Test Report

Industry Canada RSS-Gen Issue 3/RSS-210 Issue 8
FCC Part15 Subpart E

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

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

Date of Receipt	:	14/09/2012
Test Date	:	14/09/2012~23/09/2012
Issued Date	:	24/09/2012
Report No.	:	129S019R-RF-US-P09V01
Report Version	:	V2.0-draft

Test Report Certification

Issued Date : 24/09/2012
Report No. : 129S019R-RF-US-P09V01

QuieTek

Product Name	:	IP-STB
Applicant	:	Roku Inc.
Address	:	12980 Saratoga Ave, Suite D Saratoga, CA 95070
Manufacturer	:	Ambit Mircosystems (Shanghai) LTD.
Address	:	1925, Nanle Road, Songjiang Export Processing Zone, Shanghai, China 201613
Model No.	:	4200X
FCC ID	:	TC2-R1004
IC	:	5959A-R1004
EUT Voltage	:	12V
Brand Name	:	Roku
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart E: 2012 ANSI C63.4: 2009; ANSI C63.10: 2009 Industry Canada RSS-Gen Issue 3/RSS-210 Issue 8
Test Result	:	Complied
Performed Location	:	Suzhou EMC Laboratory No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., Suzhou, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Registration Number: 800392; IC Lab Code: 4075B

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Laboratory Information

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

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
Germany	**:**	**TUV Rheinland**
Norway	**:**	**Nemko, DNV**
USA	**:**	**FCC, NVLAP**
Japan	**:**	**VCCI**
China	**:**	**CNAS**

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site :http://www.quietek.com/tw/ctg/cts/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/
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1. General Information

1.1. EUT Description

Product Name	IP-STB
Brand Name	Roku
Model No.	4200X
EUT Voltage	12V
Frequency Range	**For 2.4GHz Band** 802.11b/g/n(20MHz): 2412~2462MHz 802.11n(40MHz): 2422~2452MHz **For 5.0GHz Band** 802.11a/n(20MHz): 5180~5240MHz, 5745~5825MHz 802.11n(40MHz): 5190~5230MHz, 5755~5795MHz
Channel Number	For 2.4GHz Band 802.11b/g/n(20MHz): 11 802.11n(40MHz): 7 For 5.0GHz Band 802.11a/n(20MHz): 9 802.11n(40MHz): 4
Type of Modulation	802.11b: DSSS
	802.11a/g/n: OFDM
Data Rate	802.11a/g: 6/9/12/18/24/36/48/54 Mbps
	802.11b: 1/2/5.5/11 Mbps
	802.11n: up to 300 Mbps
Channel Control	Auto
Antenna Delivery	2*Tx + 2*Rx
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List
Components	
Adapter #1	Brand Name: AmpowerTek M/N: T99A123.00 Input: 100-120V~0.5A 50/60Hz Output: 12V, 1A
Adapter #2	Brand Name: Roku M/N: FA-1201000SUC Input: 120V~60Hz 0.5A Output: 12V, 1.0A

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

Note

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

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

For 2.4GHz Band

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

For 5.0GHz Band

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

802.11a/b/g/n Antenna List

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

1.2. Mode of Operation

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

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

Note:

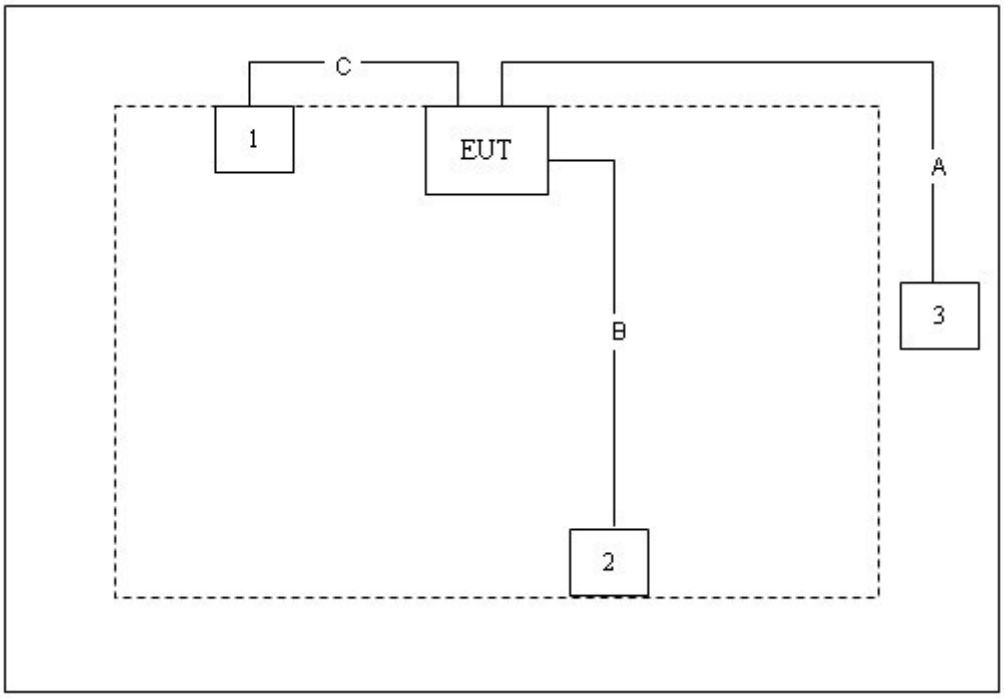
1. Regards to the frequency band operation: the lowest、middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. This device is a composite device in accordance with Part 15 Subpart B regulations. The function for the receiver was measured and made a test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

1.3. Tested System Details

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

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

1.4. Configuration of Tested System

Connection Diagram


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

1.5. EUT Exercise Software

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

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.207	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.209	Yes	No
Operation Frequency Range of 20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2012 15.215(c)	Yes	No
26dB Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.407(a)	Yes	No
Power Output	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.407(a)	Yes	No
Peak Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.407(a)	Yes	No
Peak Excursion	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.407(a)(6)	Yes	No
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.205, 15.407(b)	Yes	No
Frequency Stability	FCC CFR Title 47 Part 15 Subpart C: 2012 Section 15.407(g)	Yes	No

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

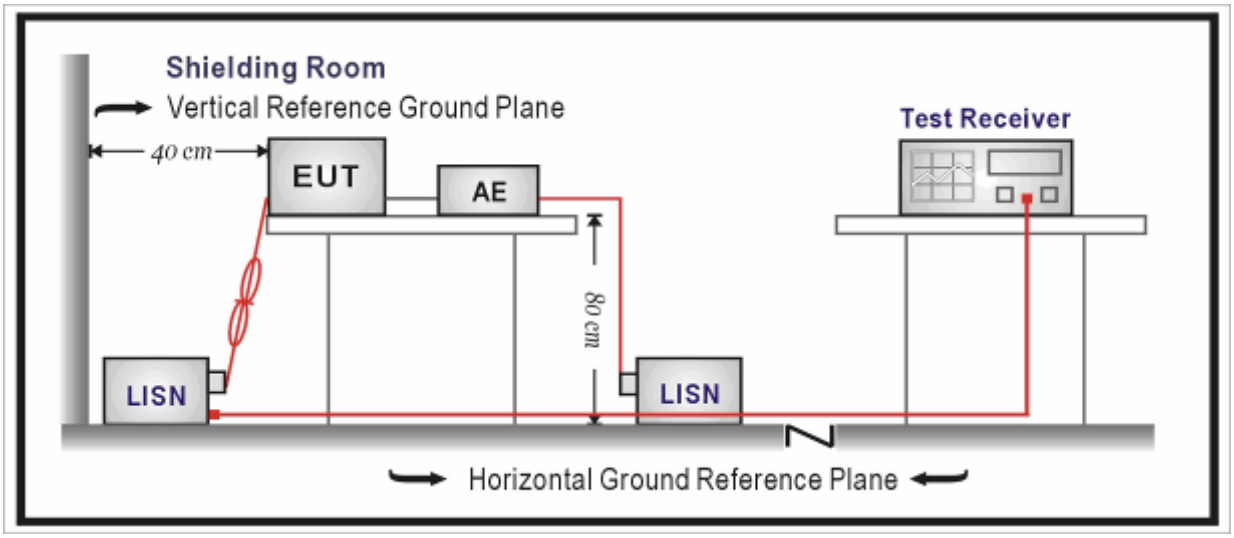
3.1. Test Equipment

Conducted Emission / TR-1

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
EMI Test Receiver	R&S	ESCI	100726	2013.04.18
Two-Line V-Network	R&S	ENV216	100043	2013.04.18
Two-Line V-Network	R&S	ENV216	100044	2013.09.17
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2013.03.02
50ohm Termination	SHX	TF2	07081401	2013.09.17
Temperature/Humidity Meter	zhicheng	ZC1-2	TR1-TH	2013.01.10

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

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

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

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

3.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 & ANSI C63.10: 2009.

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.

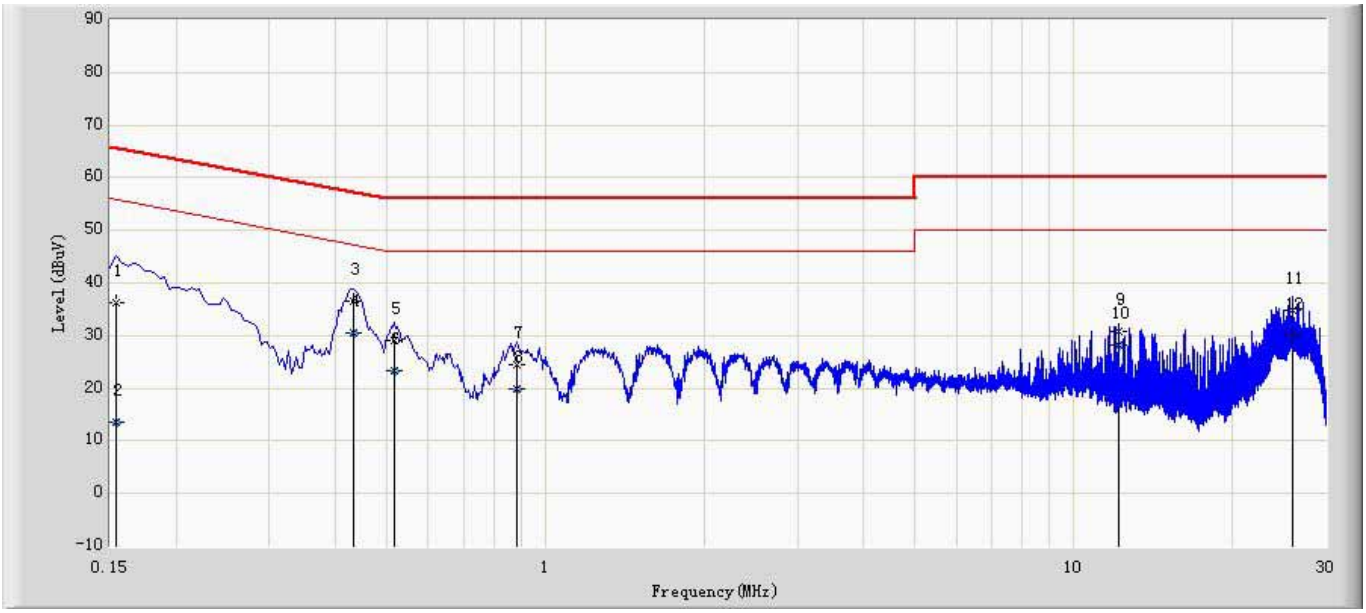
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

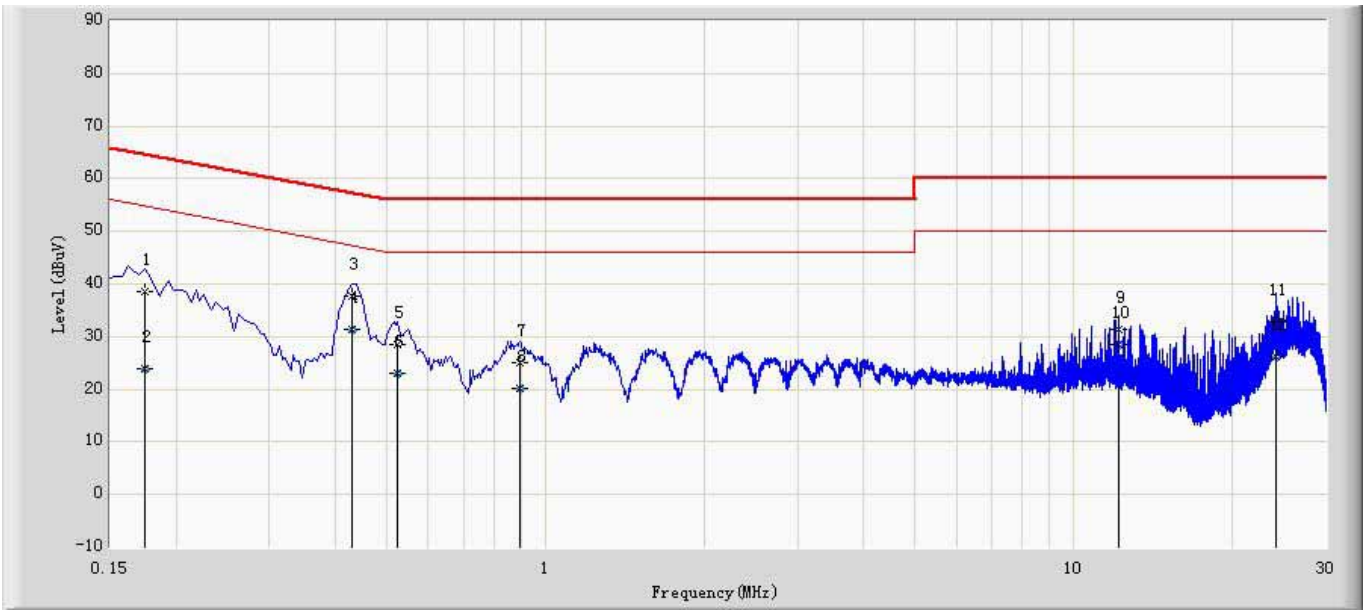
3.6. Test Result

Engineer: Toms	
Site: TR1	Time: 2012/09/23 - 17:47
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Line
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.154	36.341	26.495	-29.440	65.781	9.846	QP
2		0.154	13.678	3.832	-42.103	55.781	9.846	AV
3		0.434	36.640	26.738	-20.536	57.176	9.902	QP
4	*	0.434	30.575	20.673	-16.601	47.176	9.902	AV
5		0.518	29.027	19.124	-26.973	56.000	9.903	QP
6		0.518	23.256	13.352	-22.744	46.000	9.903	AV
7		0.882	24.542	14.722	-31.458	56.000	9.821	QP
8		0.882	19.809	9.988	-26.191	46.000	9.821	AV
9		12.198	30.844	20.782	-29.156	60.000	10.062	QP
10		12.198	28.254	18.192	-21.746	50.000	10.062	AV
11		25.874	34.779	24.216	-25.221	60.000	10.563	QP
12		25.874	30.078	19.515	-19.922	50.000	10.563	AV

Engineer: Toms	
Site: TR1	Time: 2012/09/23 - 17:47
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Neutral
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.174	38.688	28.727	-26.079	64.767	9.961	QP
2		0.174	24.040	14.079	-30.727	54.767	9.961	AV
3		0.430	37.730	27.705	-19.523	57.253	10.025	QP
4	*	0.430	31.293	21.269	-15.960	47.253	10.025	AV
5		0.526	28.475	18.439	-27.525	56.000	10.037	QP
6		0.526	22.938	12.902	-23.062	46.000	10.037	AV
7		0.894	25.052	15.067	-30.948	56.000	9.986	QP
8		0.894	20.296	10.310	-25.704	46.000	9.986	AV
9		12.198	31.286	20.992	-28.714	60.000	10.294	QP
10		12.198	28.566	18.272	-21.434	50.000	10.294	AV
11		24.098	32.814	22.387	-27.186	60.000	10.427	QP
12		24.098	26.071	15.644	-23.929	50.000	10.427	AV

4. Radiated Emission

4.1. Test Equipment

Radiated Emission / AC-2

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
EMI Test Receiver	R&S	ESCI	100573	2013.04.18
Loop Antenna	R&S	HFH2-Z2	833799/003	2012.11.22
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2012.10.18
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2013.03.02
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2013.05.07

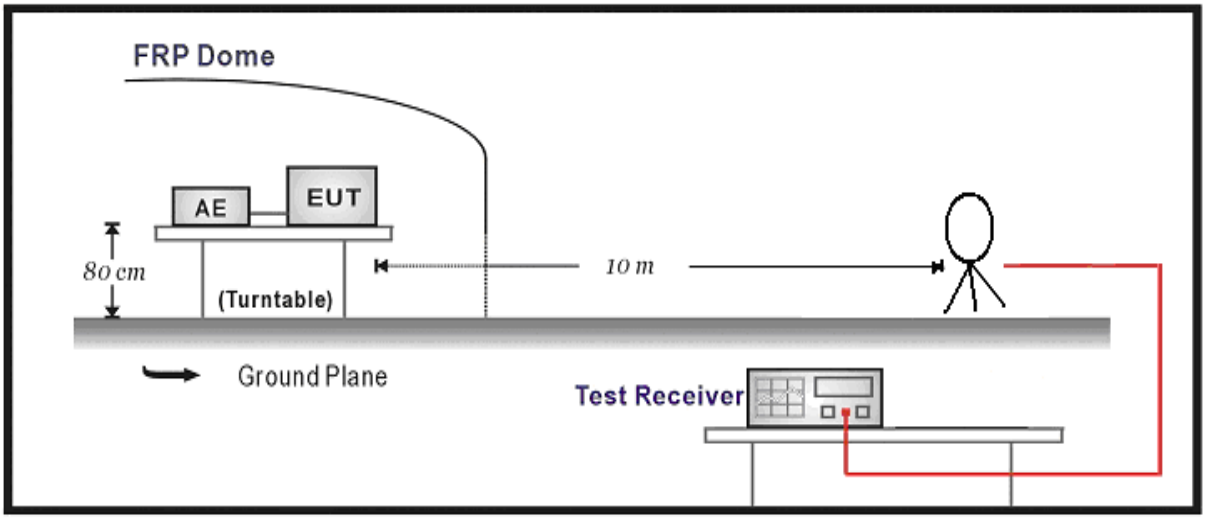
Radiated Emission / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2013.04.18
Preamplifier	Miteq	NSP1800-25	1364185	2013.05.04
Preamplifier	QuieTek	AP-040G	CHM-0906001	2013.05.04
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2012.10.18
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2014.06.08
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2013.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2013.03.02
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2013.03.02
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2013.03.02
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC5-TH	2013.01.10

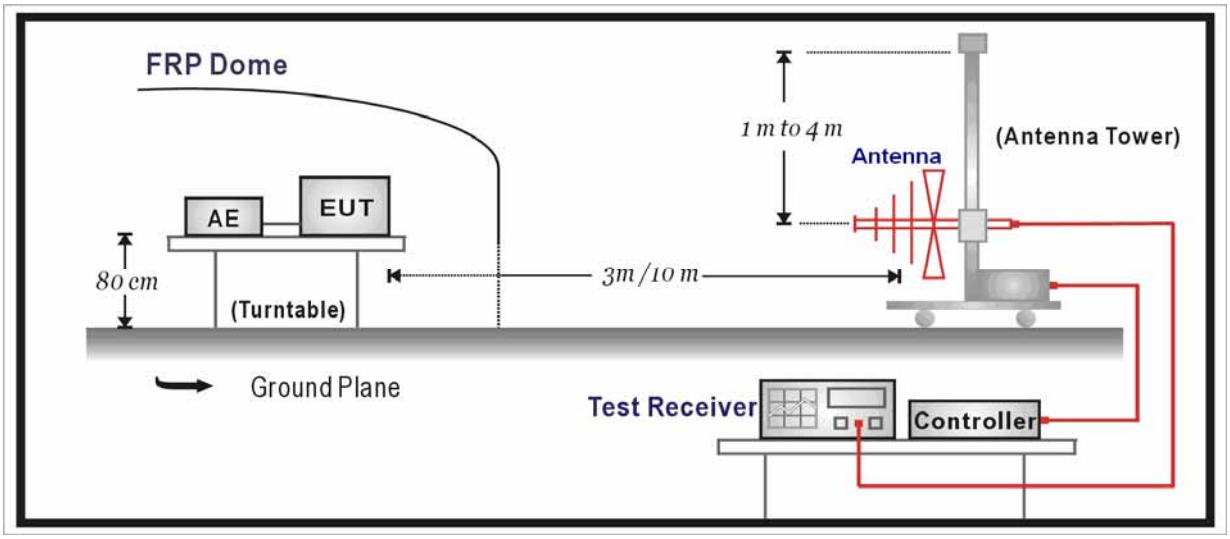
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

4.2. Test Setup

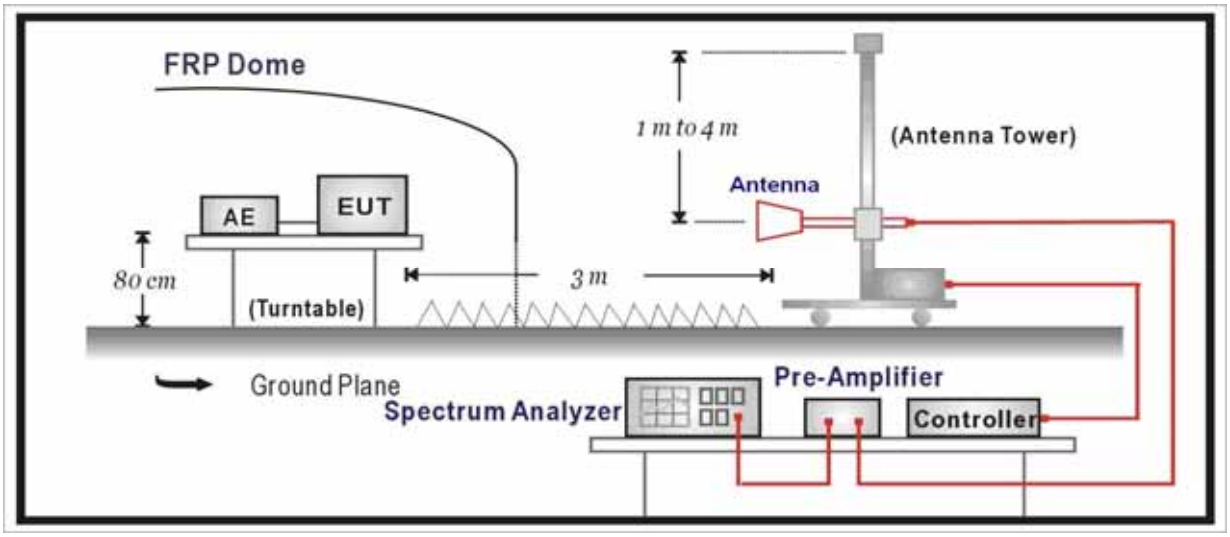
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

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

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

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

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

4.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 & ANSI C63.10: 2009 & KDB 789033. The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the

maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2009 on radiated measurement.

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

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

Note: When doing emission measurement above 1GHz, the horn antenna will be bended down a little (as horn antenna has the narrow beamwidth) in order to keeping the antenna in the “cone of radiation” of EUT. The 3dB beamwidth is 60~10 degrees for H-plane and 90~10 degrees for E-plane.

4.5. Uncertainty

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

below 1G is defined as ± 3.8 dB

4.6. Test Result

All of the test result shown indicates the worst case, and spectrum analyzer parameters setting as shown below:
Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;
Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

802.11a

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Chain 1	36	V	5180.1	104.0	-8.2	95.8	Fundamental	/	PK
		H	292.9	12.4	14.8	27.2	46	-18.8	QP
		H	567.4	14.0	21.3	35.3	46	-10.7	QP
		V	10360.0	42.5	6.6	49.1	54(Note3)	-4.9	PK
		V	13000.0	37.4	9.8	47.2	54(Note3)	-6.8	PK
		V	15540.0	40.5	7.2	47.7	54(Note3)	-6.3	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	40	V	5210.1	104.4	-8.2	96.2	Fundamental	/	PK
		H	285.1	13.0	14.6	27.6	46	-18.4	QP
		H	500.0	15.0	19.7	34.7	46	-11.3	QP
		V	10400.0	43.0	6.7	49.7	54(Note3)	-4.3	PK
		V	13000.0	37.9	9.8	47.7	54(Note3)	-6.3	PK
		H	15600.0	40.3	7.4	47.7	54(Note3)	-6.3	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	48	V	5240.1	104.8	-8.2	96.6	Fundamental	/	PK
		V	289.0	12.4	14.8	27.2	46	-18.8	QP
		V	594.1	13.5	21.2	34.7	46	-11.3	QP
		H	10480.0	43.6	6.9	50.5	54(Note3)	-3.5	PK
		H	13000.0	39.2	9.8	49.0	54(Note3)	-5.0	PK
		H	15720.0	40.6	7.2	47.8	54(Note3)	-6.2	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
Chain 2	36	V	5178.6	106.8	-8.2	98.6	Fundamental	/	PK
		H	296.8	12.6	14.7	27.3	46	-18.7	QP
		H	563.5	13.8	21.2	35.0	46	-11.0	QP
		V	10358.5	43.6	6.6	50.2	54(Note3)	-3.8	PK
		V	13000.0	37.9	9.8	47.7	54(Note3)	-6.3	PK
		H	15540.0	40.8	7.2	48.0	54(Note3)	-6.0	PK

		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	40	V	5209.9	108.8	-8.2	100.6	Fundamental	/	PK
		V	318.6	13.5	15.2	28.7	46	-17.3	QP
		H	480.6	13.5	19.3	32.8	46		QP
		V	10400.0	40.0	6.7	46.7	54(Note3)	-7.3	PK
		V	13000.0	37.3	9.8	47.1	54(Note3)	-6.9	PK
		V	15540.0	40.4	7.2	47.6	54(Note3)	-6.4	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	48	V	5241.2	108.0	-8.2	99.8	Fundamental	/	PK
		H	318.6	13.5	15.2	28.7	46	-17.3	QP
		H	551.9	13.7	21.2	34.9	46	-11.1	QP
		V	10480.0	39.6	6.9	46.6	54(Note3)	-7.4	PK
		V	13000.0	38.0	9.8	47.8	54(Note3)	-6.2	PK
		V	15720.0	40.1	7.2	47.3	54(Note3)	-6.7	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK

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

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

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

802.11n(20MHz)

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Chain 1	36	V	5180.2	105.5	-8.2	97.3	Fundamental	/	PK
		H	321.5	12.9	15.4	28.3	46	-17.7	QP
		H	582.9	13.1	21.2	34.3	46	-11.7	QP
		V	10360.0	42.7	6.6	49.3	54(Note3)	-4.7	PK
		V	13000.0	37.2	9.8	47.0	54(Note3)	-7.0	PK
		V	15540.0	40.9	7.2	48.1	54(Note3)	-5.9	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	40	V	5210.4	108.3	-8.2	100.1	Fundamental	/	PK
		H	340.4	13.8	15.9	29.7	46	-16.3	QP
		H	544.6	13.0	21.1	34.1	46	-11.9	QP
		V	10400.0	39.9	6.7	46.6	54(Note3)	-7.4	PK
		V	13000.0	38.2	9.8	48.0	54(Note3)	-6.0	PK

		V	15600.0	40.0	7.4	47.4	54(Note3)	-6.6	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	48	V	5240.7	105.2	-8.2	97.0	Fundamental	/	PK
		H	281.2	13.9	14.5	28.4	46	-17.6	QP
		H	561.1	13.4	21.2	34.6	46	-11.4	QP
		H	10480.0	39.8	6.9	46.7	54(Note3)	-7.3	PK
		H	13000.0	37.8	9.8	47.6	54(Note3)	-6.4	PK
		H	15720.0	39.2	7.2	46.4	54(Note3)	-7.6	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
Chain 2	36	V	5178.7	106.7	-8.2	98.5	Fundamental	/	PK
		H	318.1	12.8	15.2	28.0	46	-18.0	QP
		H	500.0	15.2	19.7	34.9	46	-11.1	QP
		V	10360.0	40.7	6.6	47.3	54(Note3)	-6.7	PK
		H	13000.0	37.2	9.8	47.0	54(Note3)	-7.0	PK
		V	15540.0	40.0	7.2	47.2	54(Note3)	-6.8	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	40	V	5208.5	105.7	-8.2	97.5	Fundamental	/	PK
		H	333.6	13.0	15.8	28.8	46	-17.2	QP
		H	565.0	12.8	21.2	34.0	46	-12.0	QP
		V	10400.0	40.5	6.7	47.2	54(Note3)	-6.8	PK
		V	13000.0	37.3	9.8	47.1	54(Note3)	-6.9	PK
		V	15600.0	39.7	7.4	47.1	54(Note3)	-6.9	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	48	V	5238.3	107.1	-8.2	98.9	Fundamental	/	PK
		V	319.1	12.8	15.3	28.1	46	-17.9	QP
		V	565.9	14.0	21.2	35.2	46	-10.8	QP
		V	10480.0	43.0	6.9	49.9	54(Note3)	-4.1	PK
		V	13000.0	38.0	9.8	47.8	54(Note3)	-6.2	PK
		V	15720.0	40.1	7.2	47.3	54(Note3)	-6.7	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
Chain 1+2	36	V	5180.7	109.5	-8.2	101.3	Fundamental	/	PK
		V	349.6	12.2	16.3	28.5	46	-17.5	QP
		H	500.0	14.3	19.7	34.0	46	-12.0	QP
		V	10360.0	43.9	6.6	50.5	54(Note3)	-3.5	PK
		V	13000.0	37.5	9.8	47.3	54(Note3)	-6.7	PK
		V	15540.0	40.7	7.2	47.9	54(Note3)	-6.1	PK
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK

	40	V	5210.6	111.4	-8.2	103.2	Fundamental	/	PK
		H	290.9	12.7	14.8	27.5	46	-18.5	QP
		H	560.6	13.3	21.2	34.5	46	-11.5	QP
		V	10400.0	42.6	6.7	49.3	54(Note3)	-4.7	PK
		V	13000.0	36.7	9.8	46.5	54(Note3)	-7.5	PK
		V	15600.0	39.9	7.4	47.3	54(Note3)	-6.7	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	48	V	5240.6	113.1	-8.2	104.9	Fundamental	/	PK
		V	307.9	12.9	15.0	27.9	46	-18.1	QP
		V	576.1	13.9	21.2	35.1	46	-10.9	QP
		V	10480.0	42.7	6.9	49.6	54(Note3)	-4.4	PK
		V	13000.0	37.1	9.8	46.9	54(Note3)	-7.1	PK
		V	15720.0	40.1	7.2	47.3	54(Note3)	-6.7	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK

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

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

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

802.11n(40MHz)

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Chain 1	38	V	5188.2	102.5	-8.2	94.3	Fundamental	/	PK
		V	339.9	13.2	15.9	29.1	46	-16.9	QP
		V	658.6	13.3	21.3	34.6	46	-11.4	QP
		V	10380.0	42.2	6.6	48.8	54(Note3)	-5.2	PK
		H	13000.0	38.4	9.8	48.2	54(Note3)	-5.8	PK
		H	15570.0	41.3	7.3	48.6	54(Note3)	-5.4	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	46	V	5227.2	102.8	-8.2	103.0	Fundamental	/	PK
		H	336.0	12.2	15.8	28.0	46	-18.0	QP
		H	555.3	12.5	21.2	33.7	46	-12.3	QP
		V	10460.0	39.6	6.8	46.4	54(Note3)	-7.6	PK
		V	13000.0	37.5	9.8	47.3	54(Note3)	-6.7	PK
		V	15690.0	40.0	7.2	47.2	54(Note3)	-6.8	PK

		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
Chain 2	38	V	5188.2	105.4	-8.2	97.2	Fundamental	/	PK
		V	391.8	13.3	17.4	30.7	46	-15.3	QP
		V	594.5	13.7	21.2	34.9	46	-11.1	QP
		V	10380.0	42.1	6.6	48.7	54(Note3)	-5.3	PK
		V	13000.0	36.8	9.8	46.6	54(Note3)	-7.4	PK
		V	15570.0	41.2	7.3	48.5	54(Note3)	-5.5	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	46	V	5227.6	103.4	-8.2	105.9	Fundamental	/	PK
		V	370.0	13.2	16.8	30.0	46	-16.0	QP
		V	557.7	13.5	21.2	34.7	46	-11.3	QP
		V	10460.0	39.7	6.8	46.5	54(Note3)	-7.5	PK
		V	13000.0	38.5	9.8	48.3	54(Note3)	-5.7	PK
		V	15690.0	39.8	7.2	47.0	54(Note3)	-7.0	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
Chain 1+2	38	V	5188.2	99.1	-8.2	100.1	Fundamental	/	PK
		H	336.5	14.3	15.8	30.1	46	-15.9	QP
		H	500.0	15.6	19.7	35.3	46	-10.7	QP
		V	10380.0	40.6	6.6	47.2	54(Note3)	-6.8	PK
		V	13000.0	37.3	9.8	47.1	54(Note3)	-6.9	PK
		V	15570.0	41.2	7.3	48.5	54(Note3)	-5.5	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK
	46	V	5228.2	102.1	-8.2	108.8	Fundamental	/	PK
		H	336.5	14.3	15.8	30.1	46	-15.9	QP
		H	579.5	13.9	21.2	35.1	46	-10.9	QP
		V	10460.0	40.9	6.8	47.7	54(Note3)	-6.3	PK
		V	13000.0	37.0	9.8	46.8	54(Note3)	-7.2	PK
		H	15690.0	39.8	7.2	47.0	54(Note3)	-7.0	PK
		H	24000.0	59.1	-8.9	50.2	54(Note3)	-3.8	PK

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

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

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

5. Operation Frequency Range of 20dB Bandwidth

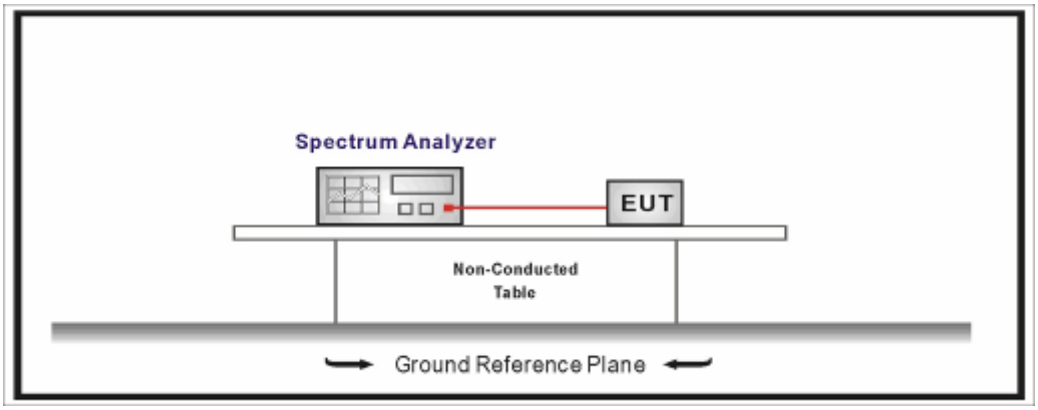
5.1. Test Equipment

Operation Frequency Range of 20dB Bandwidth /TR8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2013.04.18
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH007	2013.05.07

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

20 dB bandwidth of the emission is contained within the operation frequency band. FCC Part15.215(c).

5.4. Test Procedure

The EUT was tested according to UNII test procedure of ANSI C63.10: 2009 and KDB 789033 for compliance to FCC 47CFR 15.407 requirements.
Set RBW = 100 kHz, Span greater than RBW.

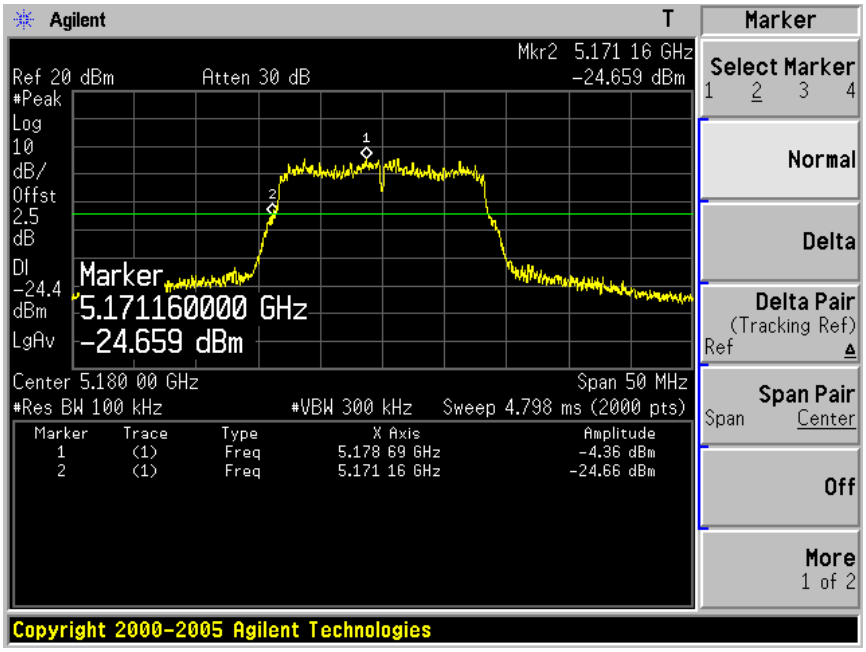
5.5. Uncertainty

The measurement uncertainty is defined as ± 1 kHz

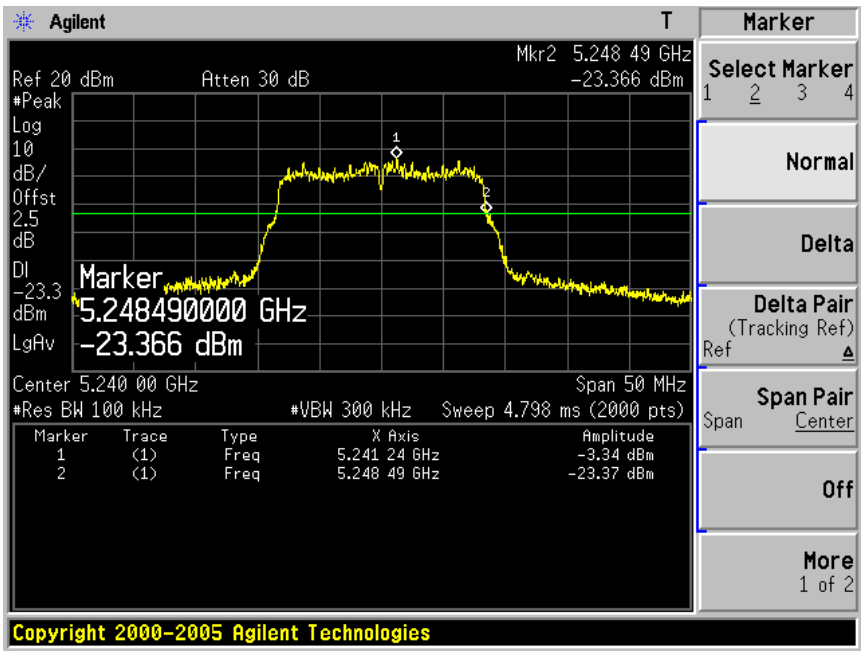
5.6. Test Result

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

Channel 36 (5180MHz)

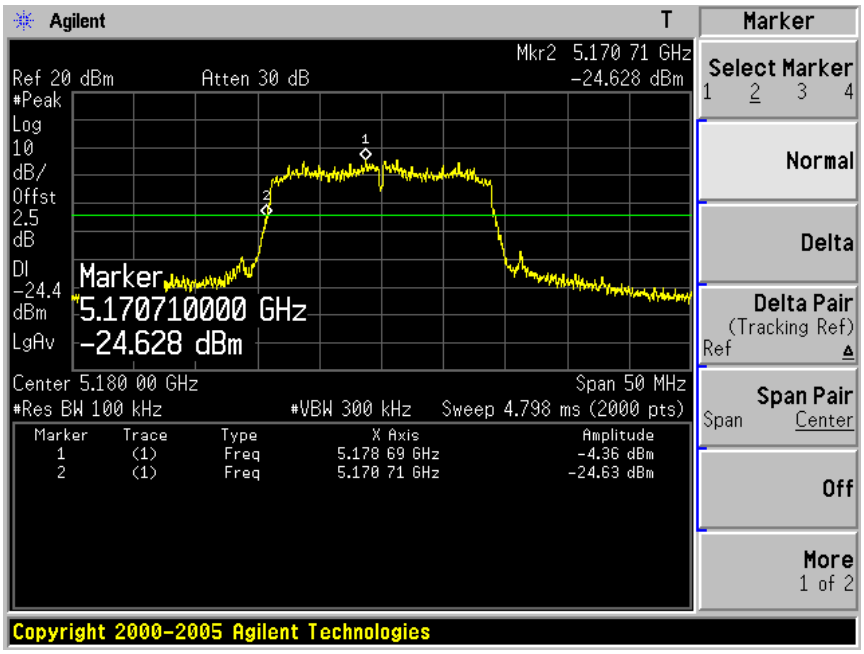


Channel 48 (5240MHz)

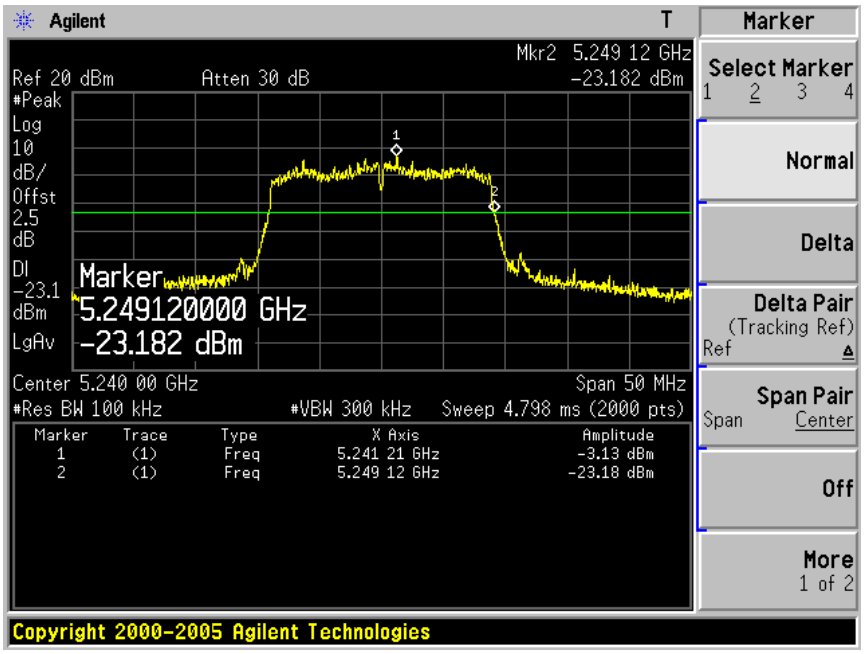


Product	:	IP-STB
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n (20MHz) (Chain 1)

Channel 36 (5180MHz)

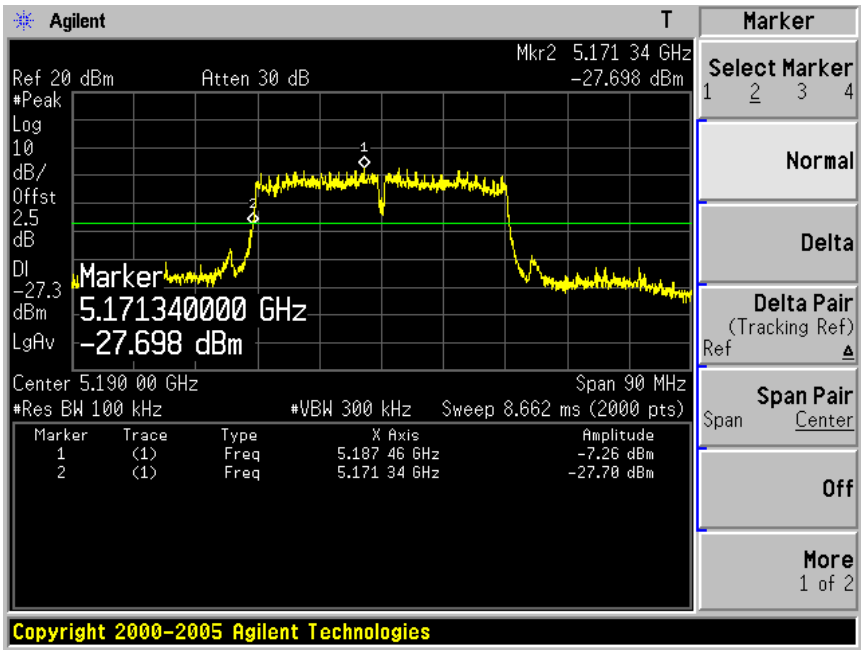


Channel 48 (5240MHz)

