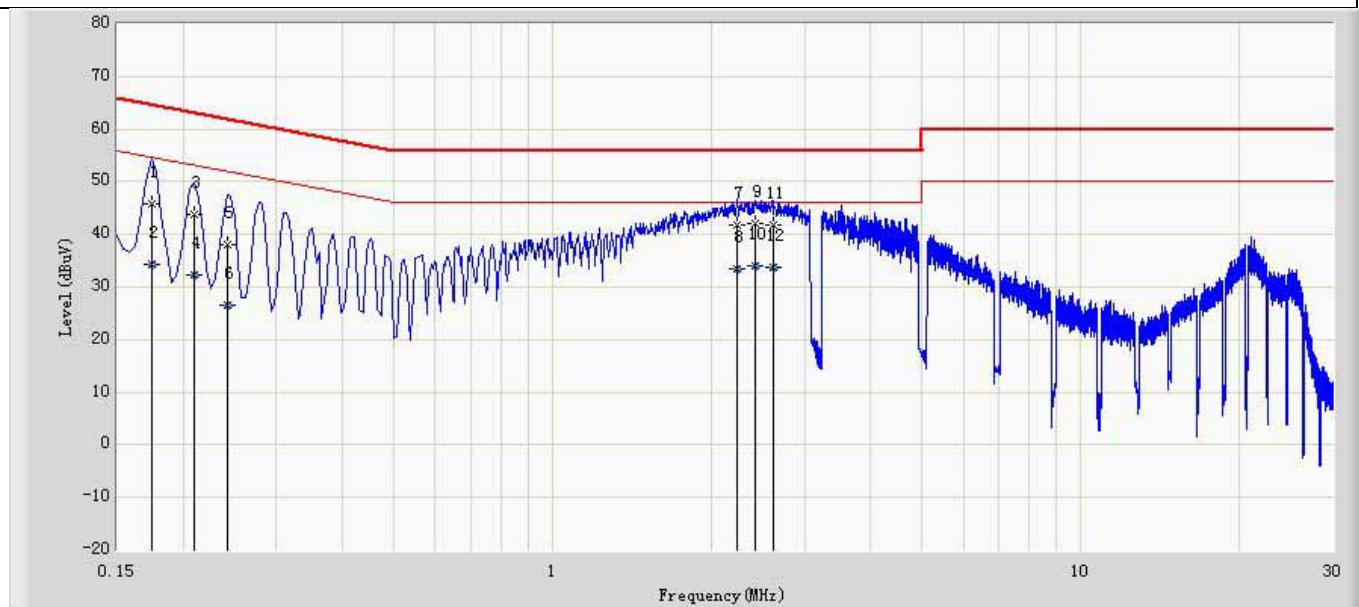
The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

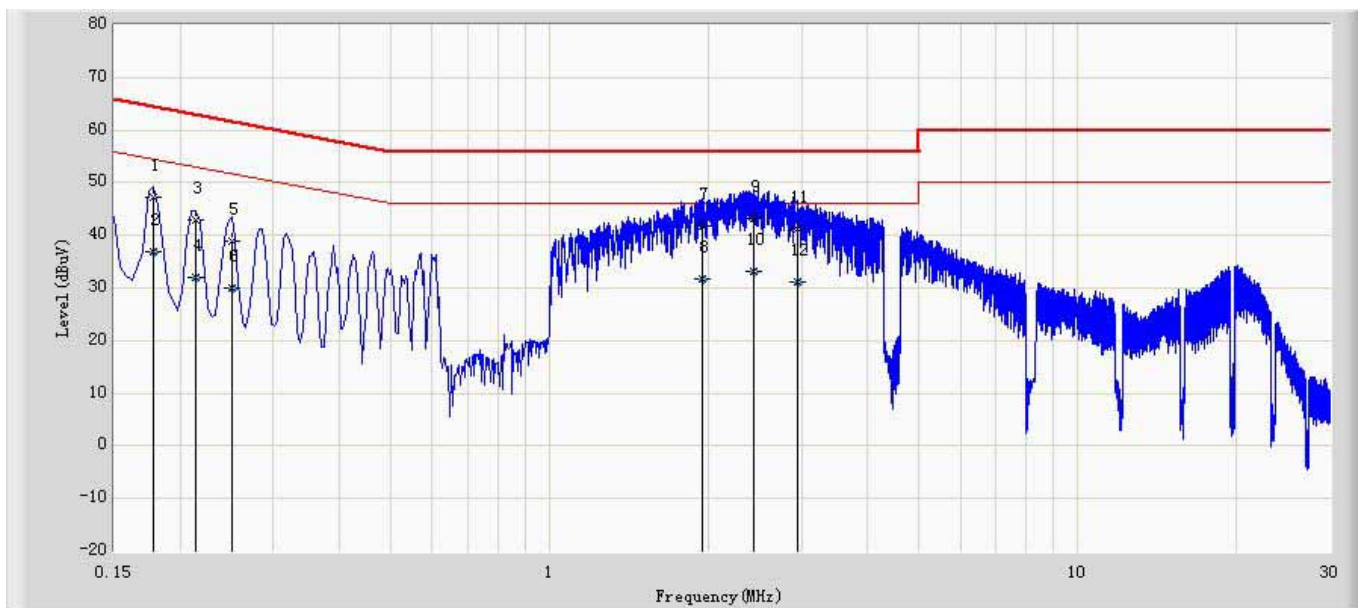
3.6. Test Result

Site: TR1	Time: 2015/08/15 - 13:03
Limit: FCC_Part15.207_CE_AC Power_ClassB	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		0.174	45.860	36.035	-18.907	64.767	9.825	QP
2		0.174	34.411	24.587	-20.356	54.767	9.825	AV
3		0.210	43.736	33.927	-19.469	63.205	9.810	QP
4		0.210	32.318	22.508	-20.888	53.205	9.810	AV
5		0.242	38.146	28.327	-23.881	62.027	9.819	QP
6		0.242	26.631	16.812	-25.396	52.027	9.819	AV
7		2.234	41.823	32.025	-14.177	56.000	9.797	QP
8		2.234	33.428	23.631	-12.572	46.000	9.797	AV
9		2.414	42.190	32.381	-13.810	56.000	9.808	QP
10	*	2.414	33.984	24.176	-12.016	46.000	9.808	AV
11		2.622	41.698	31.871	-14.302	56.000	9.827	QP
12		2.622	33.745	23.918	-12.255	46.000	9.827	AV

Site: TR1	Time: 2015/08/15 - 13:10
Limit: FCC_Part15.207_CE_AC Power_ClassB	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		0.178	47.339	37.418	-17.240	64.578	9.921	QP
2		0.178	36.795	26.874	-17.784	54.578	9.921	AV
3		0.214	42.821	32.960	-20.228	63.049	9.860	QP
4		0.214	32.058	22.198	-20.990	53.049	9.860	AV
5		0.250	39.040	29.154	-22.717	61.757	9.887	QP
6		0.250	30.126	20.240	-21.631	51.757	9.887	AV
7		1.950	41.721	31.752	-14.279	56.000	9.969	QP
8		1.950	31.852	21.883	-14.148	46.000	9.969	AV
9		2.442	43.181	33.200	-12.819	56.000	9.981	QP
10	*	2.442	33.281	23.300	-12.719	46.000	9.981	AV
11		2.958	41.300	31.300	-14.700	56.000	10.000	QP
12		2.958	31.100	21.100	-14.900	46.000	10.000	AV

Note: All the low ,middle and high channels of all different modes are investigated, and only report the worst case.

4. Radiated Emission

4.1. 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	2015.11.17
Bilog Chainenna	Teseq GmbH	CBL6112D	27611	2015.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2016.03.01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2016.01.08

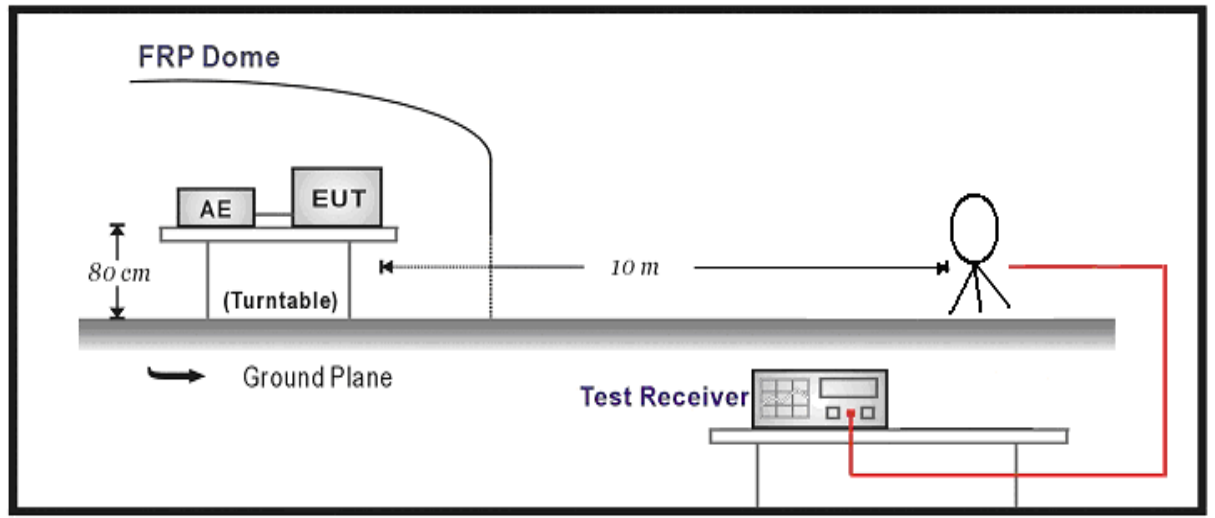
Radiated Emission / AC-5

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	2015.11.24
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

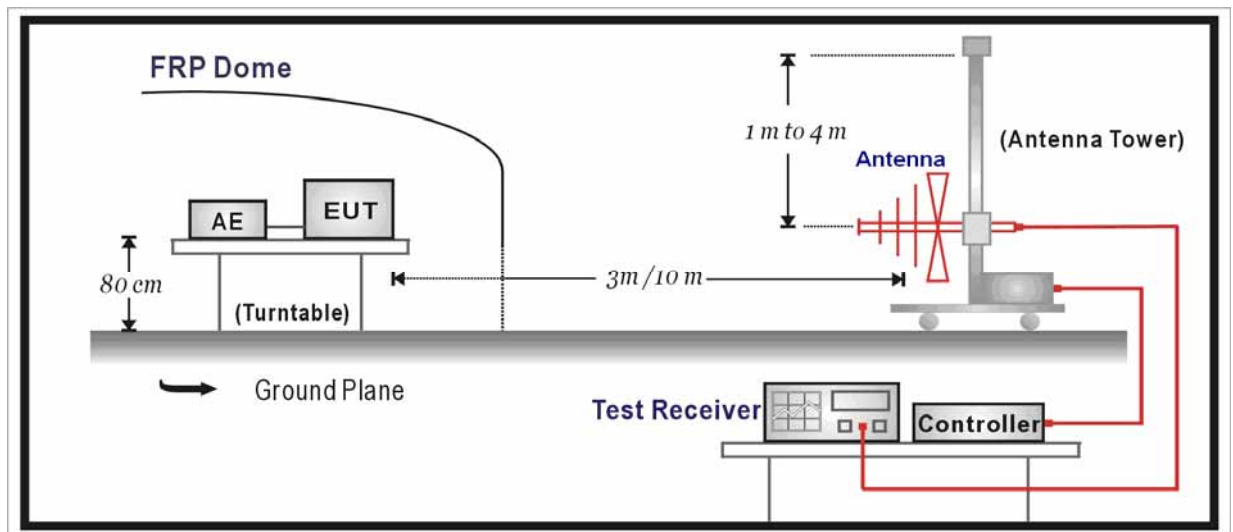
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

4.2. Test Setup

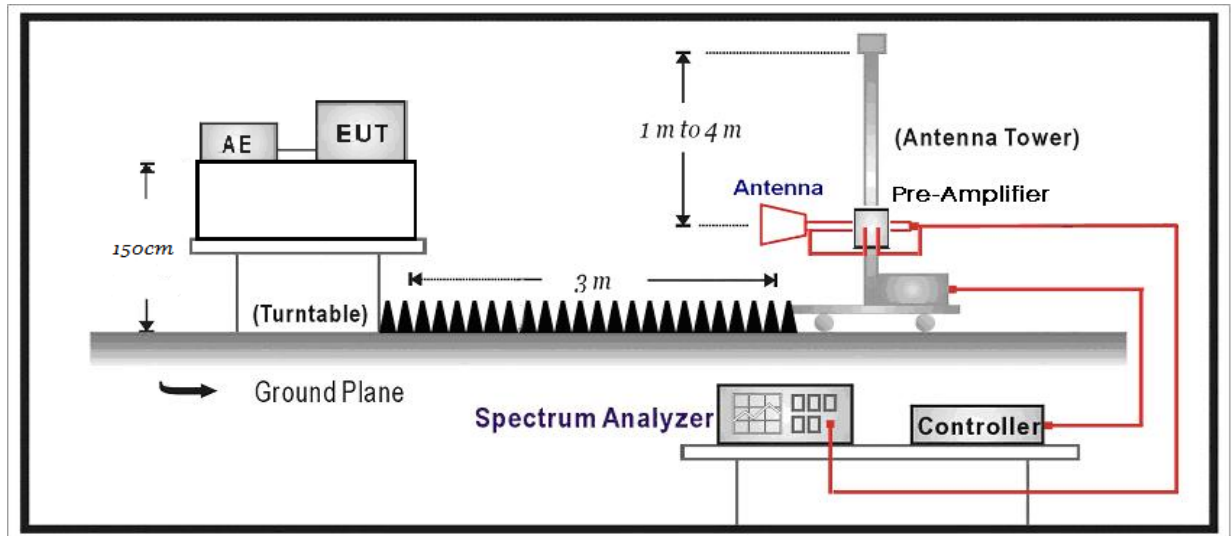
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

RSS-247 Issue 1 December 2010		
Frequency (MHz)	Distance (m)	Level (dBuV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54

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

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

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

4.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2014 and tested according to ANSI C63.10: 2013 and KDB 558074 for compliance to RSS-247 Issue 1 December 2010 requirements. 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 60 degrees for H-plane and 90 degrees for E-plane.

4.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB
below 1G is defined as ± 3.8 dB

4.6. Test Result

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

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

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

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

802.11b

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Chain 1	1	H	4825.0	58.5	-6.3	52.2	54(note3)	-1.8	PK
		H	7230.5	54.4	-2.7	51.7	54(note3)	-2.3	PK
		V	4825.0	54.8	-6.3	48.5	54(note3)	-5.5	PK
		V	7239.0	60.3	-2.6	57.7	74.0	-16.3	PK
		V	7239.0	54.8	-2.6	52.2	54.0	-1.8	AV
	6	H	4876.0	57.1	-6.3	50.8	54(note3)	-3.2	PK
		H	7307.0	54.7	-3.0	51.7	54(note3)	-2.3	PK
		V	4876.0	54.7	-6.3	48.4	54(note3)	-5.6	PK
		V	7307.0	60.2	-3.0	57.2	74.0	-16.8	PK
		V	7307.0	52.8	-3.0	49.8	54.0	-4.2	AV
	11	H	4927.0	58.7	-6.4	52.3	54(note3)	-1.7	PK
		H	7383.5	54.6	-2.4	52.2	54(note3)	-1.8	PK
		V	4927.0	55.3	-6.4	48.9	54(note3)	-5.1	PK
		V	7383.5	60.5	-2.4	58.1	74.0	-15.9	PK
		V	7385.3	55.6	-2.4	53.2	54.0	-0.8	AV
		H	4927.0	58.7	-6.4	52.3	54(note3)	-1.7	PK
		H	7383.5	54.6	-2.4	52.2	54(note3)	-1.8	PK
Chain 2	1	H	4825.0	62.2	-6.3	55.9	74.0	-18.1	PK
		H	7235.3	56.1	-2.7	53.4	54.0	-0.6	AV
		H	7239.0	61.5	-2.6	58.9	54(note3)	4.9	PK
		V	4825.0	60.6	-6.3	54.3	74.0	-19.7	PK
		V	4825.0	56.2	-6.3	49.9	54.0	-4.1	AV
		V	7239.0	58.8	-2.6	56.2	74.0	-17.8	PK
		V	7239.0	52.6	-2.6	50.0	54.0	-4.0	AV
	6	H	4876.0	59.3	-6.3	53.0	54(note3)	-1.0	PK
		H	7307.0	60.3	-3.0	57.3	74.0	-16.7	PK

		H	7307.0	55.2	-3.0	52.2	54.0	-1.8	AV
		V	4876.0	59.9	-6.3	53.6	54(note3)	-0.4	PK
		V	7307.0	57.4	-3.0	54.4	74.0	-19.6	PK
		V	7307.0	50.8	-3.0	47.8	54.0	-6.2	AV
	11	H	4927.0	56.9	-6.4	50.5	54(note3)	-3.5	PK
		H	7383.5	59.2	-2.4	56.8	74.0	-17.2	PK
		H	7385.3	54.9	-2.4	52.5	54.0	-1.5	AV
		V	4927.0	56.6	-6.4	50.2	54(note3)	-3.8	PK
		V	7383.5	56.5	-2.4	54.1	74.0	-19.9	PK
		V	7383.5	51.6	-2.4	49.2	54.0	-4.8	AV

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

- 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.
- 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.
- Three times harmonic of PK value are at least 10dBm below the AV limits, therefore no data appear in the report.

802.11g

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Chain 1	1	H	4825.0	57.7	-6.3	51.4	54(note3)	-2.6	PK
		H	7239.0	58.9	-2.6	56.3	74.0	-17.7	PK
		H	7239.0	51.6	-2.6	49.0	54.0	-5.0	AV
		V	4825.0	54.2	-6.3	47.9	54(note3)	-6.1	PK
		V	7236.3	50.5	-2.7	47.8	54.0	-6.2	AV
		V	7239.0	65.7	-2.6	63.1	74.0	-10.9	PK
	6	H	4876.0	56.6	-6.3	50.3	54(note3)	-3.7	PK
		H	7307.0	58.8	-3.0	55.8	74.0	-18.2	PK
		H	7307.0	52.2	-3.0	49.2	54.0	-4.8	AV
		V	4876.0	53.1	-6.3	46.8	54(note3)	-7.2	PK
		V	7311.3	51.0	-3.0	48.0	54.0	-6.0	AV
		V	7315.5	64.5	-2.9	61.6	74.0	-12.4	PK
	11	H	4927.0	54.4	-6.4	48.0	54(note3)	-6.0	PK
		H	7383.5	49.4	-2.4	47.0	54(note3)	-7.0	PK
		V	4918.5	51.0	-6.4	44.6	54(note3)	-9.4	PK

Chain 2		V	7392.0	57.2	-2.5	54.7	74.0	-19.3	PK
		V	7392.0	53.1	-2.5	50.6	54.0	-3.4	AV
	1	H	4825.0	57.4	-6.3	51.1	54(note3)	-2.9	PK
		H	7239.0	57.4	-2.6	54.8	74.0	-19.2	PK
		H	7239.0	50.6	-2.6	48.0	54.0	-6.0	AV
		V	4825.0	55.6	-6.3	49.3	54(note3)	-4.7	PK
		V	7239.0	55.6	-2.6	53.0	54(note3)	-1.0	PK
	6	H	4884.5	55.6	-6.3	49.3	54(note3)	-4.7	PK
		H	7307.0	59.8	-3.0	56.8	74.0	-17.2	PK
		H	7307.0	52.6	-3.0	49.6	54.0	-4.4	AV
		V	4876.0	56.4	-6.3	50.1	54(note3)	-3.9	PK
		V	7307.0	54.9	-3.0	51.9	54(note3)	-2.1	PK
	11	H	4918.5	51.8	-6.4	45.4	54(note3)	-8.6	PK
		H	7392.0	54.9	-2.5	52.4	54(note3)	-1.6	PK
		V	4927.0	53.1	-6.4	46.7	54(note3)	-7.3	PK
		V	7375.0	54.9	-2.3	52.6	54(note3)	-1.4	PK

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

- 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.
- 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.
- Three times harmonic of PK value are at least 10dBm below the AV limits, therefore no data appear in the report.

802.11n(20MHz)

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Chain 1	1	H	4825.0	54.6	-6.3	48.3	54(note3)	-5.7	PK
		H	7239.0	52.5	-2.6	49.9	54(note3)	-4.1	PK
		V	4825.0	53.7	-6.3	47.4	54(note3)	-6.6	PK
		V	7239.0	60.2	-2.6	57.6	54(note3)	-16.4	PK
		V	7239.0	53.0	-2.6	50.4	54(note3)	-3.6	AV
	6	H	4876.0	59.3	-6.3	53.0	54(note3)	-1.0	PK
		H	7307.0	58.4	-3.0	55.4	74.0	-18.6	PK
		H	7307.0	52.9	-3.0	49.9	54.0	-4.1	AV
		V	4876.0	57.0	-6.3	50.7	54(note3)	-3.3	PK

		V	7305.2	50.6	-3.0	47.6	54.0	-6.4	AV
		V	7307.0	62.1	-3.0	59.1	74.0	-14.9	PK
	11	H	4927.0	52.9	-6.4	46.5	54(note3)	-7.5	PK
		V	7375.0	49.9	-2.3	47.6	54(note3)	-6.4	PK
		V	4927.0	51.1	-6.4	44.7	54(note3)	-9.3	PK
		V	7375.0	51.0	-2.3	48.7	54(note3)	-5.3	PK
Chain 2	1	H	4833.5	53.8	-6.3	47.5	54(note3)	-26.5	PK
		H	7239.0	52.4	-2.6	49.8	54(note3)	-24.2	PK
		V	4833.5	51.5	-6.3	45.2	54(note3)	-28.8	PK
		V	7230.5	59.5	-2.7	56.8	54(note3)	-17.2	PK
	6	H	4876.0	58.2	-6.3	51.9	54(note3)	-2.1	PK
		H	7307.0	62.7	-3.0	59.7	74.0	-14.3	PK
		H	7307.0	53.6	-3.0	50.6	54.0	-3.4	AV
		V	4876.0	59.9	-6.3	53.6	54(note3)	-0.4	PK
		V	7315.5	56.6	-2.9	53.7	54(note3)	-0.3	PK
	11	H	4918.5	51.3	-6.4	44.9	54(note3)	-9.1	PK
		H	7383.5	54.4	-2.4	52.0	54(note3)	-2.0	PK
		V	4927.0	52.0	-6.4	45.6	54(note3)	-8.4	PK
		V	7386.0	48.0	-2.4	45.6	54(note3)	-8.4	PK
Chain 1+2	1	H	4825.0	52.8	-6.3	46.5	54(note3)	-7.5	PK
		H	7239.0	54.3	-2.6	51.7	54(note3)	-2.3	PK
		V	4825.0	53.4	-6.3	47.1	54(note3)	-6.9	PK
		V	7239.0	55.0	-2.6	52.4	54(note3)	-1.6	PK
	6	H	4867.5	60.7	-6.3	54.4	54(note3)	0.4	PK
		H	7298.5	64.3	-3.0	61.3	74.0	-12.7	PK
		H	7309.4	54.6	-3.0	51.6	54.0	-2.4	AV
		V	4867.5	61.8	-6.3	55.5	54(note3)	1.5	PK
		V	7298.5	63.5	-3.0	60.5	74.0	-13.5	PK
		V	7298.5	54.0	-3.0	51.0	54.0	-3.0	AV
	11	H	4924.0	51.0	-6.4	44.6	54(note3)	-9.4	PK
		H	7375.0	51.6	-2.3	49.3	54(note3)	-4.7	PK
		V	4924.0	51.2	-6.4	44.8	54(note3)	-9.2	PK
		V	7392.0	52.0	-2.5	49.5	54(note3)	-4.5	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.

4. Three times harmonic of PK value are at least 10dBm below the AV limits, therefore no data appear in the report.

802.11n(40MHz)

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Chain 1	3	H	4844.0	51.2	-6.3	44.9	54(note3)	-9.1	PK
		H	7273.0	52.1	-2.9	49.2	54(note3)	-4.8	PK
		V	4850.5	52.0	-6.4	45.6	54(note3)	-8.4	PK
		V	7273.0	53.9	-2.9	51.0	54(note3)	-3.0	PK
	6	H	4867.5	59.1	-6.3	52.8	54(note3)	-1.2	PK
		H	7298.5	60.1	-3.0	57.1	74.0	-16.9	PK
		H	7298.5	51.8	-3.0	48.8	54.0	-5.2	AV
		V	4867.5	58.2	-6.3	51.9	54(note3)	-2.1	PK
		V	7304.5	53.5	-3.0	50.5	54.0	-3.5	AV
		V	7307.0	67.0	-3.0	64.0	74.0	-10.0	PK
	9	H	4904.0	51.8	-6.4	45.4	54(note3)	-8.6	PK
		H	7349.5	50.4	-2.5	47.9	54(note3)	-6.1	PK
		V	4904.0	49.4	-6.4	43.0	54(note3)	-11.0	PK
		V	7366.5	55.6	-2.4	53.2	54(note3)	-0.8	PK
Chain 2	3	H	4844.0	50.0	-6.3	43.7	54(note3)	-10.3	PK
		H	7273.0	50.6	-2.9	47.7	54(note3)	-6.3	PK
		V	4844.0	50.2	-6.3	43.9	54(note3)	-10.1	PK
		V	7256.0	48.6	-2.6	46.0	54(note3)	-8.0	PK
	6	H	4867.5	60.0	-6.3	53.7	54(note3)	-0.3	PK
		H	7298.5	60.2	-3.0	57.2	74.0	-16.8	PK
		H	7298.5	51.9	-3.0	48.9	54.0	-5.1	AV
		V	4884.5	59.7	-6.3	53.4	54(note3)	-0.6	PK
		V	7315.5	58.4	-2.9	55.5	74.0	-18.5	PK
		V	7315.5	52.1	-2.9	49.2	54.0	-4.8	AV
	9	H	4904.0	49.5	-6.4	43.1	54(note3)	-10.9	PK
		H	7349.5	51.9	-2.5	49.4	54(note3)	-4.6	PK
		V	4904.0	49.8	-6.4	43.4	54(note3)	-10.6	PK
		V	7341.0	49.9	-2.7	47.2	54(note3)	-6.8	PK
	3	H	4842.0	50.5	-6.3	44.2	54(note3)	-9.8	PK
		H	7256.0	51.2	-2.6	48.6	54(note3)	-5.4	PK

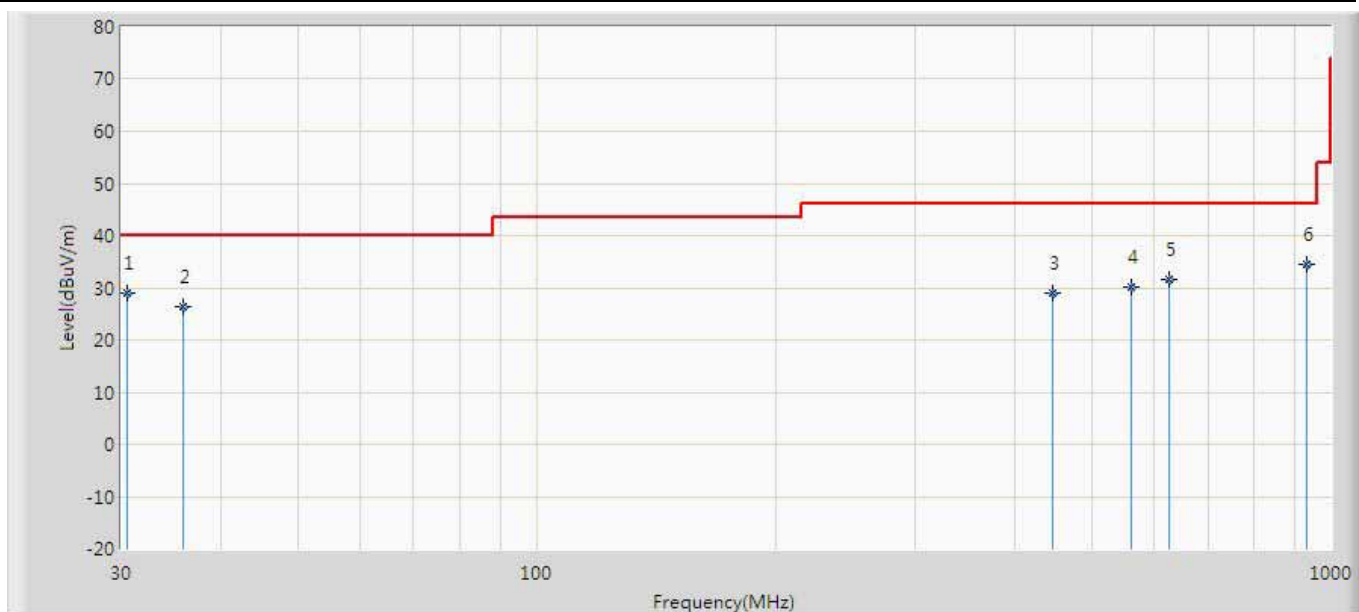
		V	4842.0	51.9	-6.3	45.6	54(note3)	-8.4	PK
		V	7273.0	55.0	-2.9	52.1	54(note3)	-1.9	PK
	6	H	4876.0	56.8	-6.3	50.5	54(note3)	-3.5	PK
		H	7298.5	60.8	-3.0	57.8	74.0	-16.2	PK
		H	7298.5	51.6	-3.0	48.6	54.0	-5.4	AV
		V	4876.0	56.1	-6.3	49.8	54(note3)	-4.2	PK
		V	7298.5	63.3	-3.0	60.3	74.0	-13.7	PK
		V	7302.9	47.7	-3.0	44.7	54.0	-9.3	AV
	9	H	4904.0	49.7	-6.4	43.3	54(note3)	-10.7	PK
		H	7358.0	52.2	-2.5	49.7	54(note3)	-4.3	PK
		V	4904.0	50.1	-6.4	43.7	54(note3)	-10.3	PK
		V	7332.5	54.3	-2.7	51.6	54(note3)	-2.4	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.
4. Three times harmonic of PK value are at least 10dBm below the AV limits, therefore no data appear in the report.

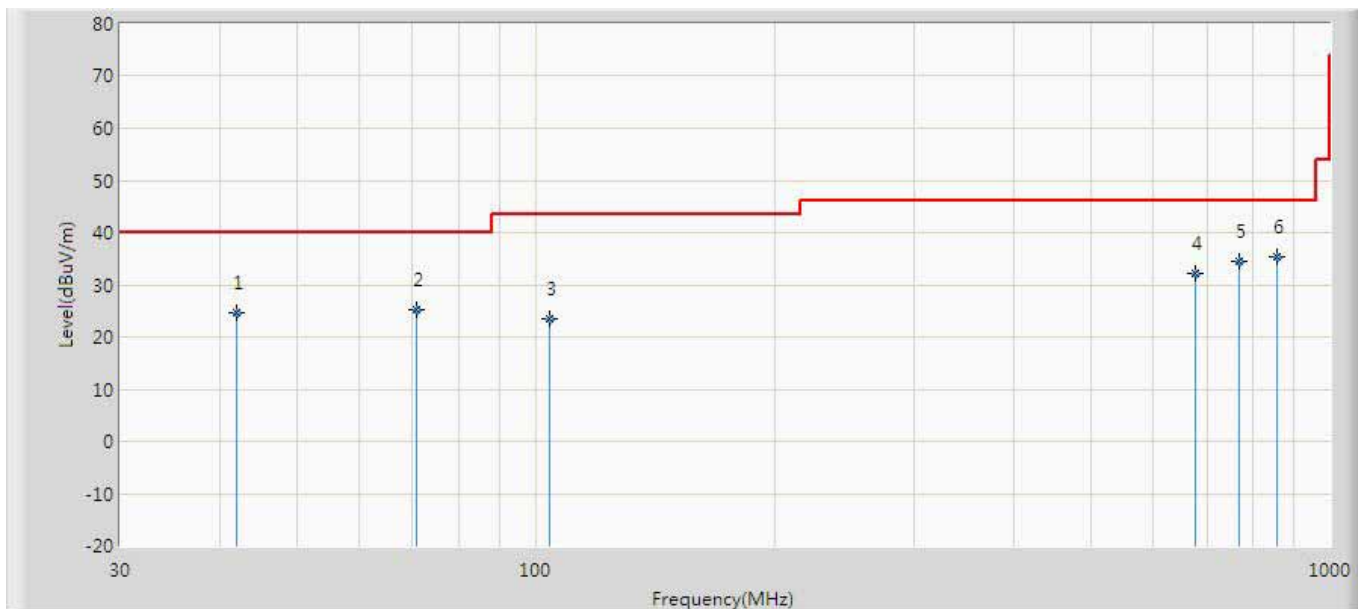
The worst case of Radiated Emission below 1GHz:

Site: AC2	Time: 2015/08/12
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: AC3_10m (30-1000MHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1: Transmit at CH2412 by 802.11b	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	30.498	28.880	1.200	-11.120	40.000	27.680	QP
2		35.913	26.486	0.800	-13.514	40.000	25.686	QP
3		447.314	29.003	2.200	-16.997	46.000	26.803	QP
4		560.637	30.190	2.900	-15.810	46.000	27.290	QP
5		625.281	31.688	1.800	-14.312	46.000	29.888	QP
6		932.544	34.359	2.300	-11.641	46.000	32.059	QP

Site: AC2	Time: 2015/08/12
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: AC3_10m (30-1000MHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode 1: Transmit at CH2412 by 802.11b	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		41.972	24.540	6.700	-15.460	40.000	17.840	QP
2		70.975	25.143	10.500	-14.857	40.000	14.643	QP
3		104.204	23.436	1.400	-20.064	43.500	22.037	QP
4		675.677	32.283	3.800	-13.717	46.000	28.484	QP
5		768.699	34.512	2.200	-11.488	46.000	32.313	QP
6	*	858.427	35.471	2.700	-10.529	46.000	32.771	QP

5. RF Antenna Conducted Spurious

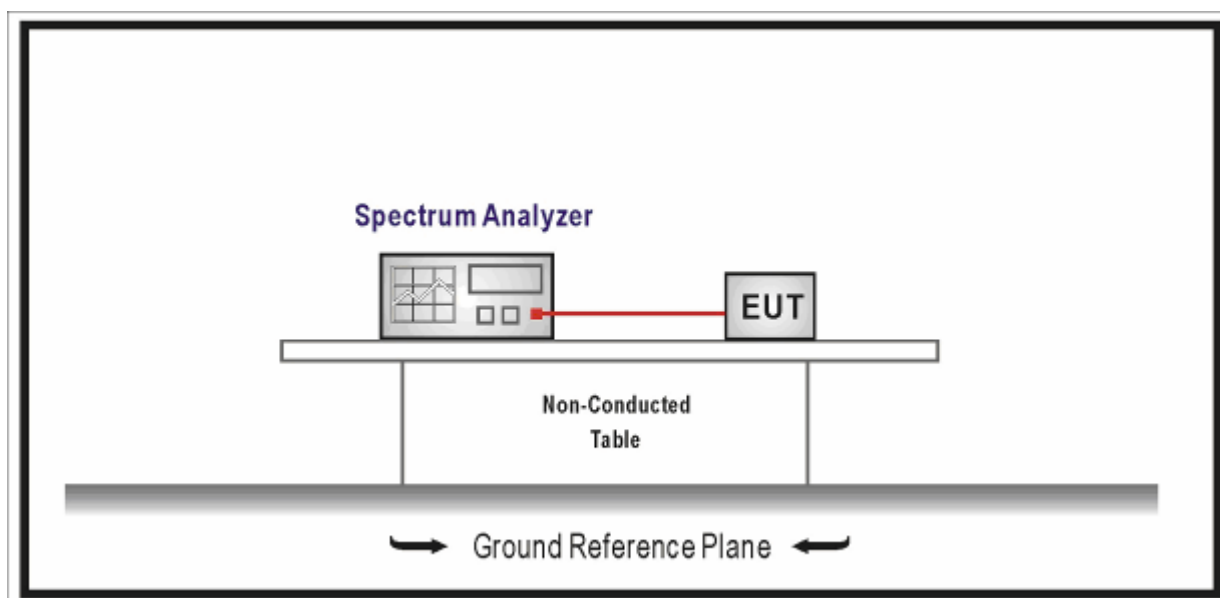
5.1. Test Equipment

RF Antenna Conducted Spurious / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.07
Temperature/Humidity Meter	zhichen	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.

5.2. Test Setup



5.3. Limit

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.

5.4. Test Procedure

The EUT was tested according to ANSI C63.10: 2013 and KDB 558074 for compliance to RSS-247 Issue 1 December 2010 Section A8.5 requirements.

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

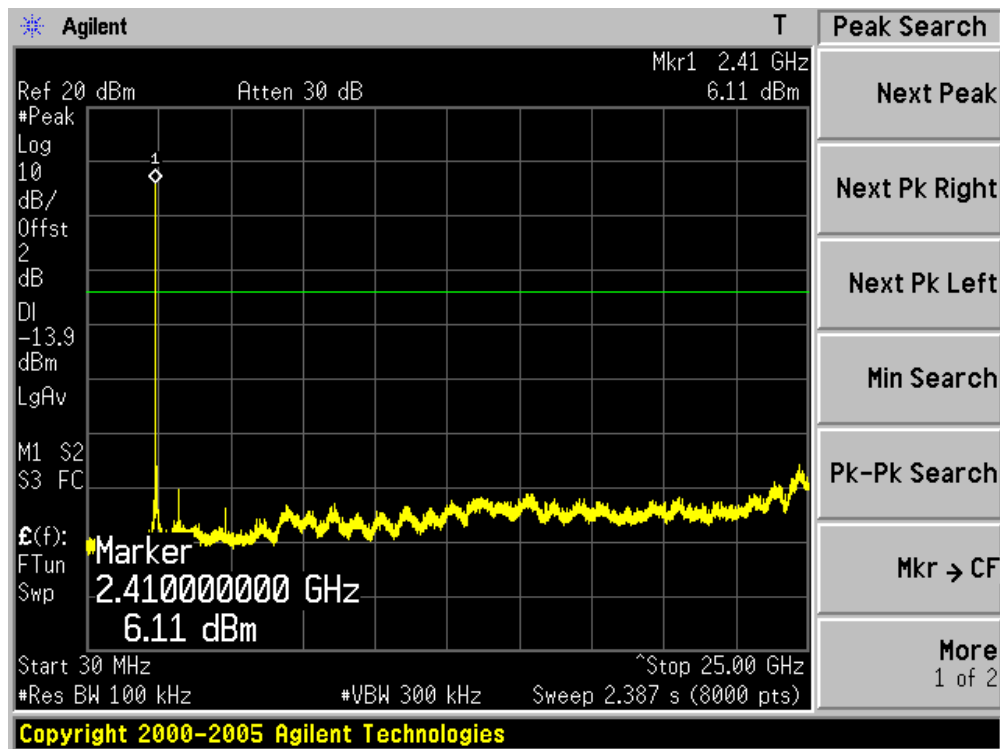
5.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

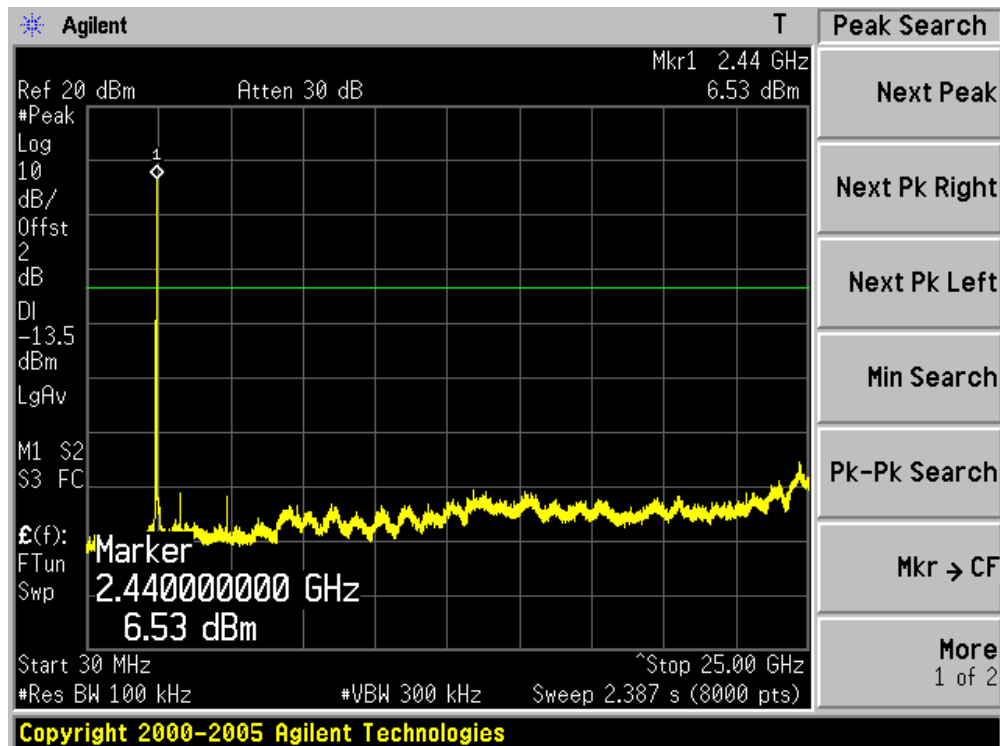
5.6. Test Result

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

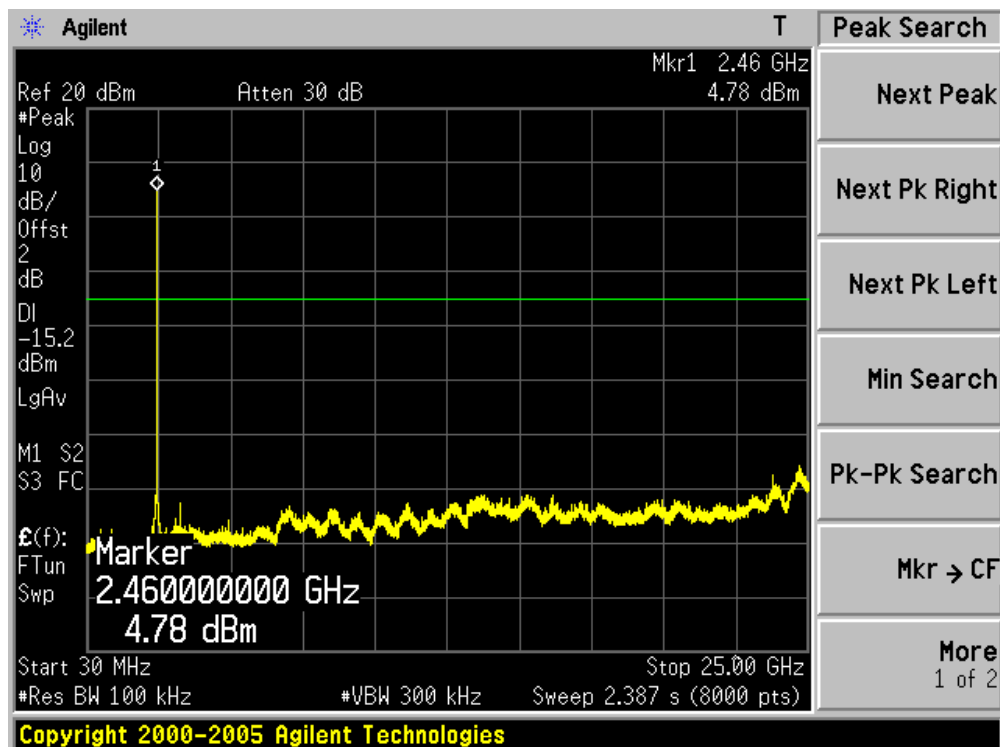
Channel 01 (2412MHz)



Channel 06 (2437MHz)

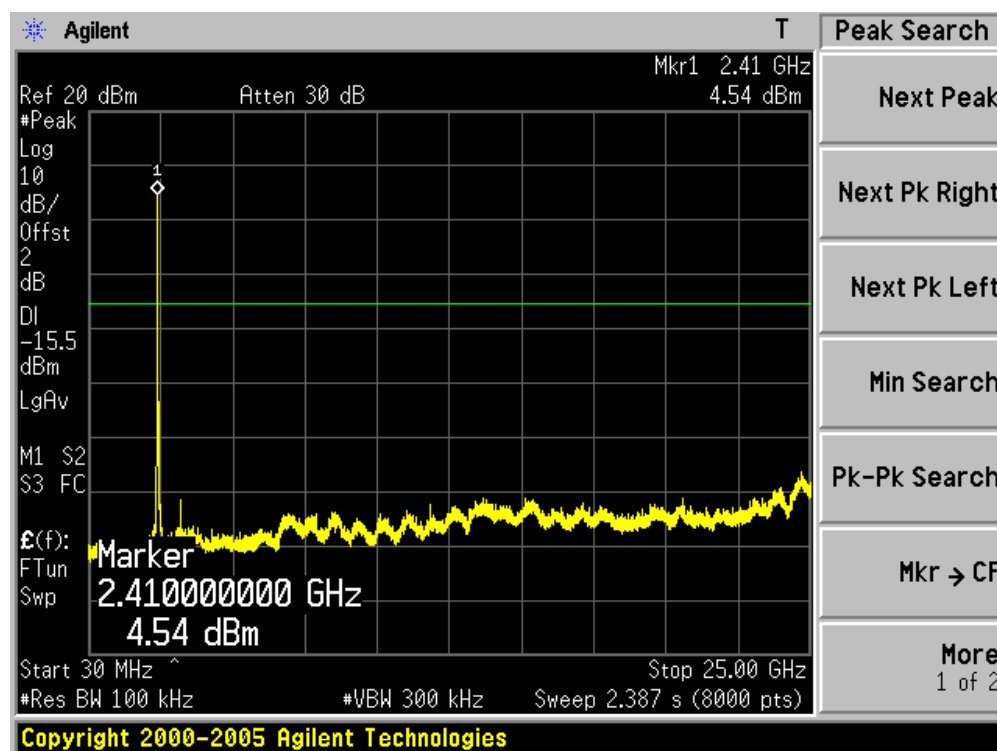


Channel 11 (2462MHz)

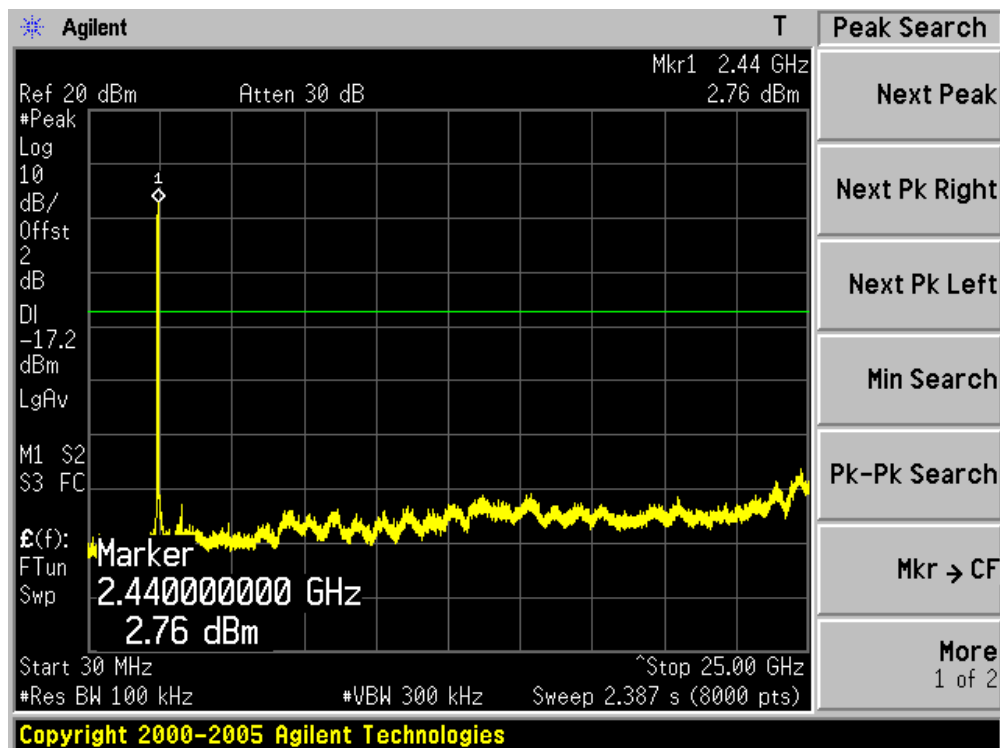


Product	:	IP-STB
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g (Chain 1)

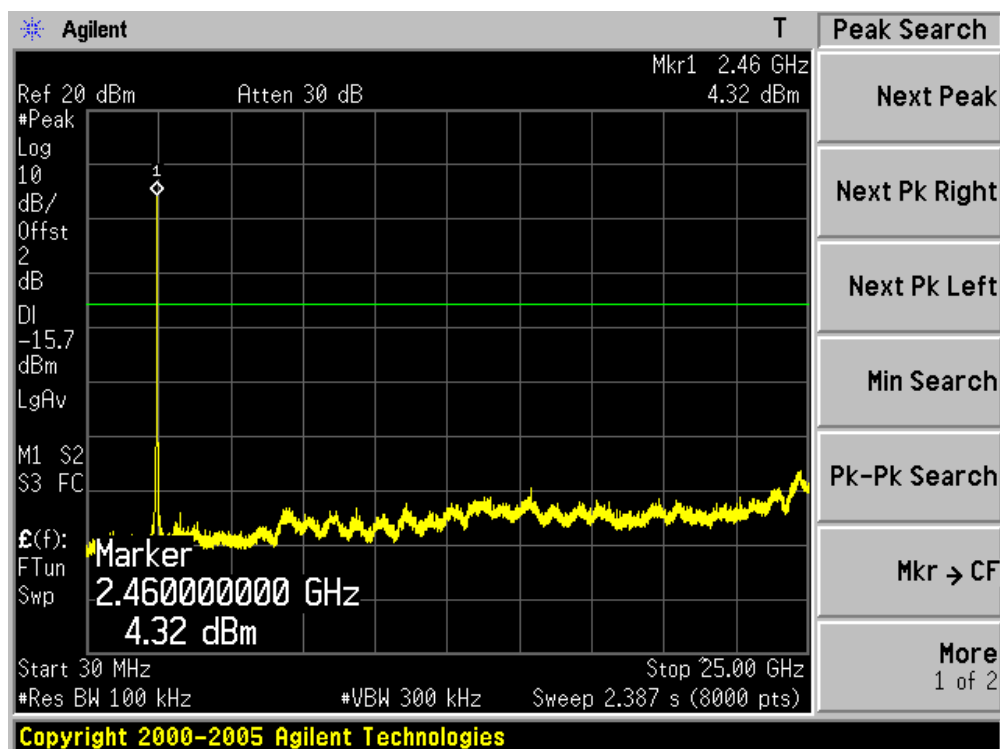
Channel 01 (2412MHz)



Channel 06 (2437MHz)

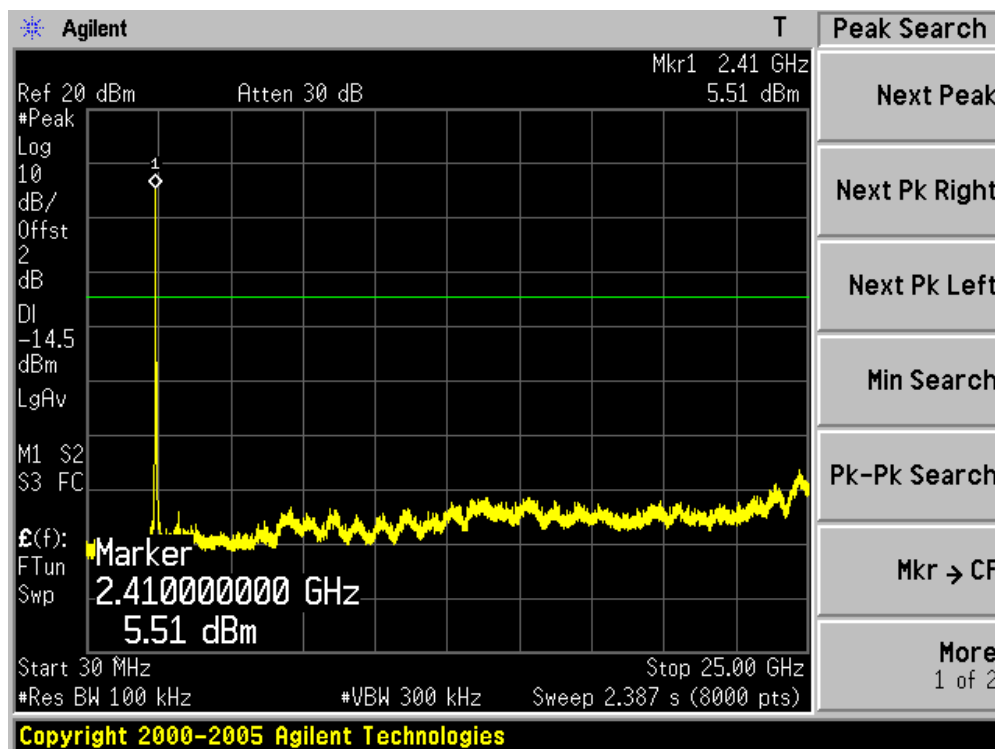


Channel 11 (2462MHz)

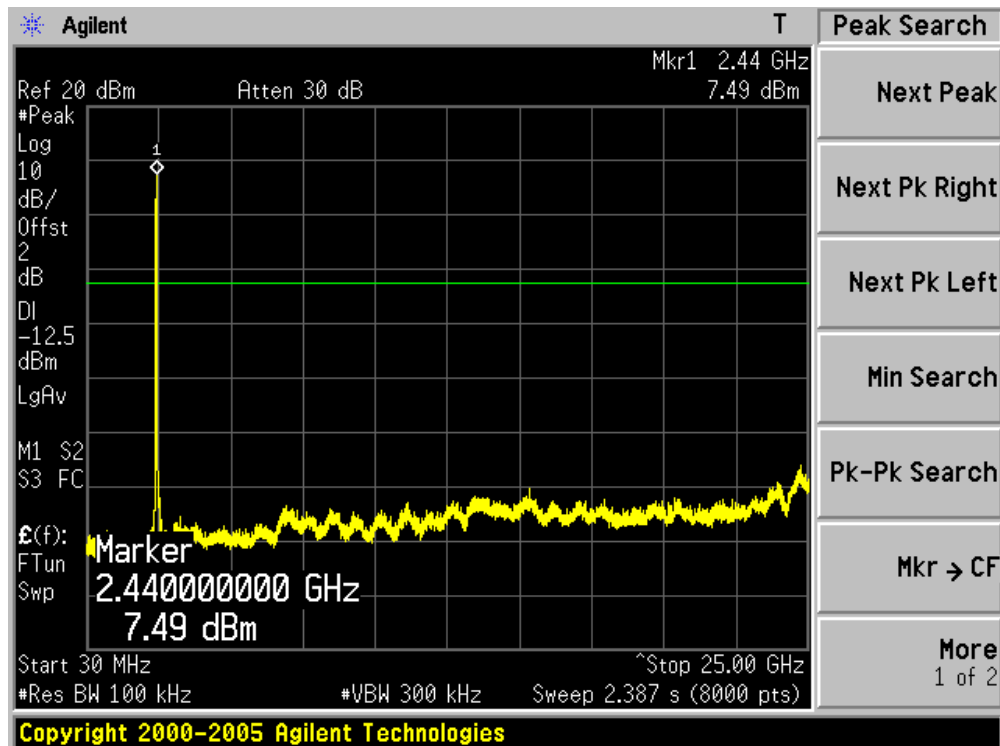


Product	:	IP-STB
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz)(Chain 1)

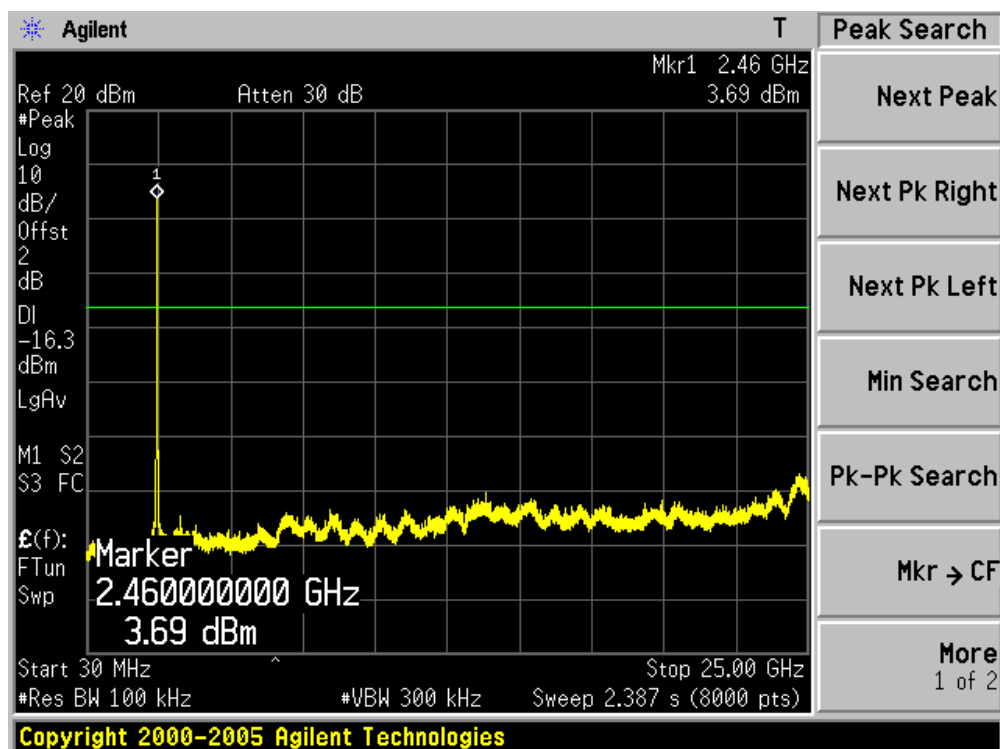
Channel 01 (2412MHz)



Channel 06 (2437MHz)

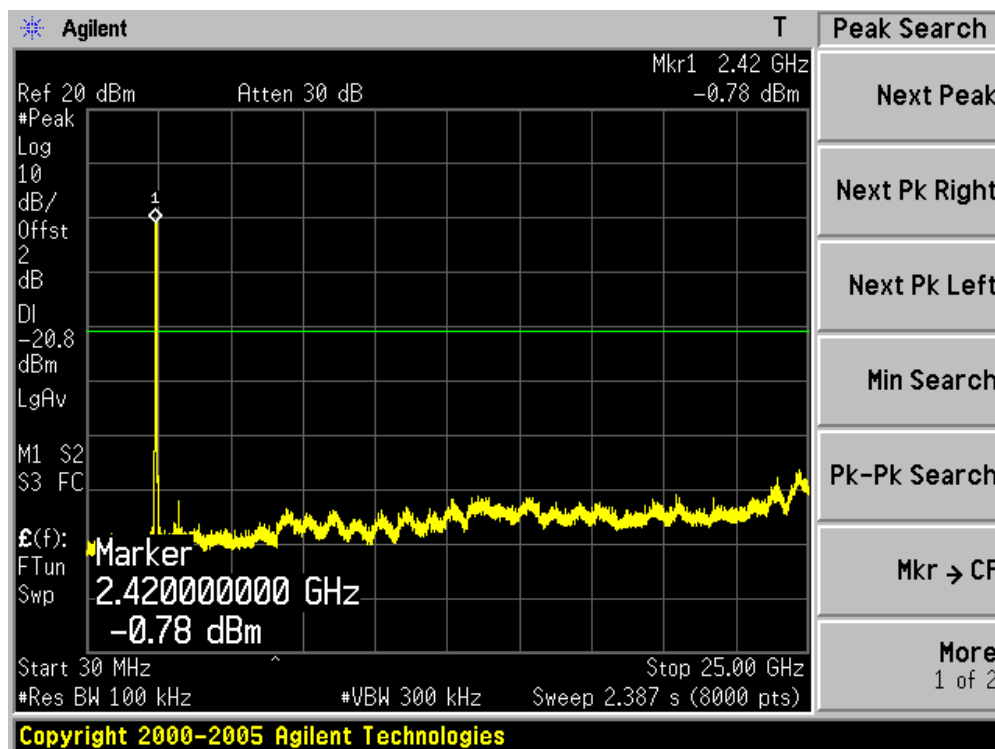


Channel 11 (2462MHz)

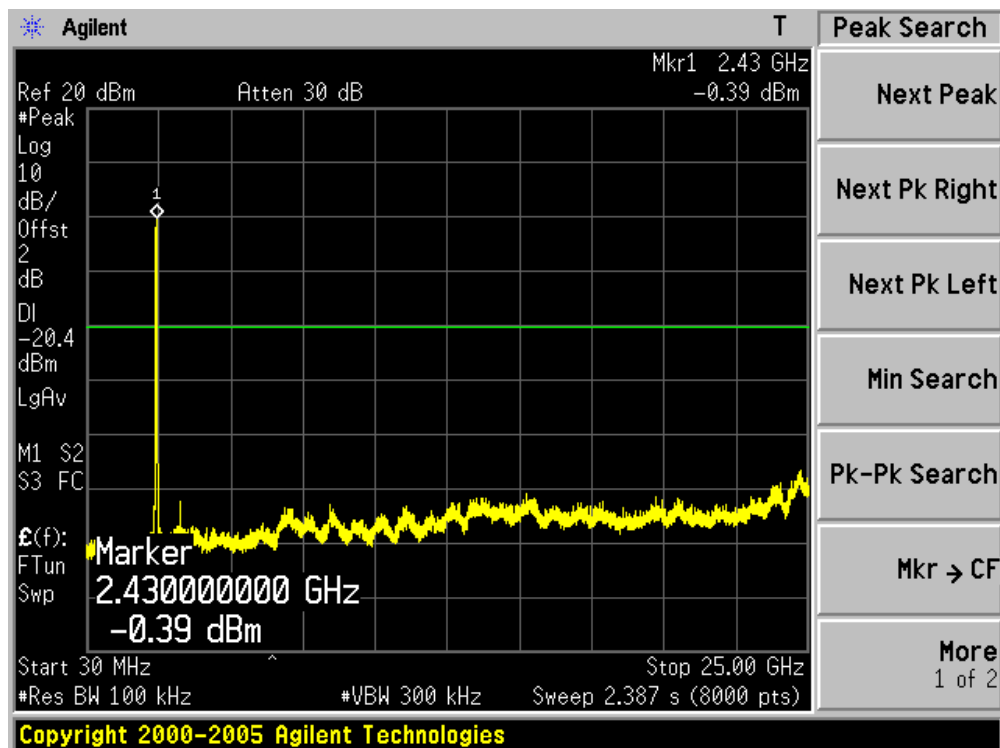


Product	:	IP-STB
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz) (Chain 1)

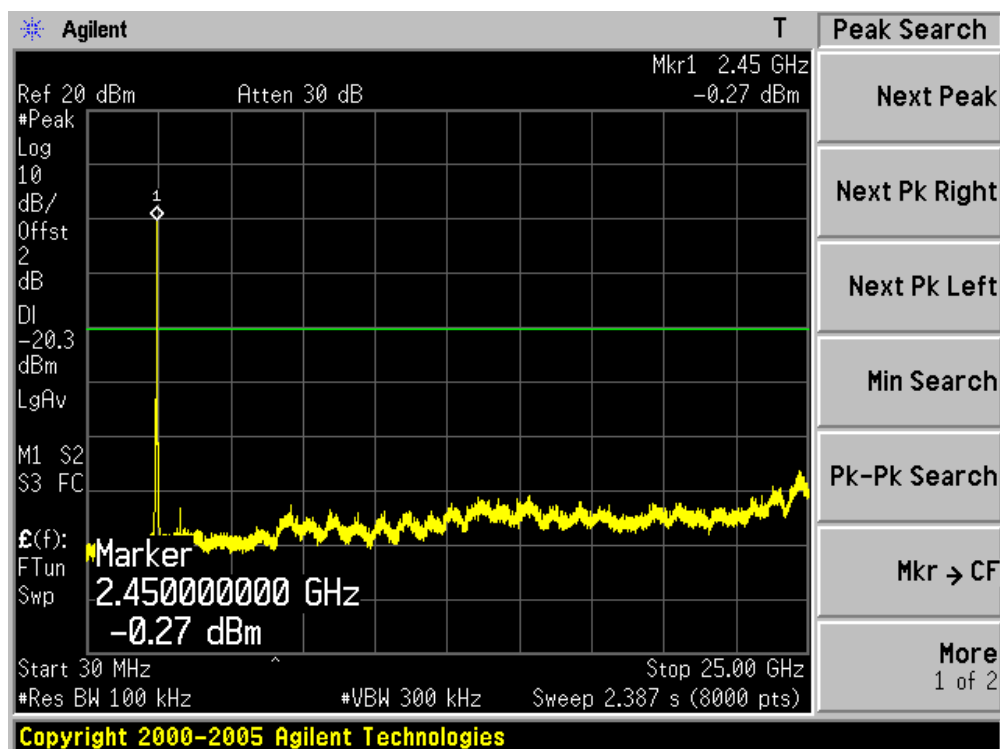
Channel 03 (2422MHz)



Channel 06 (2437MHz)

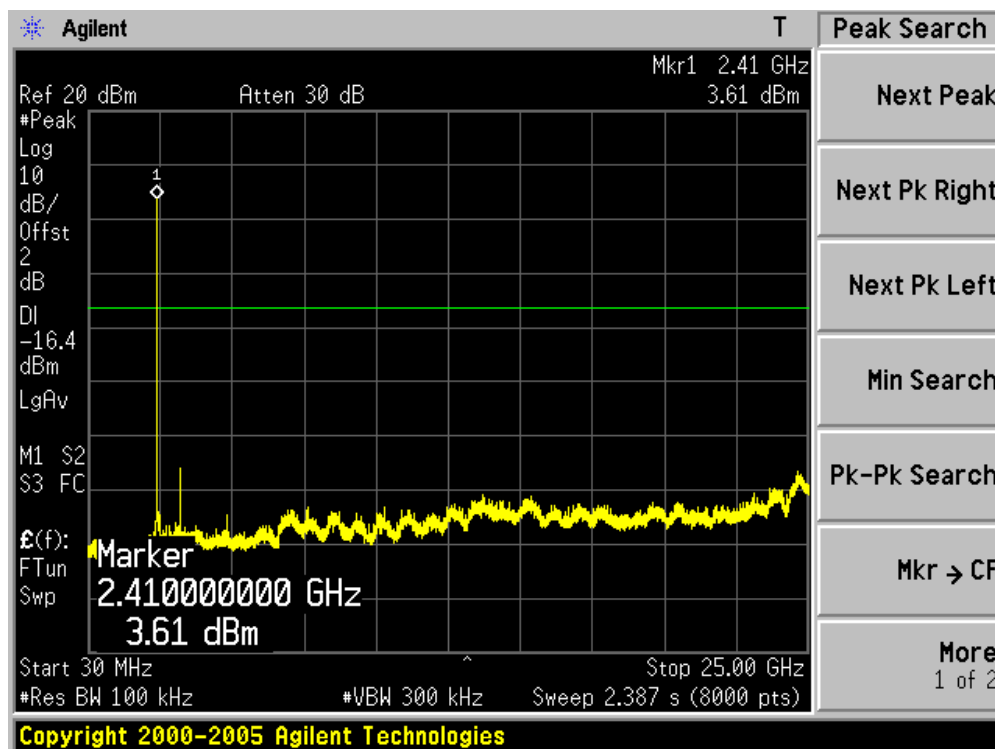


Channel 09 (2452MHz)