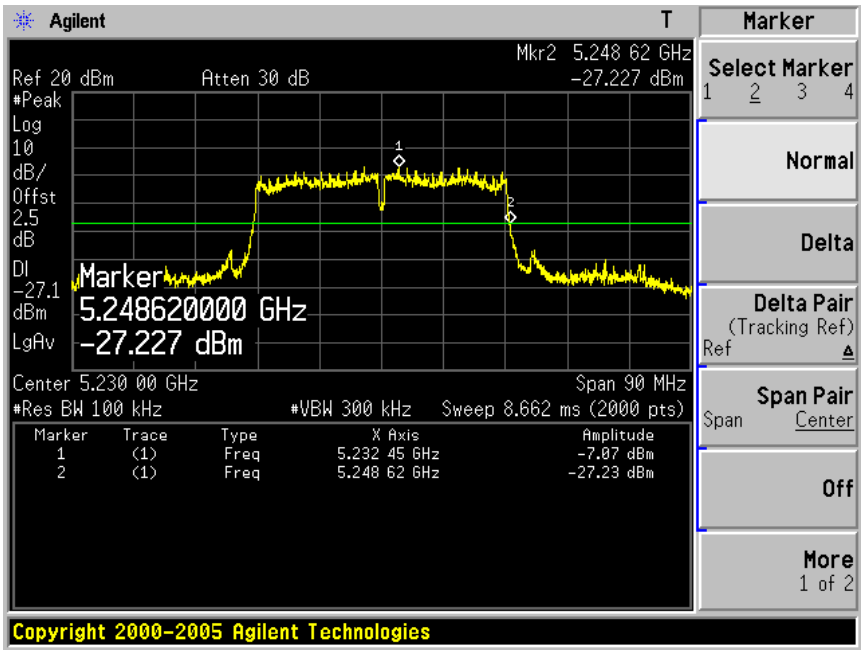


Product	:	IP-STB
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (40MHz) (Chain 1)

Channel 38 (5190MHz)

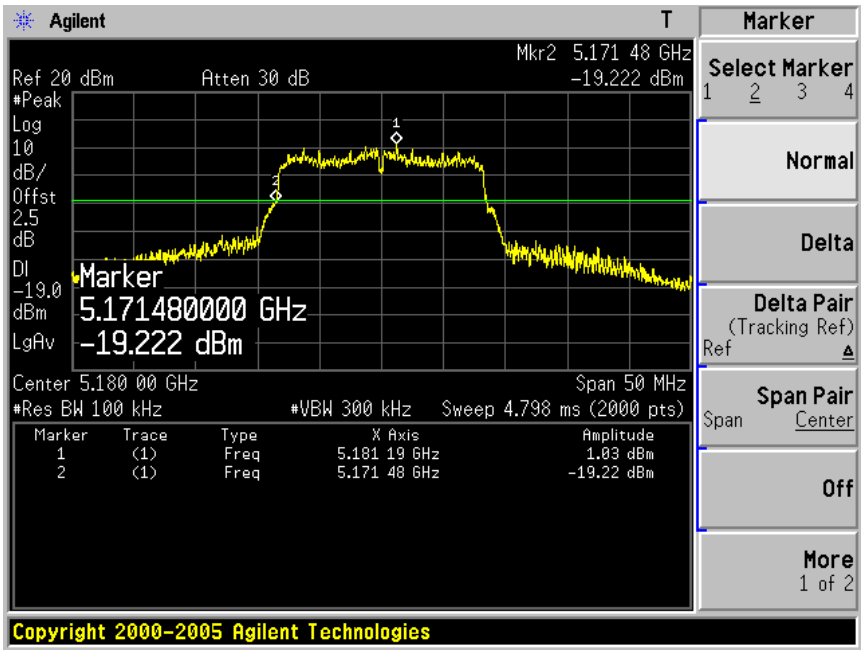


Channel 46 (5230MHz)

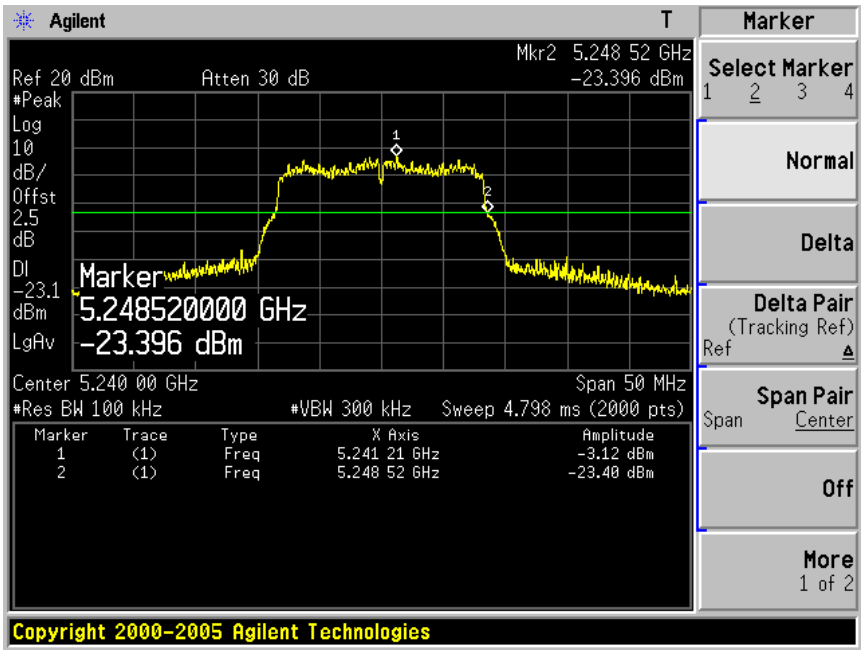


Product	:	IP-STB
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 2)

Channel 36 (5180MHz)

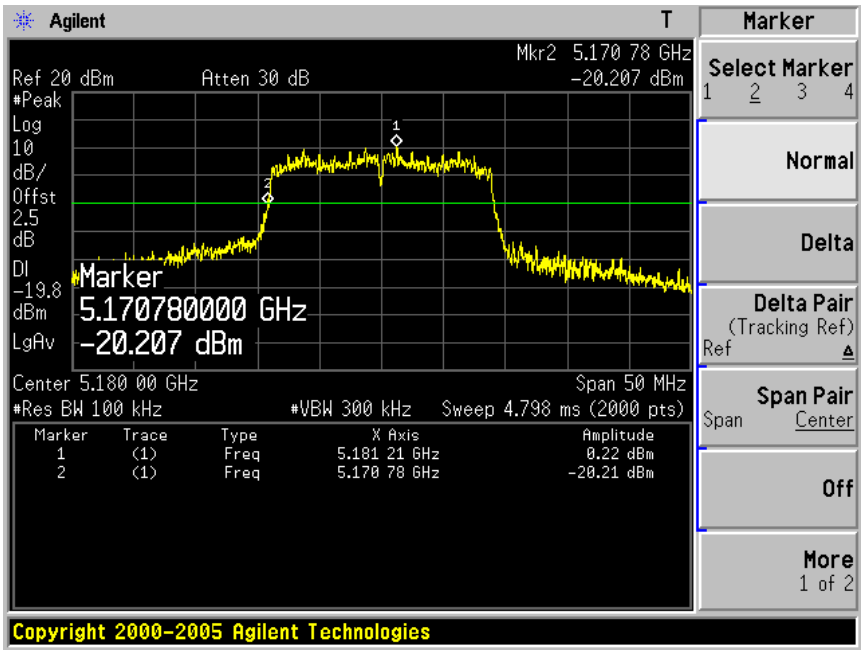


Channel 48 (5240MHz)

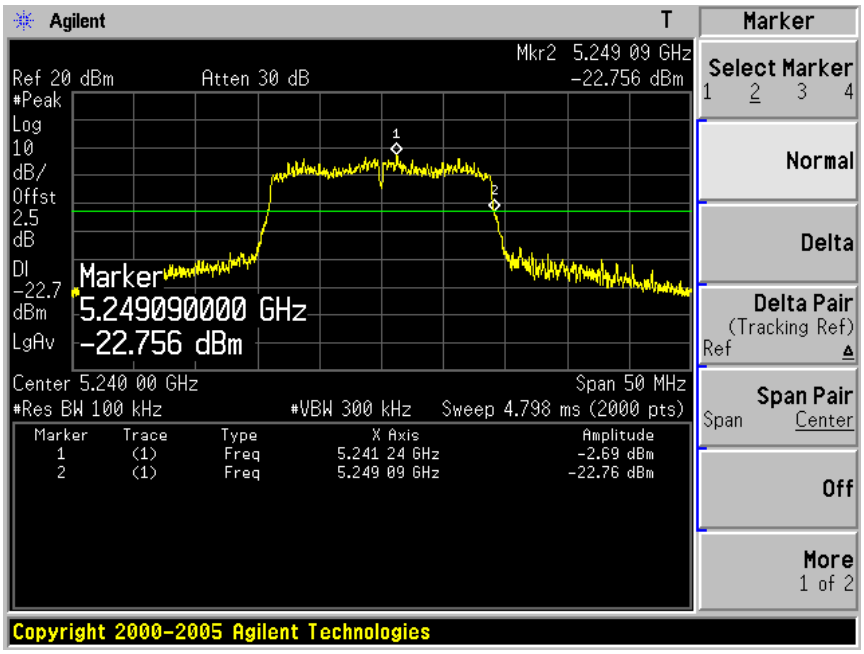


Product	:	IP-STB
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n (20MHz) (Chain 2)

Channel 36 (5180MHz)

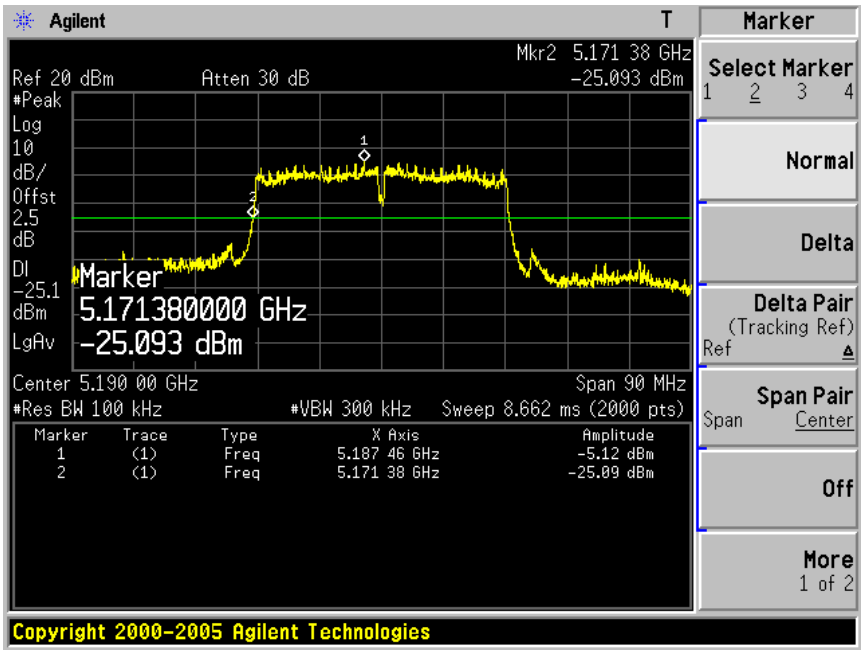


Channel 48 (5240MHz)

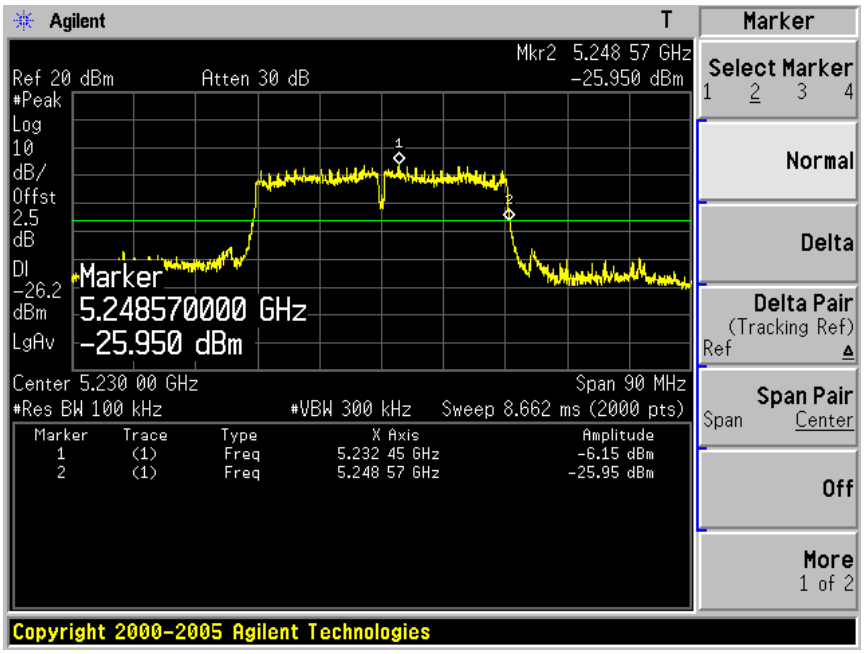


Product	:	IP-STB
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (40MHz) (Chain 2)

Channel 38 (5190MHz)



Channel 46 (5230MHz)



6. Occupied Bandwidth

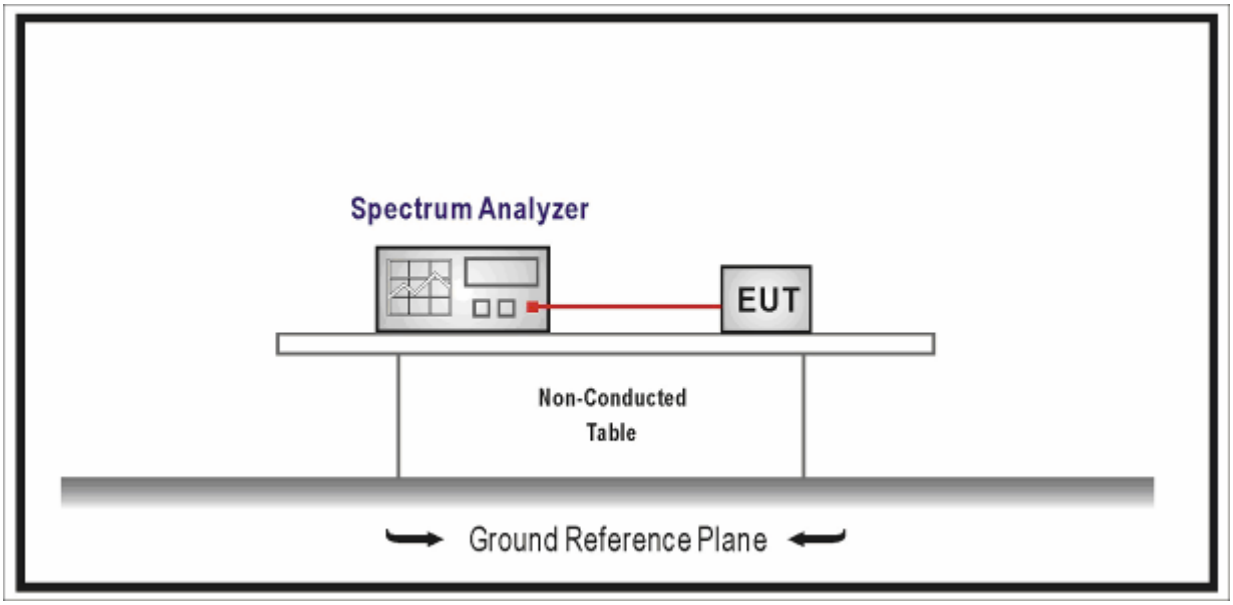
6.1. Test Equipment

Occupied Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2013.04.18
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2013.05.07

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

6.2. Test Setup



6.3. Limit

N/A

6.4. Test Procedure

The EUT was tested according to ANSI C63.10: 2009 and KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

Emission bandwidth “B” MHz.

- Use a RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW
- Use a peak detector.
- Do not use the Max Hold function. Rather, use the view button to capture the emission.
- Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

6.5. Uncertainty

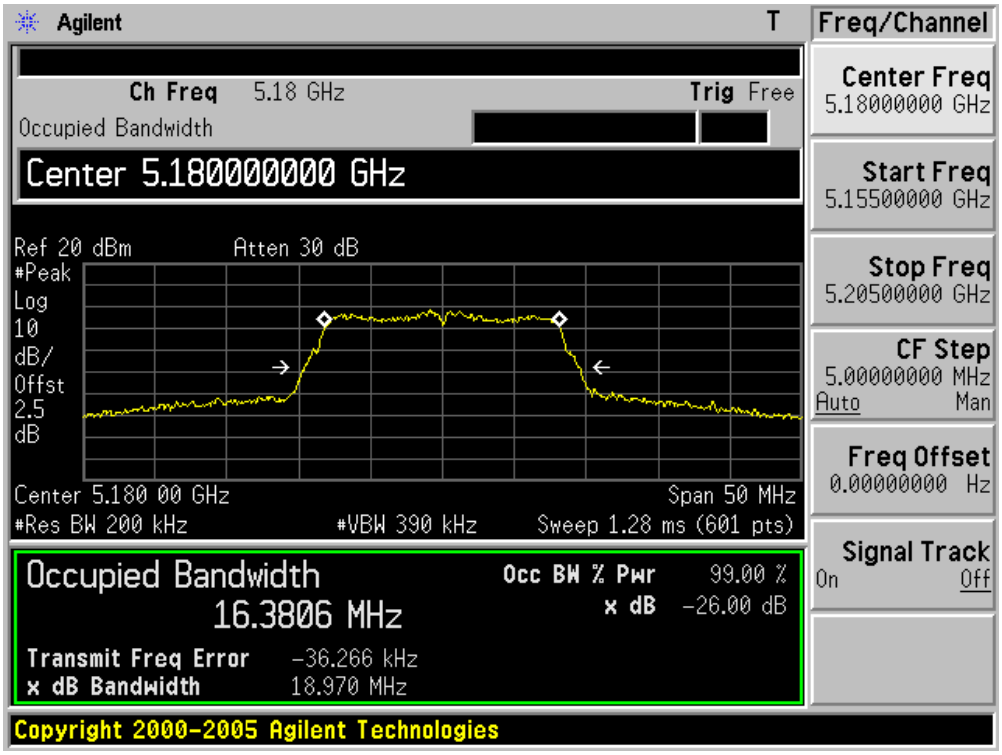
The measurement uncertainty is defined as ± 1 kHz

6.6. Test Result

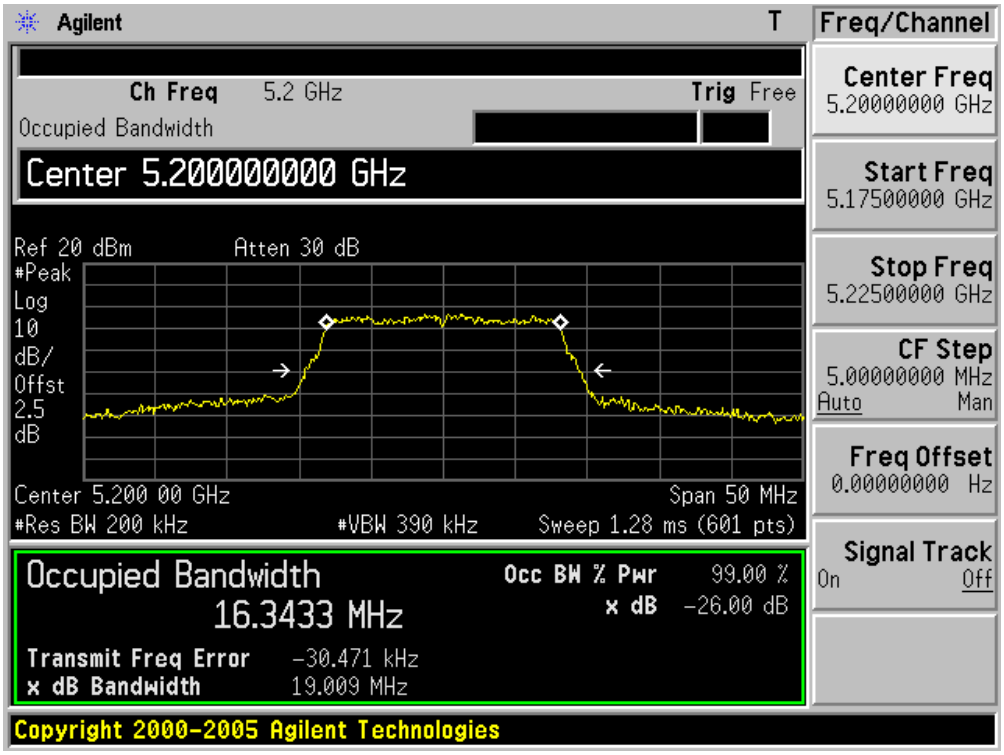
Product	:	IP-STB
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 1)

Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180	18.970	16.3806
40	5200	19.009	16.343
48	5240	18.991	16.338

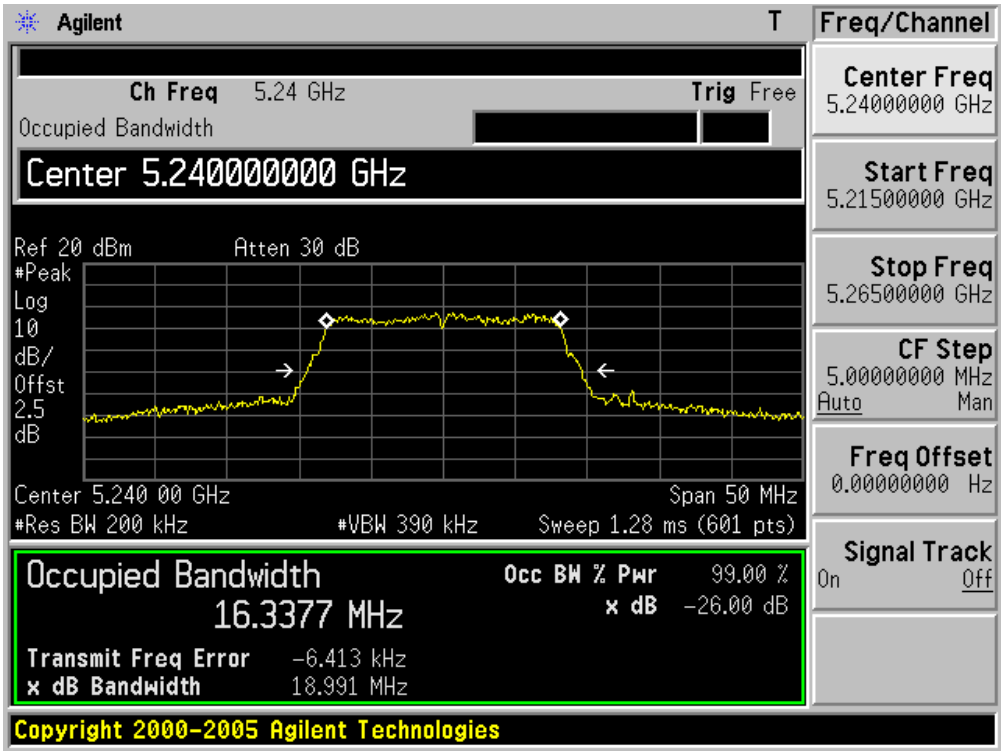
Channel 36 (5180MHz)



Channel 40 (5200MHz)



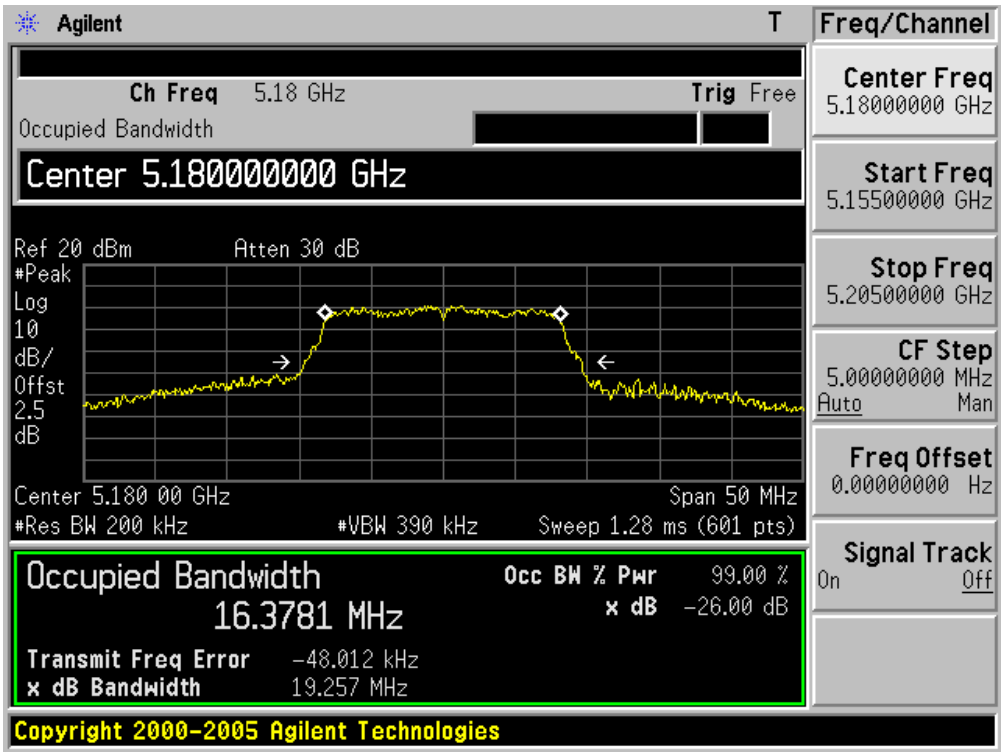
Channel 48 (5240MHz)



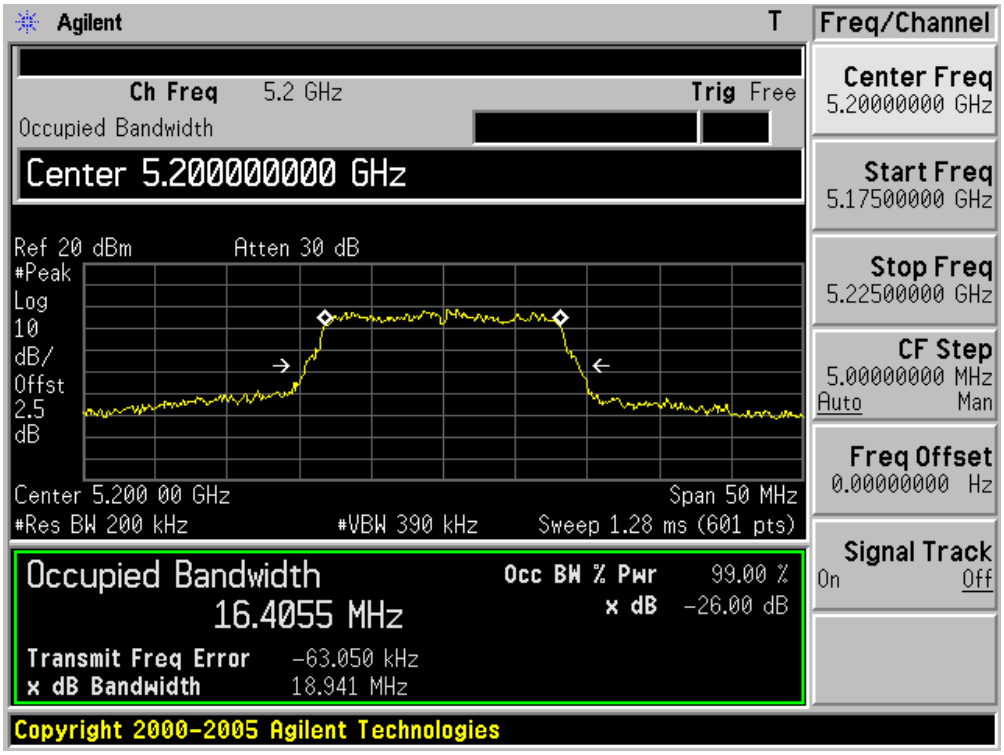
Product	:	IP-STB
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 2)

Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180	19.257	16.378
40	5200	18.941	16.406
48	5240	18.907	16.371

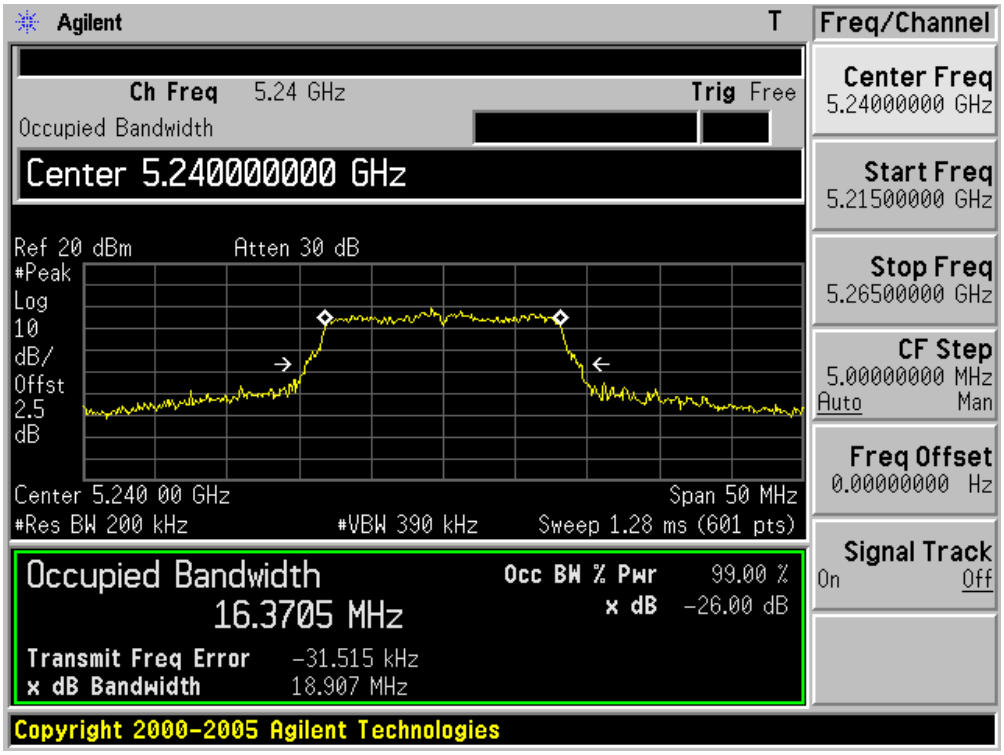
Channel 36 (5180MHz)



Channel 40 (5200MHz)



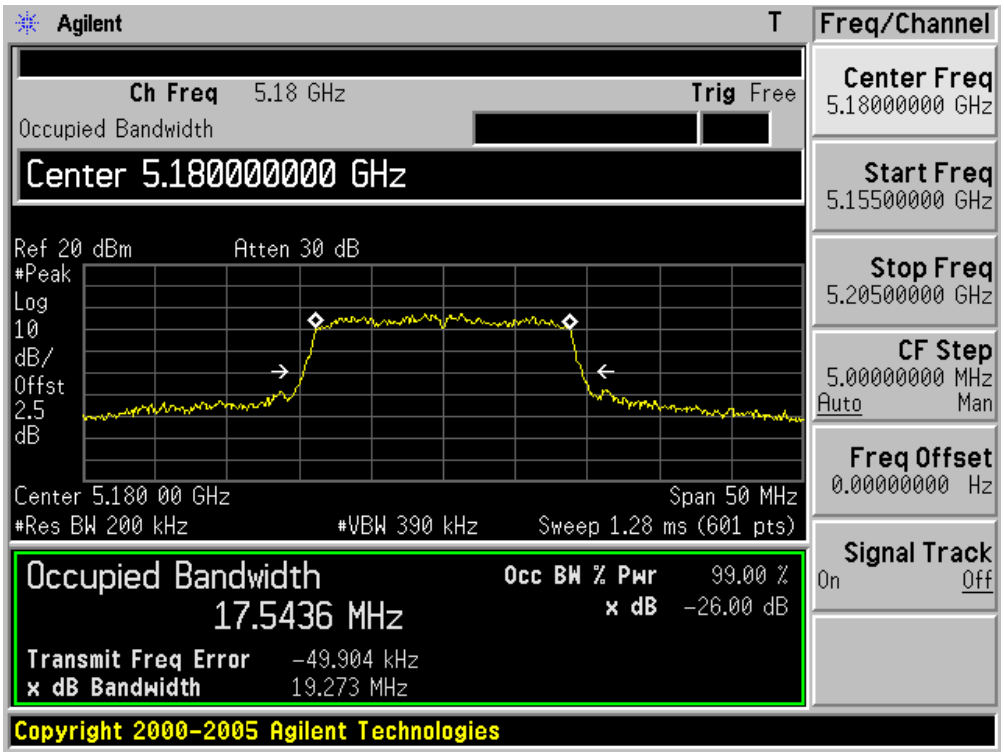
Channel 48 (5240MHz)



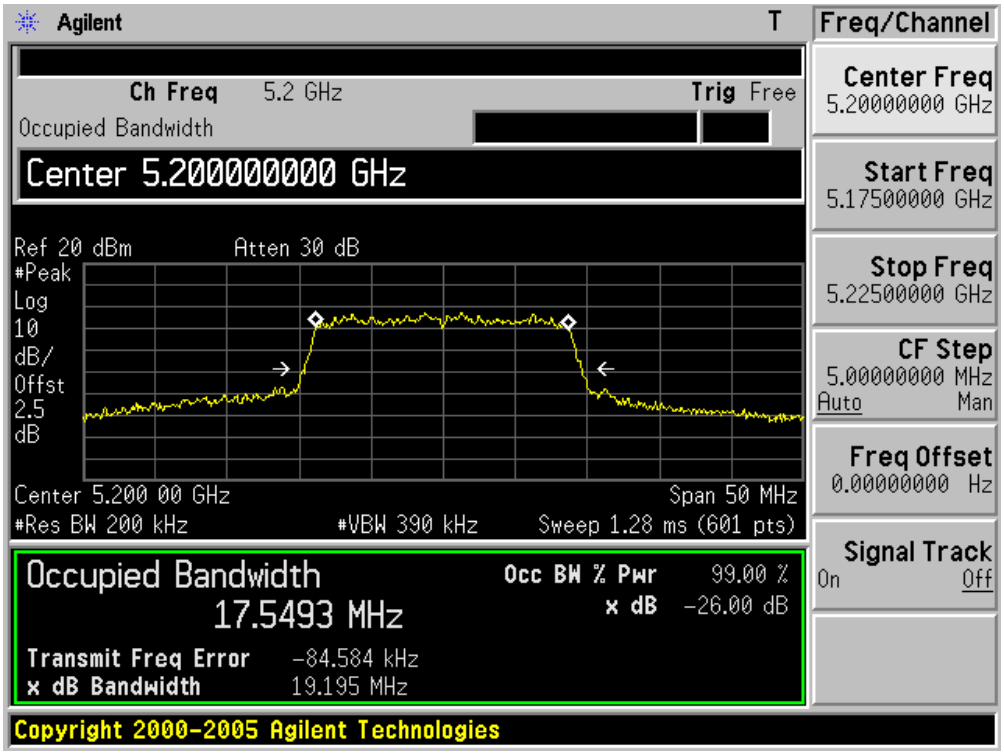
Product	:	IP-STB
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 1)

Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180	19.273	17.544
40	5200	19.195	17.549
48	5240	19.166	17.522

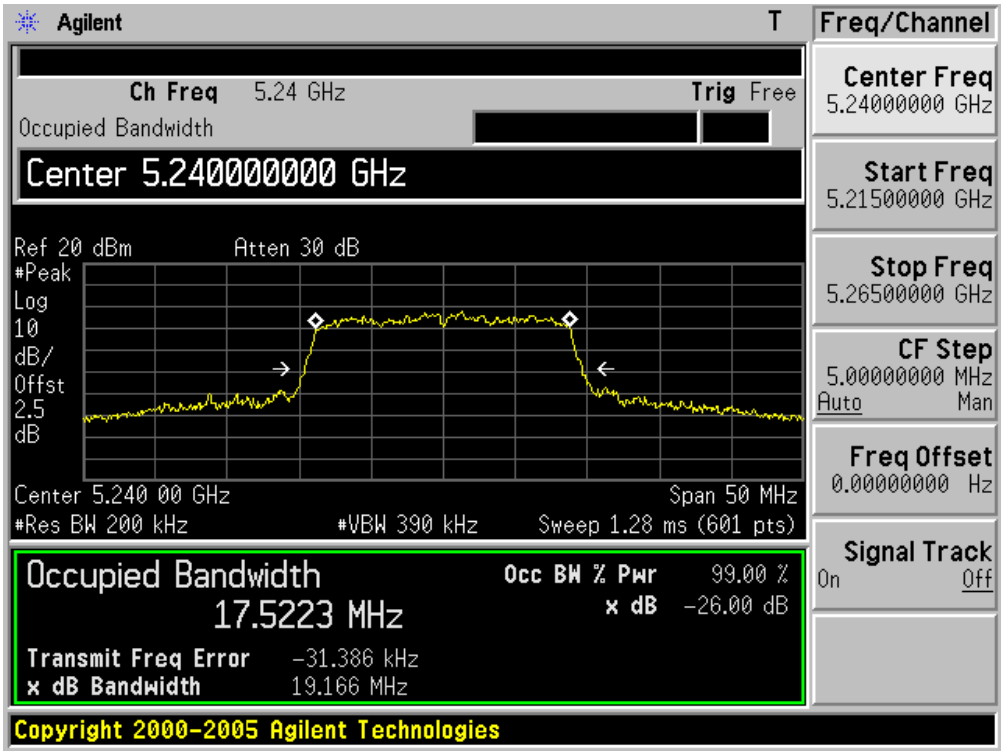
Channel 36 (5180MHz)



Channel 40 (5200MHz)



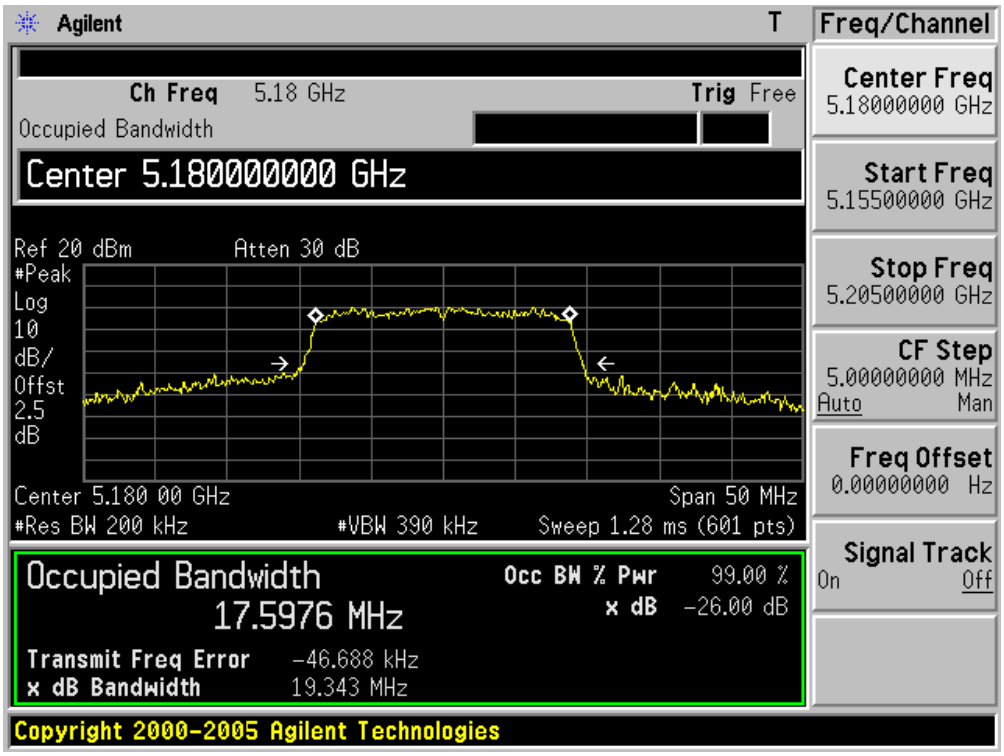
Channel 48 (5240MHz)



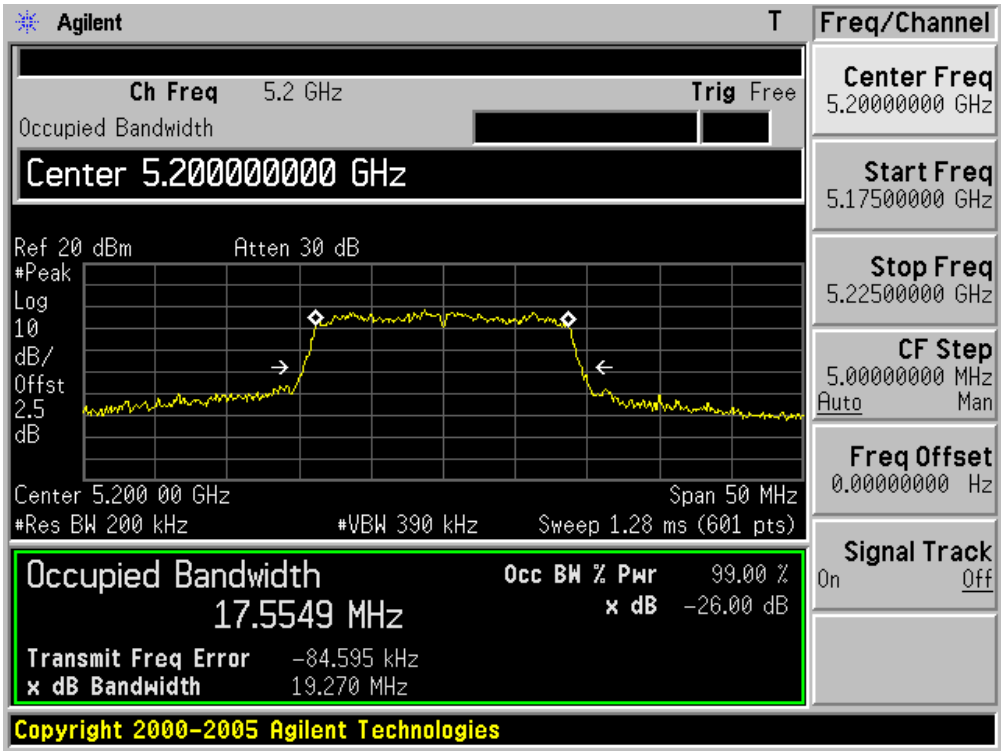
Product	:	IP-STB
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 2)

Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180	19.343	17.598
40	5200	19.270	17.555
48	5240	19.315	17.577

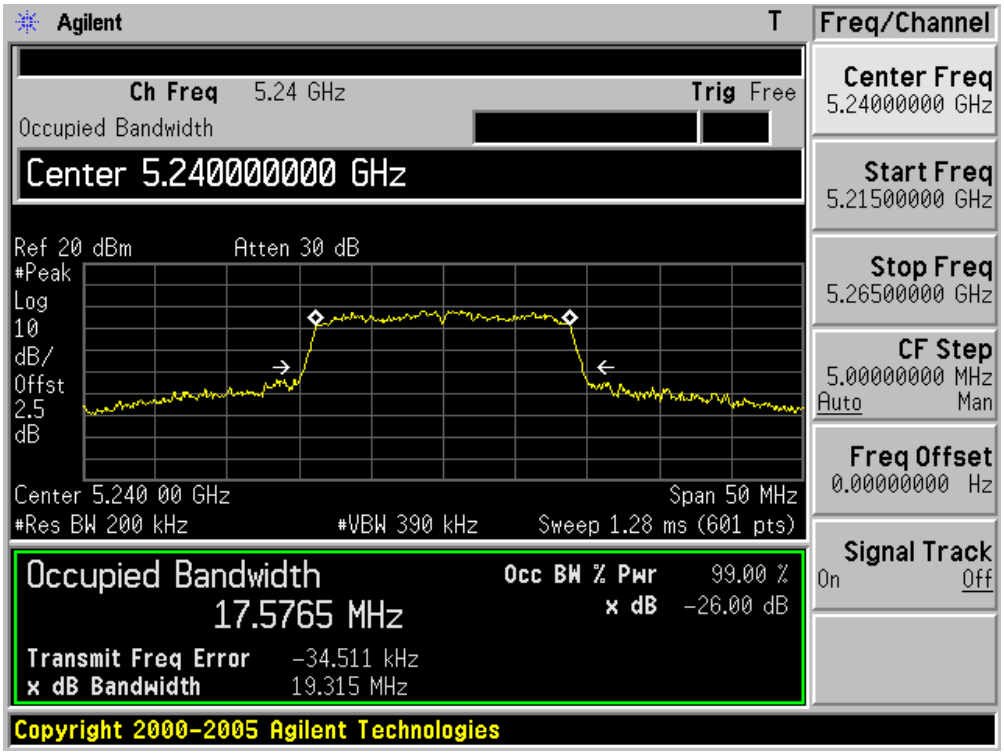
Channel 36 (5180MHz)



Channel 40 (5200MHz)



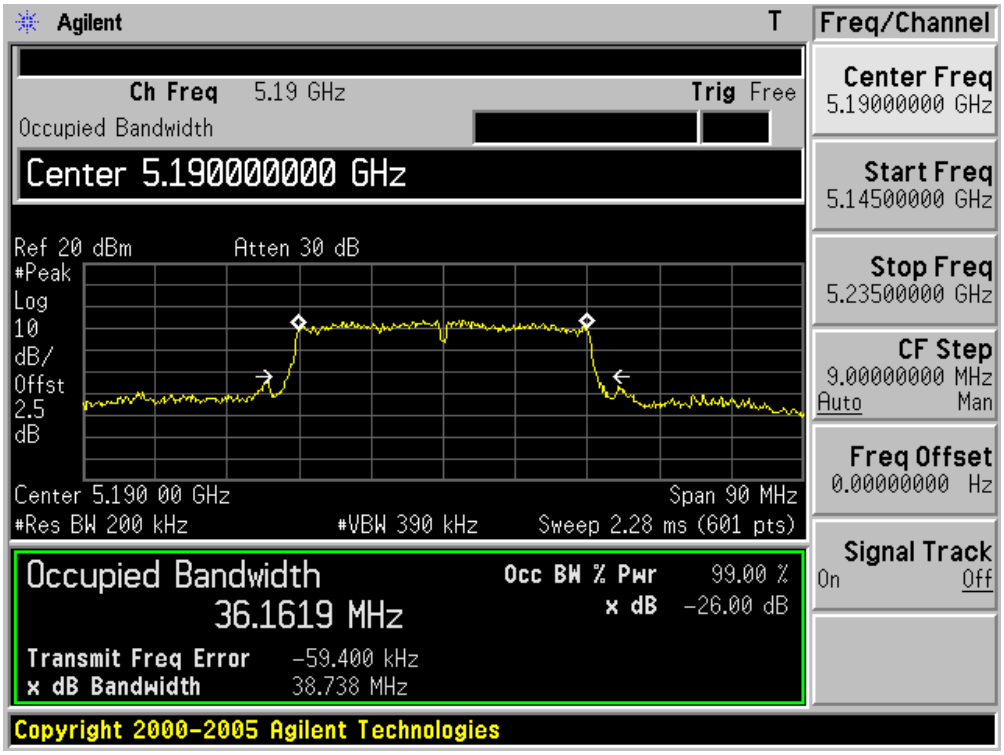
Channel 48 (5240MHz)



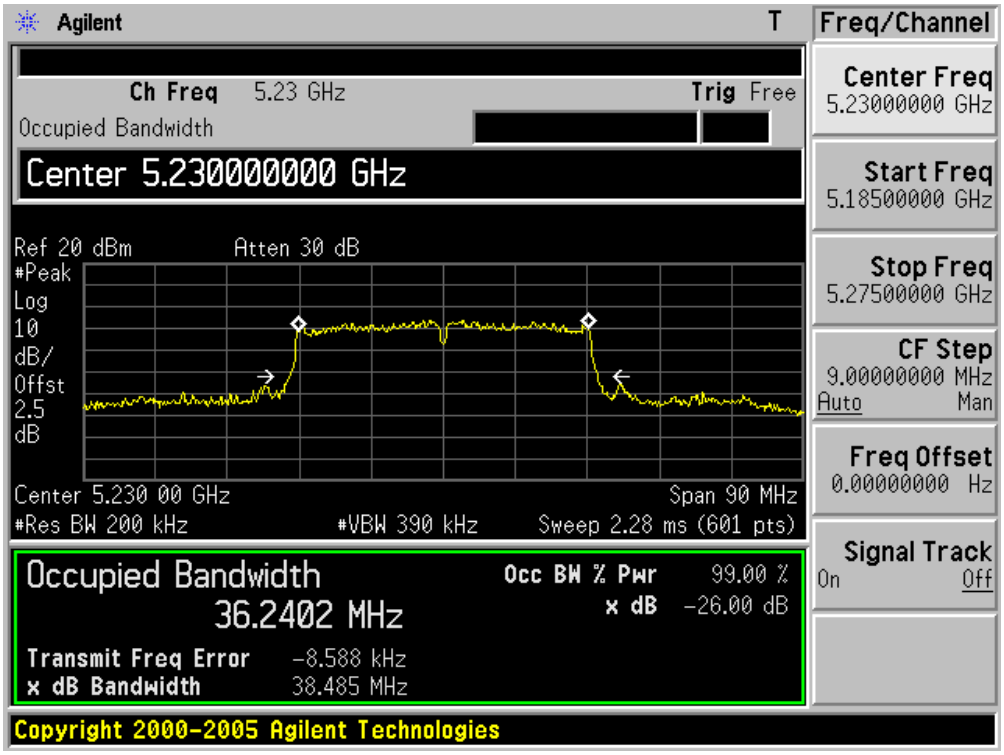
Product	:	IP-STB
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (40MHz) (Chain 1)

Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190	38.738	36.162
46	5230	38.485	36.240

Channel 38 (5190MHz)



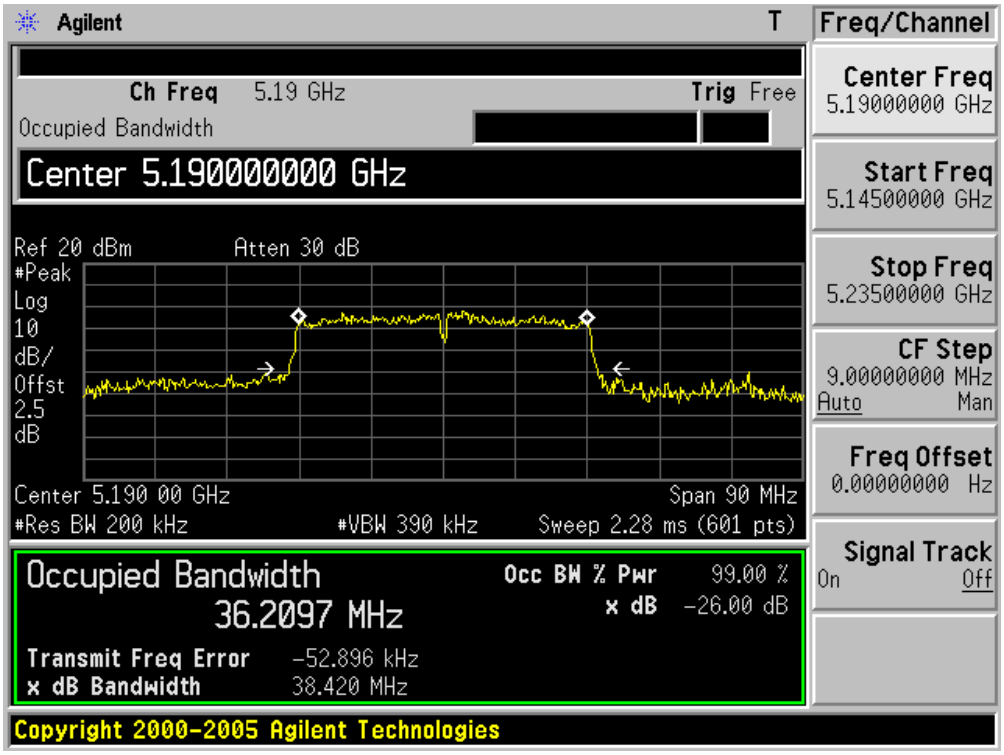
Channel 46 (5230MHz)



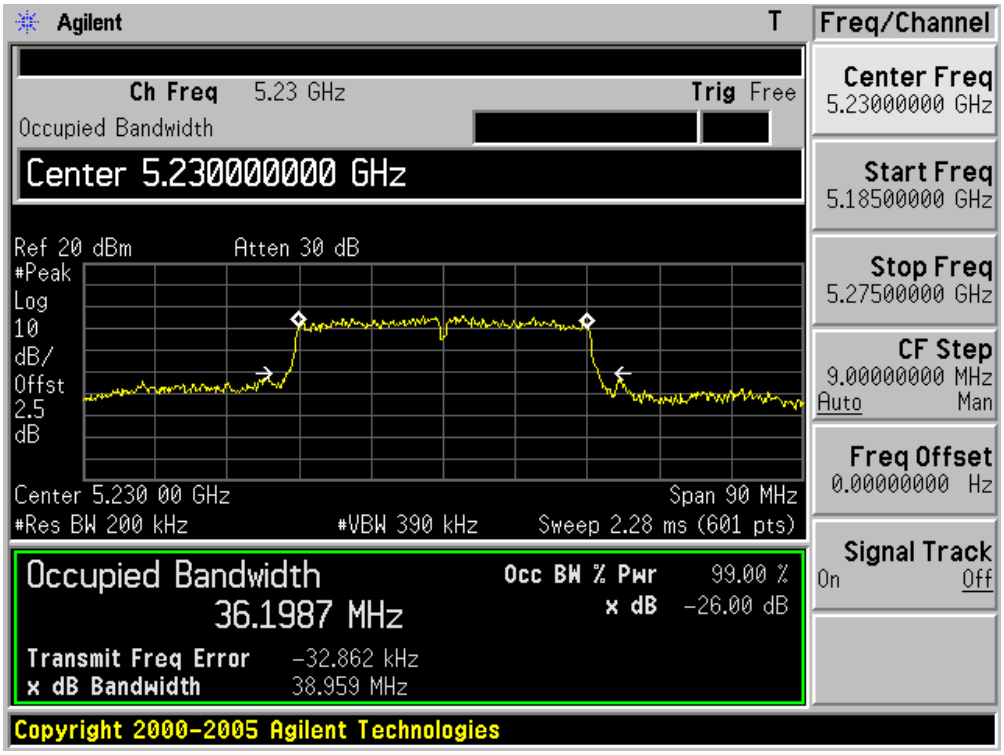
Product	:	IP-STB
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (40MHz) (Chain 2)

Channel No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190	38.420	36.210
46	5230	38.959	36.199

Channel 38 (5190MHz)



Channel 46 (5230MHz)



7. Power Output

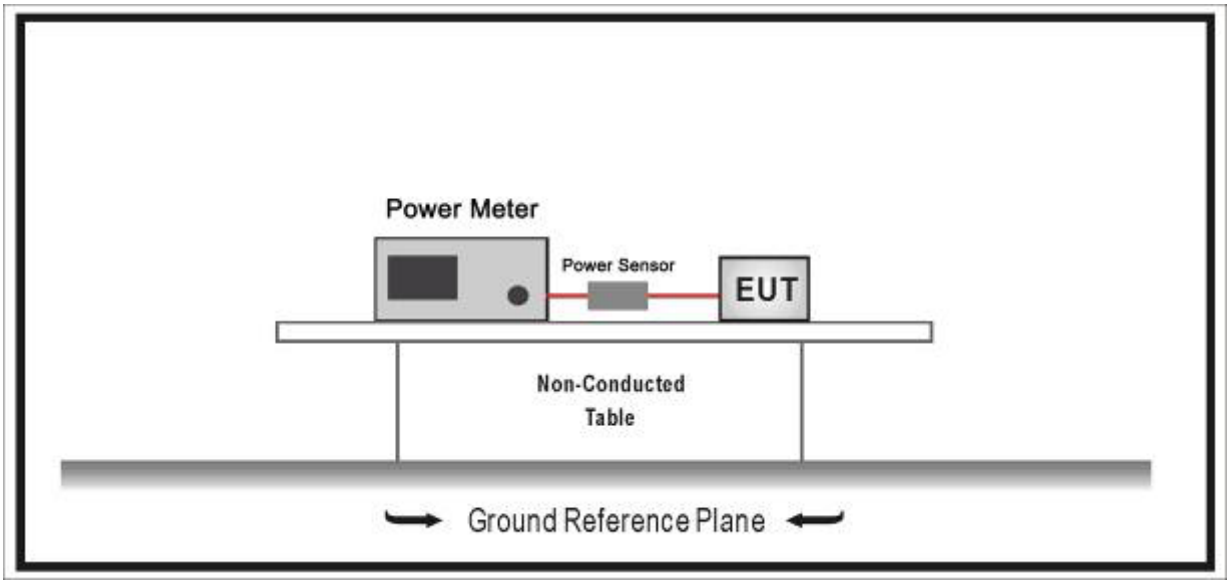
7.1. Test Equipment

Power Output / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2013.04.18
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2013.05.07

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

7.2. Test Setup



7.3. Limit

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

dBi.

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

7.4. Test Procedure

The EUT was tested according to ANSI C63.10: 2009 and KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

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

7.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

7.6. Test Result

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

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

Power output at various data rates:

Test Mode	Bandwidth	Frequency (MHz)	Channel	Data Rate	Peak Power (dBm)
802.11a(Chain 1)	20	5200	40	6	16.28
				24	16.39
				54	16.57
802.11n(Chain 1)	20	5200	40	HT0	16.64
				HT4	16.38
				HT7	16.83
802.11n(Chain 1)	40	5190	38	HT0	16.17
				HT4	16.23
				HT7	16.28

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 1)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
36	5180	16.40	N/A	16.40	17.00	Pass	17.40
40	5200	16.57	N/A	16.57	17.00	Pass	17.57
48	5240	16.71	N/A	16.71	17.00	Pass	17.71

Max.EIRP=Total Power + Antenna Gain

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

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
36	5180	16.35	N/A	16.35	17.00	Pass	17.35
40	5200	16.83	N/A	16.83	17.00	Pass	17.83
48	5240	16.66	N/A	16.66	17.00	Pass	17.66

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz) (Chain 1)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				

38	5190	16.28	N/A	16.28	17.00	Pass	17.28
46	5230	16.31	N/A	16.31	17.00	Pass	17.31

Max.EIRP=Total Power + Antenna Gain

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

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
36	5180	N/A	16.30	16.30	17.00	Pass	17.30
40	5200	N/A	16.53	16.53	17.00	Pass	17.53
48	5240	N/A	16.47	16.47	17.00	Pass	17.47

Max.EIRP=Total Power + Antenna Gain

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

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
36	5180	N/A	16.78	16.78	17.00	Pass	17.78
40	5200	N/A	16.68	16.68	17.00	Pass	17.68
48	5240	N/A	16.86	16.86	17.00	Pass	17.86

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz) (Chain 2)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
38	5190	N/A	16.92	16.92	17.00	Pass	17.92
46	5230	N/A	16.59	16.59	17.00	Pass	17.59

Max.EIRP=Total Power + Antenna Gain

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

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
36	5180	14.76	12.53	16.80	17.00	Pass	17.80
40	5200	14.92	12.24	16.79	17.00	Pass	17.79
48	5240	15.02	12.36	16.90	17.00	Pass	17.90

Max.EIRP=Total Power + Antenna Gain

Product	:	IP-STB
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz) (Chain 1+2)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result	Max.EIRP (dBm)
		Chain 1	Chain 2				
38	5190	14.56	12.83	16.79	17.00	Pass	17.79
46	5230	14.54	12.18	16.53	17.00	Pass	17.53

Max.EIRP=Total Power + Antenna Gain

8. Peak Power Spectral Density

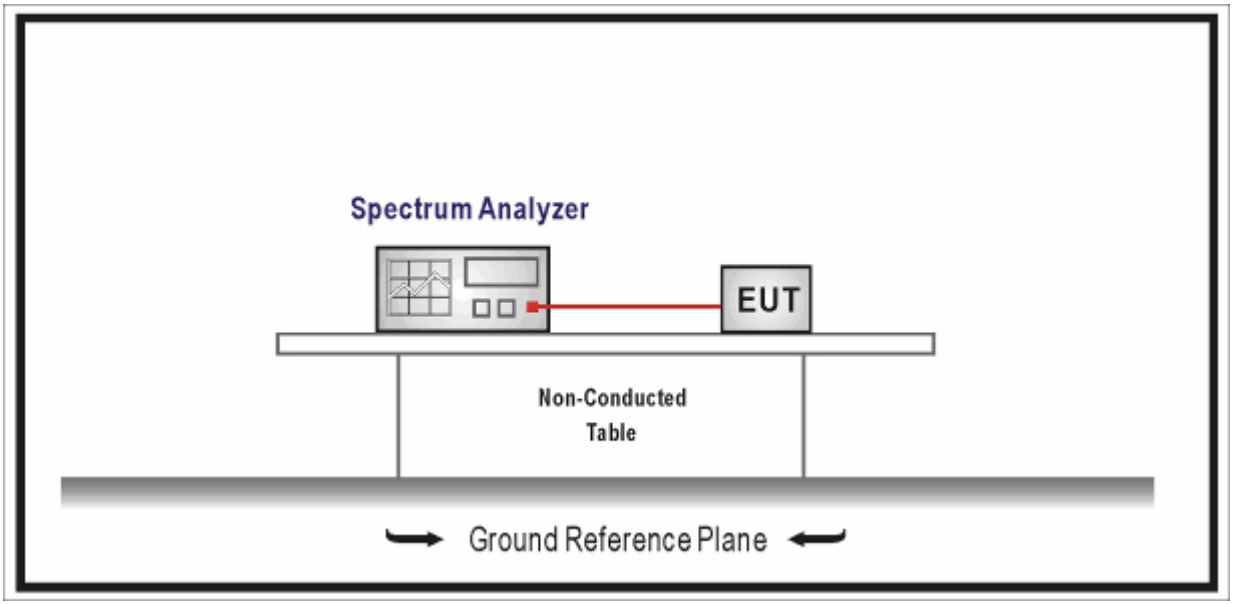
8.1. Test Equipment

Peak Power Spectral Density / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2013.04.18
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2013.05.07

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

8.2. Test Setup



8.3. Limit

- For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- For the band 5.25-5.35 GHz and 5.47-5725 GHz bands, the peak power spectral density shallnot exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- For the band 5.725-5.825 GHz, the peak power spectral density shall not exceed 17 dBm

in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain up to 23 dBi without any corresponding reduction in the peak power spectral density. For fixed, point-to-point U-NII transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in peak power spectral density for each 1 dB of antenna gain in excess of 23 dBi would be required.

8.4. Test Procedure

The EUT was tested according to ANSI C63.10: 2009 and KDB 789033 for compliance to FCC 47CFR 15.407 requirements.
Use sample detector and power averaging (not video averaging) mode. Set RBW= 1 MHz*, VBW > 1 MHz. The PPSD is the highest level found across the emission in any 1-MHz band after 100 sweeps of averaging. This method is permitted only if the transmission pulse or sequence of pulses remains at maximum transmit power throughout each of the 100 sweeps of averaging and that the interval between pulses is not included in any of the sweeps (e.g., 100 sweeps should occur during one transmission, or each sweep gated to occur during a transmission).

8.5. Uncertainty

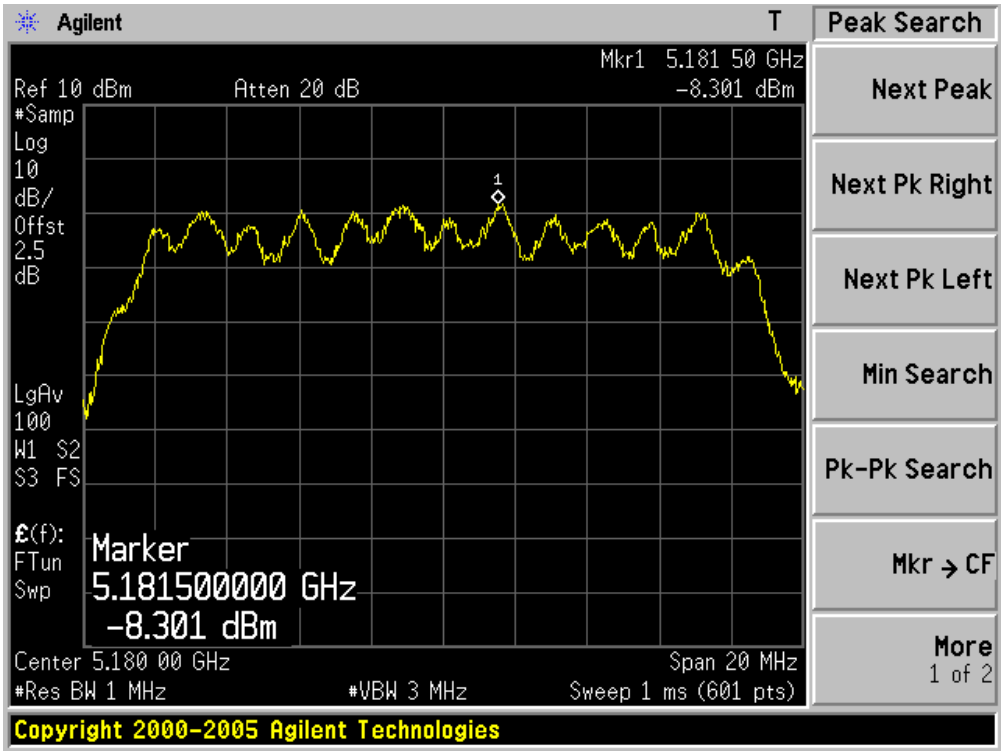
The measurement uncertainty is defined as ± 1.27 dB

8.6. Test Result

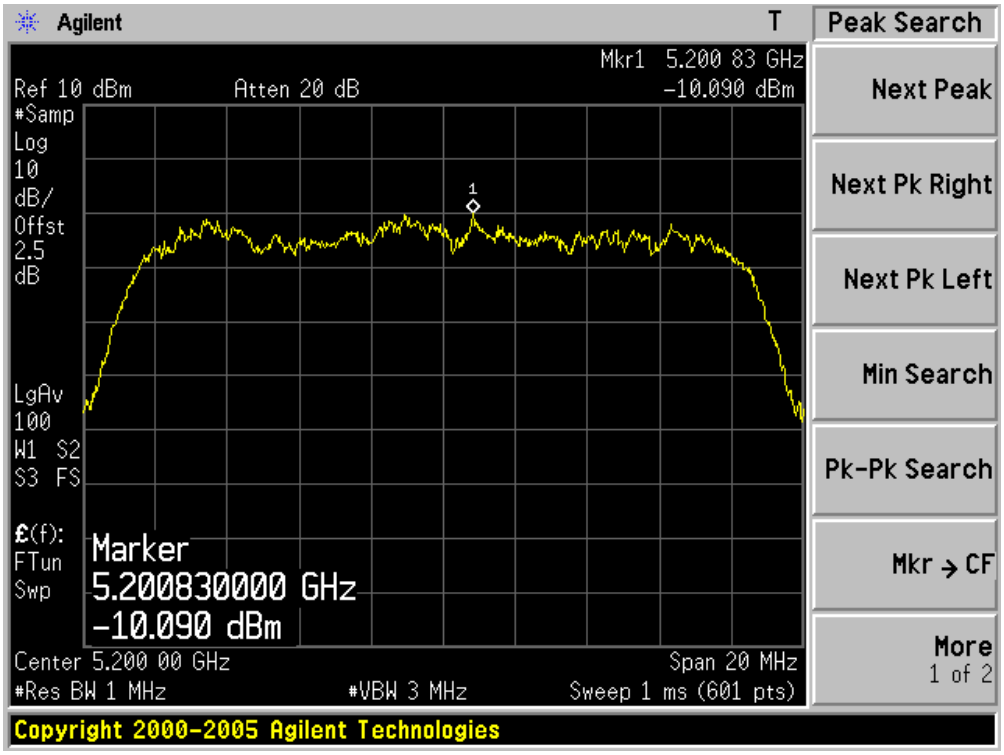
Product	:	IP-STB
Test Item	:	Peak Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 1)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm/MHz)		Total PPSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Chain 1	Chain 2			
36	5180	-8.301	N/A	-8.301	4.0	Pass
40	5200	-10.090	N/A	-10.090	4.0	Pass
48	5240	-9.176	N/A	-9.176	4.0	Pass

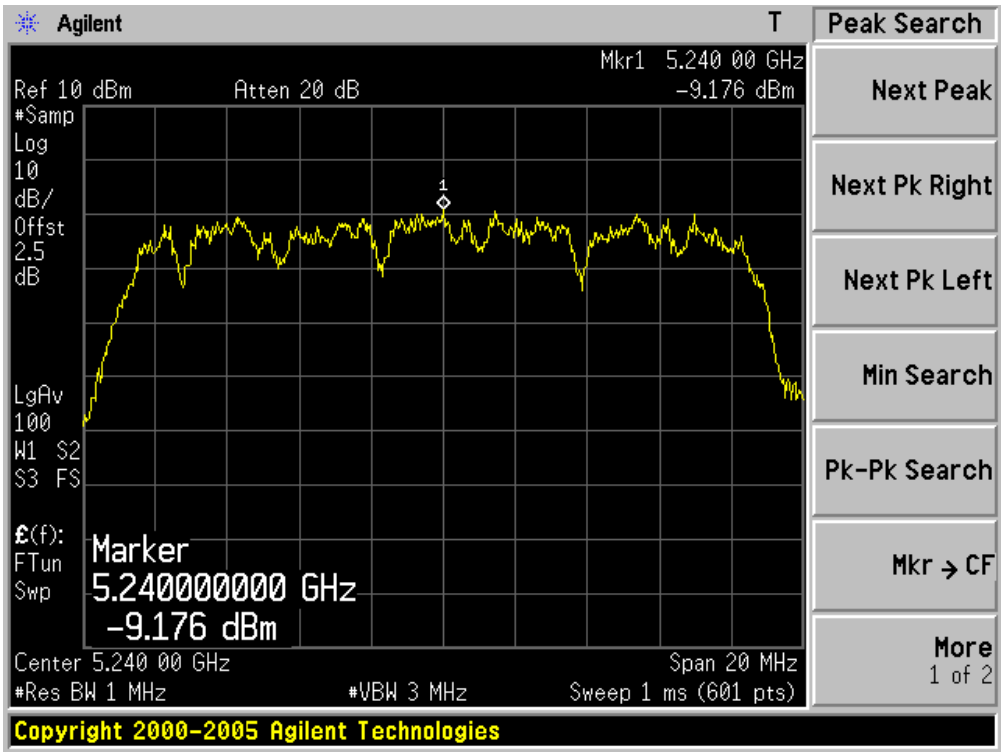
Channel 36 (5180MHz)



Channel 40 (5200MHz)



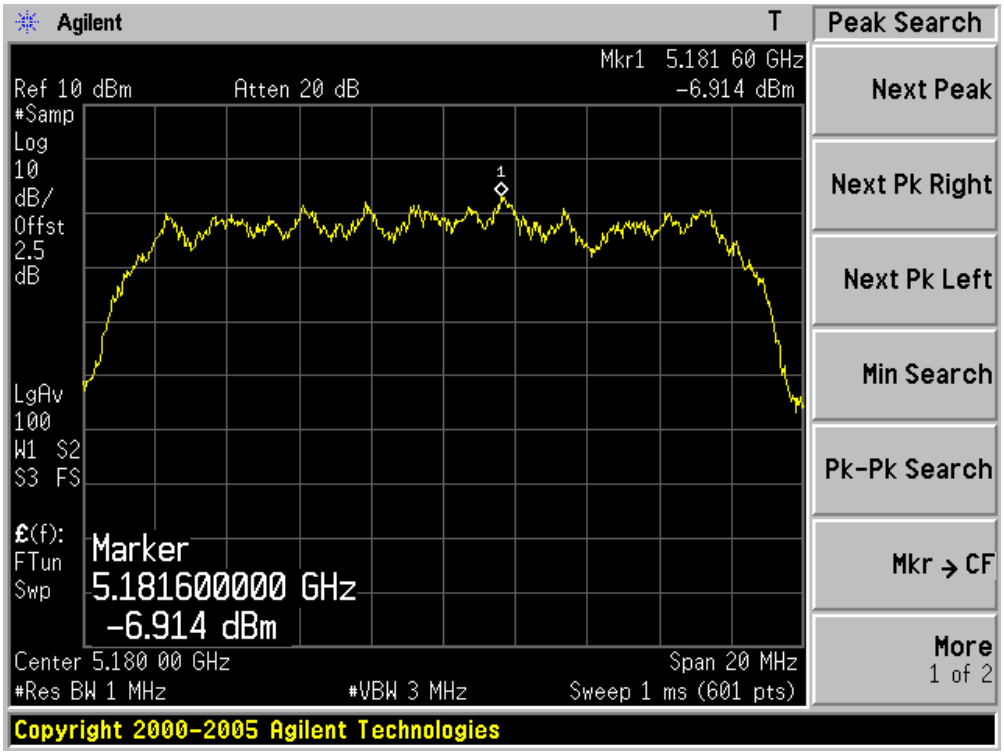
Channel 48 (5240MHz)



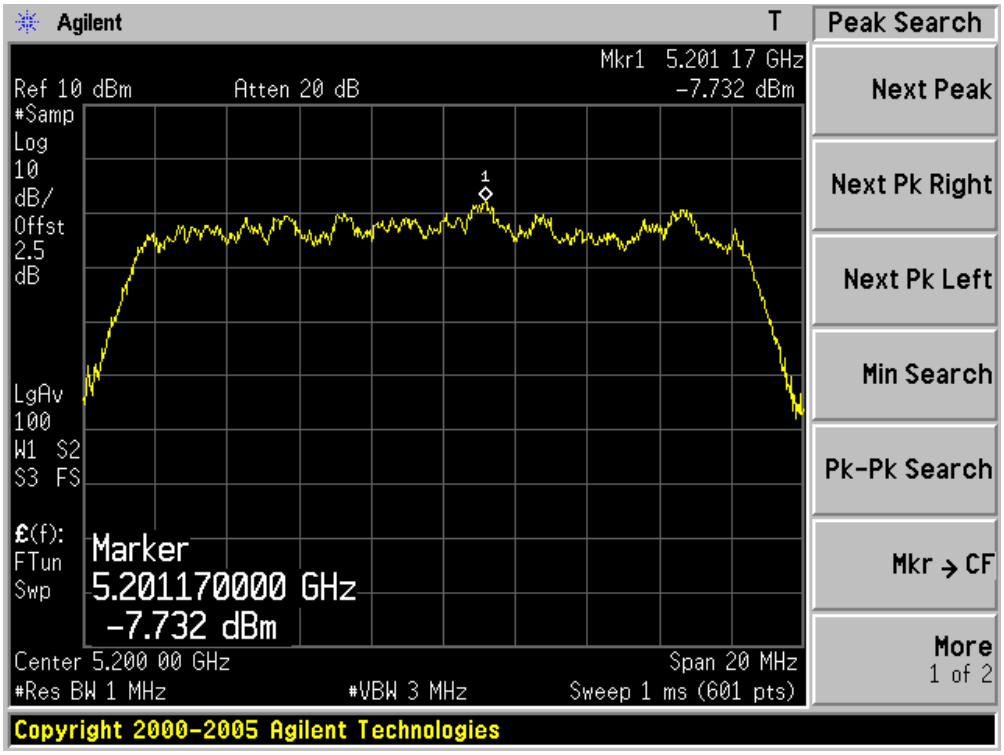
Product	:	IP-STB
Test Item	:	Peak Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 2)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm/MHz)		Total PPSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Chain 1	Chain 2			
36	5180	N/A	-6.914	-6.914	4.0	Pass
40	5200	N/A	-7.732	-7.732	4.0	Pass
48	5240	N/A	-10.144	-10.144	4.0	Pass

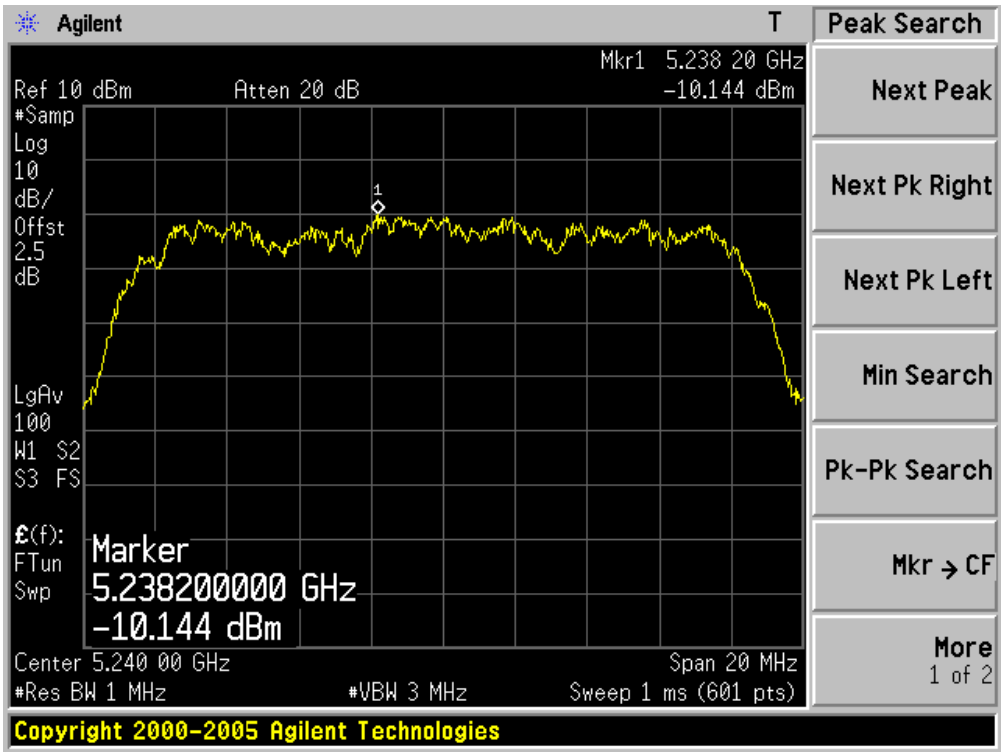
Channel 36 (5180MHz)



Channel 40 (5200MHz)



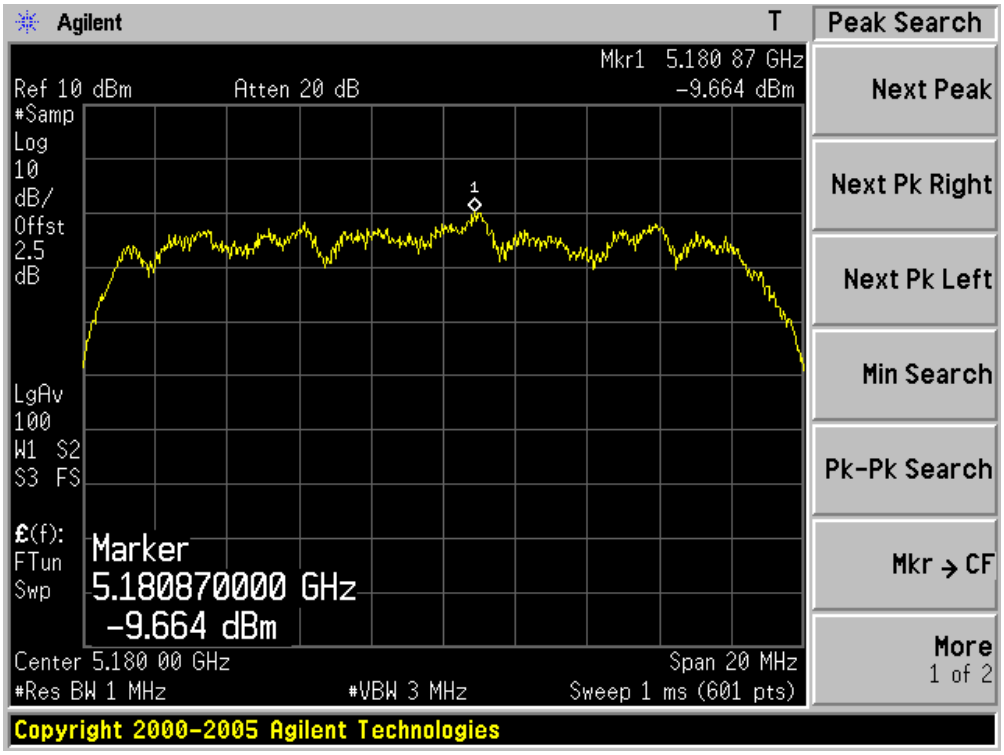
Channel 48 (5240MHz)



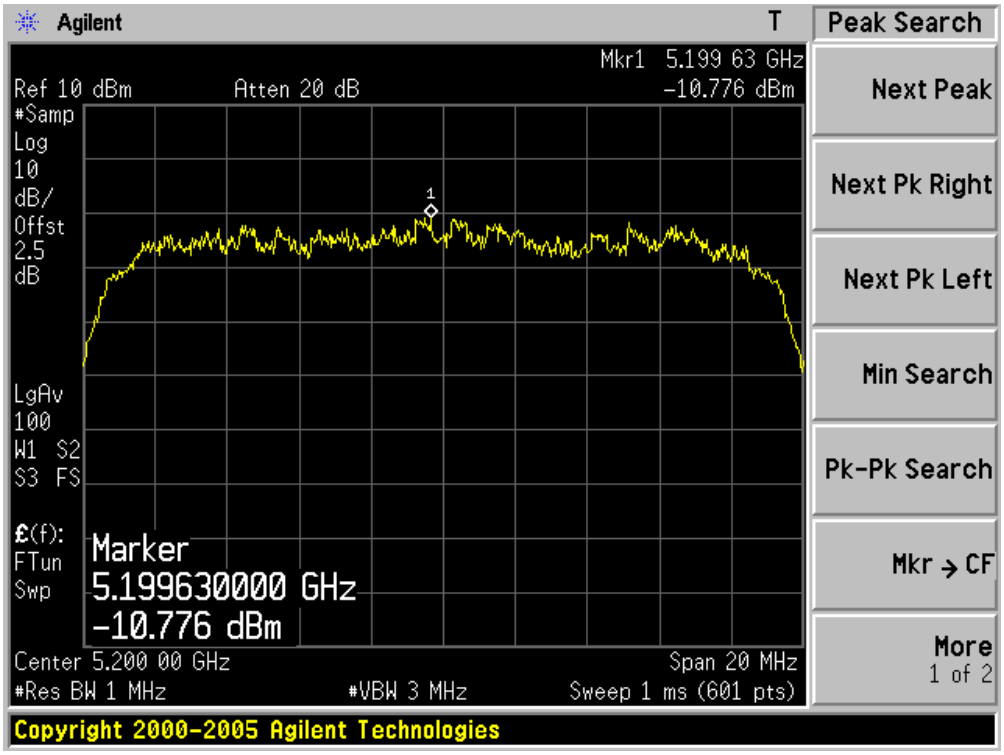
Product	:	IP-STB
Test Item	:	Peak Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 1)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm/MHz)		Total PPSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Chain 1	Chain 2			
36	5180	-9.664	N/A	-9.664	4.0	Pass
40	5200	-10.776	N/A	-10.776	4.0	Pass
48	5240	-11.150	N/A	-11.150	4.0	Pass

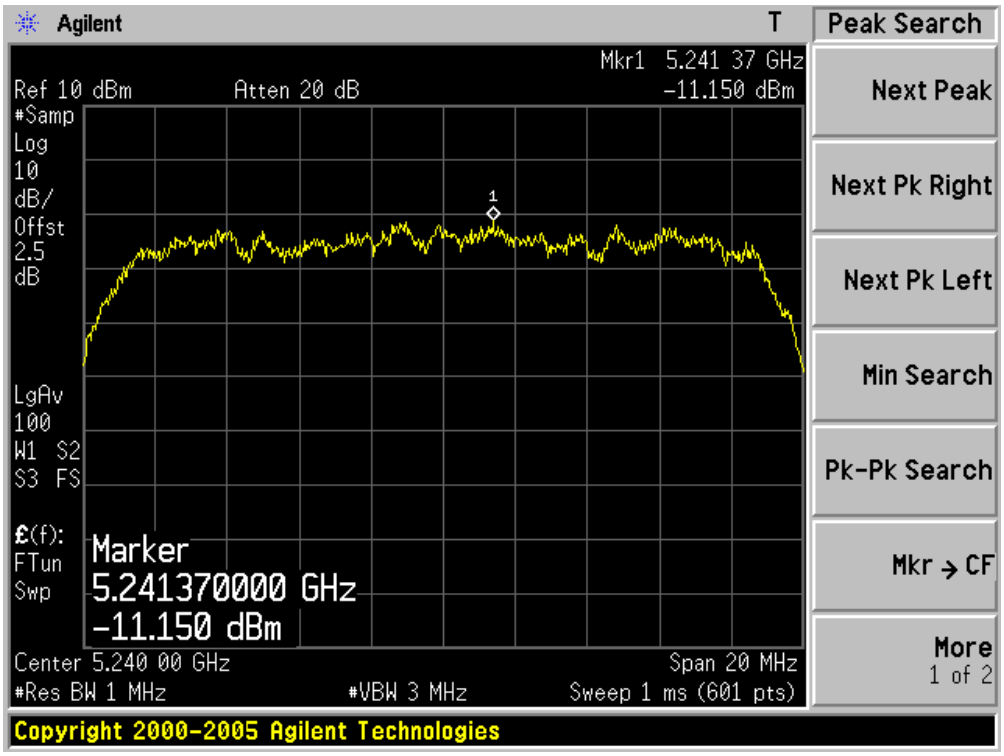
Channel 36 (5180MHz)



Channel 40 (5200MHz)



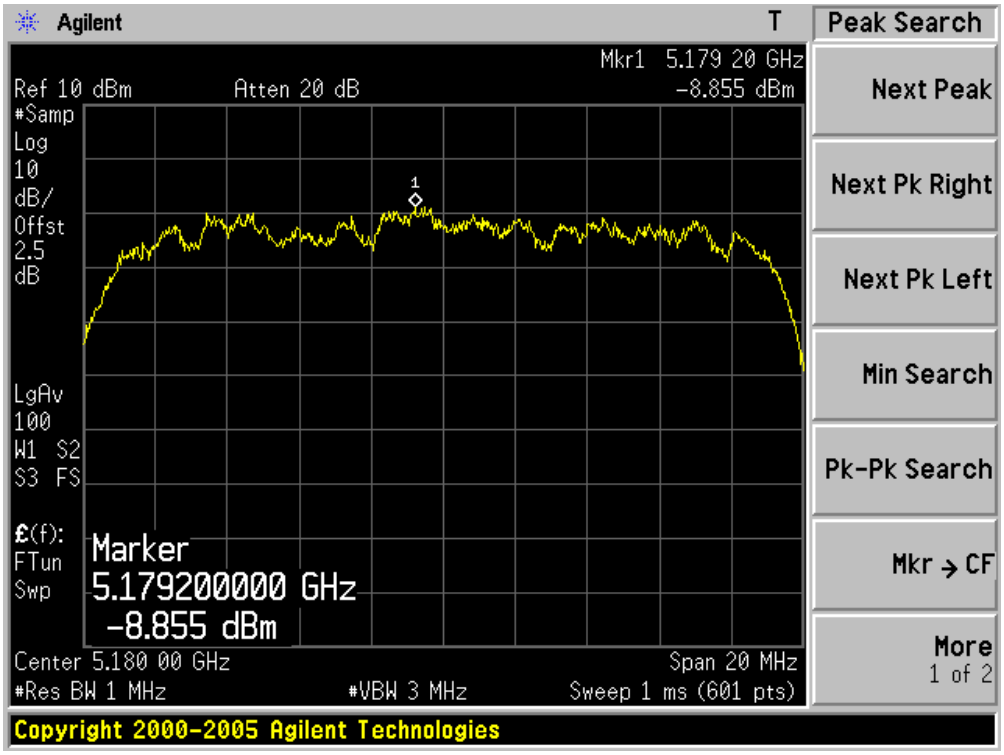
Channel 48 (5240MHz)



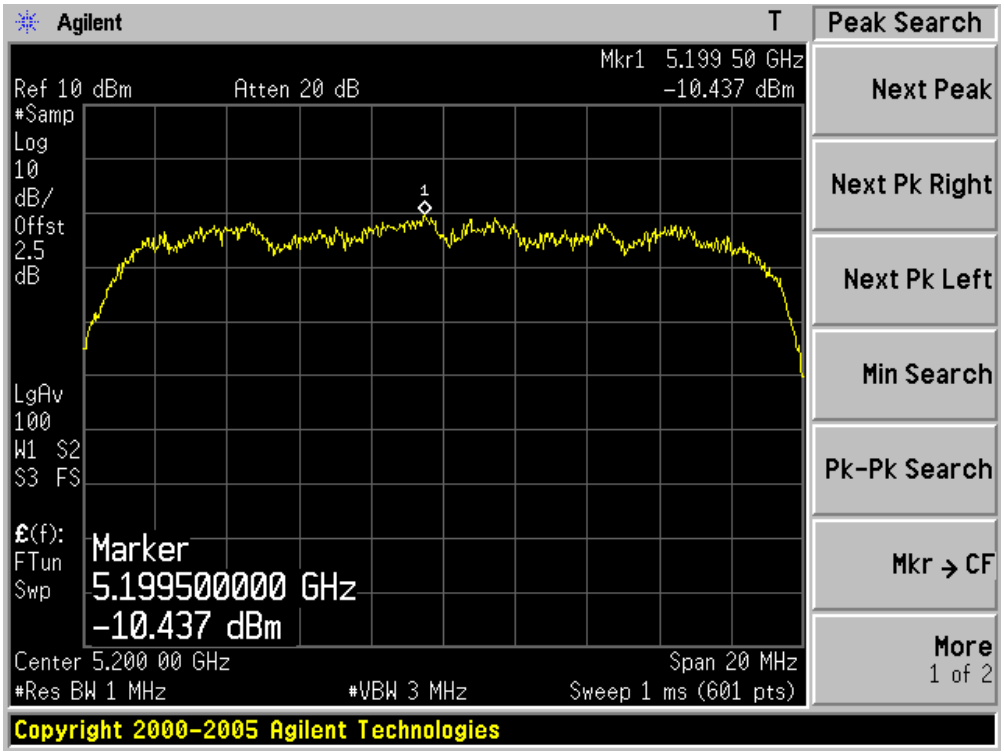
Product	:	IP-STB
Test Item	:	Peak Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 2)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm/MHz)		Total PPSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Chain 1	Chain 2			
36	5180	N/A	-8.855	-8.855	4.0	Pass
40	5200	N/A	-10.437	-10.437	4.0	Pass
48	5240	N/A	-9.136	-9.136	4.0	Pass