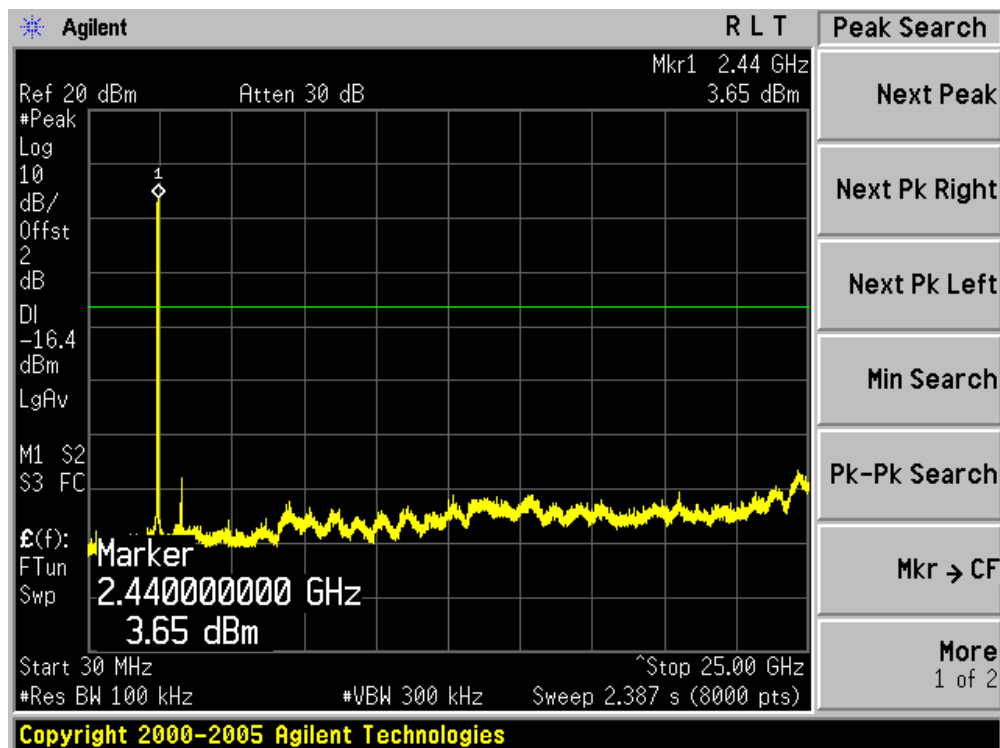


Product	:	IP-STB
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b (Chain 2)

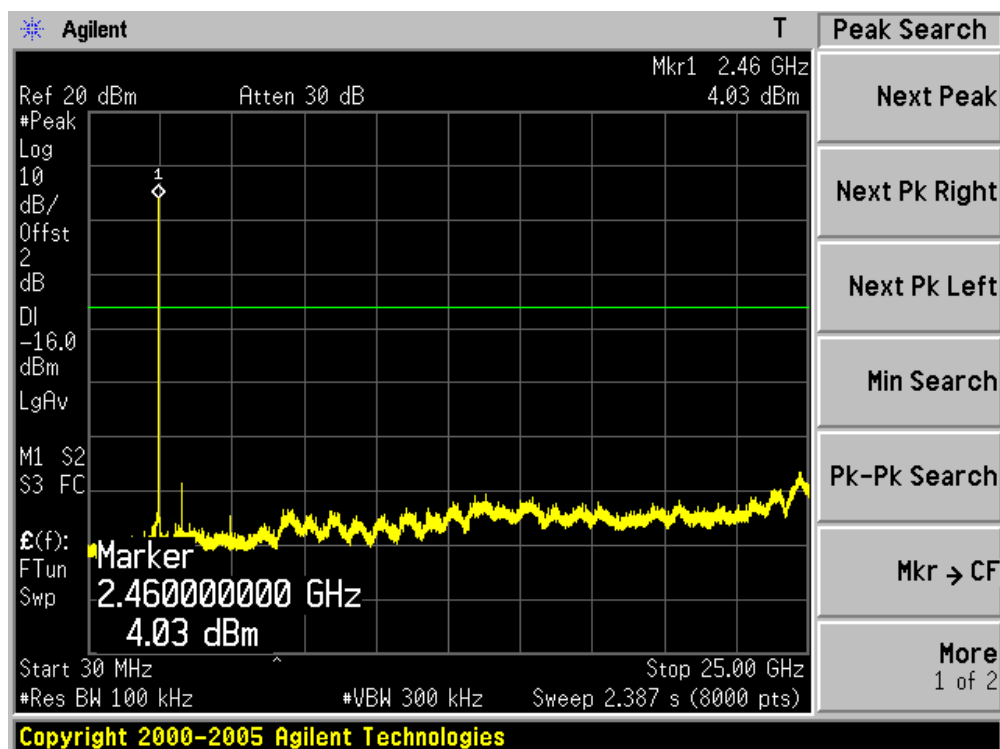
Channel 01 (2412MHz)



Channel 06 (2437MHz)

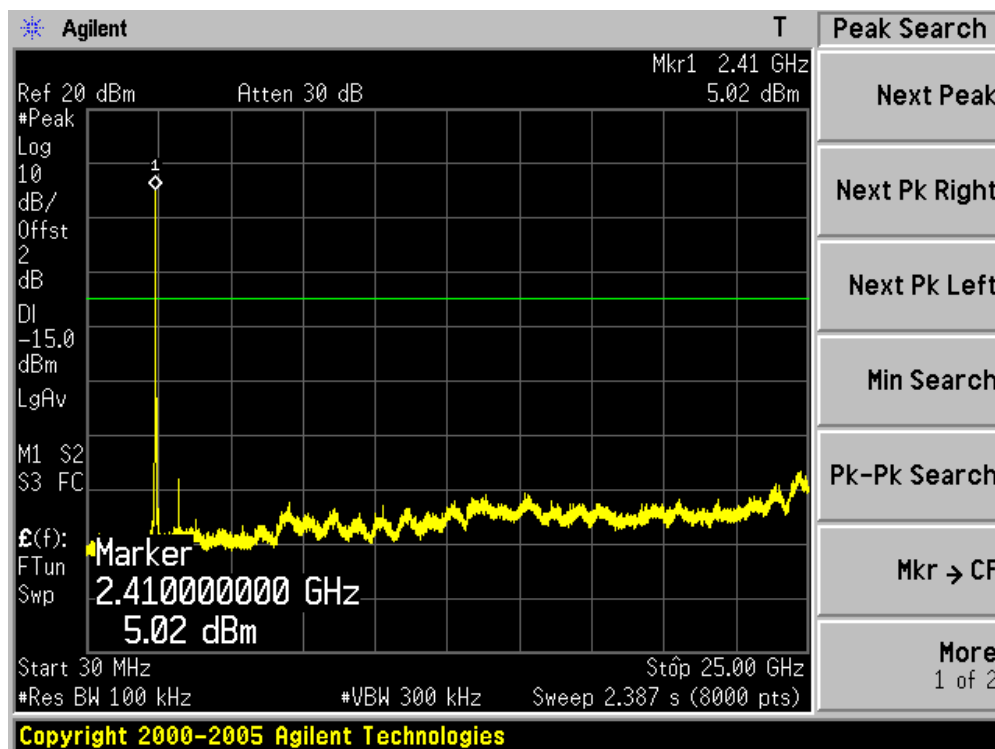


Channel 11 (2462MHz)

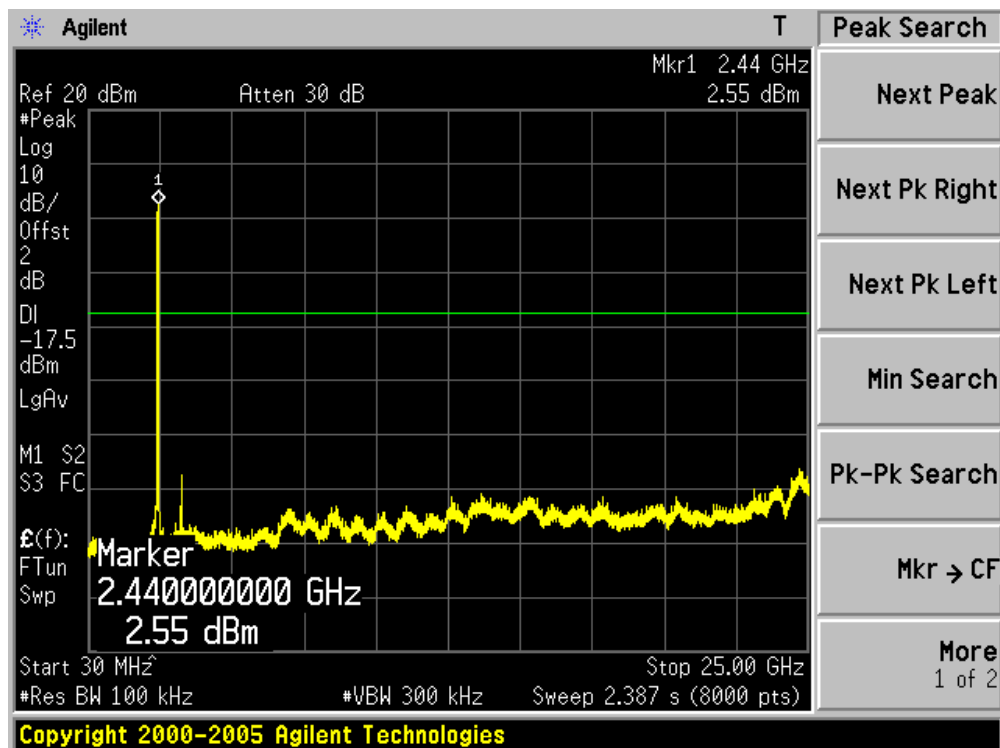


Product	:	IP-STB
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g (Chain 2)

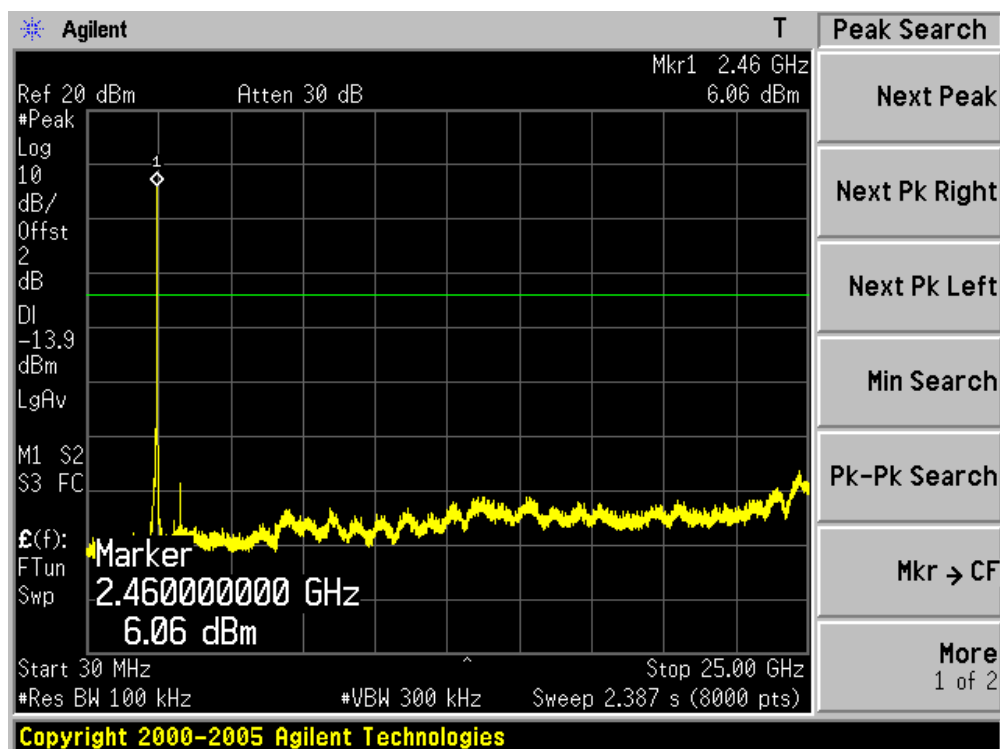
Channel 01 (2412MHz)



Channel 06 (2437MHz)

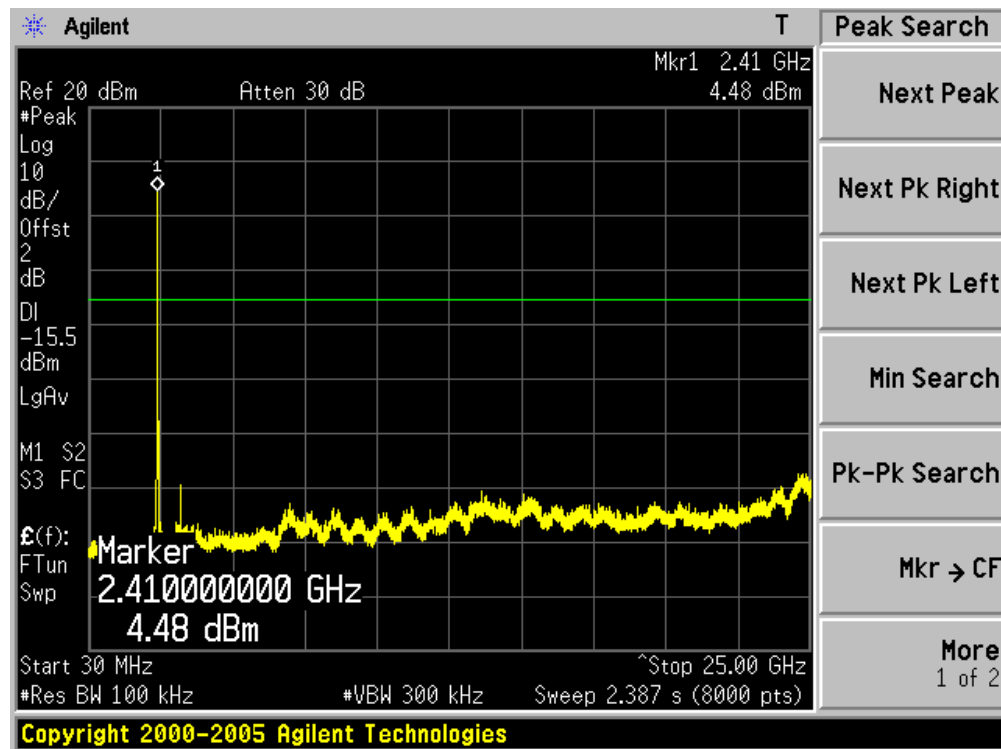


Channel 11 (2462MHz)

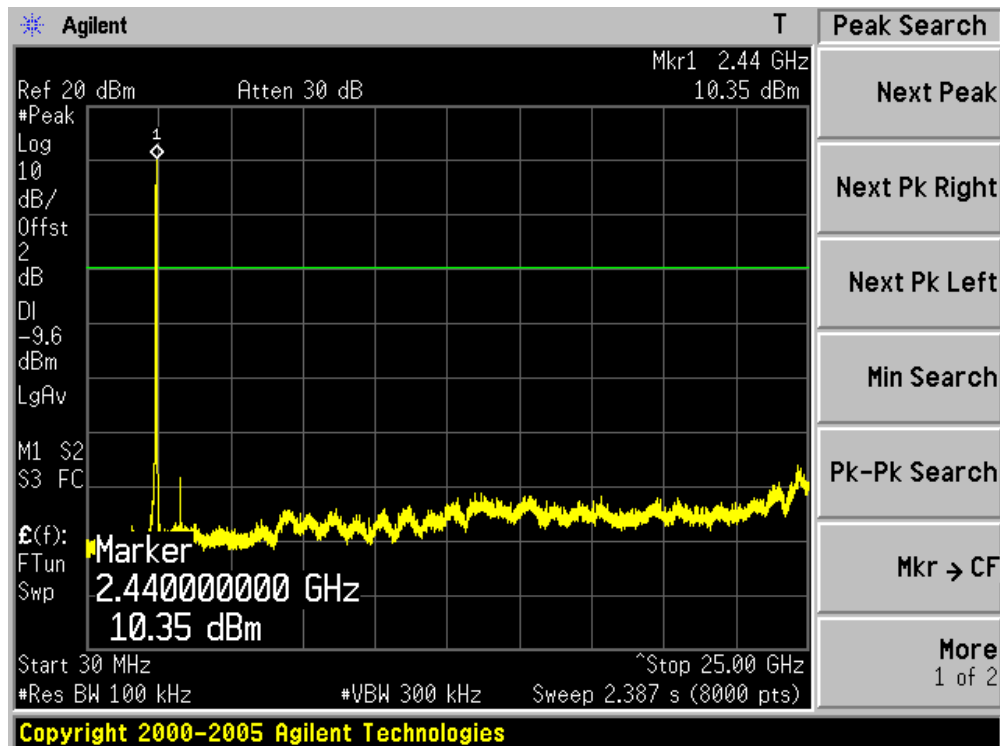


Product	:	IP-STB
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz) (Chain 2)

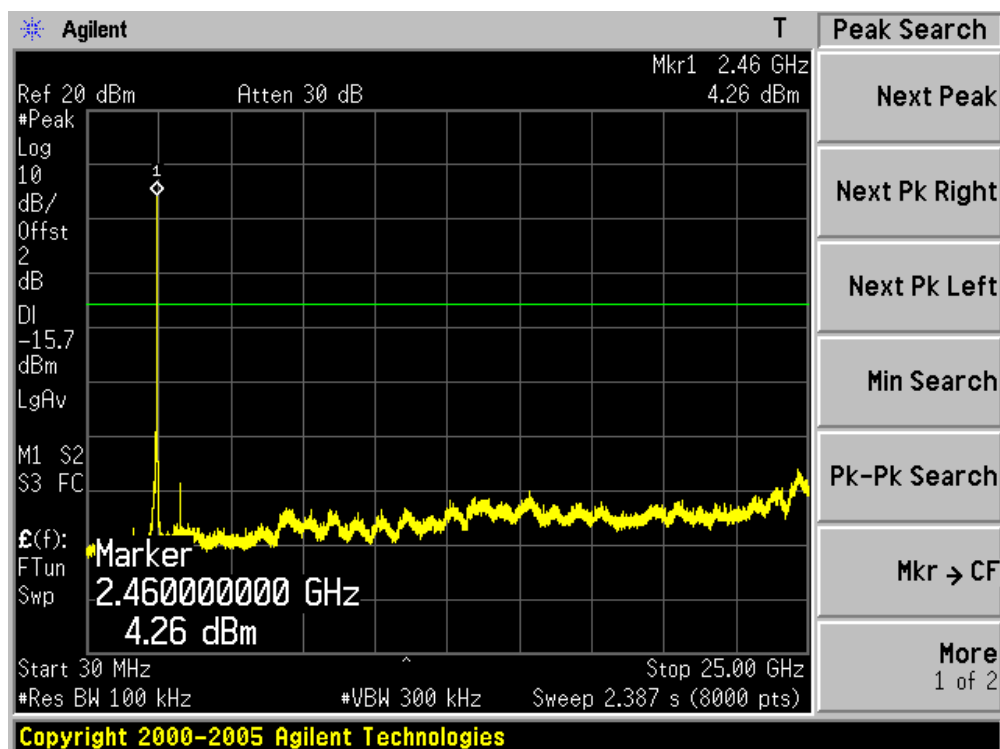
Channel 01 (2412MHz)



Channel 06 (2437MHz)

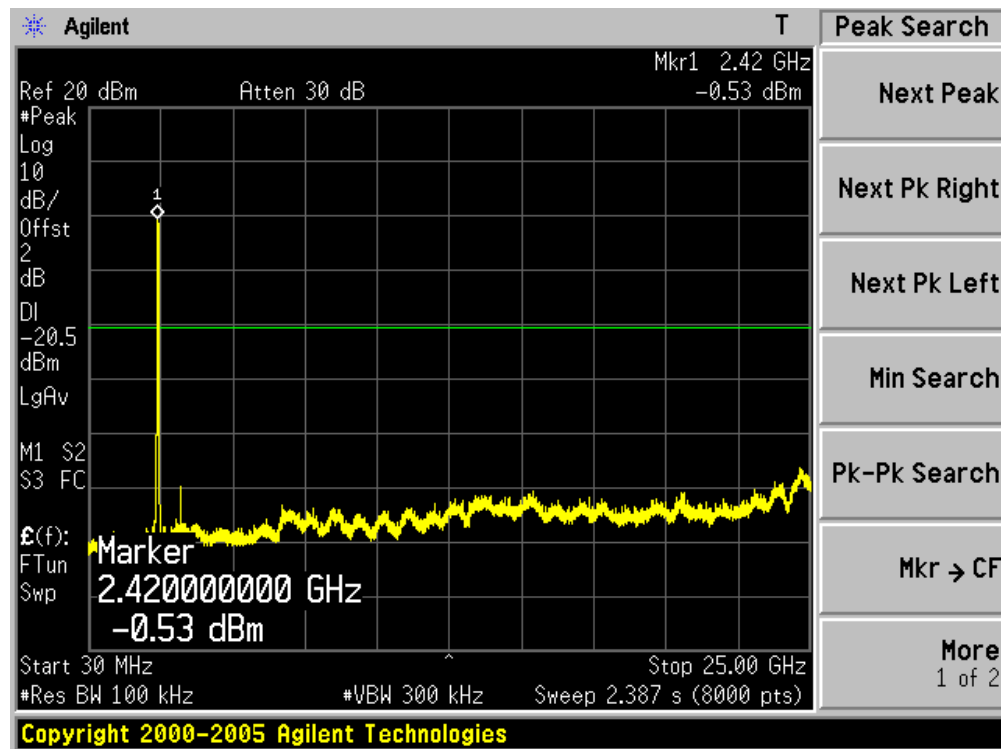


Channel 11 (2462MHz)

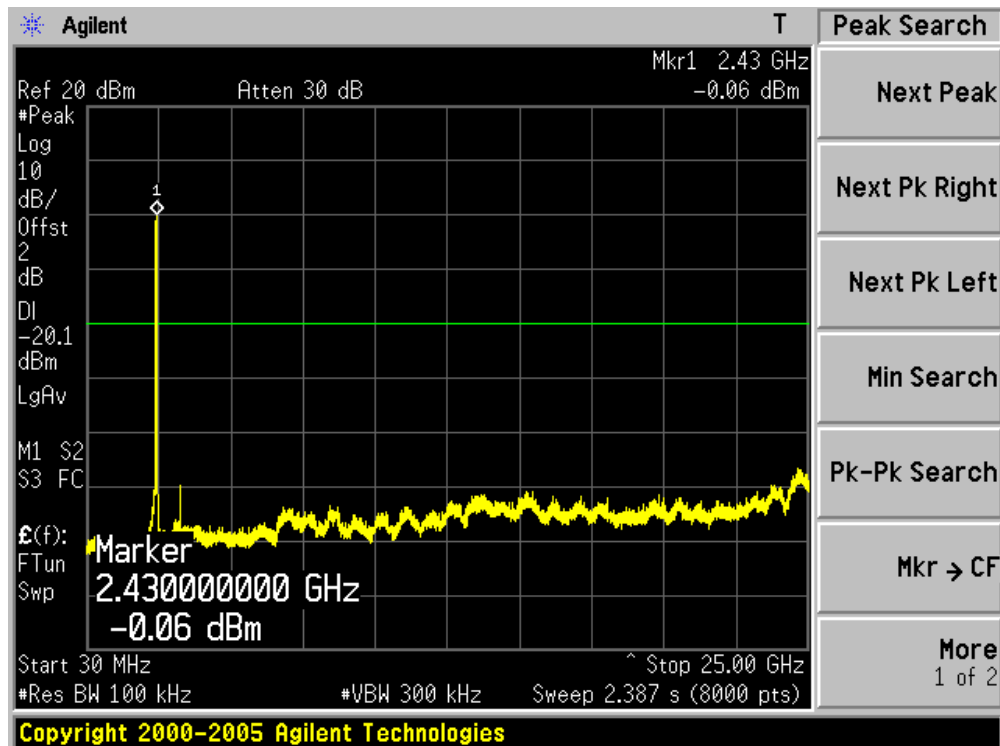


Product	:	IP-STB
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz) (Chain 2)

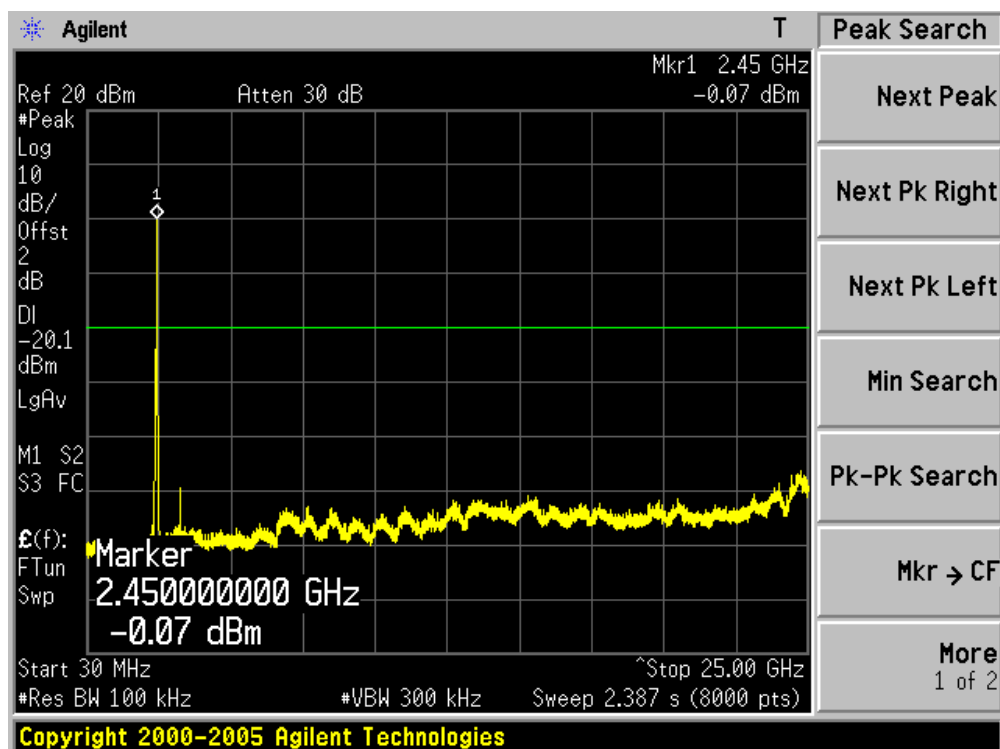
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)



6. Radiated Emission Band Edge

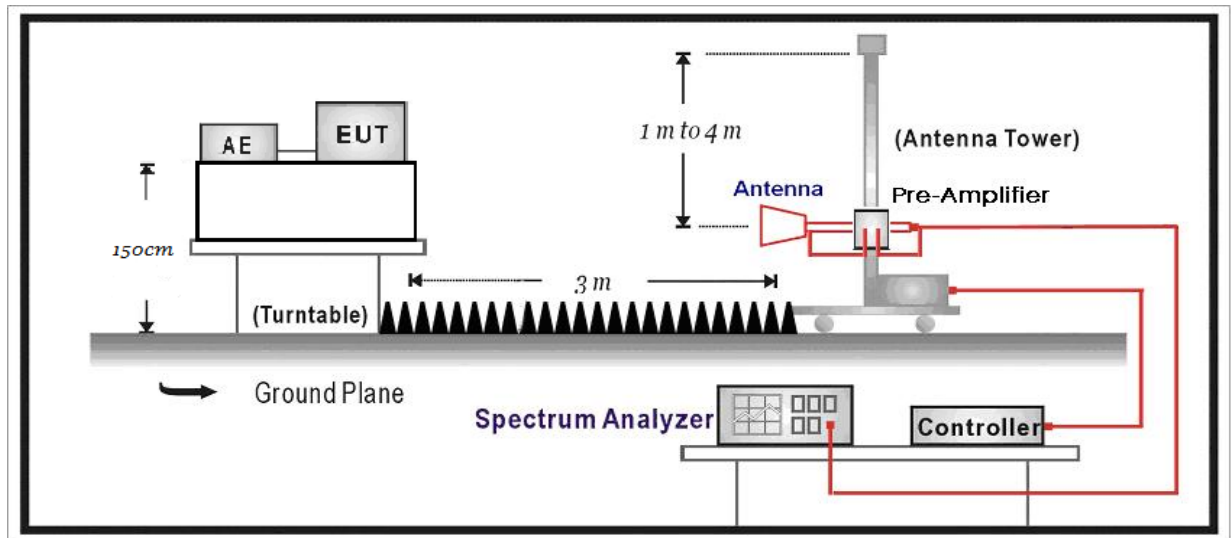
6.1. Test Equipment

☒ Radiated Emission Band Edge / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cali. Due Date
Preamplifier	Miteq	NSP1800-25	1364185	2016.05.03
Preamplifier	QuieTek	AP-040G	CHM-0906001	2016.05.03
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2015.10.15
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

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

6.2. Test Setup



6.3. Limit

Radiated emissions which fall in the restricted bands, as defined in RSS-247 Issue 1 December 2010 Section A8.5

6.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2014 and tested according to ANSI C63.10: 2013 and RSS-247 Issue 1 December 2010 requirements.

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.

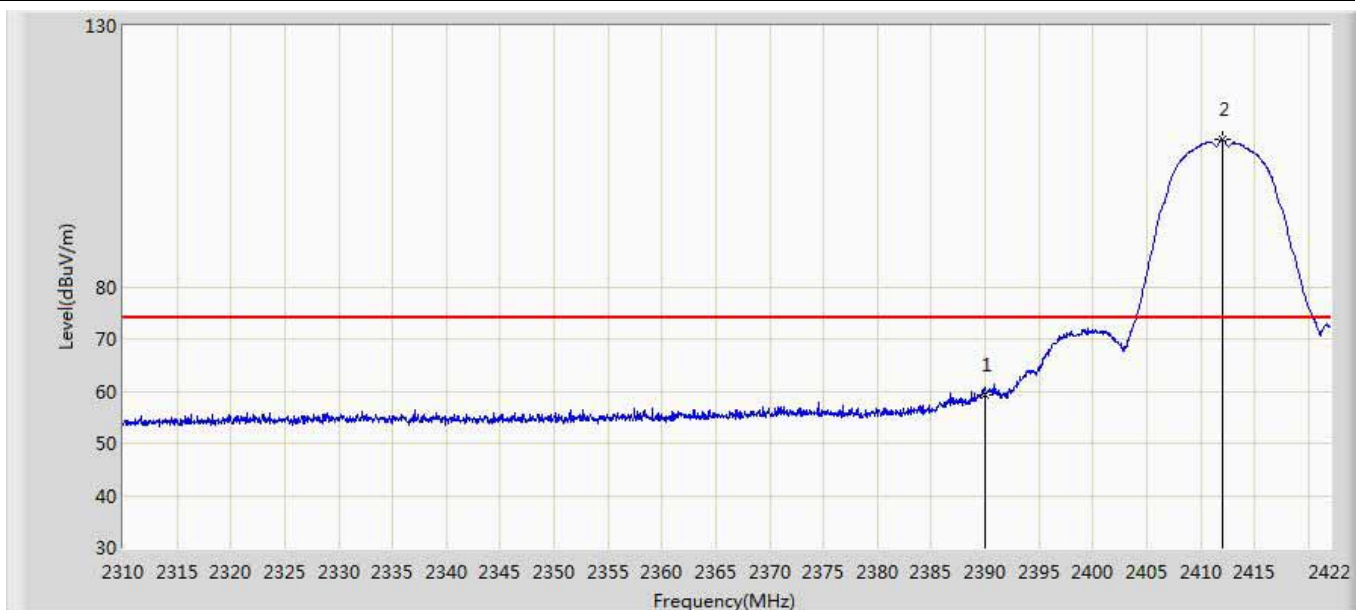
The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4: 2014 on radiated measurement.

6.5. Uncertainty

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

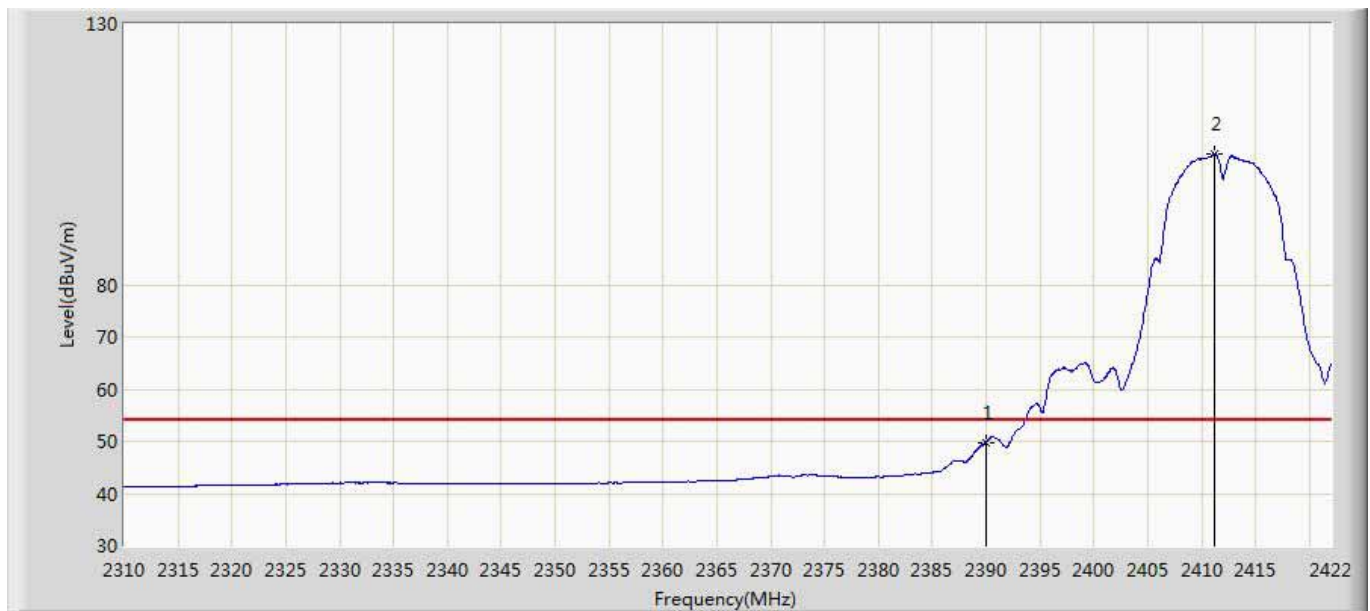
6.6. Test Result

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 10:55
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 1:Transmit at 2412Mhz by 802.11b Ant:1	



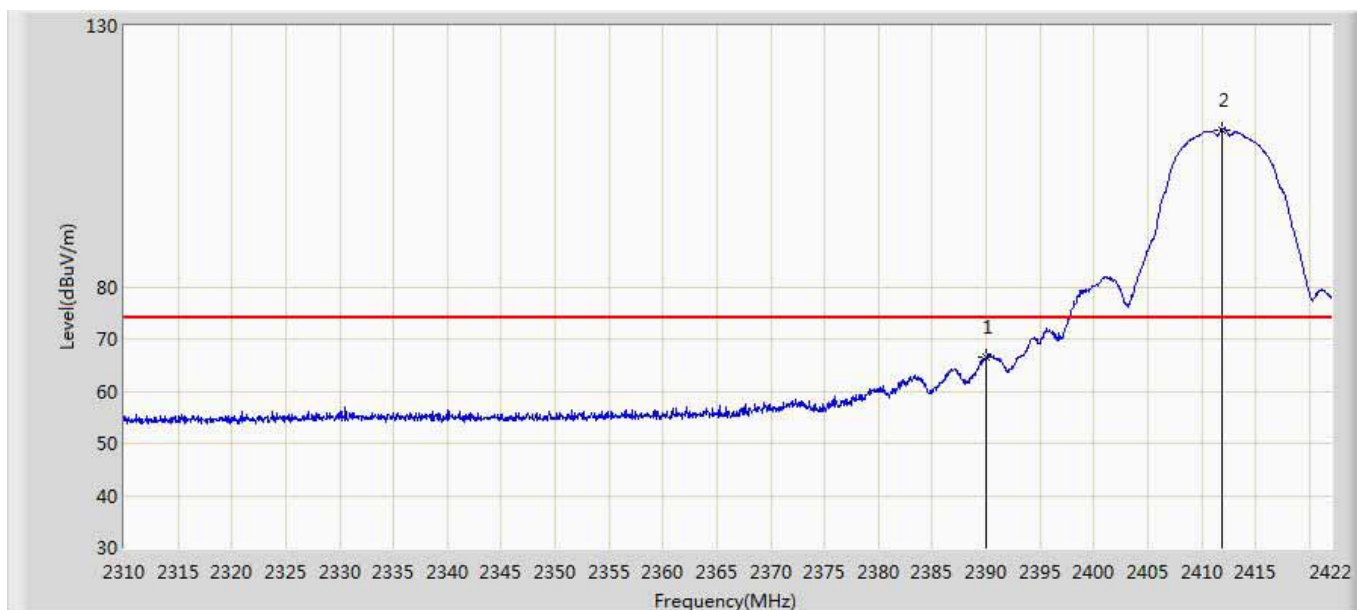
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	59.354	22.363	-14.646	74.000	36.991	PK
2	*	2411.976	108.160	71.137	34.160	74.000	37.024	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 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 2412Mhz by 802.11b Ant:1	



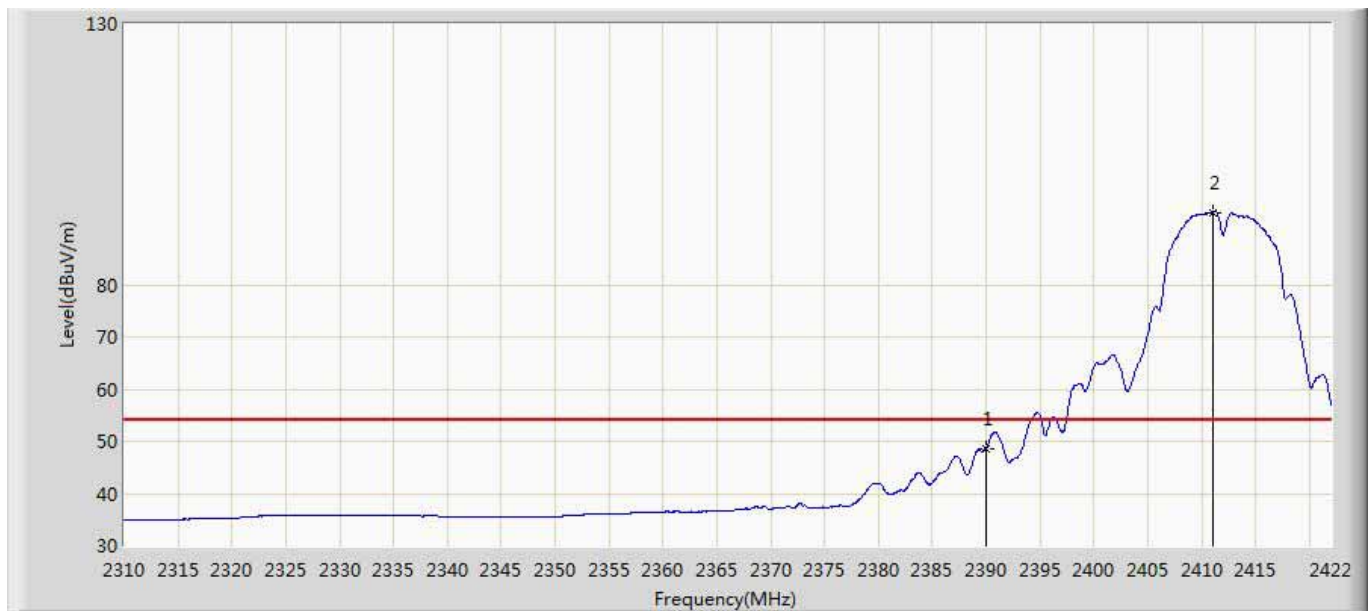
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	49.828	12.837	-4.172	54.000	36.991	AV
2	*	2411.248	105.082	68.065	51.082	54.000	37.017	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 11:05
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 Ant:1	



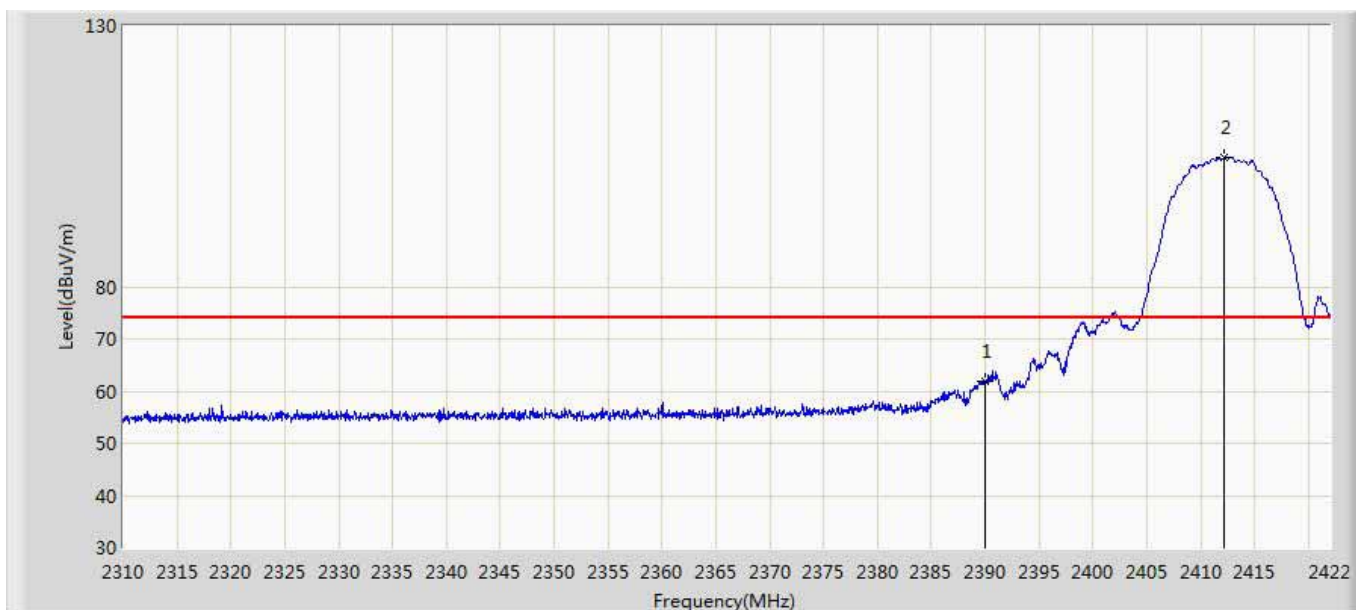
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	66.496	29.505	-7.504	74.000	36.991	PK
2	*	2411.864	110.142	73.120	36.142	74.000	37.022	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 11:06
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 Ant:1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	48.673	11.682	-5.327	54.000	36.991	AV
2	*	2411.024	93.886	56.871	39.886	54.000	37.015	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 11:17
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 Ant:2	



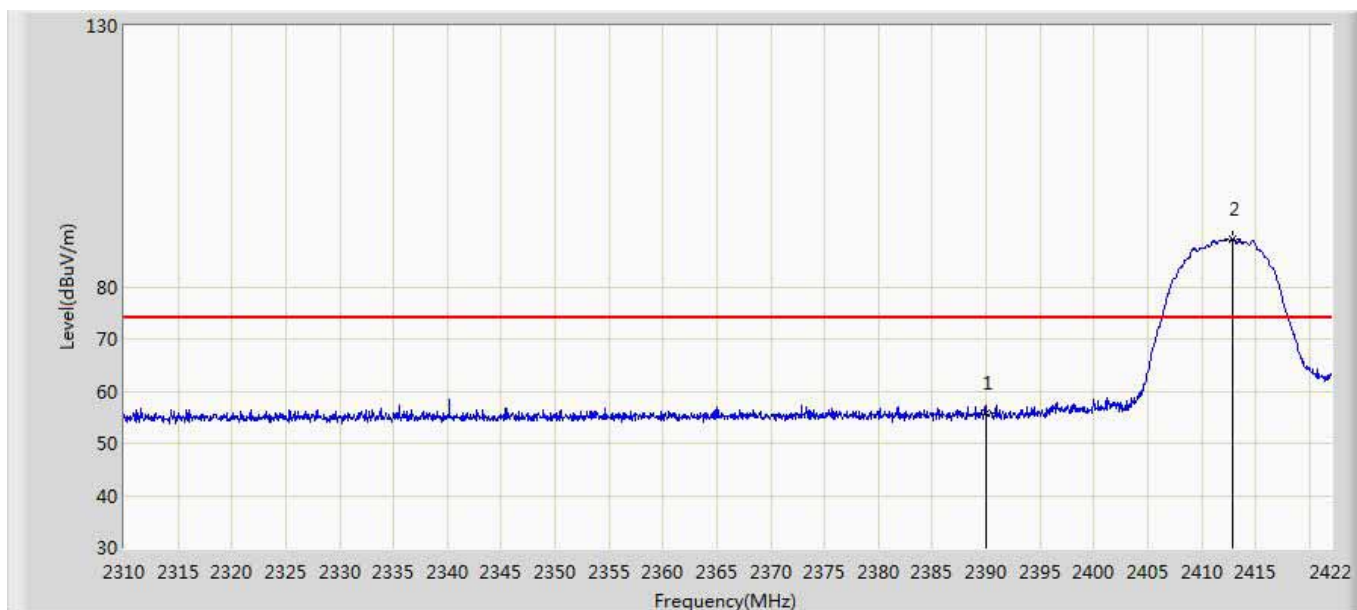
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	61.784	24.793	-12.216	74.000	36.991	PK
2	*	2412.200	104.709	67.684	30.709	74.000	37.025	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 11:17
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 Ant:2	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.204	13.213	-3.796	54.000	36.991	AV
2	*	2411.192	101.610	64.594	47.610	54.000	37.017	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 11:25
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 Ant:2	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	55.830	18.839	-18.170	74.000	36.991	PK
2	*	2412.872	89.212	52.180	15.212	74.000	37.032	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 11:27
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 1:Transmit at 2412Mhz by 802.11b Ant:2	



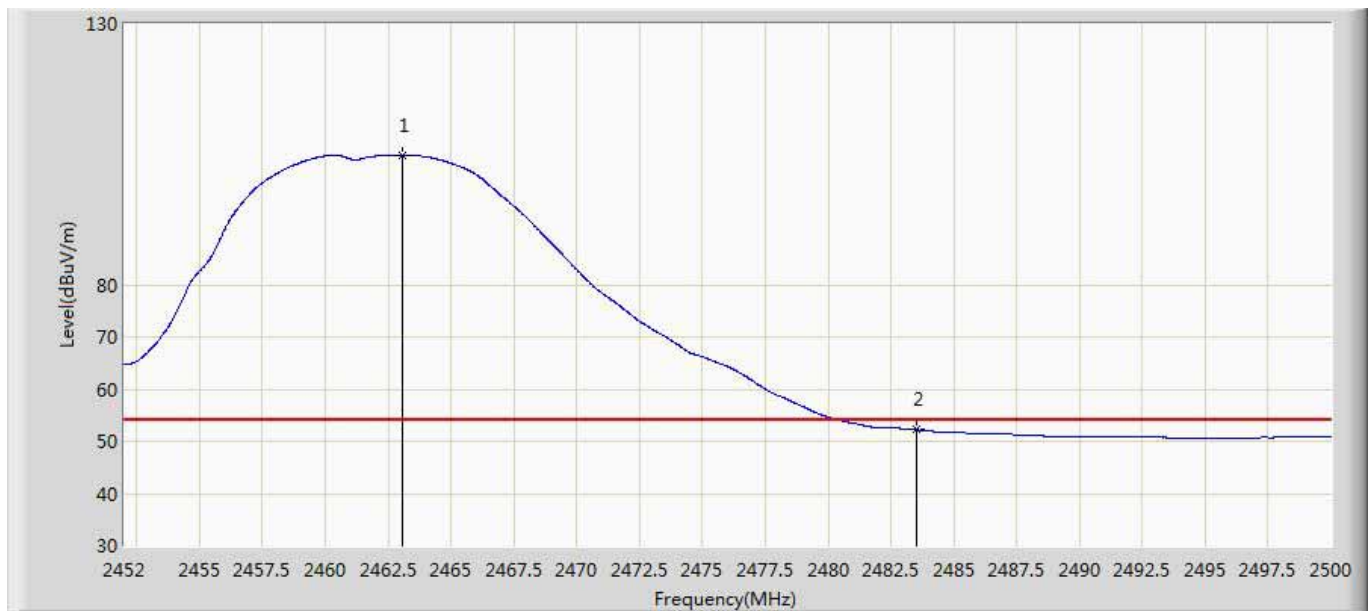
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	42.643	5.652	-11.357	54.000	36.991	AV
2	*	2412.704	85.830	48.800	31.830	54.000	37.030	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 11:31
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 Ant:1	



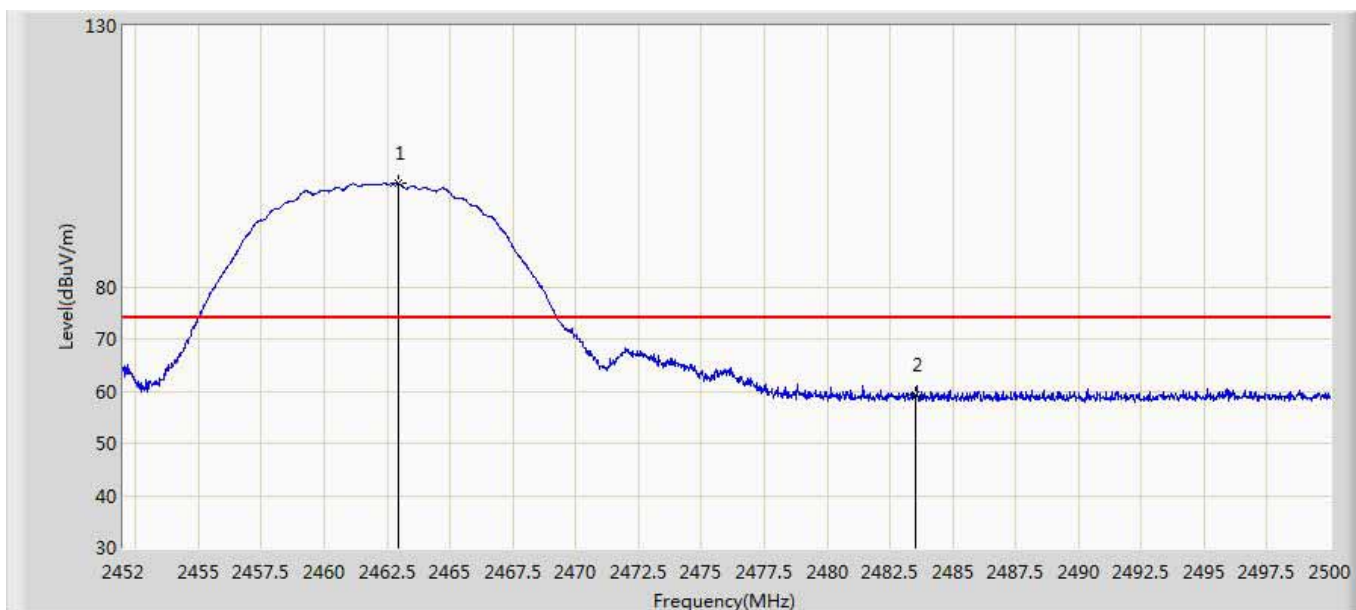
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.600	105.009	67.780	31.009	74.000	37.229	PK
2		2483.500	61.043	23.672	-12.957	74.000	37.371	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 11:34
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 Ant:1	



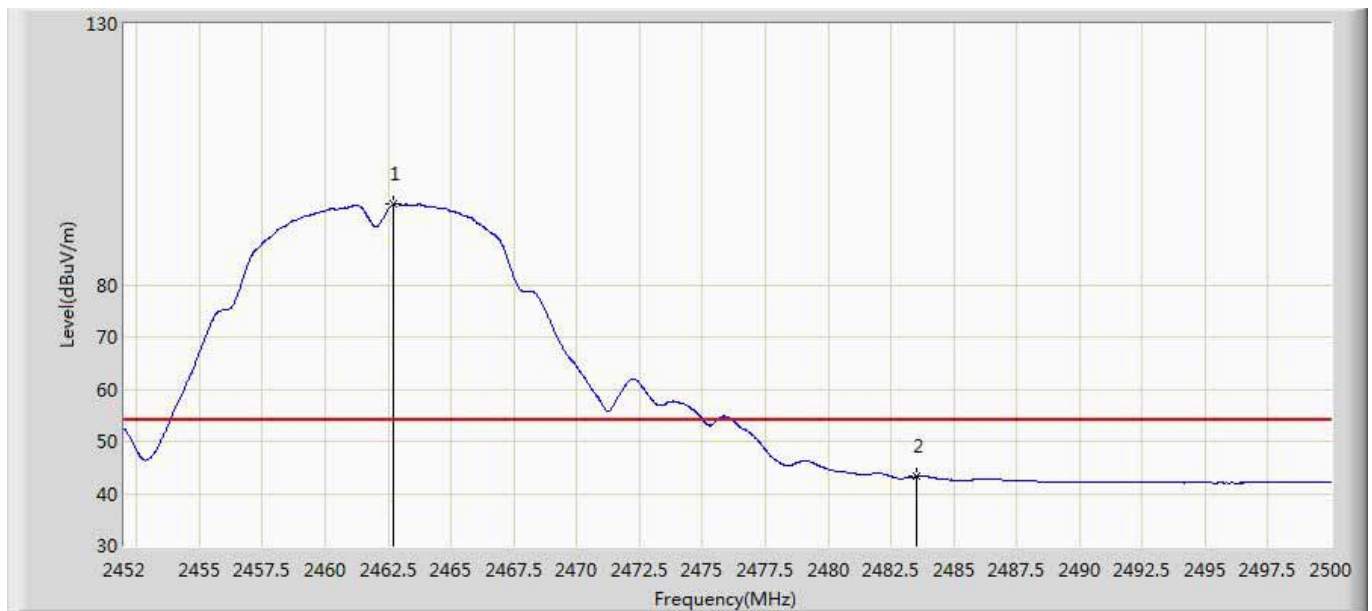
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.088	104.884	67.648	50.884	54.000	37.236	AV
2		2483.500	52.217	14.846	-1.783	54.000	37.371	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 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 1:Transmit at 2462Mhz by 802.11b Ant:1	



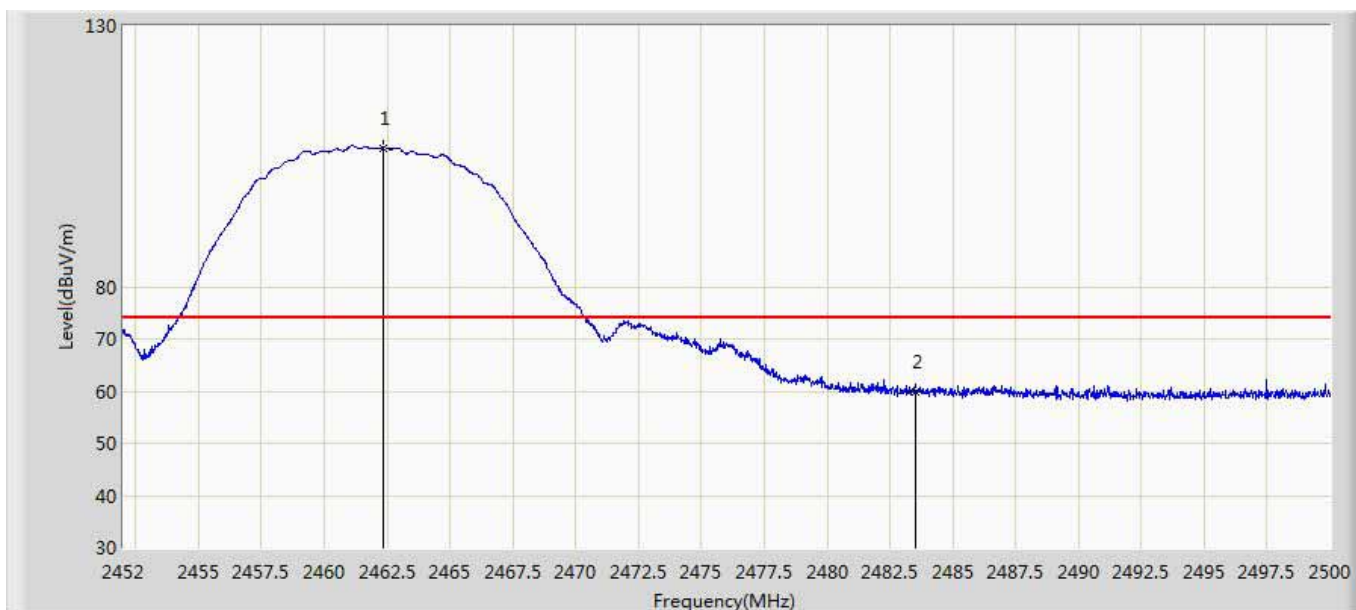
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.944	99.808	62.573	25.808	74.000	37.234	PK
2		2483.500	59.265	21.894	-14.735	74.000	37.371	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 11:40
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 1:Transmit at 2462Mhz by 802.11b Ant:1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.704	95.388	58.155	41.388	54.000	37.234	AV
2		2483.500	43.241	5.870	-10.759	54.000	37.371	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 11:43
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 Ant:2	



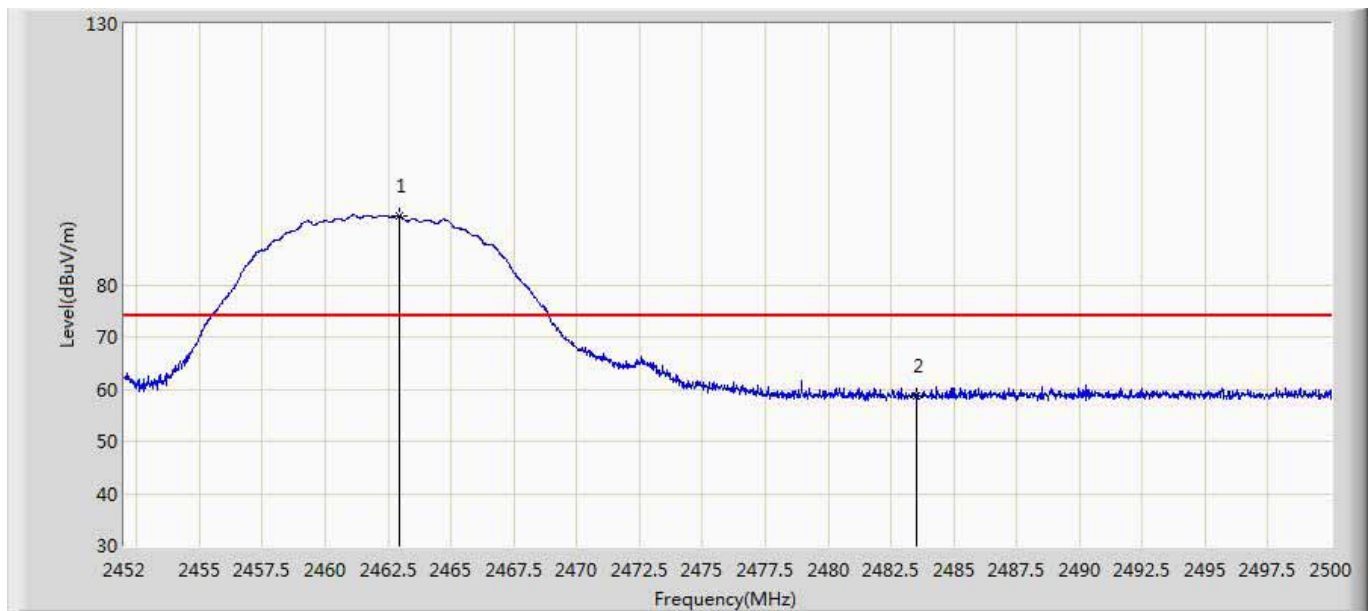
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.344	106.665	69.434	32.665	74.000	37.231	PK
2		2483.500	59.772	22.401	-14.228	74.000	37.371	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 11:44
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 Ant:2	



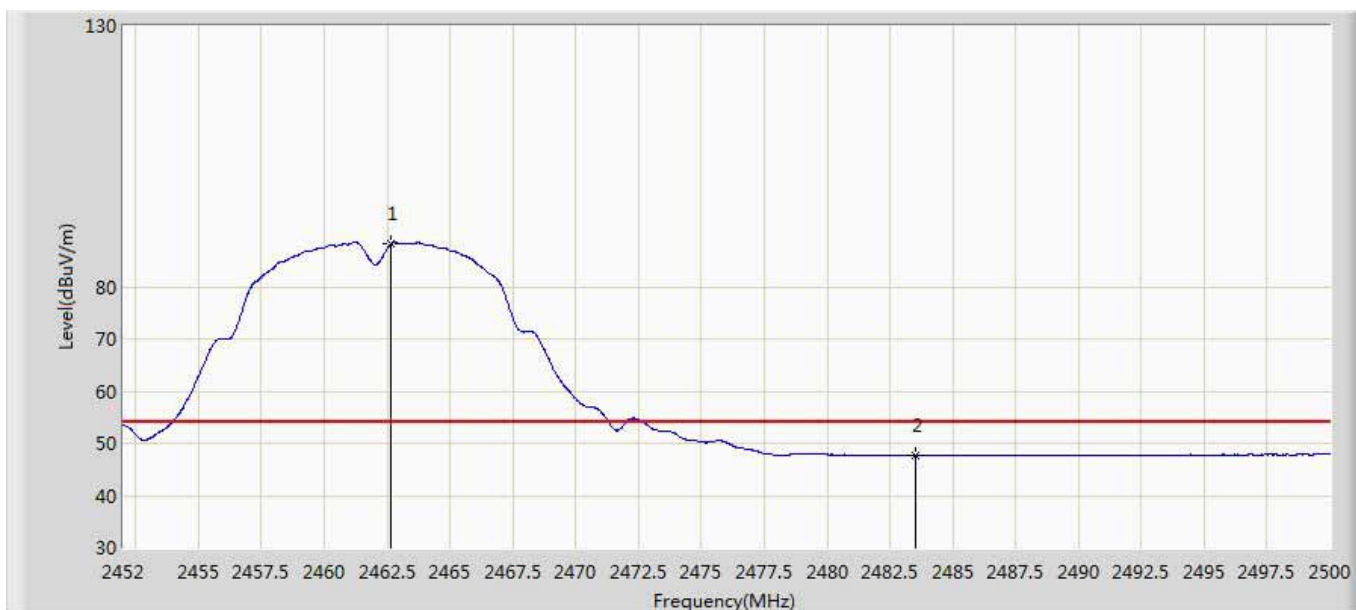
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2464.816	98.171	60.925	44.171	54.000	37.246	AV
2		2483.500	49.914	12.543	-4.086	54.000	37.371	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 11:51
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 Ant:2	



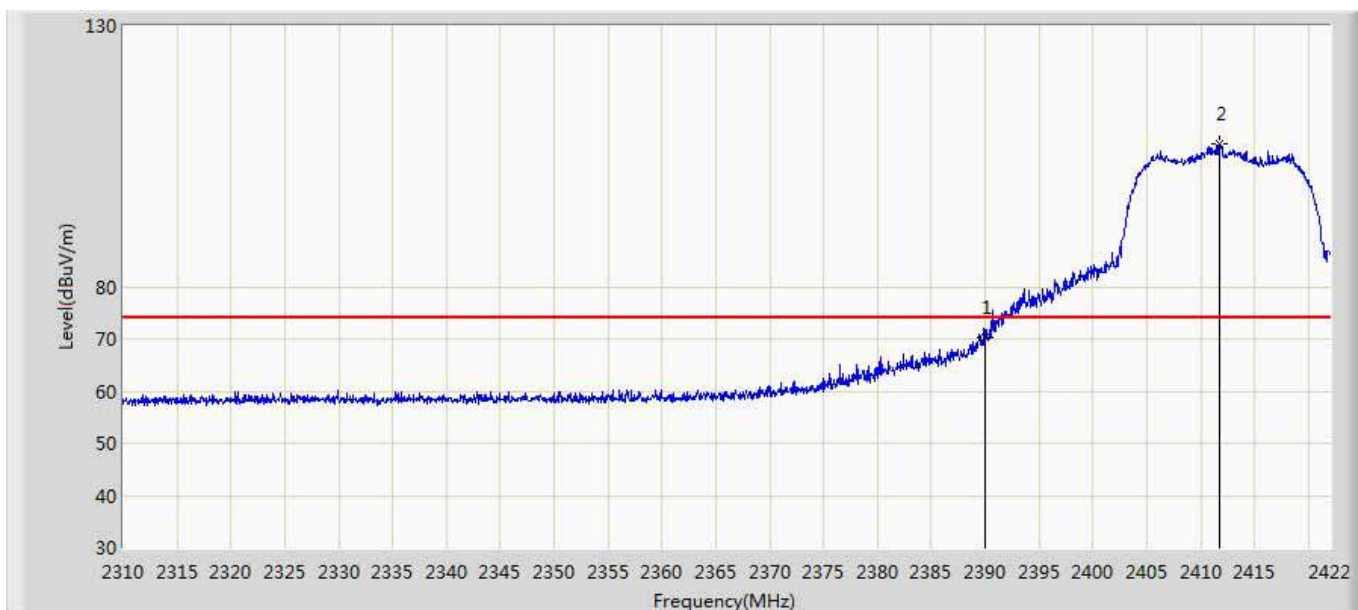
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.944	93.207	55.972	19.207	74.000	37.234	PK
2		2483.500	58.758	21.387	-15.242	74.000	37.371	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 11:52
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 Ant:2	



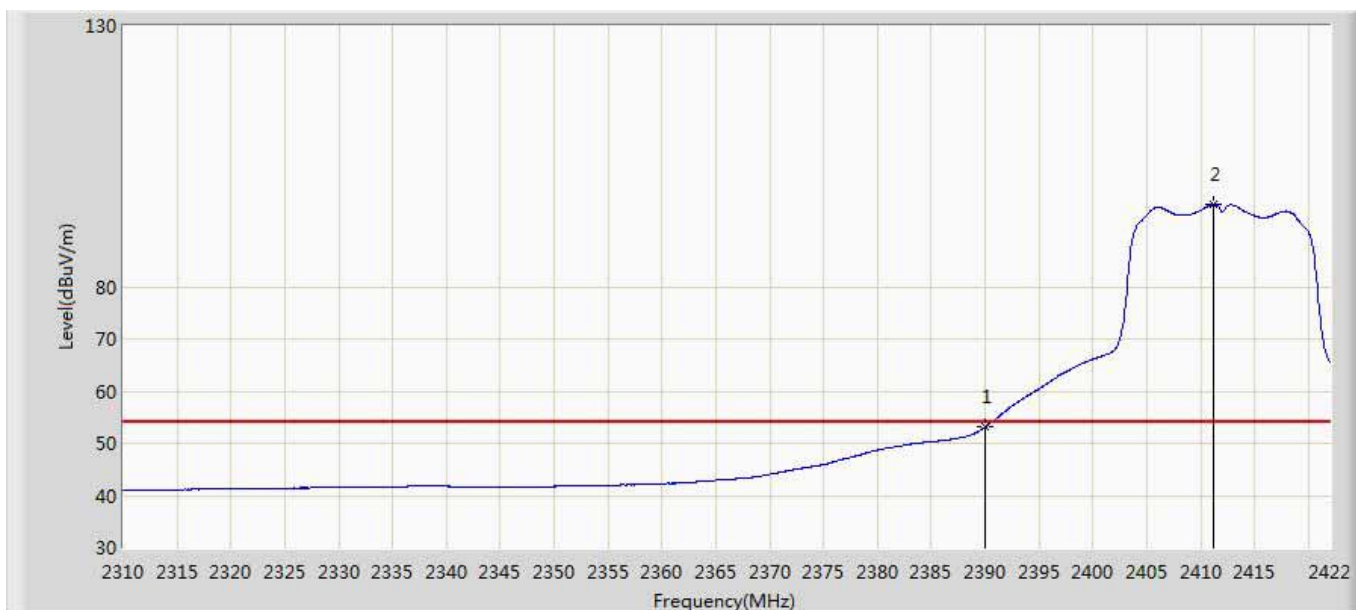
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.656	88.253	51.020	34.253	54.000	37.233	AV
2		2483.500	47.744	10.373	-6.256	54.000	37.371	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 11:57
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 2:Transmit at 2412Mhz by 802.11g Ant:1	



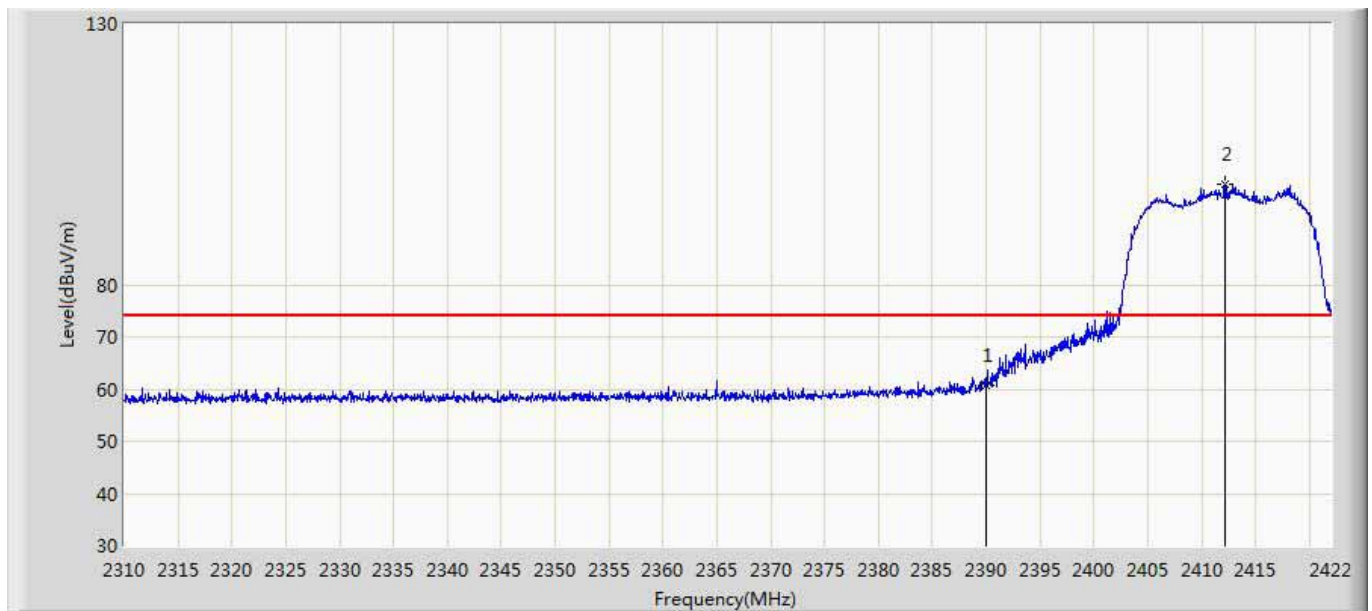
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	70.382	33.391	-3.618	74.000	36.991	PK
2	*	2411.696	107.266	70.245	33.266	74.000	37.020	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 11:58
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 Ant:1	



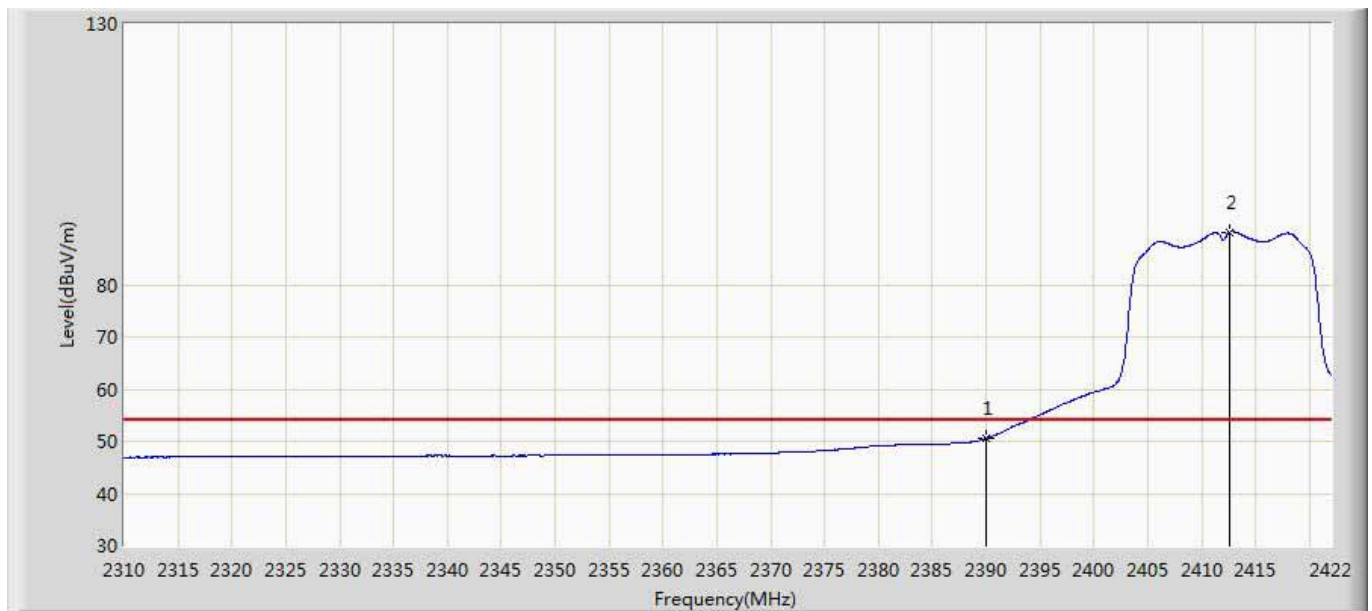
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.122	16.131	-0.878	54.000	36.991	AV
2	*	2411.248	95.764	58.747	41.764	54.000	37.017	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 12:03
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 2:Transmit at 2412Mhz by 802.11g Ant:1	



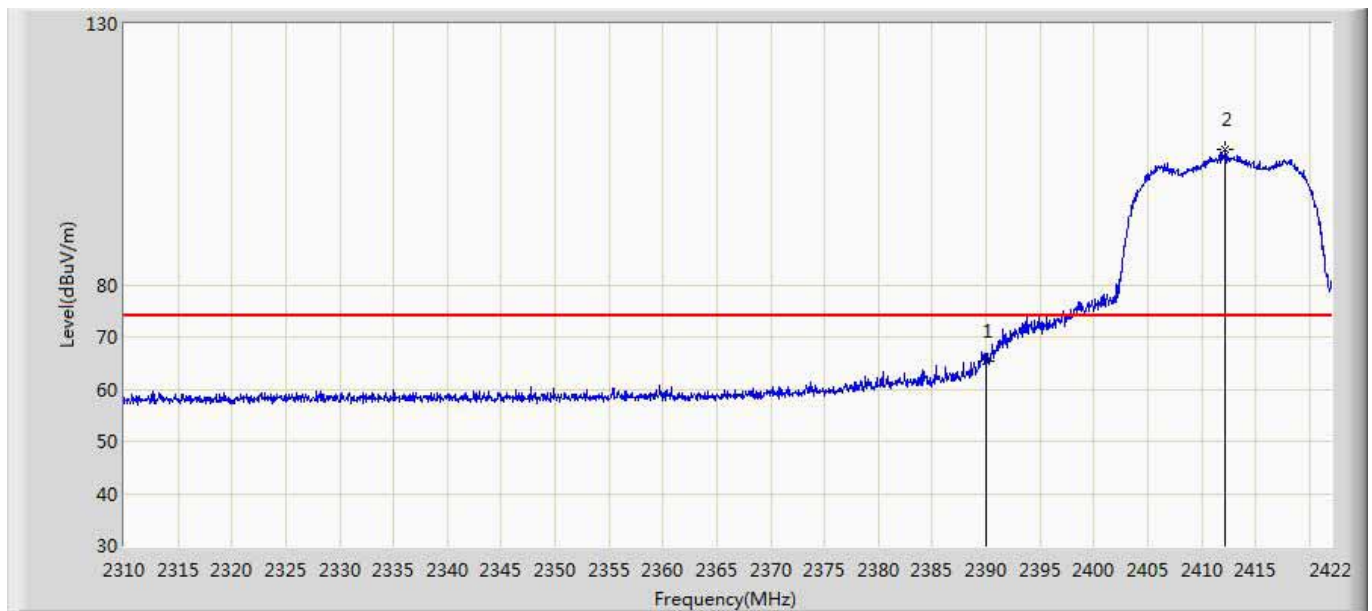
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	60.676	23.685	-13.324	74.000	36.991	PK
2	*	2412.144	99.348	62.323	25.348	74.000	37.025	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 12:04
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 Ant:1	



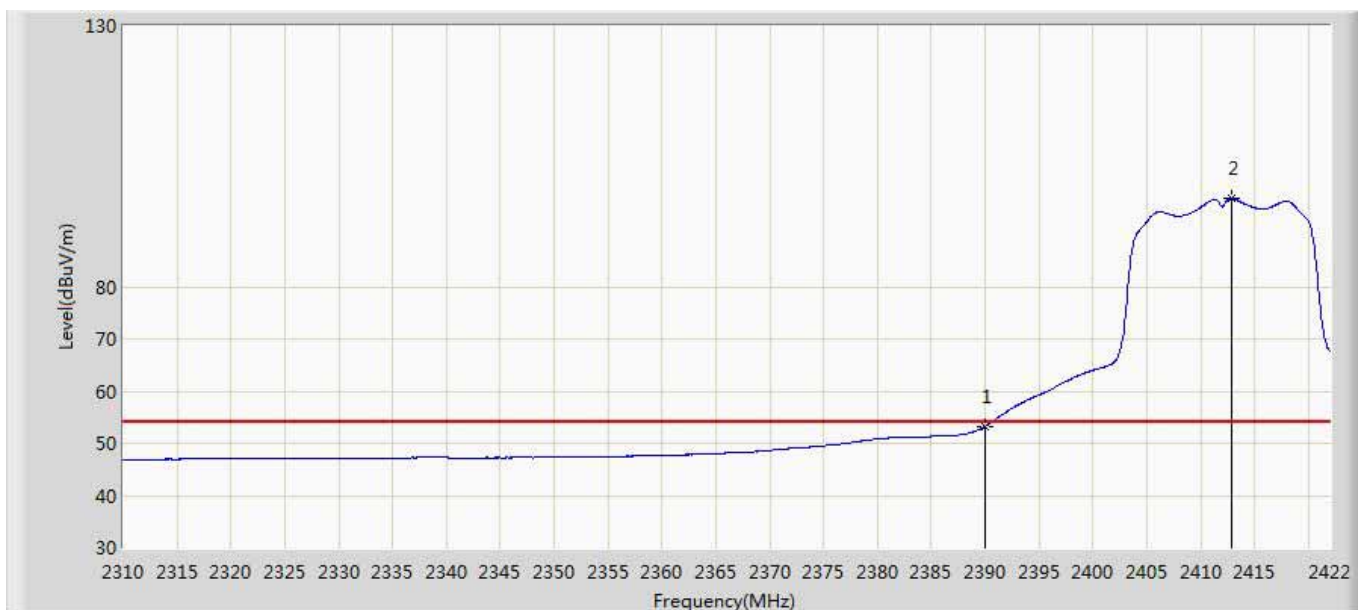
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.486	13.495	-3.514	54.000	36.991	AV
2	*	2412.648	90.106	53.076	36.106	54.000	37.030	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 13:12
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 2:Transmit at 2412Mhz by 802.11g Ant:2	



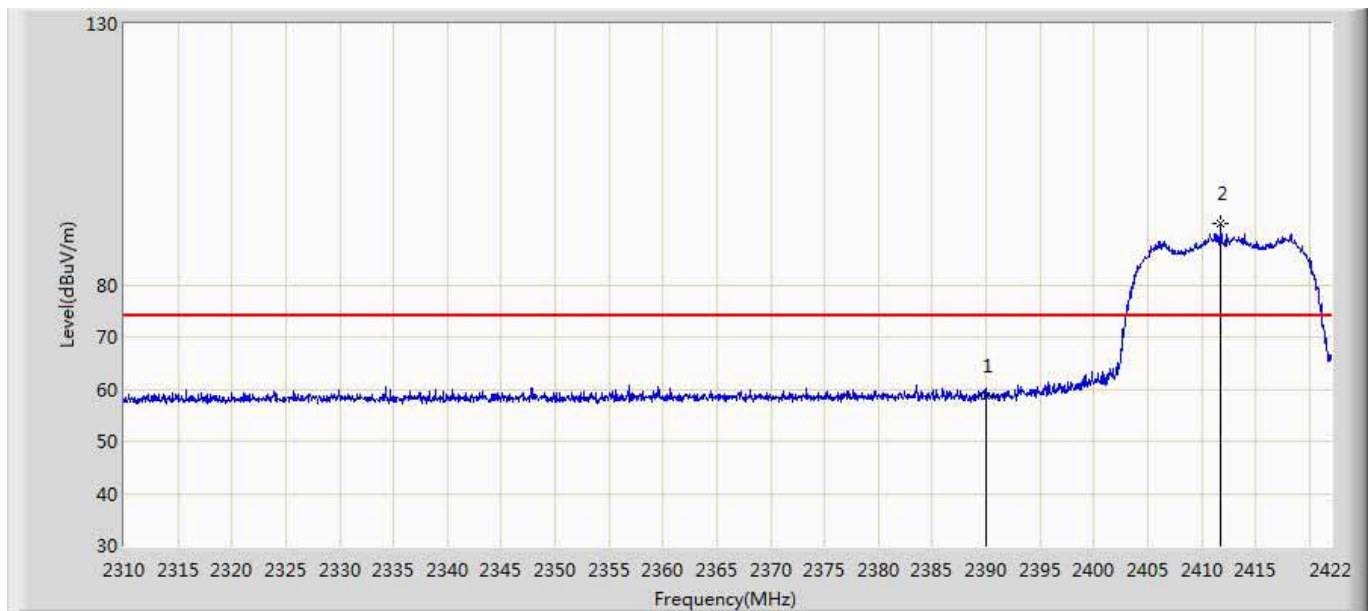
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	65.268	28.277	-8.732	74.000	36.991	PK
2	*	2412.200	105.946	68.921	31.946	74.000	37.025	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 13:35
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 Ant:2	



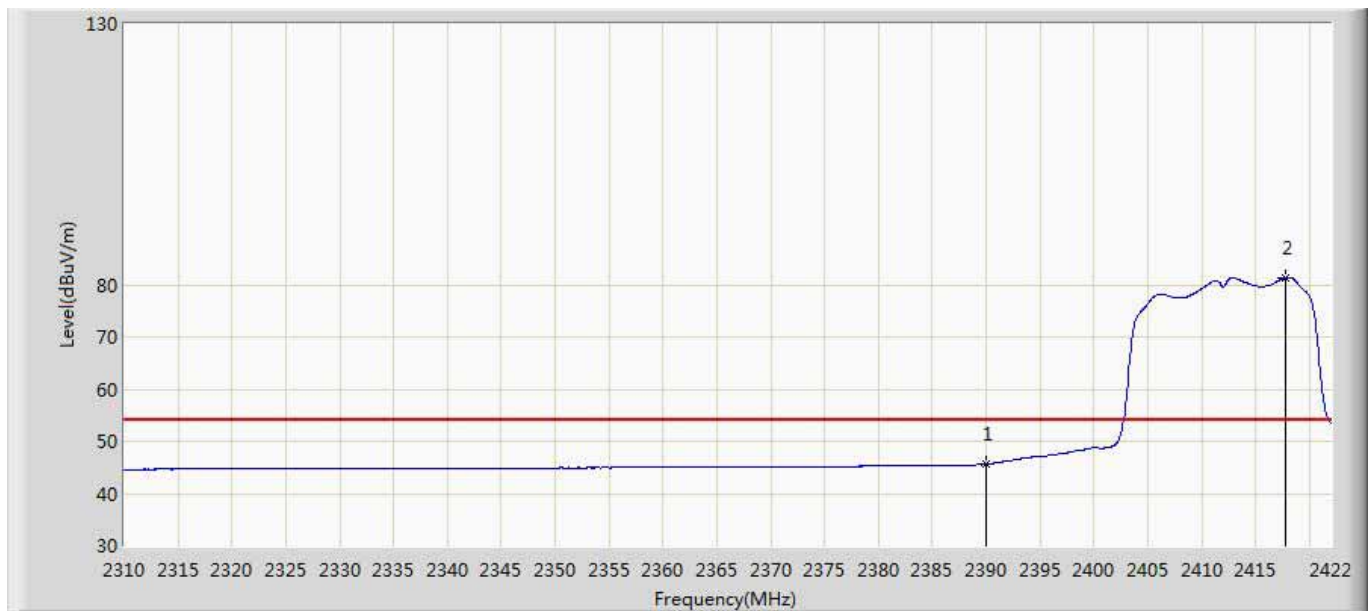
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.285	16.294	-0.715	54.000	36.991	AV
2	*	2412.816	96.934	59.903	42.934	54.000	37.032	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 13:39
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 Ant:2	



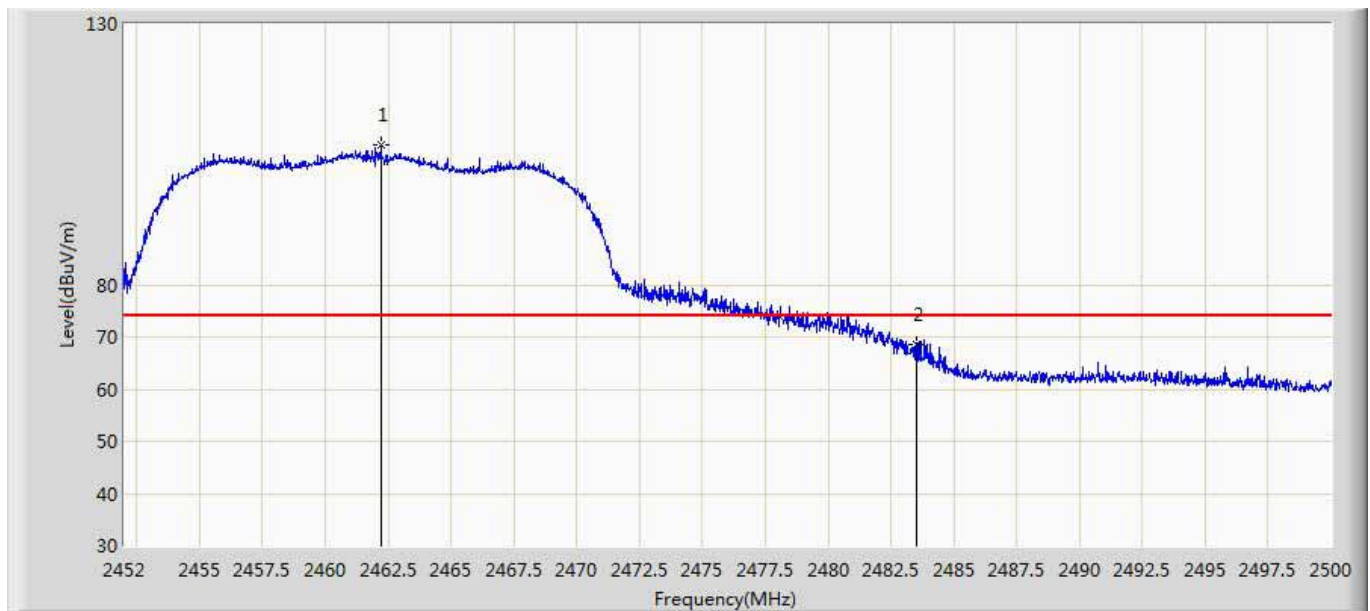
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	58.593	21.602	-15.407	74.000	36.991	PK
2	*	2411.808	91.663	54.641	17.663	74.000	37.022	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 13:40
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 2:Transmit at 2412Mhz by 802.11g Ant:2	



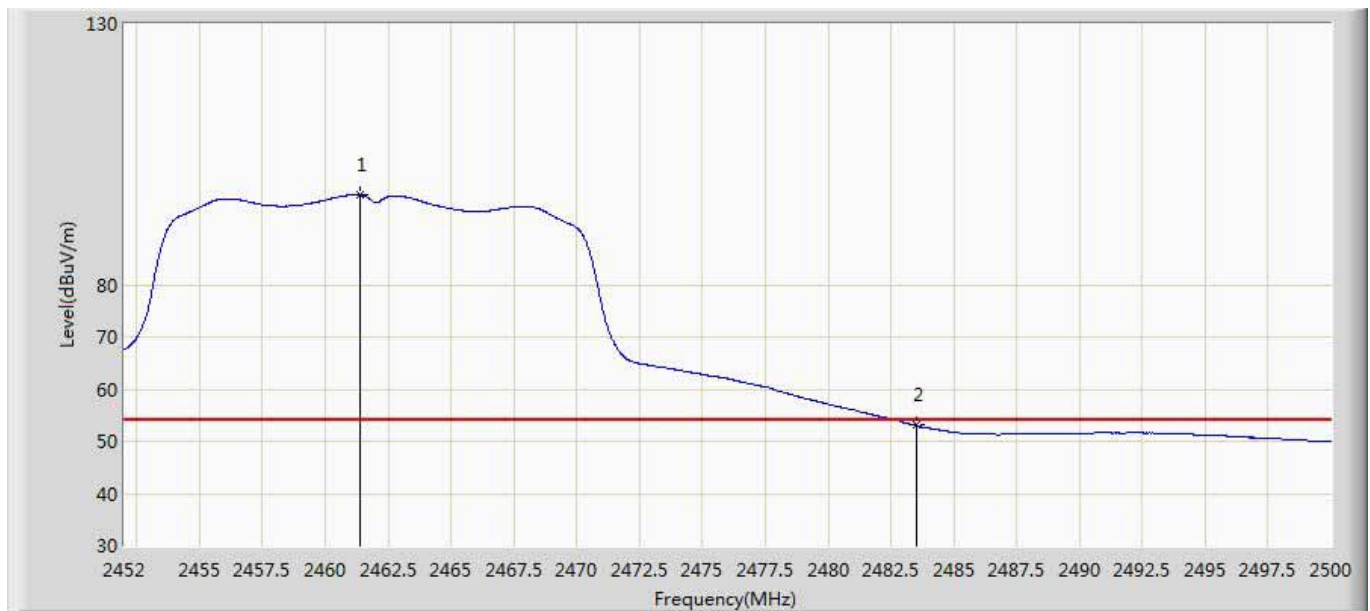
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	45.657	8.666	-8.343	54.000	36.991	AV
2	*	2417.856	81.402	44.325	27.402	54.000	37.077	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 13:44
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 Ant:1	



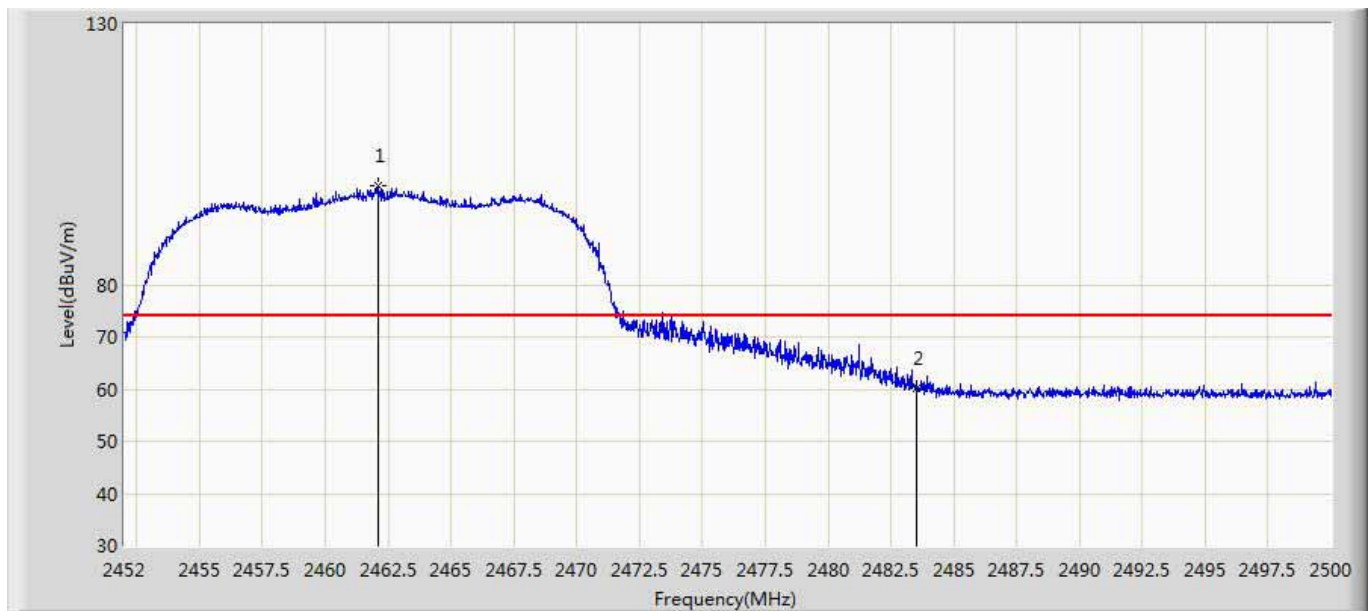
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.200	106.930	69.699	32.930	74.000	37.231	PK
2		2483.500	68.410	31.039	-5.590	74.000	37.371	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 13:53
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 Ant:1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.360	97.281	60.053	43.281	54.000	37.229	AV
2		2483.500	53.057	15.686	-0.943	54.000	37.371	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 13:56
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 Ant:1	



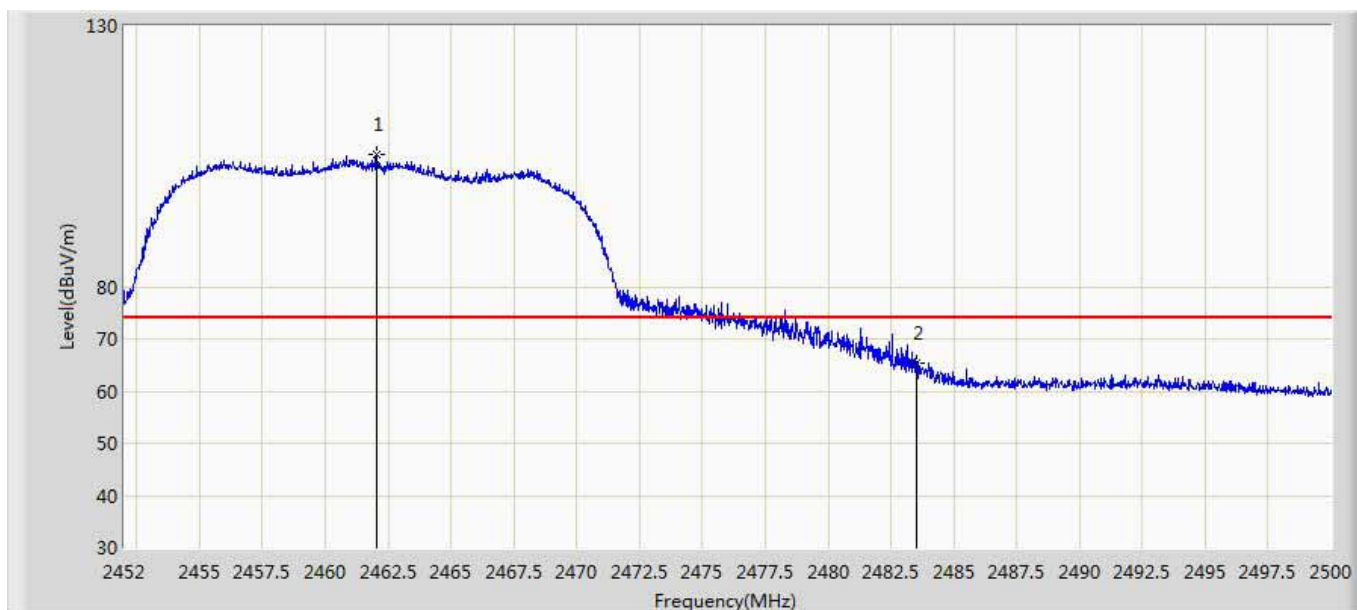
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.104	98.994	61.764	24.994	74.000	37.230	PK
2		2483.500	60.266	22.895	-13.734	74.000	37.371	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 13:57
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 2:Transmit at 2462Mhz by 802.11g Ant:1	



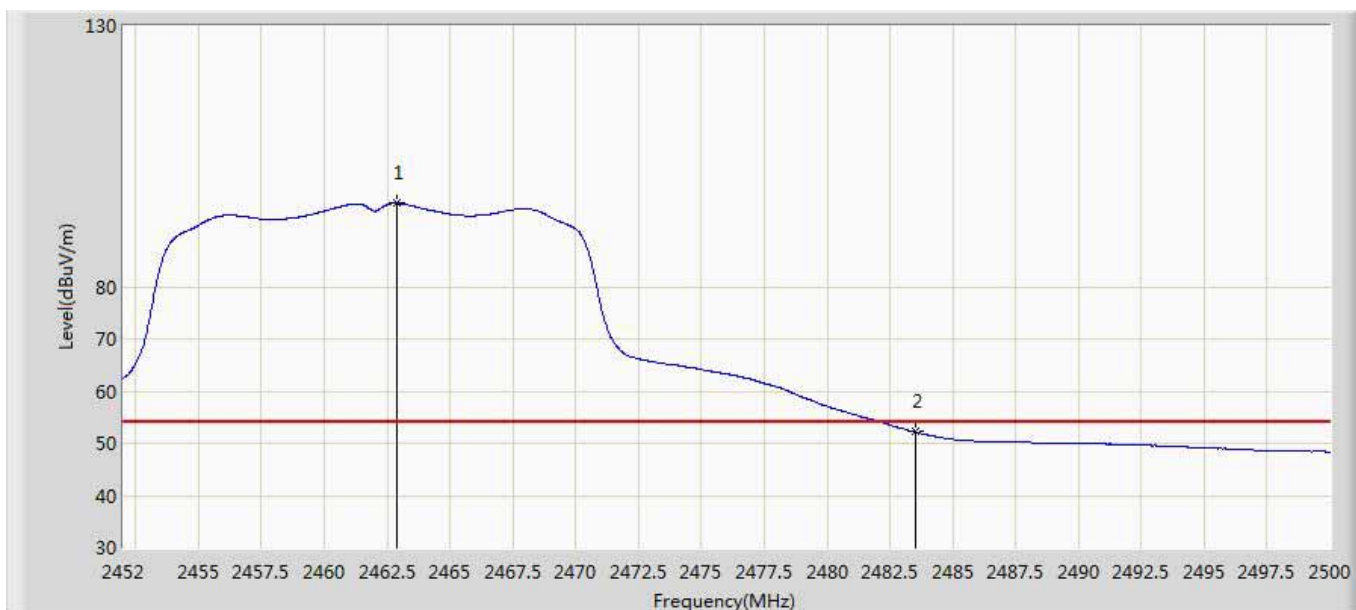
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.944	87.627	50.392	33.627	54.000	37.234	AV
2		2483.500	49.270	11.899	-4.730	54.000	37.371	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:00
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 Ant:2	



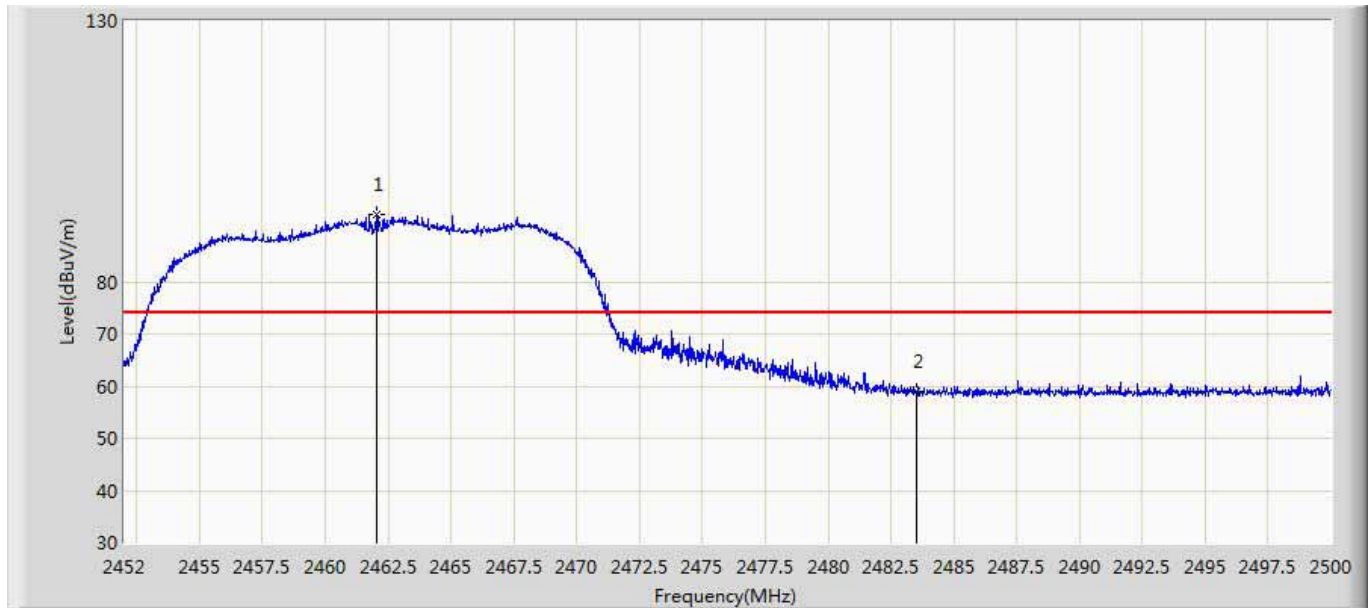
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.032	105.398	68.168	31.398	74.000	37.229	PK
2		2483.500	65.298	27.927	-8.702	74.000	37.371	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:01
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 Ant:2	



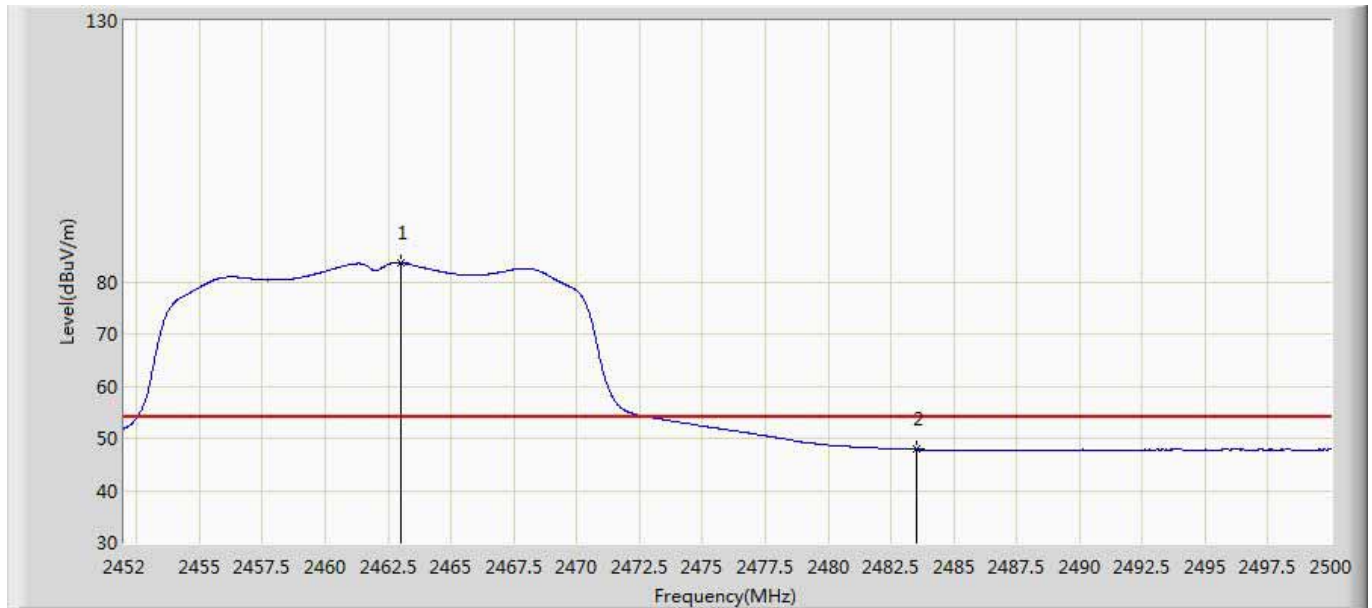
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.872	95.998	58.764	41.998	54.000	37.234	AV
2		2483.500	52.208	14.837	-1.792	54.000	37.371	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:09
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 2:Transmit at 2462Mhz by 802.11g Ant:2	



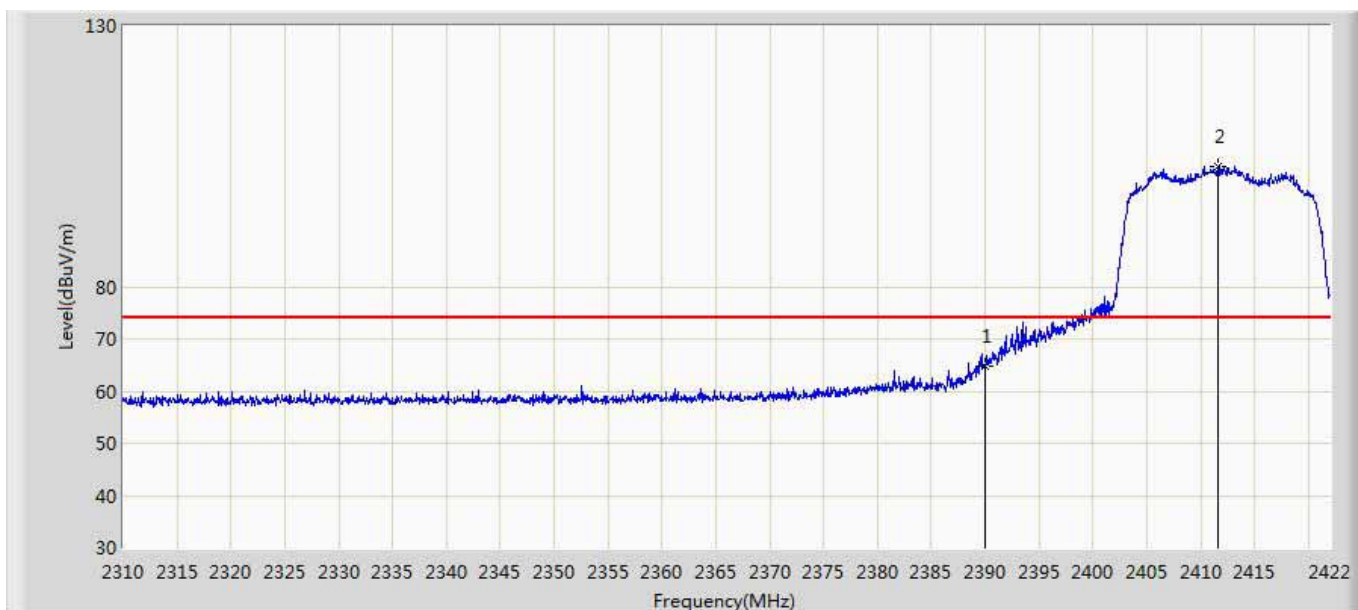
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.032	93.030	55.800	19.030	74.000	37.229	PK
2		2483.500	59.039	21.668	-14.961	74.000	37.371	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:10
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 Ant:2	



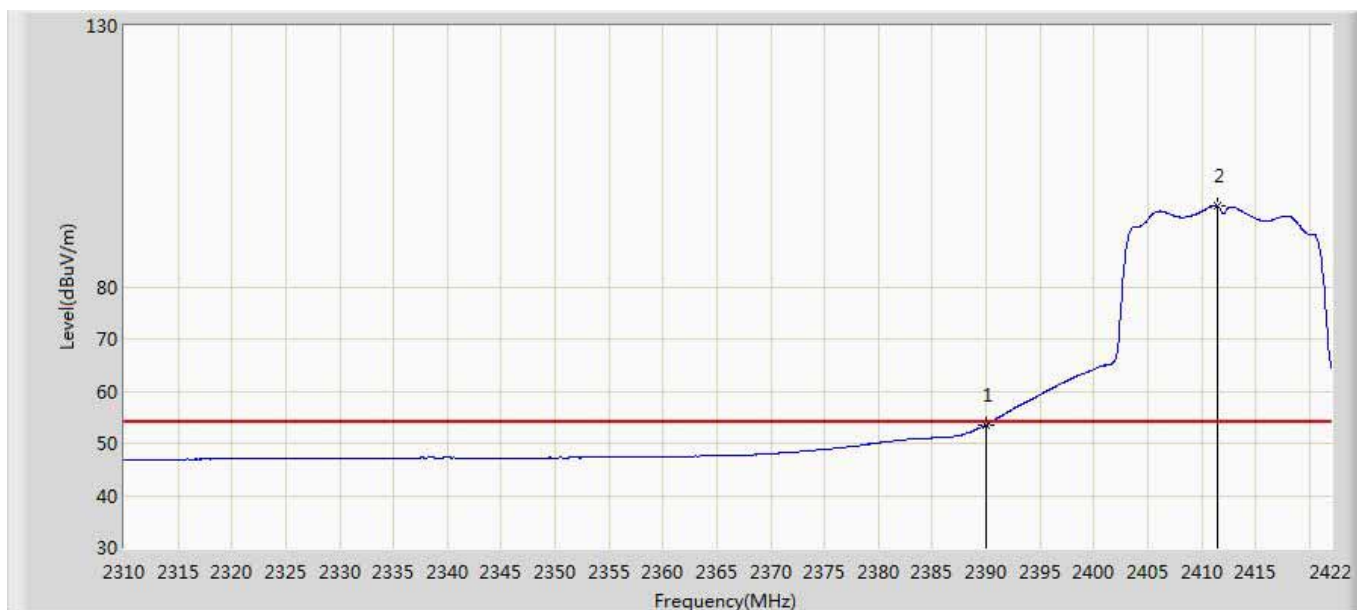
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.016	83.610	46.375	29.610	54.000	37.236	AV
2		2483.500	47.834	10.463	-6.166	54.000	37.371	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:15
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 3:Transmit at 2412Mhz by 802.11n20 Ant:1	



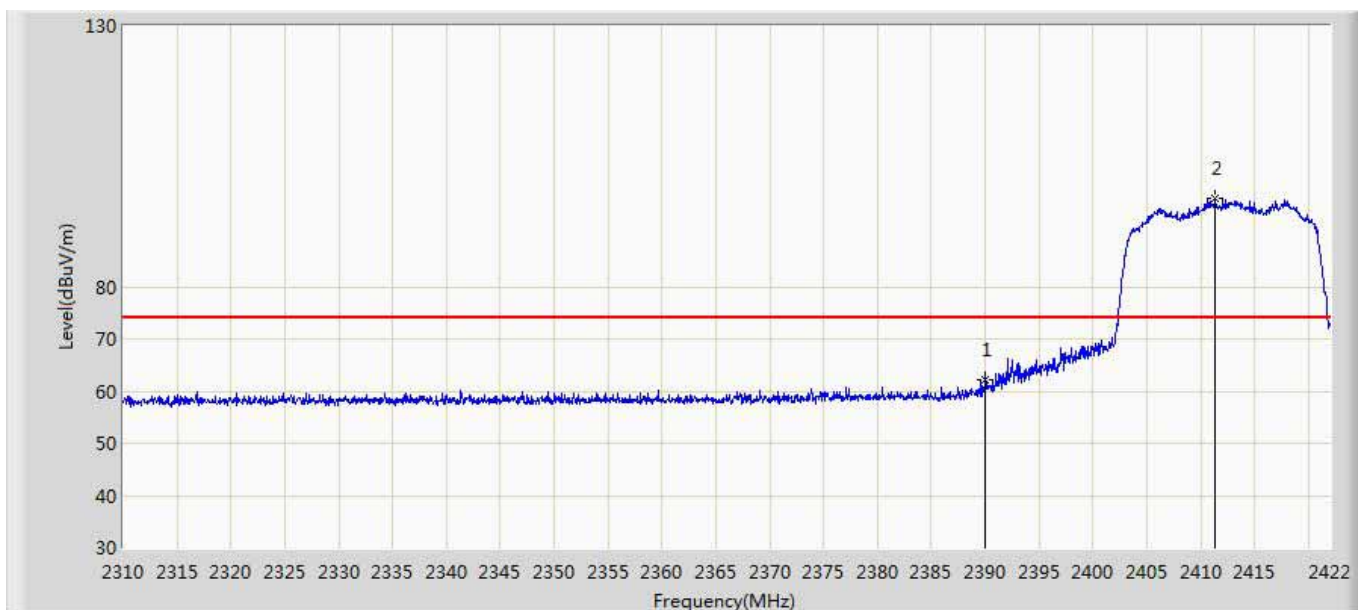
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	64.864	27.873	-9.136	74.000	36.991	PK
2	*	2411.584	103.114	66.094	29.114	74.000	37.020	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:16
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 3:Transmit at 2412Mhz by 802.11n20 Ant:1	



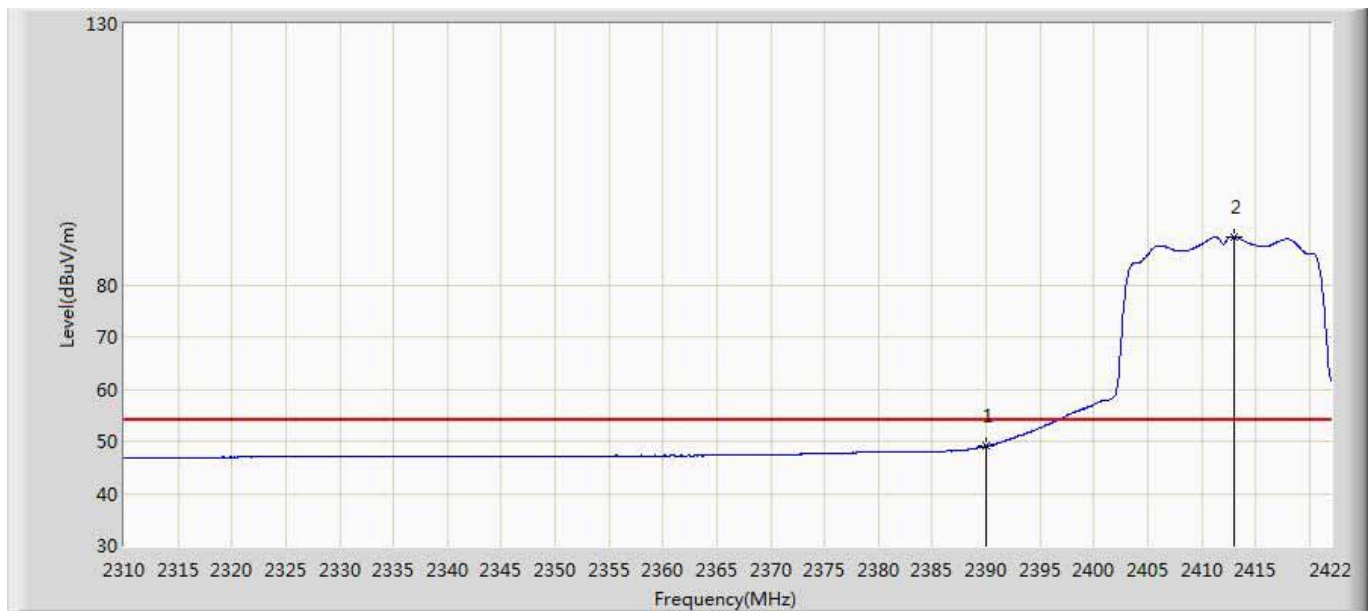
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.531	16.540	-0.469	54.000	36.991	AV
2	*	2411.416	95.485	58.467	41.485	54.000	37.018	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:19
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 3:Transmit at 2412Mhz by 802.11n20 Ant:1	



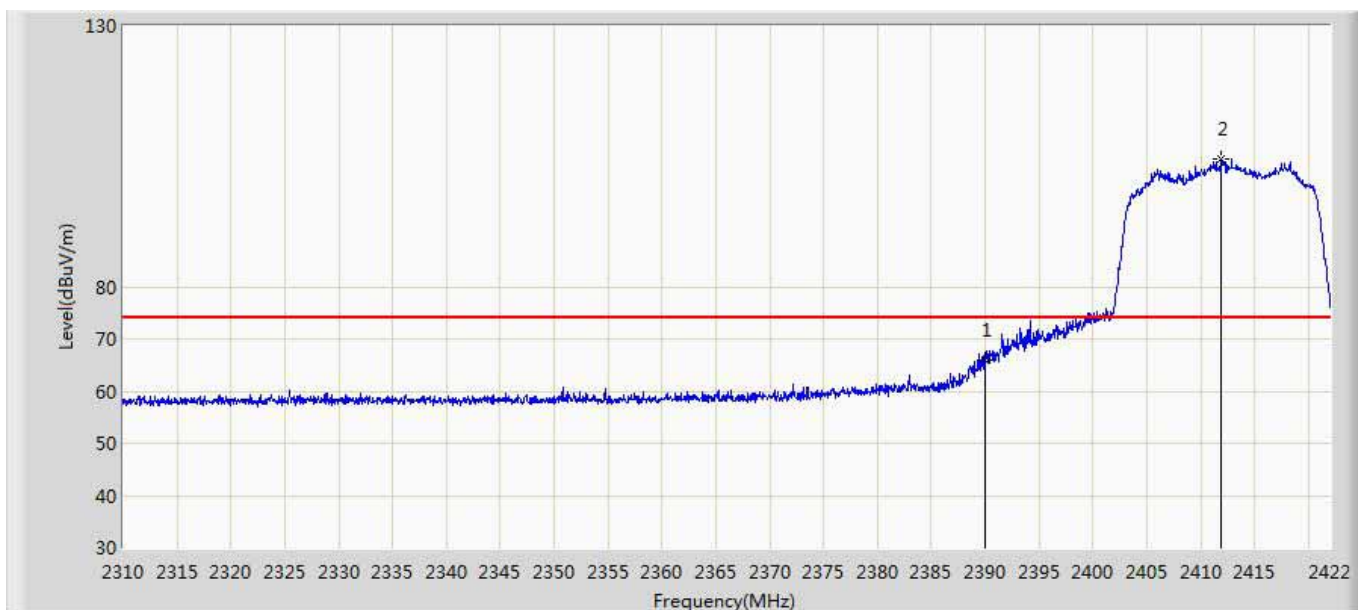
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	62.089	25.098	-11.911	74.000	36.991	PK
2	*	2411.360	96.848	59.830	22.848	74.000	37.018	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:19
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 3:Transmit at 2412Mhz by 802.11n20 Ant:1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	49.096	12.105	-4.904	54.000	36.991	AV
2	*	2412.984	89.246	52.213	35.246	54.000	37.032	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:24
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 Ant:2	



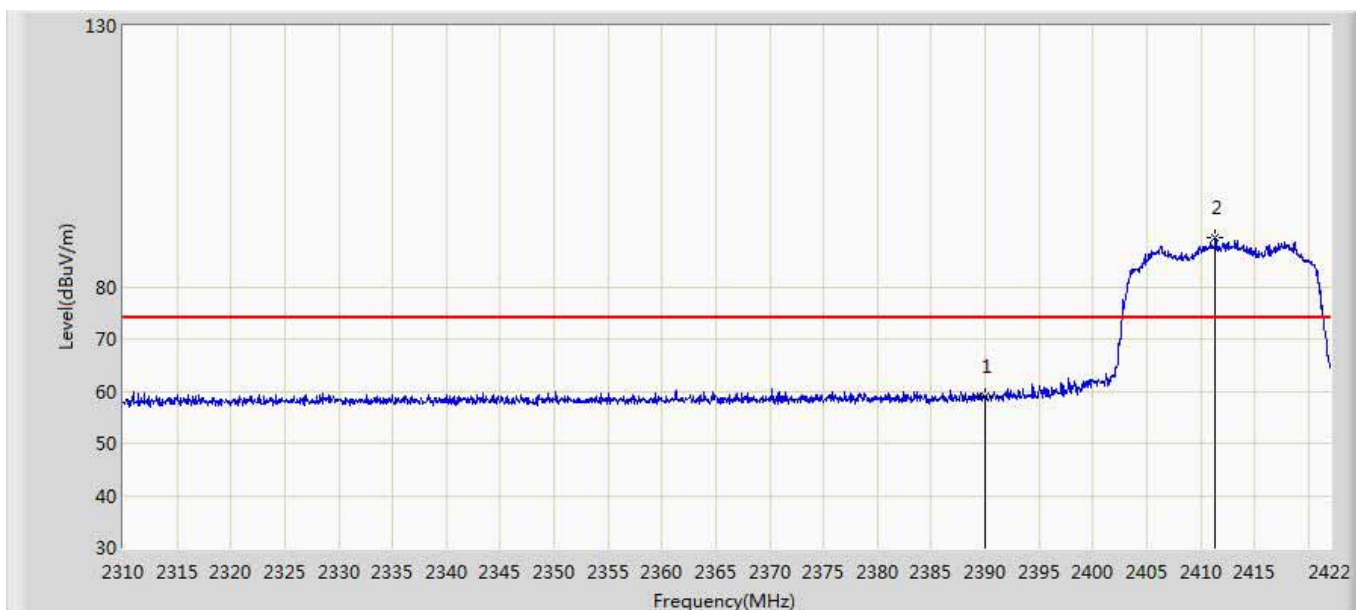
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	65.997	29.006	-8.003	74.000	36.991	PK
2	*	2411.920	104.361	67.338	30.361	74.000	37.023	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:24
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 Ant:2	



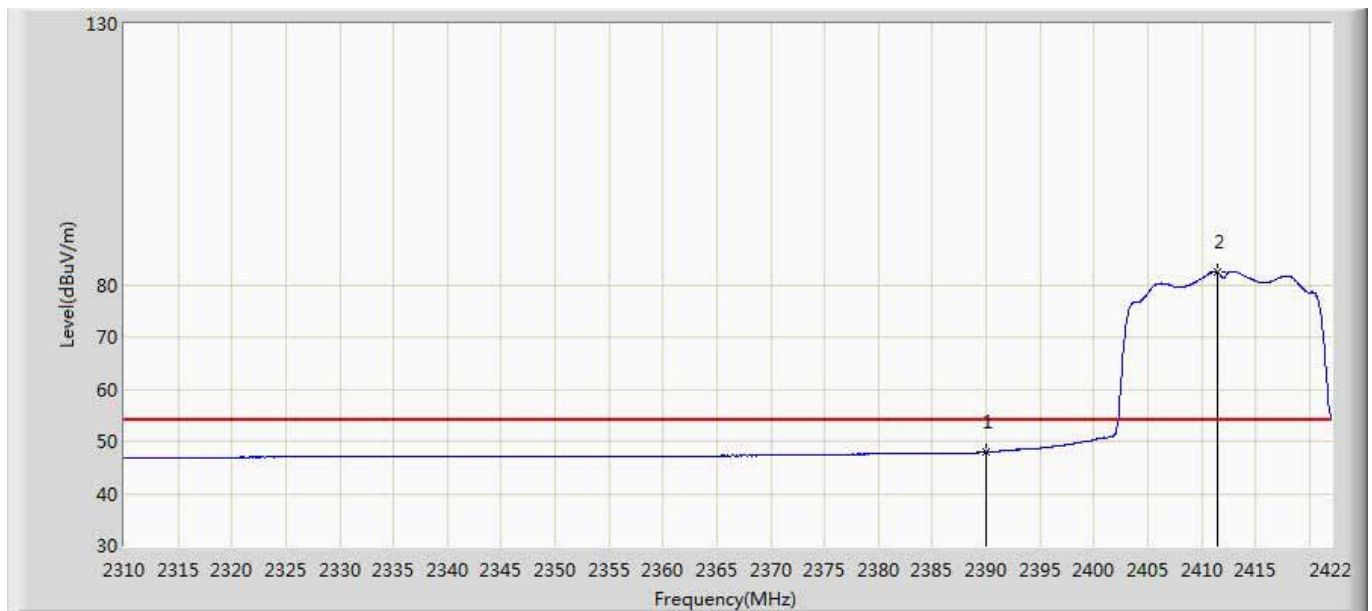
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.390	16.399	-0.610	54.000	36.991	AV
2	*	2412.648	95.924	58.894	41.924	54.000	37.030	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:30
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 3:Transmit at 2412Mhz by 802.11n20 Ant:2	



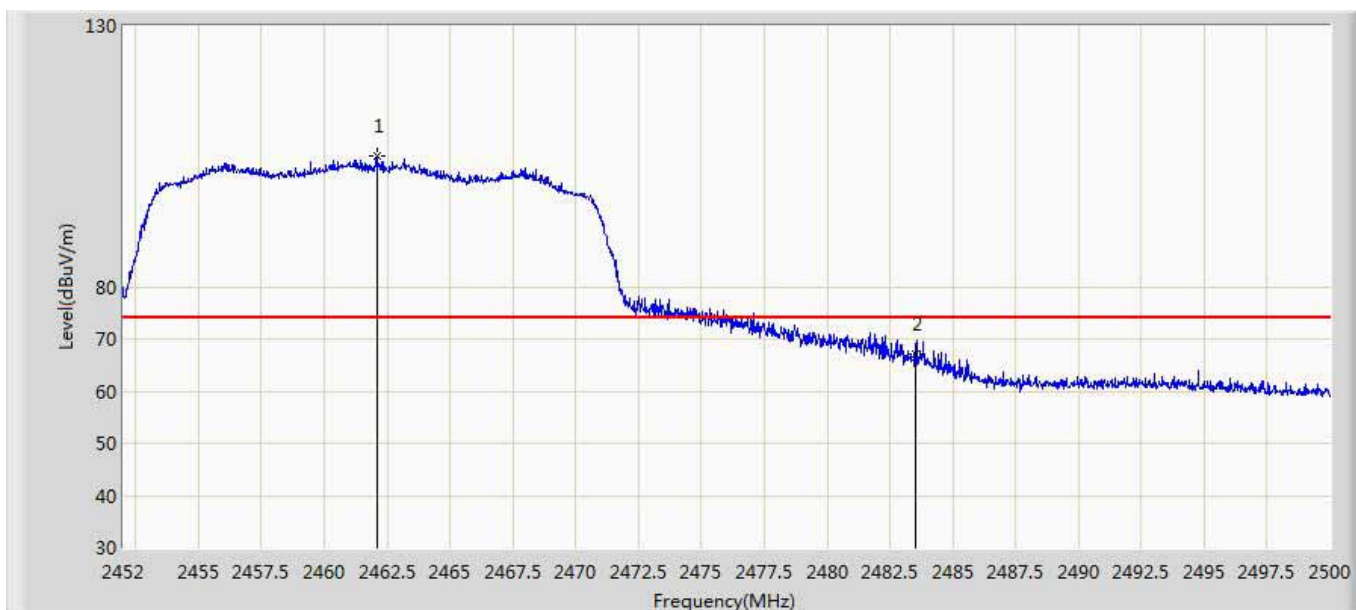
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	58.846	21.855	-15.154	74.000	36.991	PK
2	*	2411.360	89.281	52.263	15.281	74.000	37.018	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:31
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 3:Transmit at 2412Mhz by 802.11n20 Ant:2	



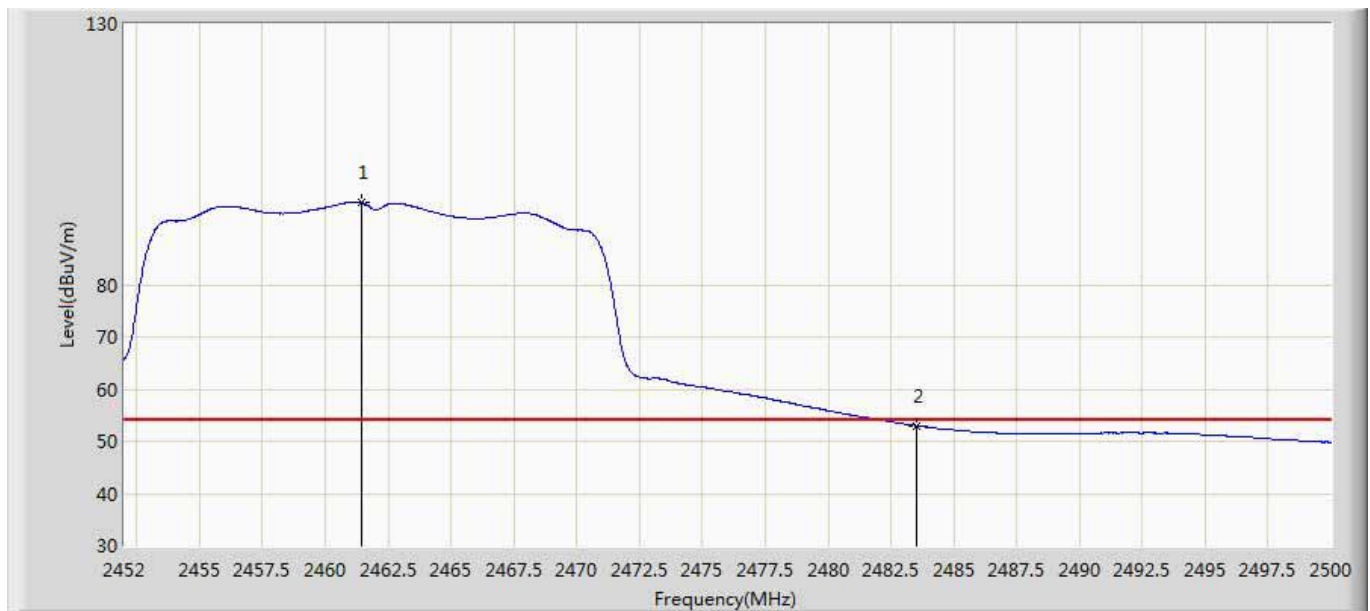
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.914	10.923	-6.086	54.000	36.991	AV
2	*	2411.416	82.469	45.451	28.469	54.000	37.018	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:35
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 Ant:1	



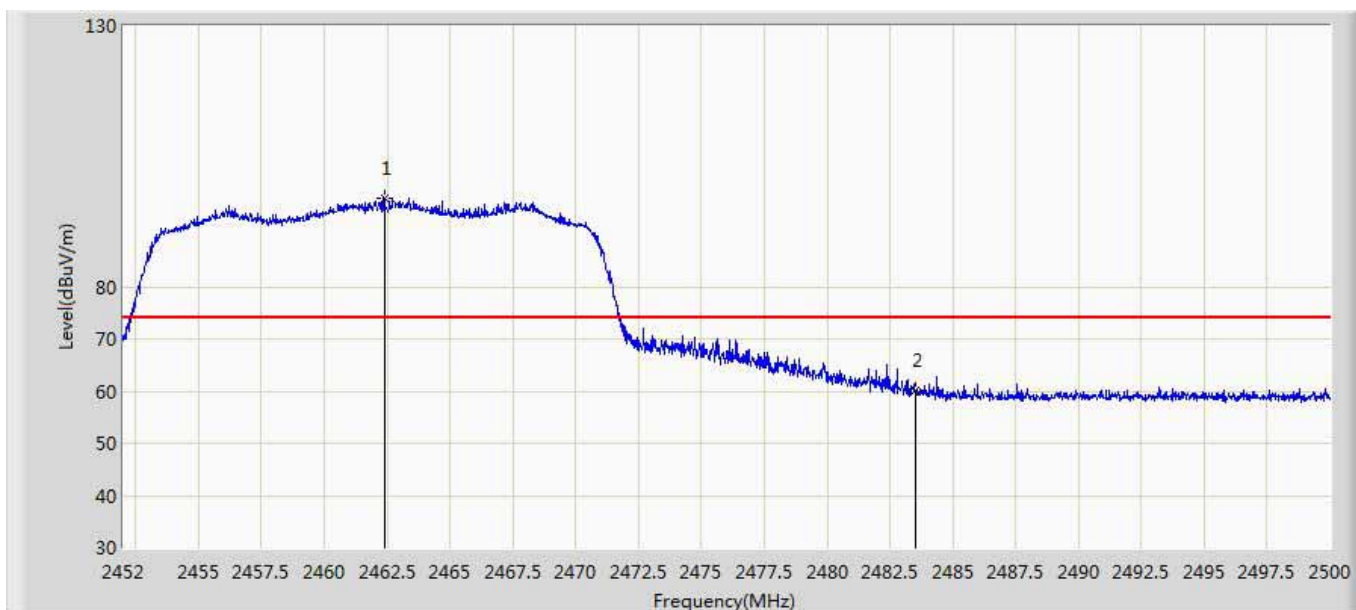
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.080	105.197	67.967	31.197	74.000	37.230	PK
2		2483.500	67.091	29.720	-6.909	74.000	37.371	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:37
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 Ant:1	



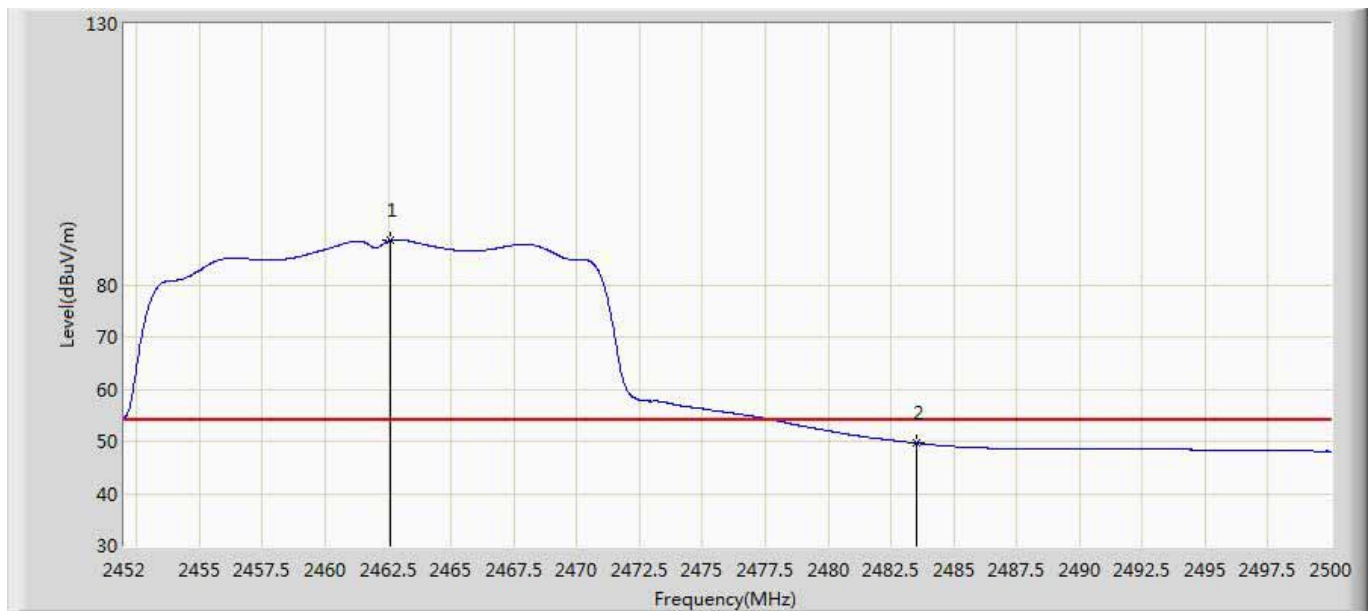
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.432	95.788	58.560	41.788	54.000	37.228	AV
2		2483.500	53.000	15.629	-1.000	54.000	37.371	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:40
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 3:Transmit at 2462Mhz by 802.11n20 Ant:1	



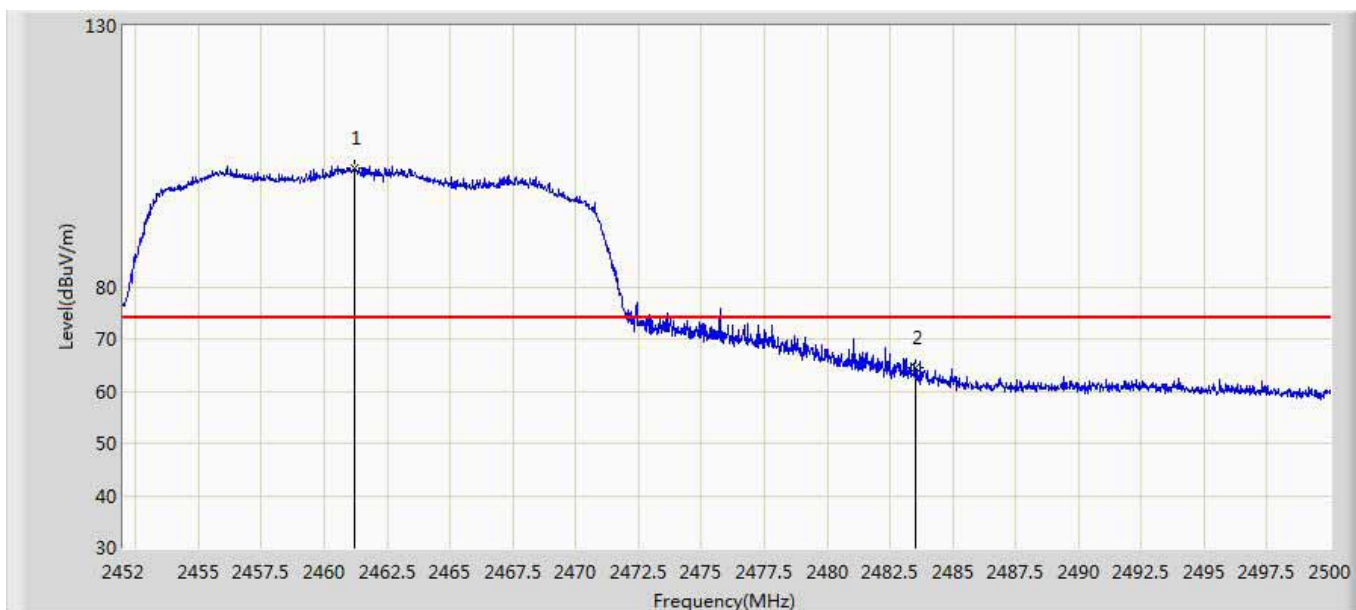
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.392	97.039	59.807	23.039	74.000	37.231	PK
2		2483.500	60.097	22.726	-13.903	74.000	37.371	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:42
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 Ant:1	