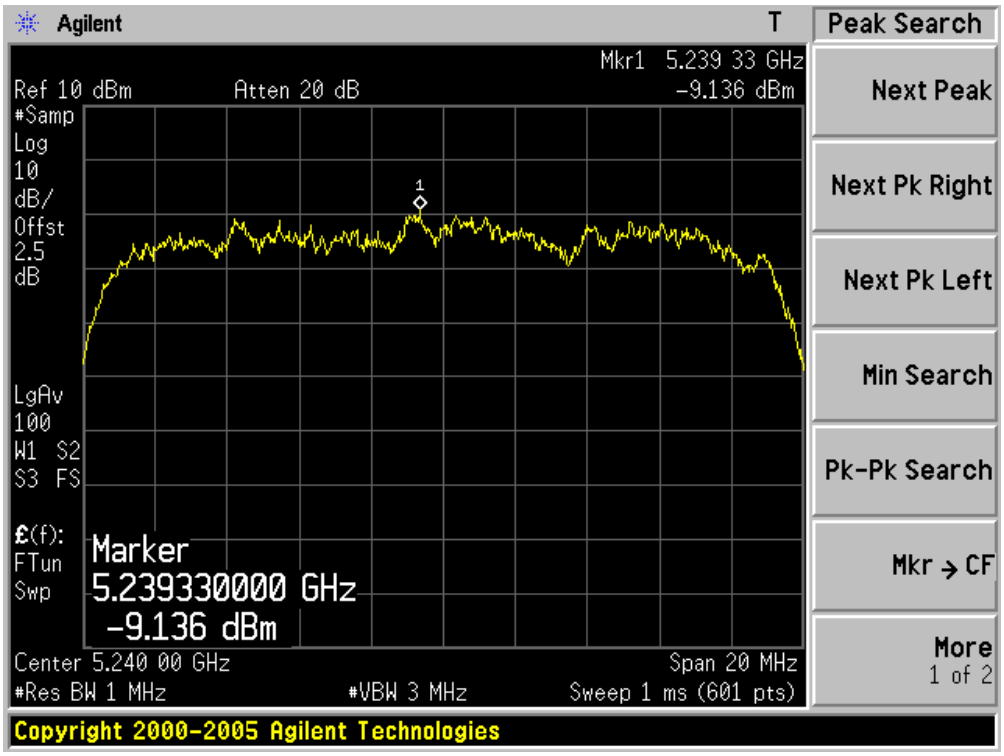
Channel 36 (5180MHz)



Channel 40 (5200MHz)



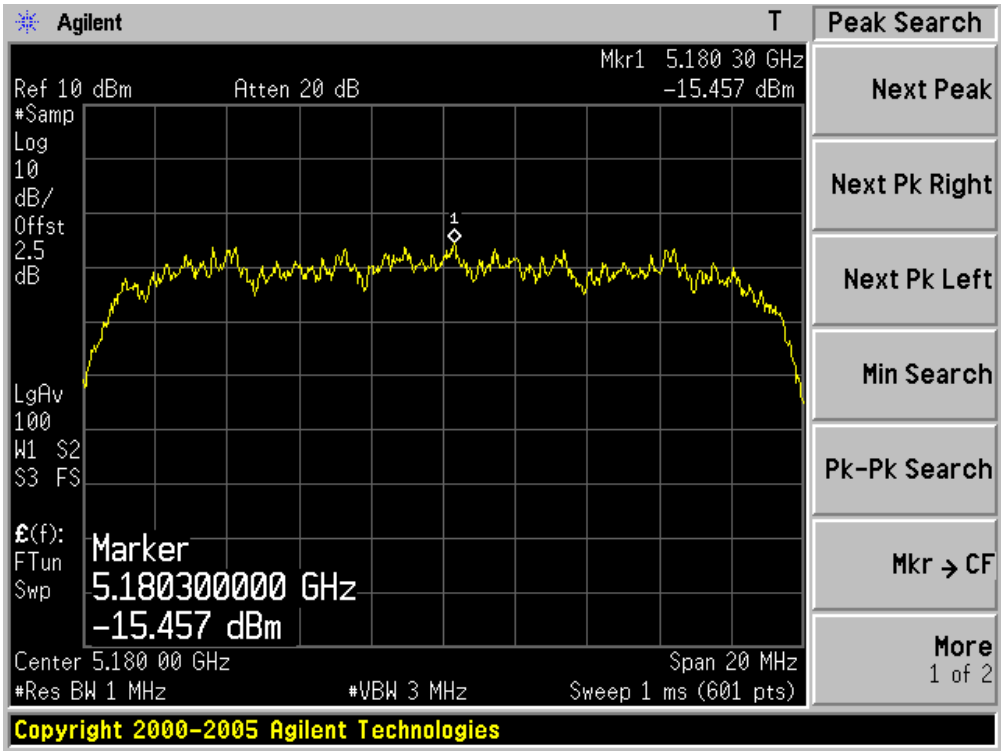
Channel 48 (5240MHz)



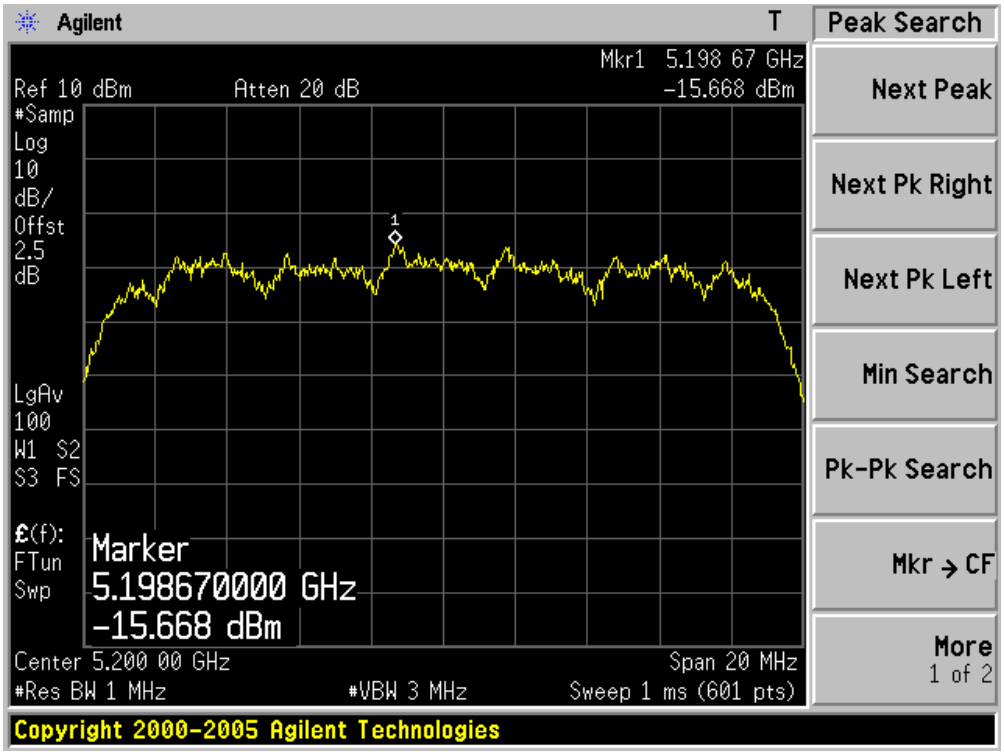
Product	:	IP-STB
Test Item	:	Peak Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 1+2)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm/MHz)		Total PPSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Chain 1	Chain 2			
36	5180	-15.457	-17.091	-13.19	4.0	Pass
40	5200	-15.668	-17.692	-13.55	4.0	Pass
48	5240	-16.587	-19.372	-14.75	4.0	Pass

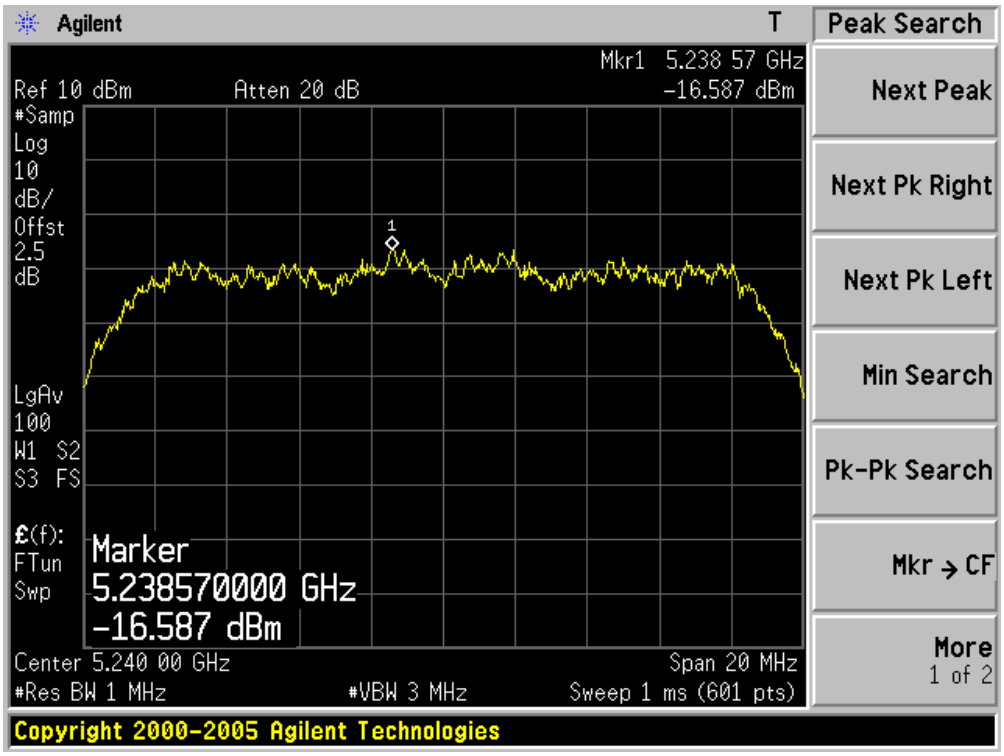
Channel 36 (5180MHz) - Chain 1



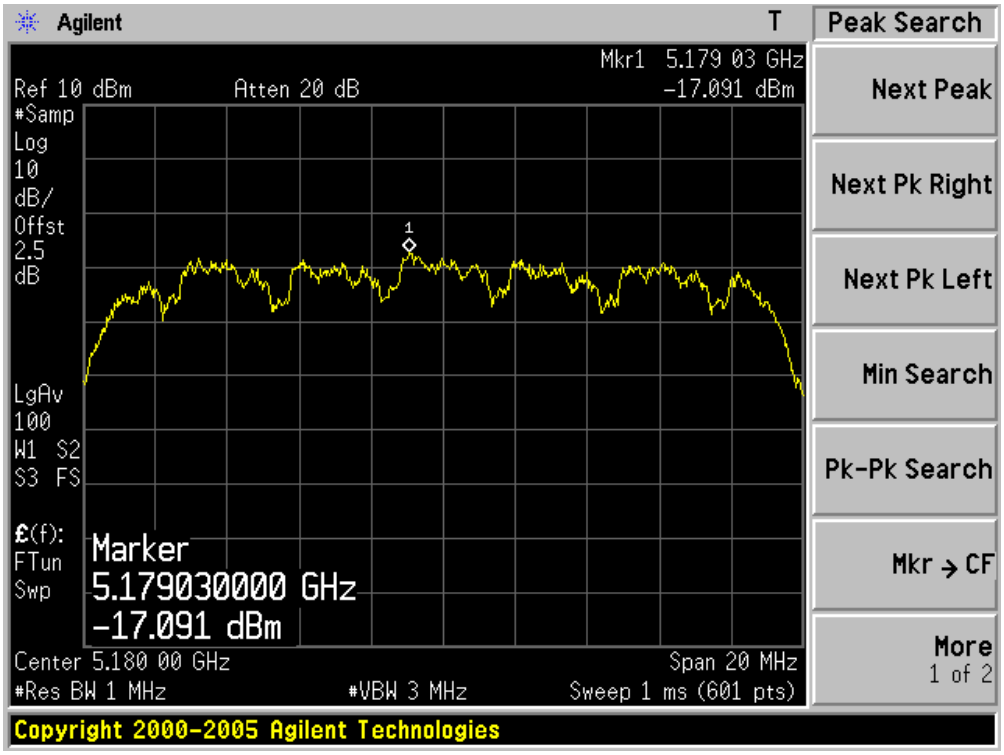
Channel 40 (5200MHz) - Chain 1



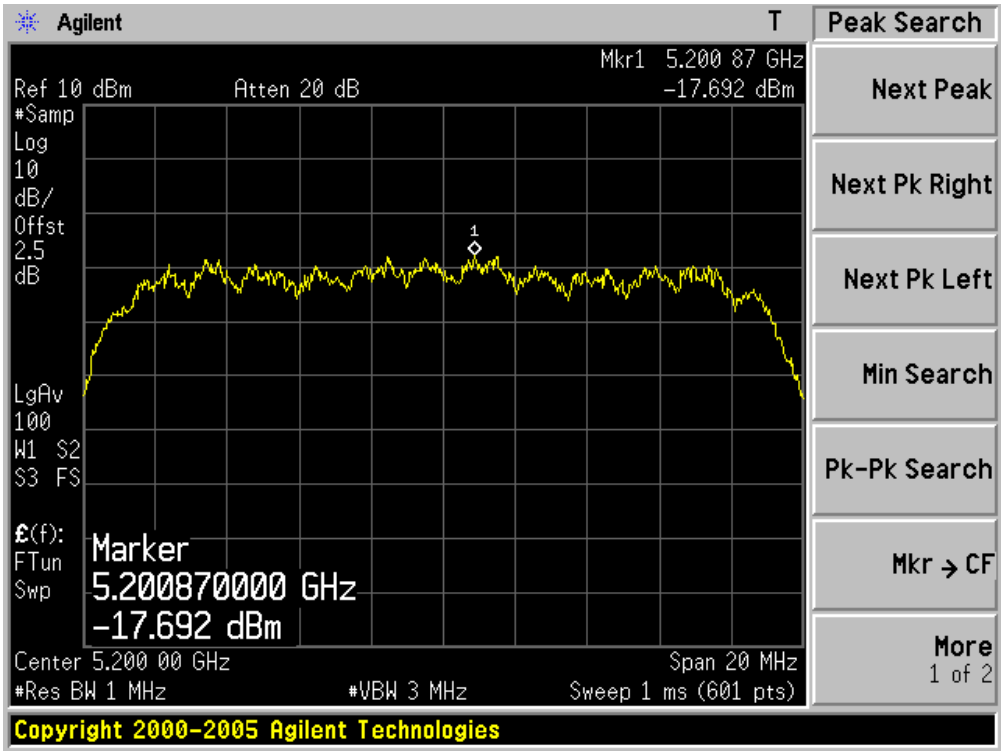
Channel 48 (5240MHz) - Chain 1



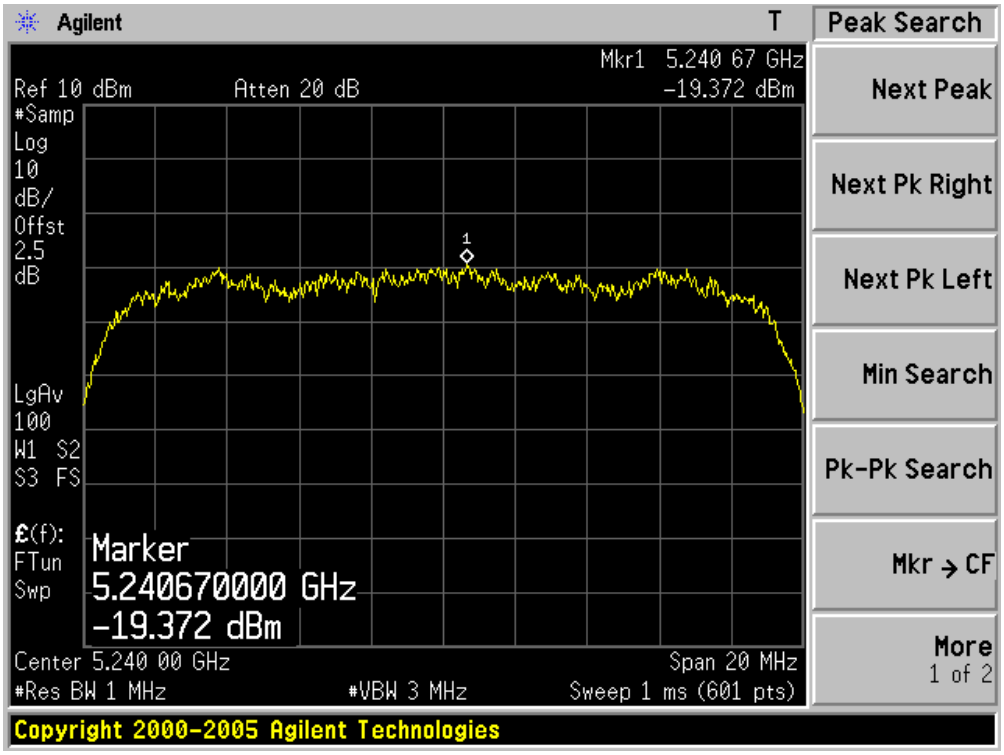
Channel 36 (5180MHz) - Chain 2



Channel 40 (5200MHz) - Chain 2



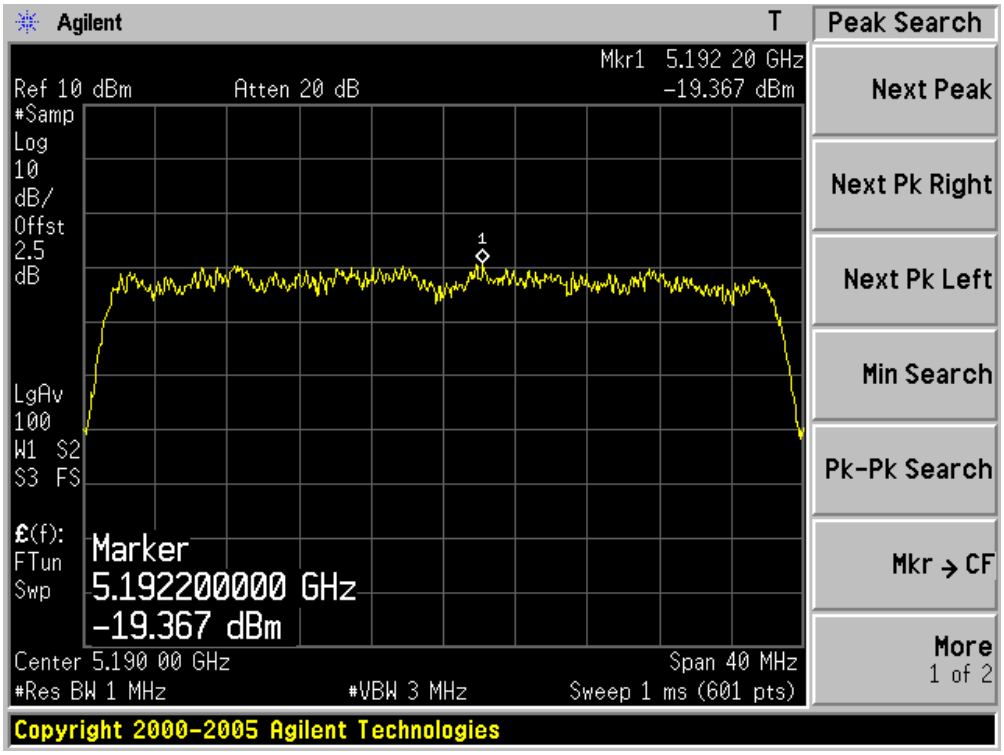
Channel 48 (5240MHz) - Chain 2



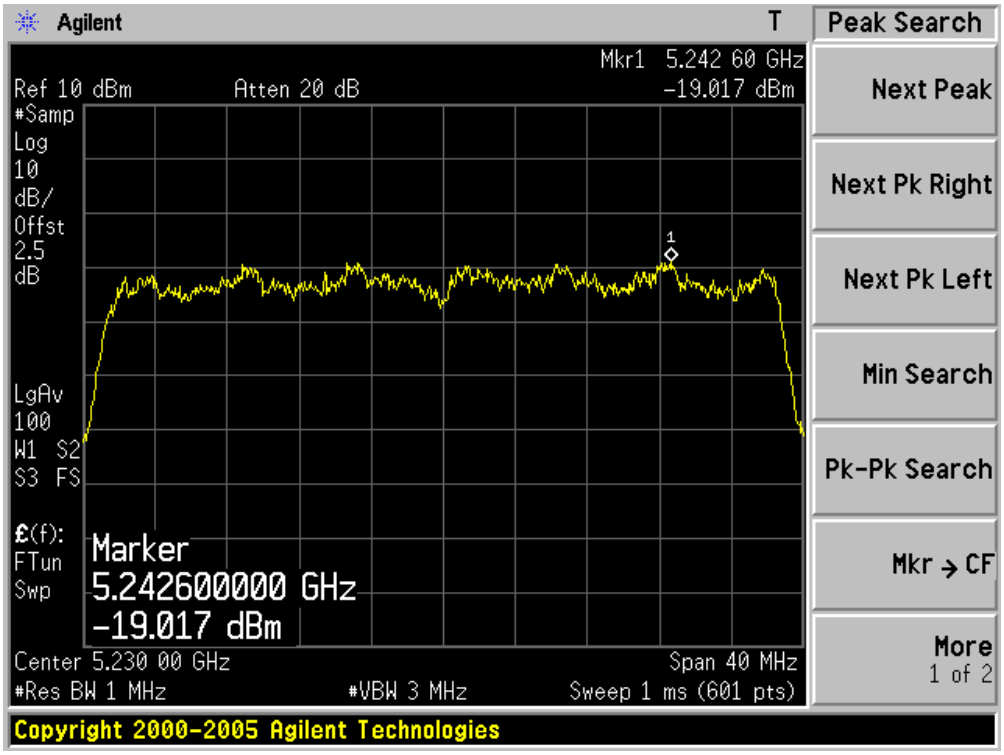
Product	:	IP-STB
Test Item	:	Peak Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz) (Chain 1)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm/MHz)		Total PPSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Chain 1	Chain 2			
38	5190	-19.367	N/A	-19.367	4.0	Pass
46	5230	-19.017	N/A	-19.017	4.0	Pass

Channel 38 (5190MHz)



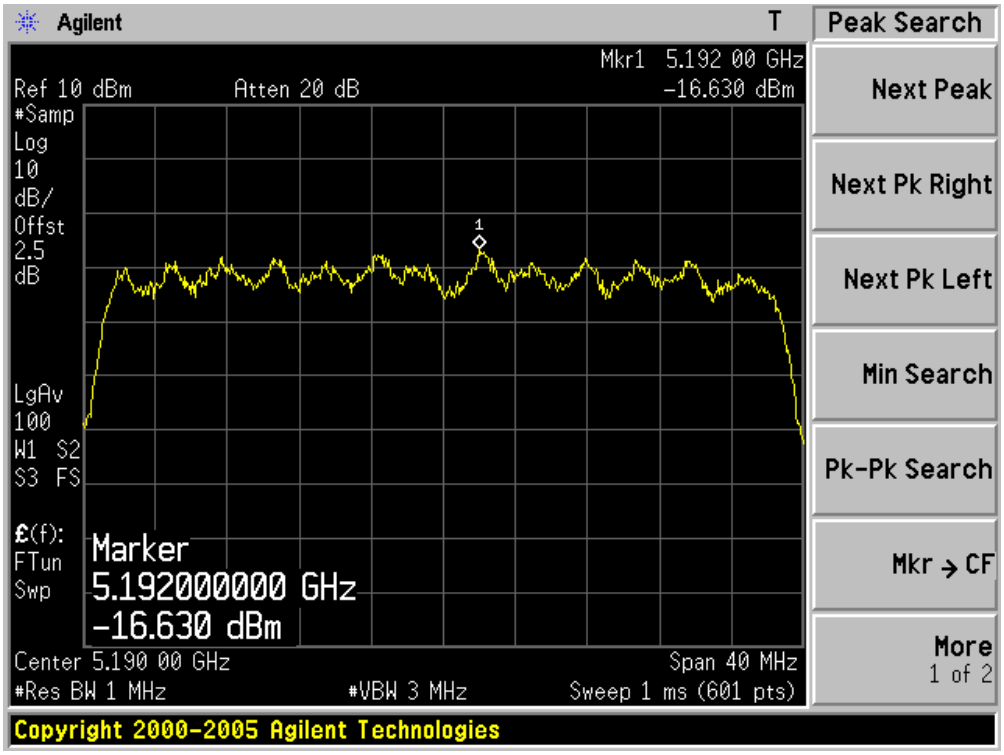
Channel 46 (5230MHz)



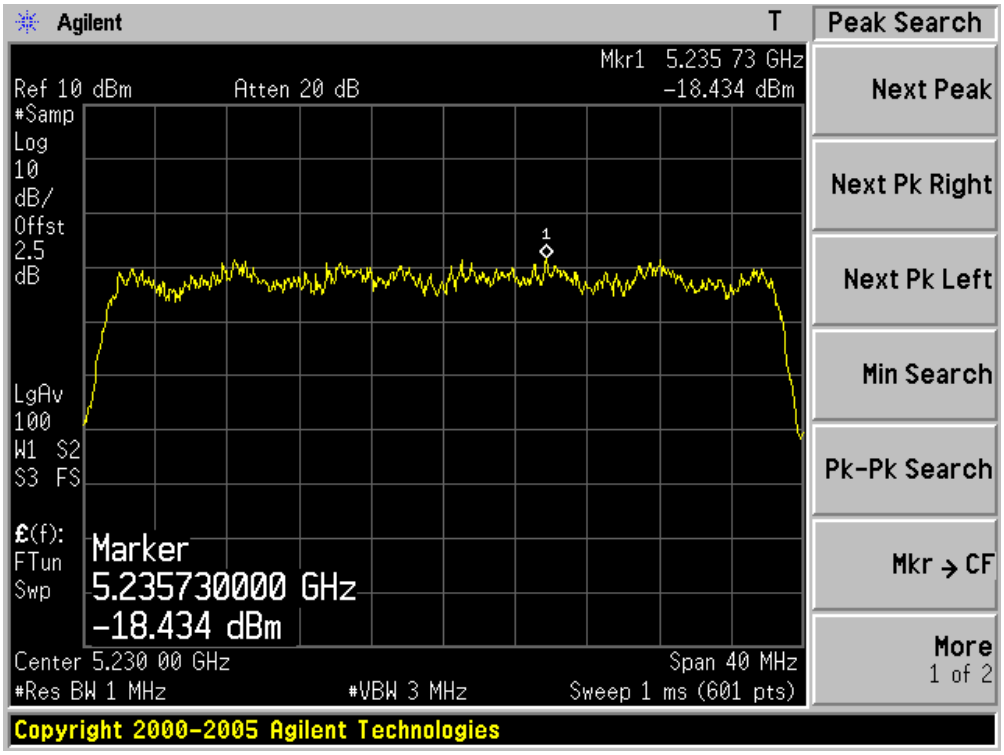
Product	:	IP-STB
Test Item	:	Peak Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz) (Chain 2)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm/MHz)		Total PPSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Chain 1	Chain 2			
38	5190	N/A	-16.630	-16.630	4.0	Pass
46	5230	N/A	-18.434	-18.434	4.0	Pass

Channel 38 (5190MHz)



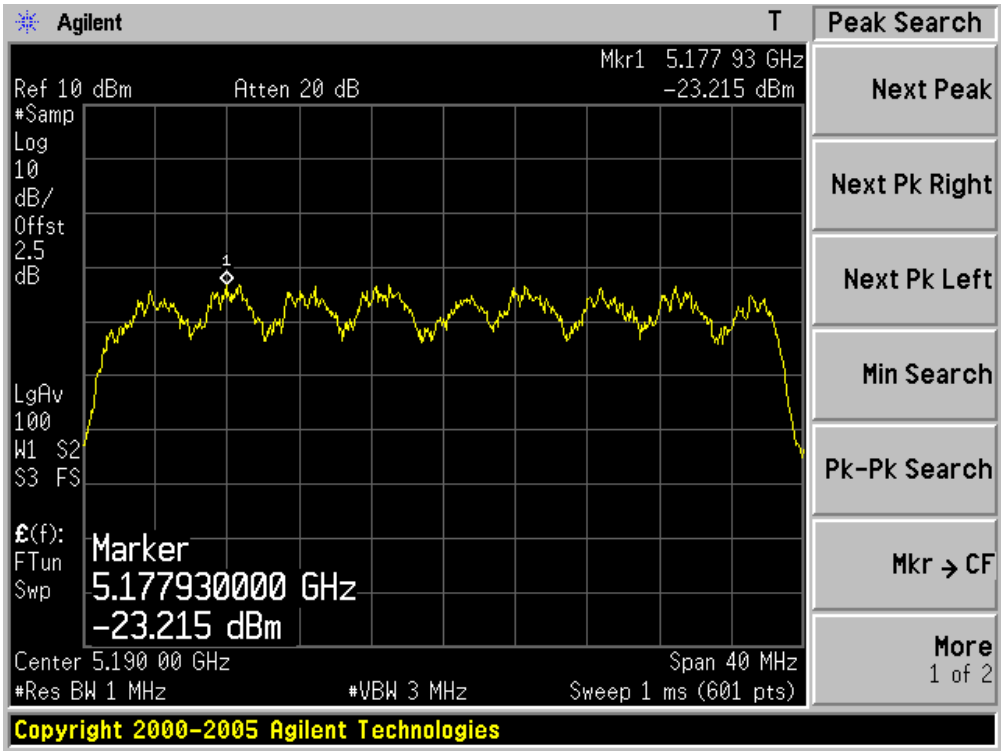
Channel 46 (5230MHz)



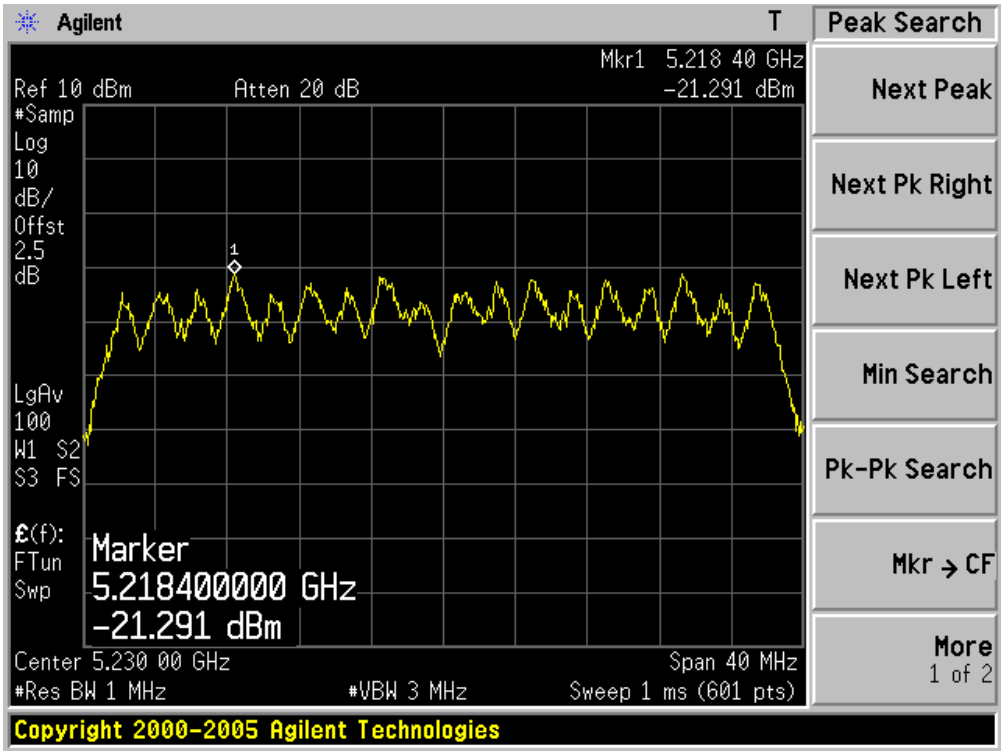
Product	:	IP-STB
Test Item	:	Peak Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz) (Chain 1+2)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm/MHz)		Total PPSD (dBm/MHz)	Limit (dBm/MHz)	Result
		Chain 1	Chain 2			
38	5190	-23.215	-24.051	-20.60	4.0	Pass
46	5230	-21.291	-24.111	-19.47	4.0	Pass

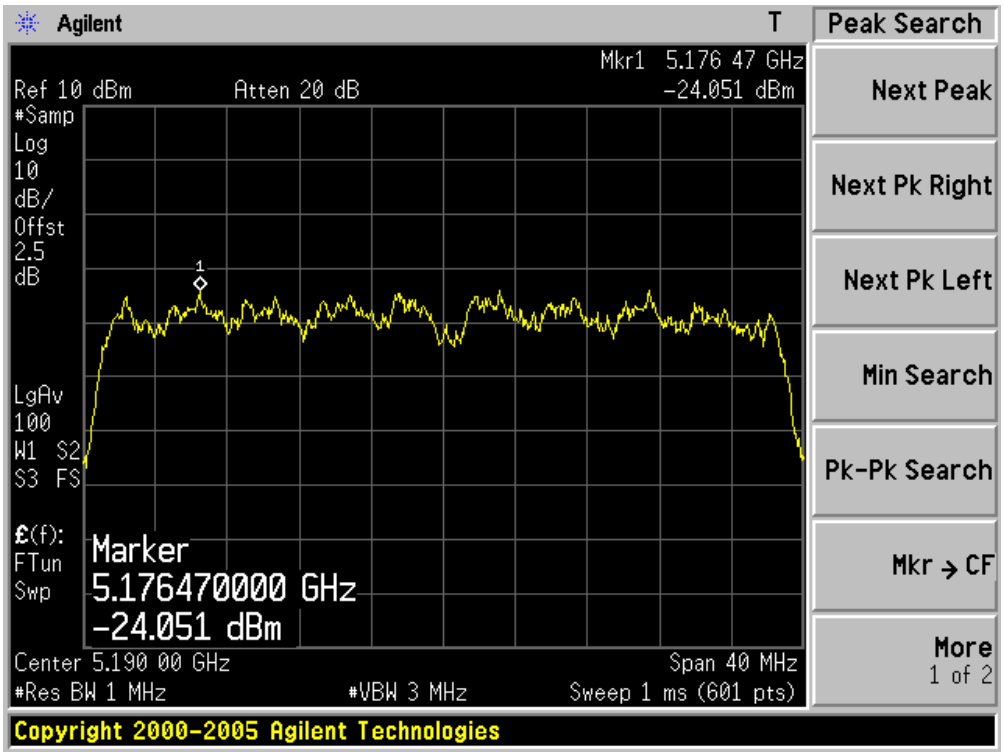
Channel 38 (5190MHz) - Chain 1



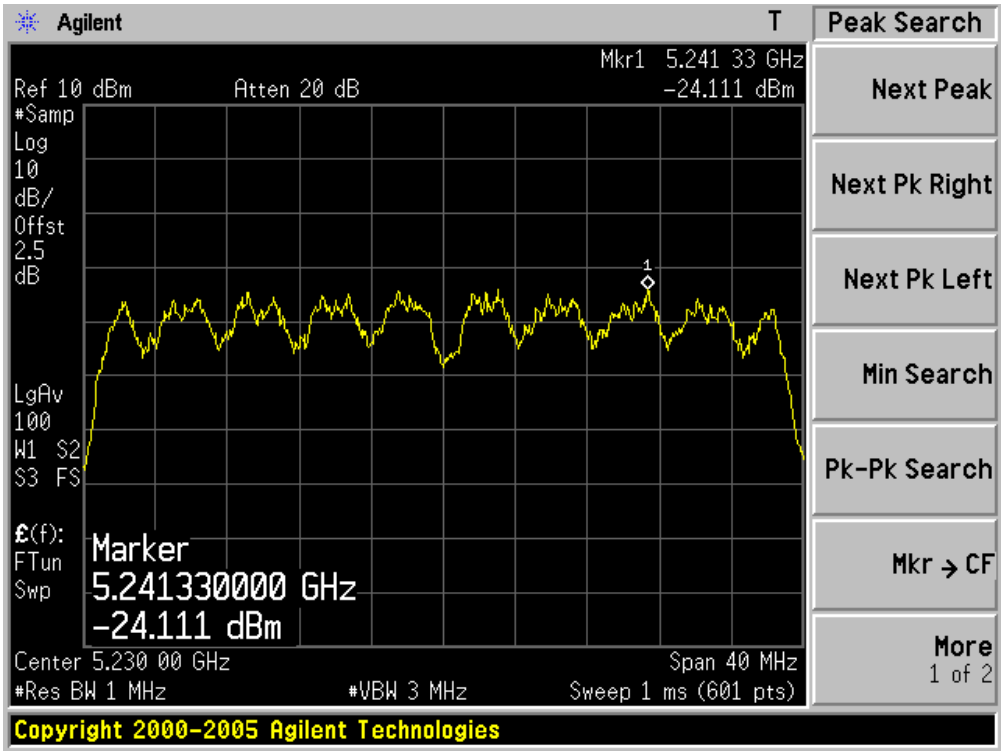
Channel 46 (5230MHz) - Chain 1



Channel 38 (5190MHz) - Chain 2



Channel 46 (5230MHz) - Chain 2



9. Peak Excursion

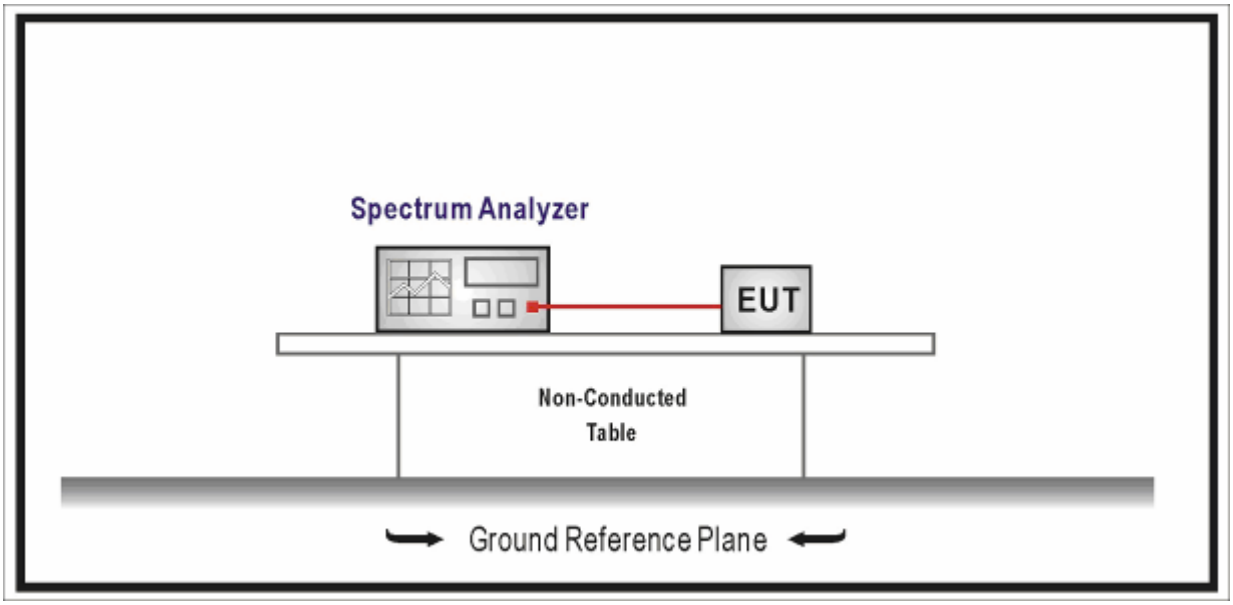
9.1. Test Equipment

Peak Excursion / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2013.04.18
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2013.05.07

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

9.2. Test Setup



9.3. Limit

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

9.4. Test Procedure

The EUT was tested according to ANSI C63.10: 2009 and KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

Set the spectrum analyzer span to view the entire emission bandwidth. The largest difference between the following two traces must be ≤ 13 dB for all frequencies across the emission bandwidth.

- 1st Trace: Set RBW = 1 MHz, VBW ≥ 3 MHz with peak detector and maxhold settings.
- 2nd Trace: Set RBW = 1 MHz, VBW = 30 kHz with peak detector and maxhold settings.