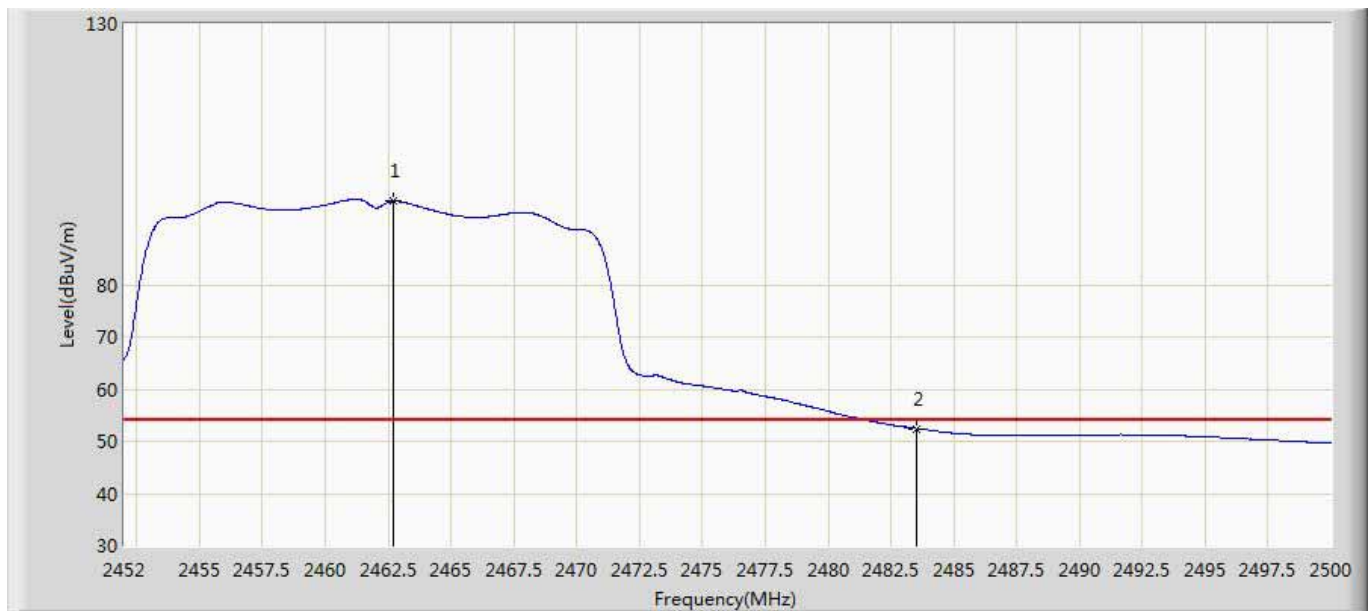
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.608	88.547	51.314	34.547	54.000	37.233	AV
2		2483.500	49.654	12.283	-4.346	54.000	37.371	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:47
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 Ant:2	



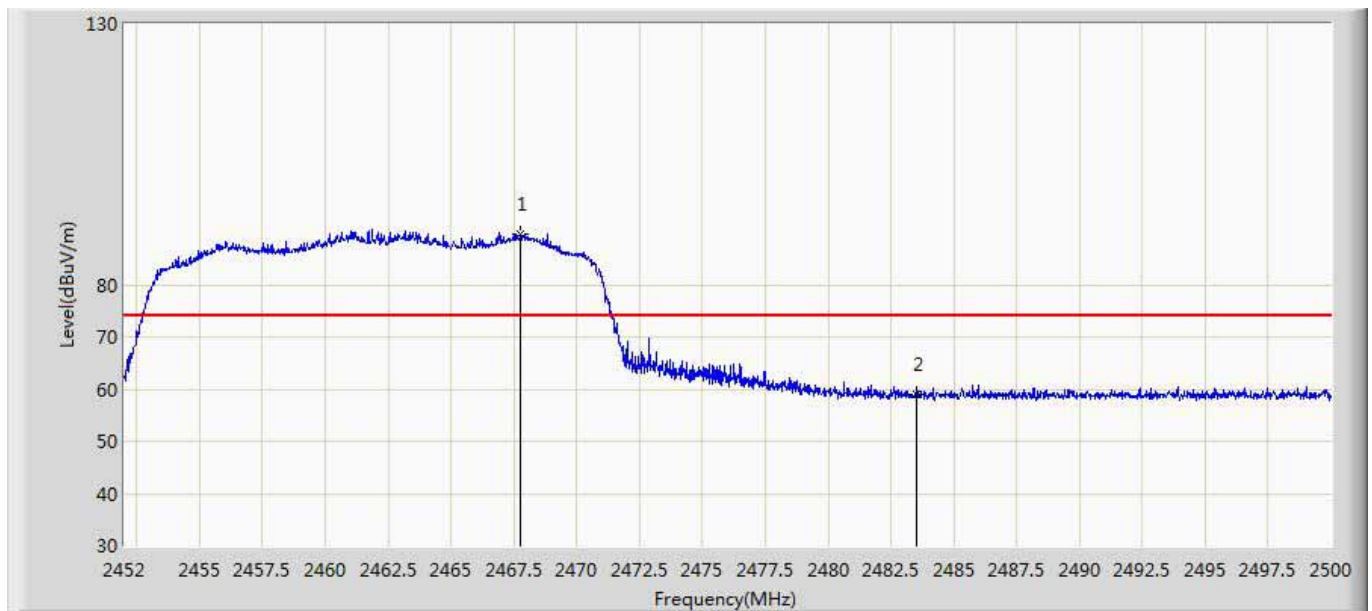
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.216	102.828	65.600	28.828	74.000	37.228	PK
2		2483.500	64.546	27.175	-9.454	74.000	37.371	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:48
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 Ant:2	



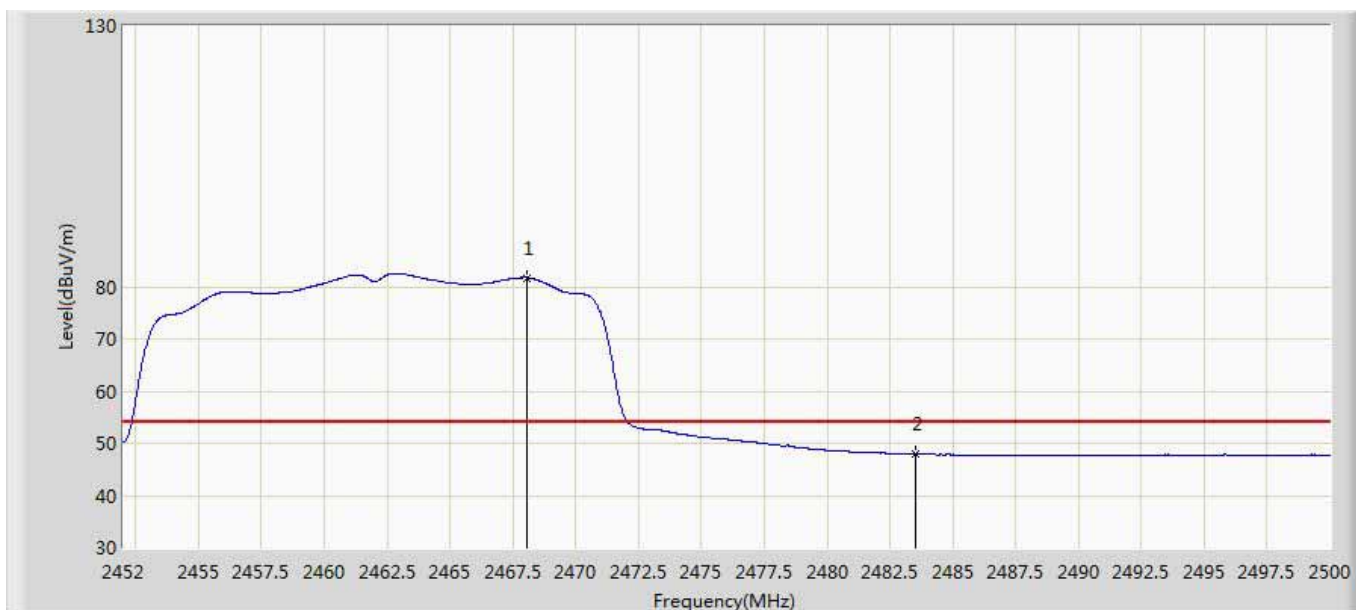
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.680	96.004	58.771	42.004	54.000	37.233	AV
2		2483.500	52.461	15.090	-1.539	54.000	37.371	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:54
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 3:Transmit at 2462Mhz by 802.11n20 Ant:2	



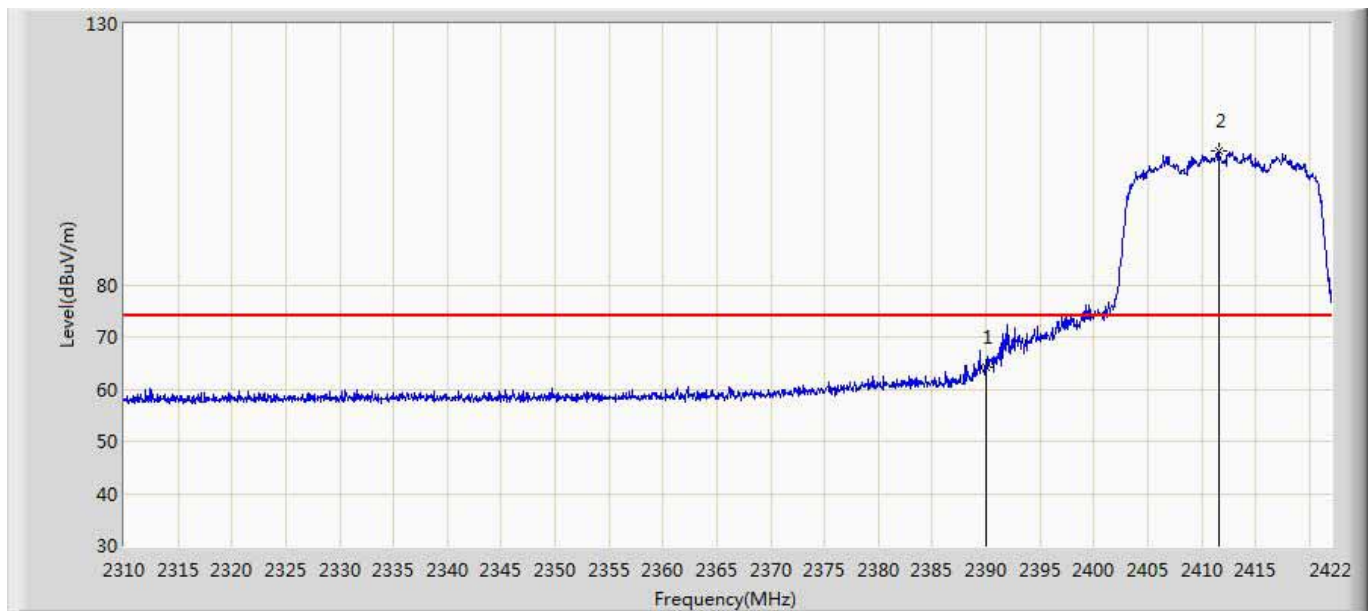
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2467.768	89.682	52.419	15.682	74.000	37.263	PK
2		2483.500	59.017	21.646	-14.983	74.000	37.371	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:55
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 3:Transmit at 2462Mhz by 802.11n20 Ant:2	



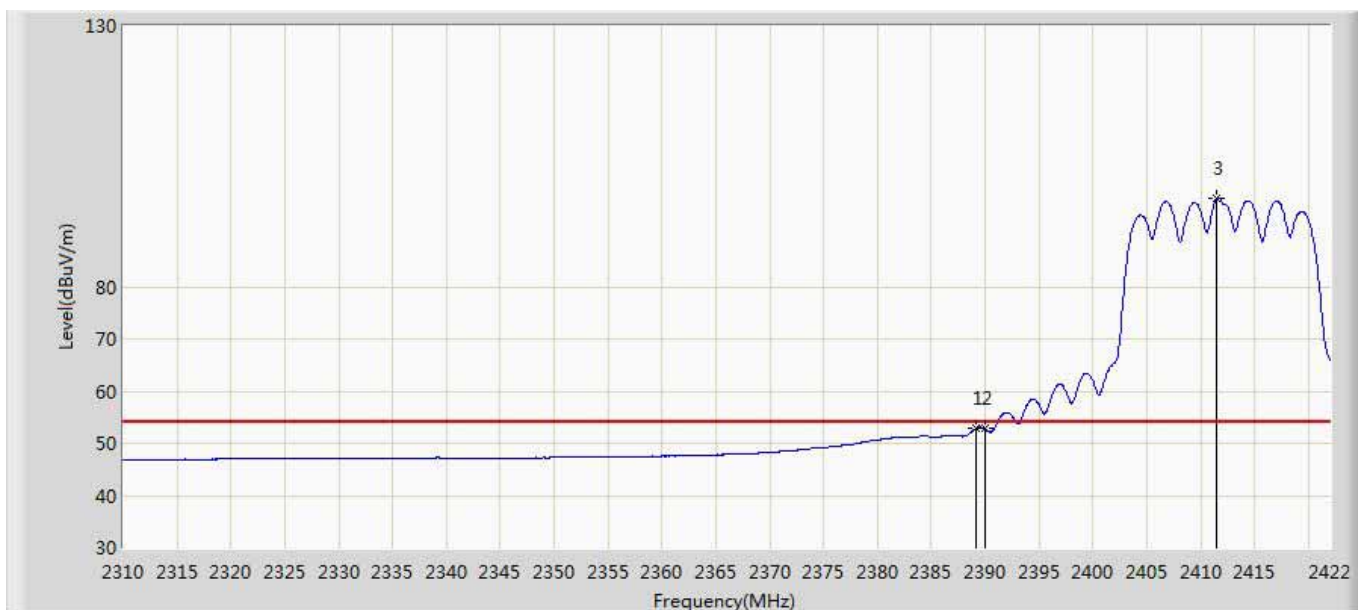
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2468.056	81.727	44.463	27.727	54.000	37.265	AV
2		2483.500	47.925	10.554	-6.075	54.000	37.371	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:59
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 Ant:1+2	



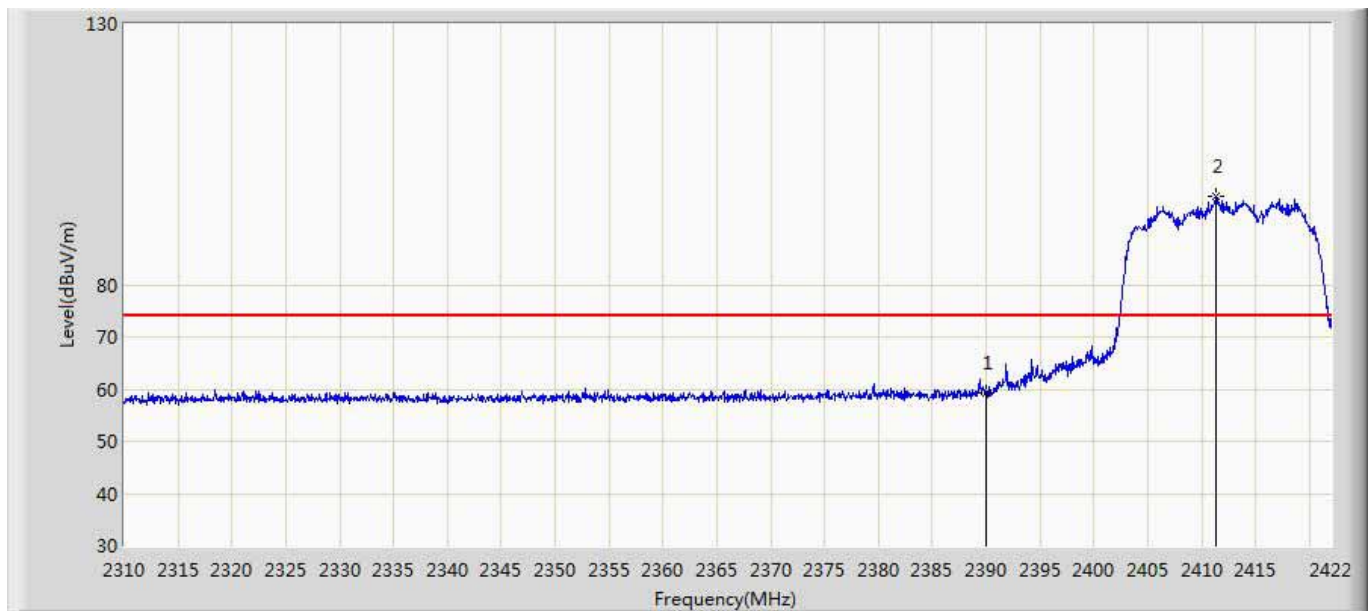
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	64.240	27.249	-9.760	74.000	36.991	PK
2	*	2411.584	105.748	68.728	31.748	74.000	37.020	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 14:59
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 Ant:1+2	



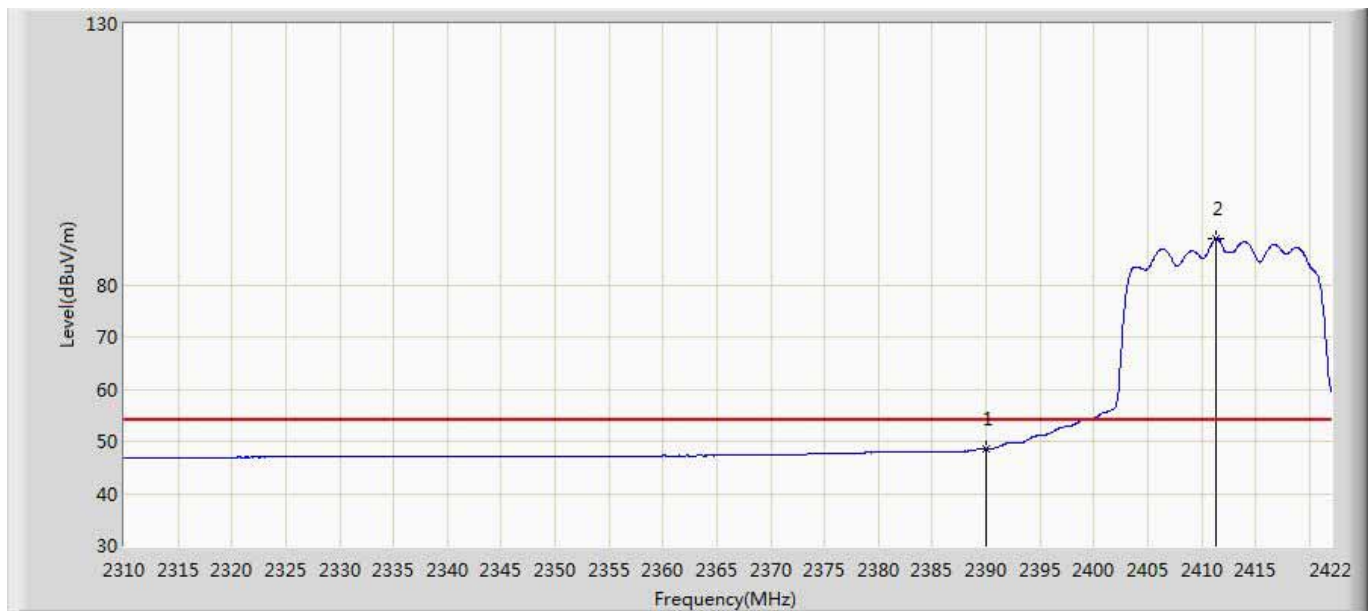
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2389.128	52.840	15.851	-1.160	54.000	36.990	AV
2		2390.000	52.756	15.765	-1.244	54.000	36.991	AV
3	*	2411.528	96.976	59.957	42.976	54.000	37.019	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 15:03
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 3:Transmit at 2412Mhz by 802.11n20 Ant:1+2	



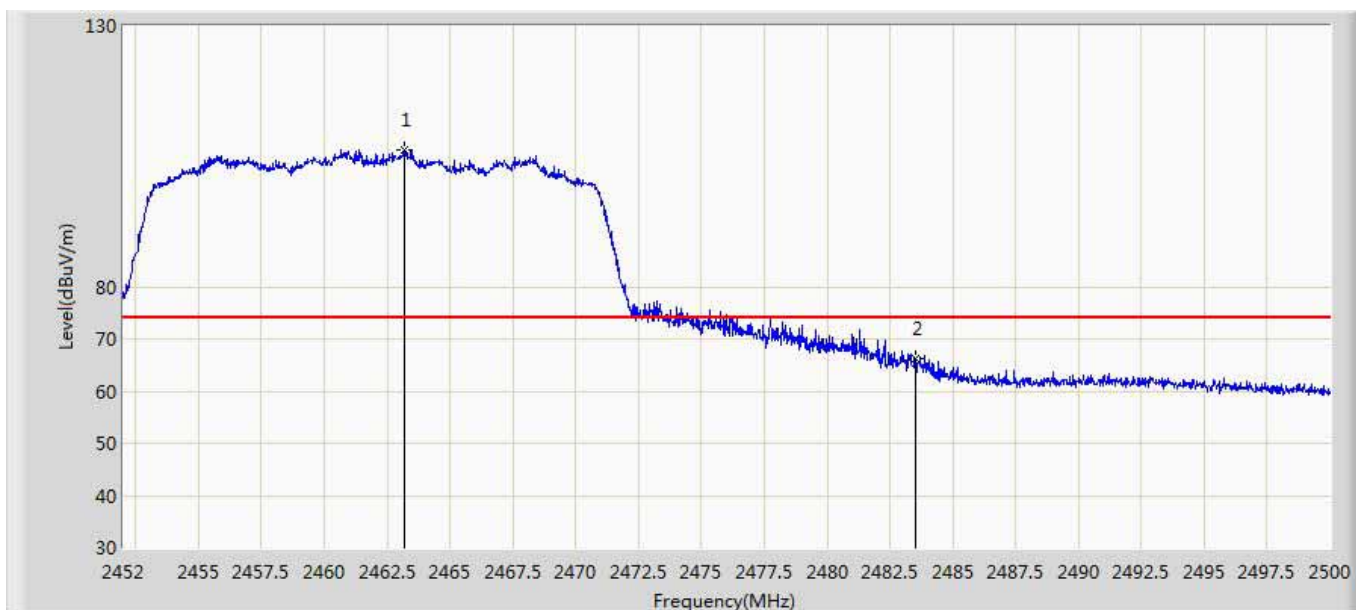
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	59.403	22.412	-14.597	74.000	36.991	PK
2	*	2411.360	96.933	59.915	22.933	74.000	37.018	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 15:05
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 Ant:1+2	



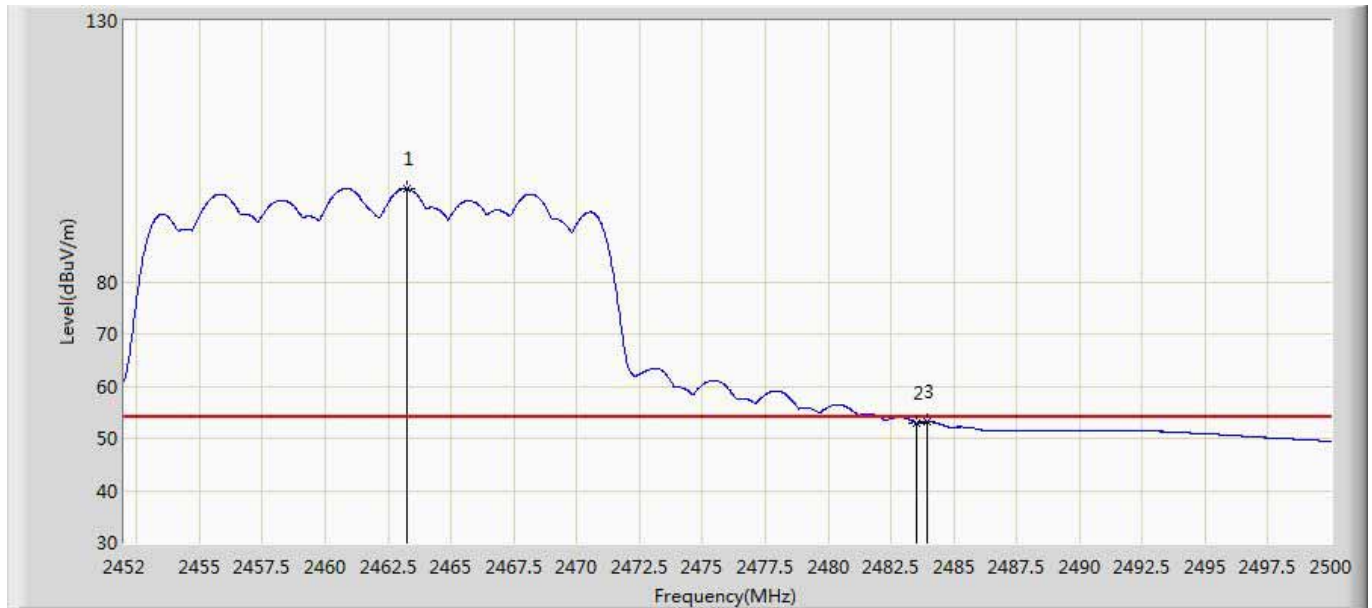
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	48.593	11.602	-5.407	54.000	36.991	AV
2	*	2411.360	88.876	51.858	34.876	54.000	37.018	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 15:08
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 Ant:1+2	



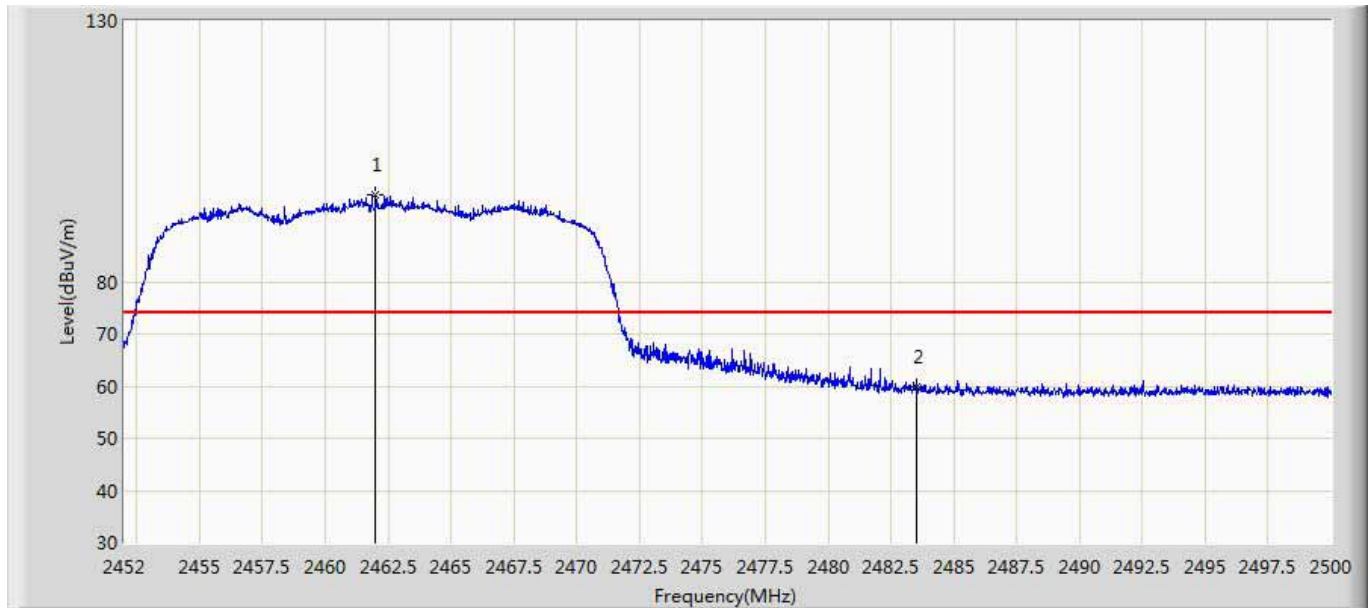
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.208	106.295	69.059	32.295	74.000	37.236	PK
2		2483.500	66.366	28.995	-7.634	74.000	37.371	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 15:14
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 Ant:1+2	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2463.232	97.818	60.581	43.818	54.000	37.236	AV
2		2483.500	52.989	15.618	-1.011	54.000	37.371	AV
3		2483.968	53.160	15.784	-0.840	54.000	37.376	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 15:17
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 3:Transmit at 2462Mhz by 802.11n20 Ant:1+2	



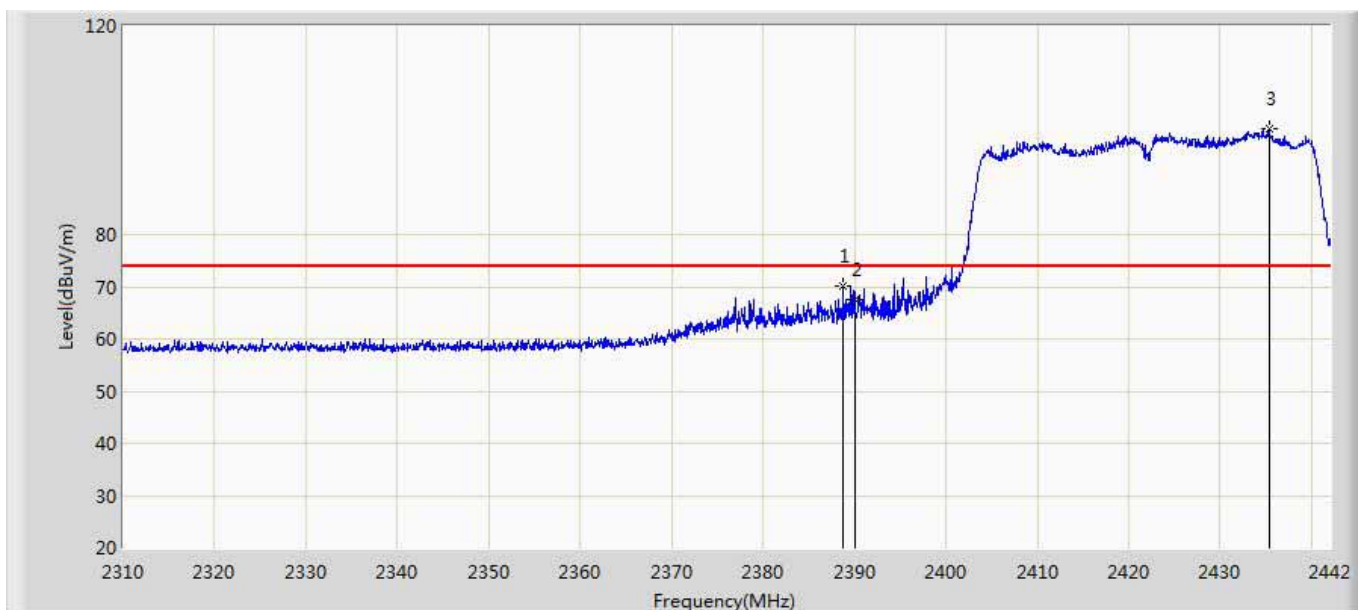
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2462.008	96.719	59.490	22.719	74.000	37.229	PK
2		2483.500	59.786	22.415	-14.214	74.000	37.371	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 15:18
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 Ant:1+2	



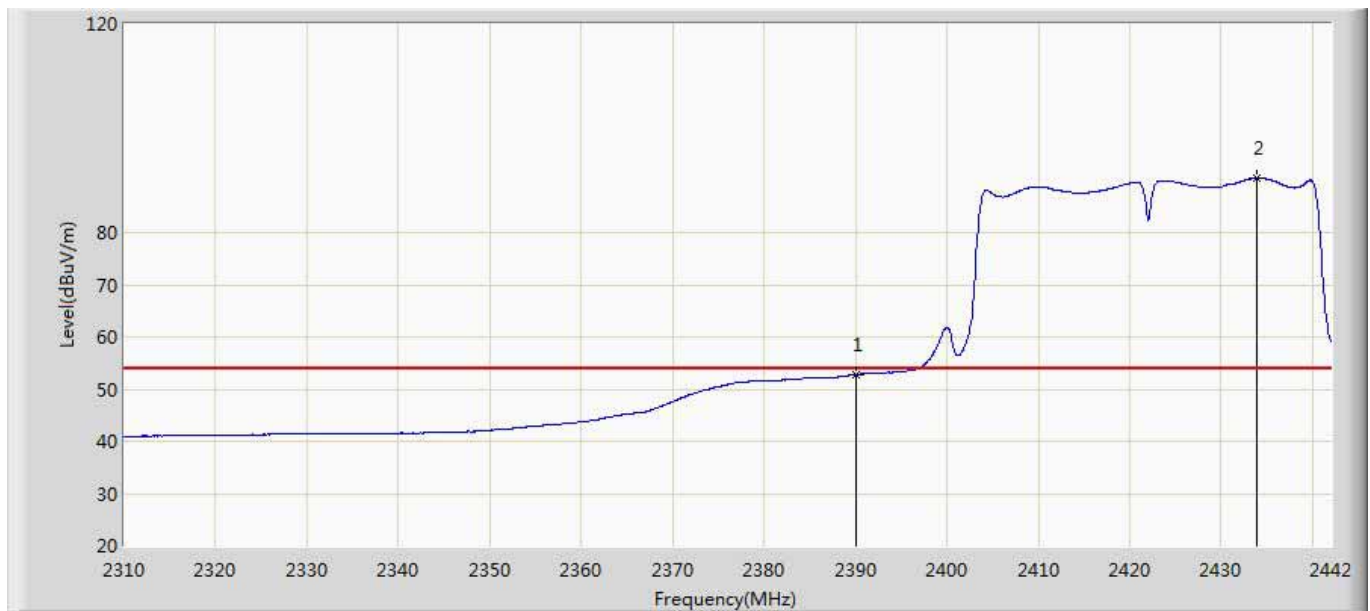
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2461.600	87.142	49.913	33.142	54.000	37.229	AV
2		2483.500	48.222	10.851	-5.778	54.000	37.371	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 15:25
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 Ant:1	



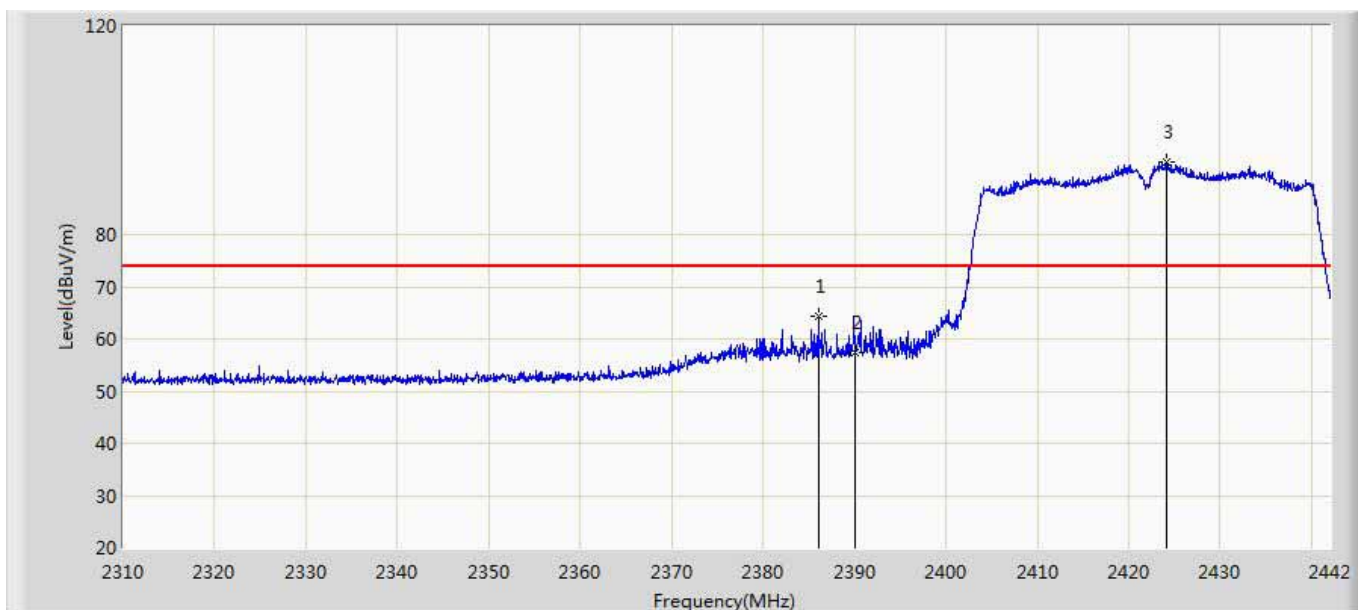
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2388.804	70.198	33.209	-3.802	74.000	36.988	PK
2		2390.000	67.416	30.425	-6.584	74.000	36.991	PK
3	*	2435.334	100.218	63.035	26.218	74.000	37.183	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 15:26
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 4:Transmit at 2422Mhz by 802.11n40 Ant:1	



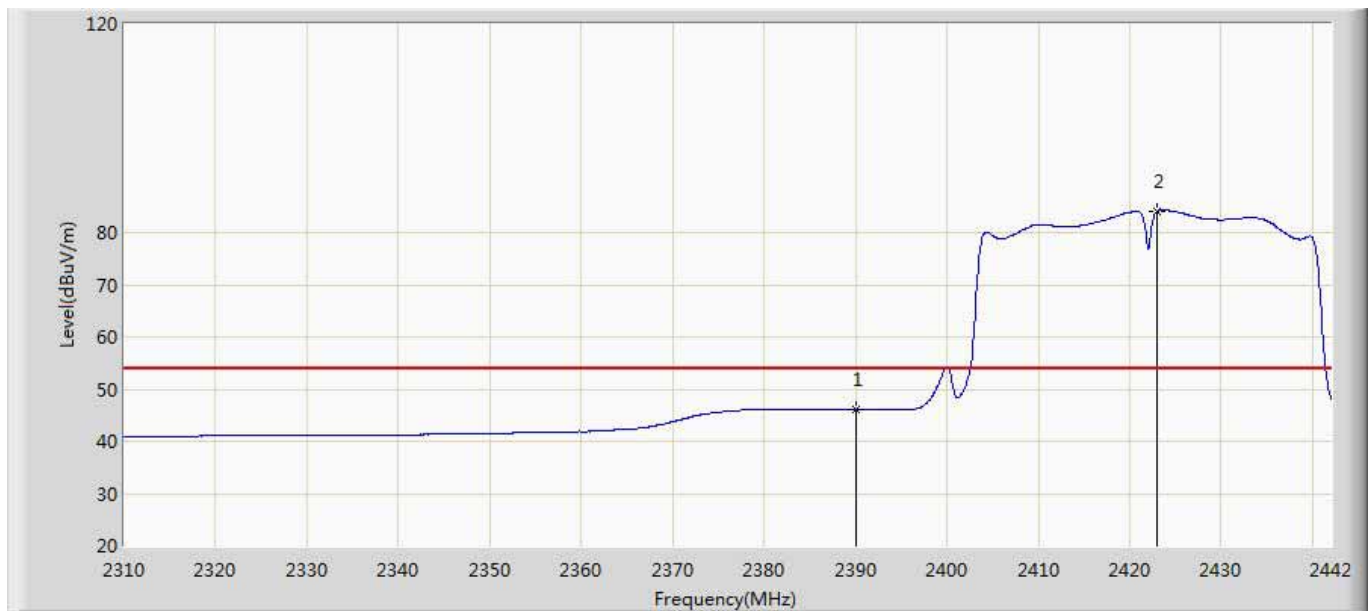
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.722	15.731	-1.278	54.000	36.991	AV
2	*	2433.882	90.363	53.183	36.363	54.000	37.180	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 15:31
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 4:Transmit at 2422Mhz by 802.11n40 Ant:1	



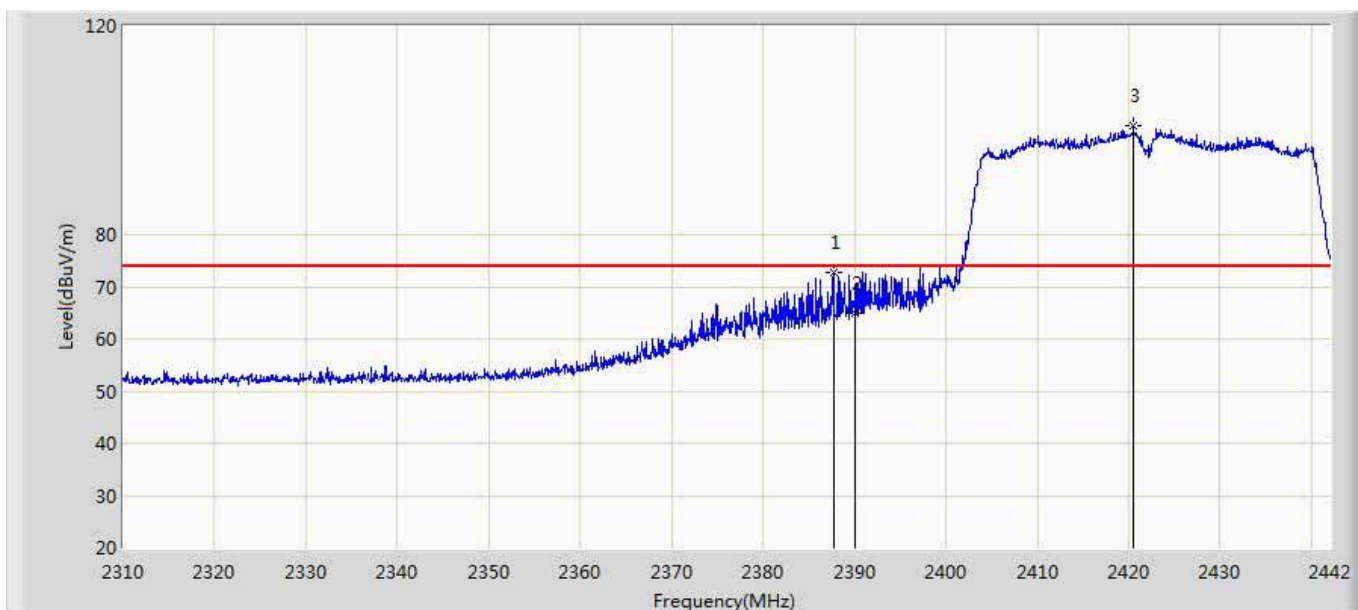
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2386.098	64.230	27.247	-9.770	74.000	36.983	PK
2		2390.000	57.254	20.263	-16.746	74.000	36.991	PK
3	*	2424.180	93.896	56.762	19.896	74.000	37.134	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 15:31
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 4:Transmit at 2422Mhz by 802.11n40 Ant:1	



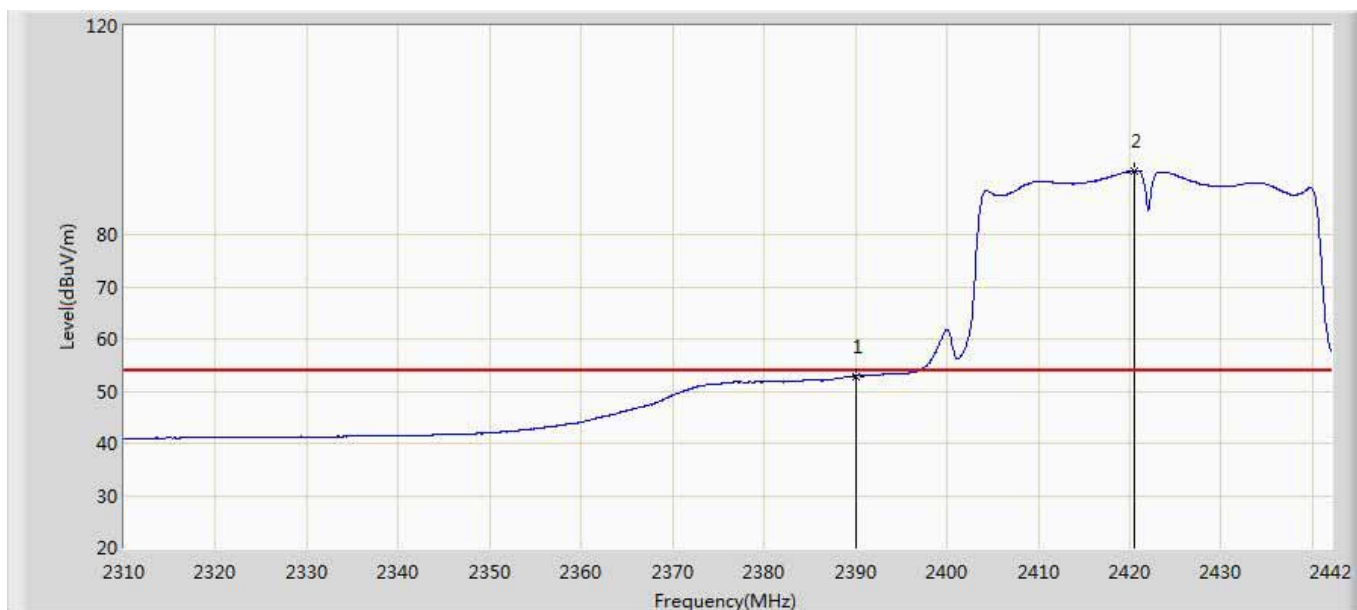
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	46.080	9.089	-7.920	54.000	36.991	AV
2	*	2423.058	84.149	47.025	30.149	54.000	37.124	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 15:36
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 2422Mhz by 802.11n40 Ant:2	



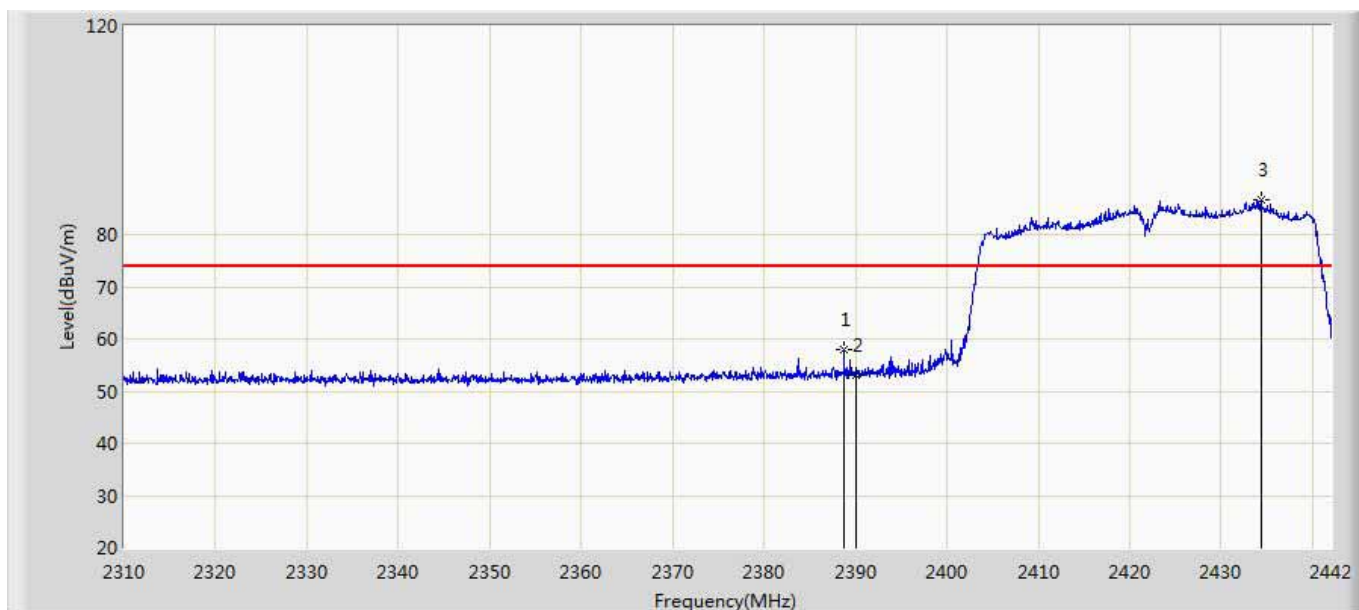
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2387.748	72.698	35.712	-1.302	74.000	36.987	PK
2		2390.000	64.934	27.943	-9.066	74.000	36.991	PK
3	*	2420.484	100.860	63.759	26.860	74.000	37.101	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 15:37
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 4:Transmit at 2422Mhz by 802.11n40 Ant:2	



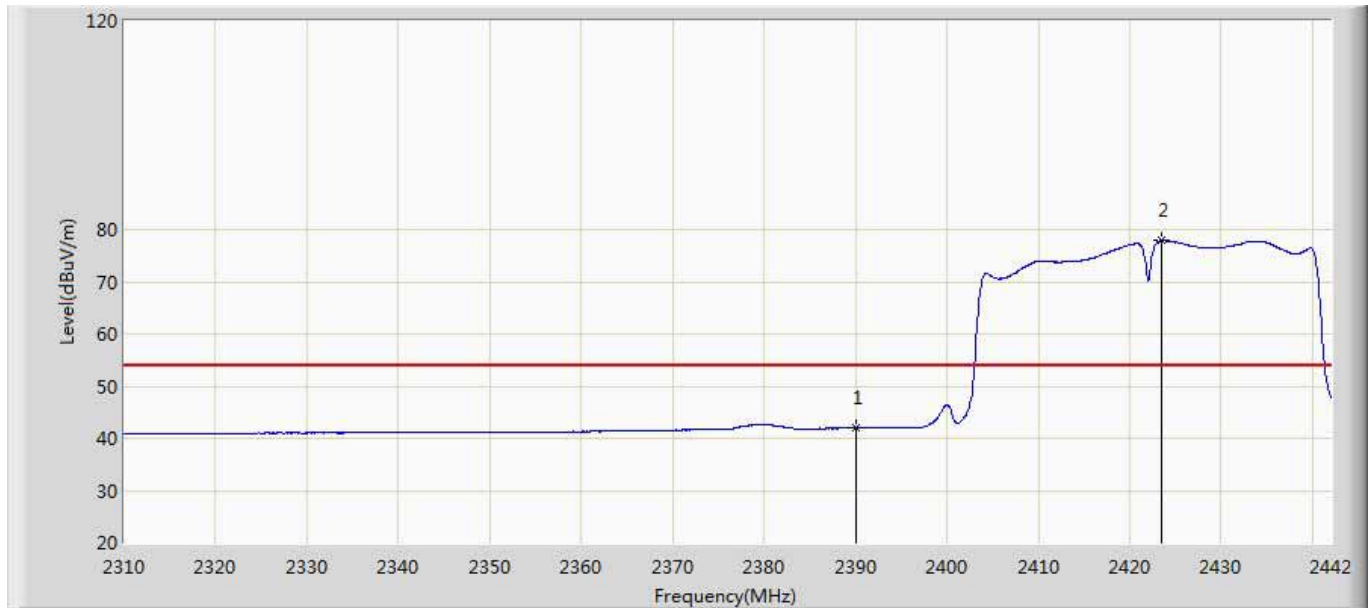
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.848	15.857	-1.152	54.000	36.991	AV
2	*	2420.418	92.092	54.992	38.092	54.000	37.100	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 15:42
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 Ant:2	



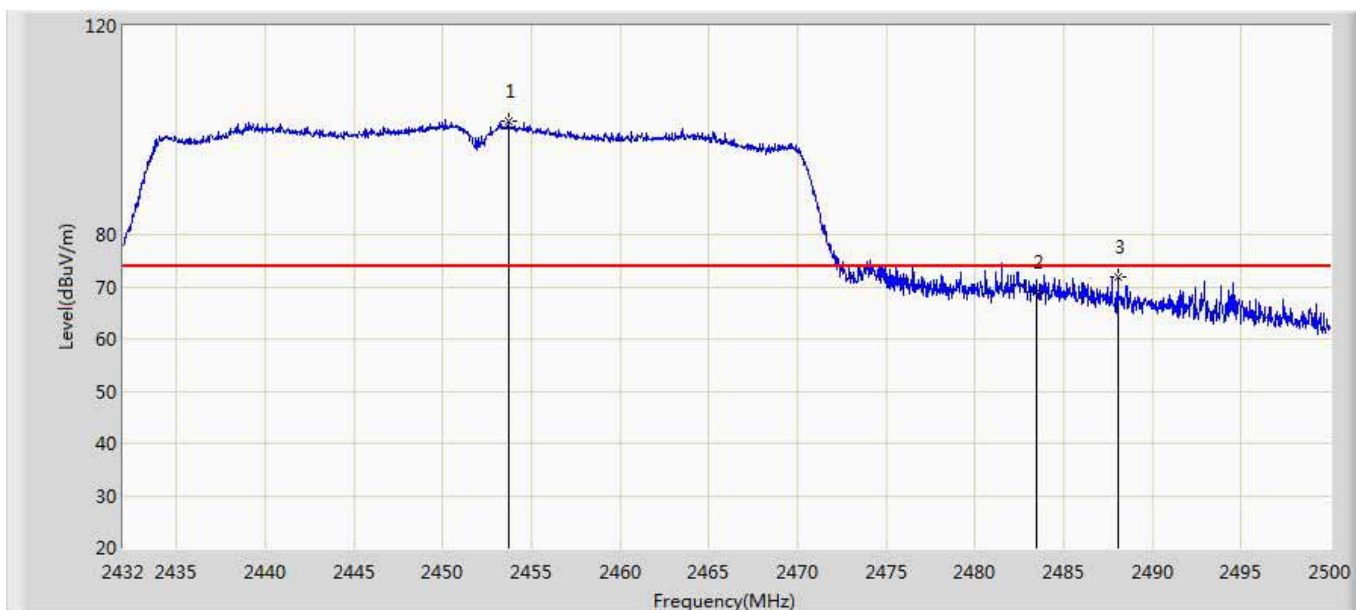
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2388.738	57.962	20.974	-16.038	74.000	36.988	PK
2		2390.000	53.073	16.082	-20.927	74.000	36.991	PK
3	*	2434.344	86.707	49.526	12.707	74.000	37.181	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 15:43
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 4:Transmit at 2422Mhz by 802.11n40 Ant:2	



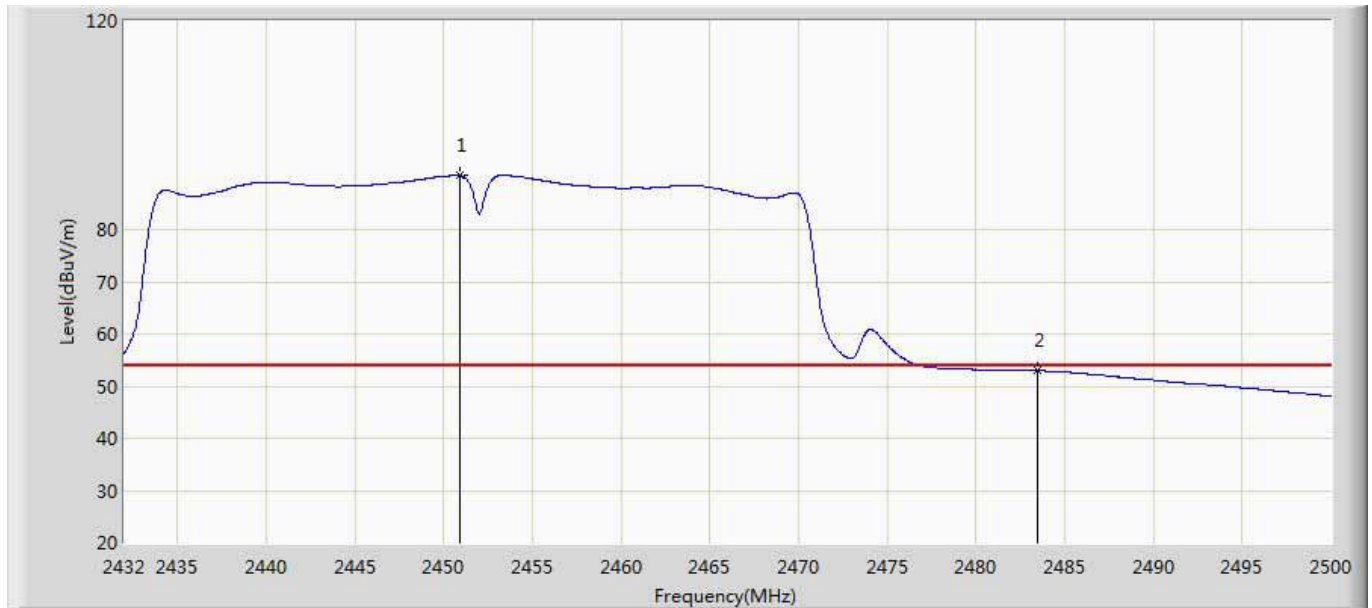
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	41.952	4.961	-12.048	54.000	36.991	AV
2	*	2423.520	77.843	40.715	23.843	54.000	37.128	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 15:54
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 4:Transmit at 2452Mhz by 802.11n40 Ant:1	



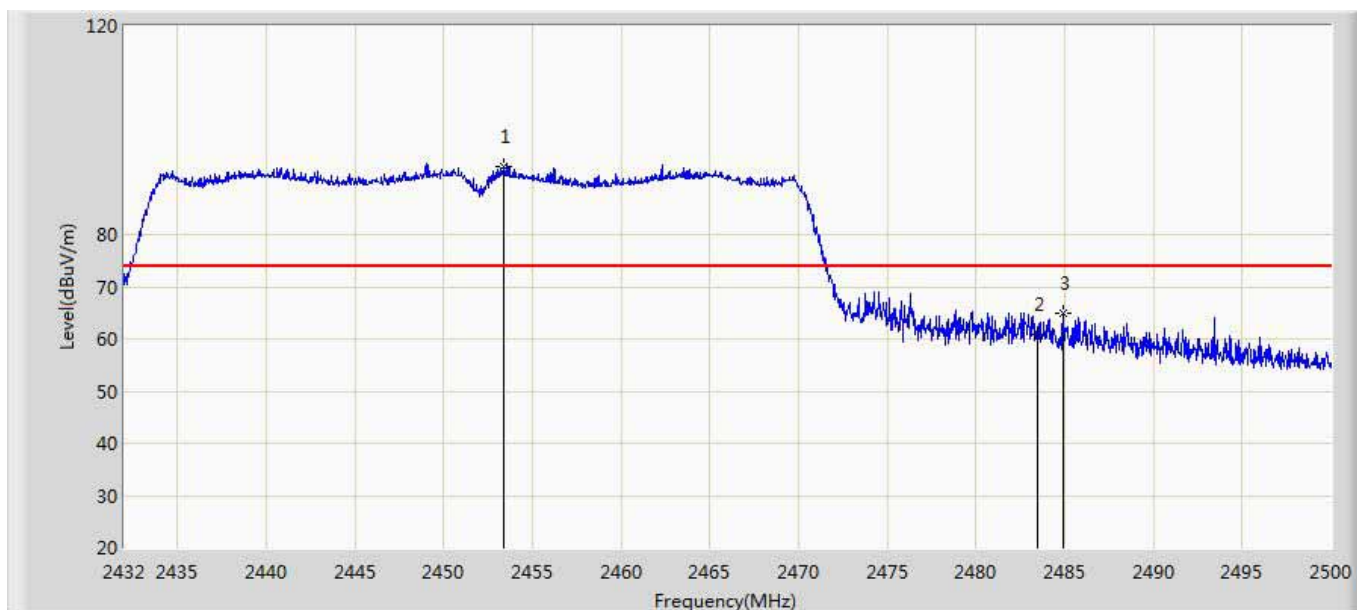
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.692	101.774	64.558	27.774	74.000	37.216	PK
2		2483.500	69.107	31.736	-4.893	74.000	37.371	PK
3		2488.032	71.753	34.338	-2.247	74.000	37.415	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 15:55
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 Ant:1	



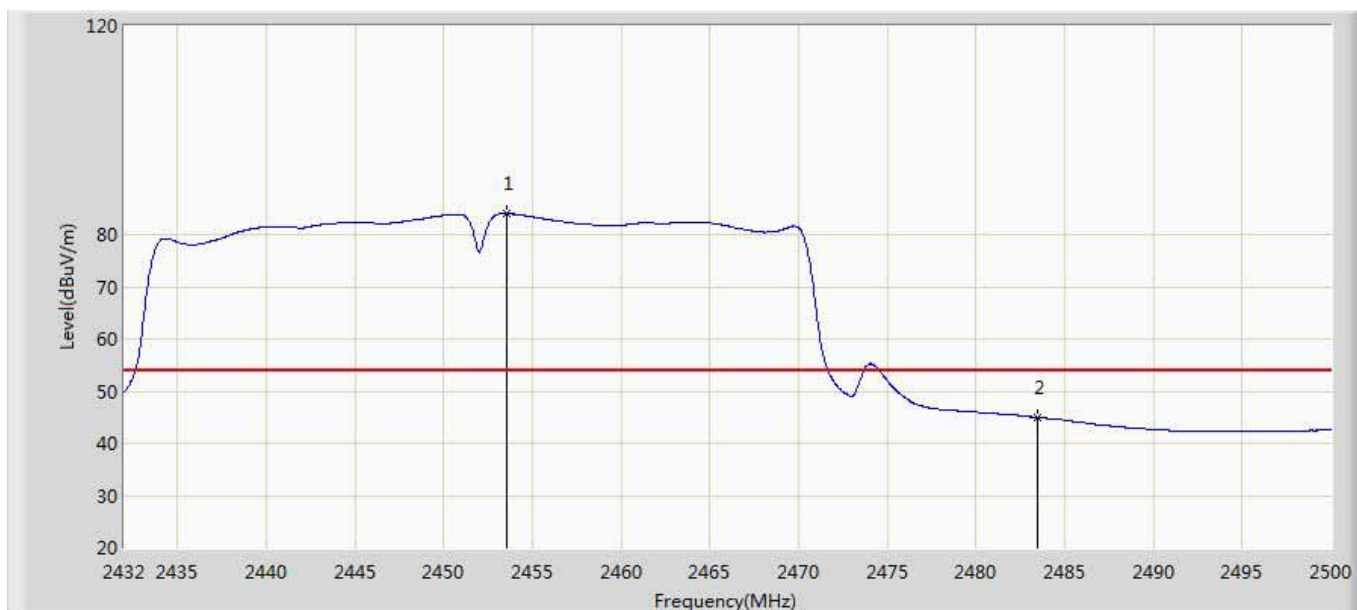
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2450.904	90.358	53.147	36.358	54.000	37.211	AV
2		2483.500	53.003	15.632	-0.997	54.000	37.371	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 15:58
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 4:Transmit at 2452Mhz by 802.11n40 Ant:1	



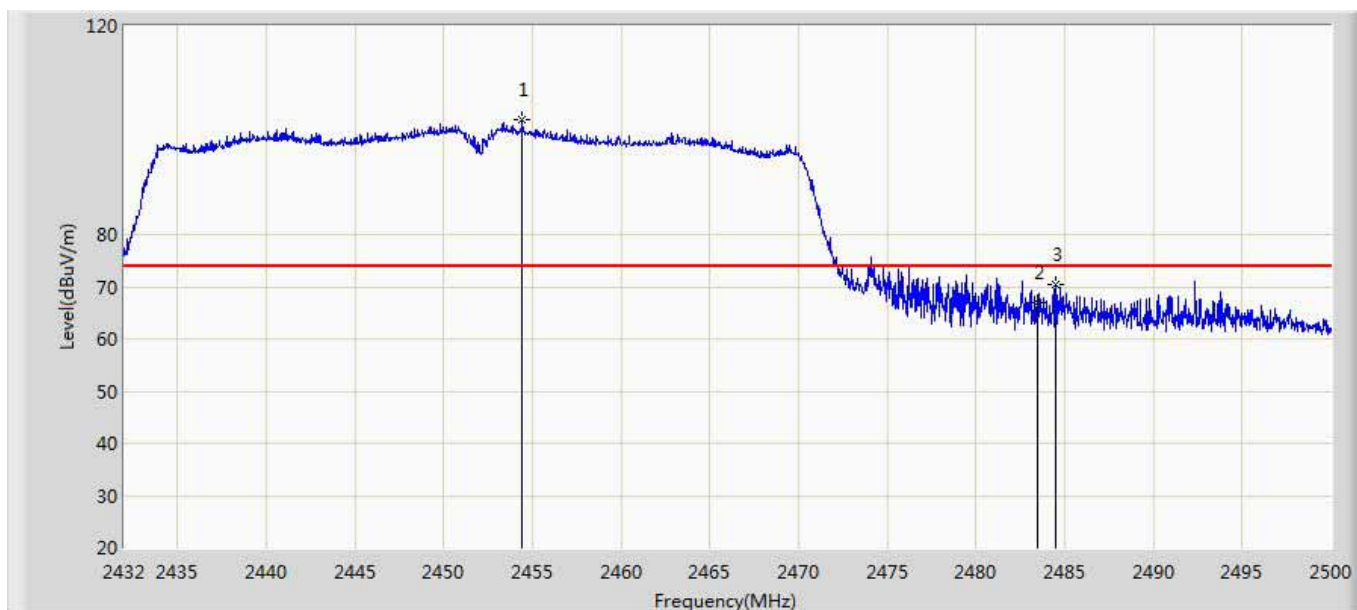
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.420	93.180	55.965	19.180	74.000	37.215	PK
2		2483.500	60.978	23.607	-13.022	74.000	37.371	PK
3		2484.904	65.059	27.674	-8.941	74.000	37.385	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 16:00
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 Ant:1	



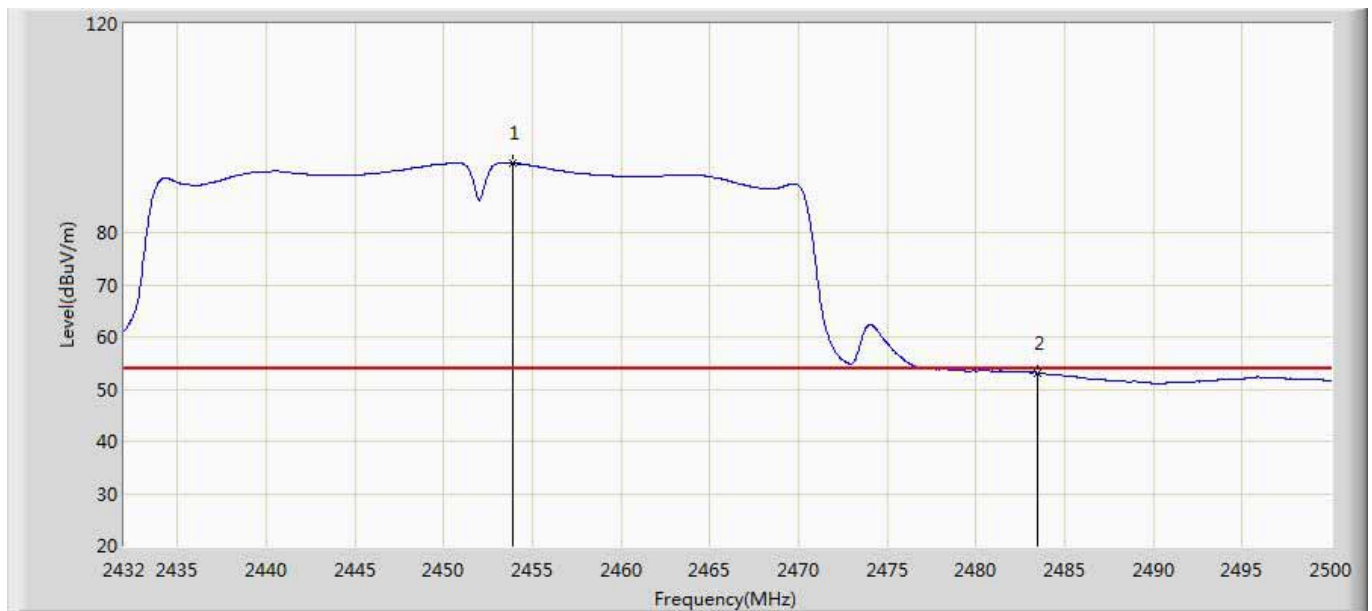
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.556	83.976	46.760	29.976	54.000	37.216	AV
2		2483.500	44.921	7.550	-9.079	54.000	37.371	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 16:03
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 Ant:2	



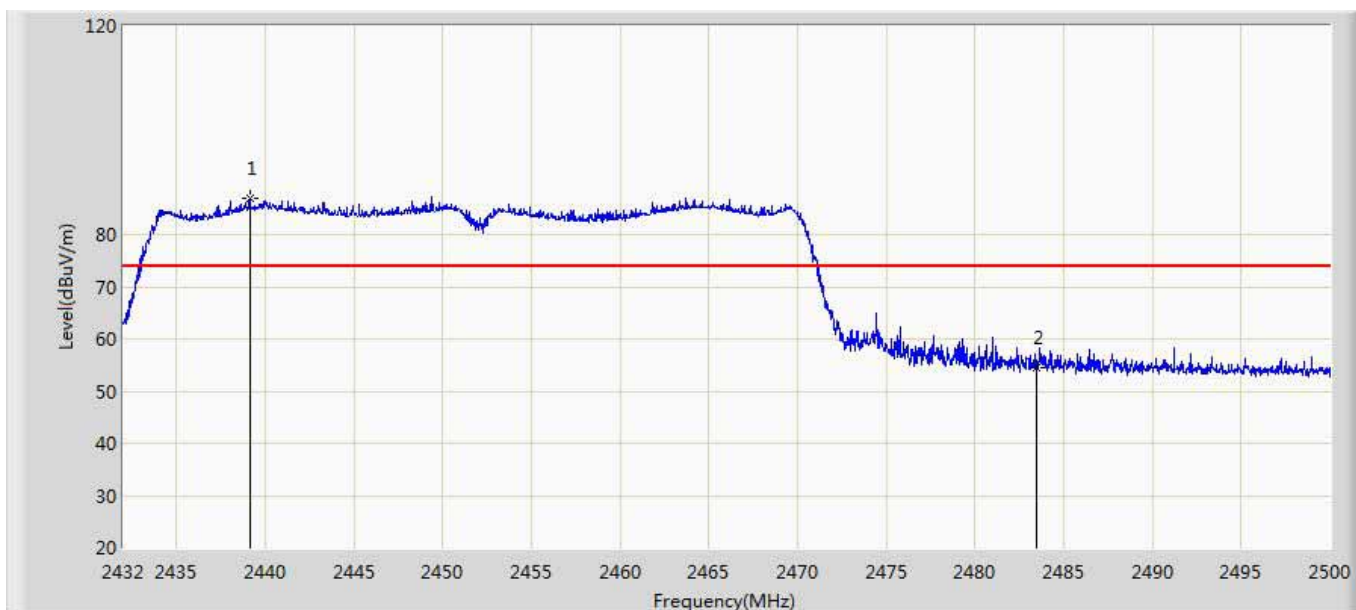
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2454.440	101.935	64.718	27.935	74.000	37.217	PK
2		2483.500	66.982	29.611	-7.018	74.000	37.371	PK
3		2484.530	70.355	32.974	-3.645	74.000	37.381	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 16:32
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 Ant:2	



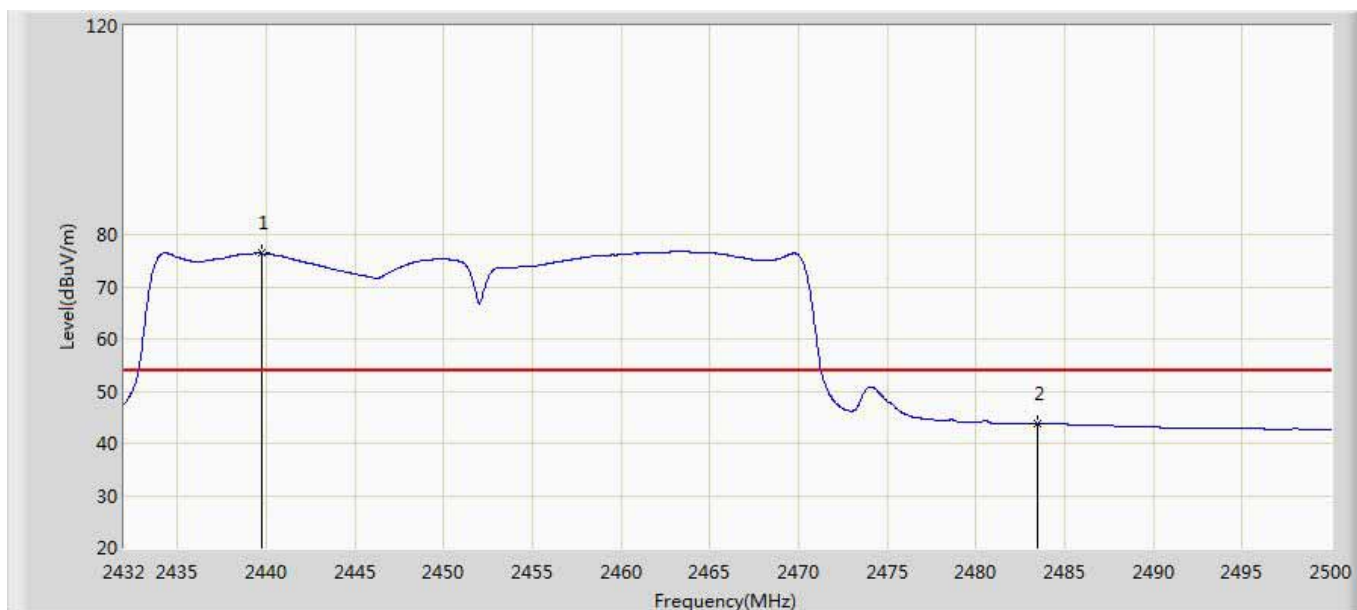
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2453.896	93.258	56.042	39.258	54.000	37.216	AV
2		2483.500	53.135	15.764	-0.865	54.000	37.371	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 16:36
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 Ant:2	



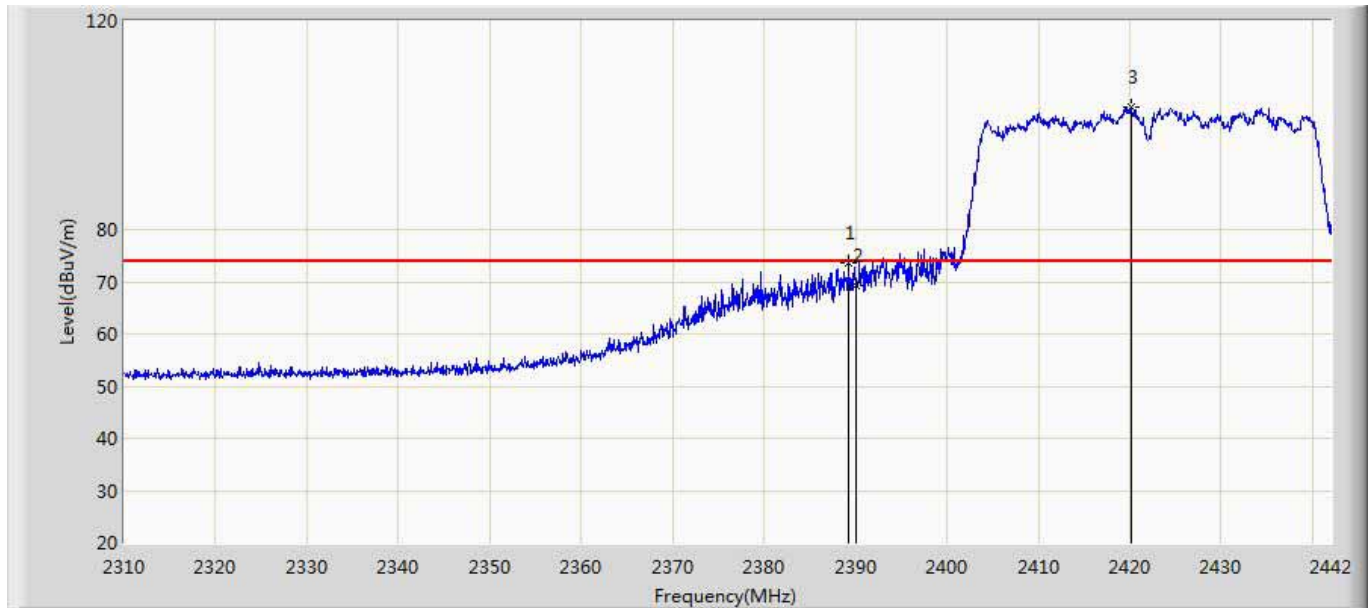
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2439.140	87.083	49.893	13.083	74.000	37.190	PK
2		2483.500	54.506	17.135	-19.494	74.000	37.371	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 16:37
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 4:Transmit at 2452Mhz by 802.11n40 Ant:2	



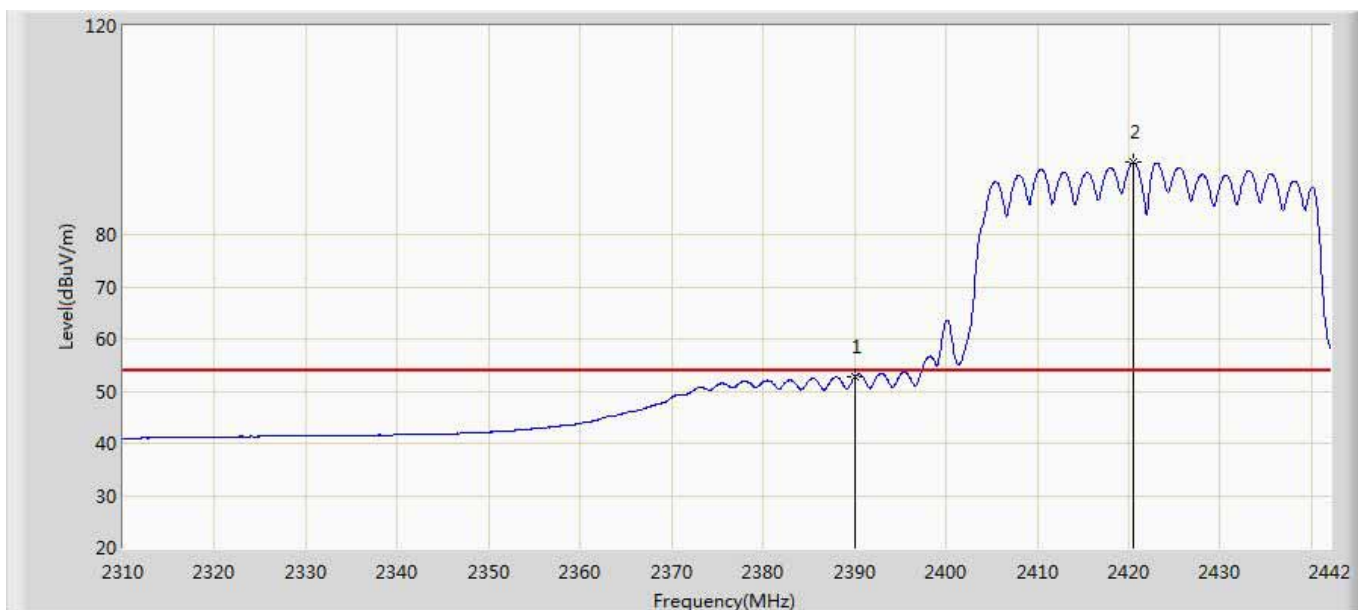
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2439.718	76.391	39.200	22.391	54.000	37.191	AV
2		2483.500	43.817	6.446	-10.183	54.000	37.371	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 16:42
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 4:Transmit at 2422Mhz by 802.11n40 Ant:1+2	



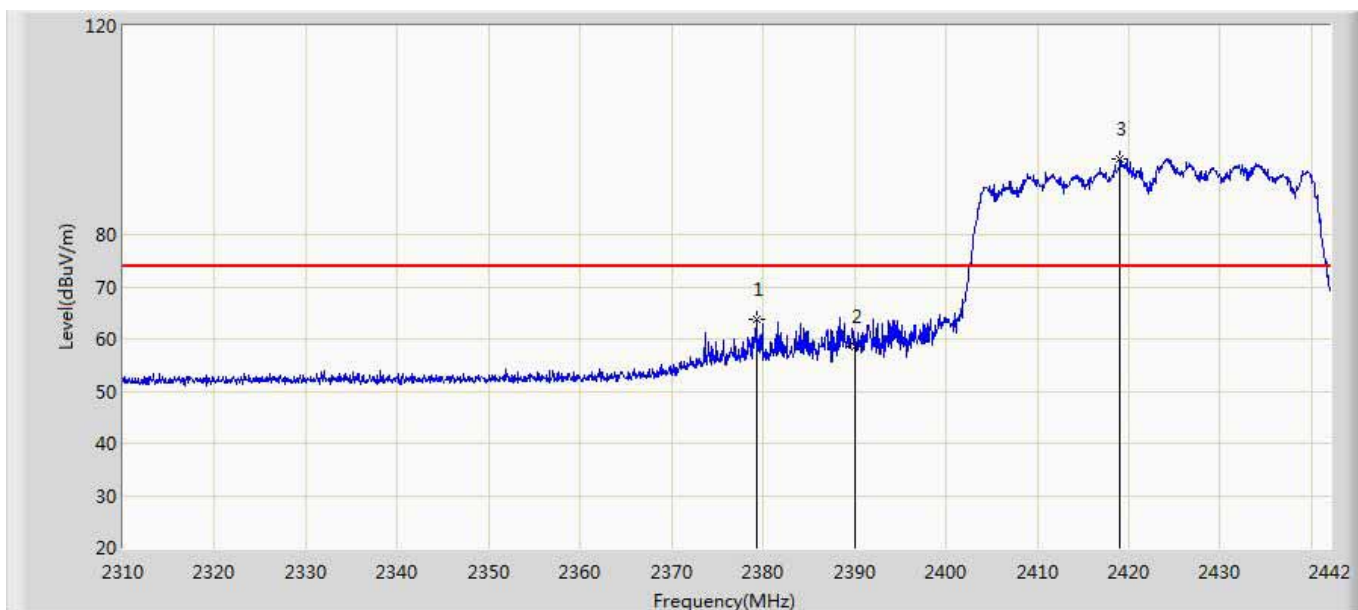
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2389.266	73.534	36.544	-0.466	74.000	36.989	PK
2		2390.000	69.164	32.173	-4.836	74.000	36.991	PK
3	*	2420.154	103.442	66.344	29.442	74.000	37.098	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 16:43
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 Ant:1+2	



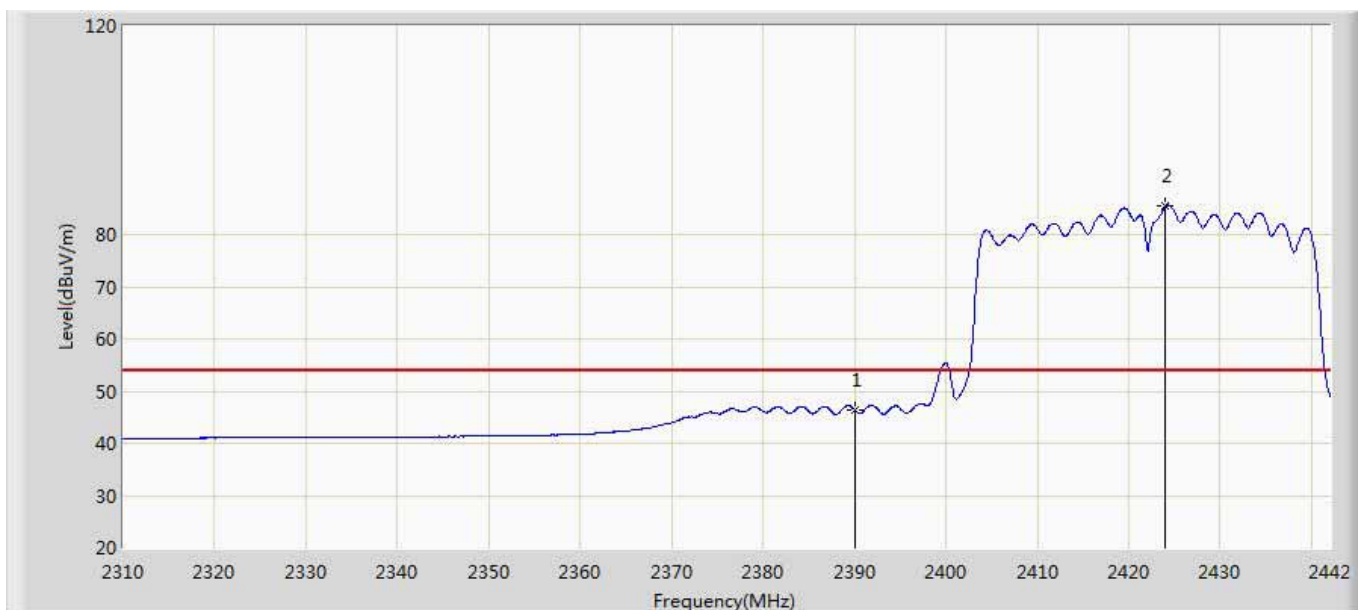
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.659	15.668	-1.341	54.000	36.991	AV
2	*	2420.418	93.806	56.706	39.806	54.000	37.100	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 16:49
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 Ant:1+2	



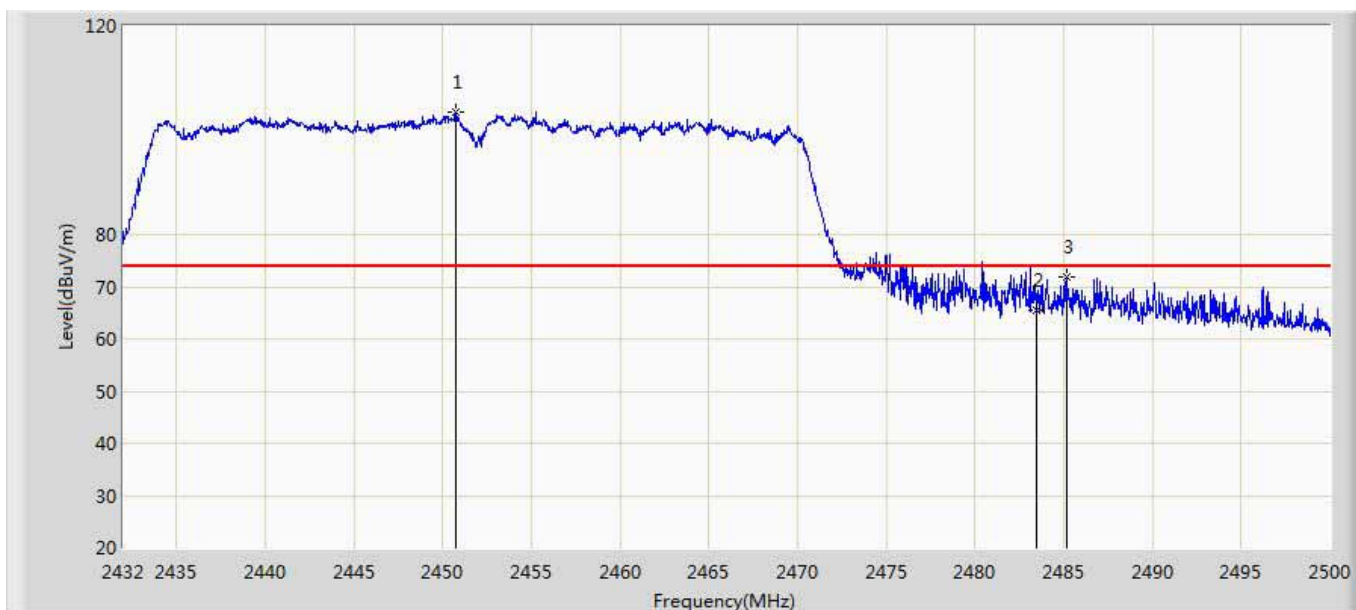
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2379.234	63.830	26.862	-10.170	74.000	36.968	PK
2		2390.000	58.522	21.531	-15.478	74.000	36.991	PK
3	*	2419.032	94.482	57.394	20.482	74.000	37.088	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 16:50
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 Ant:1+2	



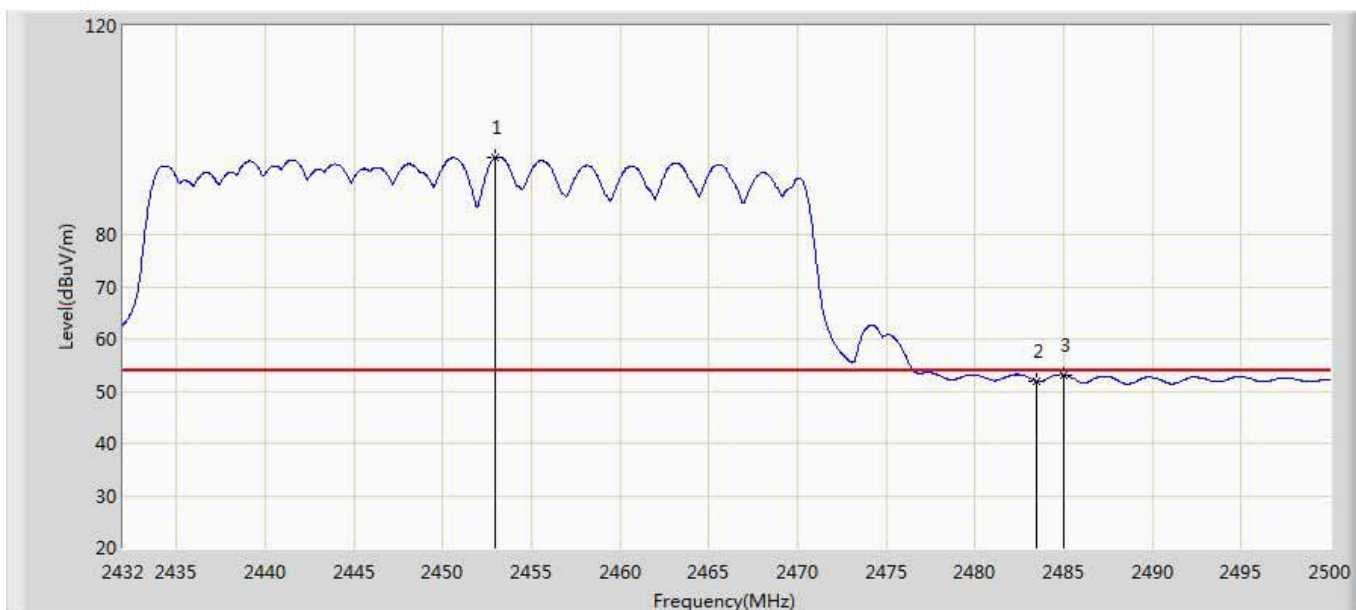
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	46.396	9.405	-7.604	54.000	36.991	AV
2	*	2424.048	85.412	48.279	31.412	54.000	37.133	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 16:55
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 Ant:1+2	



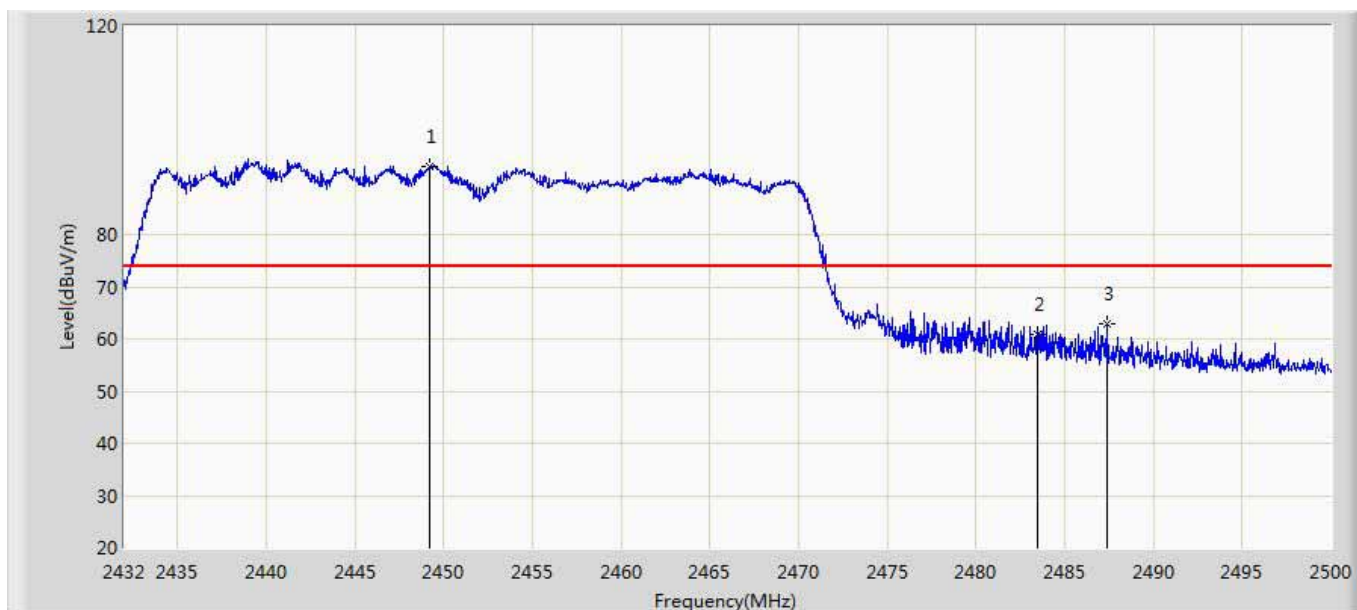
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2450.734	103.447	66.236	29.447	74.000	37.211	PK
2		2483.500	65.445	28.074	-8.555	74.000	37.371	PK
3		2485.176	71.980	34.592	-2.020	74.000	37.388	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 16:57
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 Ant:1+2	



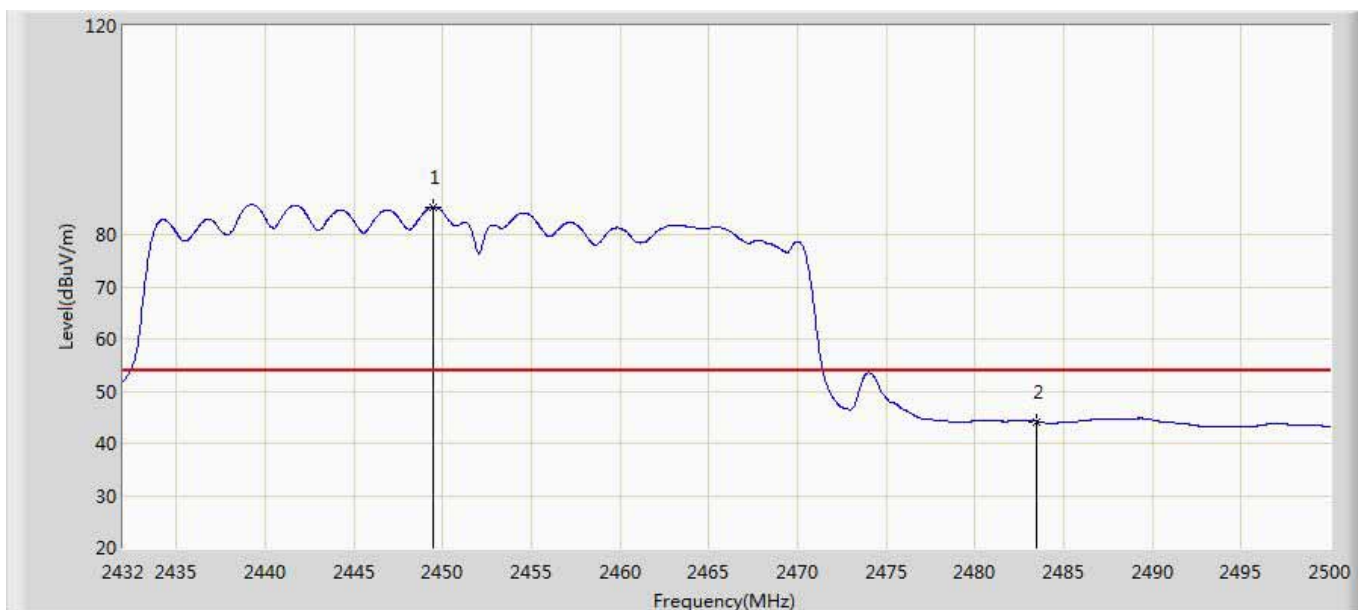
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2452.944	94.731	57.516	40.731	54.000	37.215	AV
2		2483.500	51.928	14.557	-2.072	54.000	37.371	AV
3		2484.972	53.149	15.763	-0.851	54.000	37.386	AV

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 17:00
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 Ant:1+2	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2449.238	93.148	55.940	19.148	74.000	37.208	PK
2		2483.500	61.009	23.638	-12.991	74.000	37.371	PK
3		2487.420	62.843	25.434	-11.157	74.000	37.410	PK

Engineer: Scott	
Site: AC5	Time: 2015/08/17 - 17:01
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 4:Transmit at 2452Mhz by 802.11n40 Ant:1+2	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2449.510	85.273	48.064	31.273	54.000	37.209	AV
2		2483.500	44.171	6.800	-9.829	54.000	37.371	AV

7. Operation Frequency Range of 20dB Bandwidth

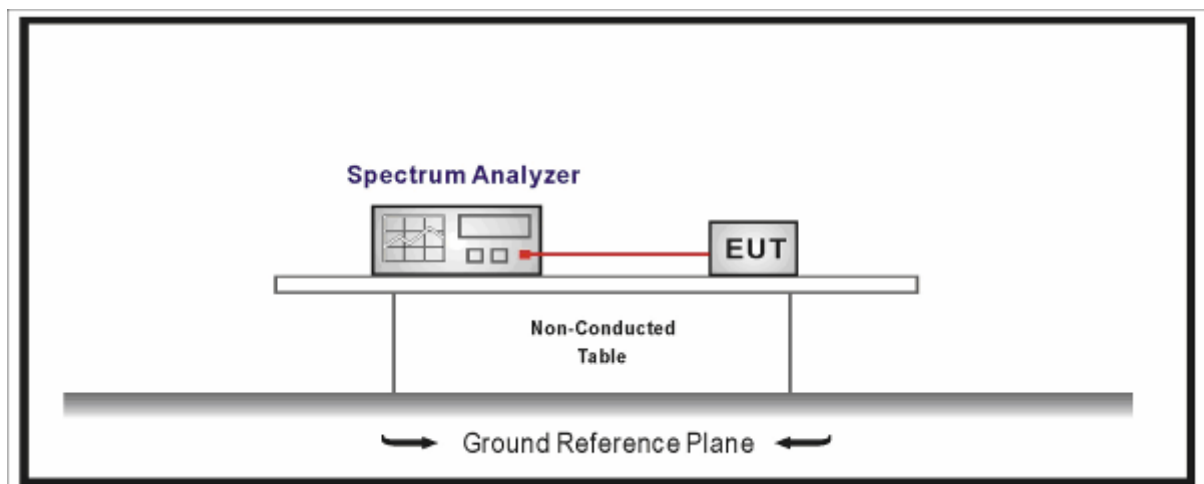
7.1. Test Equipment

Operation Frequency Range of 20dB Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.07
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.

7.2. Test Setup



7.3. Limit

20 dB bandwidth of the emission is contained within the operation frequency band.

7.4. Test Procedure

The EUT was tested according to ANSI C63.10: 2013 and RSS-Gen Issue 4 December 2010 Section 4.6.1 and 4.6.2 and RSS-247 Issue 1 December 2010 Section A8.2(1) requirements. Set RBW = 100 kHz, Span greater than RBW.

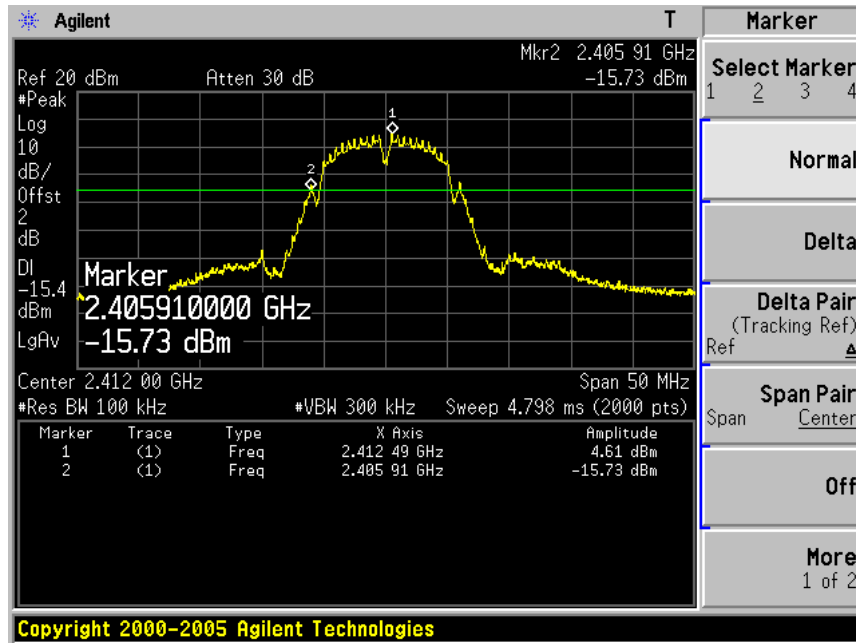
7.5. Uncertainty

The measurement uncertainty is defined as ± 1 kHz

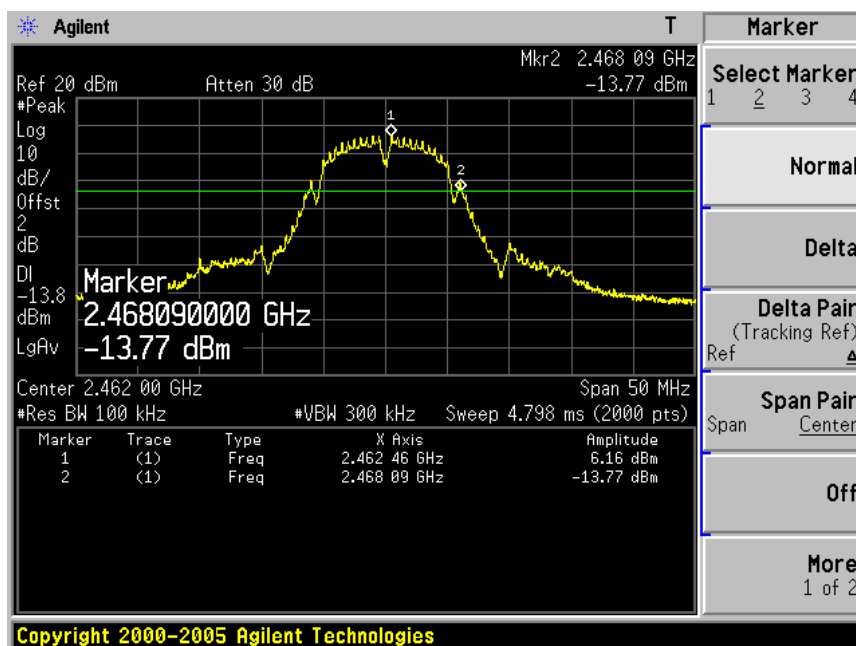
7.6. Test Result

Product	:	IP-STB
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b (Chain 1)

Channel 01 (2412MHz)

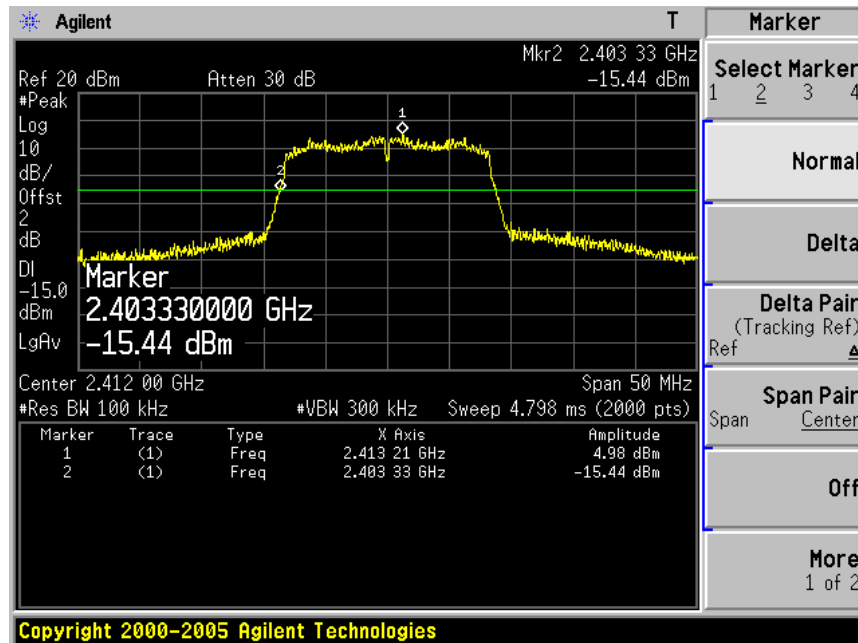


Channel 11 (2462MHz)

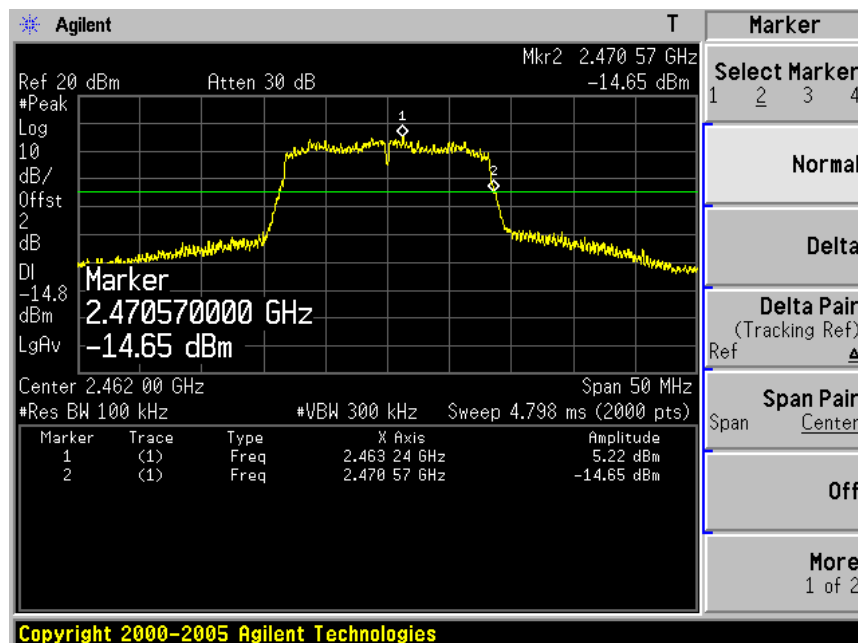


Product	:	IP-STB
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g (Chain 1)

Channel 01 (2412MHz)

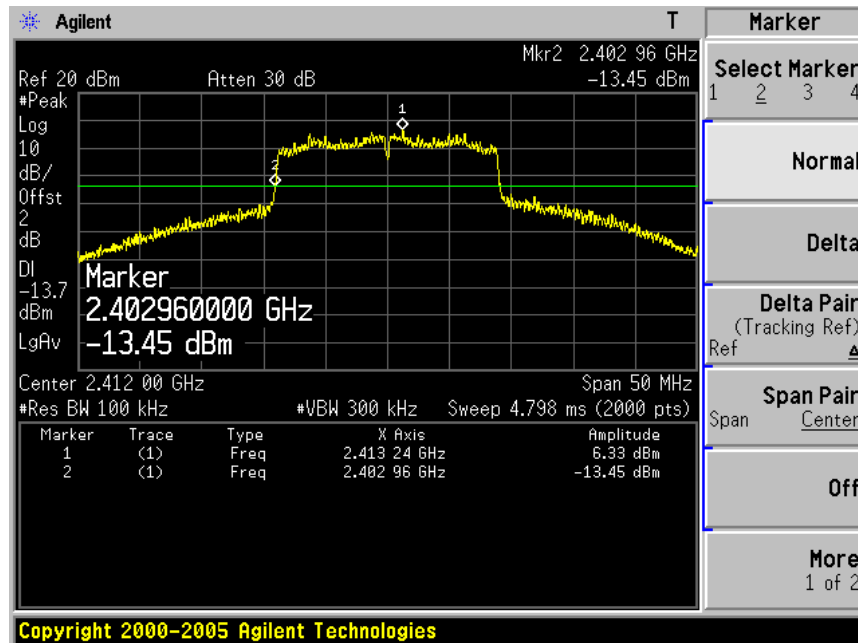


Channel 11 (2462MHz)

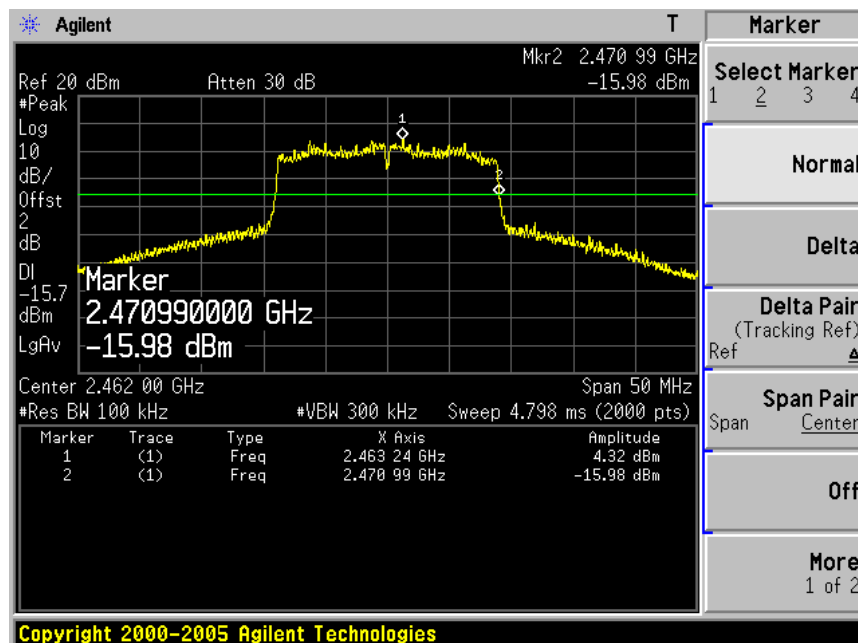


Product	:	IP-STB
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz) (Chain 1)

Channel 01 (2412MHz)

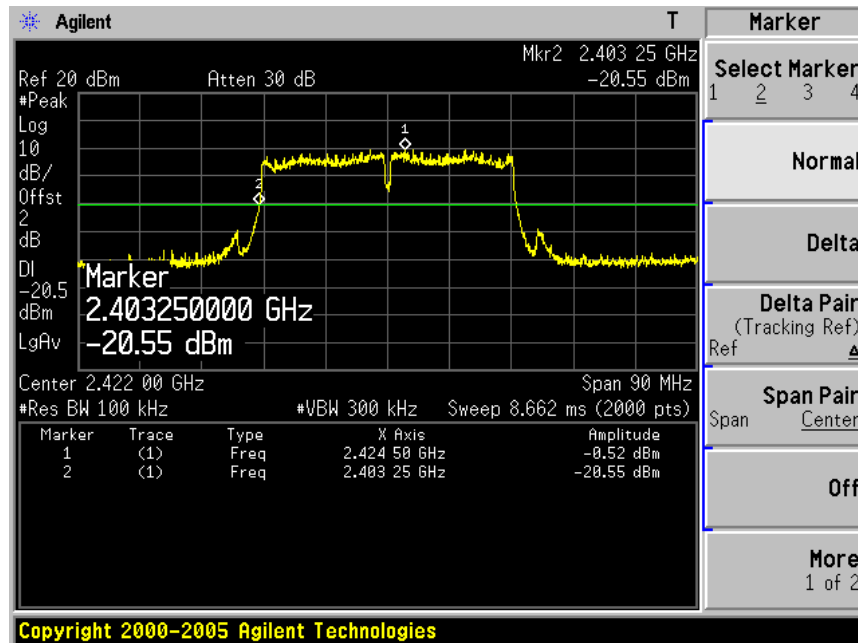


Channel 11 (2462MHz)

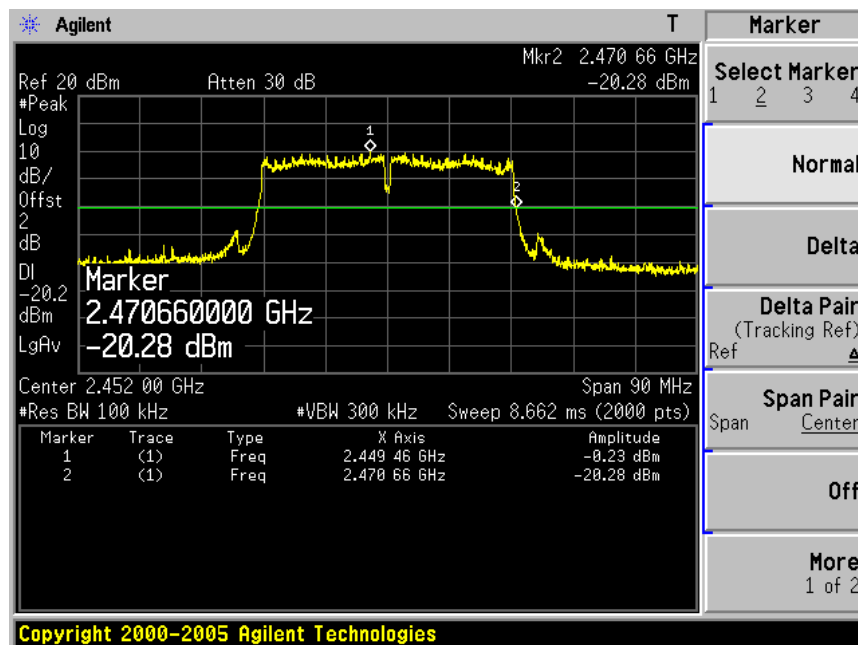


Product	:	IP-STB
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz) (Chain 1)

Channel 03 (2422MHz)

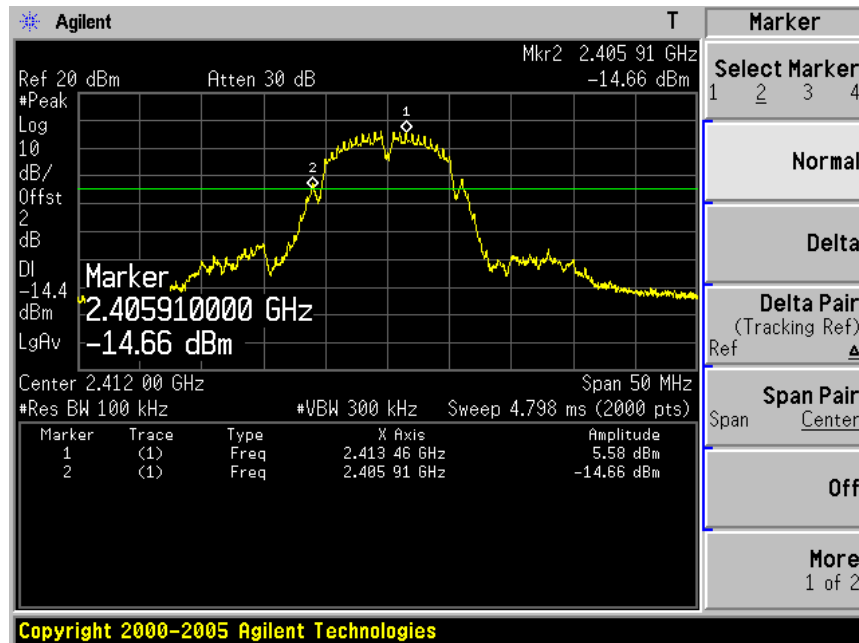


Channel 09 (2452MHz)

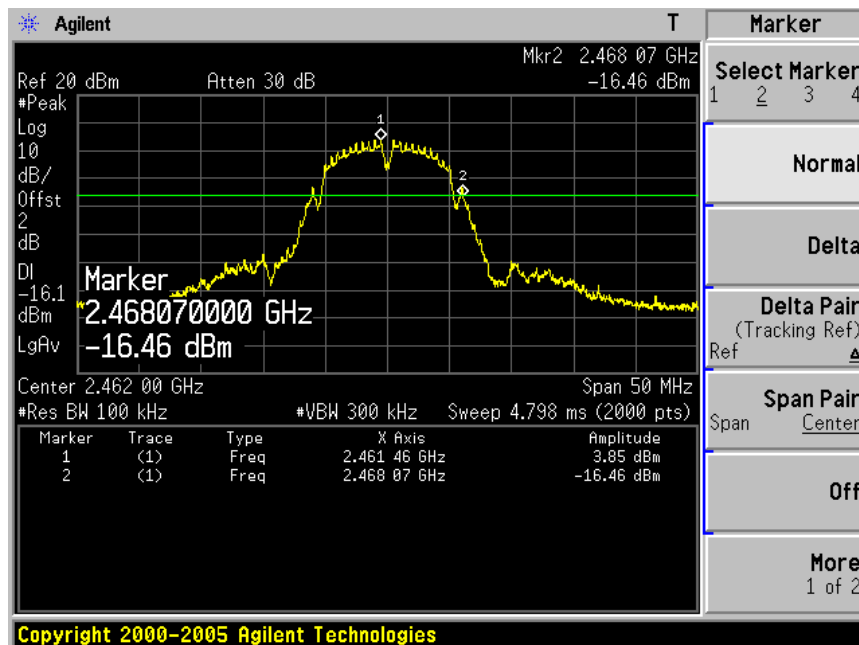


Product	:	IP-STB
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b (Chain 2)

Channel 01 (2412MHz)

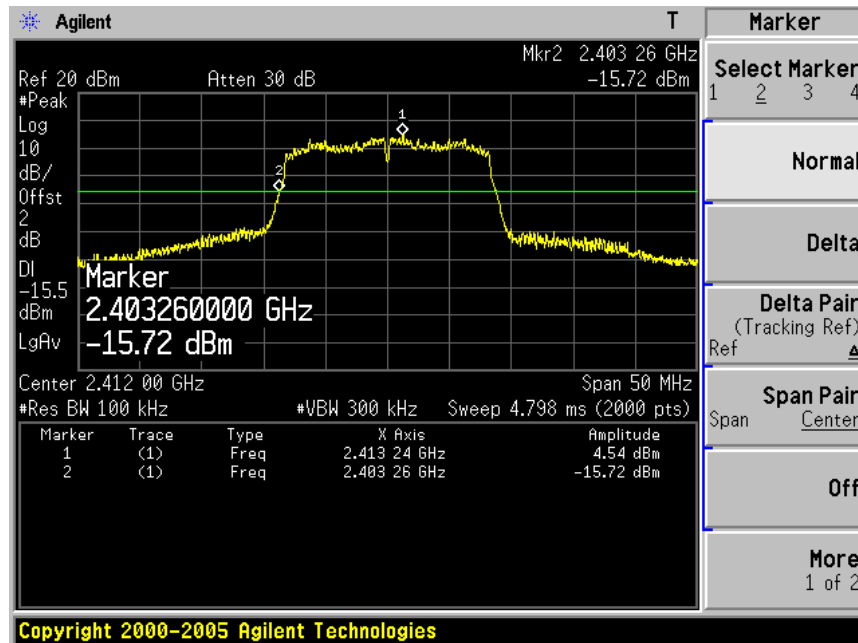


Channel 11 (2462MHz)

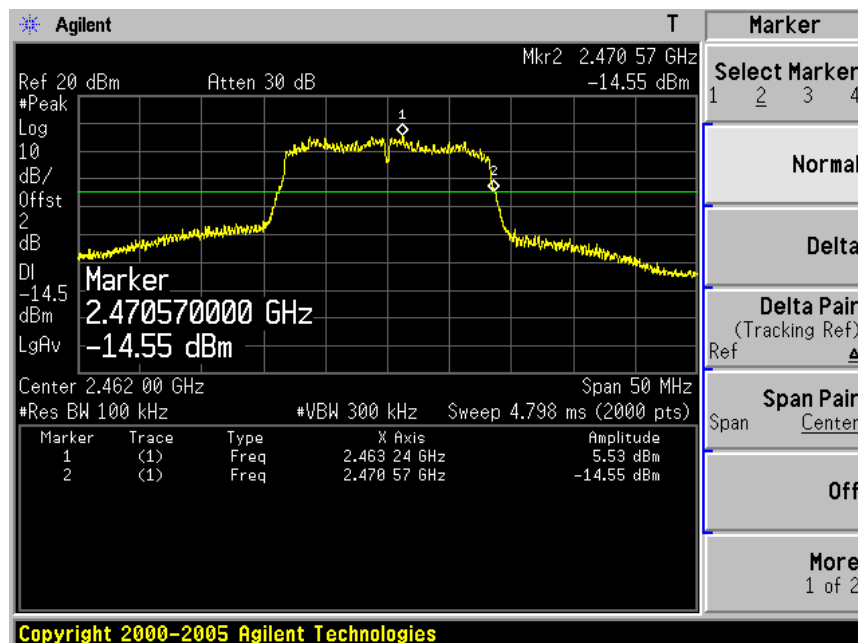


Product	:	IP-STB
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g (Chain 2)

Channel 01 (2412MHz)

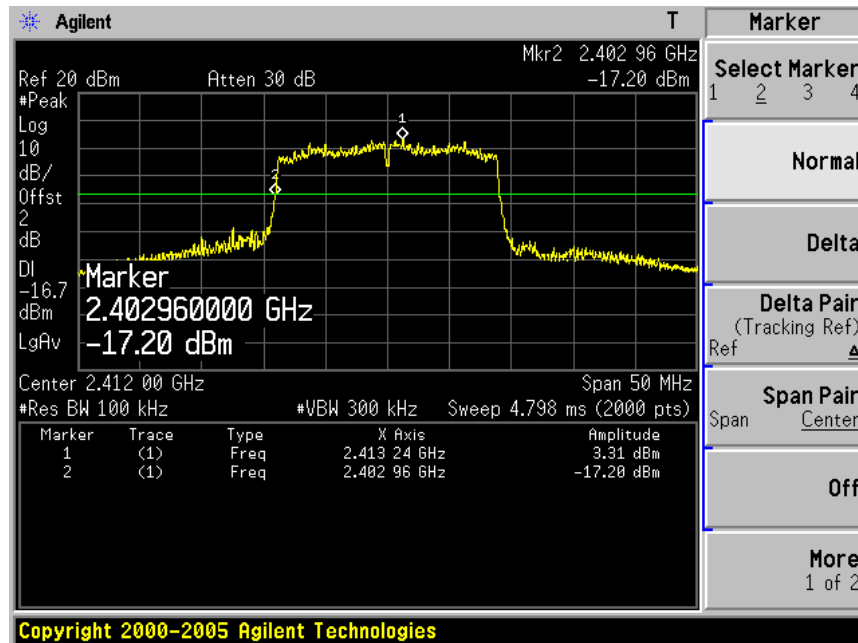


Channel 11 (2462MHz)

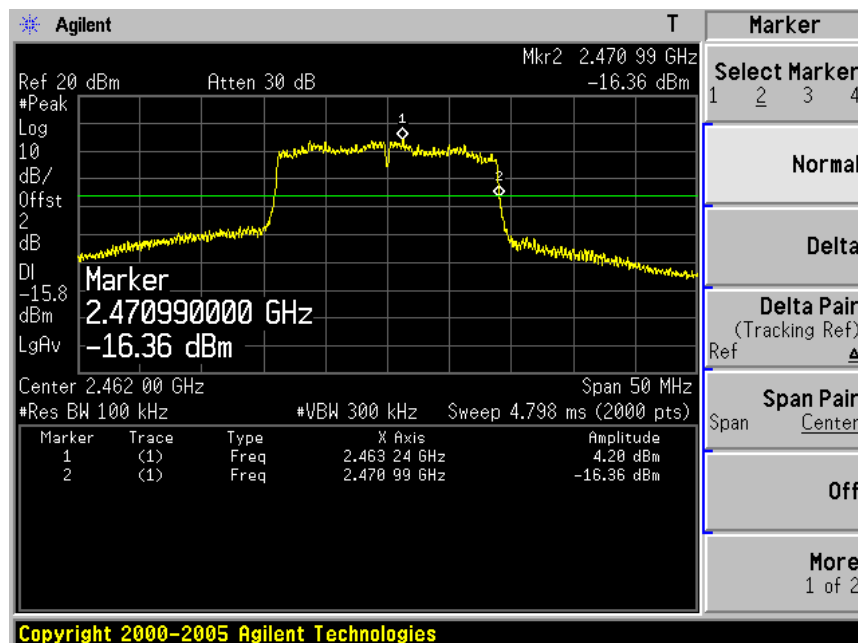


Product	:	IP-STB
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz) (Chain 2)

Channel 01 (2412MHz)

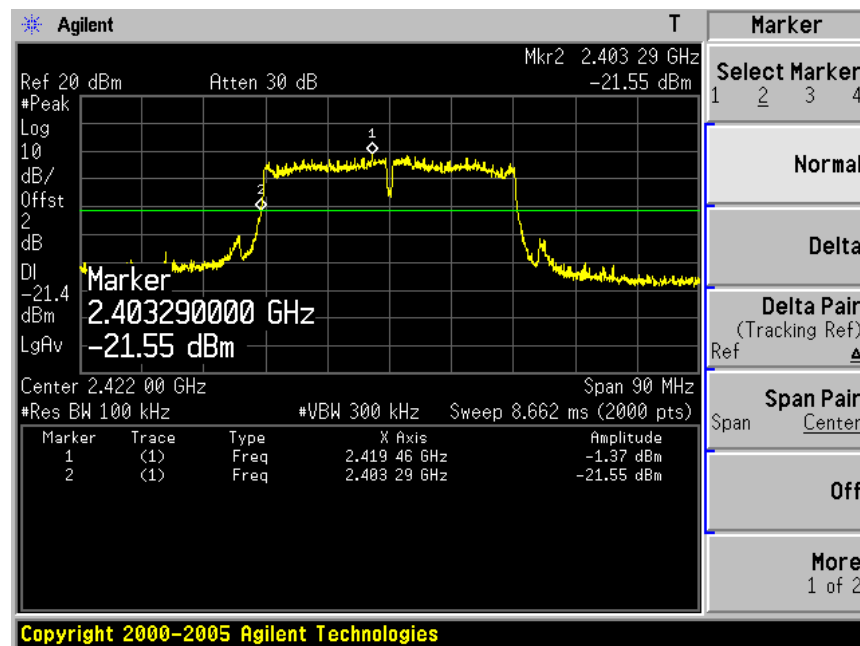


Channel 11 (2462MHz)

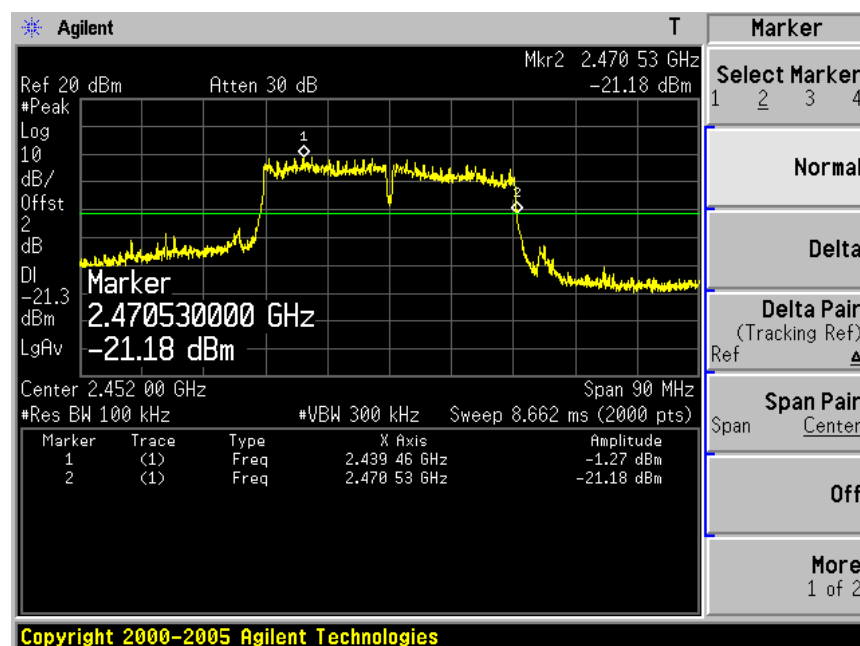


Product	:	IP-STB
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz) (Chain 2)

Channel 03 (2422MHz)



Channel 09 (2452MHz)



8. Occupied Bandwidth

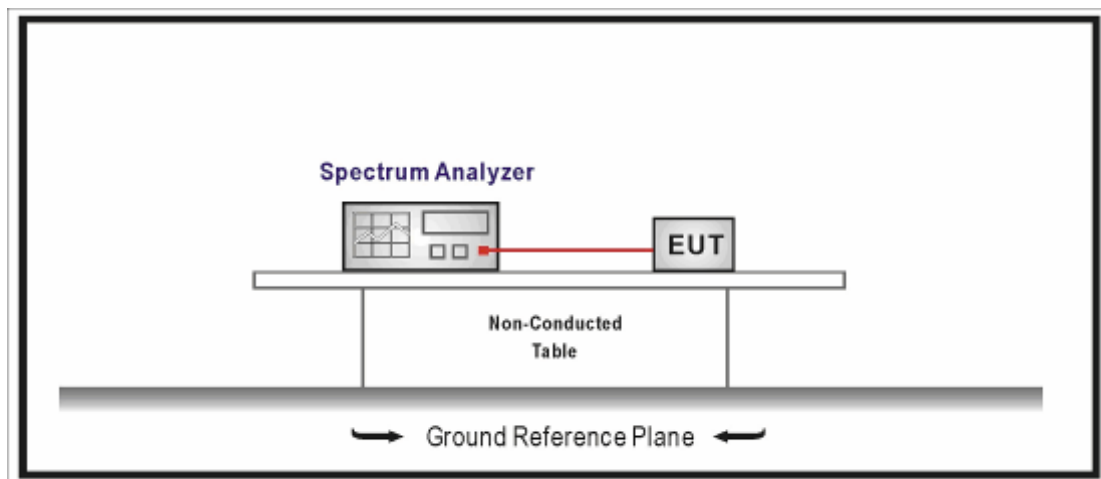
8.1. Test Equipment

Occupied Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.04.18
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2016.05.07

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

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

8.4. Test Procedure

The EUT was tested according to ANSI C63.10: 2013 and KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Span greater than RBW.