9.5. Uncertainty

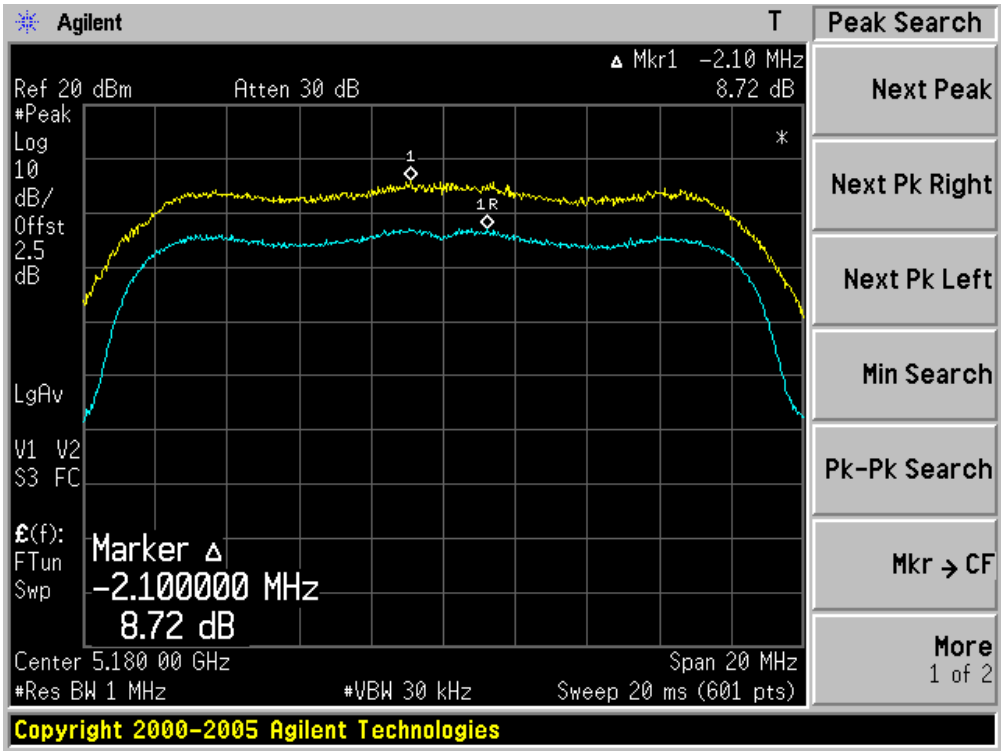
The measurement uncertainty is defined as ± 1.27 dB

9.6. Test Result

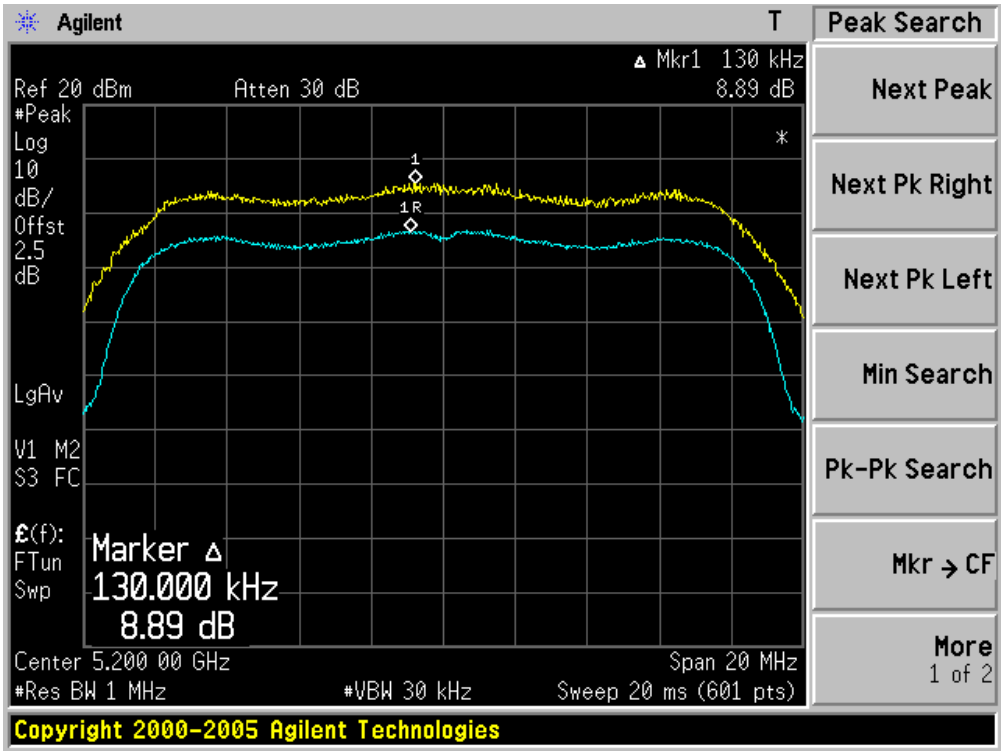
Product	:	IP-STB
Test Item	:	Peak Excursion
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 1)

Channel No.	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
36	5180	8.72	13	Pass
40	5200	8.89	13	Pass
48	5240	8.97	13	Pass

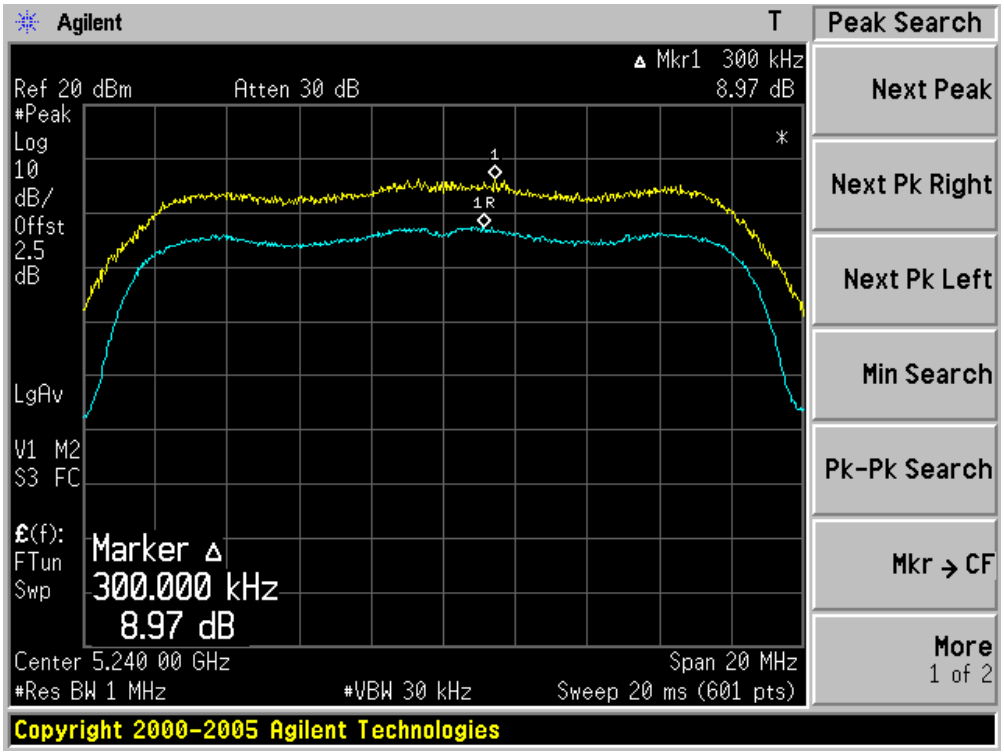
Channel 36 (5180MHz)



Channel 40 (5200MHz)



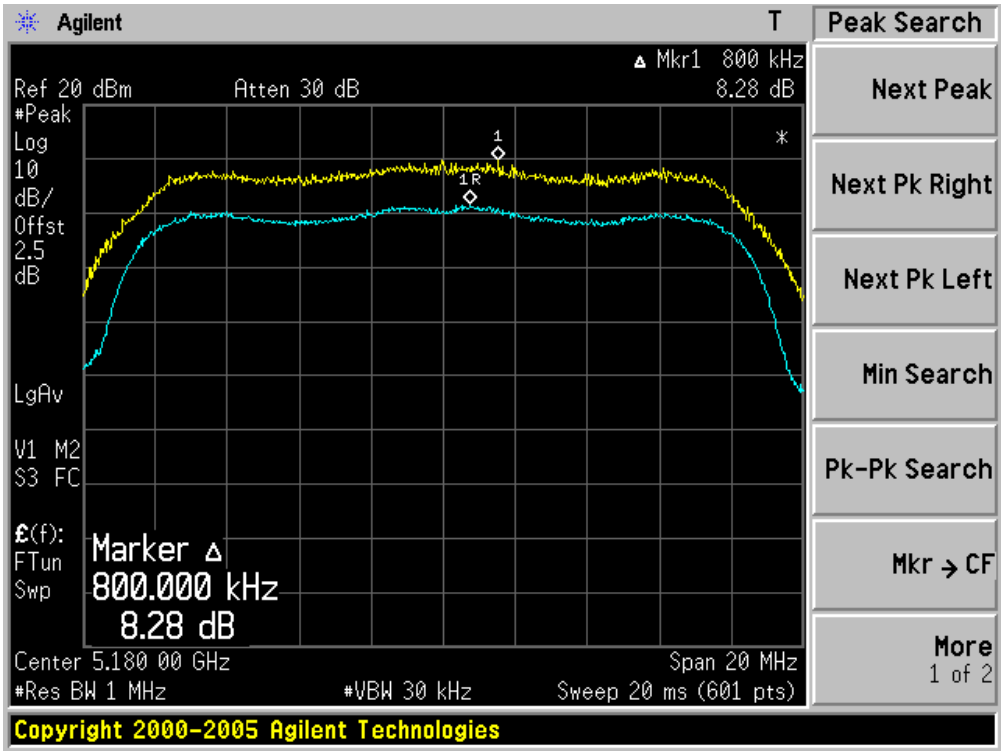
Channel 48 (5240MHz)



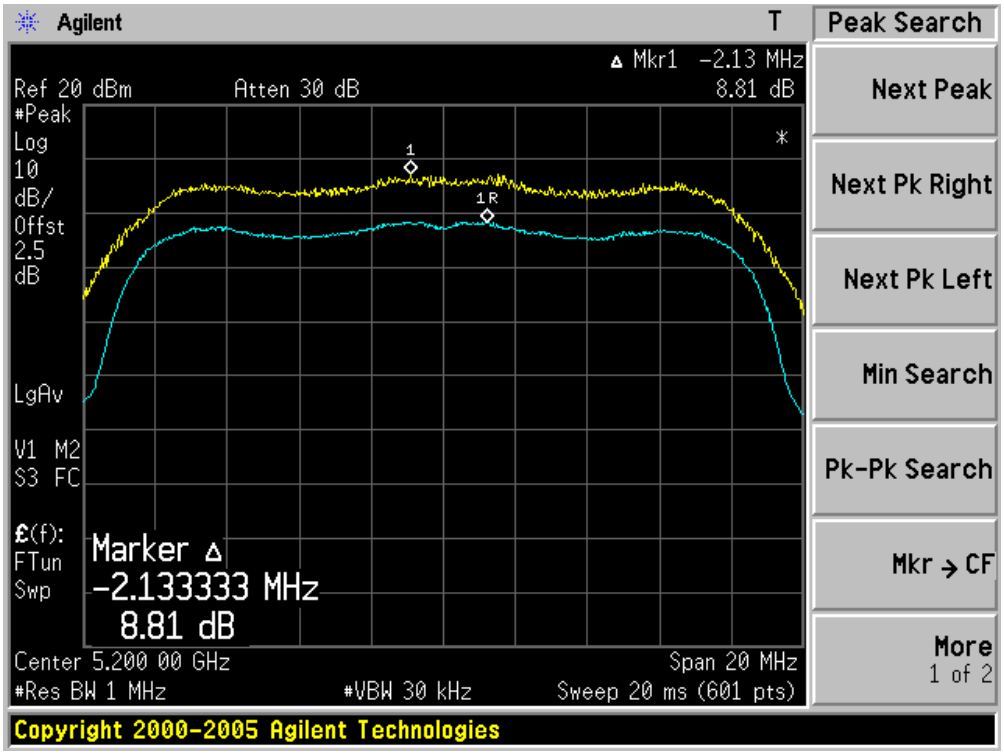
Product	:	IP-STB
Test Item	:	Peak Excursion
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 2)

Channel No.	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
36	5180	8.28	13	Pass
40	5200	8.81	13	Pass
48	5240	8.77	13	Pass

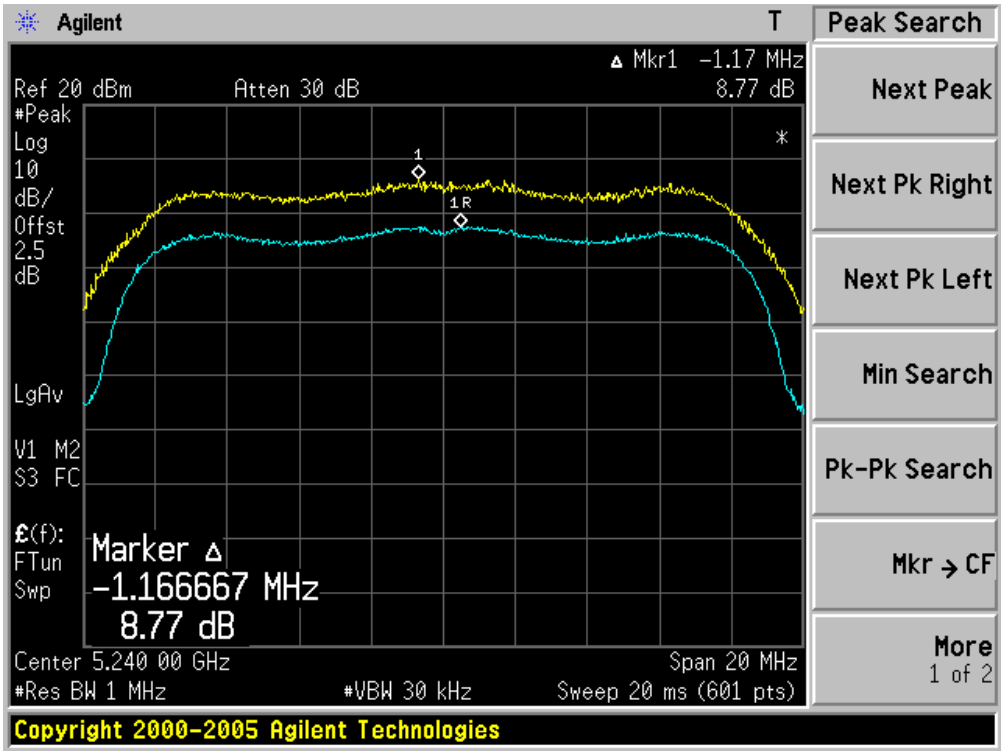
Channel 36 (5180MHz)



Channel 40 (5200MHz)



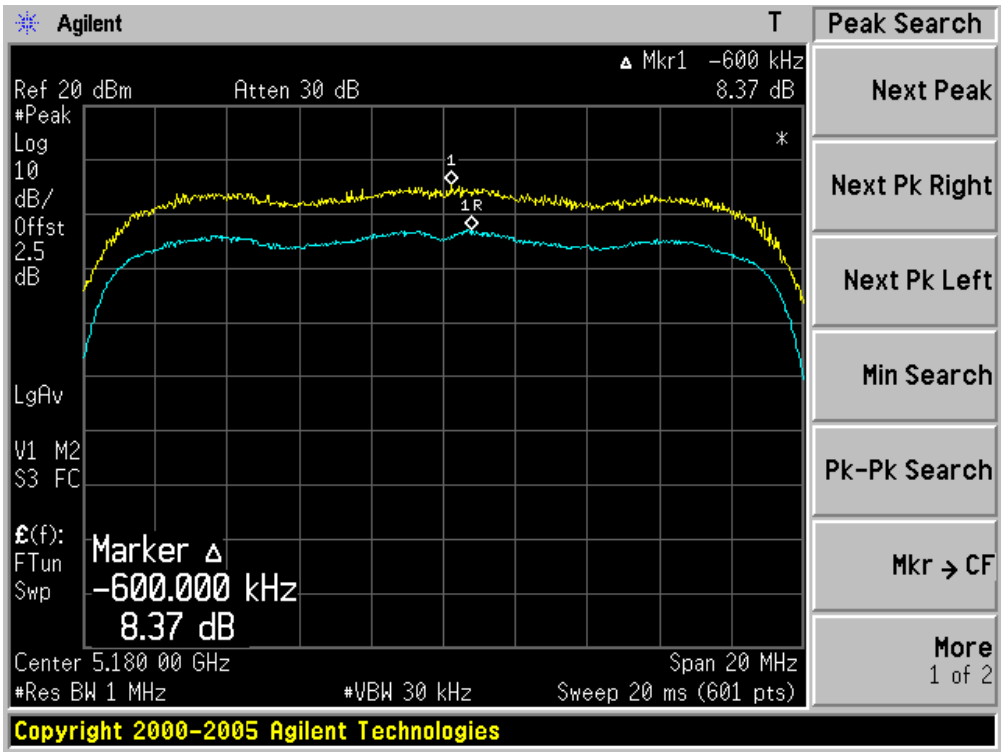
Channel 48 (5240MHz)



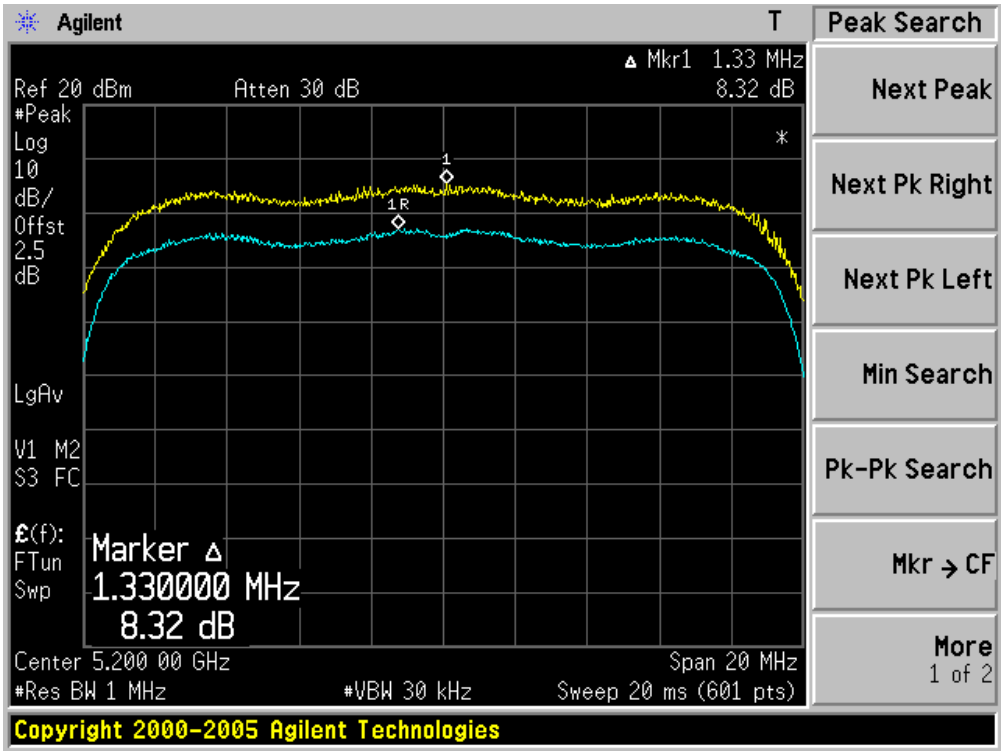
Product	:	IP-STB
Test Item	:	Peak Excursion
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n (20MHz) (Chain 1)

Channel No.	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
36	5180	8.37	13	Pass
40	5200	8.32	13	Pass
48	5240	8.36	13	Pass

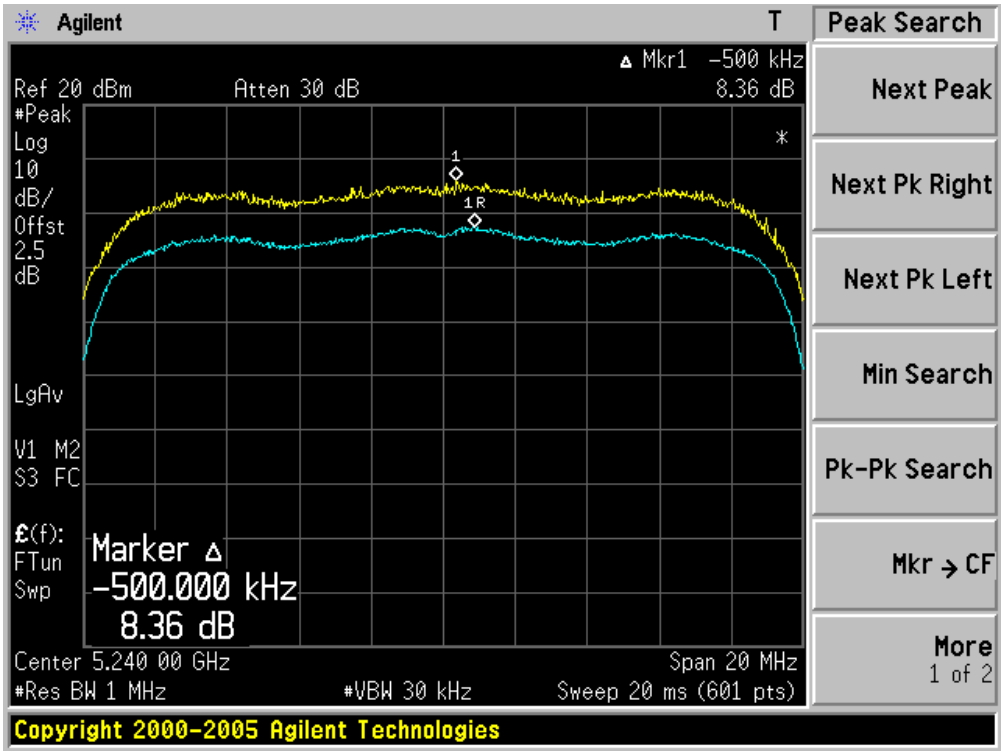
Channel 36 (5180MHz)



Channel 40 (5200MHz)



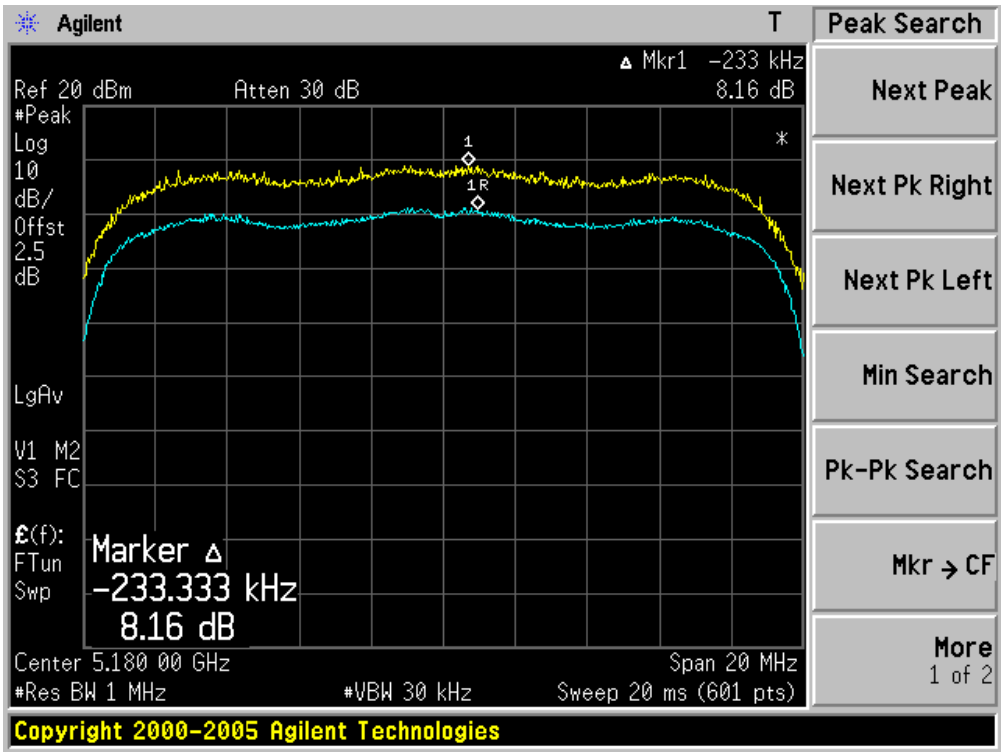
Channel 48 (5240MHz)



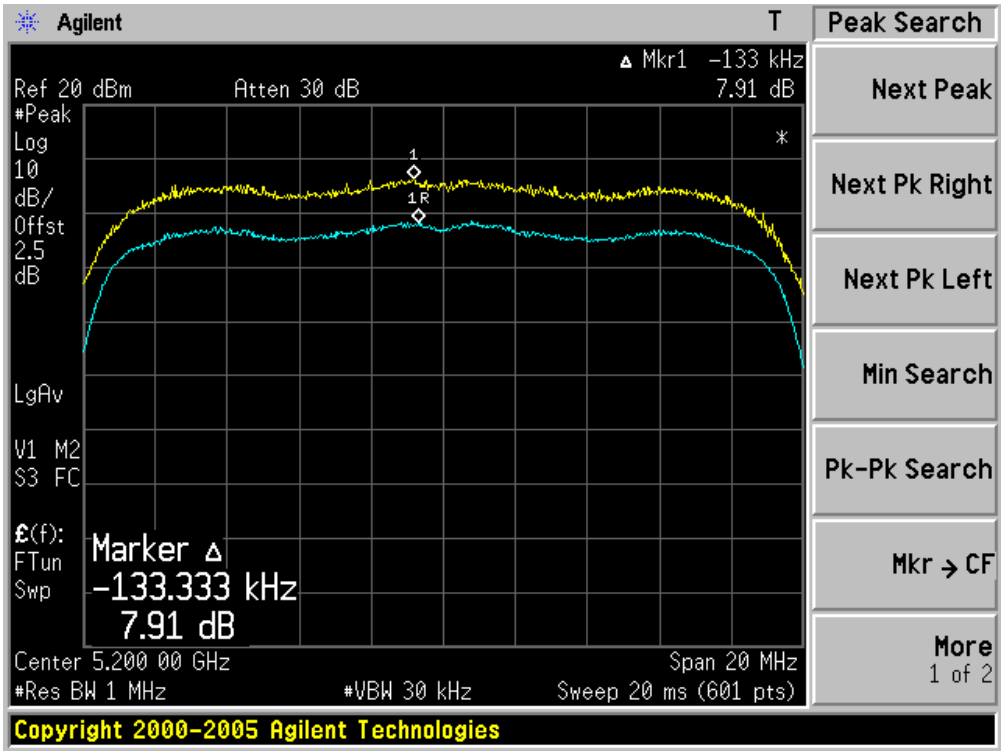
Product	:	IP-STB
Test Item	:	Peak Excursion
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n (20MHz) (Chain 2)

Channel No.	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
36	5180	8.16	13	Pass
40	5200	7.91	13	Pass
48	5240	8.36	13	Pass

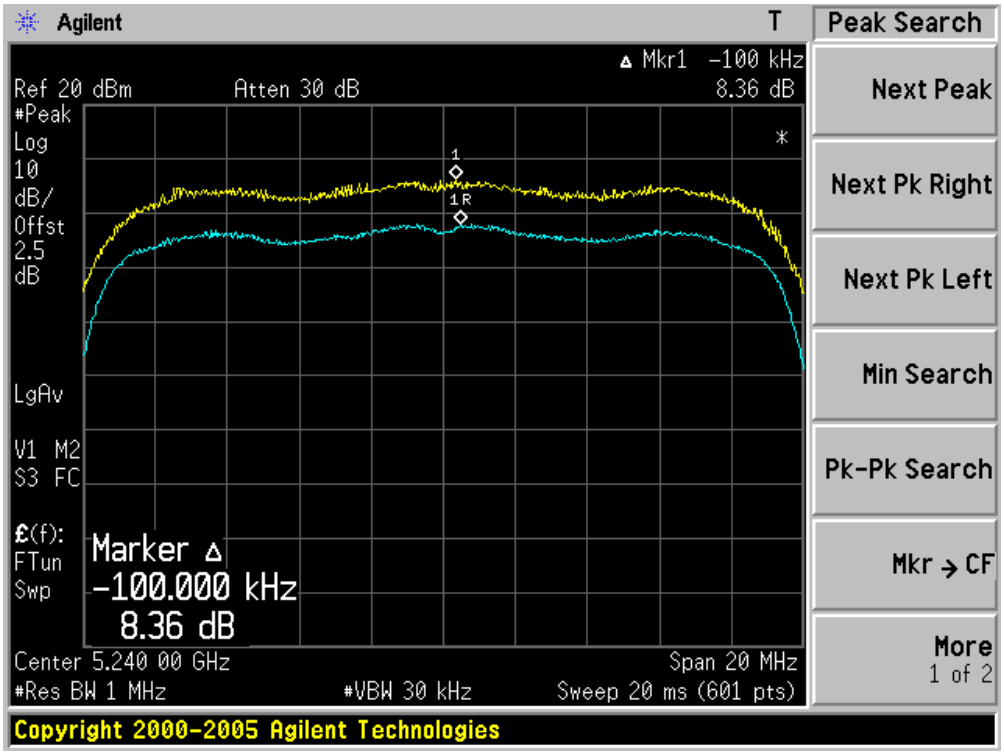
Channel 36 (5180MHz)



Channel 40 (5200MHz)



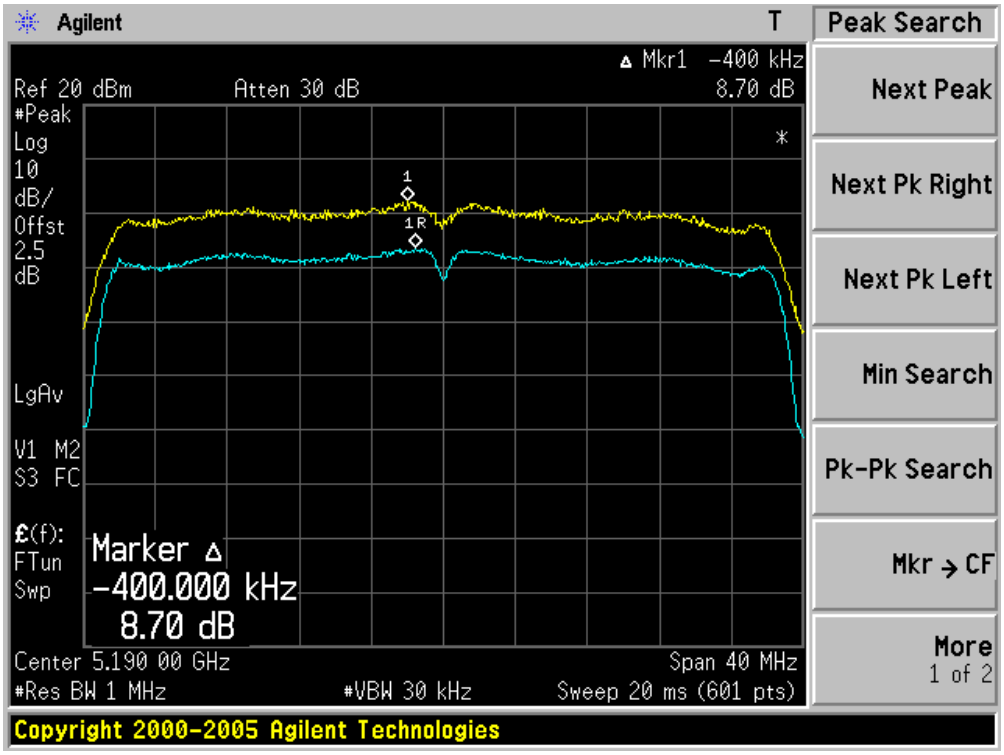
Channel 48 (5240MHz)



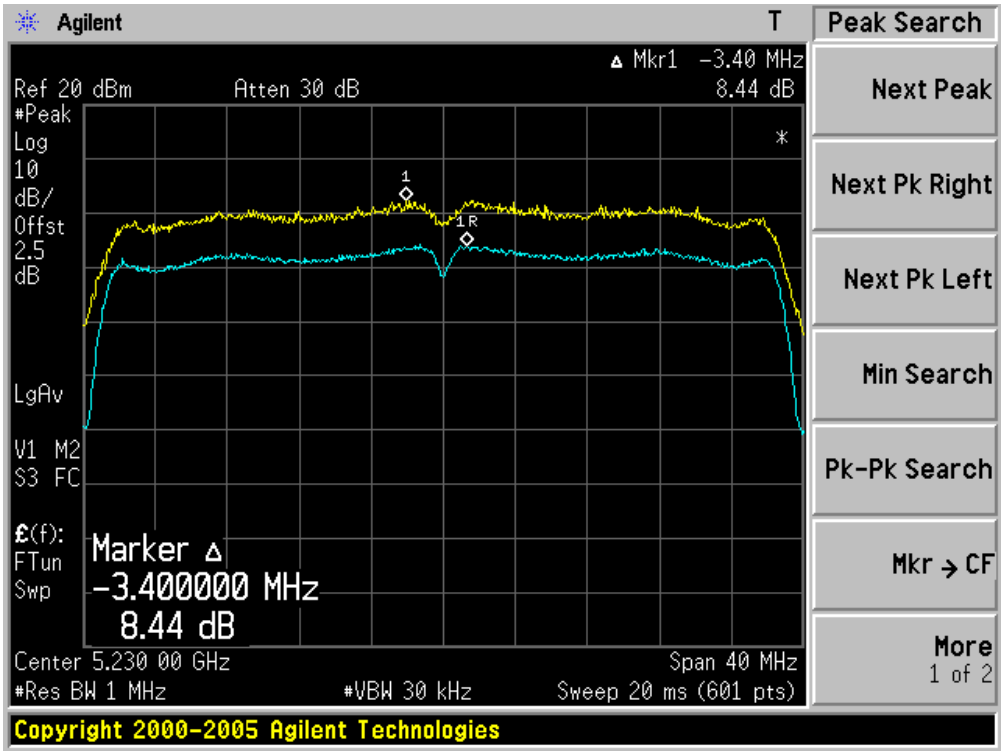
Product	:	IP-STB
Test Item	:	Peak Excursion
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (40MHz) (Chain 1)

Channel No.	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
38	5190	8.70	13	Pass
46	5230	8.44	13	Pass

Channel 38 (5190MHz)



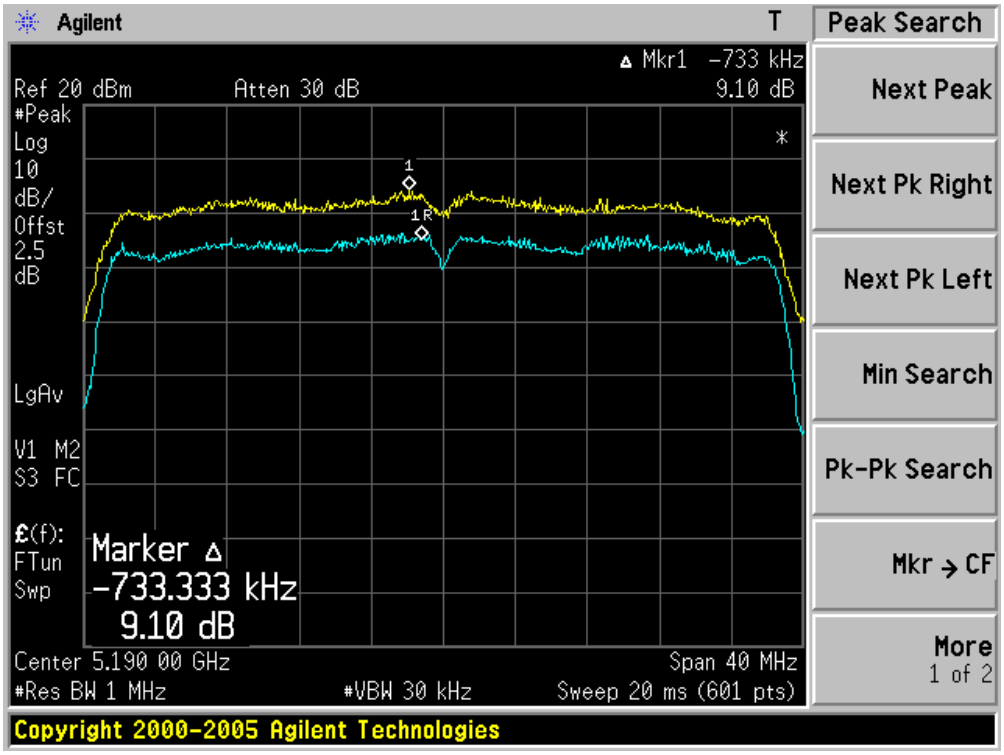
Channel 46 (5230MHz)



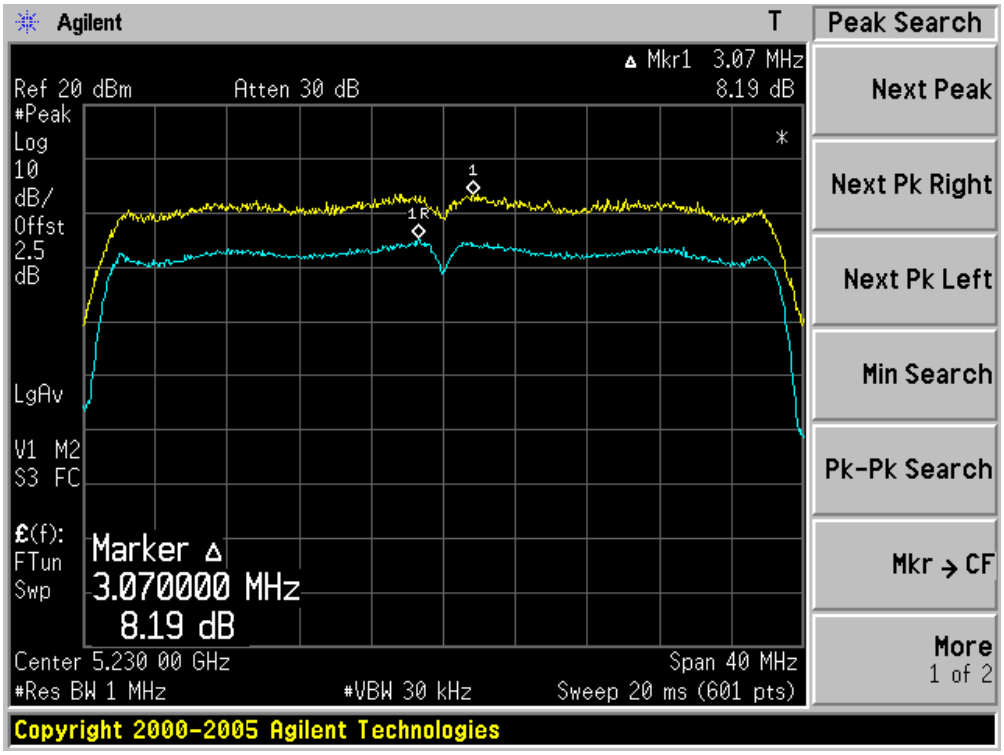
Product	:	IP-STB
Test Item	:	Peak Excursion
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (40MHz) (Chain 2)

Channel No.	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Result
38	5190	9.10	13	Pass
46	5230	8.19	13	Pass

Channel 38 (5190MHz)



Channel 46 (5230MHz)



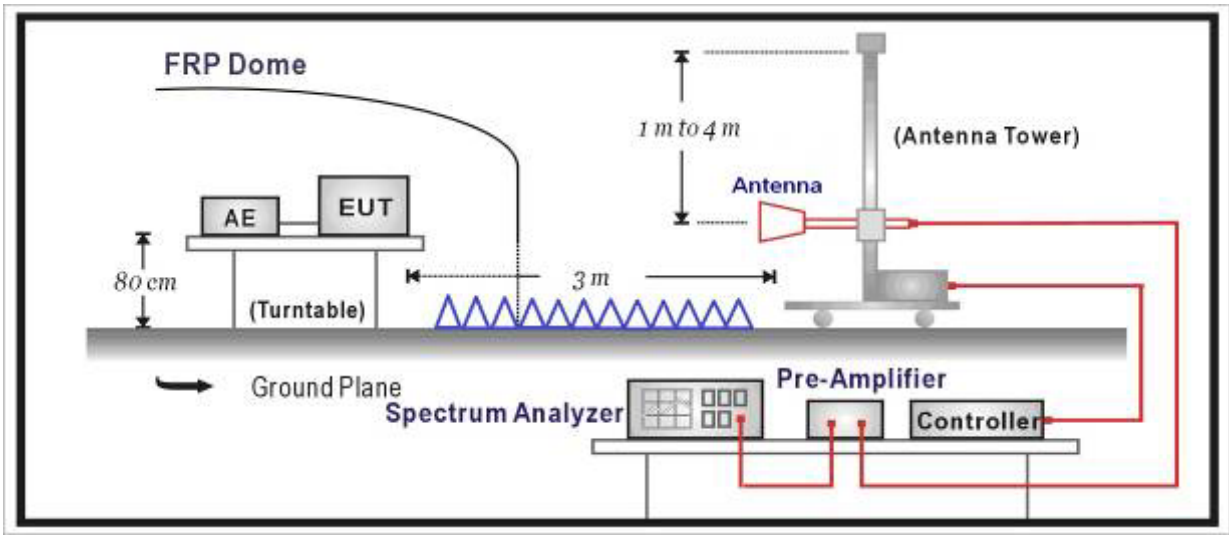
10. Radiated Emission Band Edge

10.1. Test Equipment

☒Radiated Emission Band Edge / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2013.04.18
EMI Test Receiver	R&S	ESCI	100573	2013.04.18
Preamplifier	Miteq	NSP1800-25	1364185	2013.05.04
Preamplifier	QuieTek	AP-040G	CHM-0906001	2013.05.04
Bilog Type Antenna	Schaffner	CBL6112B	2932	2012.10.18
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2014.06.08
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2013.05.04
Temperature/Humidity Meter	zhicheng	ZC1-2	AC5-TH	2013.01.10

10.2. Test Setup



10.3. Limit

For 15.205 requirement:

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

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

For 15.407(b) requirement:

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

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

10.4. Test Procedure

The EUT was tested according to ANSI C63.10: 2009 and KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

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

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2009 on radiated measurement.

Note: When doing emission measurement above 1GHz, the horn antenna will be bended down a little (as horn antenna has the narrow beamwidth) in order to keeping the antenna in the “cone of radiation” of EUT. The 3dB beamwidth is 10~60 degrees for H-plane and 10~90 degrees for E-plane.

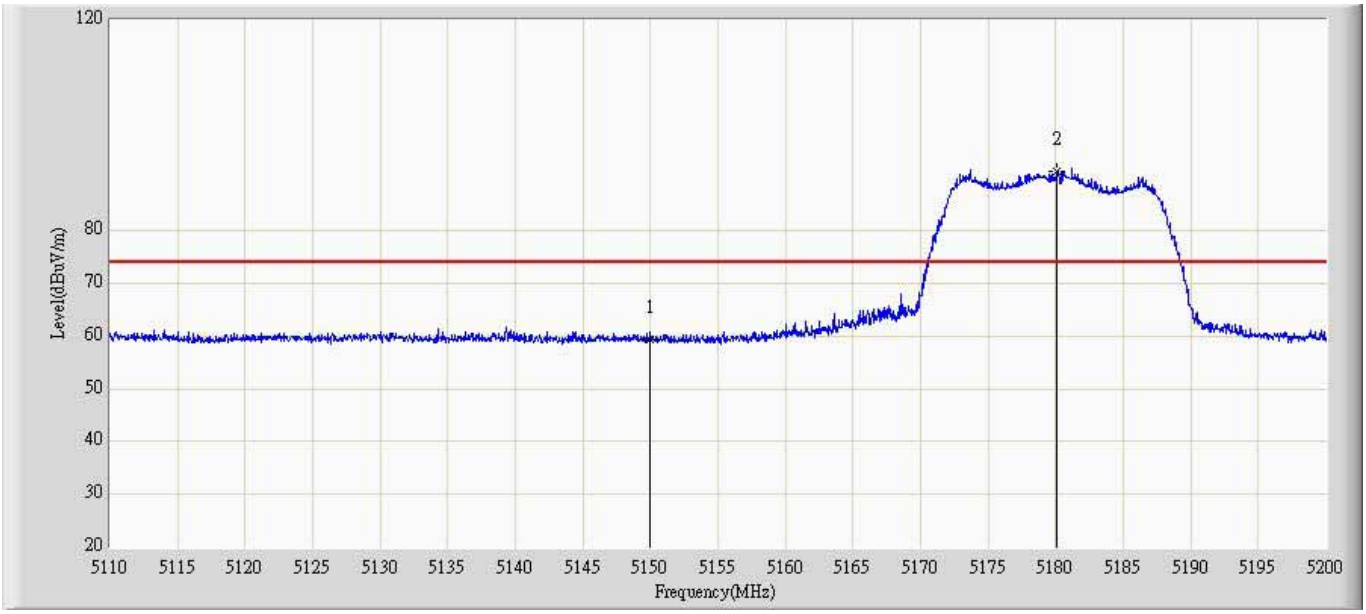
10.5. Uncertainty

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

10.6. Test Result

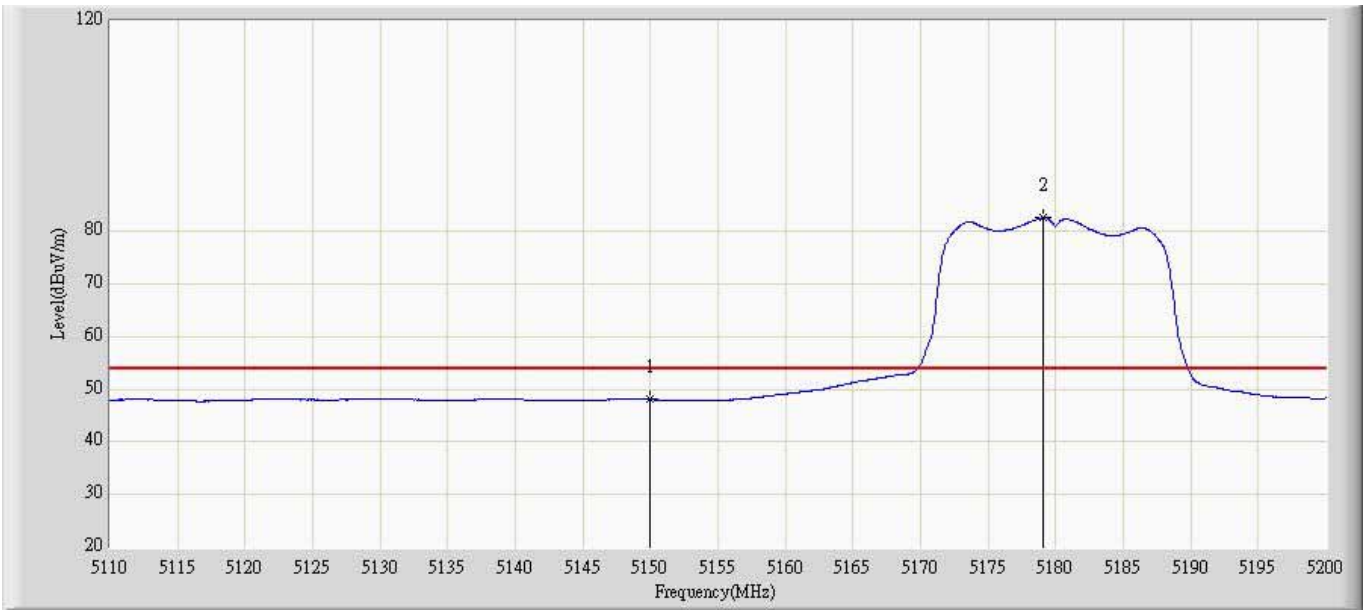
Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;
Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Engineer: Brgant	
Site: AC5	Time: 2012/09/15 - 00:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 5180MHz by 802.11a chain 1	



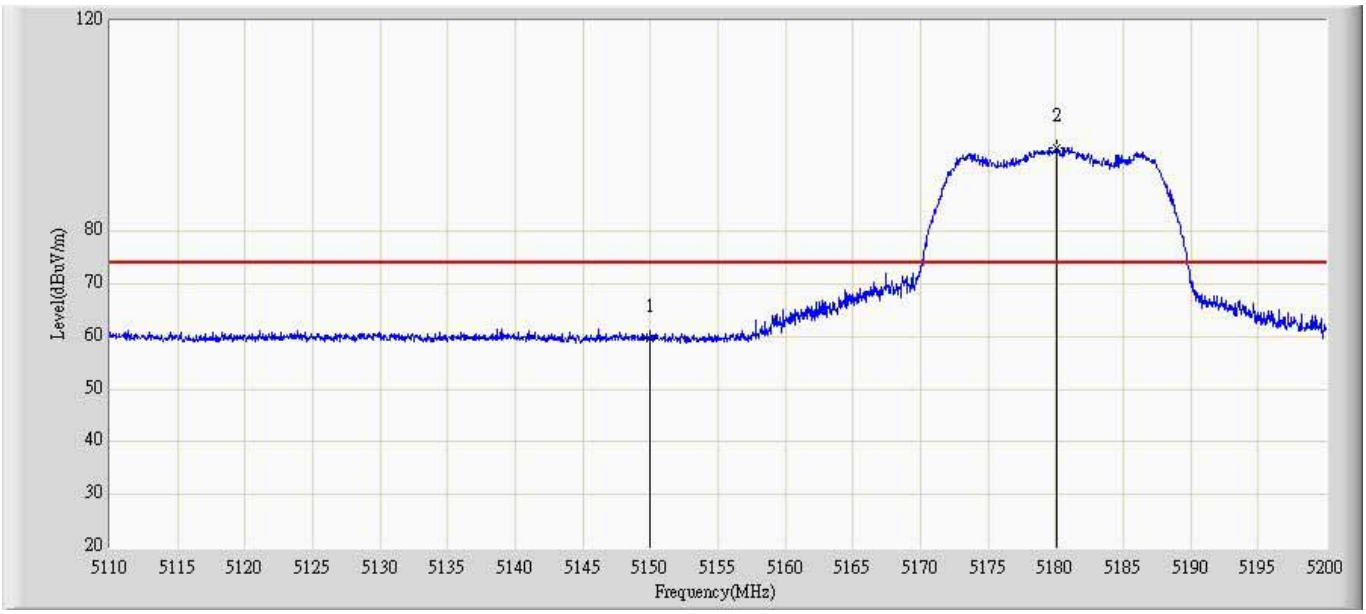
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	59.366	67.586	-14.634	74.000	-8.220	PK
2		*	5180.110	91.333	99.560	N/A	N/A	-8.226	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 13:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 5180MHz by 802.11a chain 1	



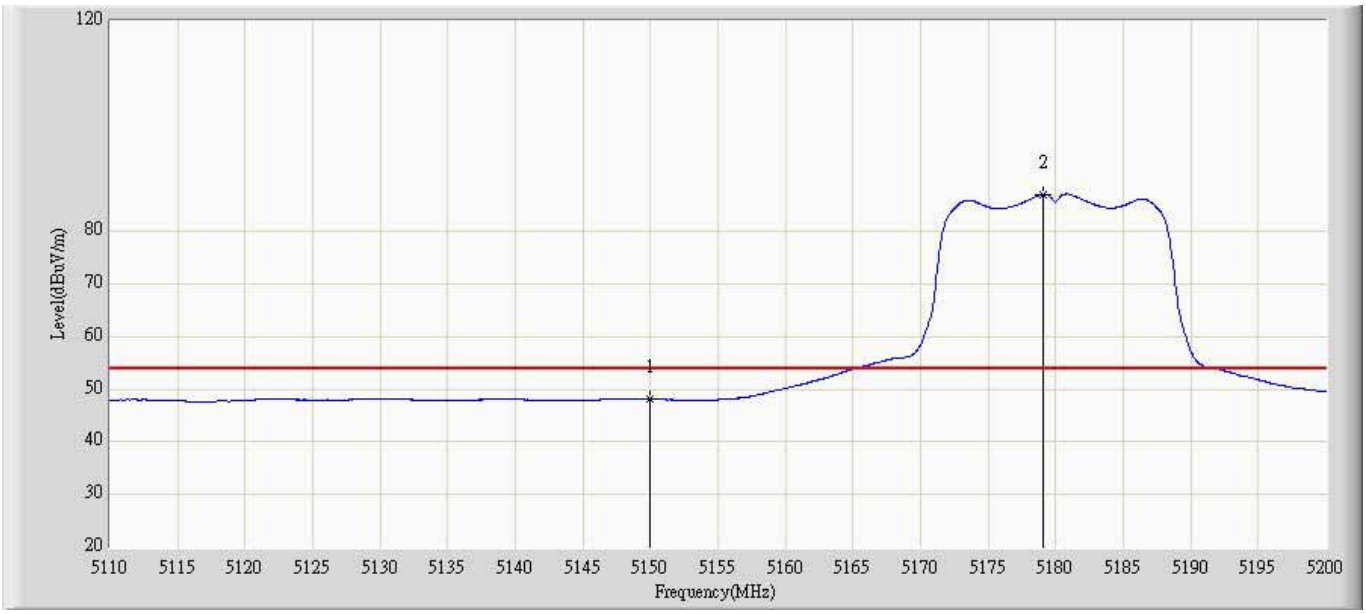
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	48.056	56.276	-5.944	54.000	-8.220	AV
2		*	5179.120	82.588	90.815	N/A	N/A	-8.228	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 13:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 5180MHz by 802.11a chain 1	



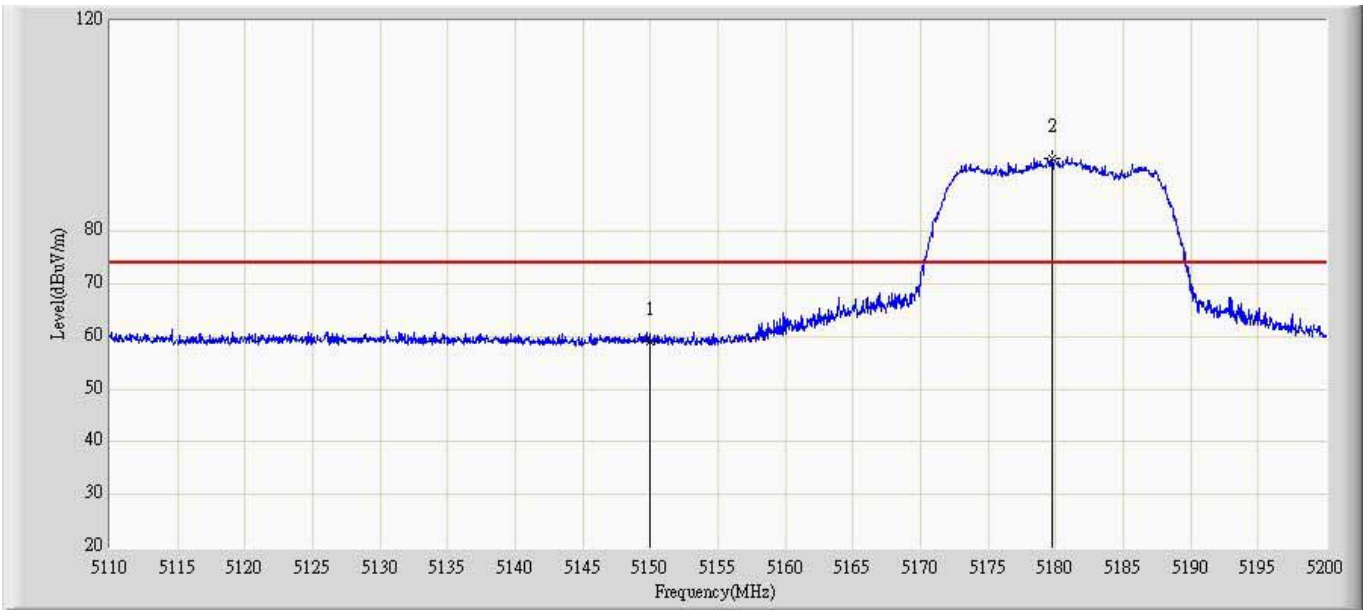
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	59.601	67.821	-14.399	74.000	-8.220	PK
2		*	5180.065	95.793	104.020	N/A	N/A	-8.226	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 13:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 5180MHz by 802.11a chain 1	



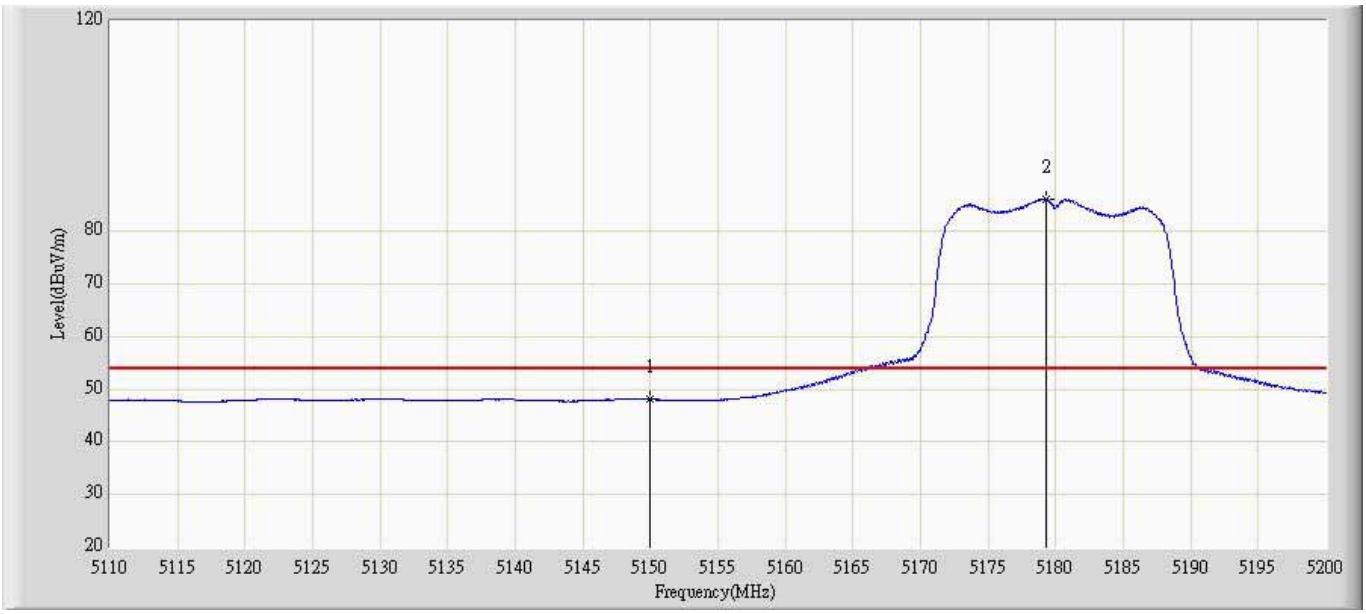
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	48.135	56.355	-5.865	54.000	-8.220	AV
2		*	5179.075	87.069	95.296	N/A	N/A	-8.228	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 13:54
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 5180MHz by 802.11a chain 2	



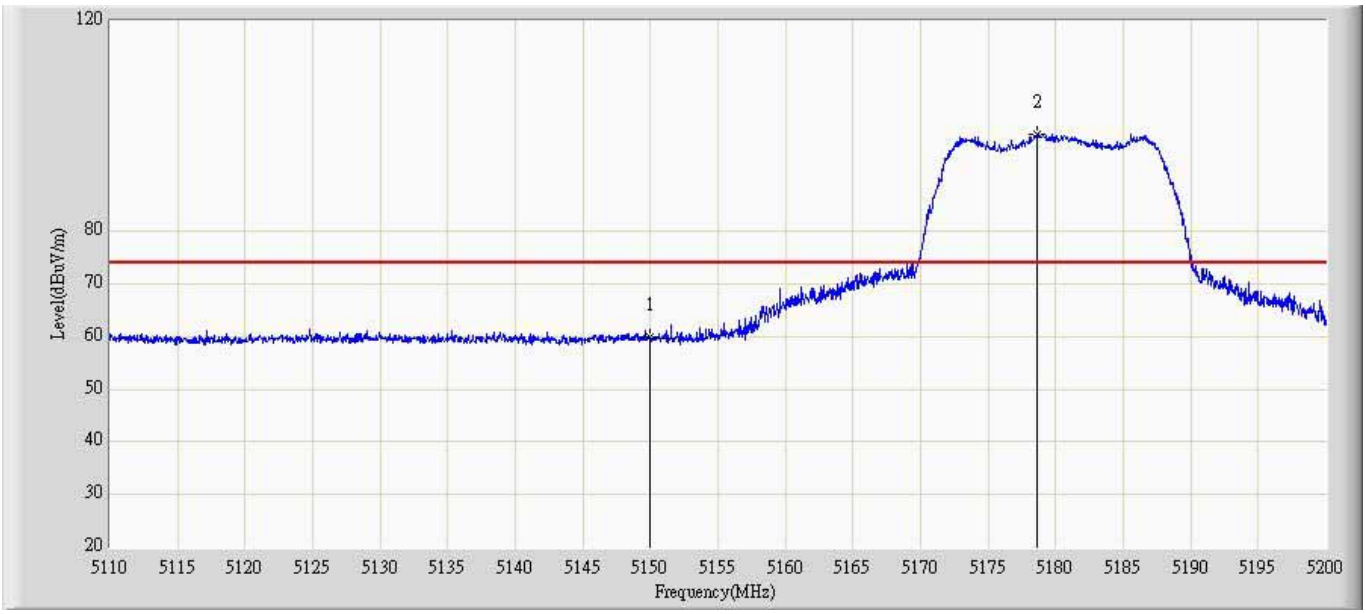
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	59.199	67.419	-14.801	74.000	-8.220	PK
2		*	5179.705	93.822	102.049	N/A	N/A	-8.226	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 13:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 5180MHz by 802.11a chain 2	



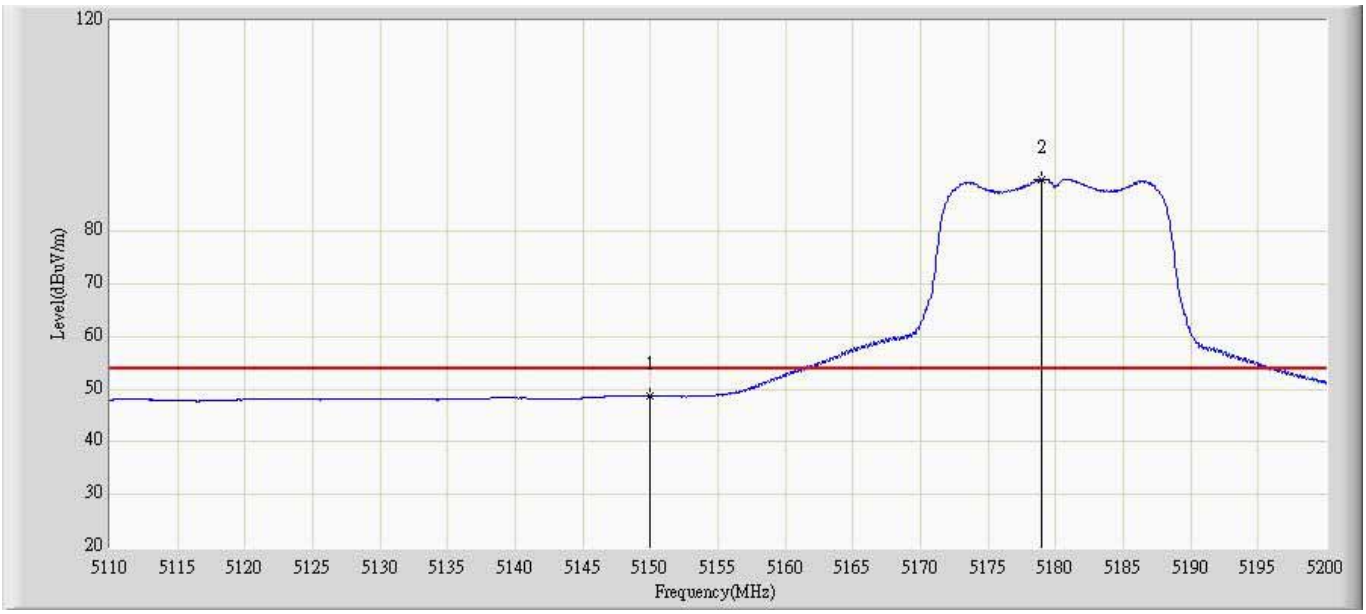
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	48.056	56.276	-5.944	54.000	-8.220	AV
2		*	5179.255	86.157	94.384	N/A	N/A	-8.228	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 13:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 5180MHz by 802.11a chain 2	



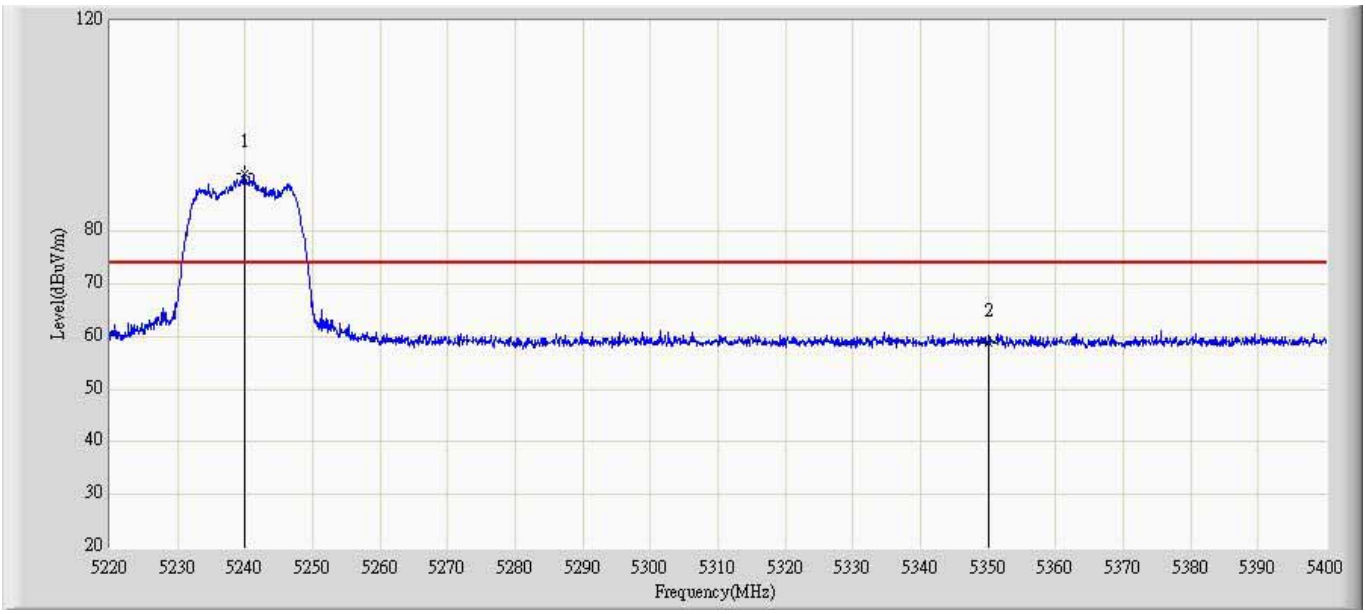
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	59.889	68.109	-14.111	74.000	-8.220	PK
2		*	5178.625	98.562	106.789	N/A	N/A	-8.227	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 13:58
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 5180MHz by 802.11a chain 2	



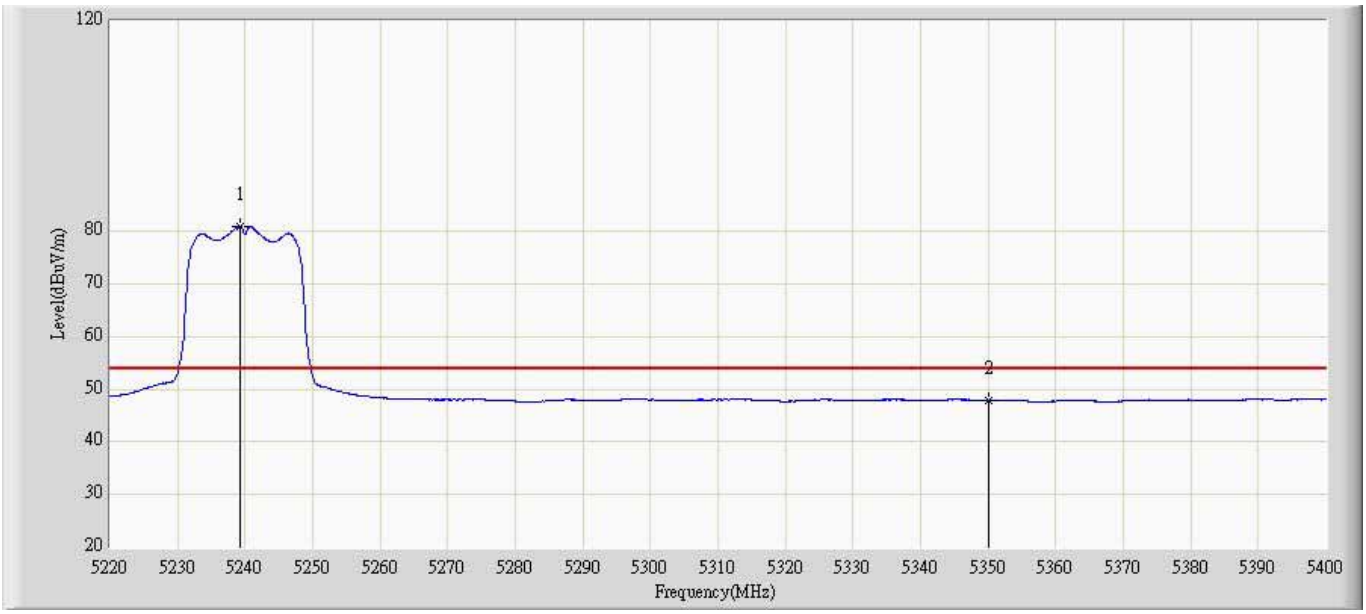
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	48.780	57.000	-5.220	54.000	-8.220	AV
2		*	5178.985	89.757	97.984	N/A	N/A	-8.228	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 5240MHz by 802.11a chain 1	



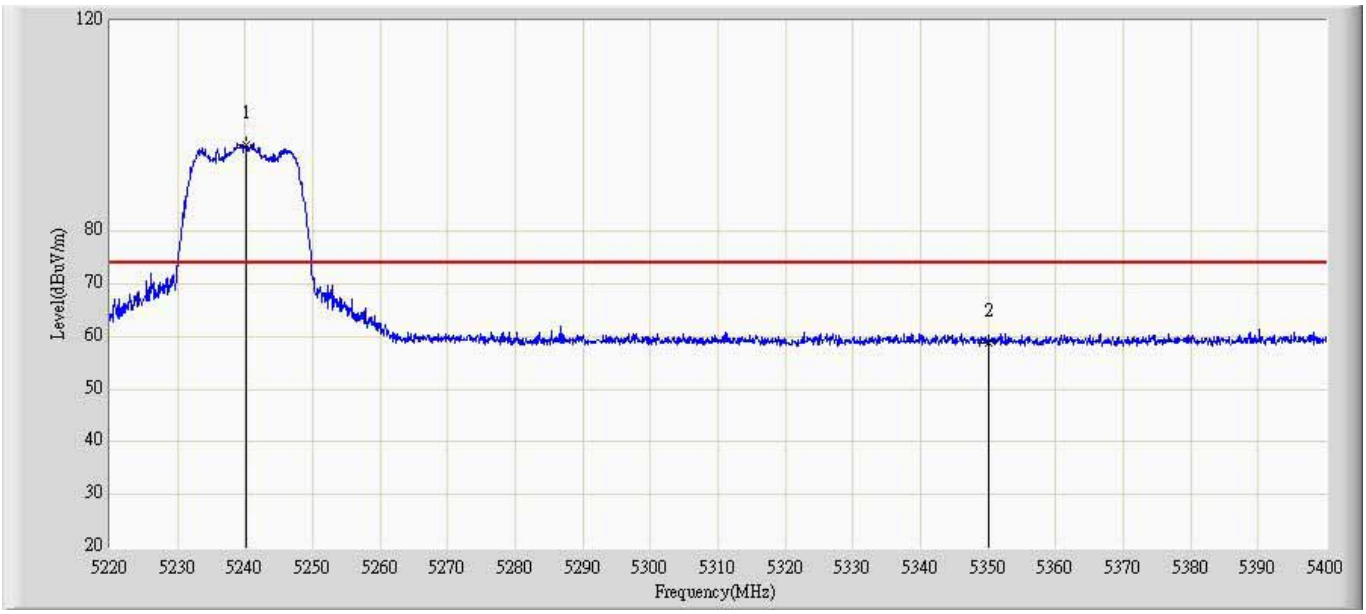
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5239.980	91.073	99.305	N/A	N/A	-8.232	PK
2			5350.000	58.771	66.973	-15.229	74.000	-8.201	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 5240MHz by 802.11a chain 1	



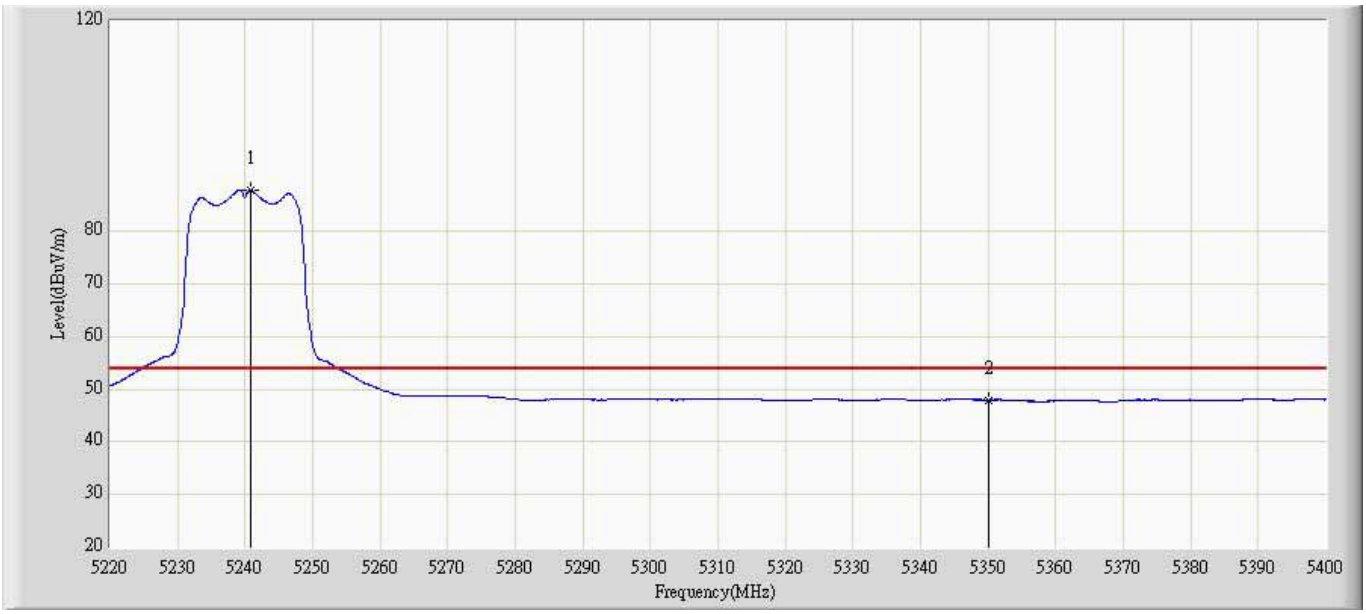
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5239.260	80.974	89.205	N/A	N/A	-8.231	AV
2			5350.000	47.953	56.155	-6.047	54.000	-8.201	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 5240MHz by 802.11a chain 1	



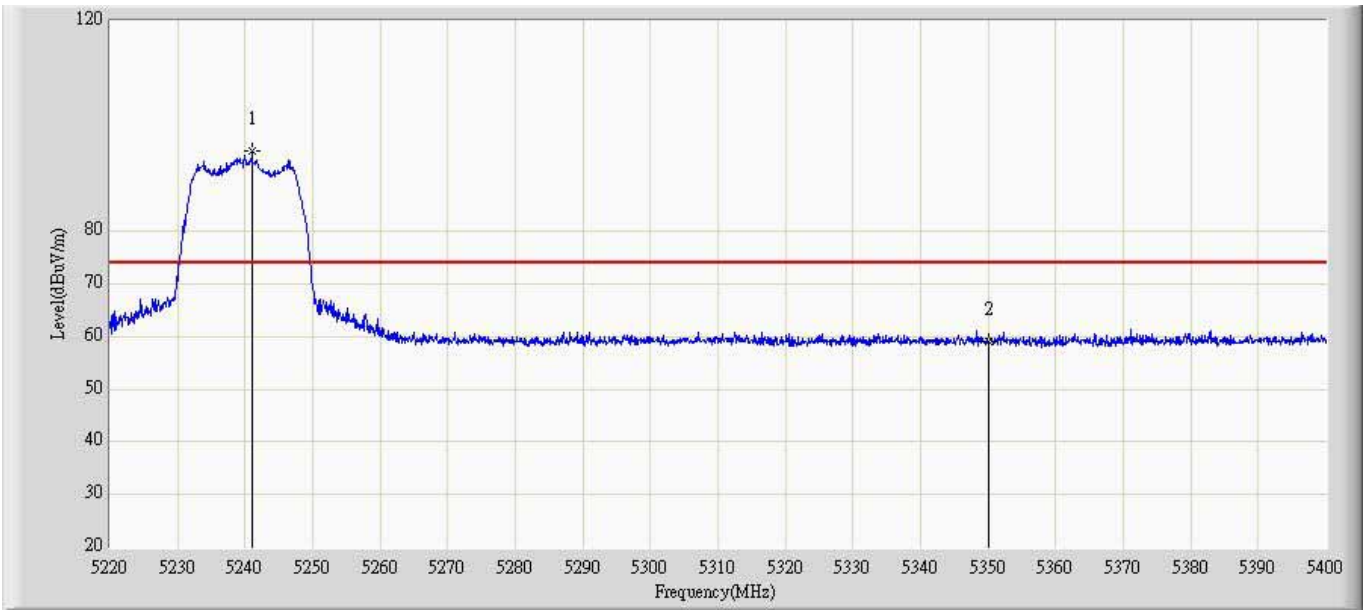
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5240.070	96.569	104.801	N/A	N/A	-8.232	PK
2			5350.000	58.771	66.973	-15.229	74.000	-8.201	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 5240MHz by 802.11a chain 1	



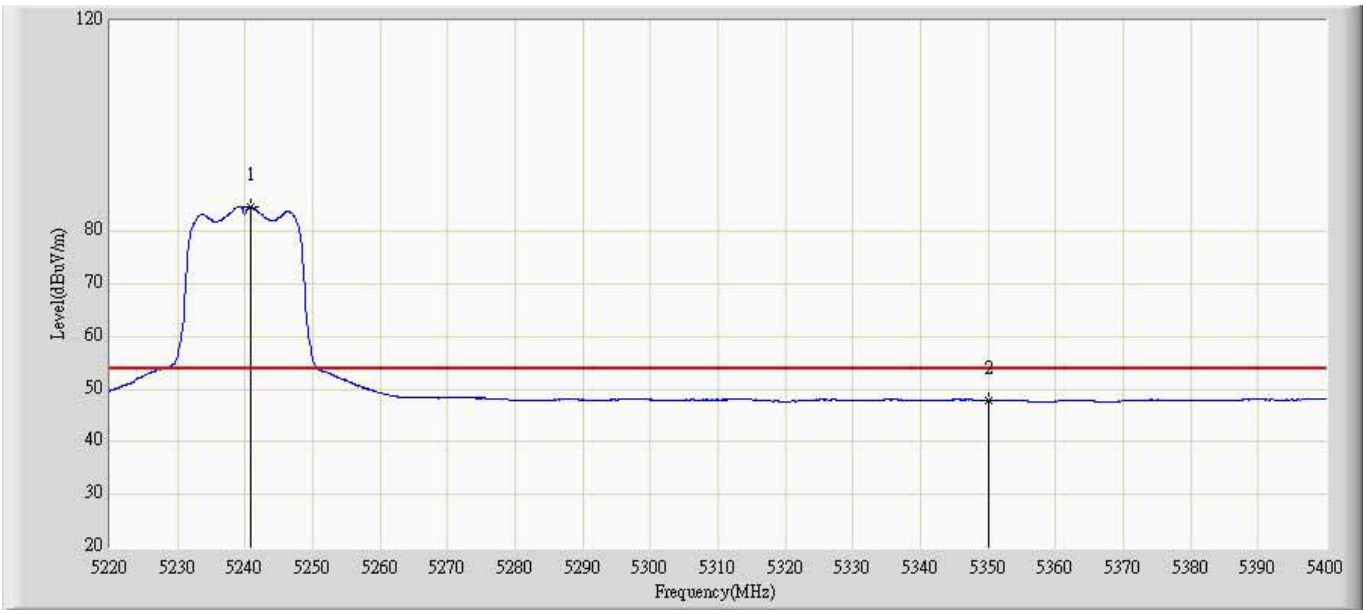
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5240.880	87.732	95.964	N/A	N/A	-8.232	AV
2			5350.000	47.999	56.201	-6.001	54.000	-8.201	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 5240MHz by 802.11a chain 2	



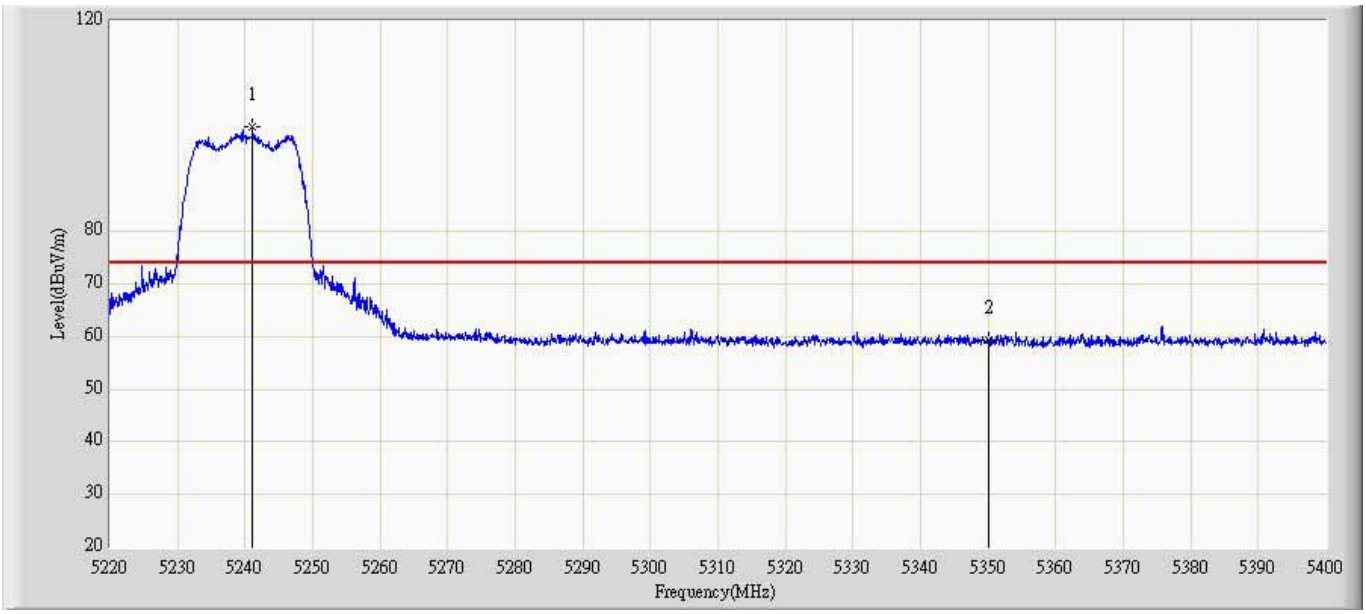
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5241.060	95.177	103.410	N/A	N/A	-8.233	PK
2			5350.000	59.113	67.315	-14.887	74.000	-8.201	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 5240MHz by 802.11a chain 2	



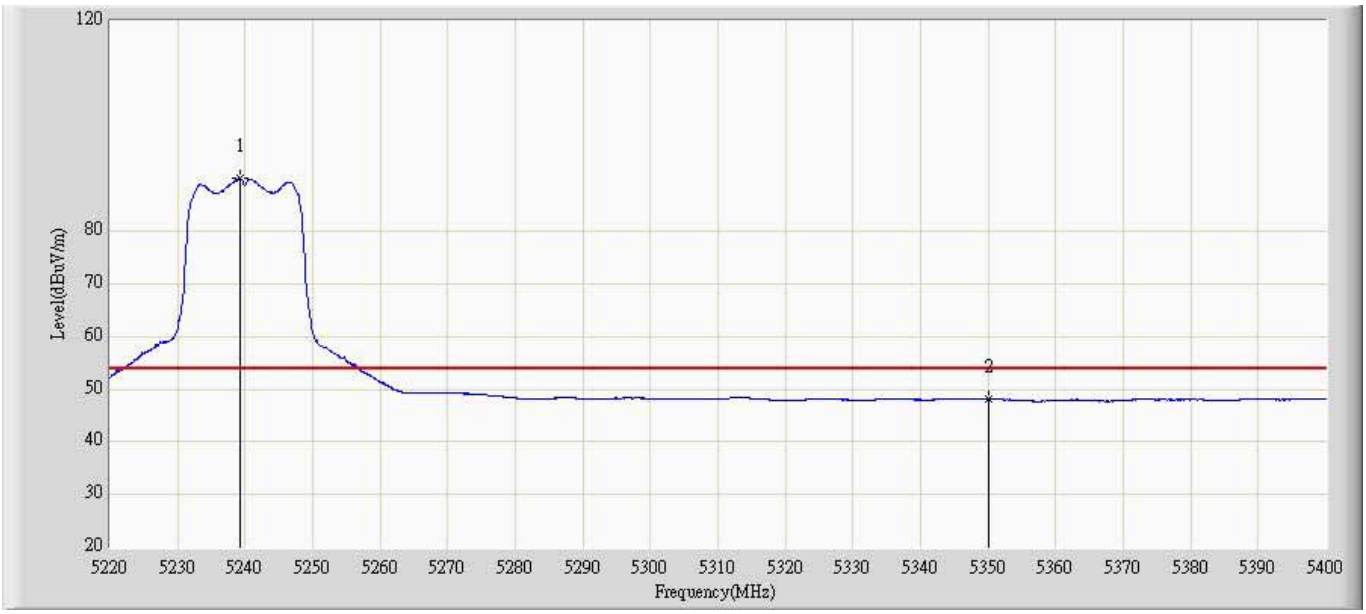
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5240.880	84.673	92.905	N/A	N/A	-8.232	AV
2			5350.000	47.956	56.158	-6.044	54.000	-8.201	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 5240MHz by 802.11a chain 2	



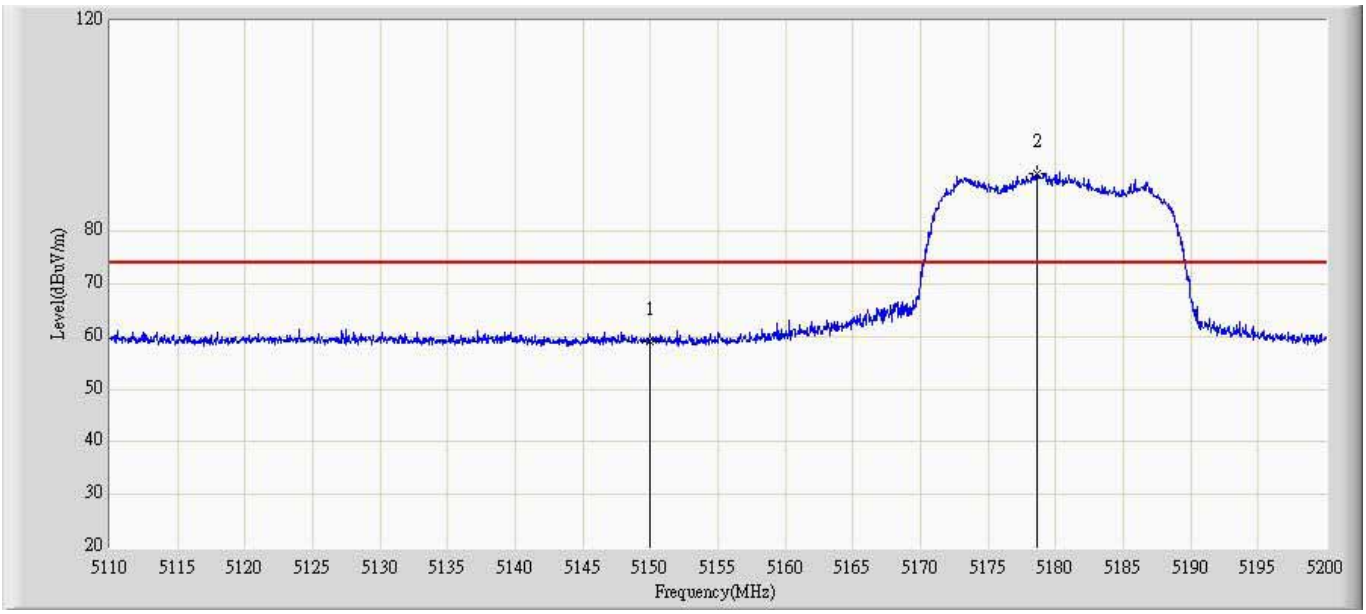
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5241.150	99.792	108.025	N/A	N/A	-8.233	PK
2			5350.000	59.298	67.500	-14.702	74.000	-8.201	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode1: Transmit at channel 5240MHz by 802.11a chain 2	



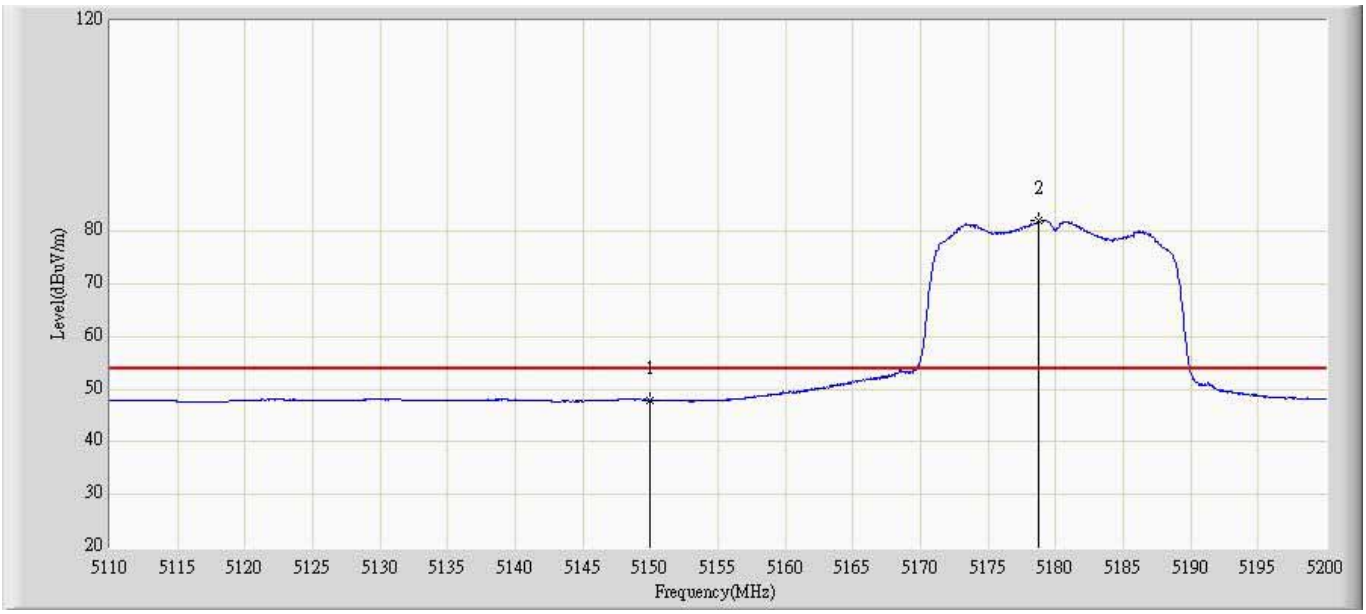
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5239.170	90.034	98.265	N/A	N/A	-8.231	AV
2			5350.000	48.059	56.261	-5.941	54.000	-8.201	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:10
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5180MHz by 802.11n20 chain 1	