8.5. Uncertainty

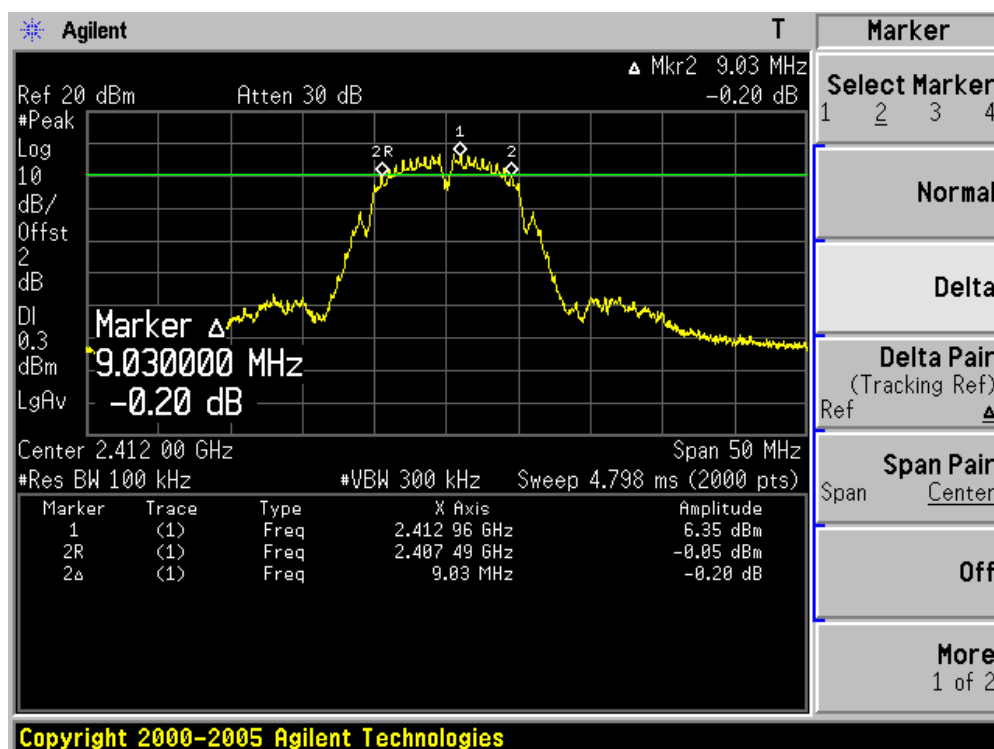
The measurement uncertainty is defined as ± 1 kHz

8.6. Test Result

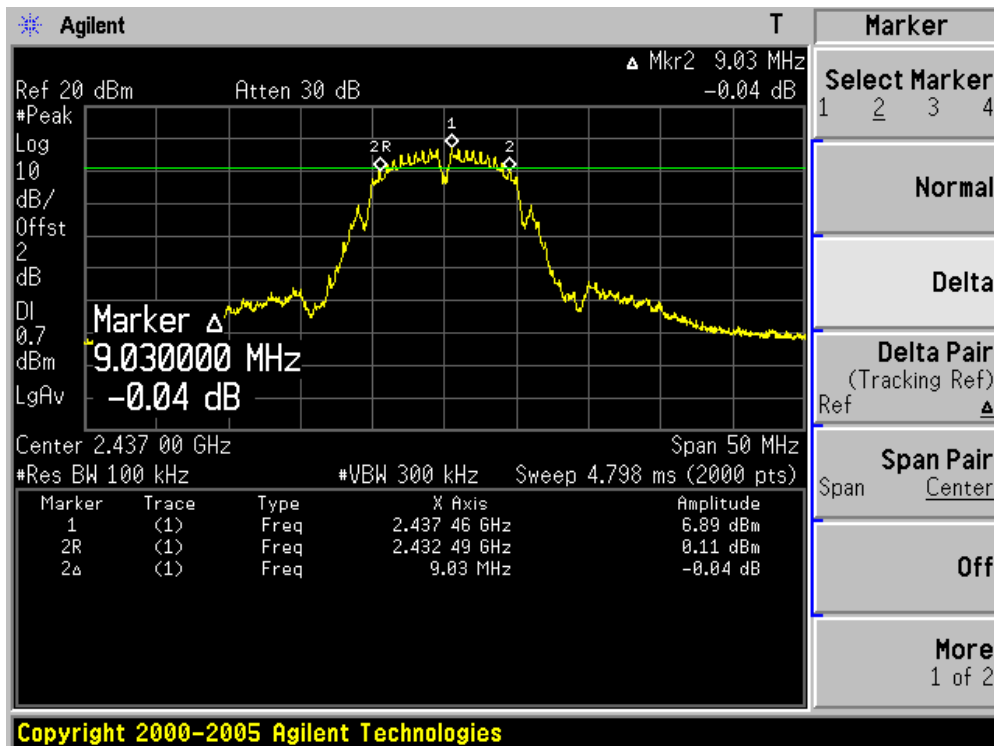
Product	:	IP-STB
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b (Chain 1)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	9030	500	Pass
06	2437	9030	500	Pass
11	2462	9000	500	Pass

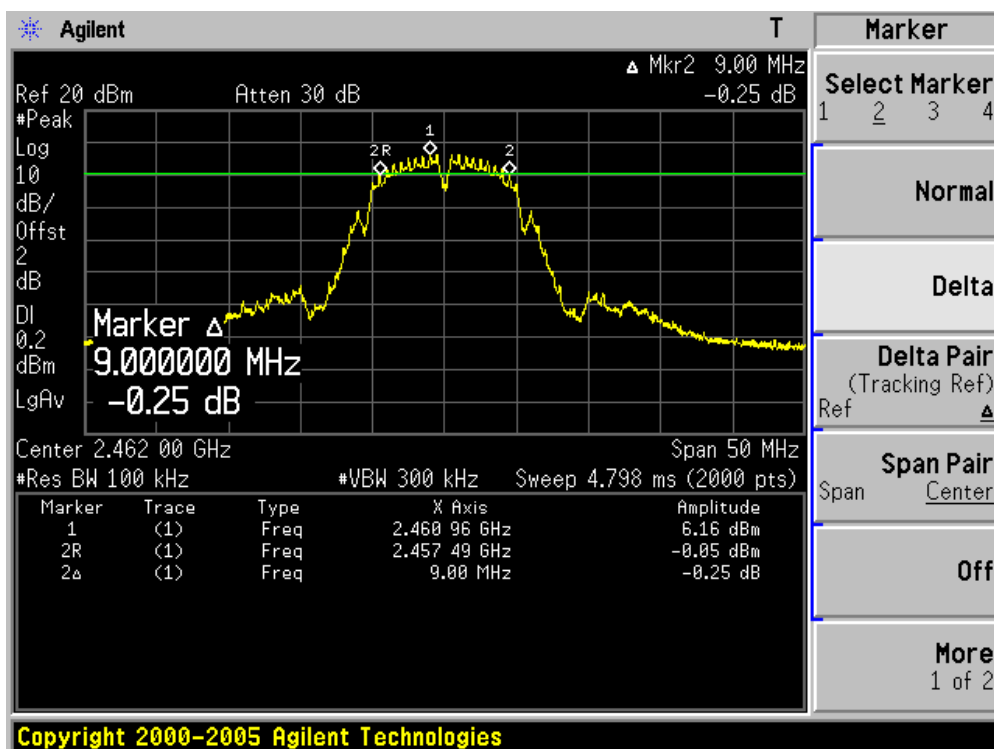
Channel 01 (2412MHz)



Channel 06 (2437MHz)



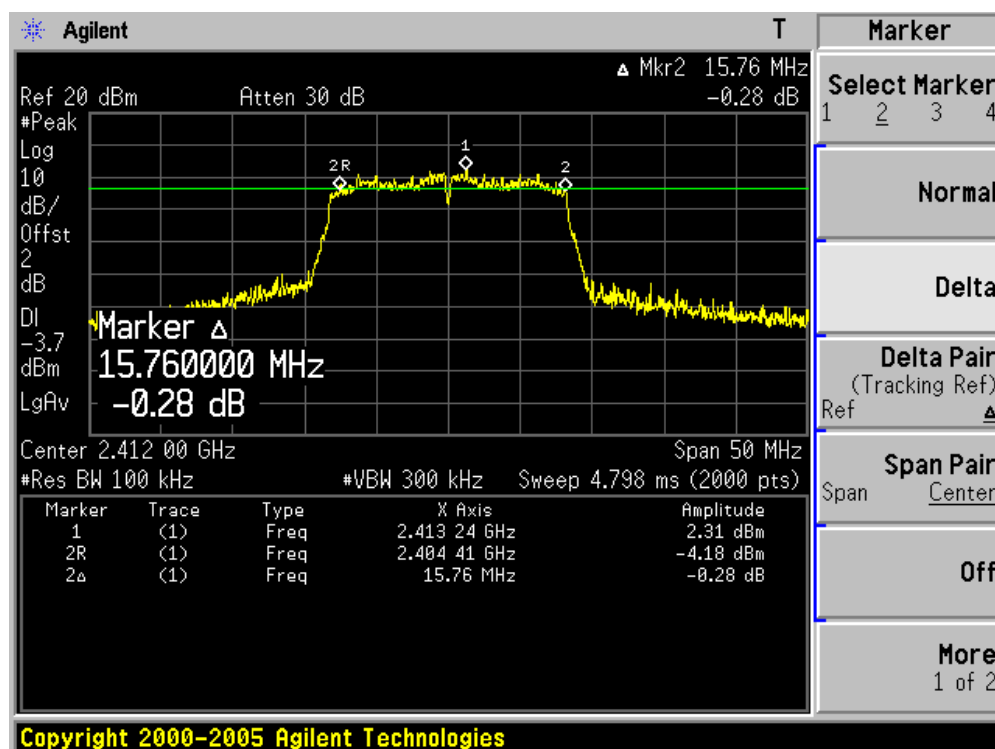
Channel 11 (2462MHz)



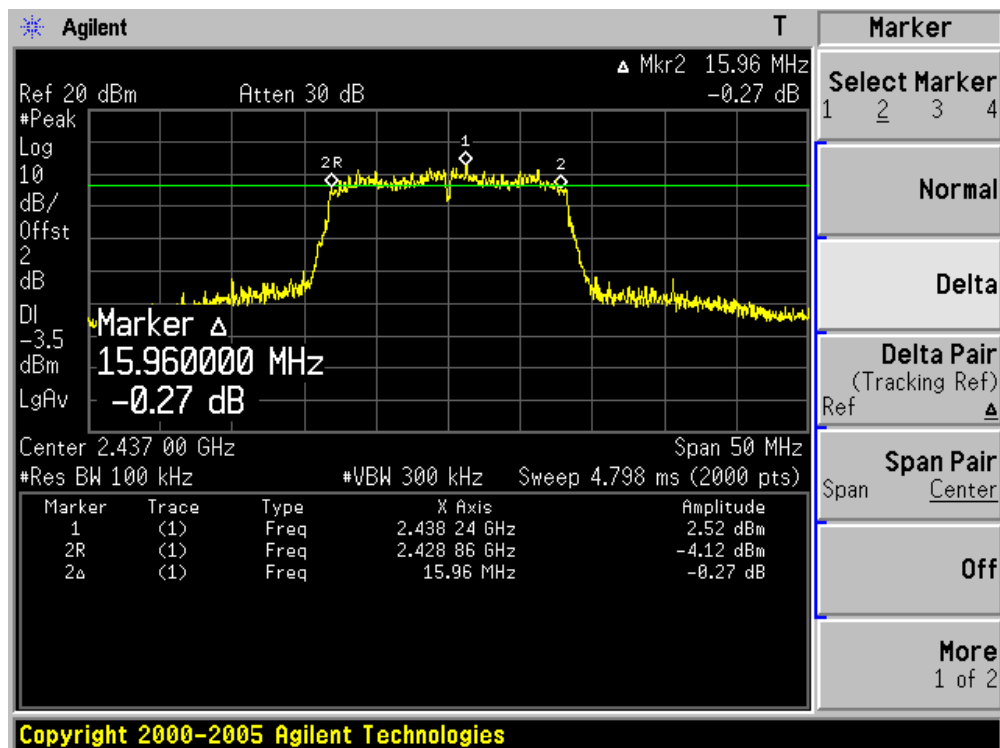
Product	:	IP-STB
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g (Chain 1)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	15760	500	Pass
06	2437	15960	500	Pass
11	2462	15930	500	Pass

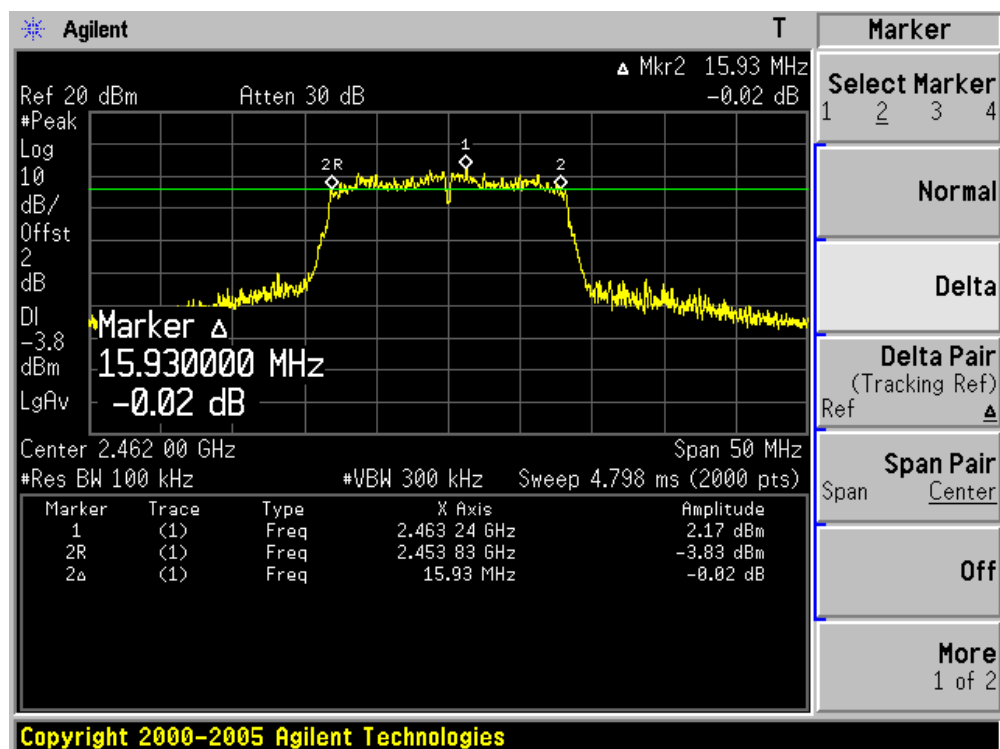
Channel 01 (2412MHz)



Channel 06 (2437MHz)



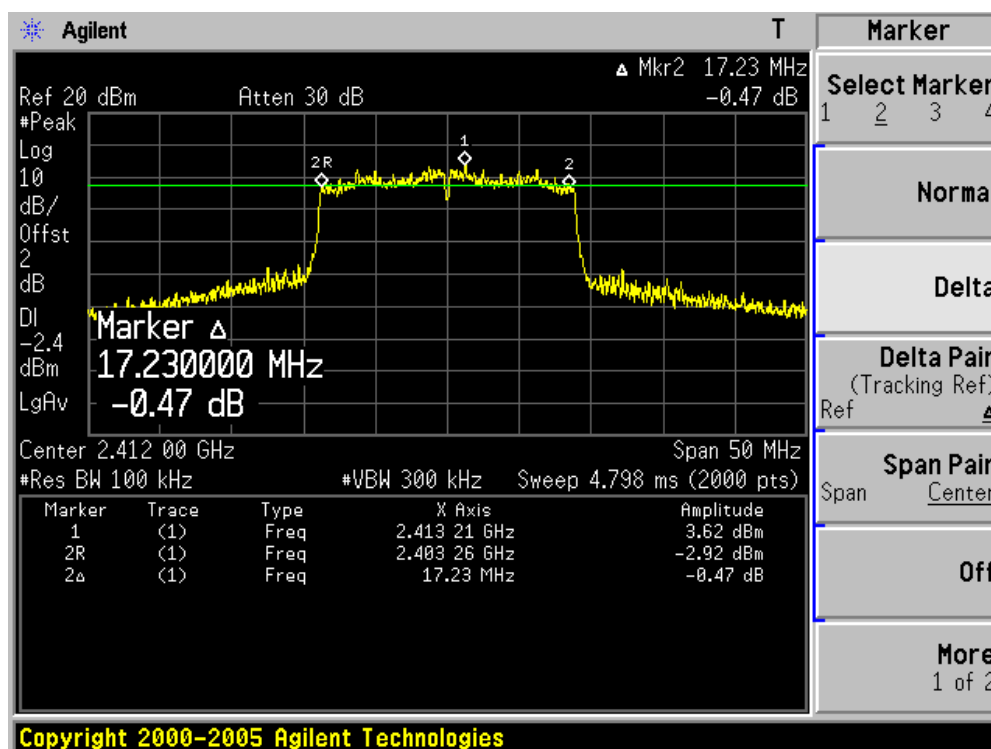
Channel 11 (2462MHz)



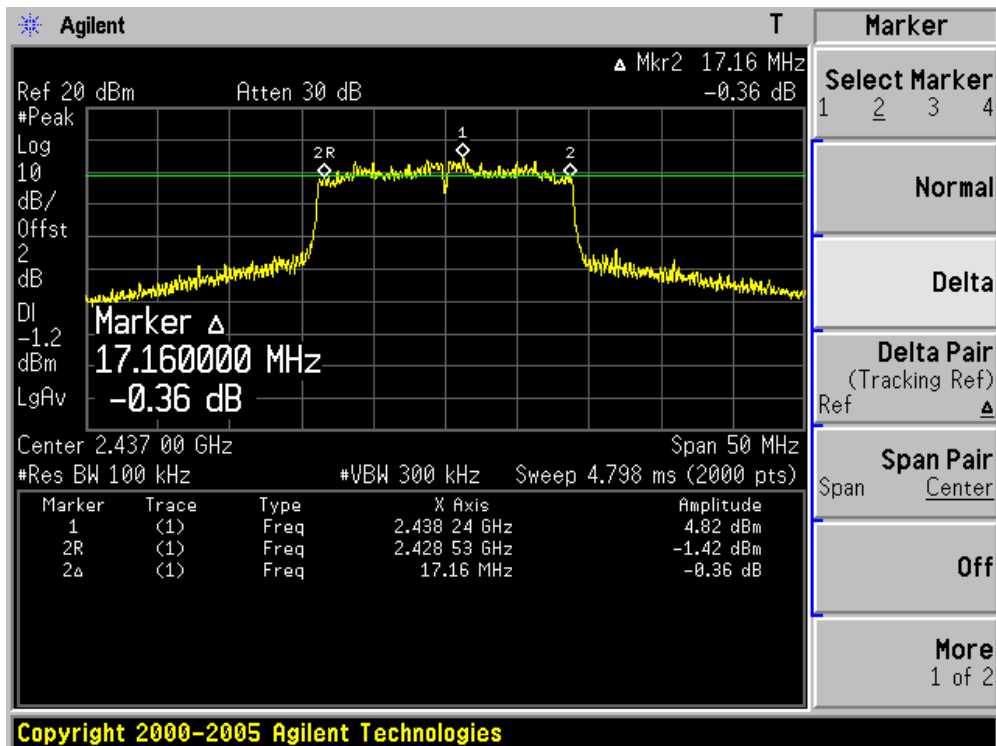
Product	:	IP-STB
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz) (Chain 1)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	17230	500	Pass
06	2437	17160	500	Pass
11	2462	17180	500	Pass

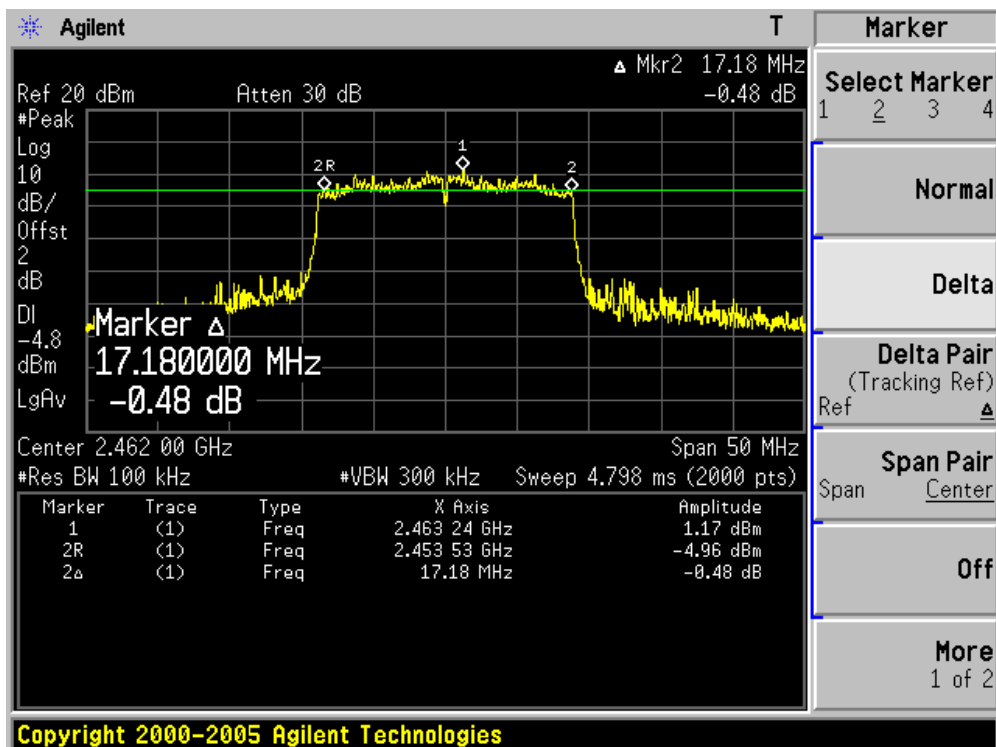
Channel 01 (2412MHz)



Channel 06 (2437MHz)



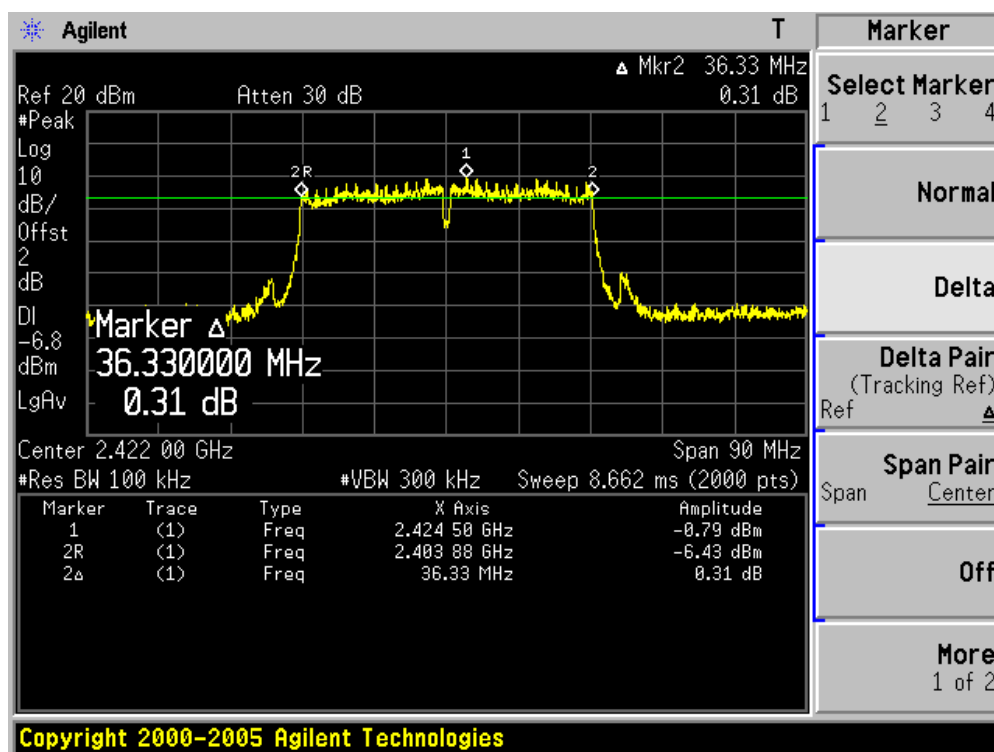
Channel 11 (2462MHz)



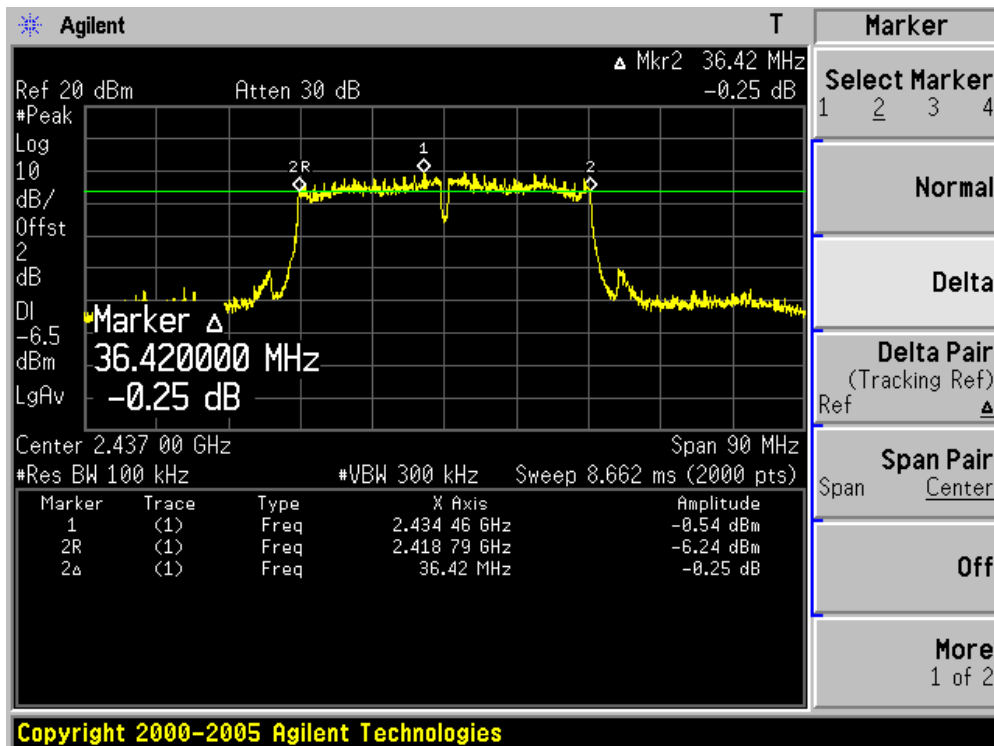
Product	:	IP-STB
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz) (Chain 1)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
03	2422	36330	500	Pass
06	2437	36420	500	Pass
09	2452	36240	500	Pass

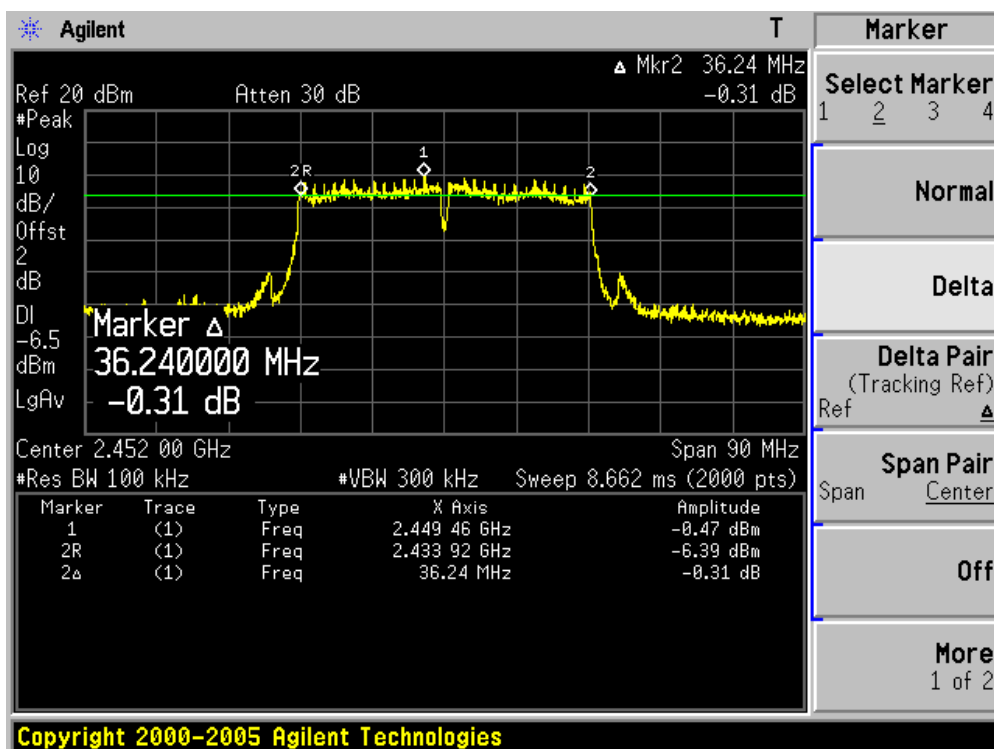
Channel 03 (2422MHz)



Channel 06 (2437MHz)



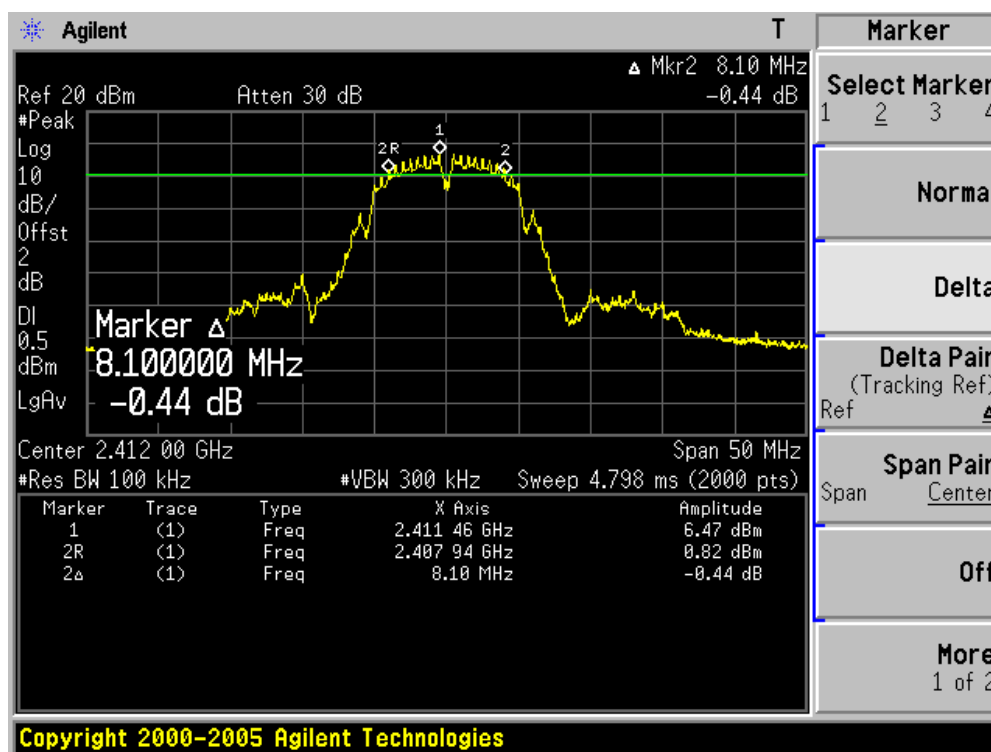
Channel 09 (2452MHz)



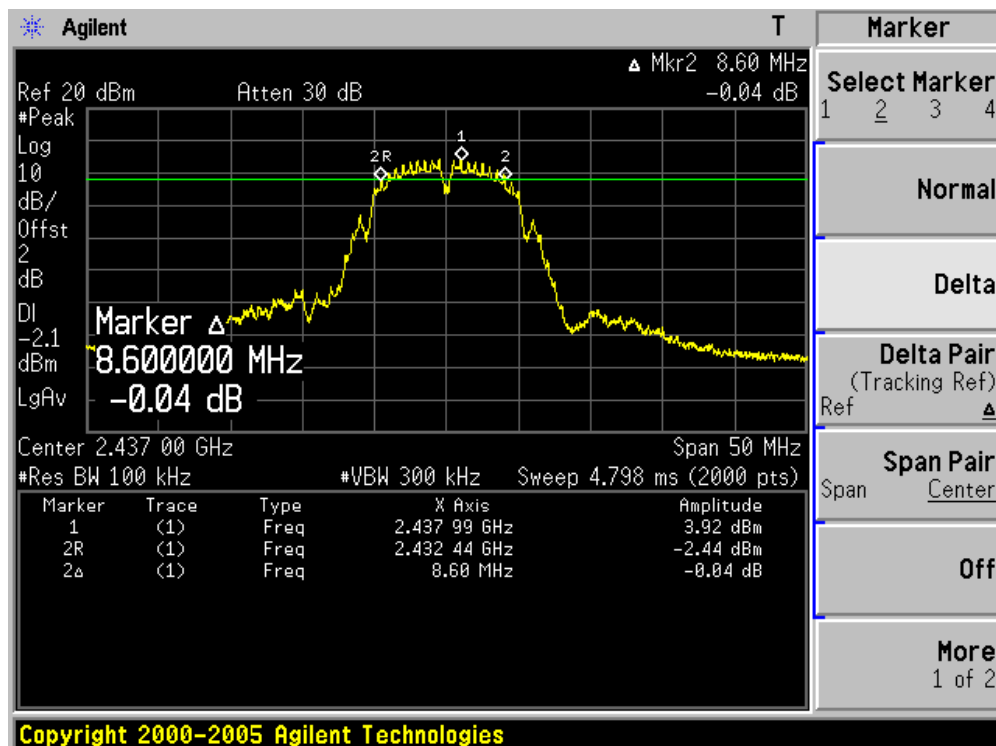
Product	:	IP-STB
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b (Chain 2)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	8100	500	Pass
06	2437	8600	500	Pass
11	2462	8550	500	Pass

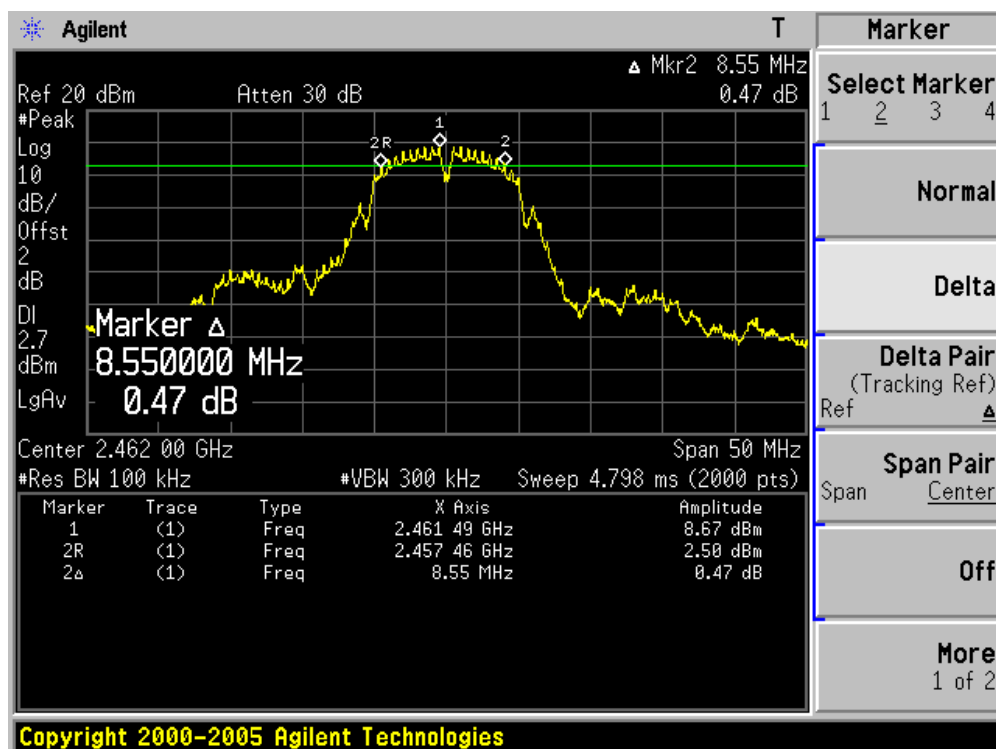
Channel 01 (2412MHz)



Channel 06 (2437MHz)



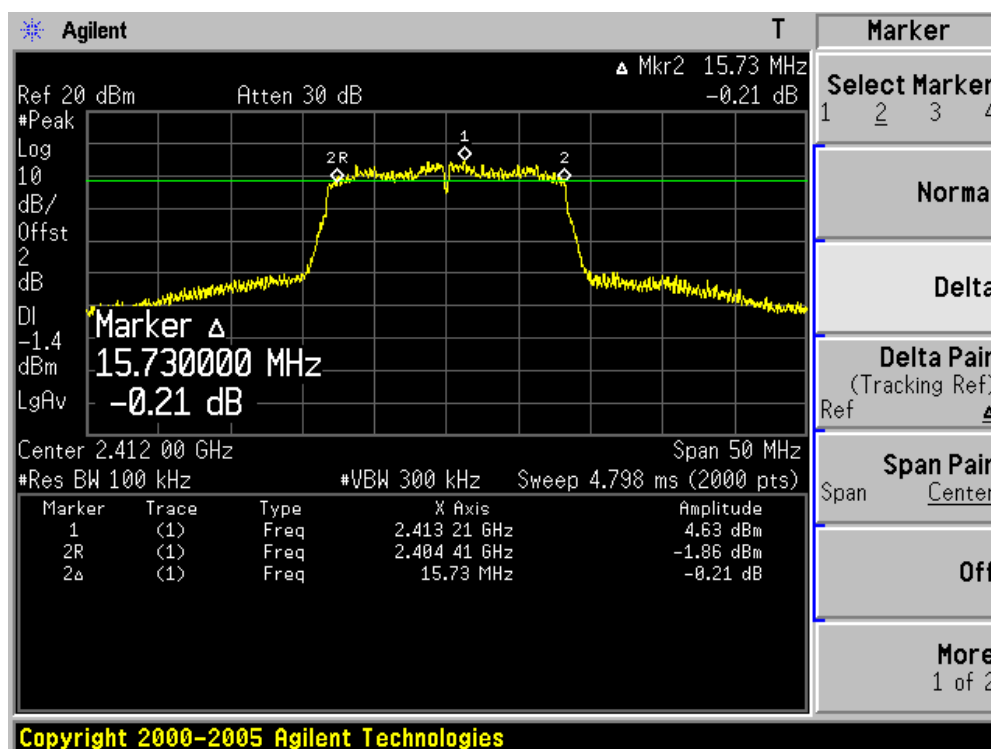
Channel 11 (2462MHz)



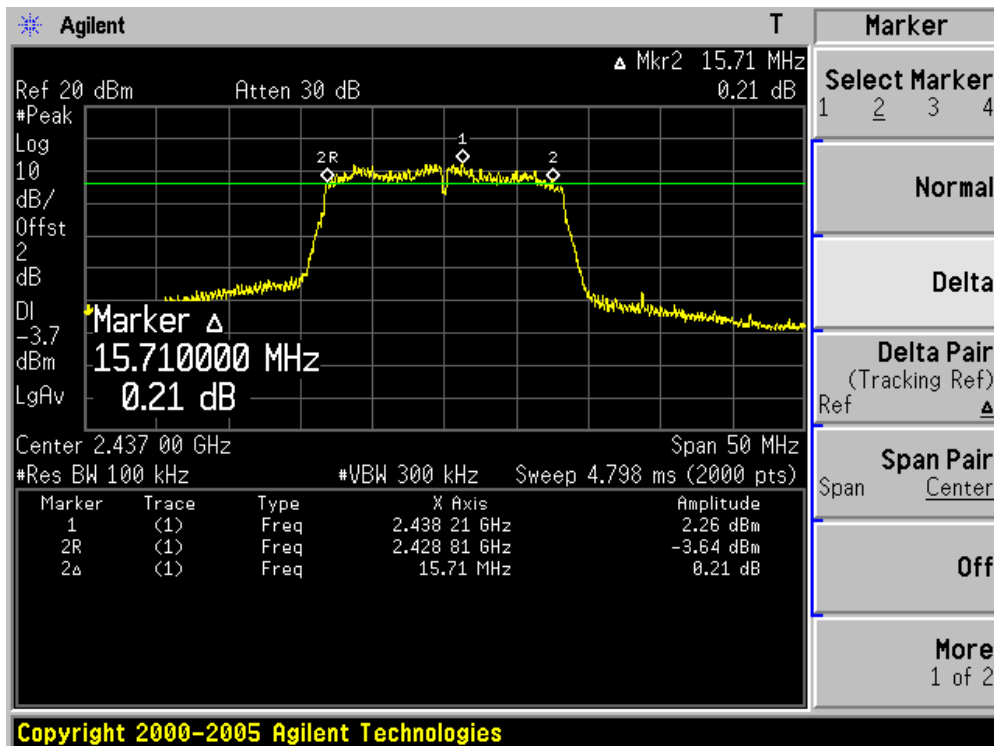
Product	:	IP-STB
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g (Chain 2)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	15730	500	Pass
06	2437	15710	500	Pass
11	2462	15710	500	Pass

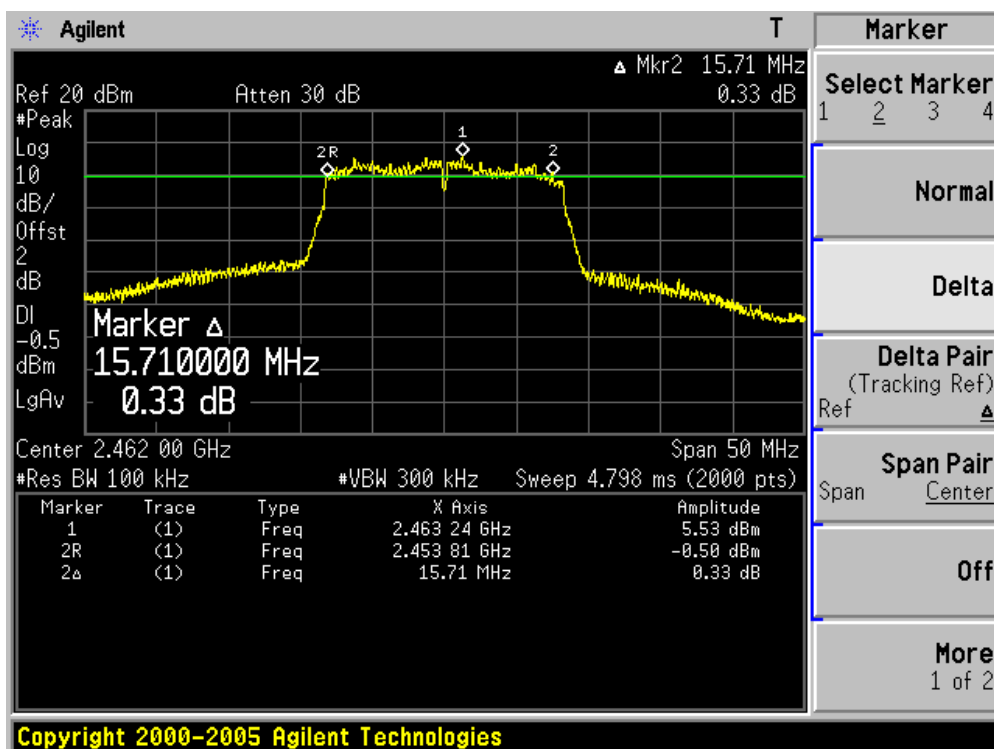
Channel 01 (2412MHz)



Channel 06 (2437MHz)



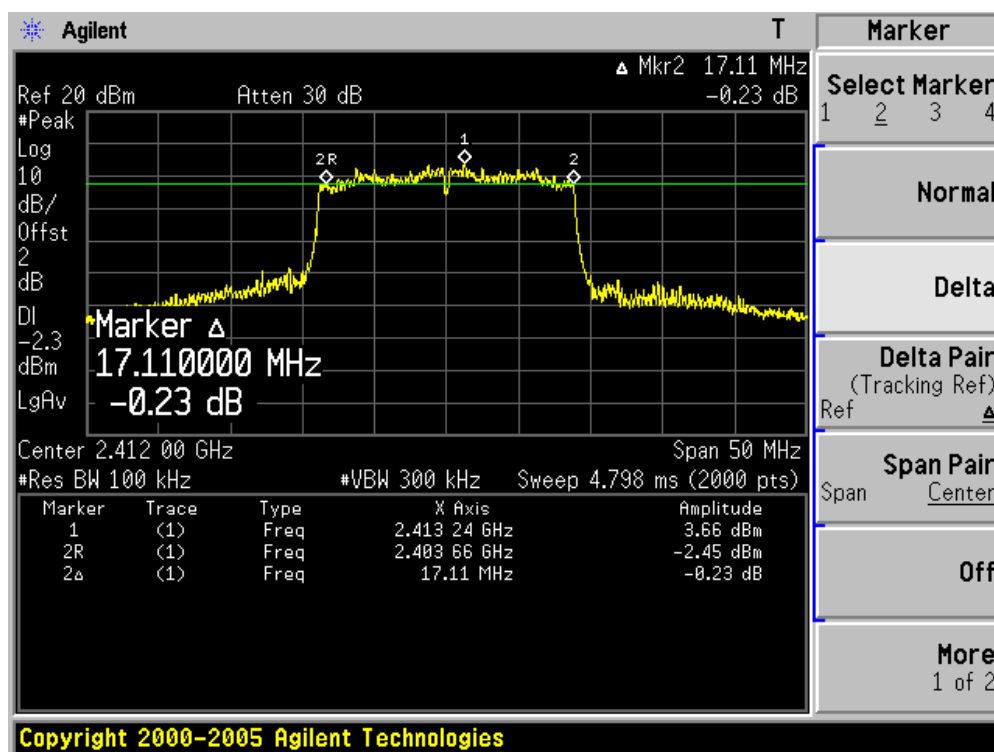
Channel 11 (2462MHz)



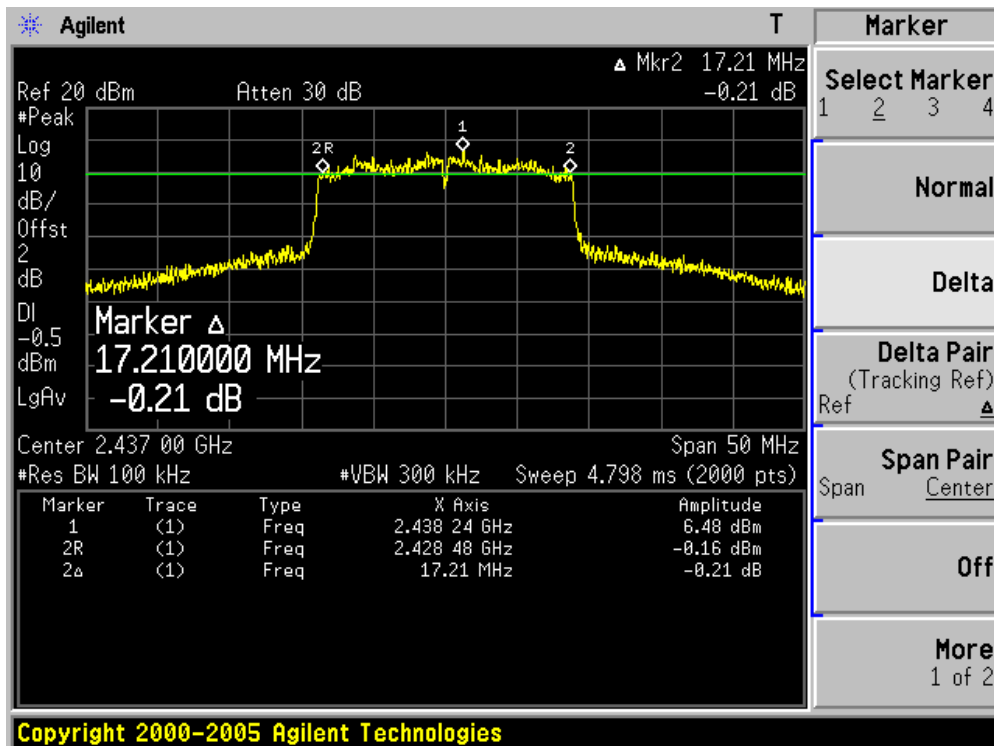
Product	:	IP-STB
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz) (Chain 2)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	17110	500	Pass
06	2437	17210	500	Pass
11	2462	17280	500	Pass

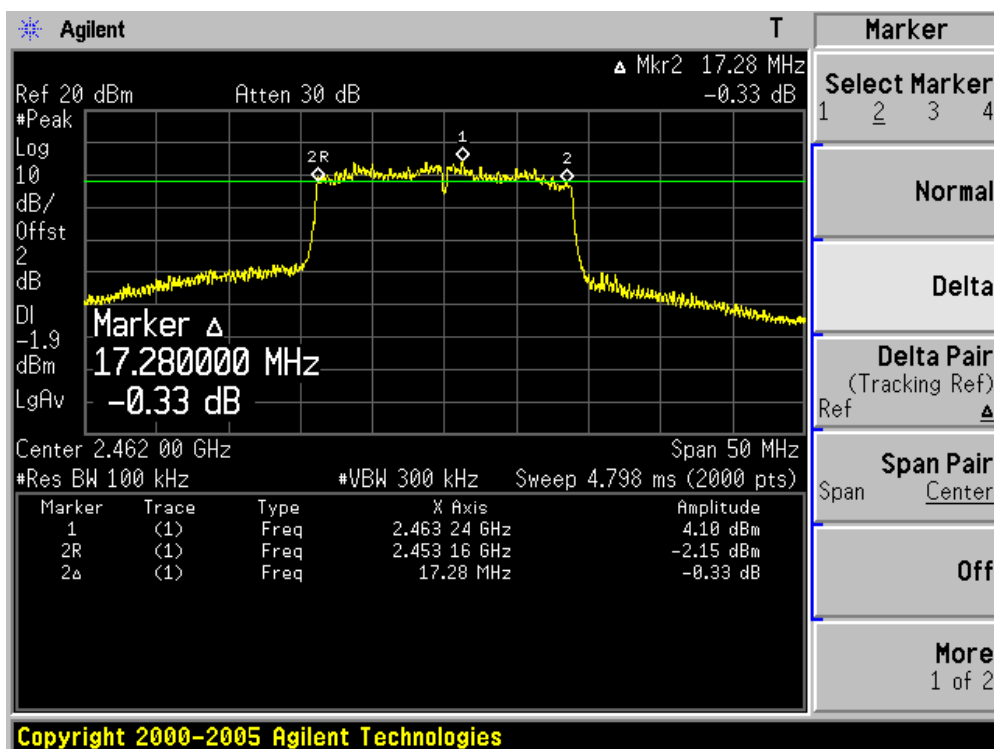
Channel 01 (2412MHz)



Channel 06 (2437MHz)



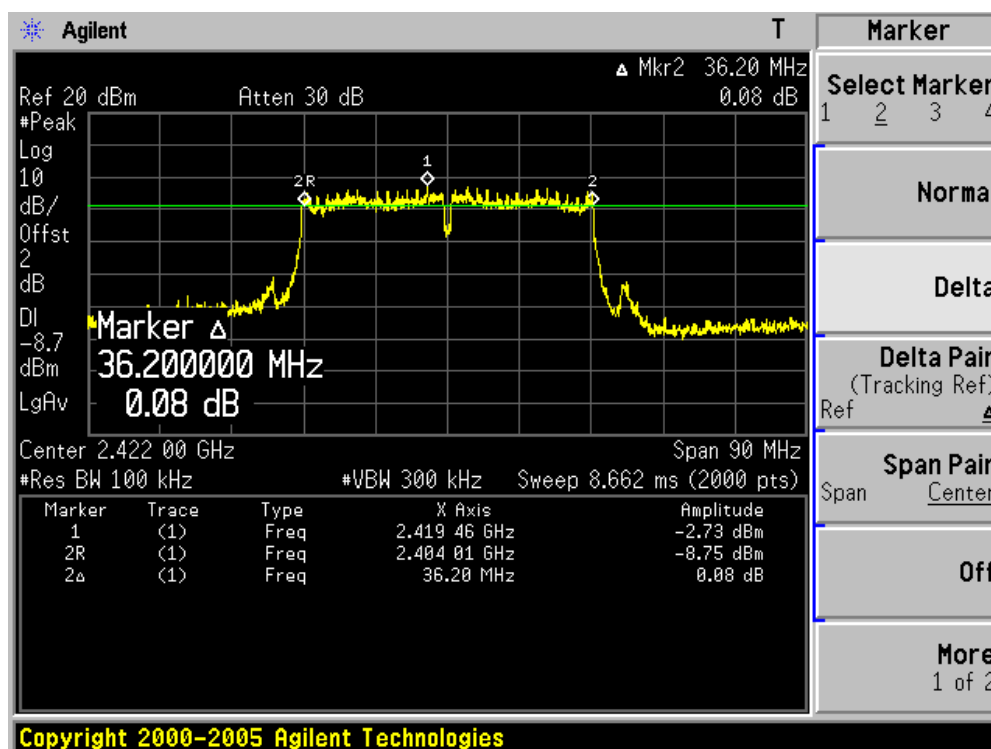
Channel 11 (2462MHz)



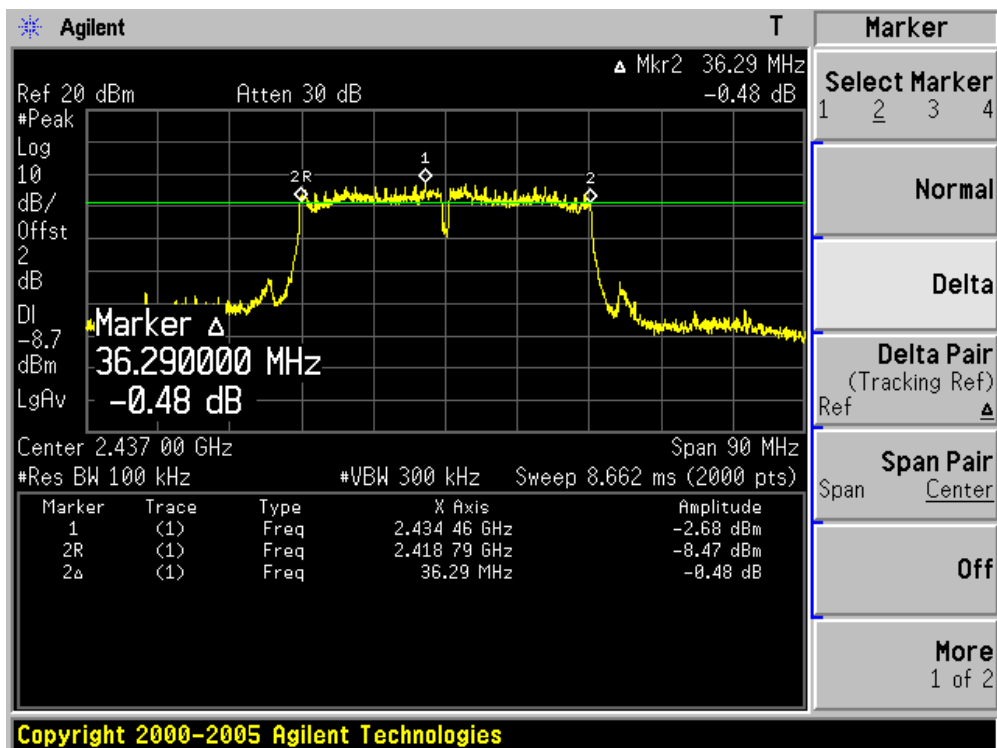
Product	:	IP-STB
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz) (Chain 2)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
03	2422	36200	500	Pass
06	2437	26390	500	Pass
09	2452	36240	500	Pass

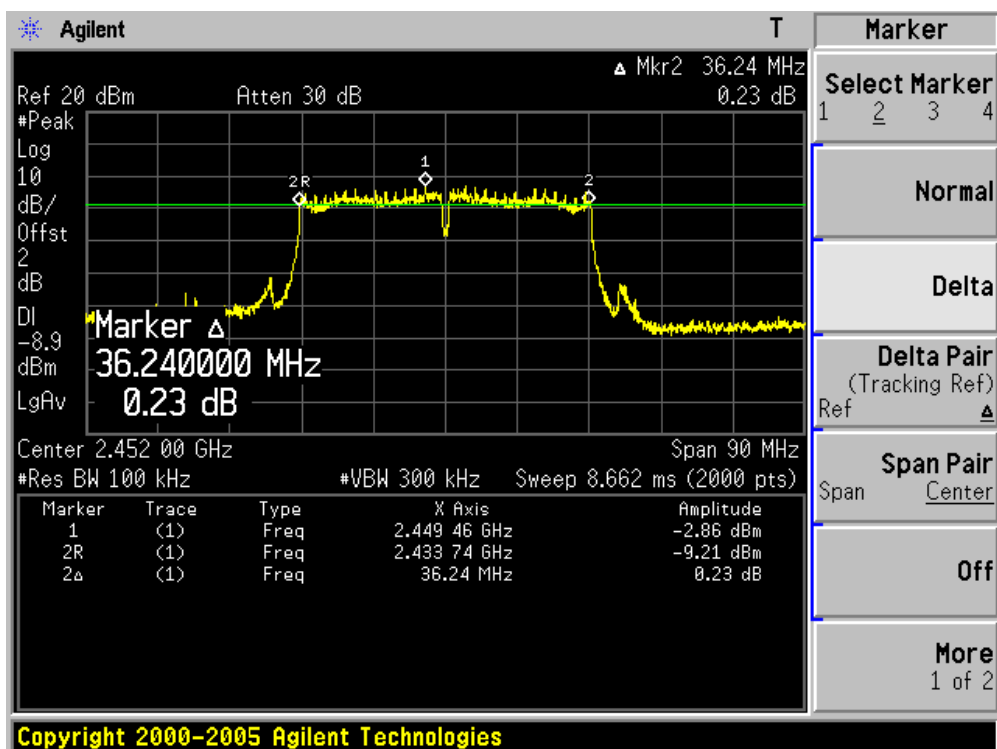
Channel 03 (2422MHz)



Channel 06 (2437MHz)



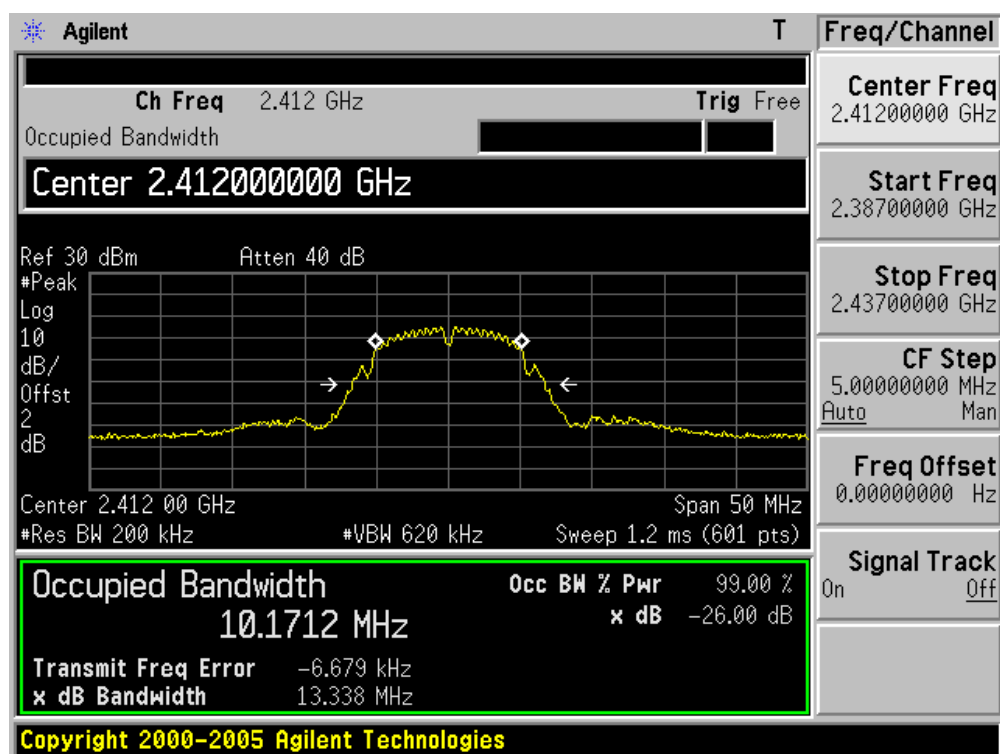
Channel 09 (2452MHz)



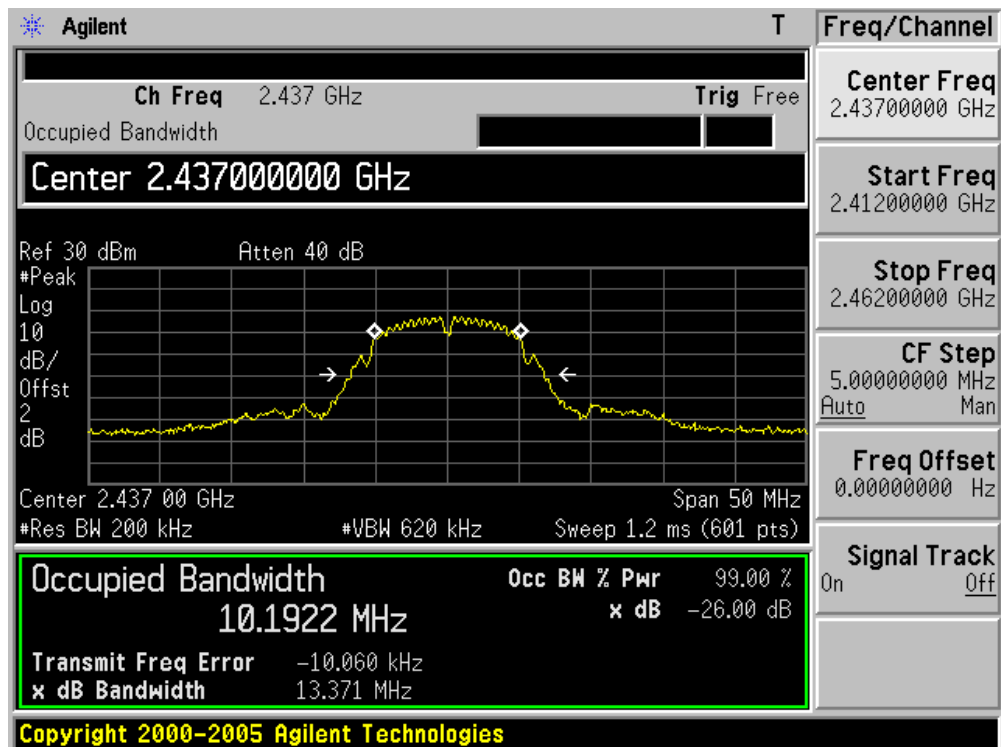
Product	:	IP-STB
Test Item	:	99% Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b (Chain 1)

Channel No.	Frequency (MHz)	99% Bandwidth (kHz)
01	2412	10171.2
06	2437	10192.2
11	2462	10219.1

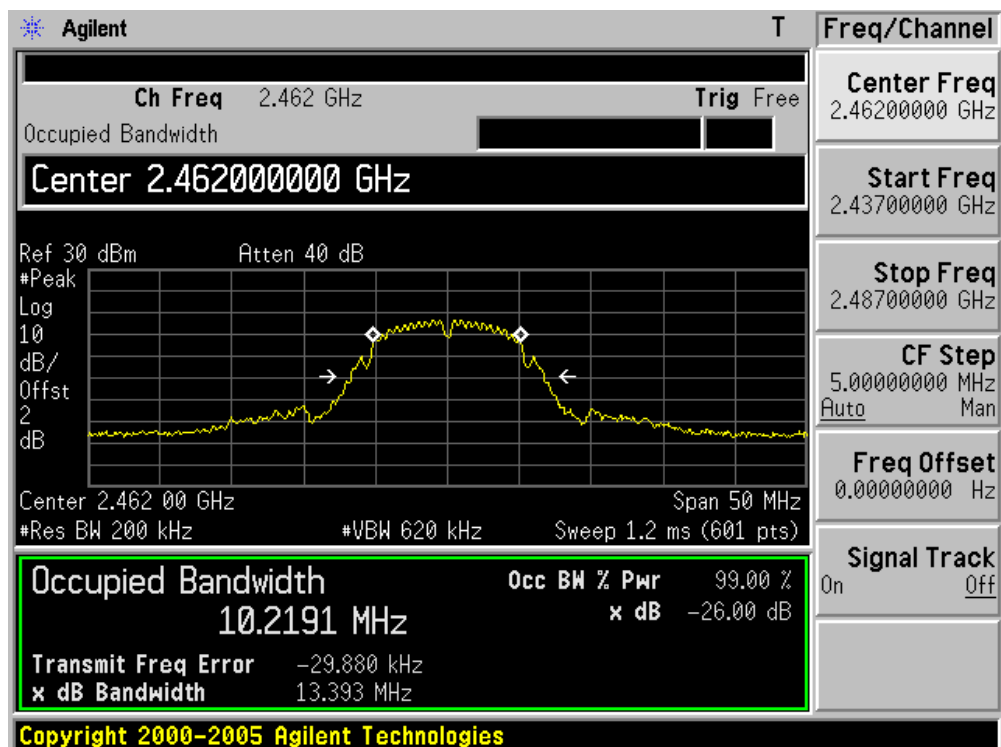
Channel 01 (2412MHz)



Channel 06 (2437MHz)



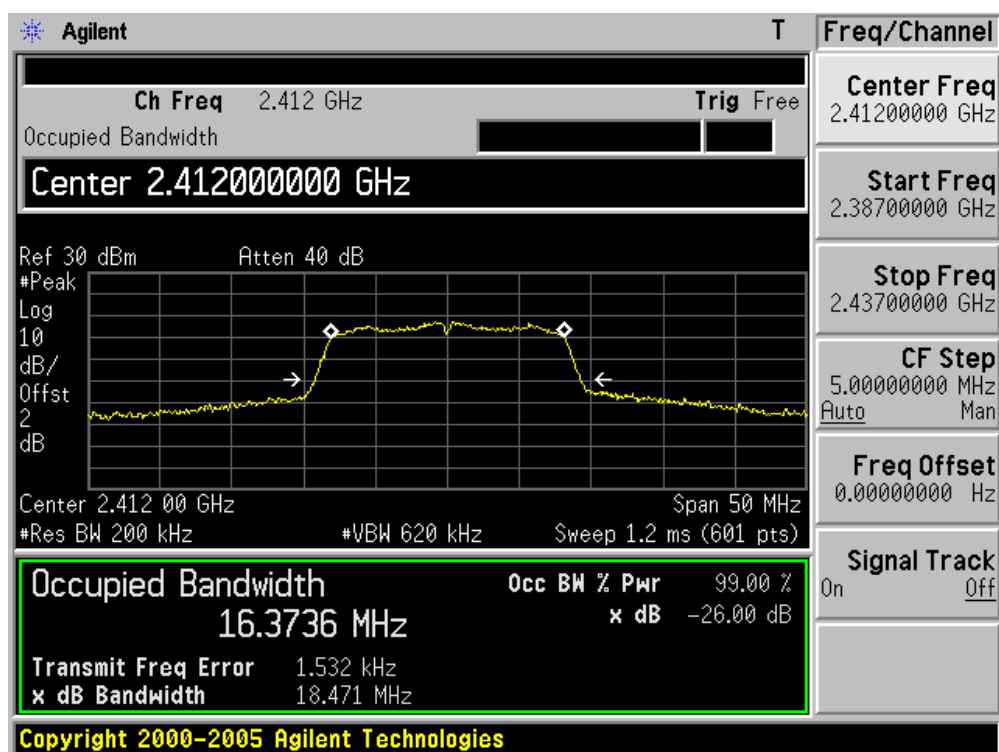
Channel 11 (2462MHz)



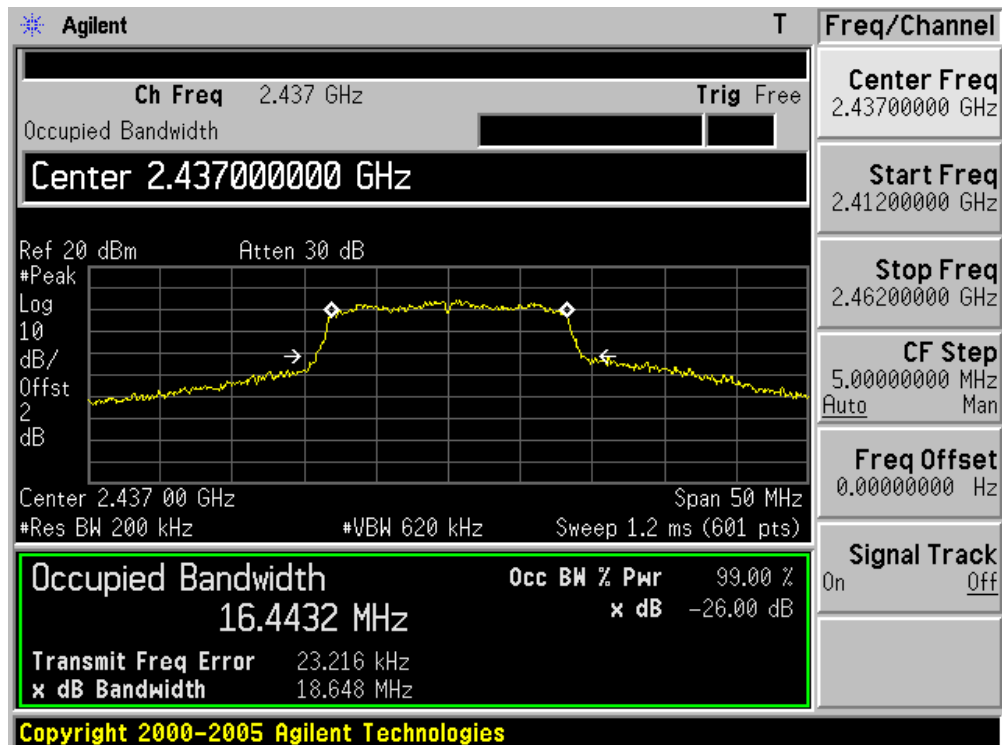
Product	:	IP-STB
Test Item	:	99% Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g (Chain 1)

Channel No.	Frequency (MHz)	99% Bandwidth (kHz)
01	2412	16373.6
06	2437	16443.2
11	2462	16392.7

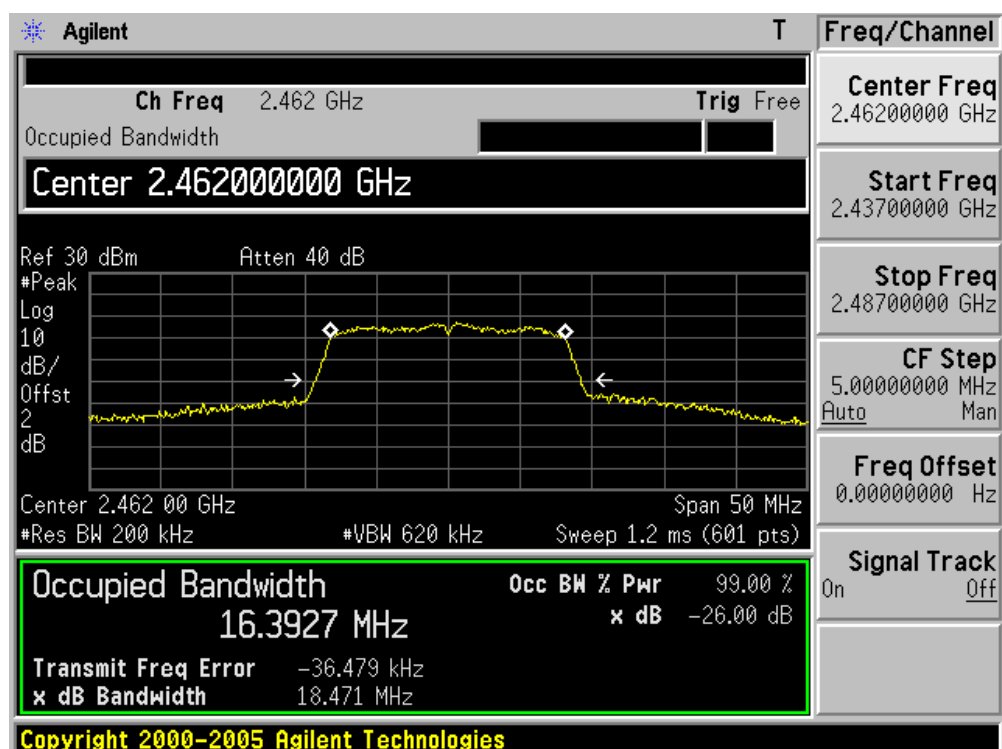
Channel 01 (2412MHz)



Channel 06 (2437MHz)



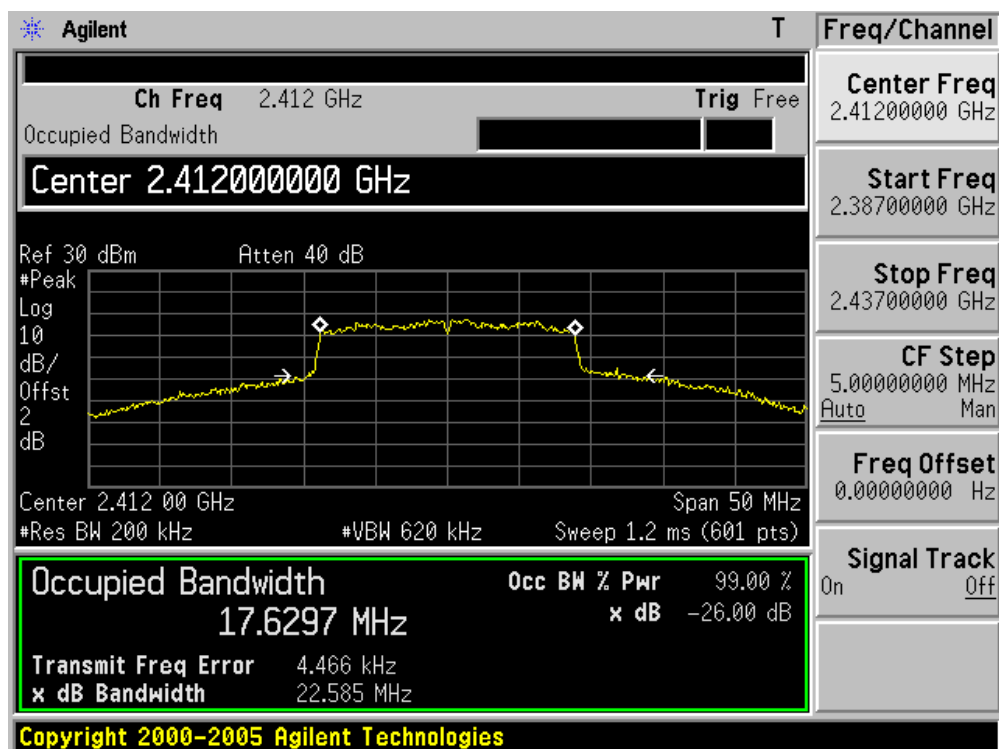
Channel 11 (2462MHz)



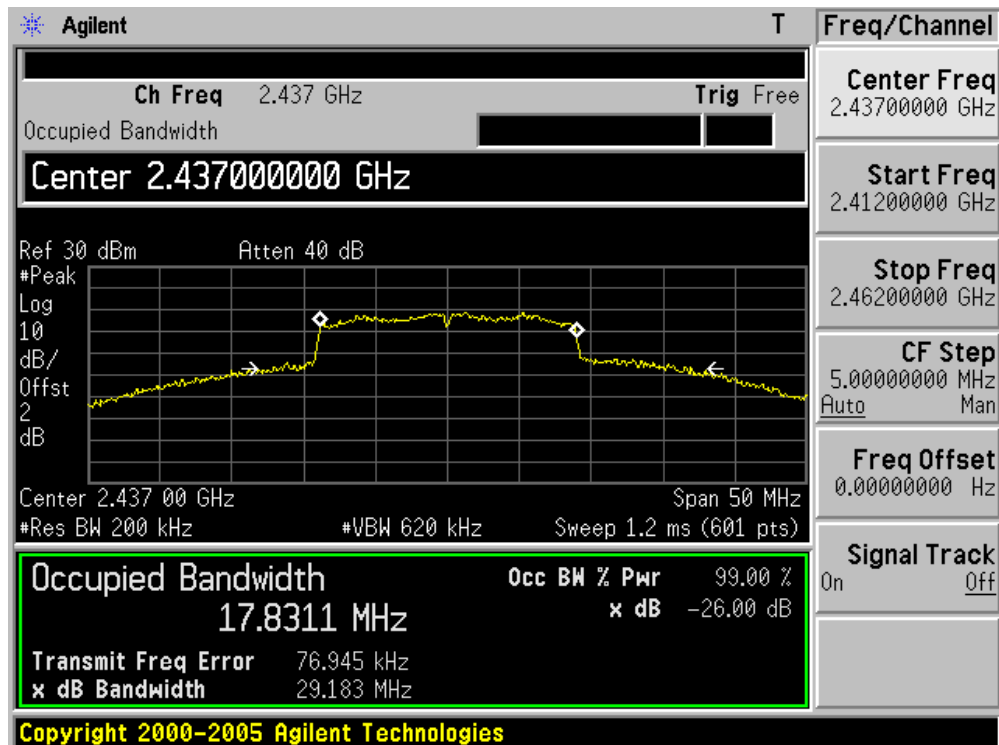
Product	:	IP-STB
Test Item	:	99% Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz) (Chain 1)