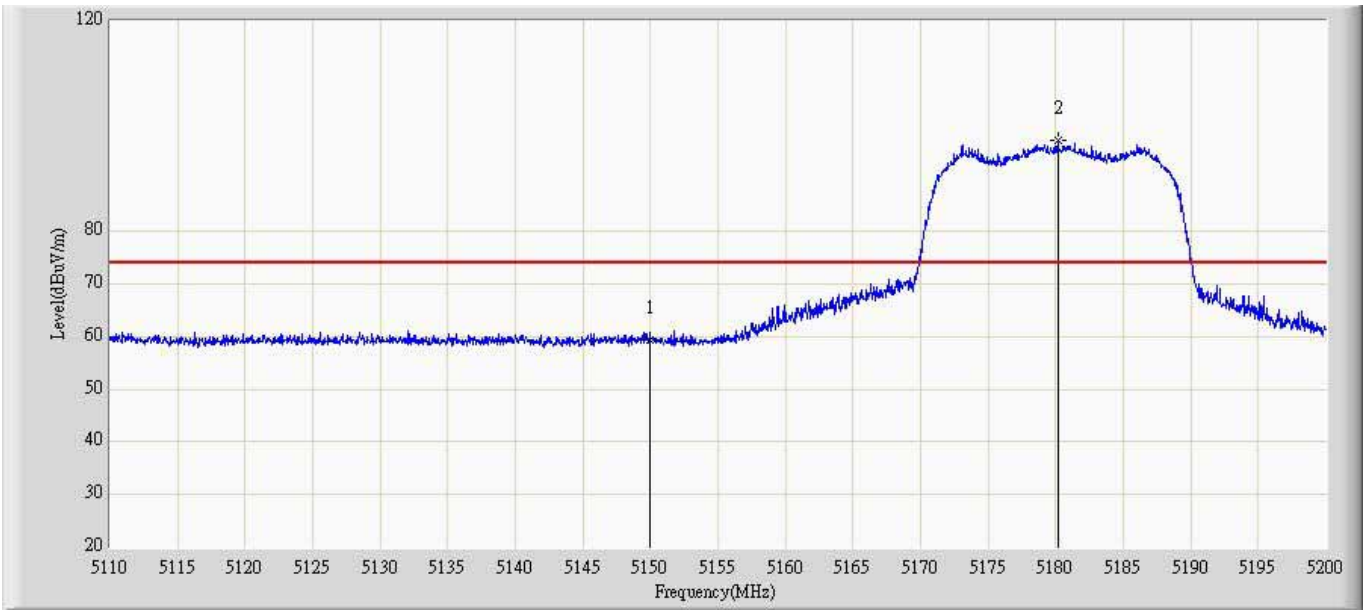
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	59.185	67.405	-14.815	74.000	-8.220	PK
2		*	5178.625	90.988	99.215	N/A	N/A	-8.227	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5180MHz by 802.11n20 chain 1	



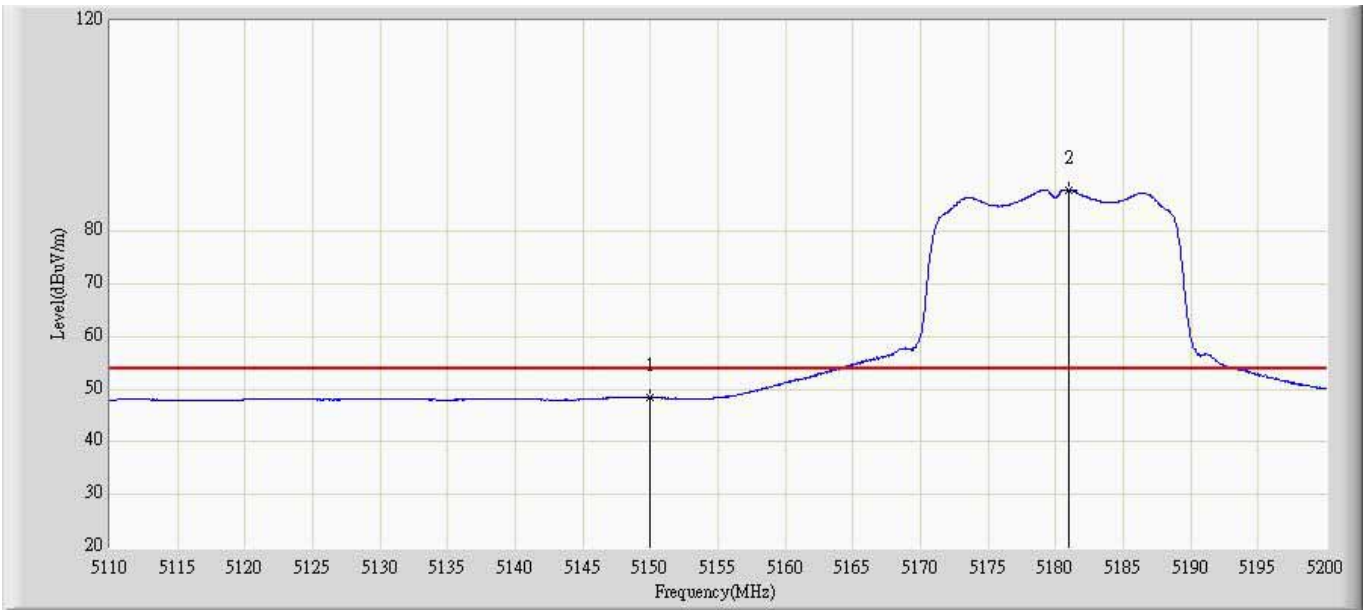
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	48.005	56.225	-5.995	54.000	-8.220	AV
2		*	5178.715	81.965	90.192	N/A	N/A	-8.227	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5180MHz by 802.11n20 chain 1	



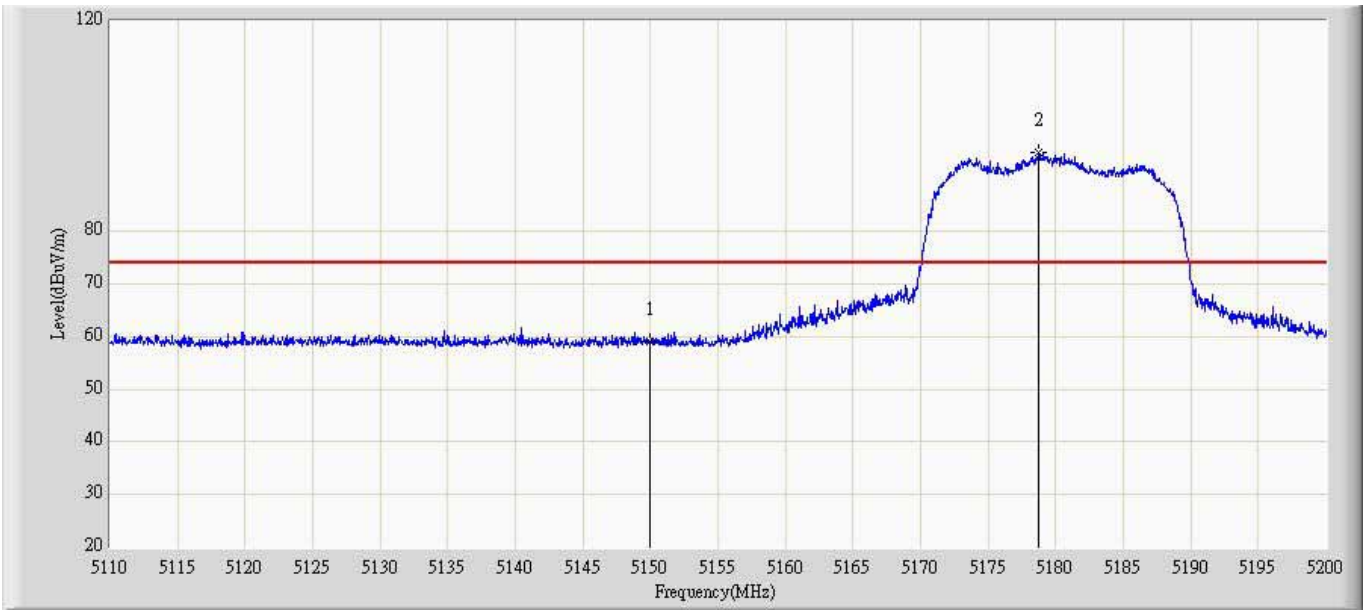
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	59.442	67.662	-14.558	74.000	-8.220	PK
2		*	5180.155	97.233	105.460	N/A	N/A	-8.226	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5180MHz by 802.11n20 chain 1	



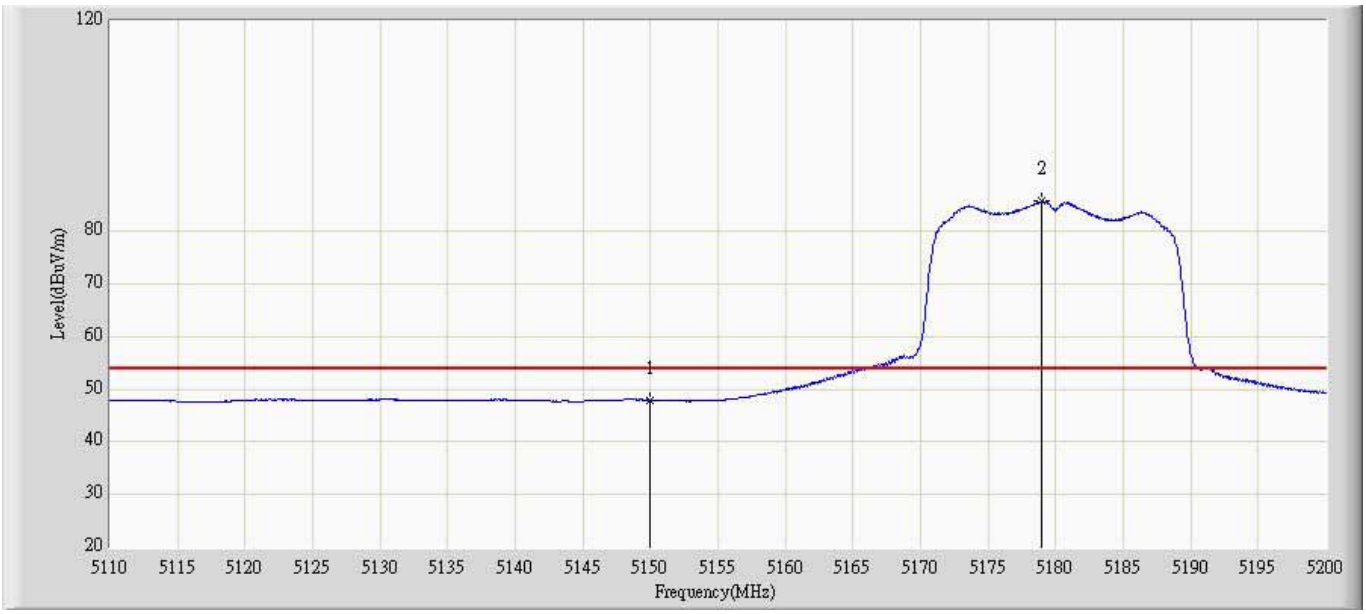
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	48.410	56.630	-5.590	54.000	-8.220	AV
2		*	5180.965	87.884	96.110	N/A	N/A	-8.227	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5180MHz by 802.11n20 chain 2	



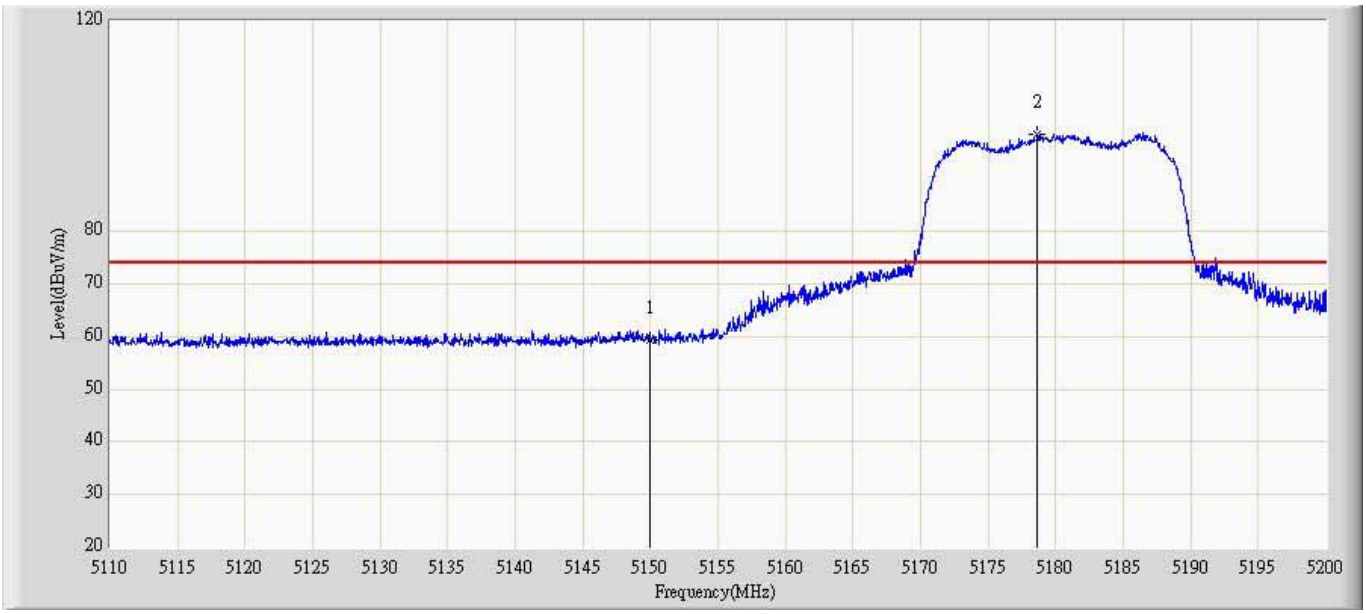
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	59.165	67.385	-14.835	74.000	-8.220	PK
2		*	5178.760	95.039	103.266	N/A	N/A	-8.227	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5180MHz by 802.11n20 chain 2	



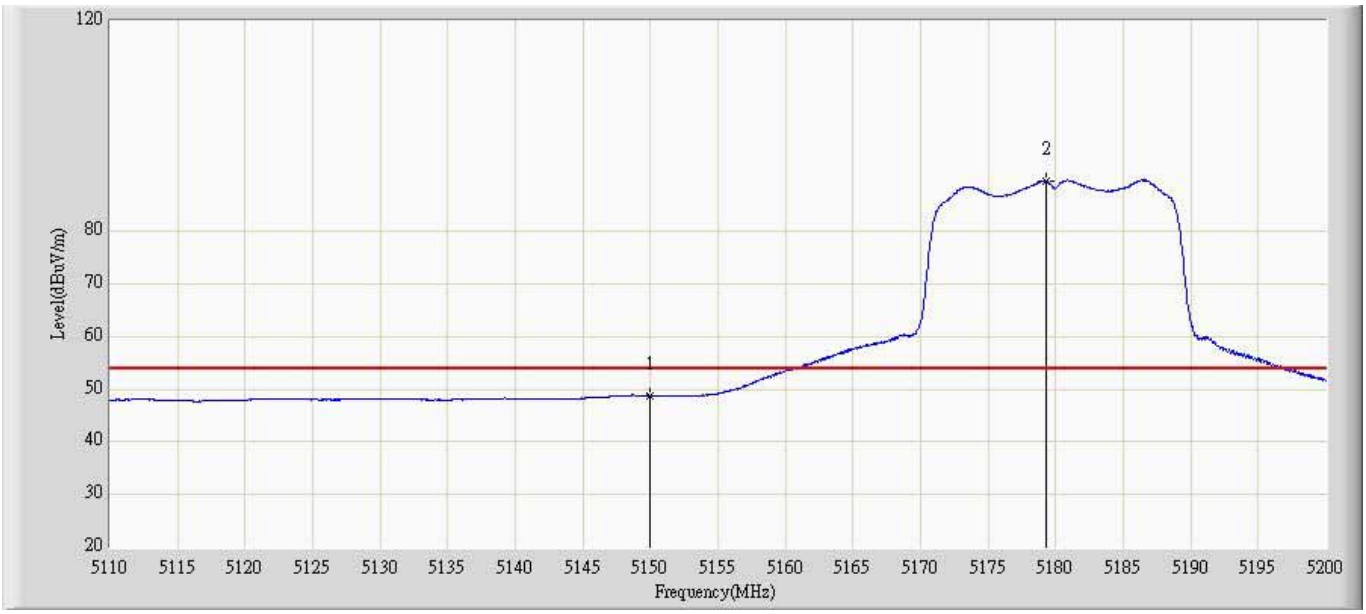
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	47.971	56.191	-6.029	54.000	-8.220	AV
2		*	5178.985	85.751	93.978	N/A	N/A	-8.228	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5180MHz by 802.11n20 chain 2	



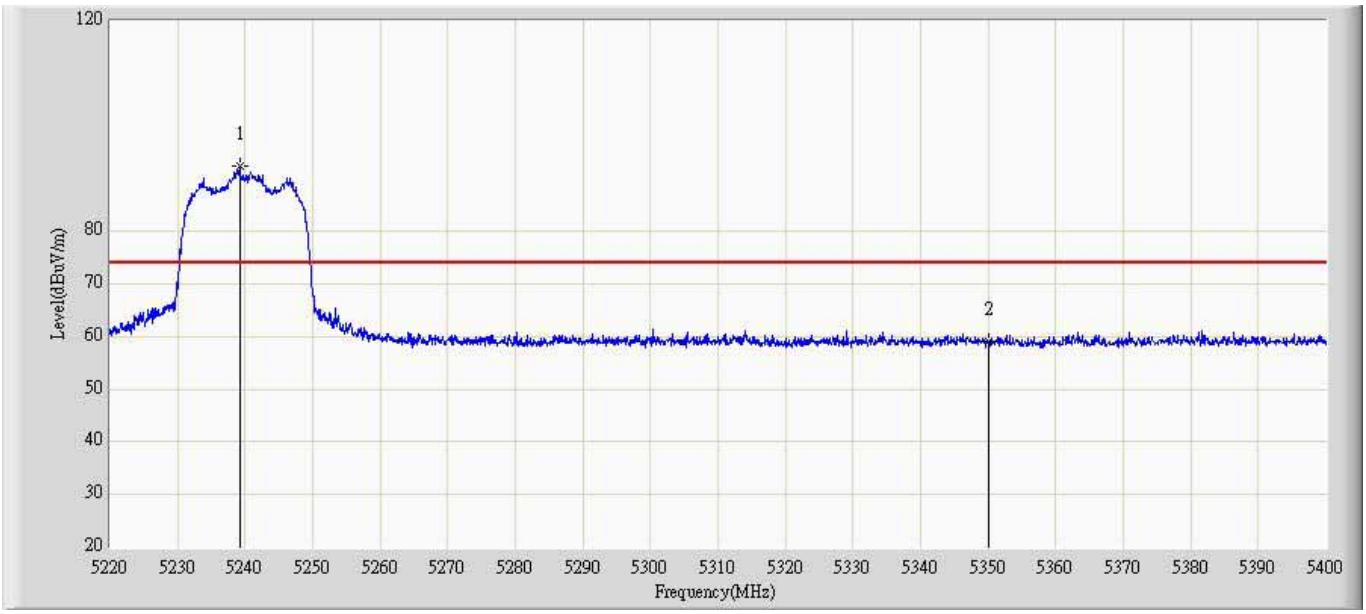
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	59.301	67.521	-14.699	74.000	-8.220	PK
2		*	5178.670	98.440	106.667	N/A	N/A	-8.227	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5180MHz by 802.11n20 chain 2	



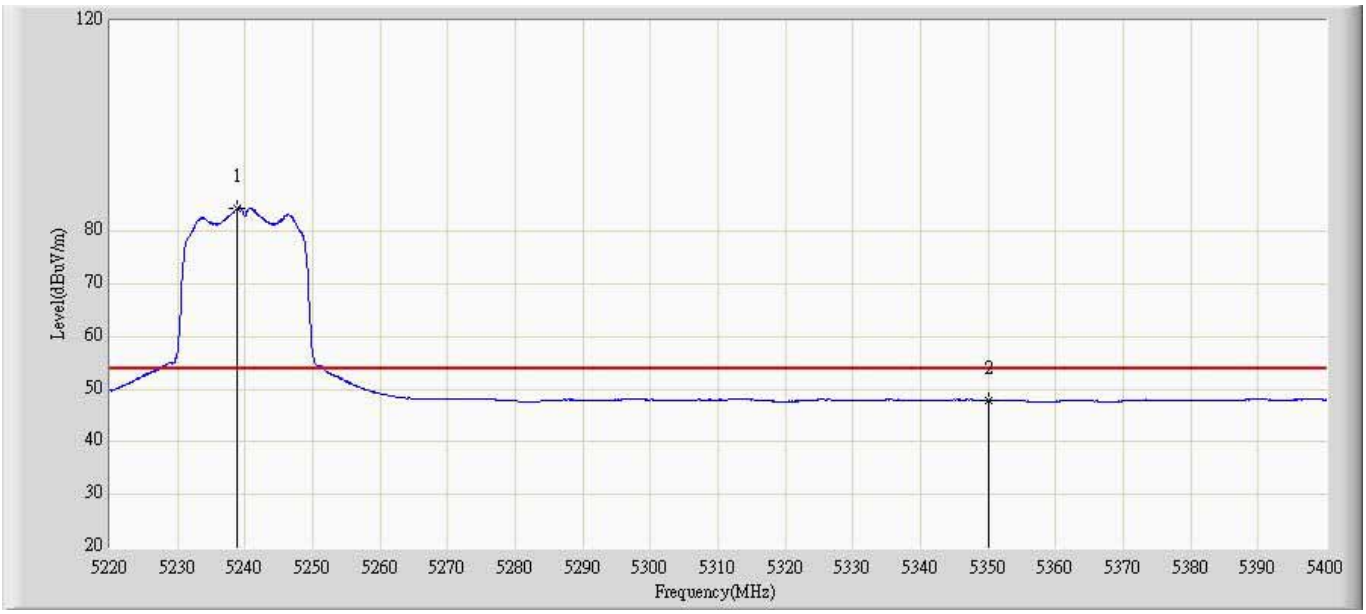
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	48.847	57.067	-5.153	54.000	-8.220	AV
2		*	5179.255	89.598	97.825	N/A	N/A	-8.228	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 chain 1	



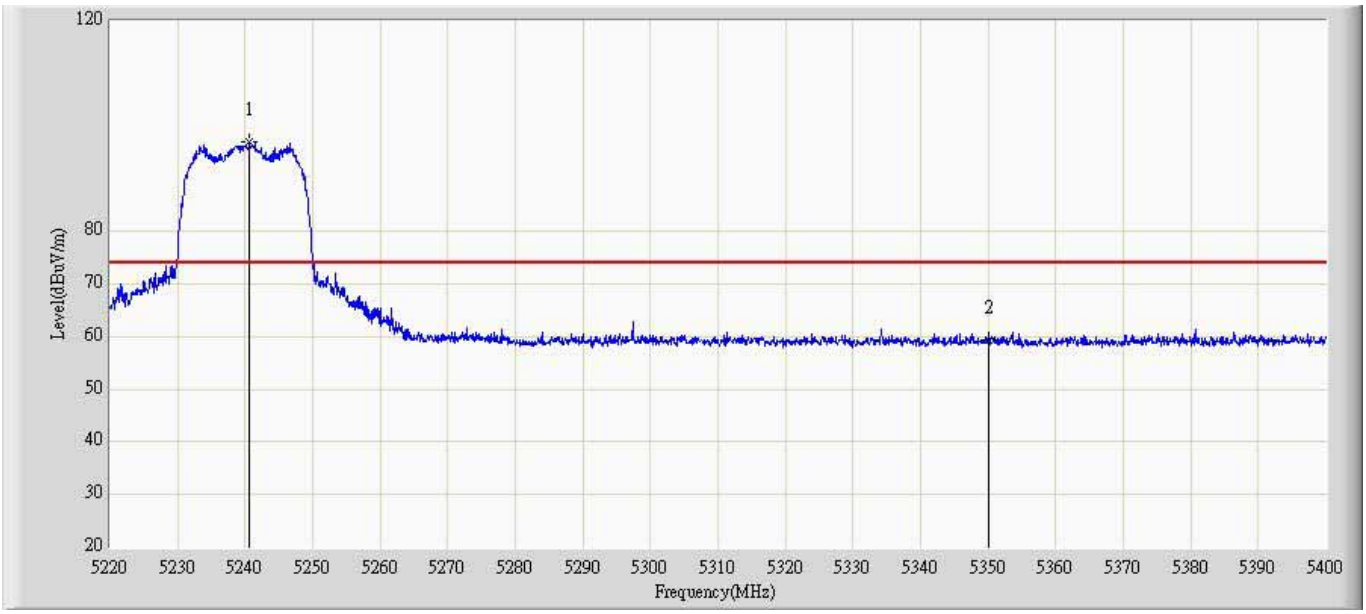
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5239.170	92.307	100.538	N/A	N/A	-8.231	PK
2			5350.000	59.125	67.327	-14.875	74.000	-8.201	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 chain 1	



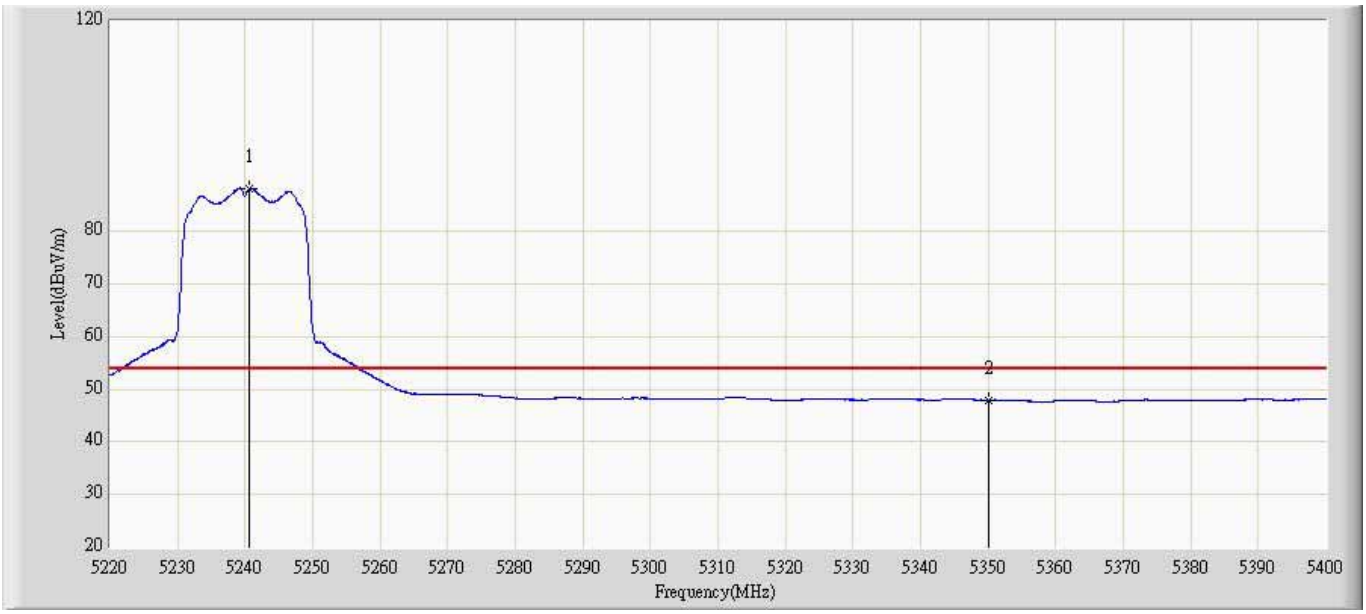
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5238.900	84.443	92.674	N/A	N/A	-8.231	AV
2			5350.000	47.956	56.158	-6.044	54.000	-8.201	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 chain 1	



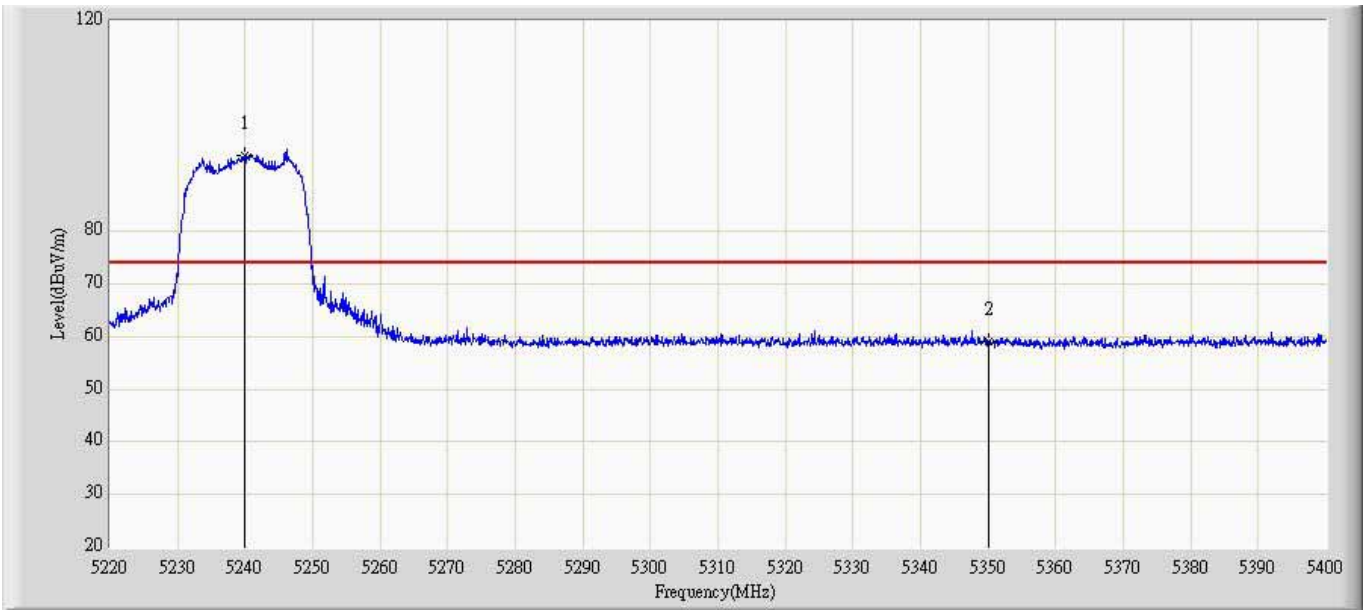
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5240.700	96.988	105.220	N/A	N/A	-8.232	PK
2			5350.000	59.375	67.577	-14.625	74.000	-8.201	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 chain 1	



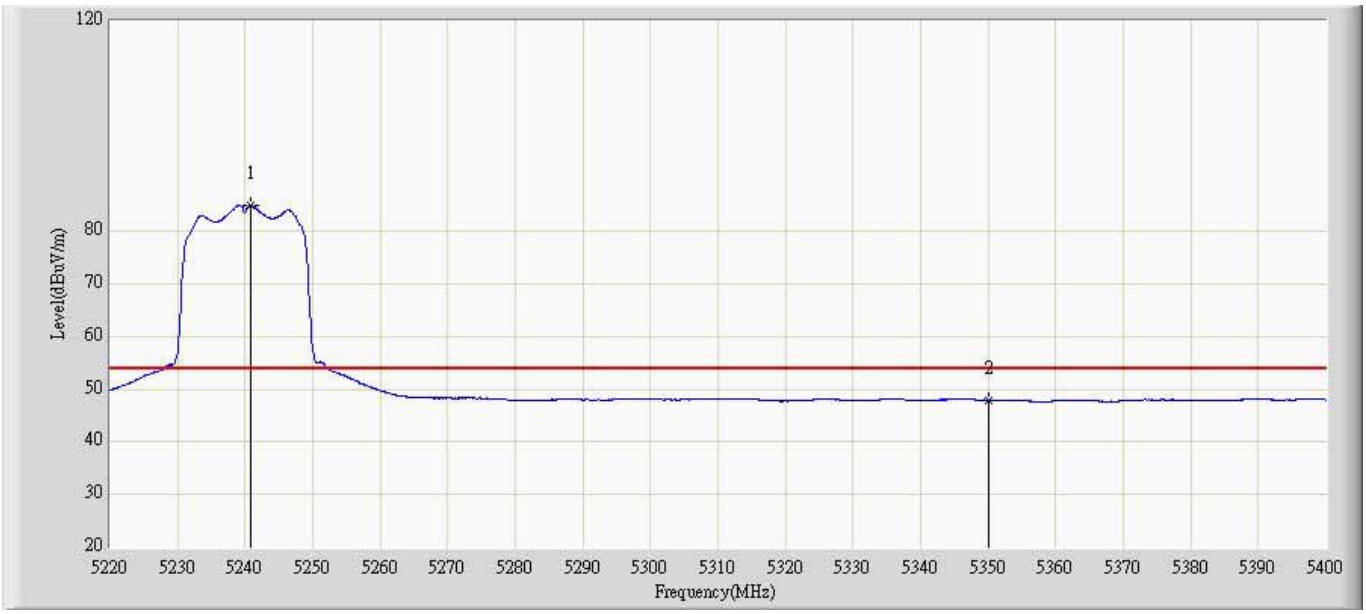
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5240.610	88.206	96.438	N/A	N/A	-8.232	AV
2			5350.000	47.990	56.192	-6.010	54.000	-8.201	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 chain 2	



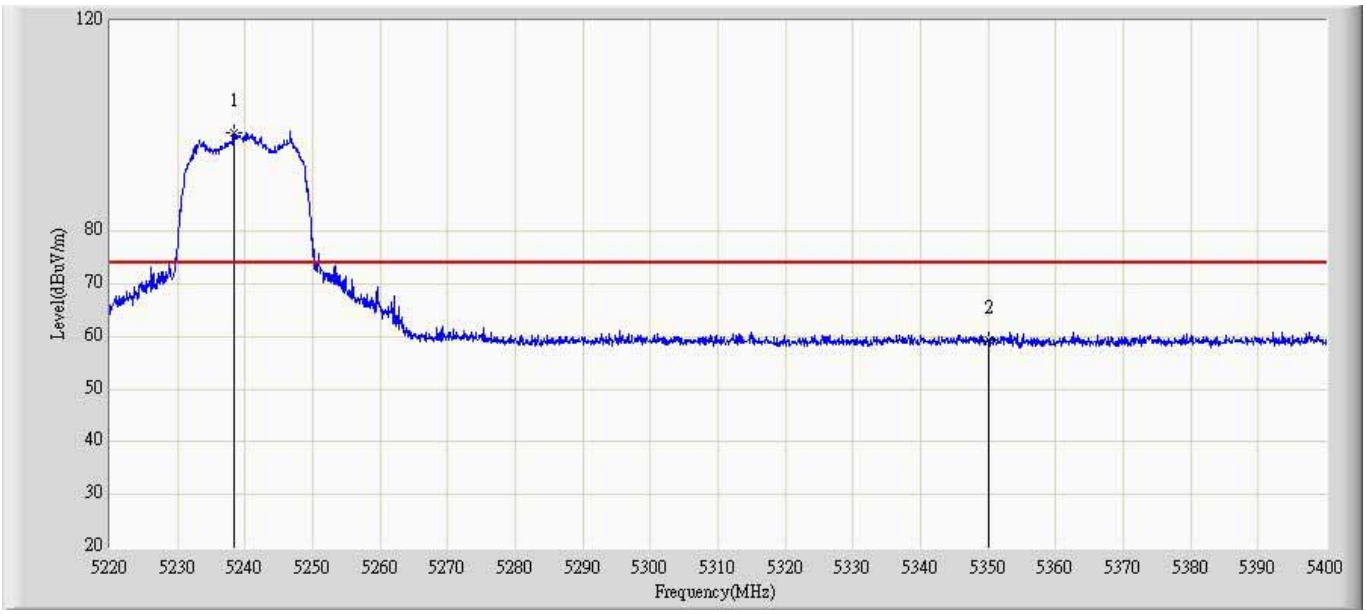
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5239.980	94.504	102.736	N/A	N/A	-8.232	PK
2			5350.000	58.996	67.198	-15.004	74.000	-8.201	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 chain 2	



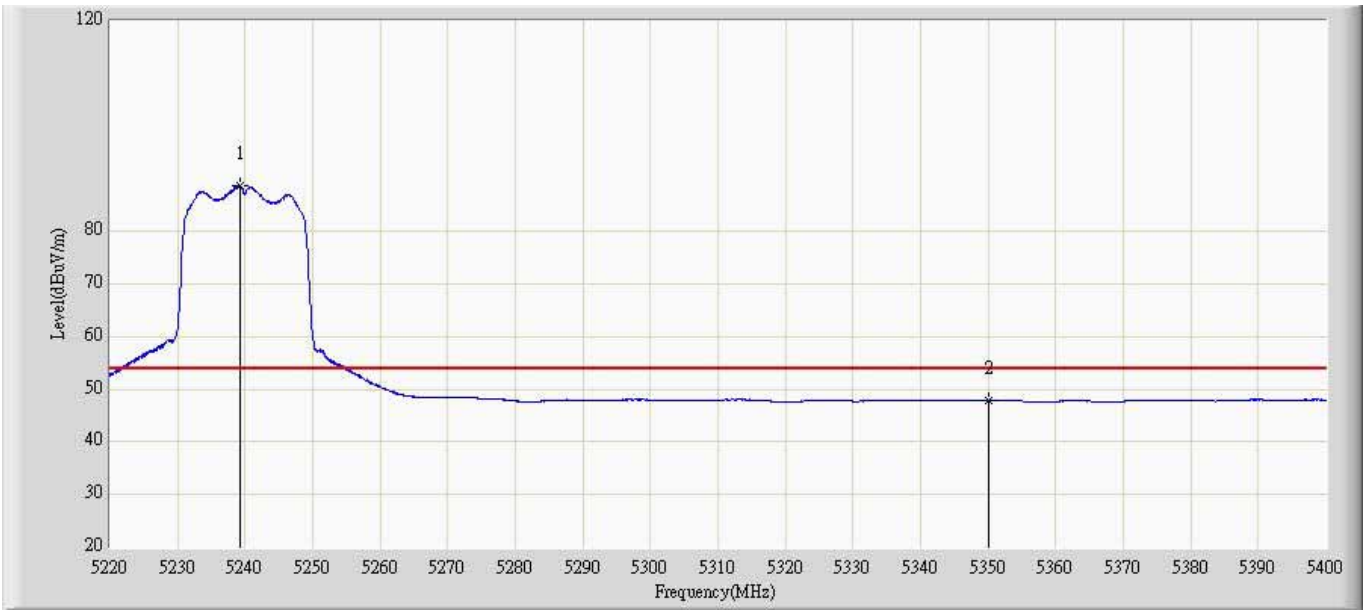
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5240.880	84.975	93.207	N/A	N/A	-8.232	AV
2			5350.000	47.971	56.173	-6.029	54.000	-8.201	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 chain 2	



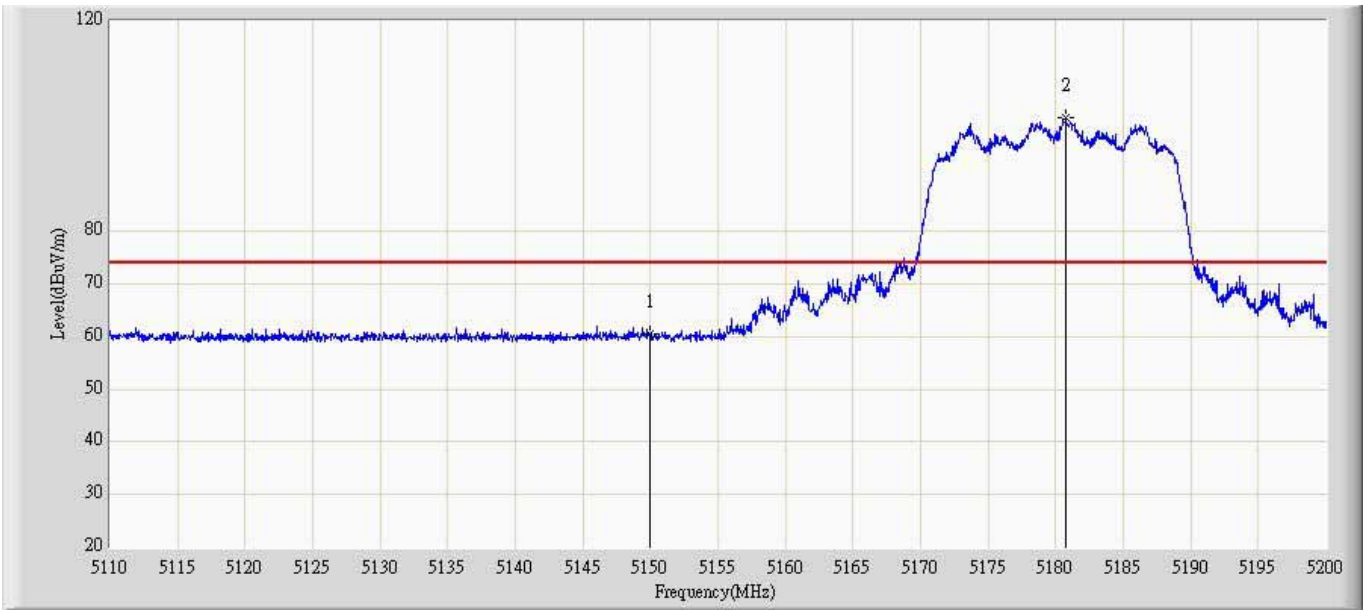
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5238.270	98.874	107.104	N/A	N/A	-8.230	PK
2			5350.000	59.249	67.451	-14.751	74.000	-8.201	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 chain 2	



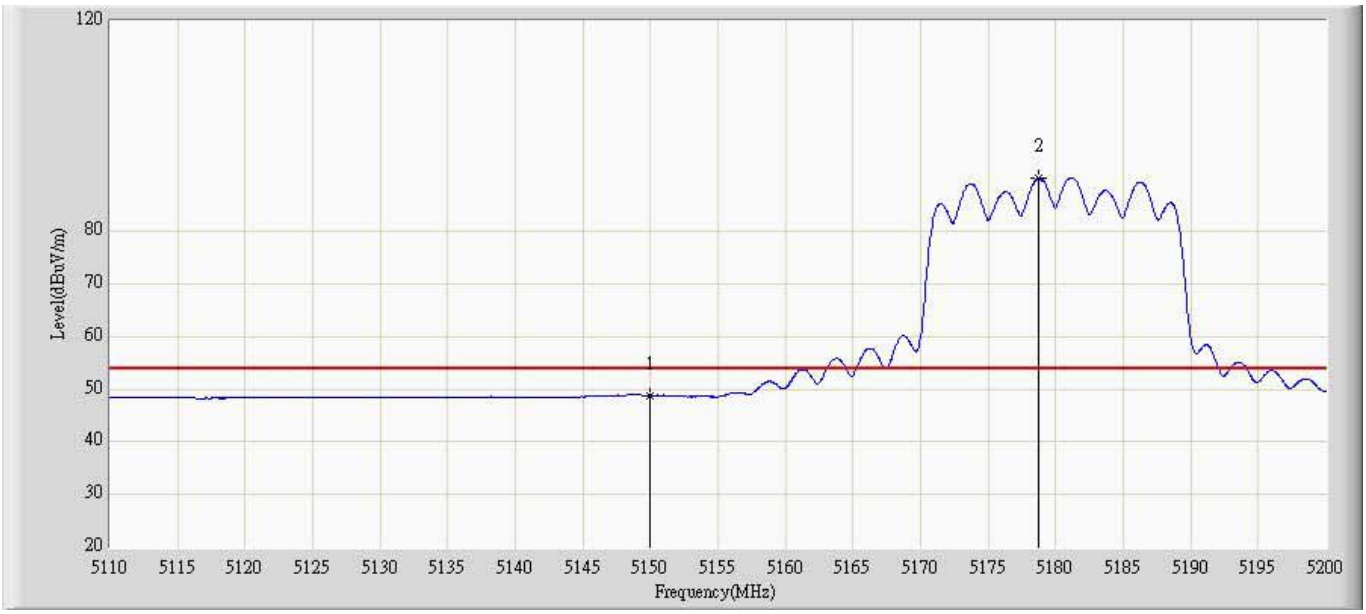
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5239.260	88.723	96.954	N/A	N/A	-8.231	AV
2			5350.000	47.862	56.064	-6.138	54.000	-8.201	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5180MHz by 802.11a Chain 1+2	