Channel No.	Frequency (MHz)	99% Bandwidth (kHz)
01	2412	17629.7
06	2437	17831.1
11	2462	17537.8

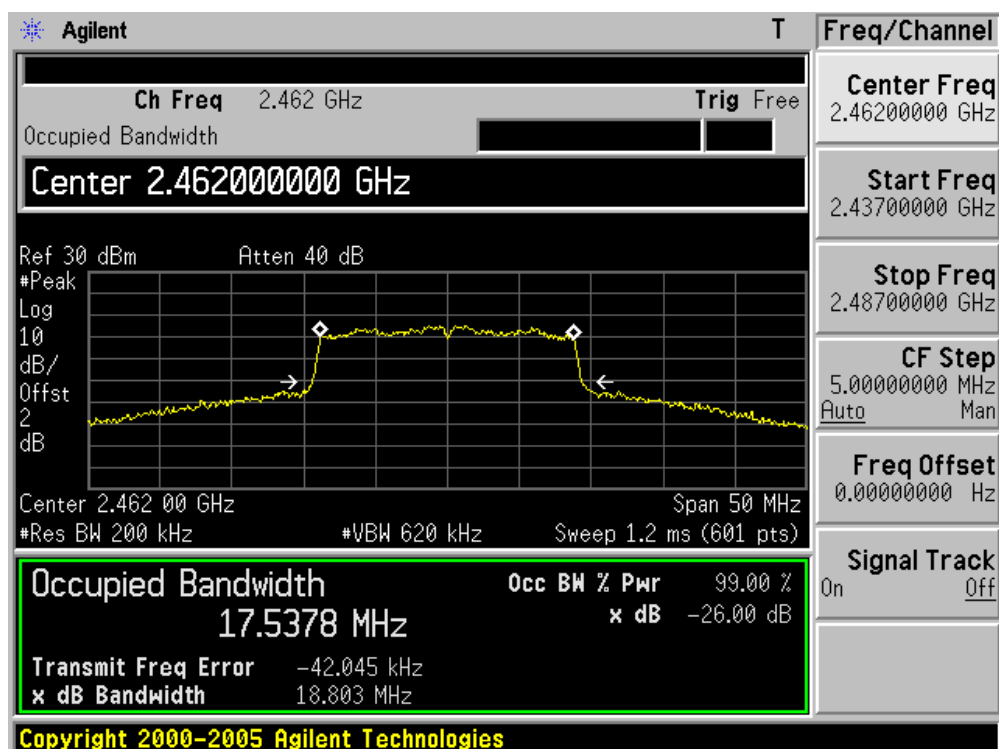
Channel 01 (2412MHz)



Channel 06 (2437MHz)



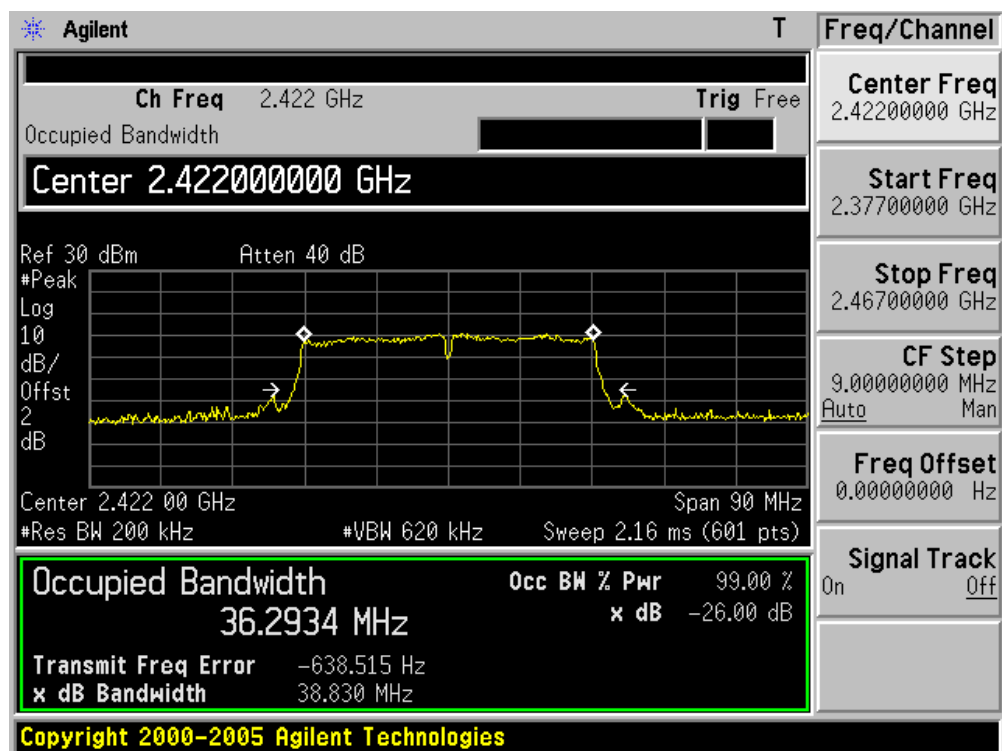
Channel 11 (2462MHz)



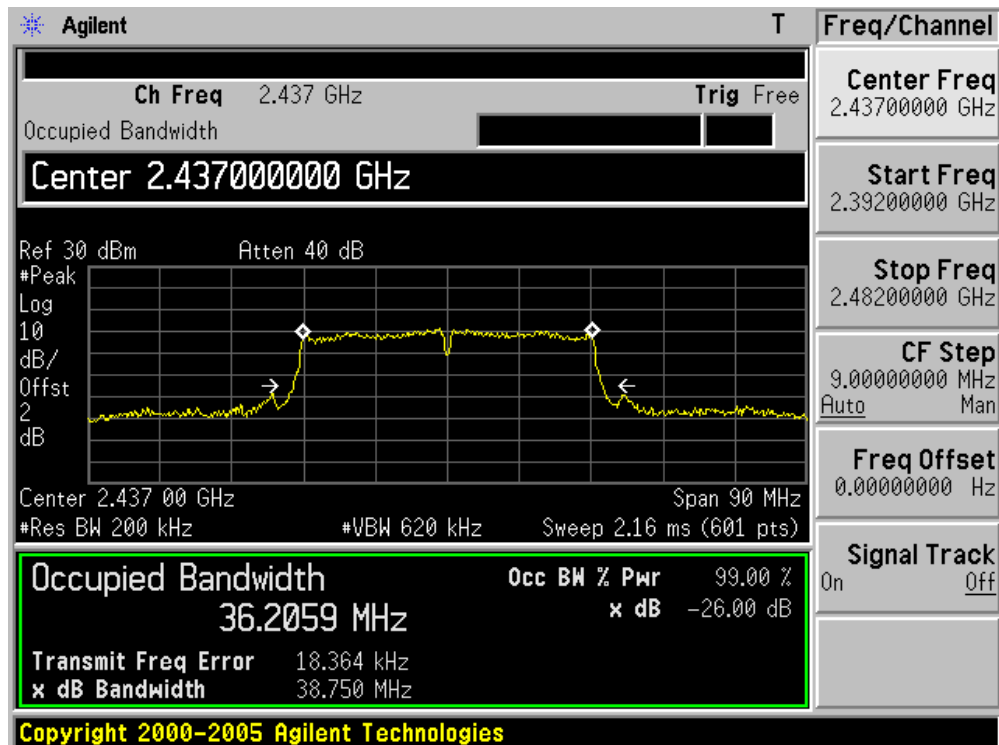
Product	:	IP-STB
Test Item	:	99% Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz) (Chain 1)

Channel No.	Frequency (MHz)	99% Bandwidth (kHz)
03	2422	36293.4
06	2437	36205.9
09	2452	36309.5

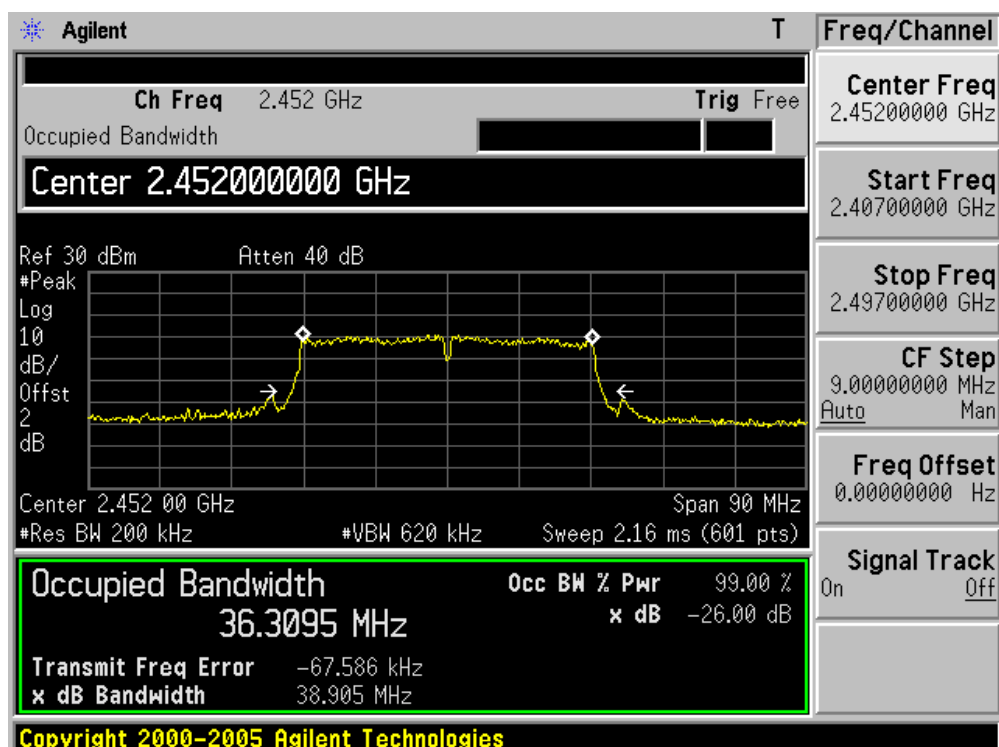
Channel 03 (2422MHz)



Channel 06 (2437MHz)



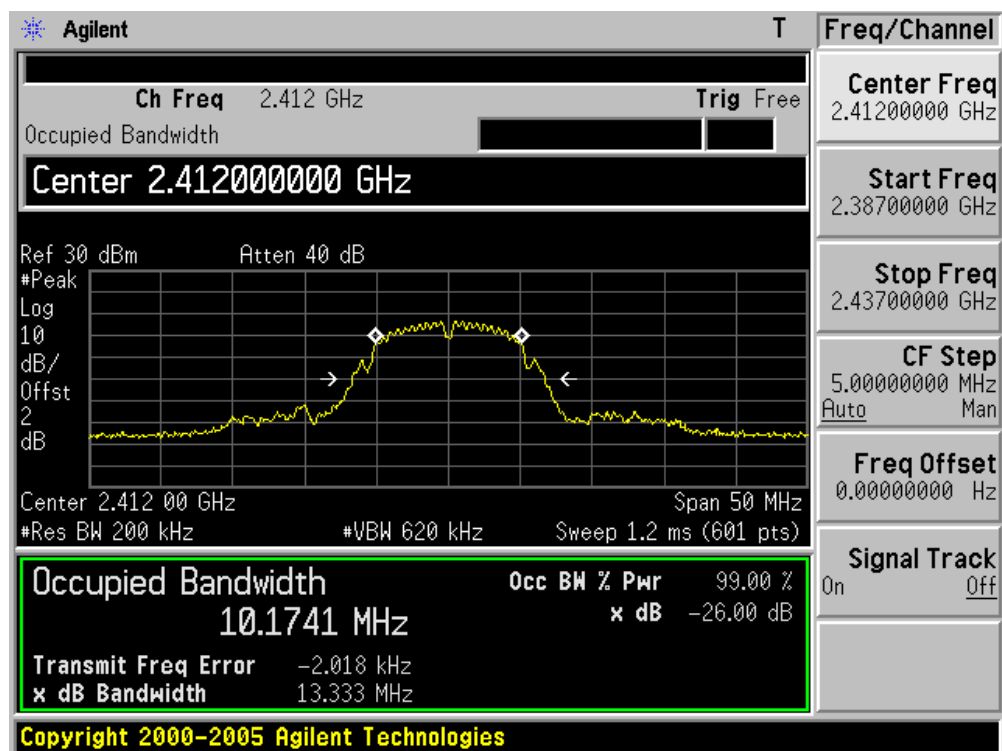
Channel 09 (2452MHz)



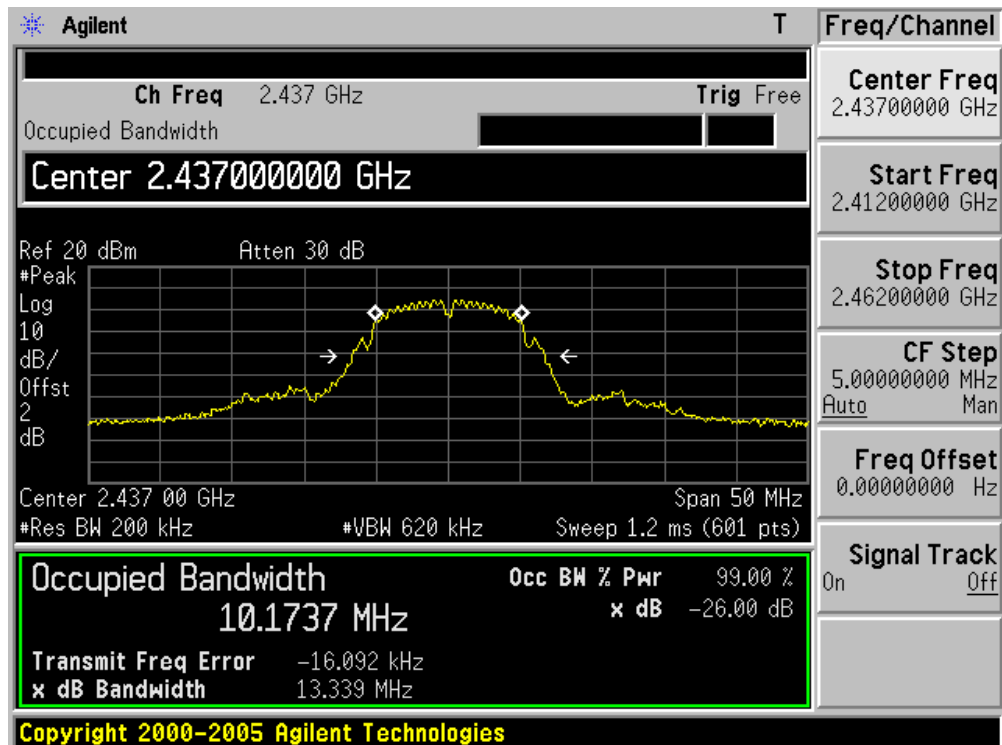
Product	:	IP-STB
Test Item	:	99% Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b (Chain 2)

Channel No.	Frequency (MHz)	99% Bandwidth (kHz)
01	2412	10174.1
06	2437	10173.7
11	2462	10185.1

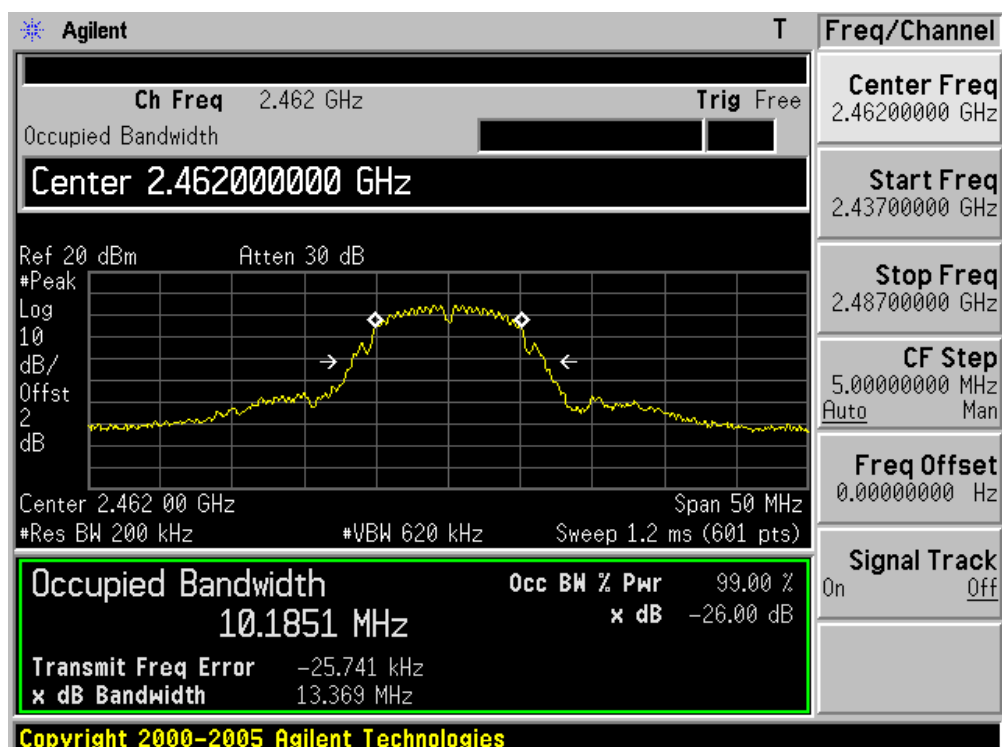
Channel 01 (2412MHz)



Channel 06 (2437MHz)



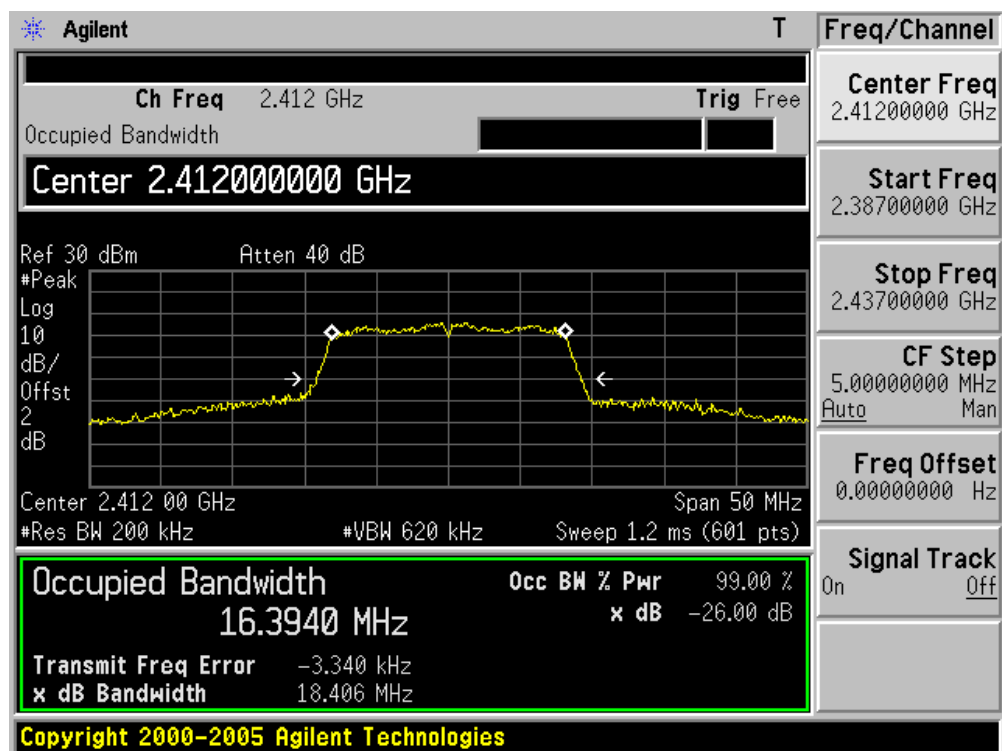
Channel 11 (2462MHz)



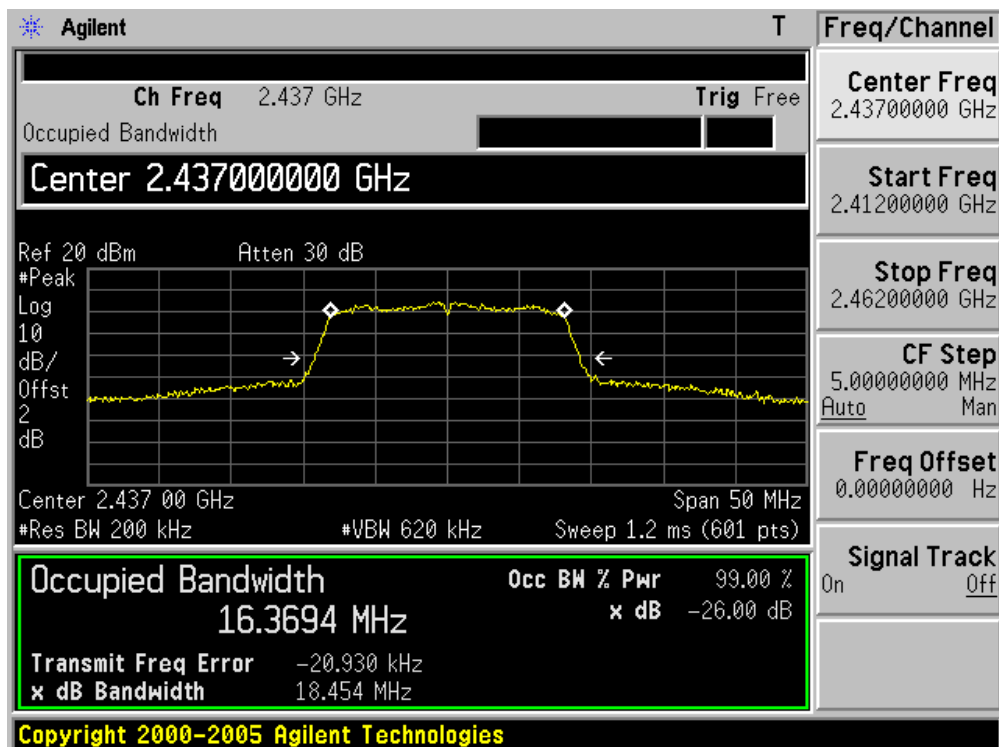
Product	:	IP-STB
Test Item	:	99% Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g (Chain 2)

Channel No.	Frequency (MHz)	99% Bandwidth (kHz)
01	2412	16394.0
06	2437	16369.4
11	2462	16397.4

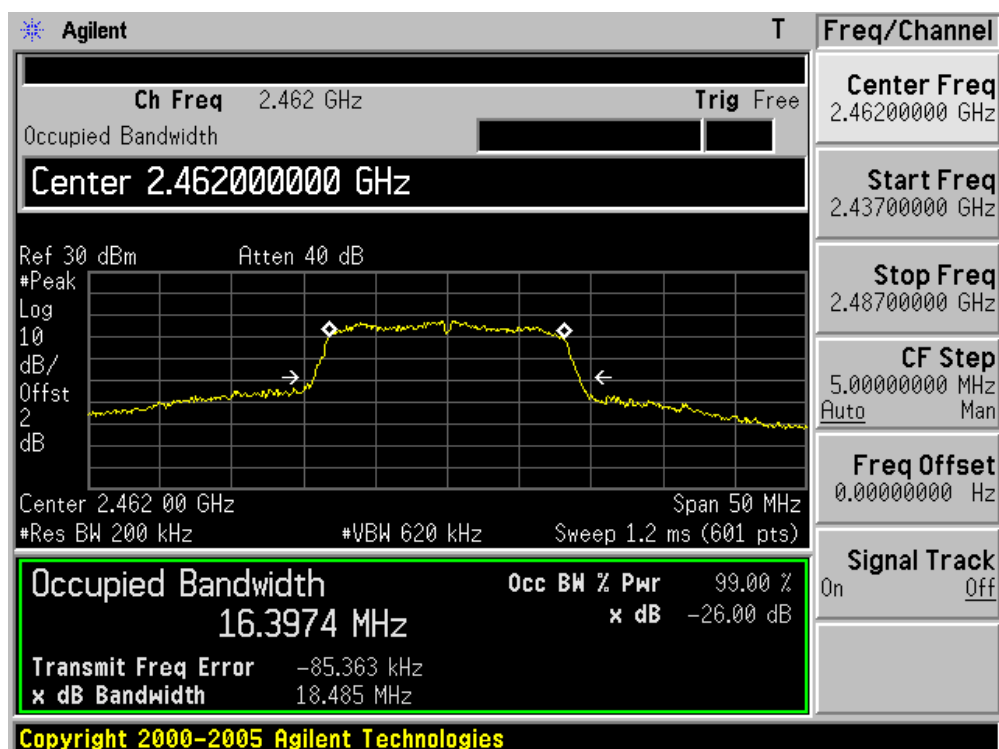
Channel 01 (2412MHz)



Channel 06 (2437MHz)



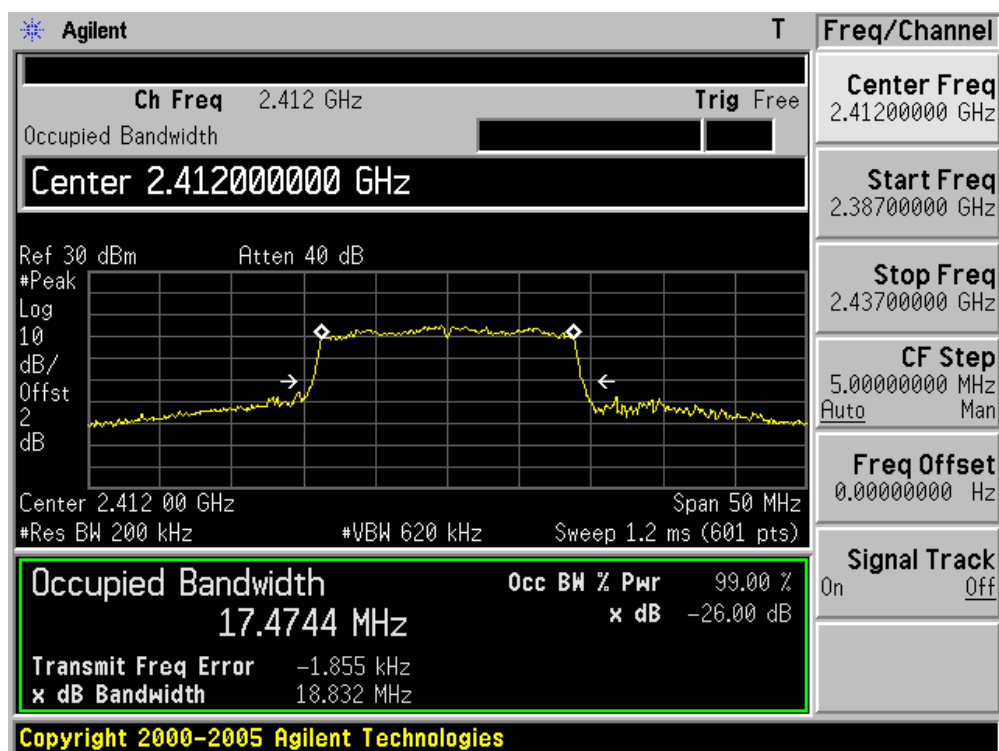
Channel 11 (2462MHz)



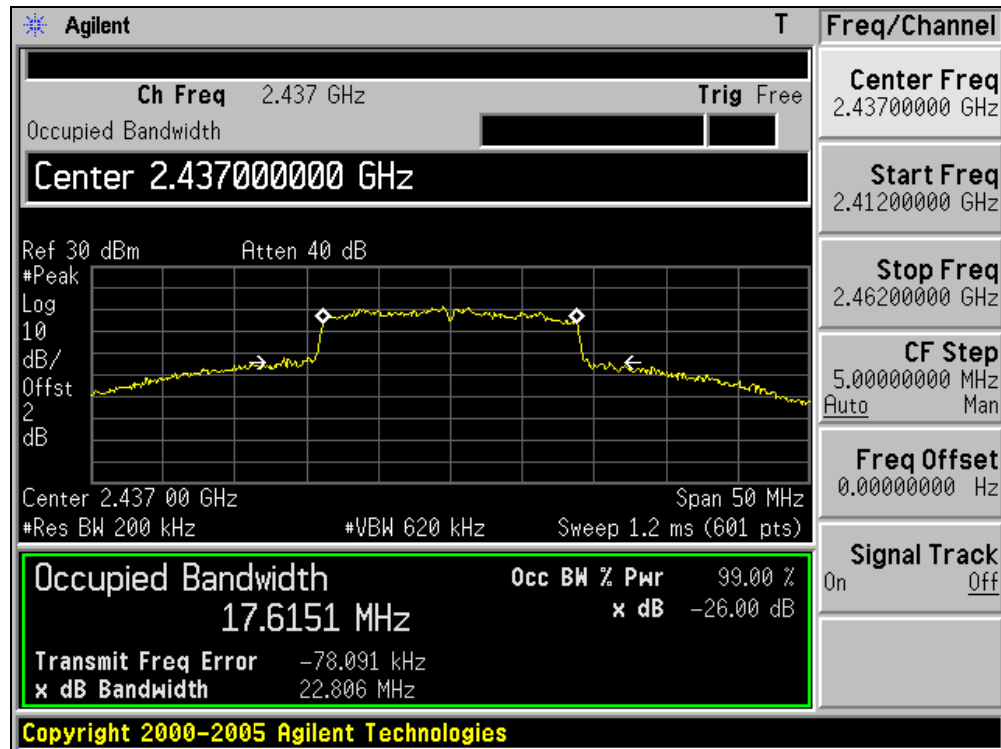
Product	:	IP-STB
Test Item	:	99% Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz) (Chain 2)

Channel No.	Frequency (MHz)	99% Bandwidth (kHz)
01	2412	17474.4
06	2437	17615.1
11	2462	17470.0

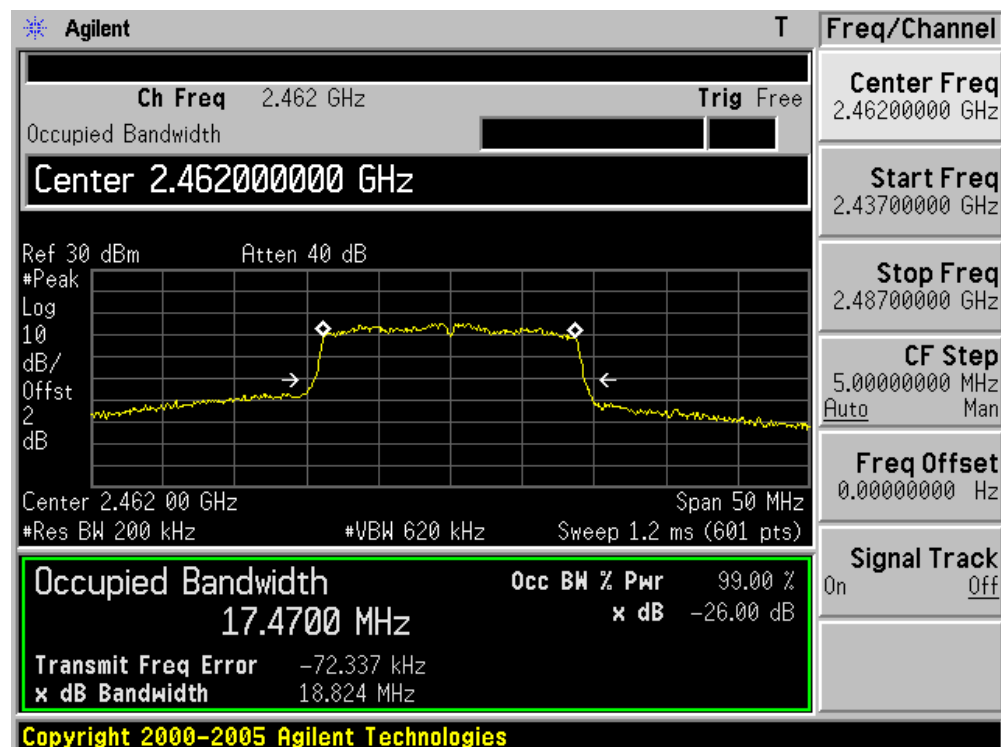
Channel 01 (2412MHz)



Channel 06 (2437MHz)



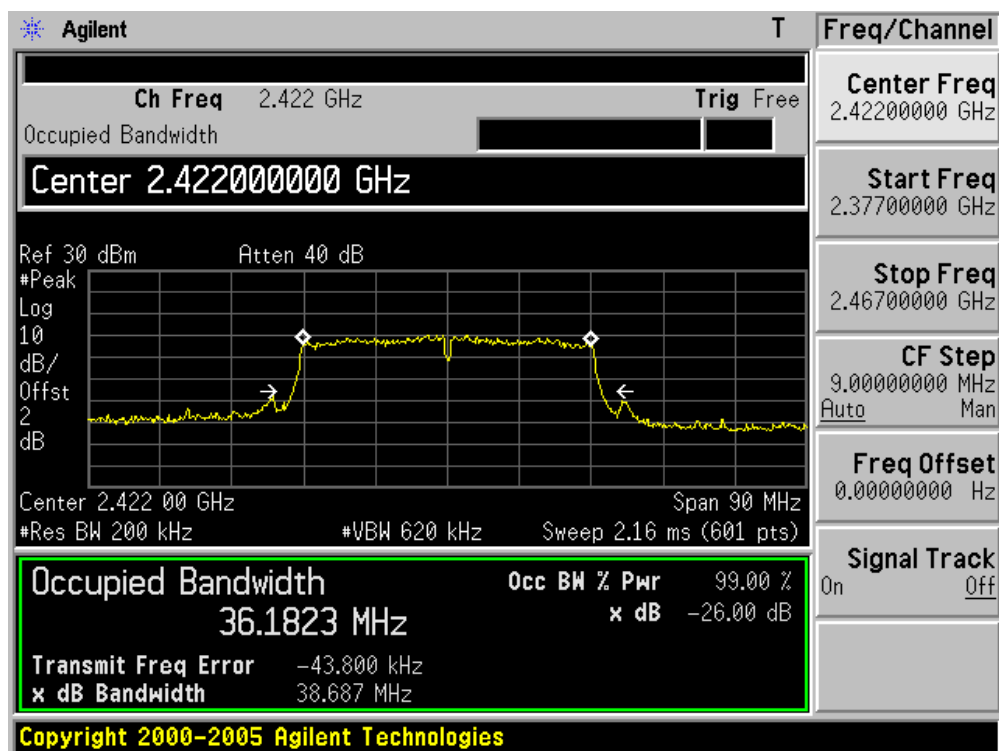
Channel 11 (2462MHz)



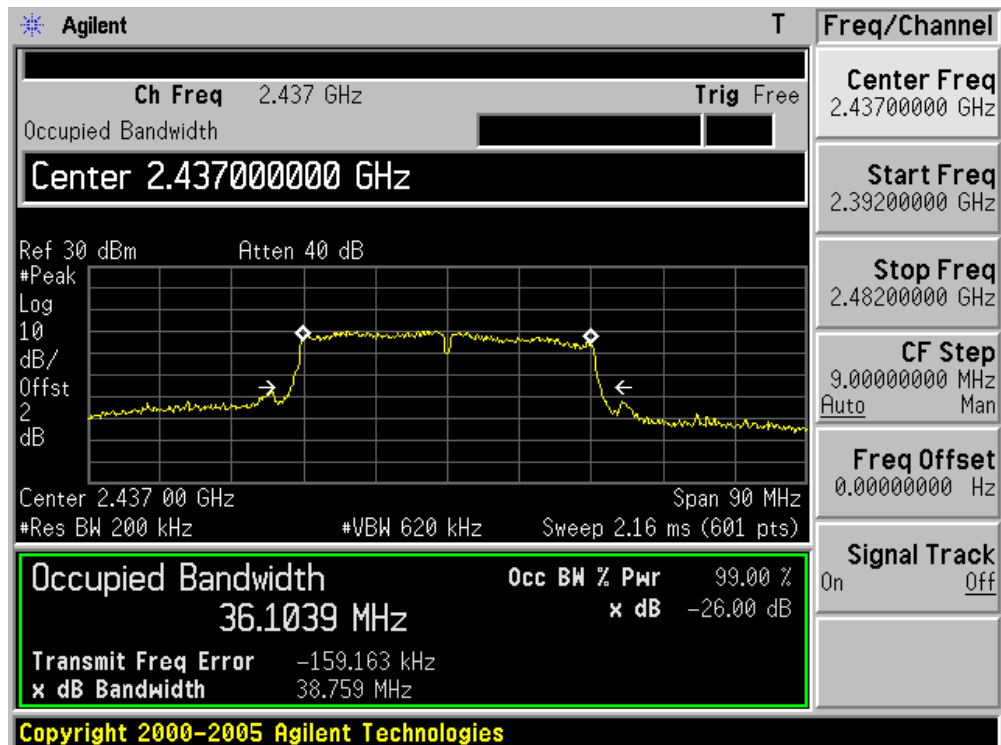
Product	:	IP-STB
Test Item	:	99% Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz) (Chain 2)

Channel No.	Frequency (MHz)	99% Bandwidth (kHz)
03	2422	36182.3
06	2437	36103.9
09	2452	36225.3

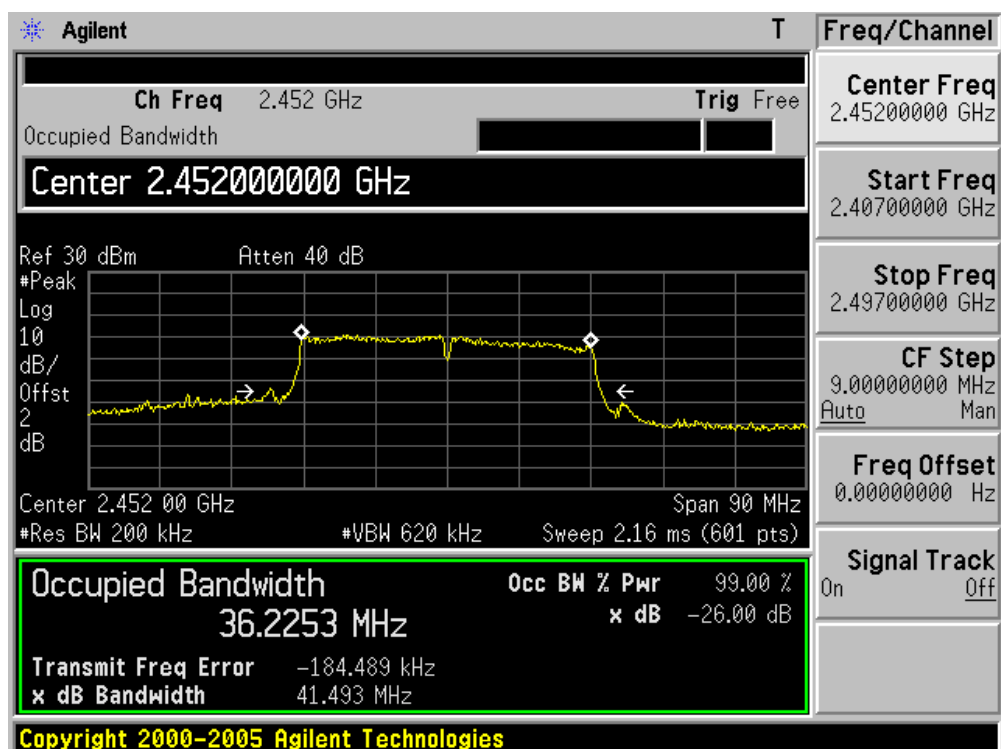
Channel 03 (2422MHz)



Channel 06 (2437MHz)



Channel 09 (2452MHz)



9. Power Output

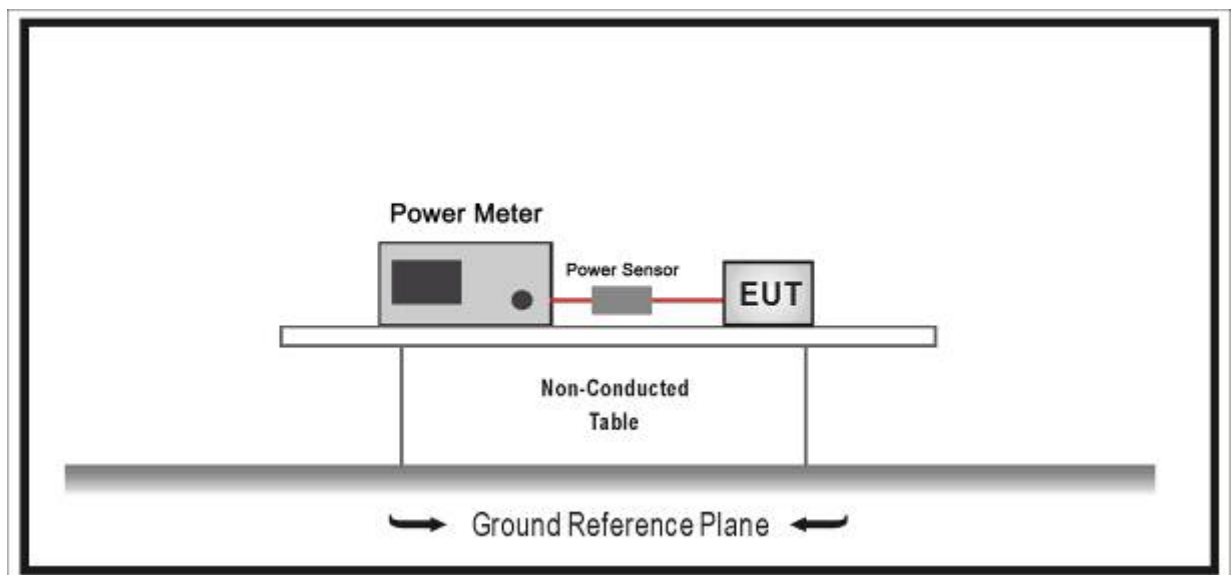
9.1. Test Equipment

Power Output / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2015.11.10
Power Sensor	Anritsu	MA2411B	0846014	2015.11.10
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

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

The EUT was tested according to ANSI C63.10: 2013 and RSS-247 Issue 1 December 2010 Section A8.4(4) requirements.

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

9.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

9.6. Test Result

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

MCS Index for 802.11n	Spatial Streams	Data Rate (Mbps)						
		802.11b	802.11g	802.11a	20MHz Bandwidth		40MHz Bandwidth	
					800ns GI	400ns GI	800ns GI	400ns GI
0	1	1	6	6	6.5	7.2	13.5	15.0
1	1	2	9	9	13.0	14.4	27.0	30.0
2	1	5.5	12	12	19.5	21.7	40.5	45.0
3	1	11	18	18	26.0	28.9	54.0	60.0
4	1	---	24	24	39.0	43.3	81.0	90.0
5	1	---	36	36	52.0	57.8	108.0	120.0
6	1	---	48	48	58.5	65.0	121.5	135.0
7	1	---	54	54	65.0	72.2	135.0	150.0
8	2	---	---		13.0	14.4	27.0	30.0
9	2	---	---		26.0	28.9	54.0	60.0
10	2	---	---		39.0	43.3	81.0	90.0
11	2	---	---		52.0	57.8	108.0	120.0
12	2	---	---		78.0	86.7	162.0	180.0
13	2	---	---		104.0	115.6	216.0	240.0
14	2	---	---		117.0	130.0	243.0	270.0
15	2	---	---		130.0	144.0	270.0	300.0

Power output at various data rates:

Test Mode	Bandwidth	Frequency (MHz)	Channel	Data Rate	Peak Power (dBm)
802.11b(Chain 1)	20	2437	6	1	18.26
				5.5	18.06
				11	18.02
802.11g(Chain 1)	20	2437	6	6	23.65
				24	23.72
				54	24.90
802.11n(Chain 1)	20	2437	6	MCS0	23.01
				MCS4	23.04
				MCS7	23.10
802.11n(Chain 1)	40	2437	6	MCS0	22.17
				MCS4	22.15
				MCS7	22.54

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

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
1	2412	17.53	N/A	17.53	30.00	Pass	19.53
6	2437	18.26	N/A	18.26	30.00	Pass	20.26
11	2462	17.79	N/A	17.79	30.00	Pass	19.79

Max.EIRP=Total Power + Antenna Gain

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

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
1	2412	N/A	18.56	18.56	30.00	Pass	20.56
6	2437	N/A	18.60	18.60	30.00	Pass	20.60
11	2462	N/A	18.35	18.35	30.00	Pass	20.35

Max.EIRP=Total Power + Antenna Gain

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

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
1	2412	23.46	N/A	23.46	30.00	Pass	25.46
6	2437	23.96	N/A	23.96	30.00	Pass	25.96
11	2462	24.66	N/A	24.66	30.00	Pass	26.66

Max.EIRP=Total Power + Antenna Gain

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

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
1	2412	N/A	24.93	24.93	30.00	Pass	26.93
6	2437	N/A	25.23	25.23	30.00	Pass	27.23
11	2462	N/A	25.51	25.51	30.00	Pass	27.51

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz) (Chain 1)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
1	2412	22.77	N/A	22.77	30.00	Pass	24.77
6	2437	23.10	N/A	23.10	30.00	Pass	25.10
11	2462	22.71	N/A	22.71	30.00	Pass	24.71

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz) (Chain 2)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
1	2412	N/A	24.81	24.81	30.00	Pass	26.81
6	2437	N/A	25.92	25.92	30.00	Pass	27.92
11	2462	N/A	24.67	24.67	30.00	Pass	26.67

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz) (Chain 1+2)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)			Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2	Chain 2				
1	2412	20.91	23.68	N/A	25.52	30.00	Pass	27.52
6	2437	23.02	24.66	N/A	26.93	30.00	Pass	28.93
11	2462	21.74	23.06	N/A	25.46	30.00	Pass	27.46

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz) (Chain 1)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
3	2422	22.85	N/A	22.85	30.00	Pass	24.85
6	2437	22.54	N/A	22.54	30.00	Pass	24.54
9	2452	22.84	N/A	22.84	30.00	Pass	24.84

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz) (Chain 2)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
3	2422	N/A	23.27	23.27	30.00	Pass	25.27
6	2437	N/A	22.21	22.21	30.00	Pass	24.21
9	2452	N/A	23.14	23.14	30.00	Pass	25.14

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz) (Chain 1+2)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
3	2422	20.34	21.17	23.79	30.00	Pass	25.79
6	2437	20.26	20.52	23.40	30.00	Pass	25.40
9	2452	20.40	21.39	23.93	30.00	Pass	25.93

Max.EIRP=Total Power + Antenna Gain

10. Power Spectral Density

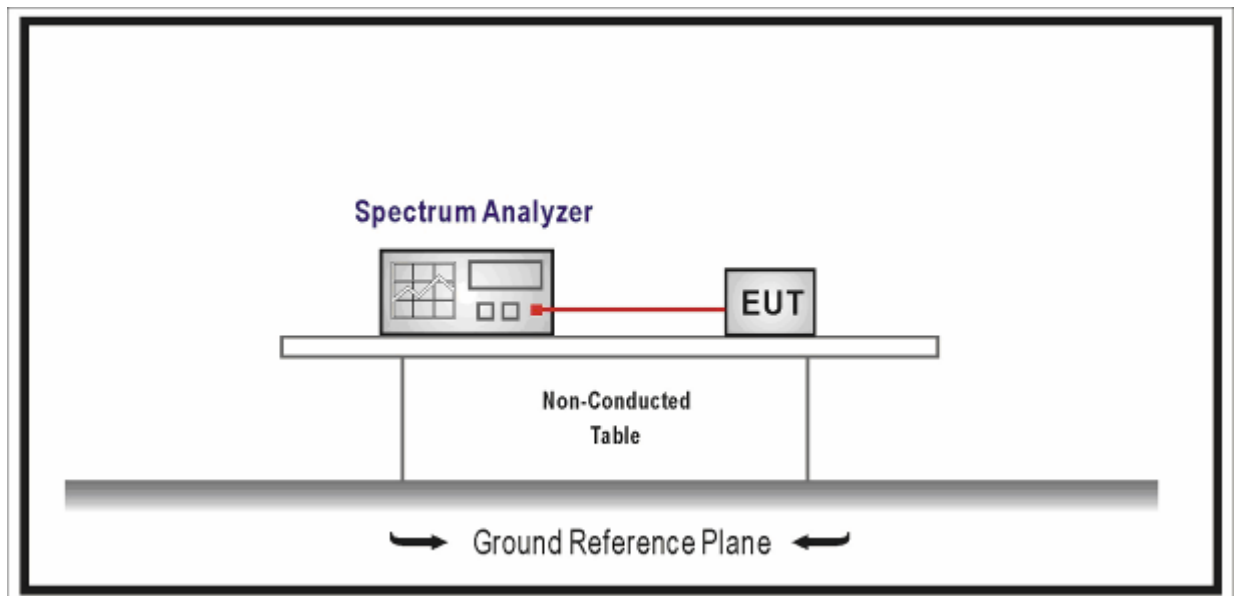
10.1. Test Equipment

Power Spectral Density / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.07
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 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

The EUT was tested according to ANSI C63.10: 2013 and RSS-247 Issue 1 December 2010 Section A8.2(2 requirements.

Set RBW= 100 kHz, VBW $\geq$ 300KHz, SPAN to 5-30 % greater than the EBW, Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(3\text{ kHz}/100\text{kHz} = -15.2\text{ dB})$.

10.5. Uncertainty

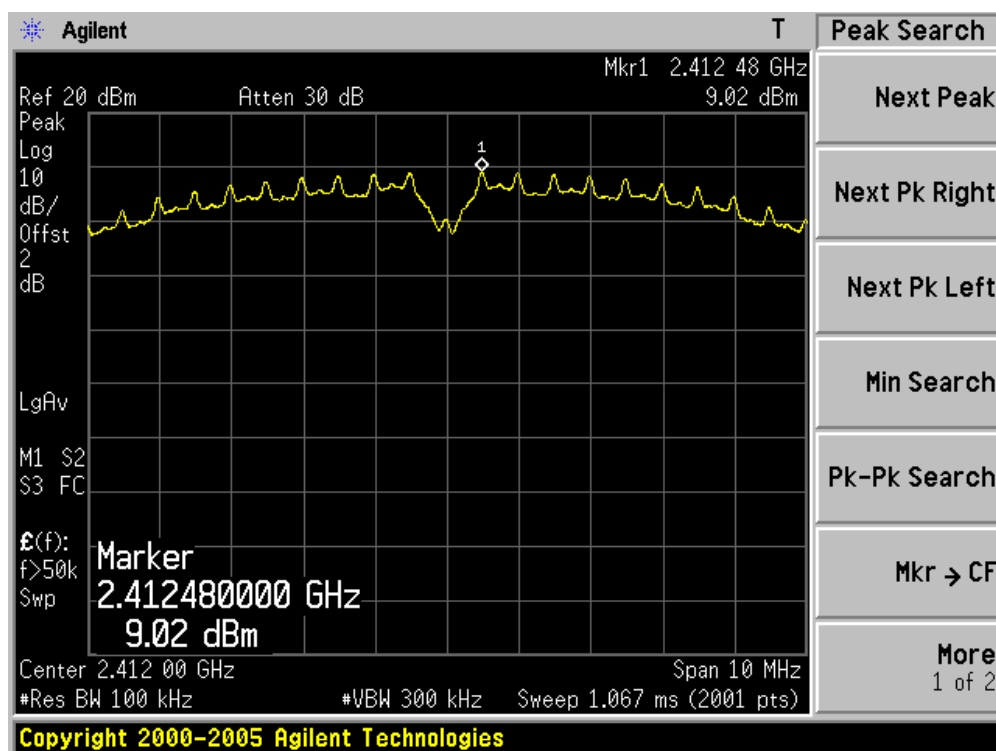
The measurement uncertainty is defined as $\pm 1.27\text{ dB}$

10.6. Test Result

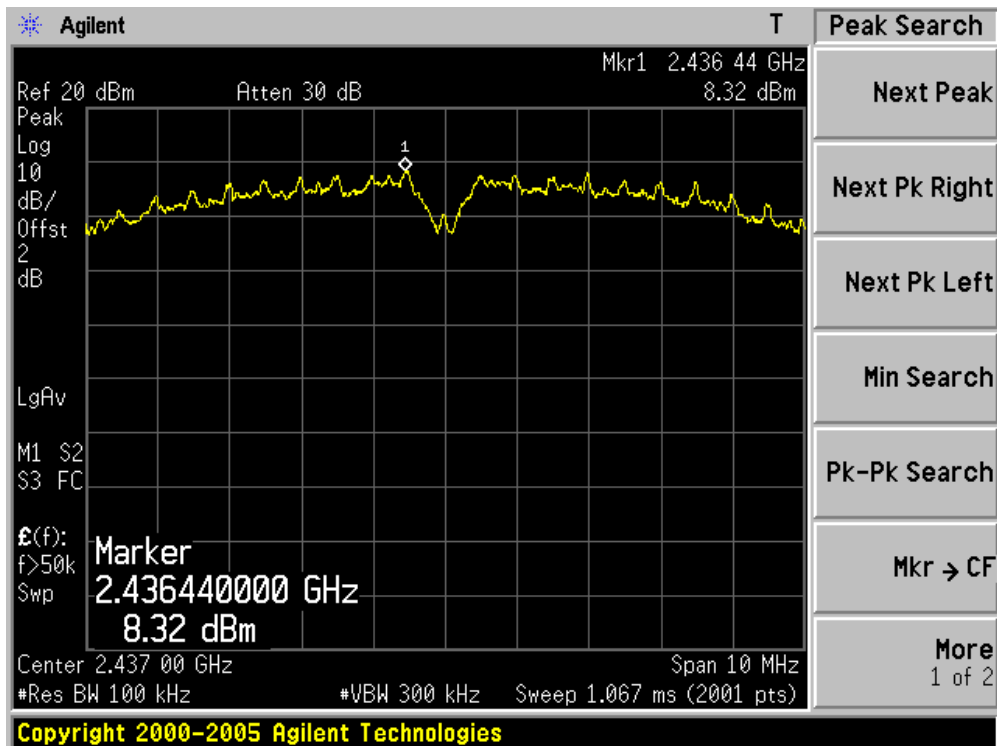
Product	:	IP-STB
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b (Chain 1)

Channel No.	Frequency (MHz)	Reading Value (dBm)		BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
		Chain 1	Chain 2				
01	2412	9.02	N/A	-15.2	-6.18	8	Pass
06	2437	8.32	N/A	-15.2	-6.88	8	Pass
11	2462	6.43	N/A	-15.2	-8.77	8	Pass

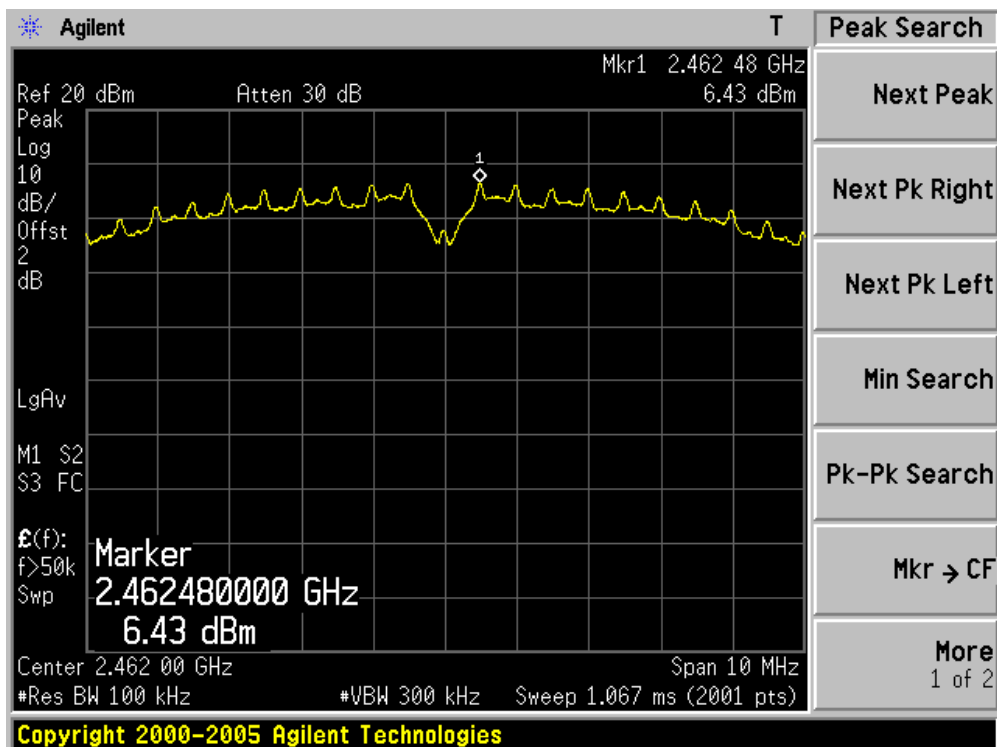
Channel 01 (2412MHz)



Channel 06 (2437MHz)



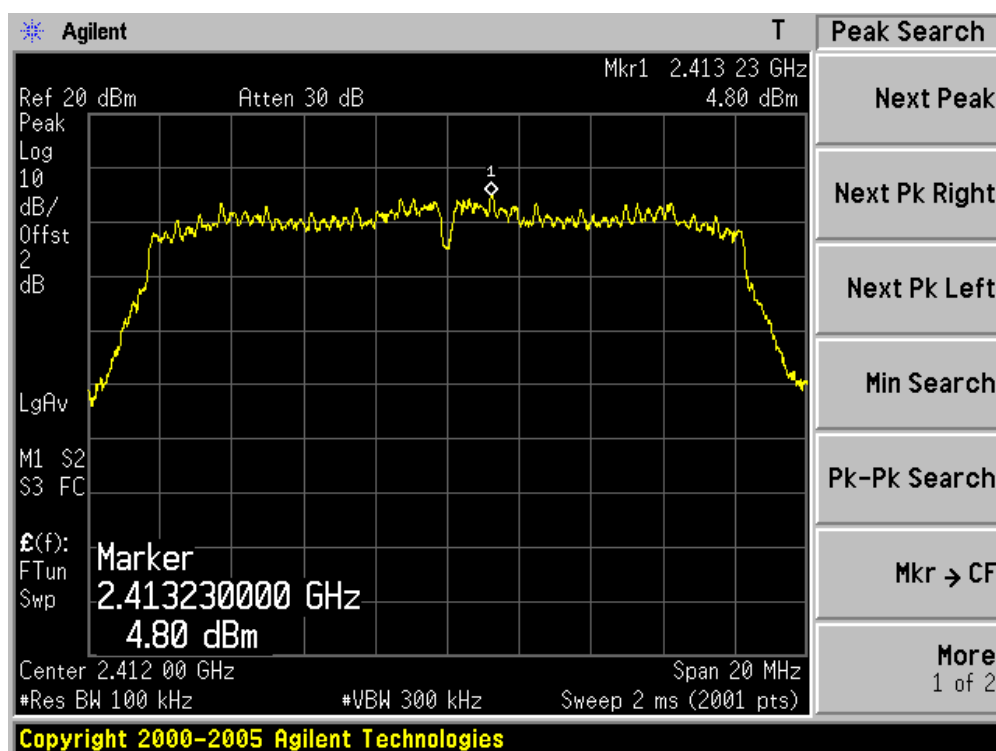
Channel 11 (2462MHz)



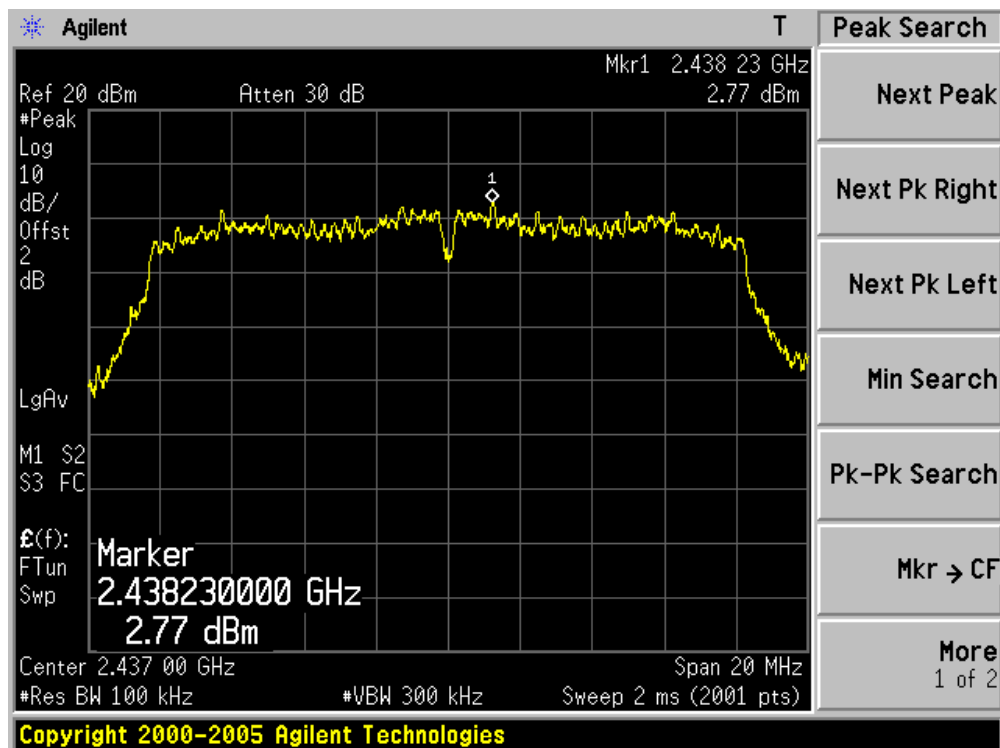
Product	:	IP-STB
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g (Chain 1)

Channel No.	Frequency (MHz)	Reading Value (dBm)		BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
		Chain 1	Chain 2				
01	2412	4.80	N/A	-15.2	-10.40	8	Pass
06	2437	2.77	N/A	-15.2	-12.43	8	Pass
11	2462	5.57	N/A	-15.2	-9.63	8	Pass

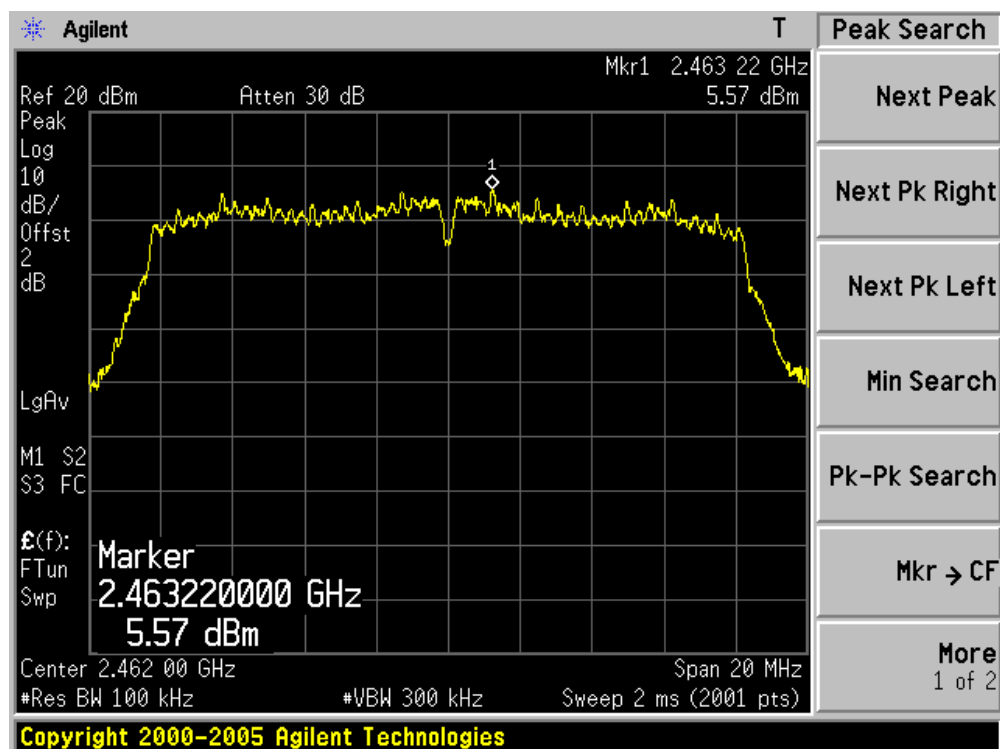
Channel 01 (2412MHz)



Channel 06 (2437MHz)



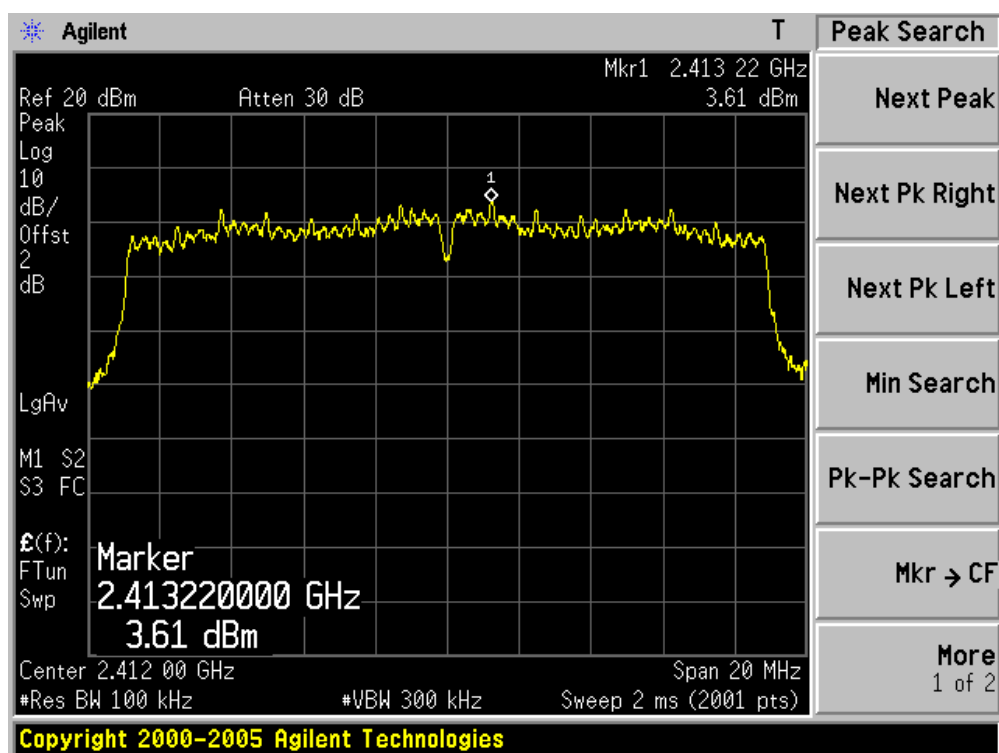
Channel 11 (2462MHz)



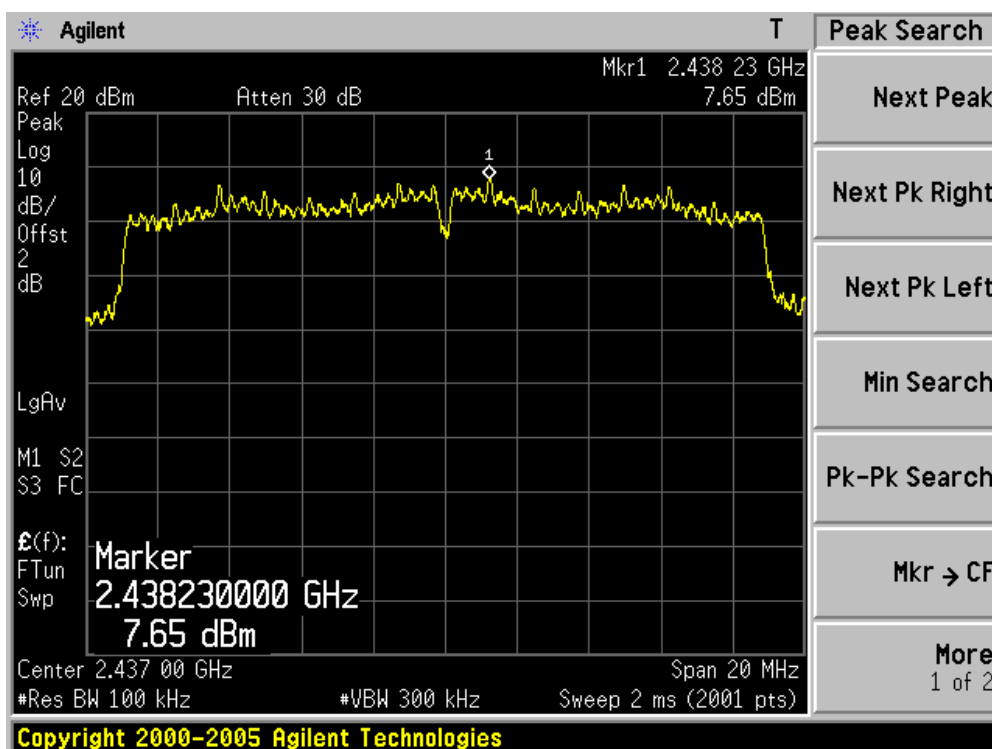
Product	:	IP-STB
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz) (Chain 1)

Channel No.	Frequency (MHz)	Reading Value (dBm)		BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
		Chain 1	Chain 2				
01	2412	3.61	N/A	-15.2	-11.59	8	Pass
06	2437	7.65	N/A	-15.2	-7.55	8	Pass
11	2462	4.12	N/A	-15.2	-11.08	8	Pass

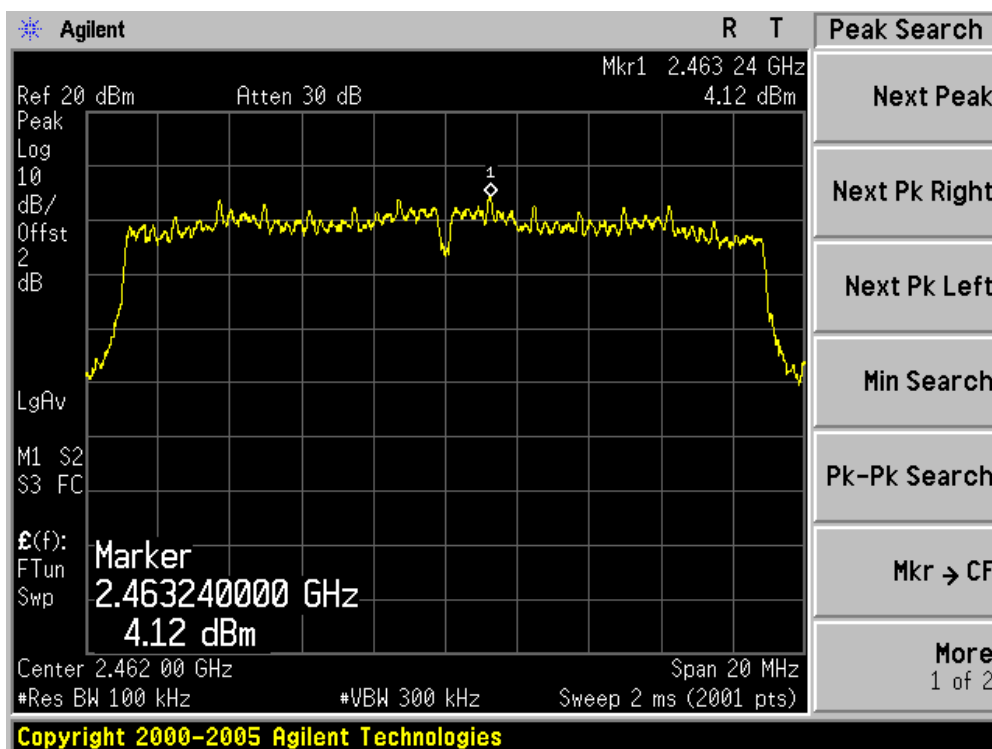
Channel 01 (2412MHz)



Channel 06 (2437MHz)



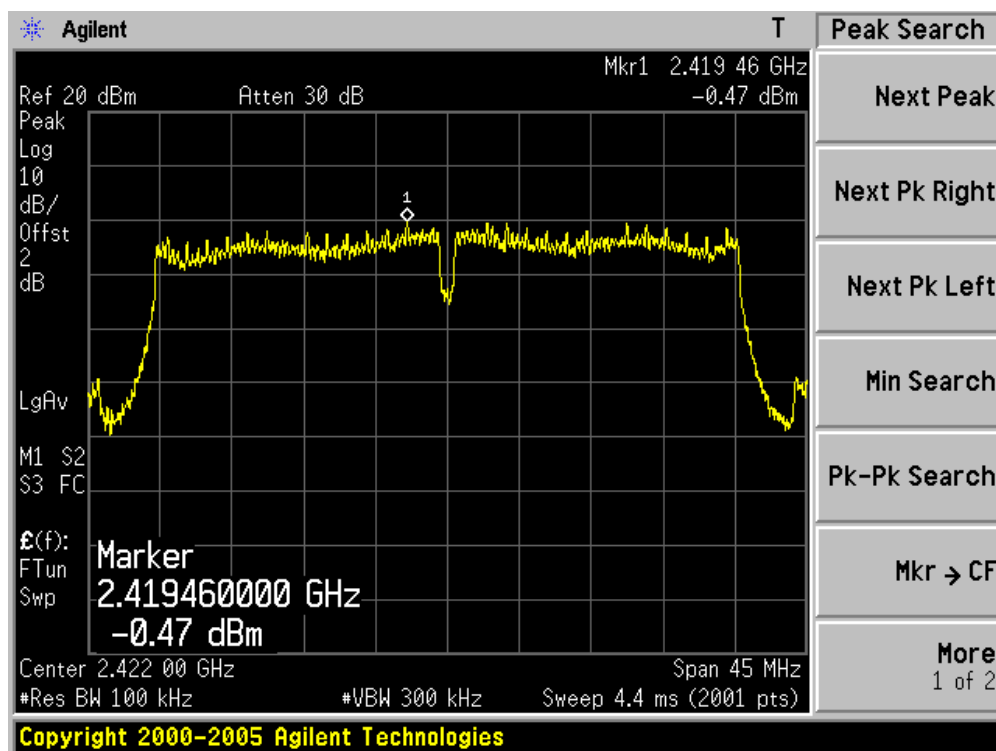
Channel 11 (2462MHz)



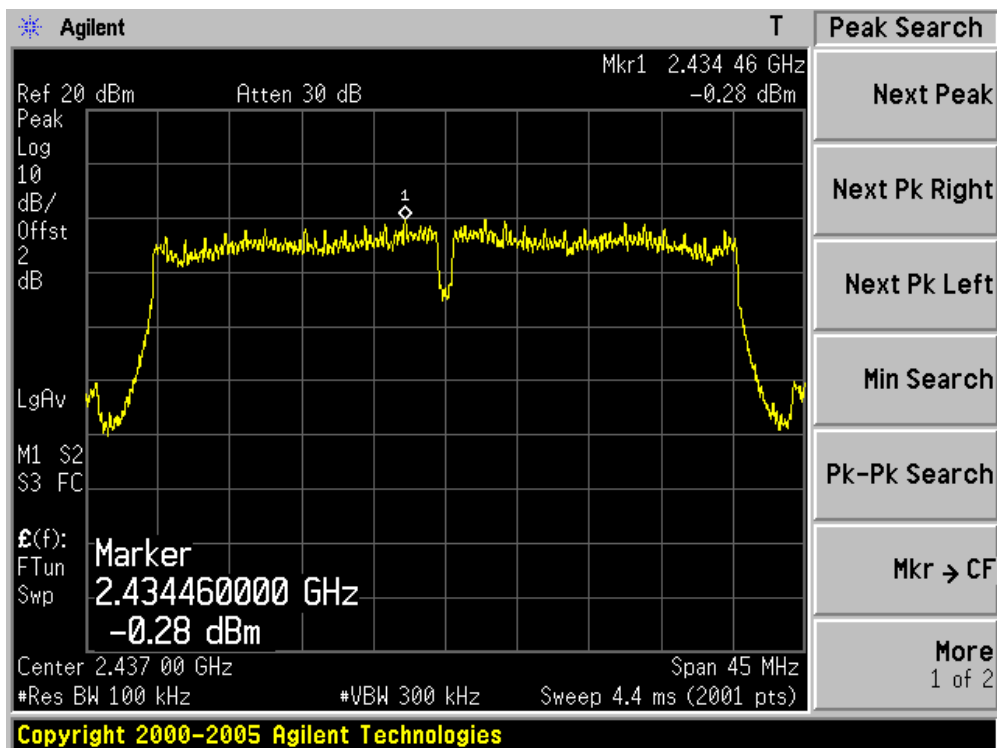
Product	:	IP-STB
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz) (Chain 1)

Channel No.	Frequency (MHz)	Reading Value (dBm)		BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
		Chain 1	Chain 2				
03	2422	-0.47	N/A	-15.2	-15.67	8	Pass
06	2437	-0.28	N/A	-15.2	-15.48	8	Pass
09	2452	0.05	N/A	-15.2	-15.15	8	Pass

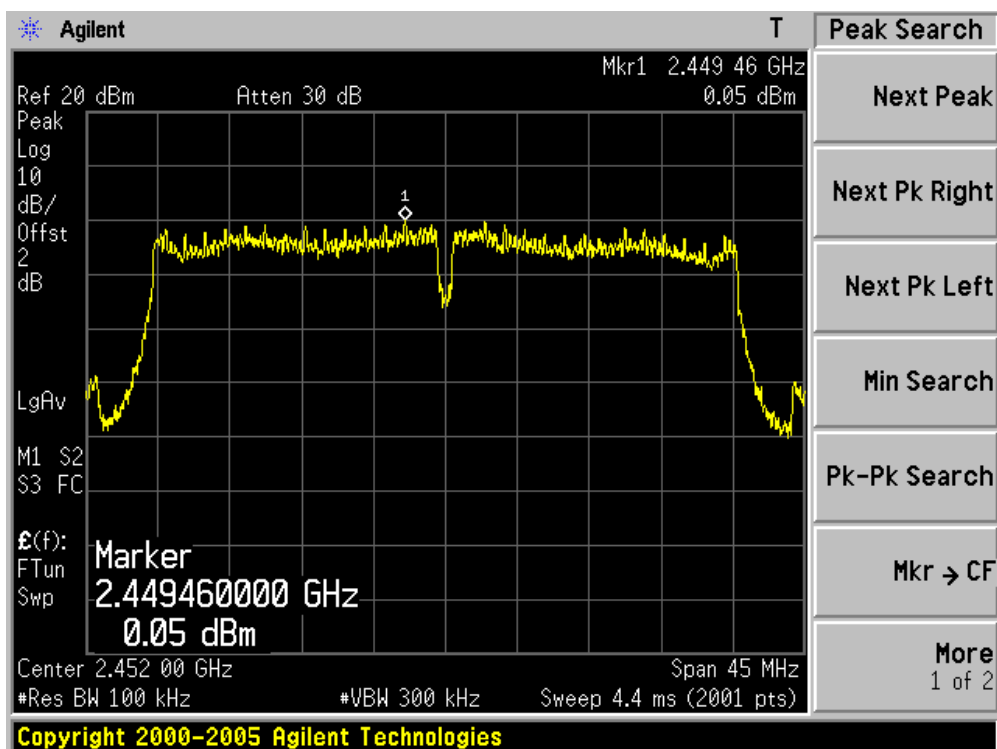
Channel 03 (2422MHz)



Channel 06 (2437MHz)



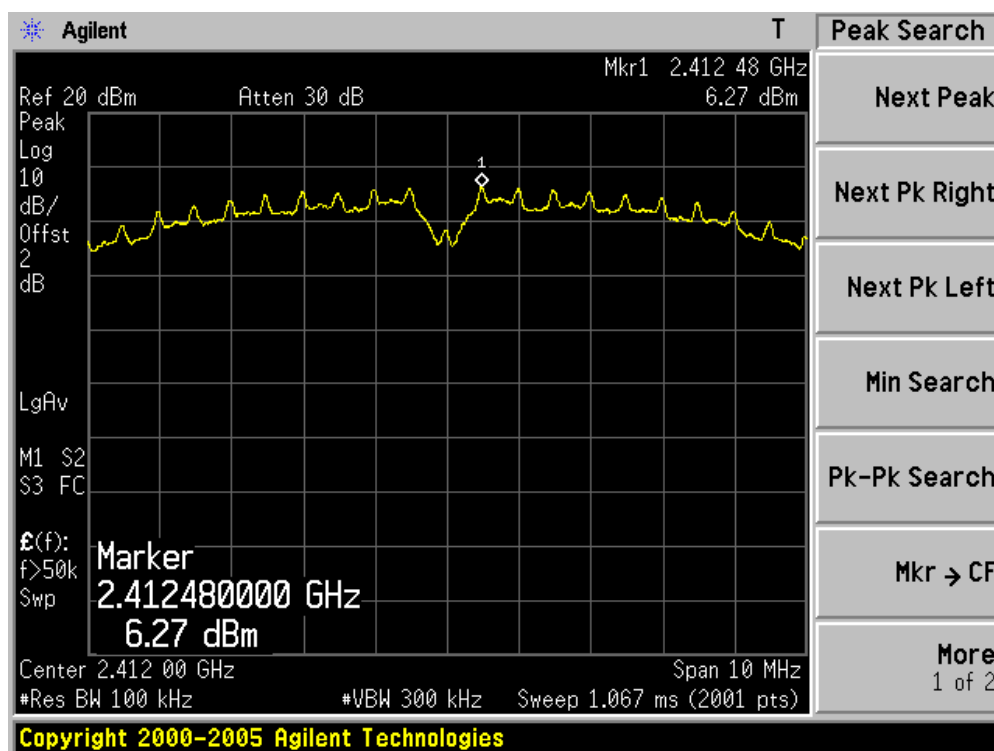
Channel 09 (2452MHz)



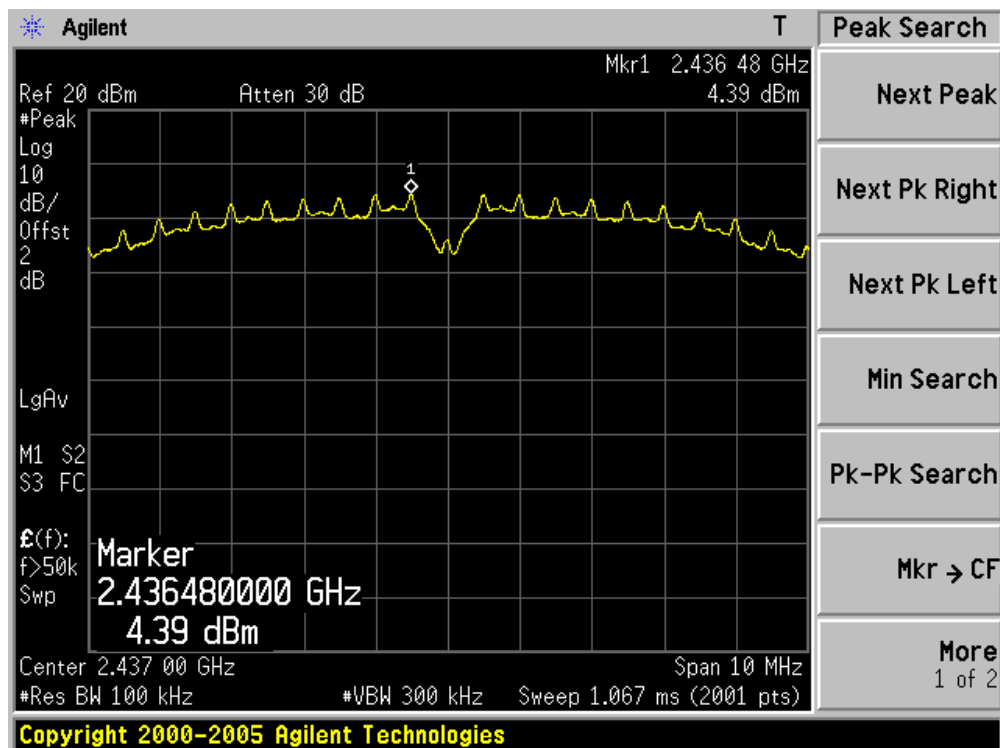
Product	:	IP-STB
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11b (Chain 2)

Channel No.	Frequency (MHz)	Reading Value (dBm)		BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
		Chain 1	Chain 2				
01	2412	N/A	6.27	-15.2	-8.93	8	Pass
06	2437	N/A	4.39	-15.2	-10.81	8	Pass
11	2462	N/A	3.78	-15.2	-11.42	8	Pass

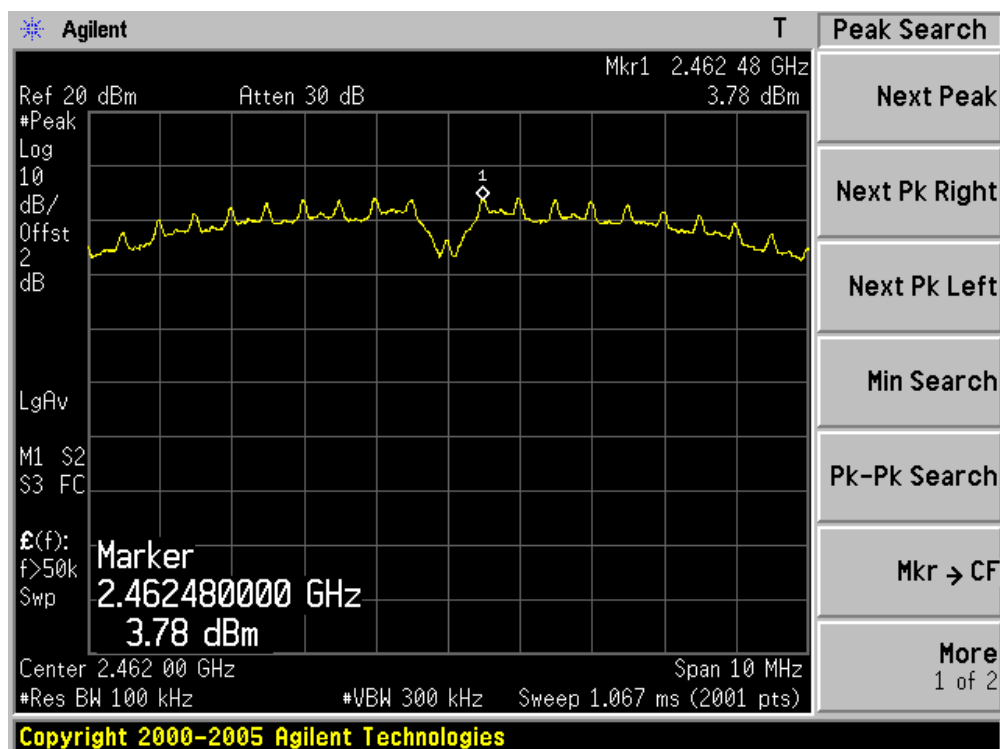
Channel 01 (2412MHz)



Channel 06 (2437MHz)



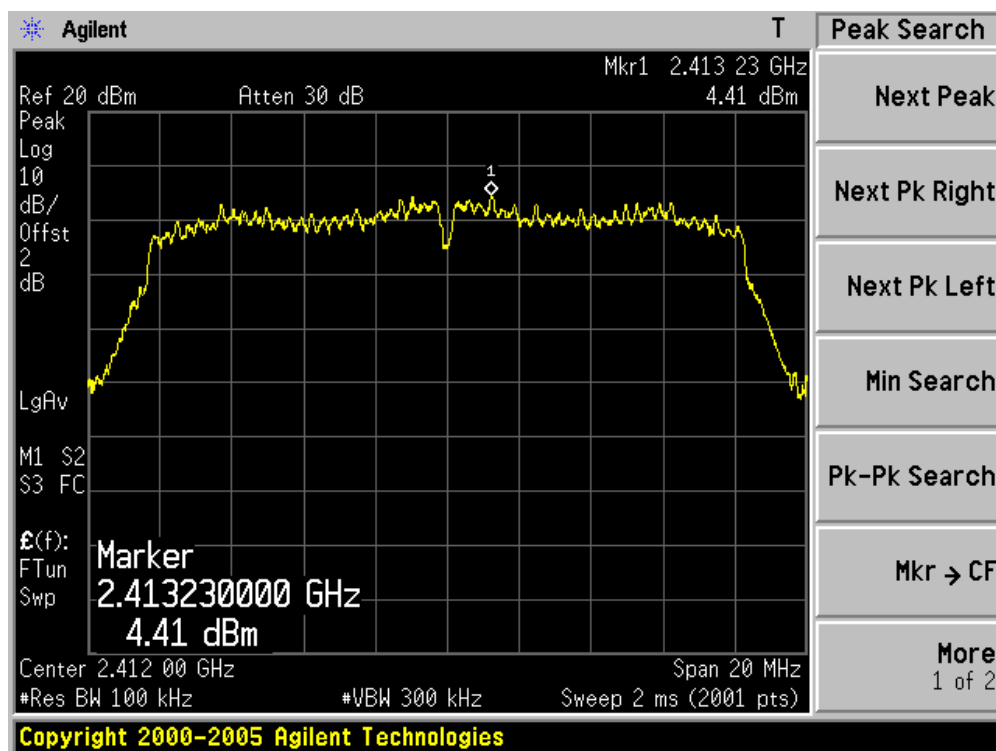
Channel 11 (2462MHz)



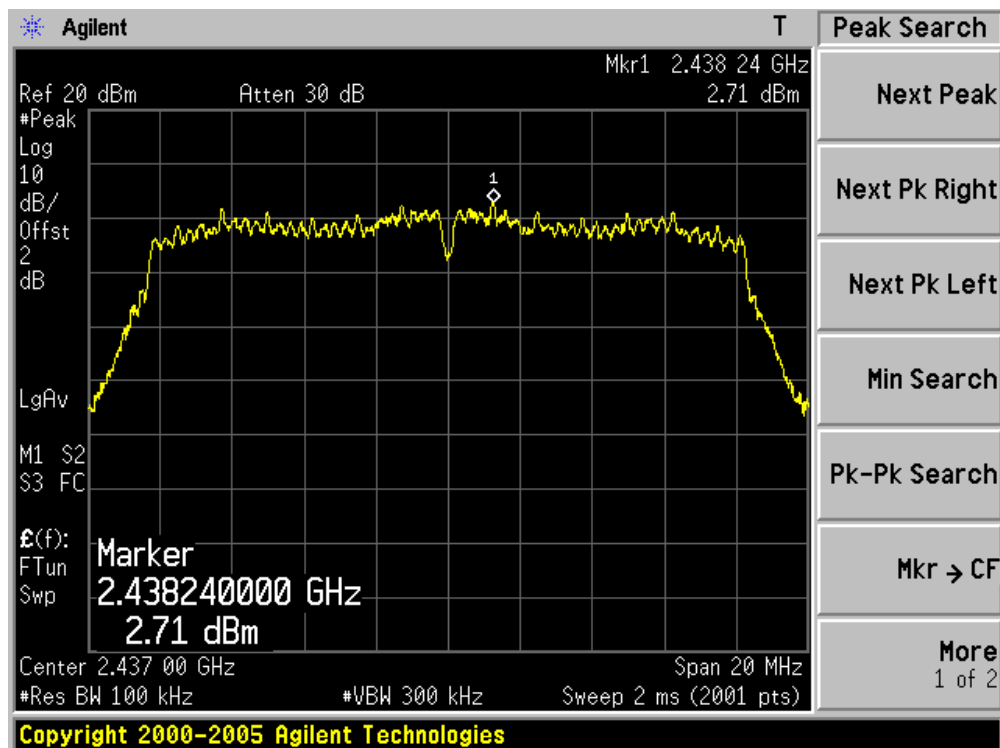
Product	:	IP-STB
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11g (Chain 2)

Channel No.	Frequency (MHz)	Reading Value (dBm)		BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
		Chain 1	Chain 2				
01	2412	N/A	4.41	-15.2	-10.79	8	Pass
06	2437	N/A	2.71	-15.2	-12.49	8	Pass
11	2462	N/A	5.36	-15.2	-9.84	8	Pass

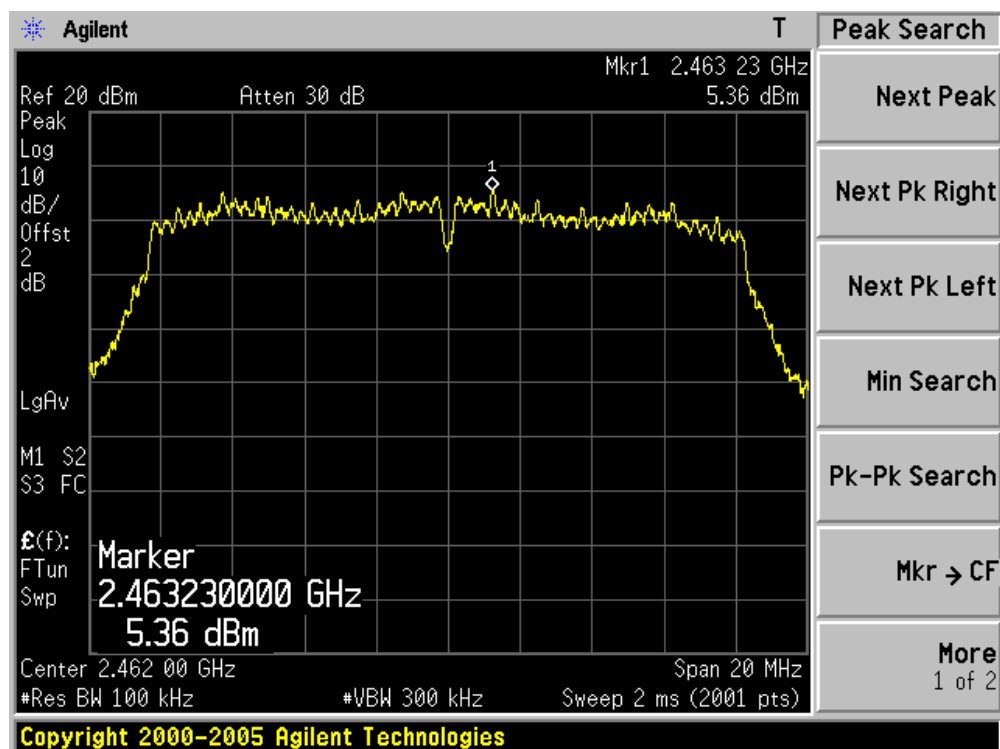
Channel 01 (2412MHz)



Channel 06 (2437MHz)



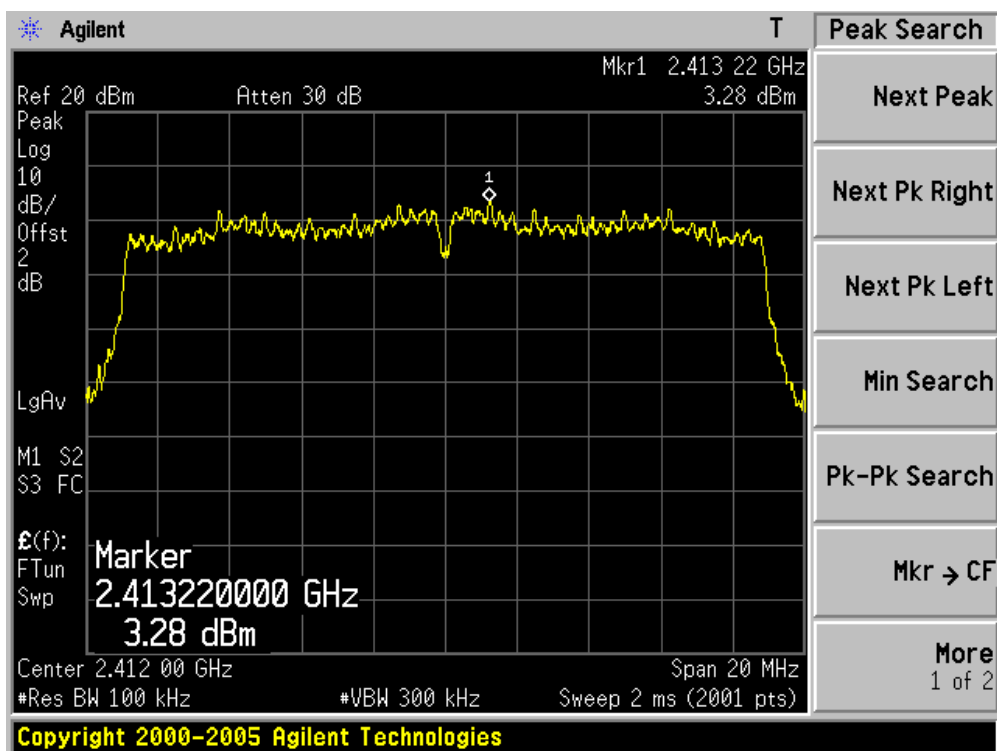
Channel 11 (2462MHz)



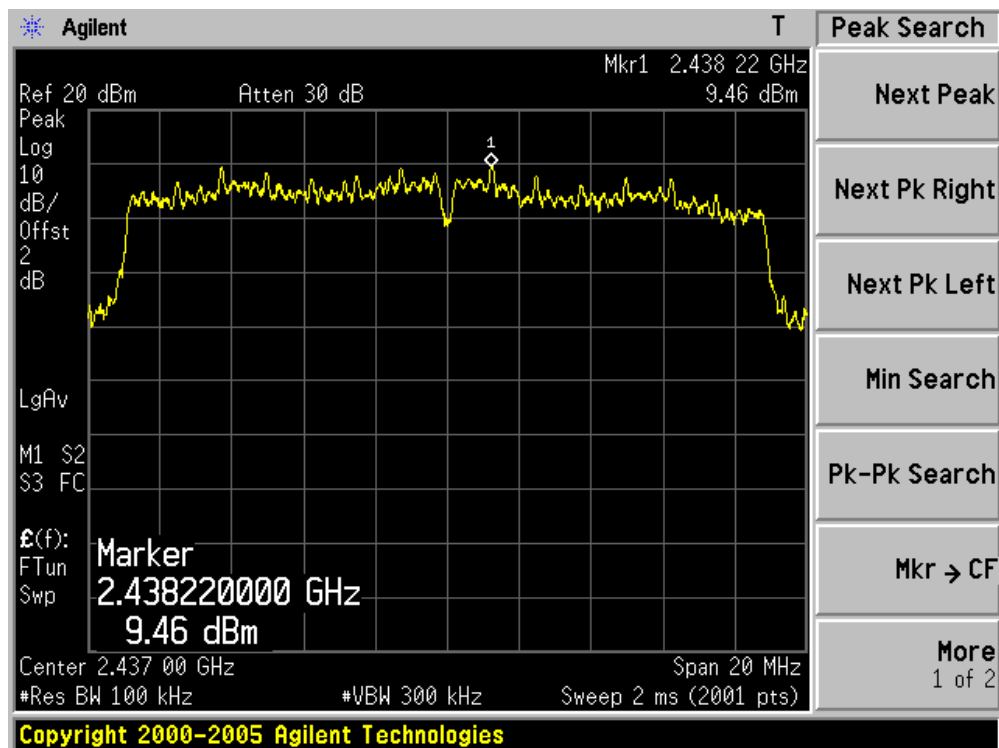
Product	:	IP-STB
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz) (Chain 2)

Channel No.	Frequency (MHz)	Reading Value (dBm)		BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
		Chain 1	Chain 2				
01	2412	N/A	3.28	-15.2	-11.92	8	Pass
06	2437	N/A	9.46	-15.2	-5.74	8	Pass
11	2462	N/A	3.85	-15.2	-11.35	8	Pass

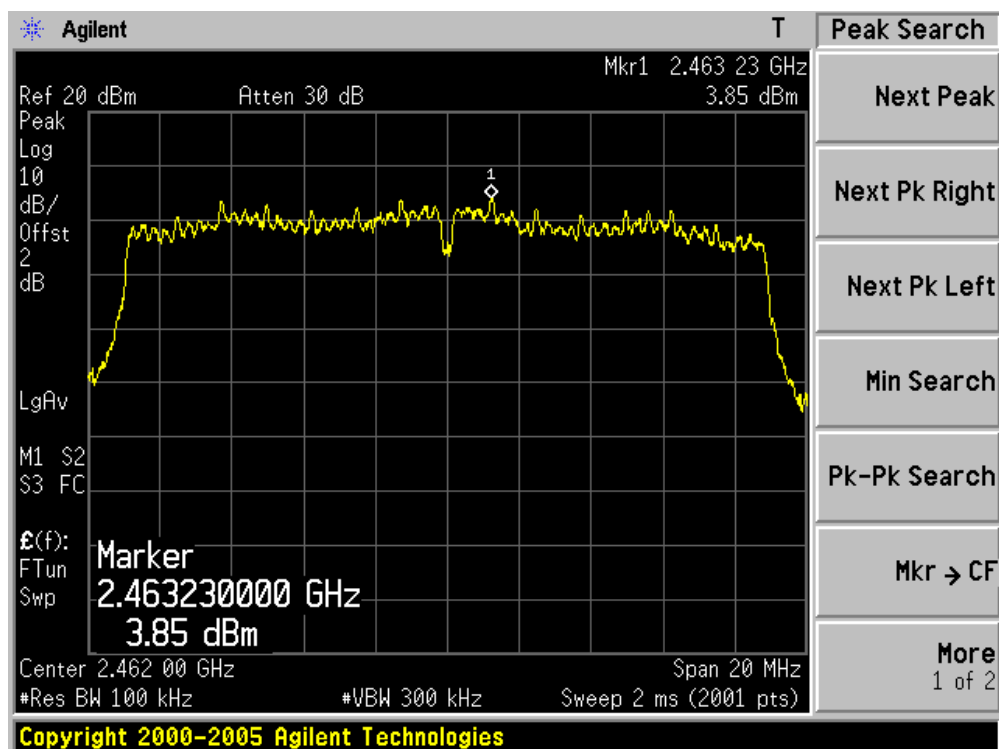
Channel 01 (2412MHz)



Channel 06 (2437MHz)



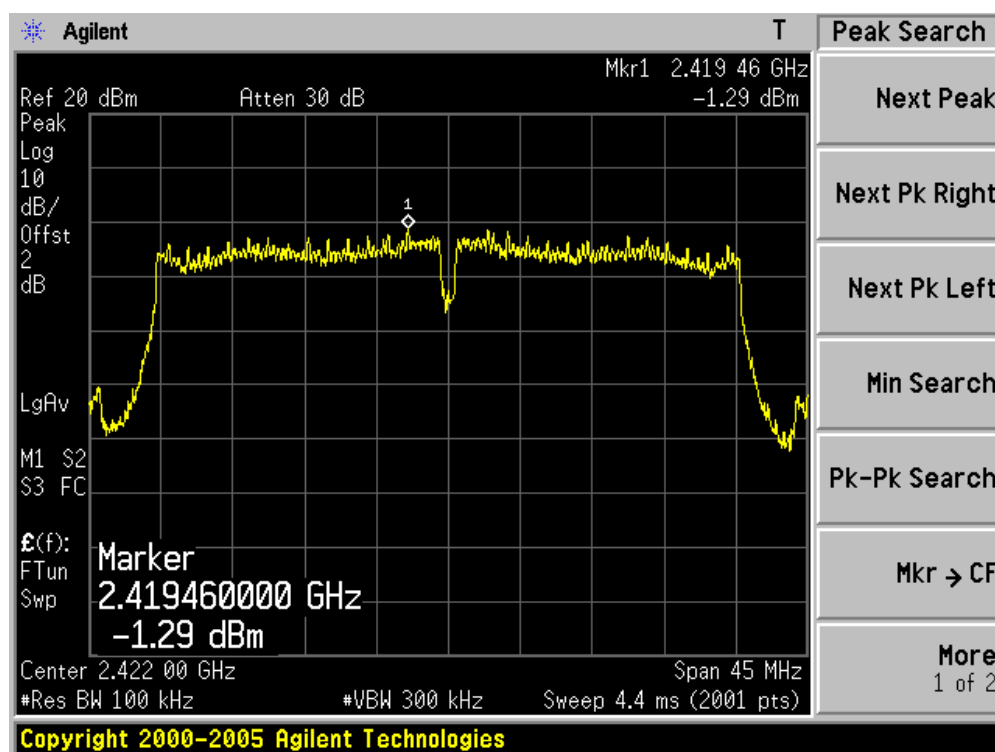
Channel 11 (2462MHz)



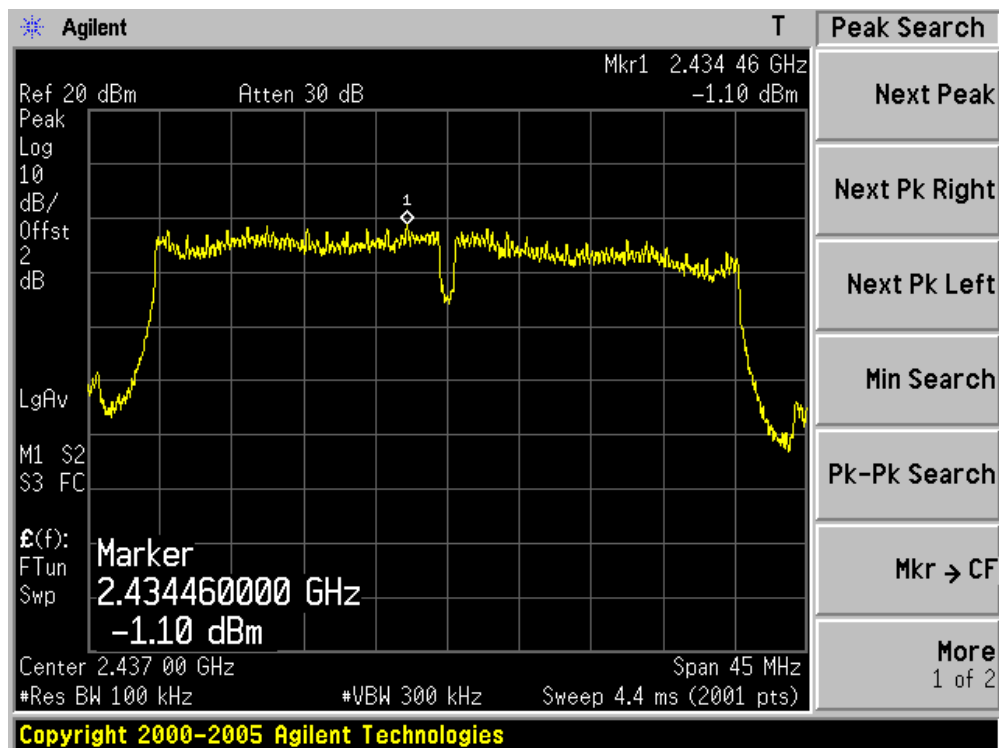
Product	:	IP-STB
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz) (Chain 2)

Channel No.	Frequency (MHz)	Reading Value (dBm)		BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
		Chain 1	Chain 2				
03	2422	N/A	-1.29	-15.2	-16.49	8	Pass
06	2437	N/A	-1.10	-15.2	-16.3	8	Pass
09	2452	N/A	-0.71	-15.2	-15.91	8	Pass

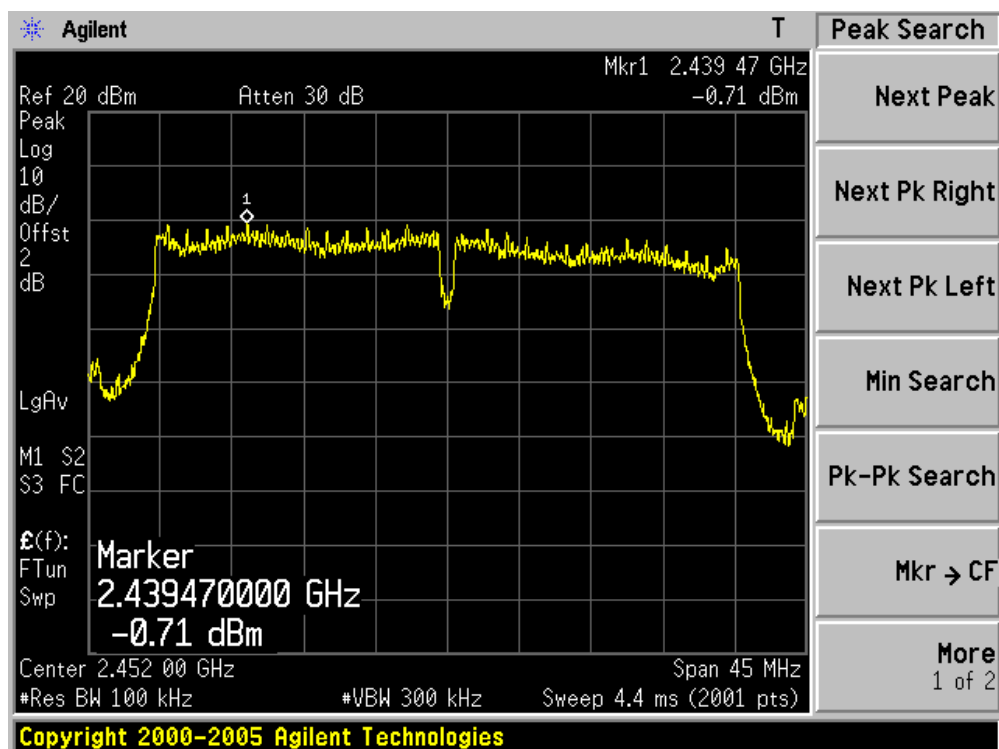
Channel 03 (2422MHz)



Channel 06 (2437MHz)



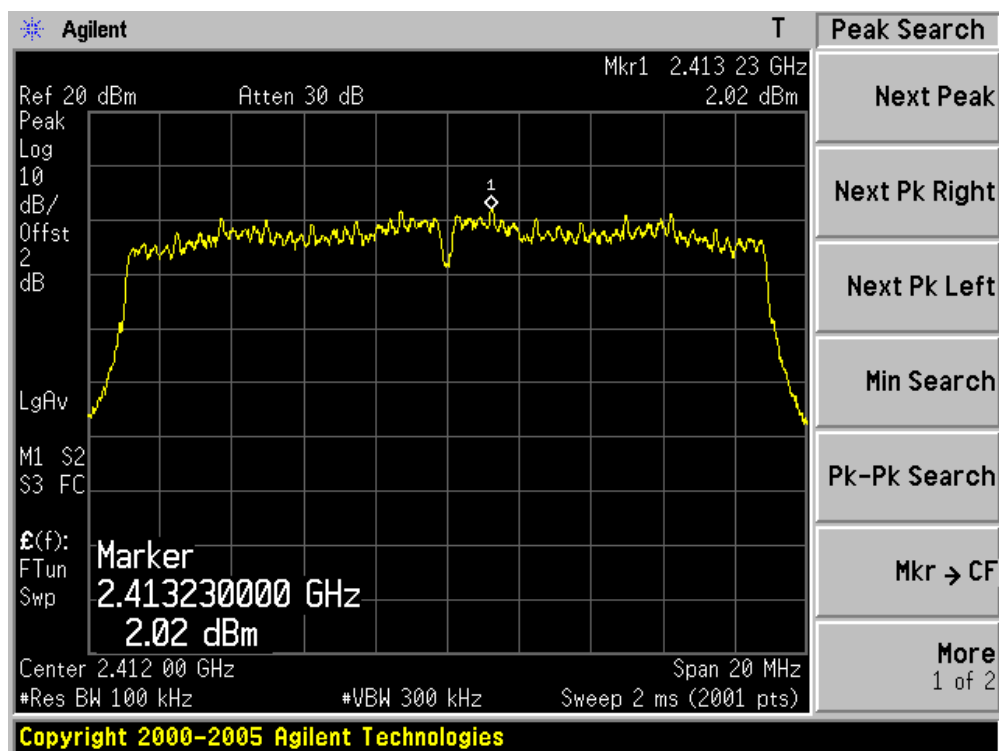
Channel 09 (2452MHz)



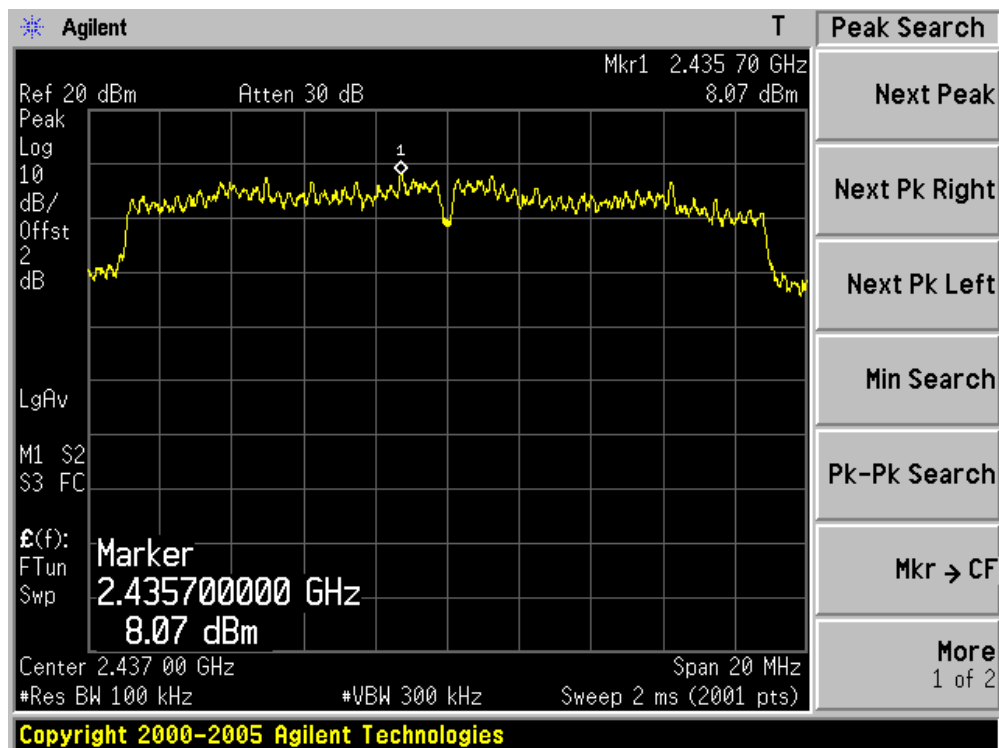
Product	:	IP-STB
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz) (Chain 1+2)

Channel No.	Frequency (MHz)	Reading Value (dBm)		BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
		Chain 1	Chain 2				
01	2412	2.02	1.85	-15.2	-10.25	8	Pass
06	2437	8.07	6.91	-15.2	-4.66	8	Pass
11	2462	2.92	2.65	-15.2	-9.40	8	Pass

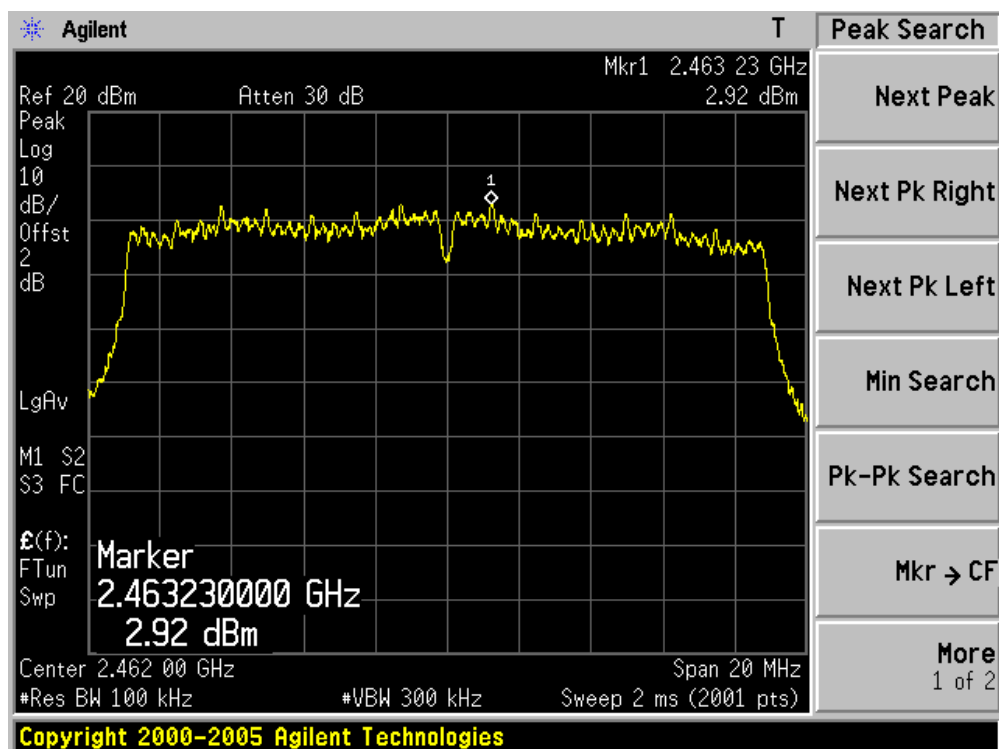
Channel 01 (2412MHz) – Chain 1



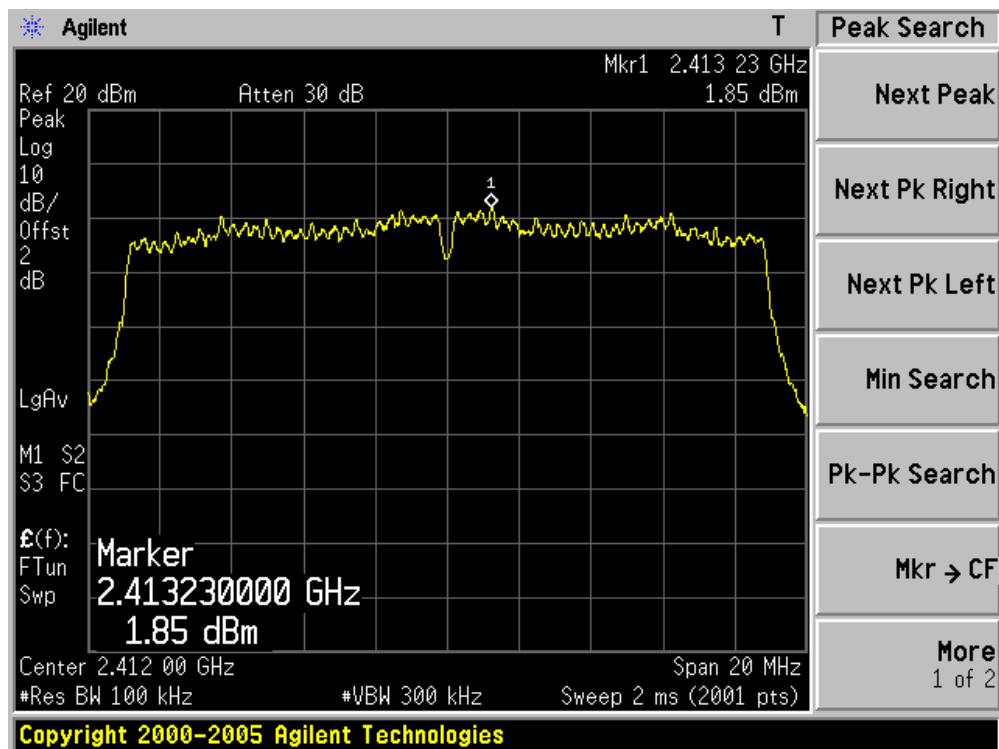
Channel 06 (2437MHz) – Chain 1



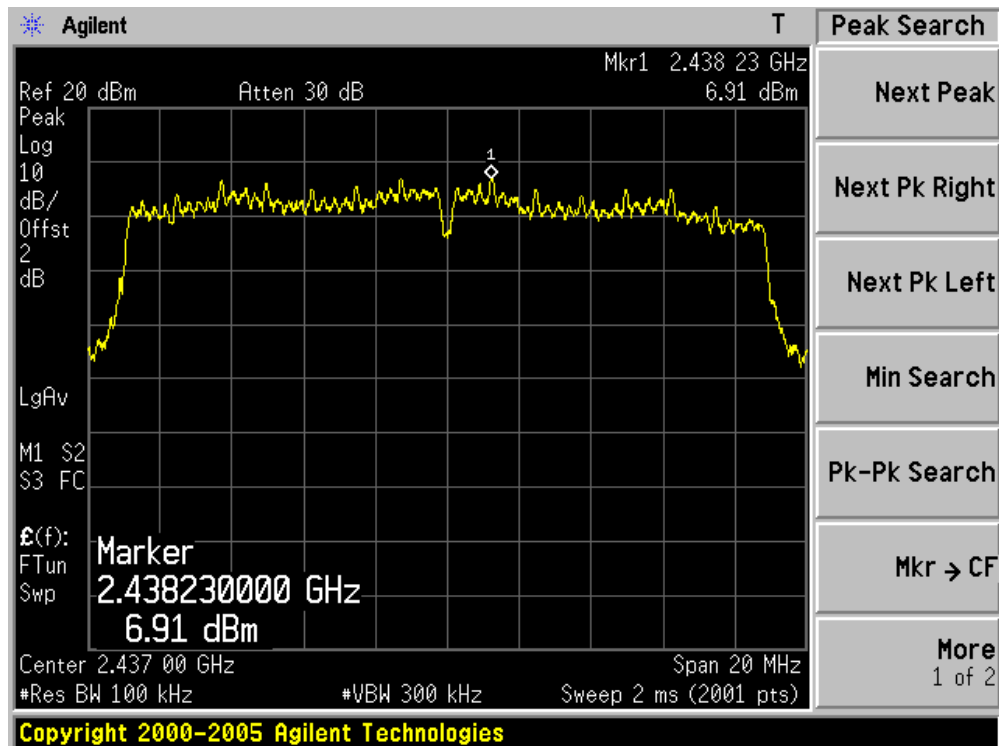
Channel 11 (2462MHz) – Chain 1



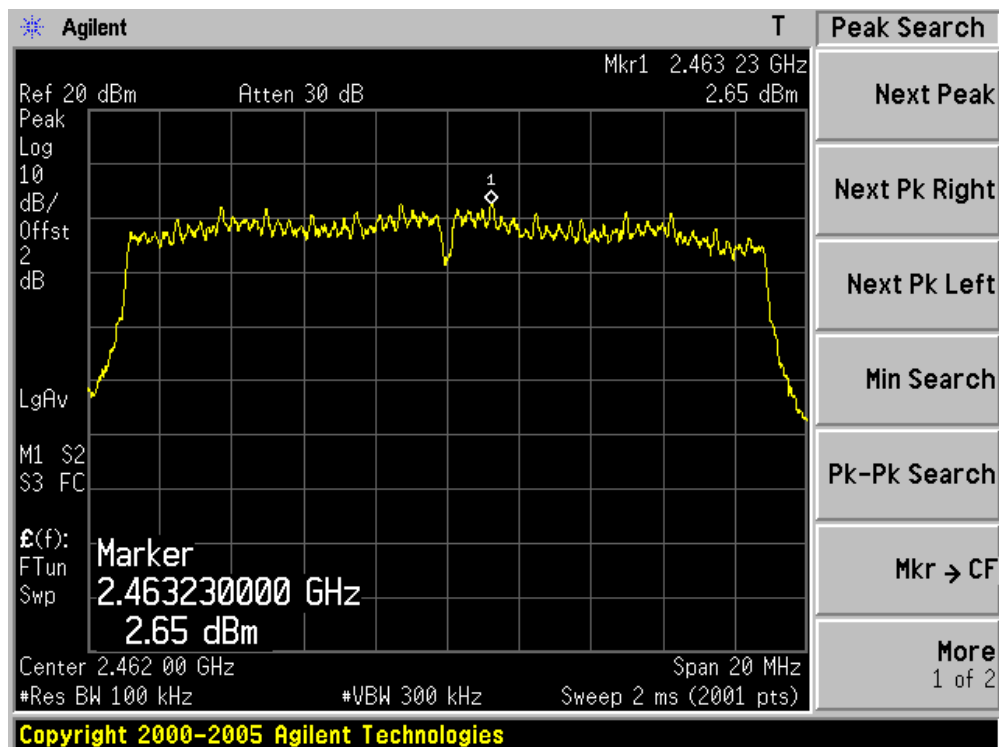
Channel 01 (2412MHz) – Chain 2



Channel 06 (2437MHz) – Chain 2



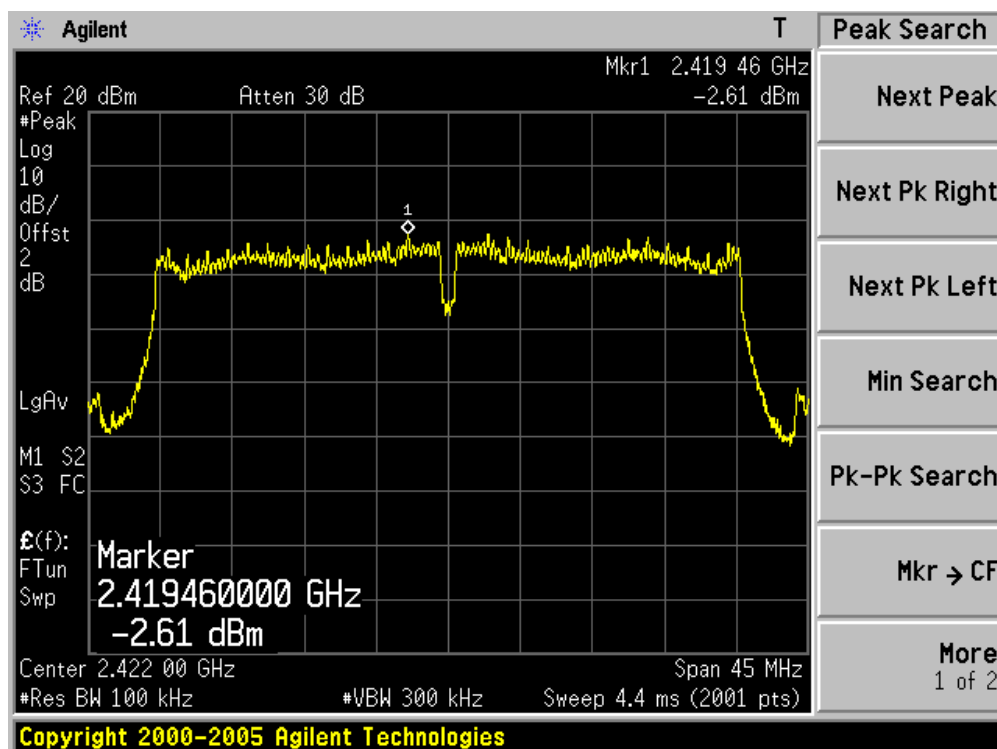
Channel 11 (2462MHz) – Chain 2



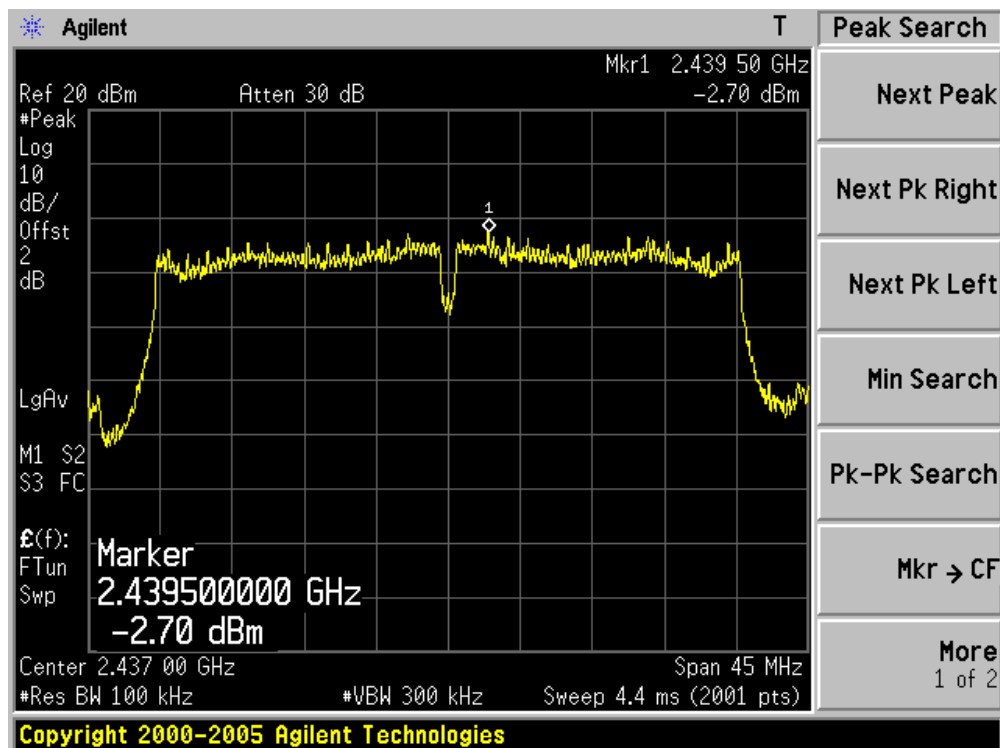
Product	:	IP-STB
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz) (Chain 1+2)

Channel No.	Frequency (MHz)	Reading Value (dBm)		BWCF (dB)	PSD (dBm)	Limit (dBm)	Result
		Chain 1	Chain 2				
03	2422	-2.61	-2.81	-15.2	-14.9	8	Pass
06	2437	-2.70	-2.52	-15.2	-14.8	8	Pass
09	2452	0.33	0.30	-15.2	-11.87	8	Pass

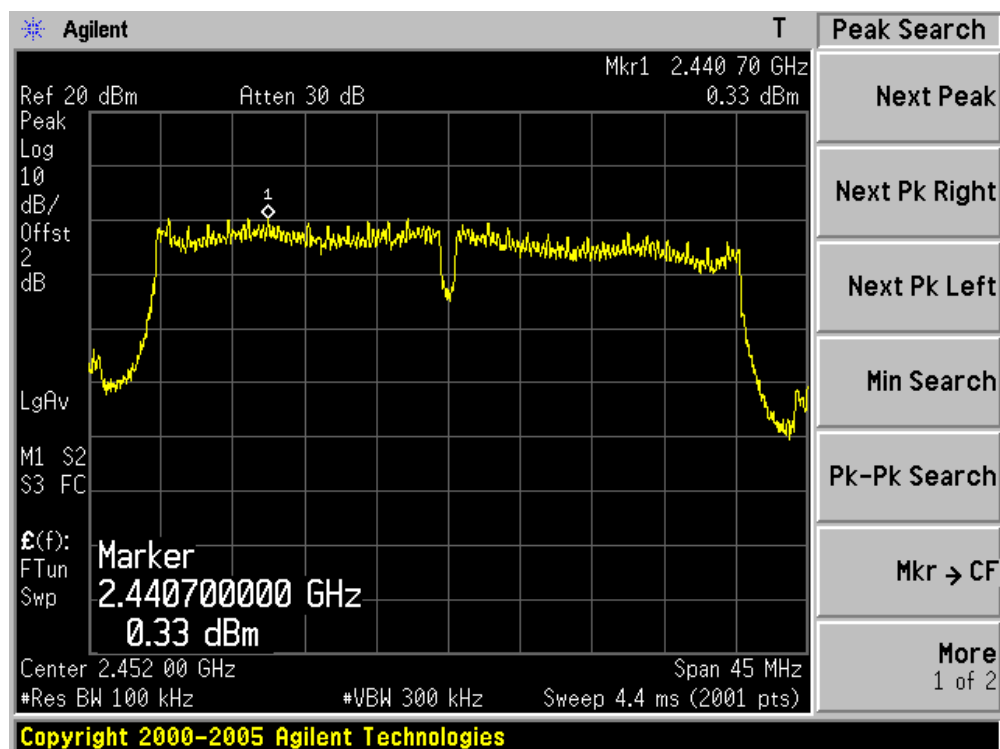
Channel 03 (2422MHz) – Chain 1



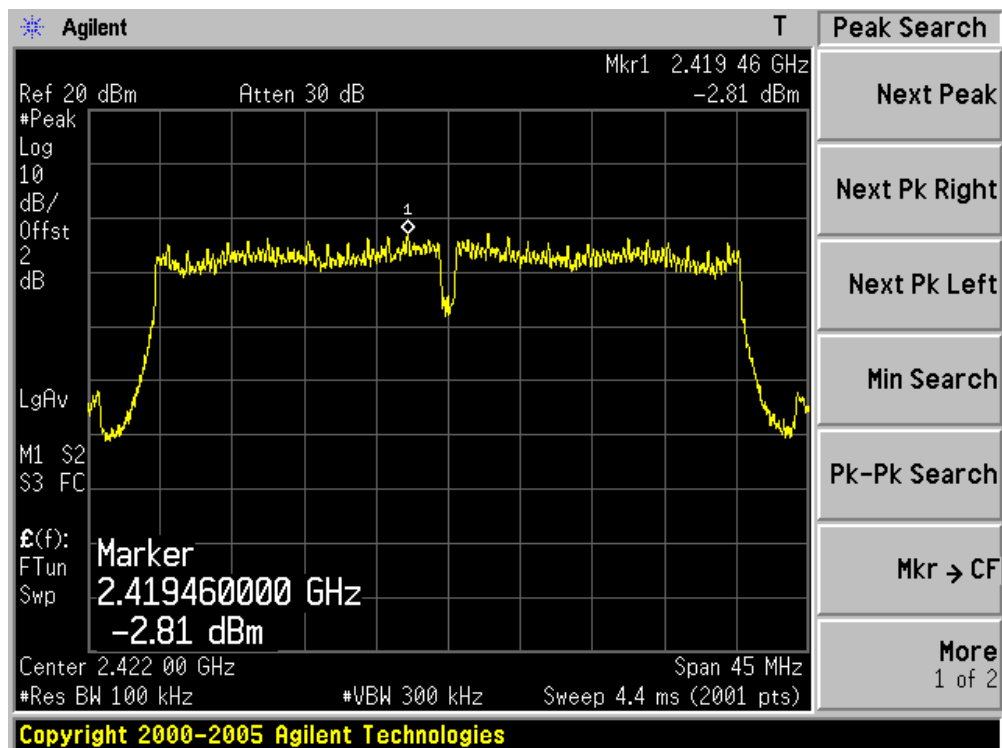
Channel 06 (2437MHz) – Chain 1



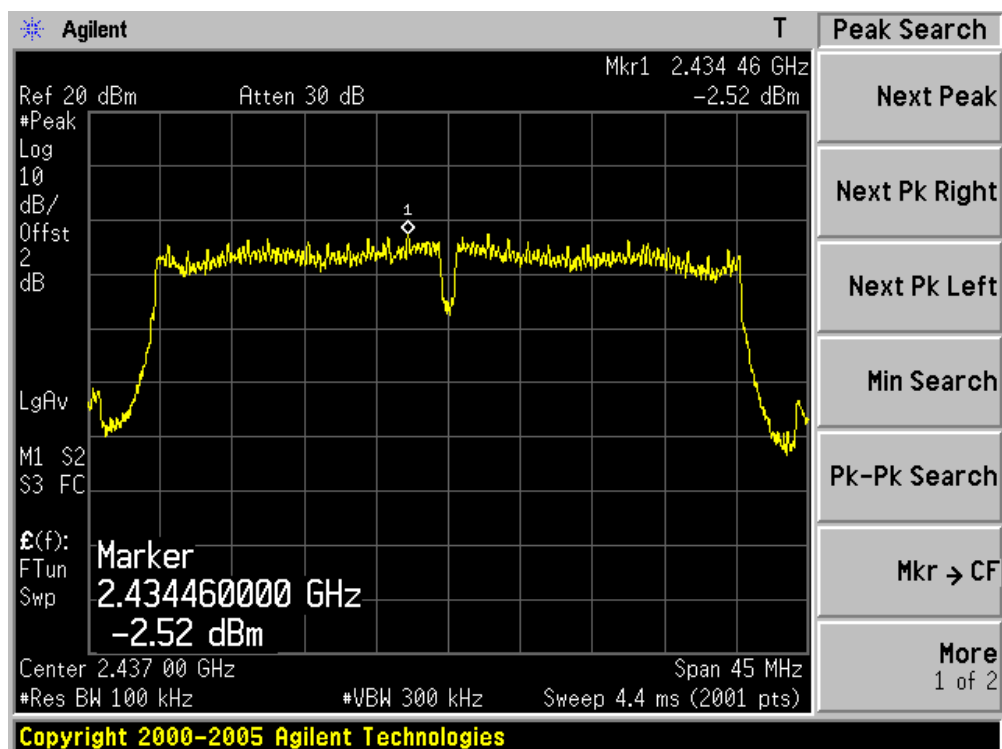
Channel 09 (2452MHz) – Chain 1



Channel 03 (2422MHz) – Chain 2



Channel 06 (2437MHz) – Chain 2



Channel 09 (2452MHz) – Chain 2