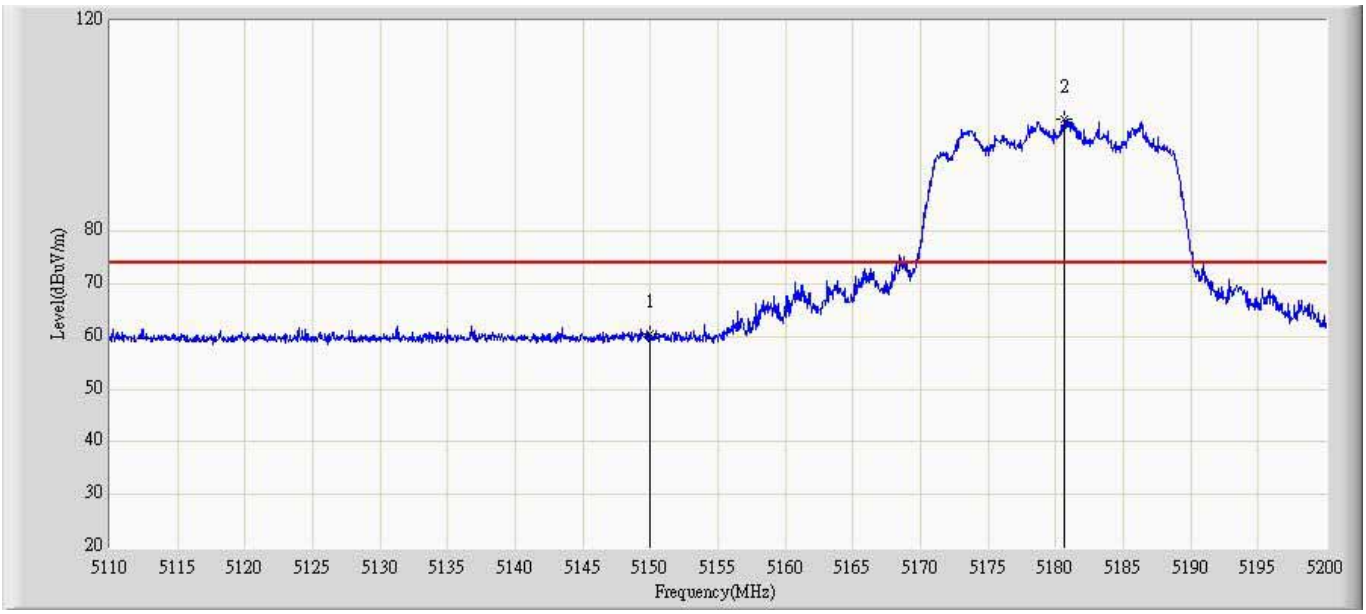
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	60.557	68.777	-13.443	74.000	-8.220	PK
2		*	5180.740	101.484	109.710	N/A	N/A	-8.227	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5180MHz by 802.11a Chain 1+2	



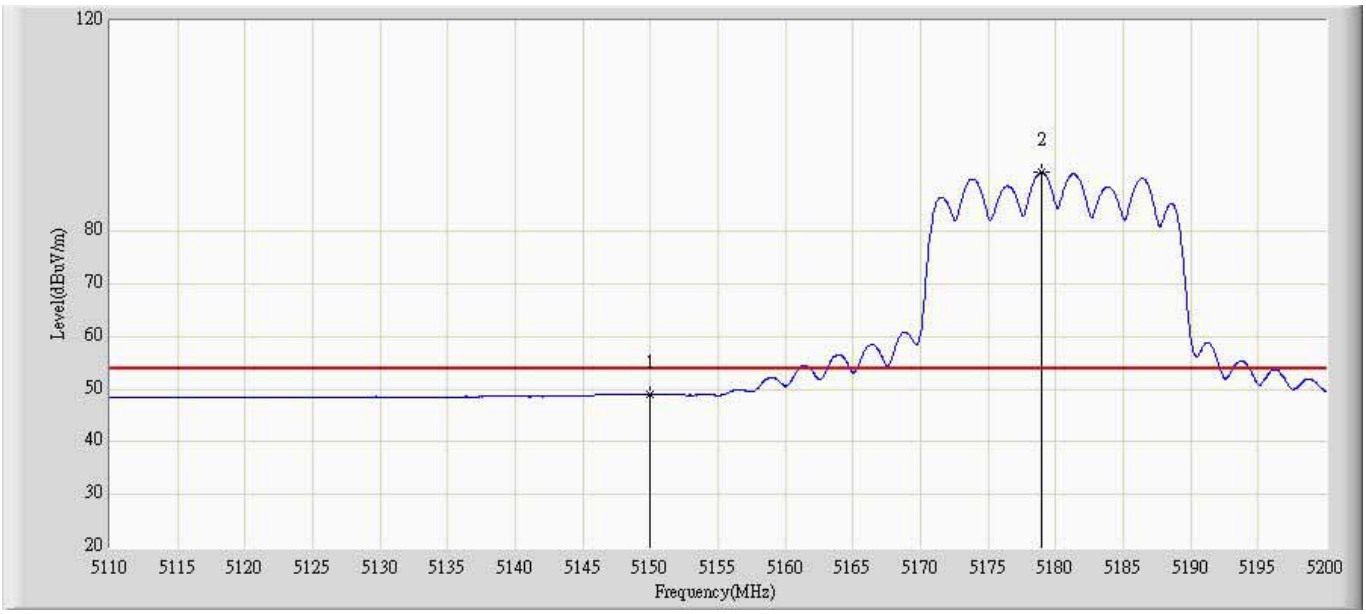
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	48.862	57.082	-5.138	54.000	-8.220	AV
2		*	5178.760	90.051	98.278	N/A	N/A	-8.227	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:31
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5180MHz by 802.11a Chain 1+2	



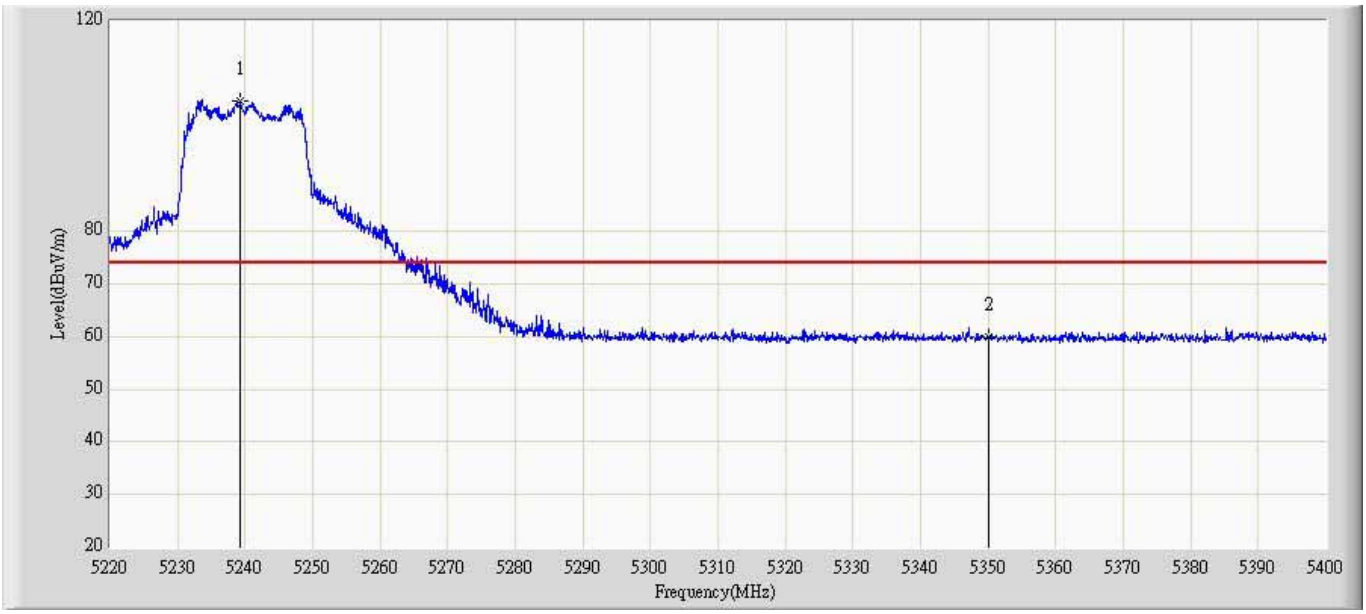
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	60.501	68.721	-13.499	74.000	-8.220	PK
2		*	5180.650	101.281	109.507	N/A	N/A	-8.227	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5180MHz by 802.11a Chain 1+2	



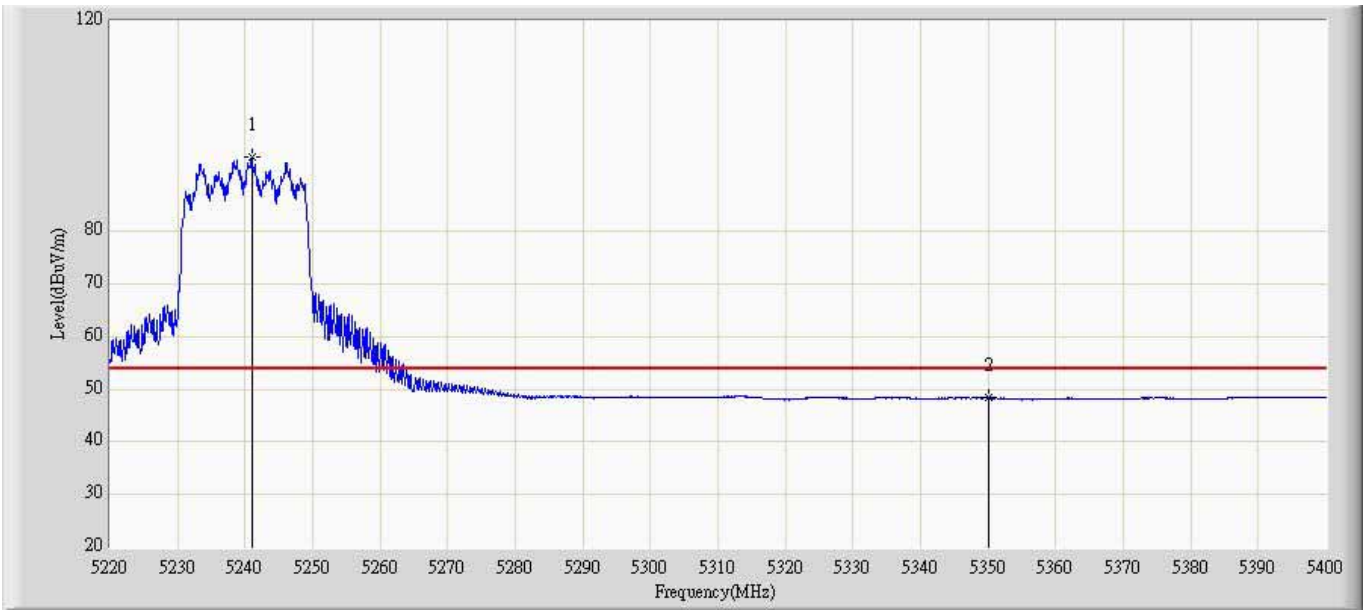
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	49.026	57.246	-4.974	54.000	-8.220	AV
2		*	5178.940	91.187	99.414	N/A	N/A	-8.227	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 Chain 1+2	



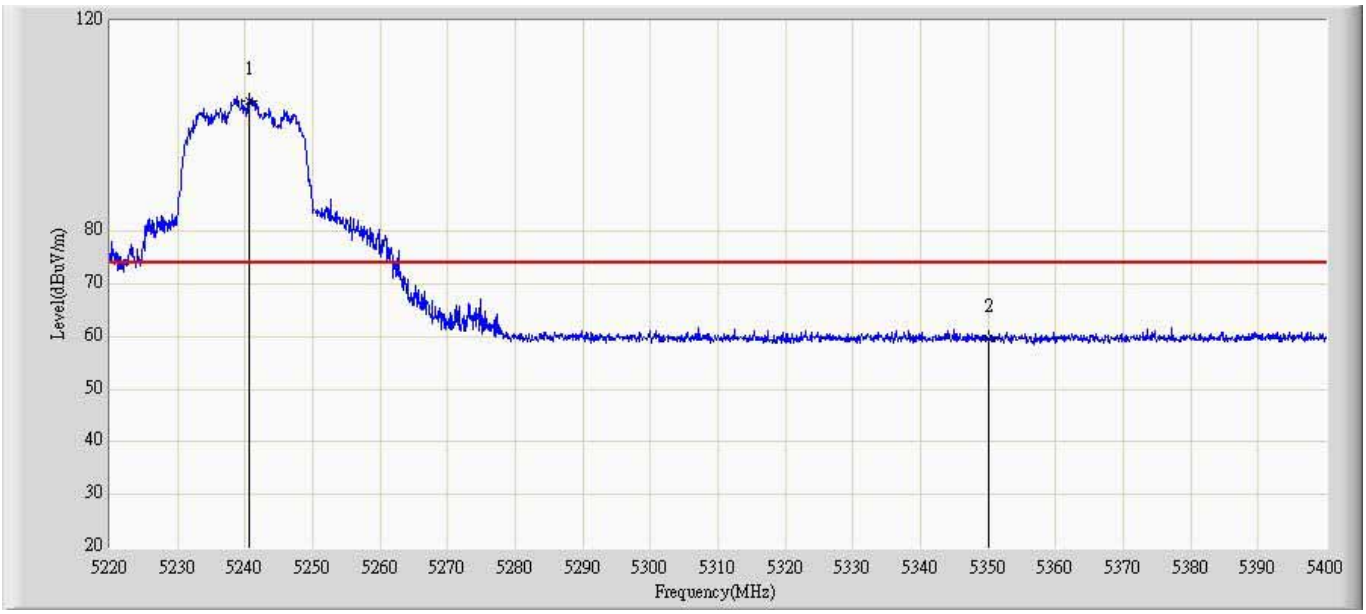
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5239.260	104.807	113.038	N/A	N/A	-8.231	PK
2			5350.000	59.972	68.174	-14.028	74.000	-8.201	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 Chain 1+2	



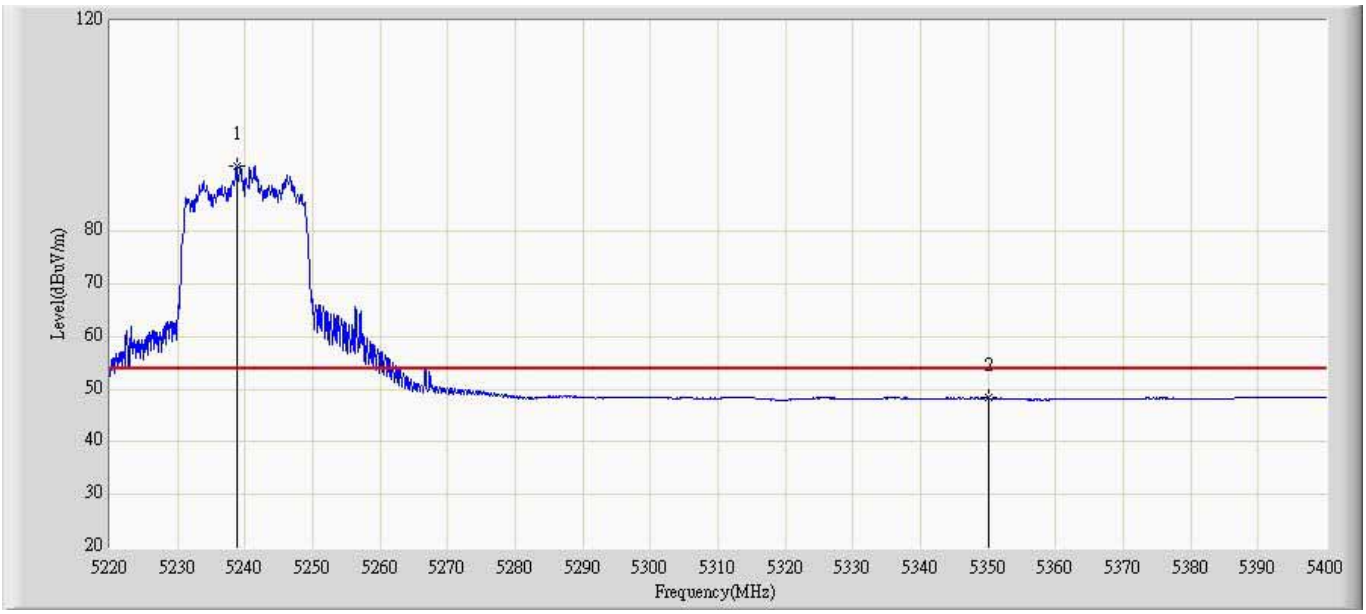
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5240.970	94.188	102.421	N/A	N/A	-8.233	AV
2			5350.000	48.324	56.526	-5.676	54.000	-8.201	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 Chain 1+2	



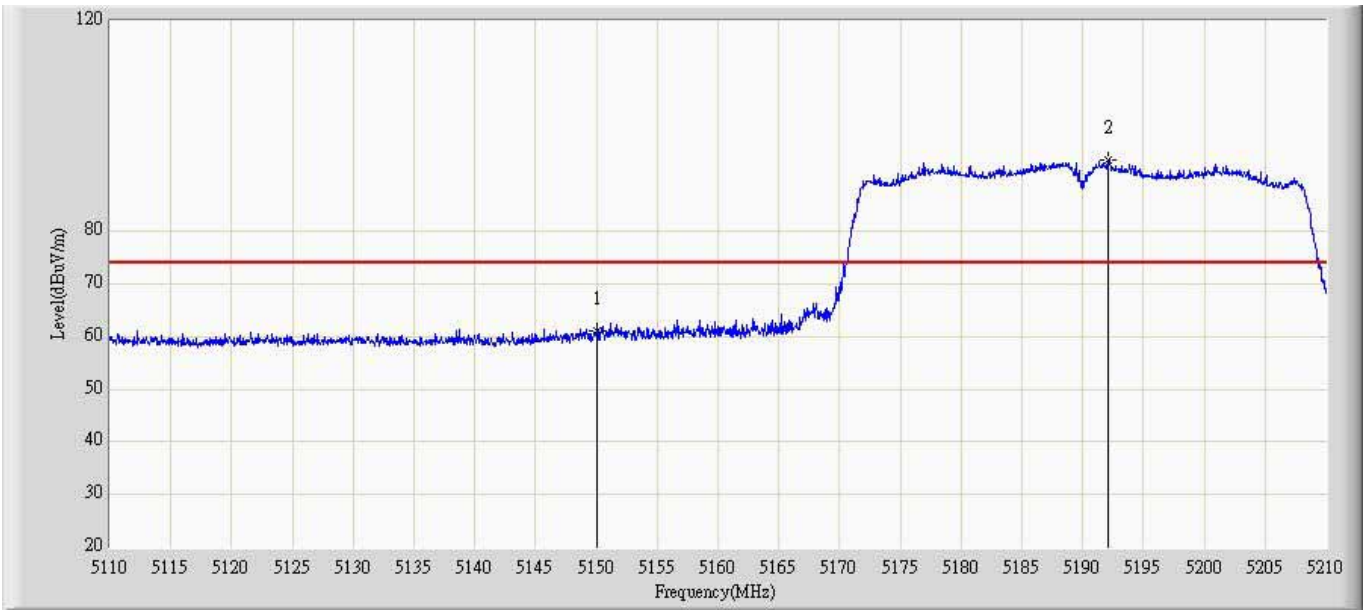
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5240.610	104.839	113.071	N/A	N/A	-8.232	PK
2			5350.000	59.706	67.908	-14.294	74.000	-8.201	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:40
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode2: Transmit at channel 5240MHz by 802.11n20 Chain 1+2	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5238.720	92.415	100.646	N/A	N/A	-8.231	AV
2			5350.000	48.313	56.515	-5.687	54.000	-8.201	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5190MHz by 802.11n40 chain 1	

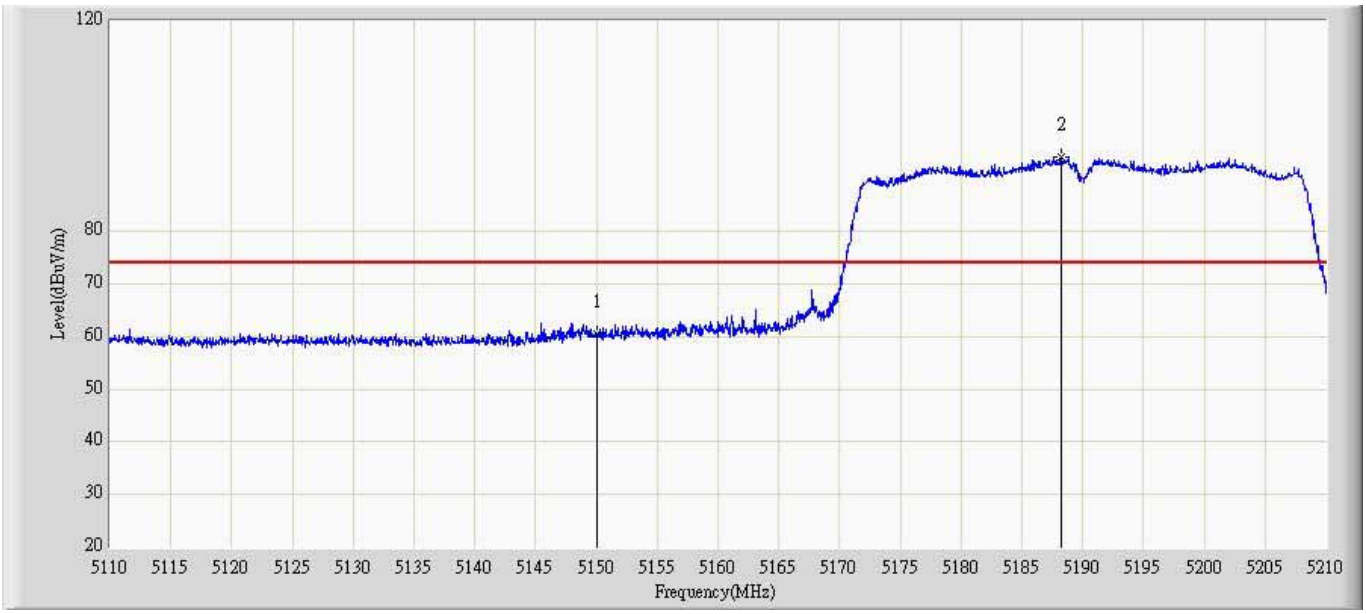


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	61.086	69.306	-12.914	74.000	-8.220	PK
2		*	5192.050	93.638	101.872	N/A	N/A	-8.234	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5190MHz by 802.11n40 chain 1	

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	49.199	57.419	-4.801	54.000	-8.220	AV
2		*	5191.250	84.133	92.366	N/A	N/A	-8.233	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5190MHz by 802.11n40 chain 1	

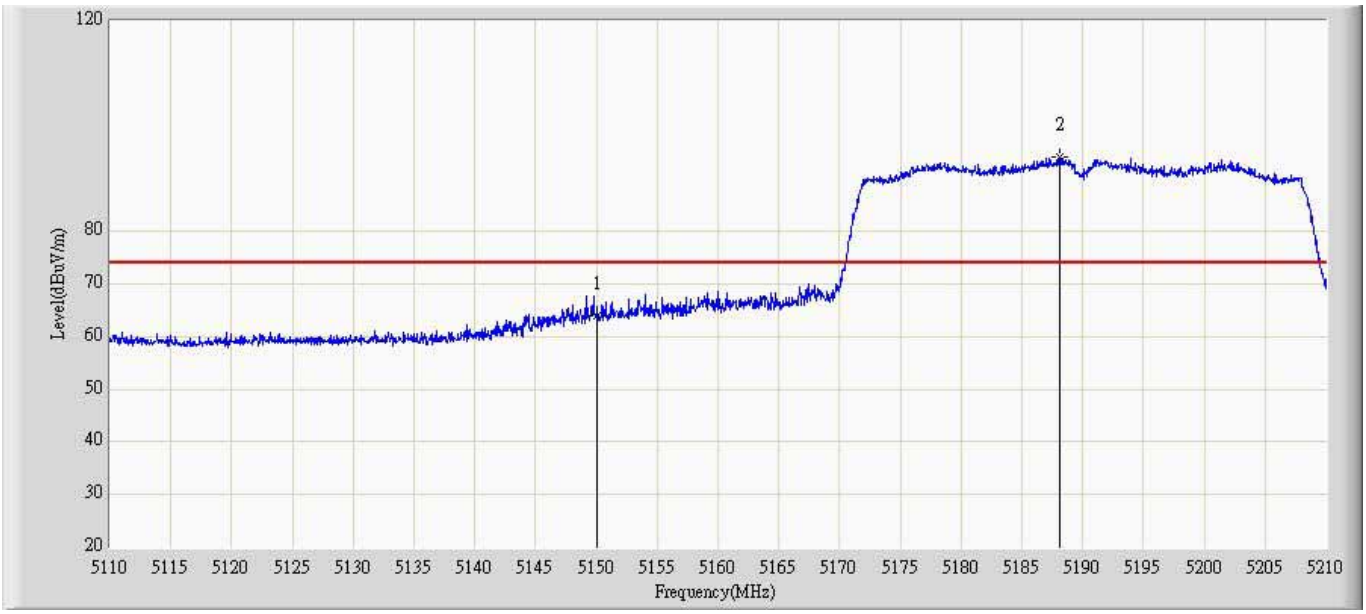


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	60.622	68.842	-13.378	74.000	-8.220	PK
2		*	5188.200	94.253	102.484	N/A	N/A	-8.231	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5190MHz by 802.11n40 chain 1	

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	49.599	57.819	-4.401	54.000	-8.220	AV
2		*	5188.350	84.879	93.110	N/A	N/A	-8.231	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5190MHz by 802.11n40 chain 2	

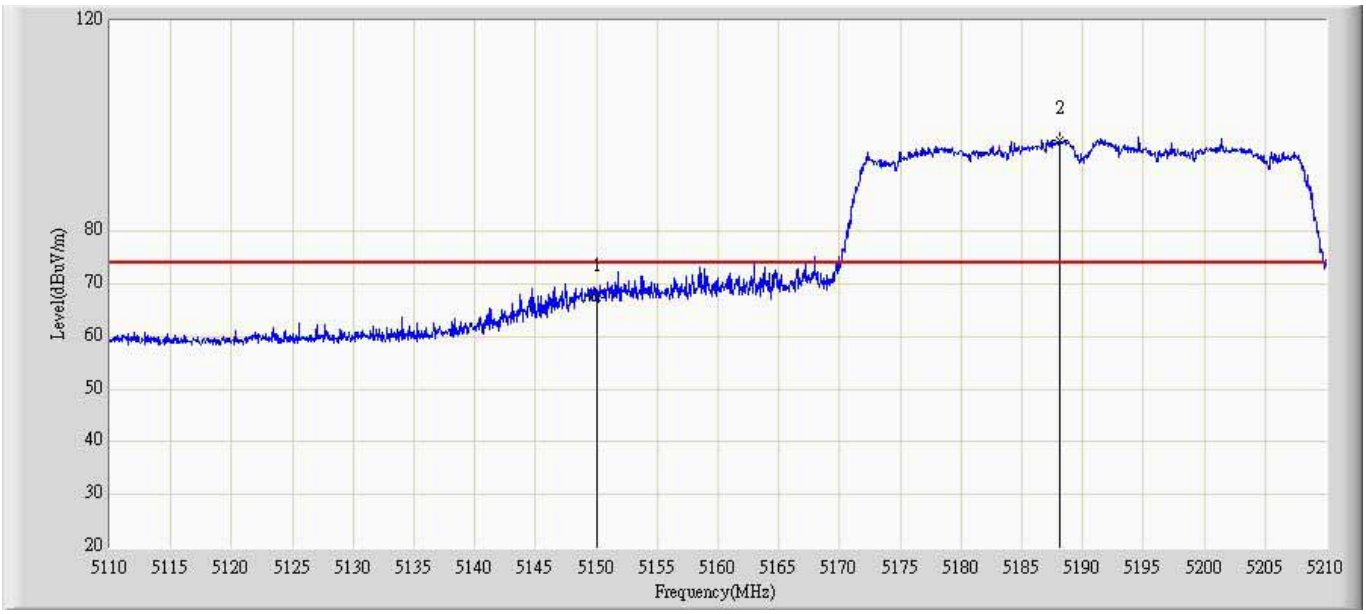


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	63.842	72.062	-10.158	74.000	-8.220	PK
2		*	5188.100	94.140	102.371	N/A	N/A	-8.231	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5190MHz by 802.11n40 chain 2	

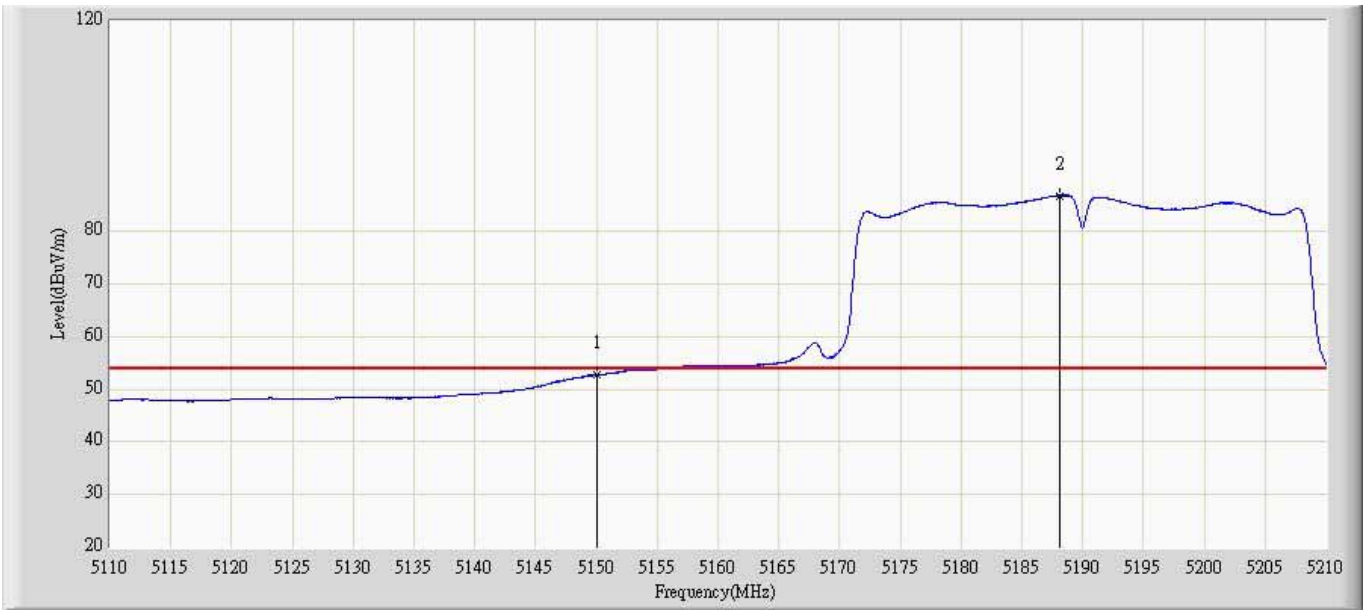
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	50.597	58.817	-3.403	54.000	-8.220	AV
2		*	5188.550	83.563	91.794	N/A	N/A	-8.231	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5190MHz by 802.11n40 chain 2	



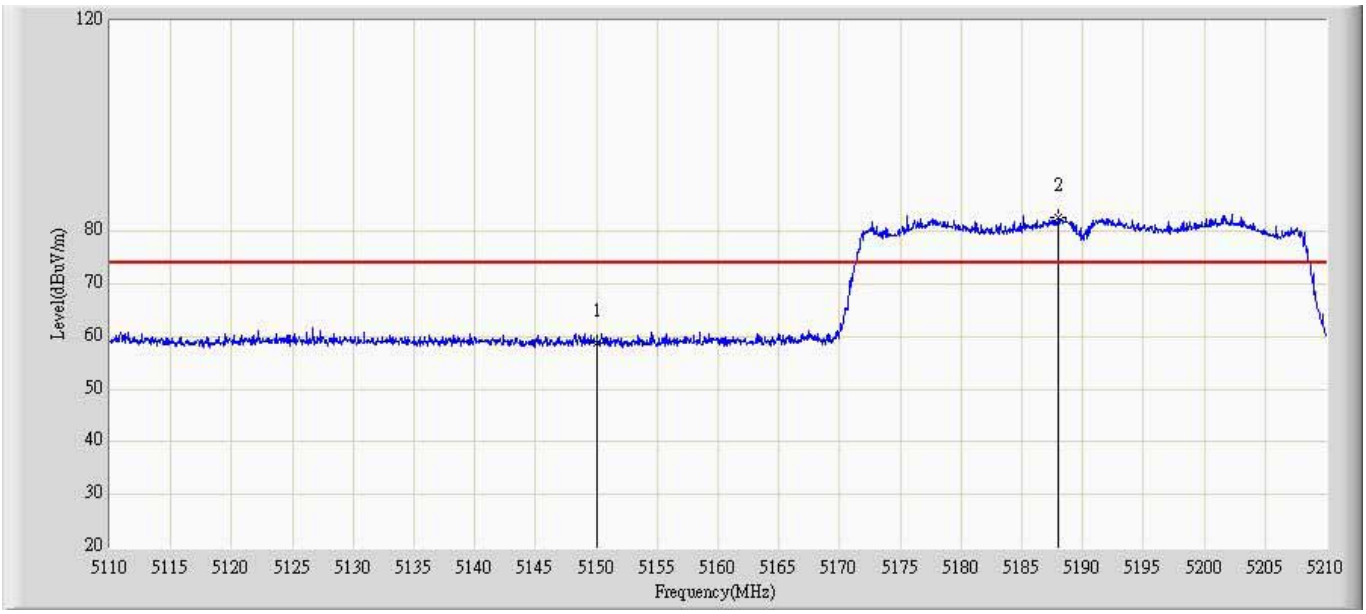
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	67.359	75.579	-6.641	74.000	-8.220	PK
2		*	5188.150	97.180	105.411	N/A	N/A	-8.231	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5190MHz by 802.11n40 chain 2	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	52.689	60.909	-1.311	54.000	-8.220	AV
2		*	5188.150	86.785	95.016	N/A	N/A	-8.231	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5190MHz by 802.11n40 Chain 1+2	

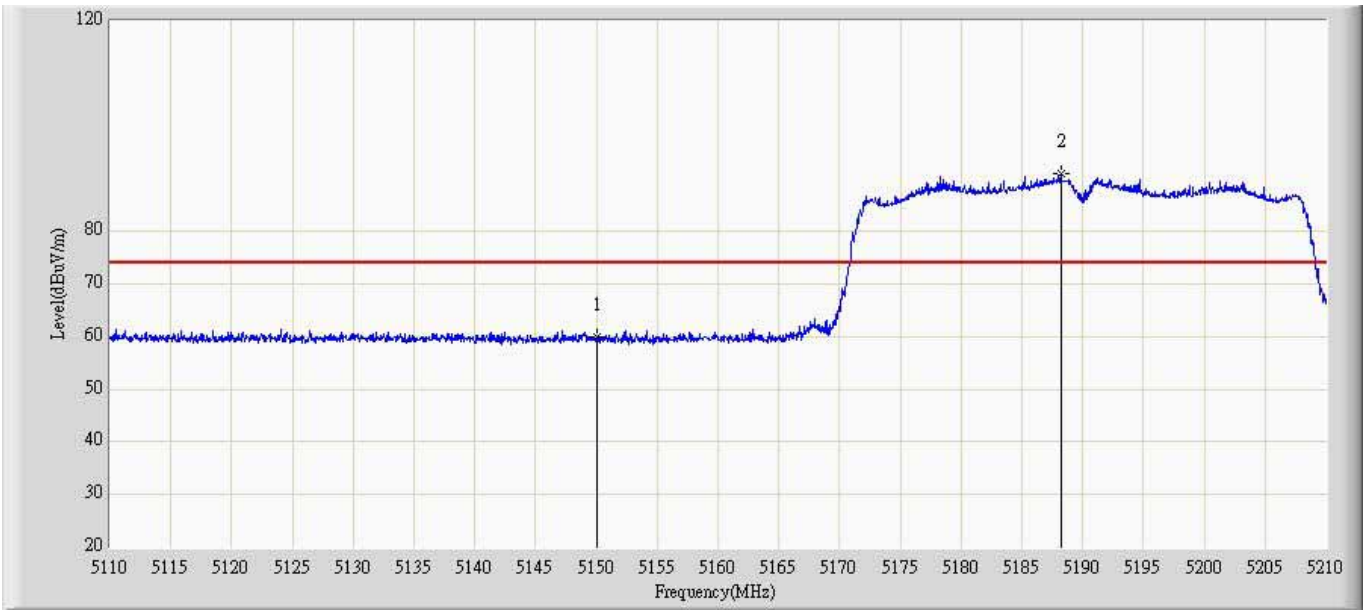


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	58.893	67.113	-15.107	74.000	-8.220	PK
2		*	5188.000	82.647	90.878	N/A	N/A	-8.231	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 14:58
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5190MHz by 802.11n40 Chain 1+2	

No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	47.900	56.120	-6.100	54.000	-8.220	AV
2		*	5188.500	74.248	82.479	N/A	N/A	-8.231	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 15:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5190MHz by 802.11n40 Chain 1+2	

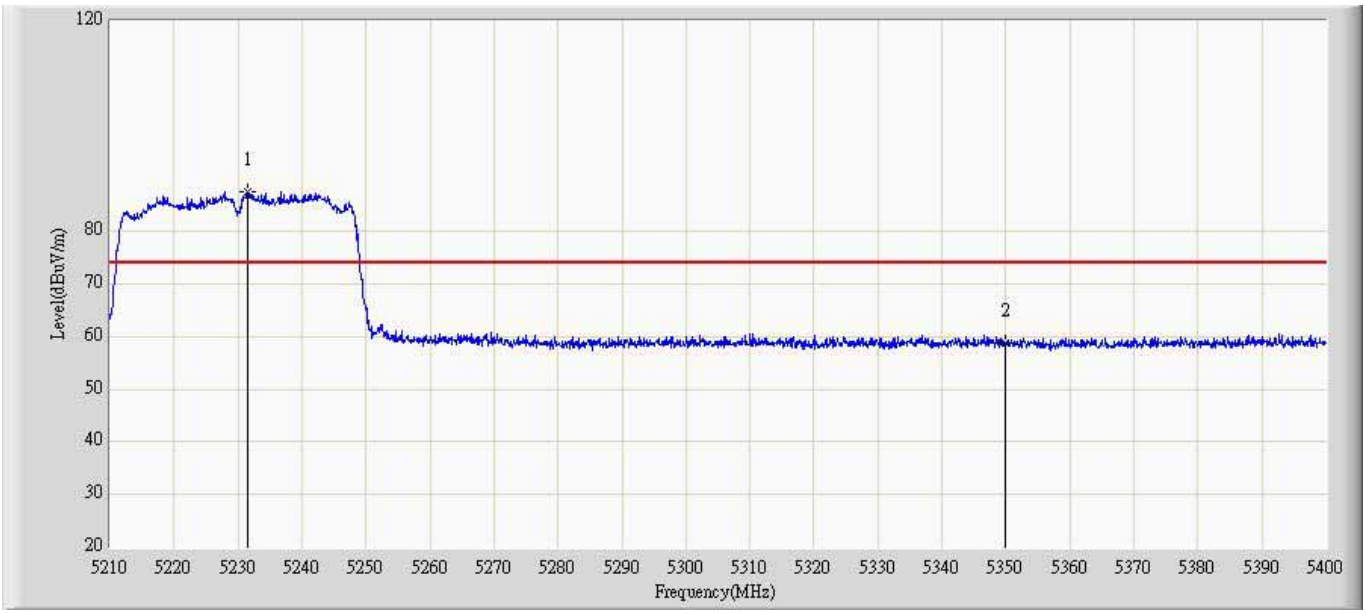


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	59.833	68.053	-14.167	74.000	-8.220	PK
2		*	5188.200	90.894	99.125	N/A	N/A	-8.231	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 15:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5190MHz by 802.11n40 Chain 1+2	

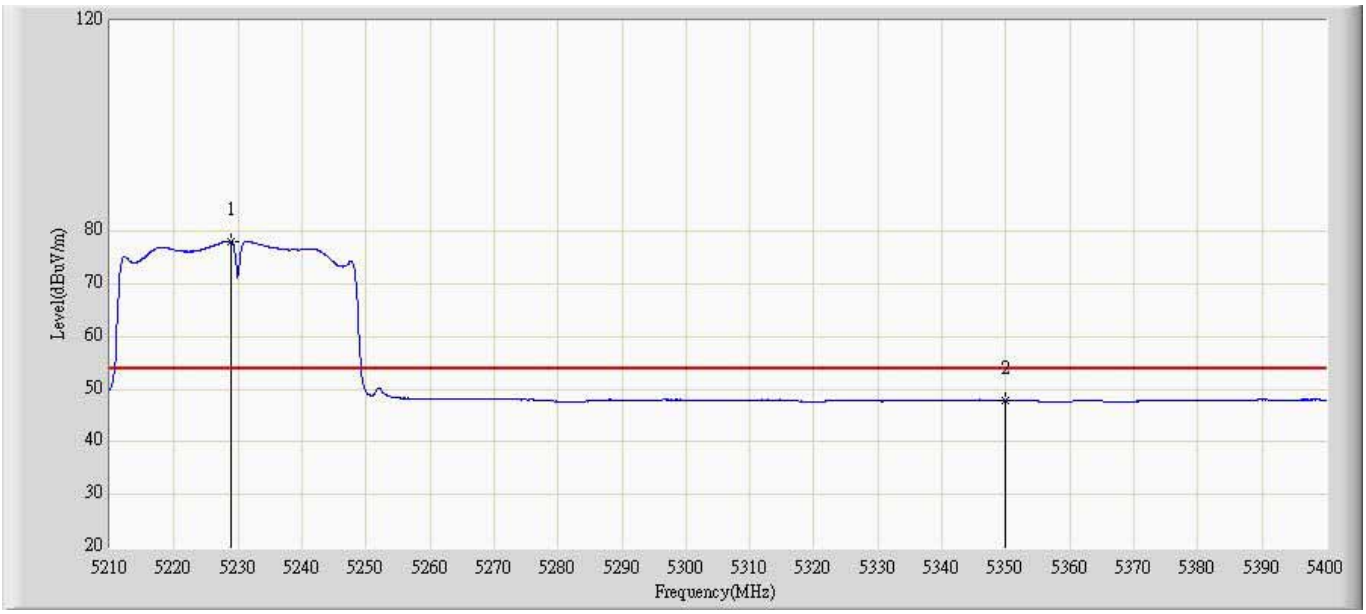
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1			5150.000	48.598	56.818	-5.402	54.000	-8.220	AV
2		*	5188.500	80.763	88.994	N/A	N/A	-8.231	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 15:08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5230MHz by 802.11n40 chain 1	



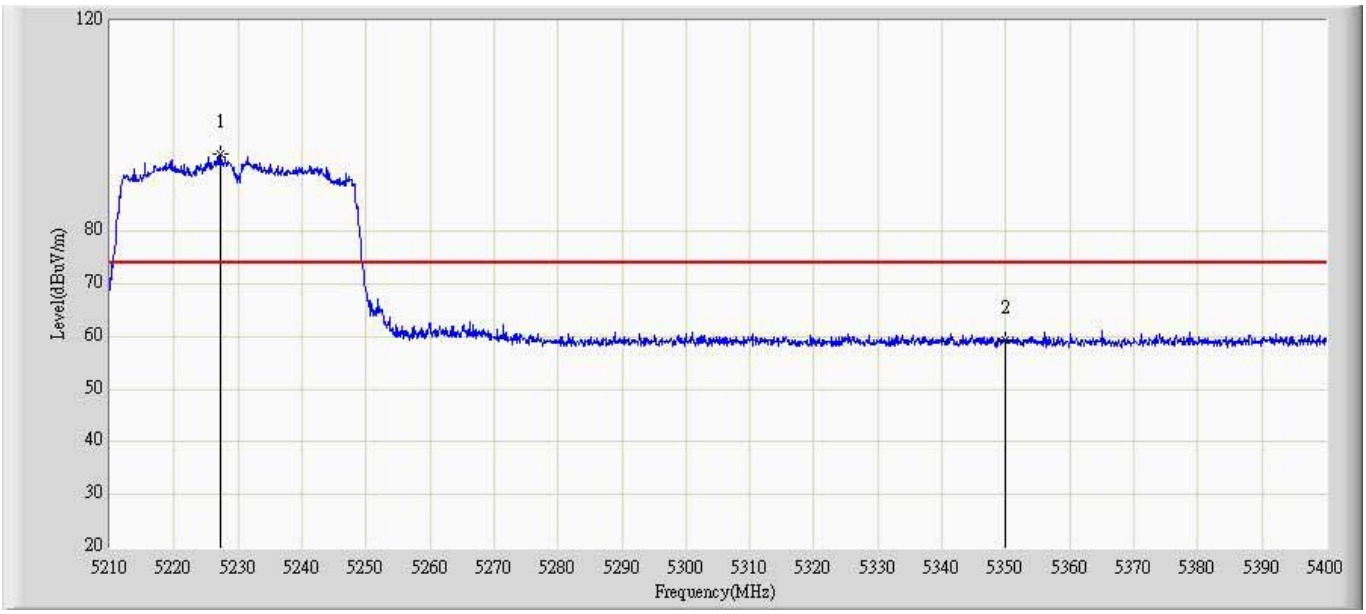
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5231.470	87.665	95.892	N/A	N/A	-8.227	PK
2			5350.000	58.716	66.918	-15.284	74.000	-8.201	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 15:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5230MHz by 802.11n40 chain 1	



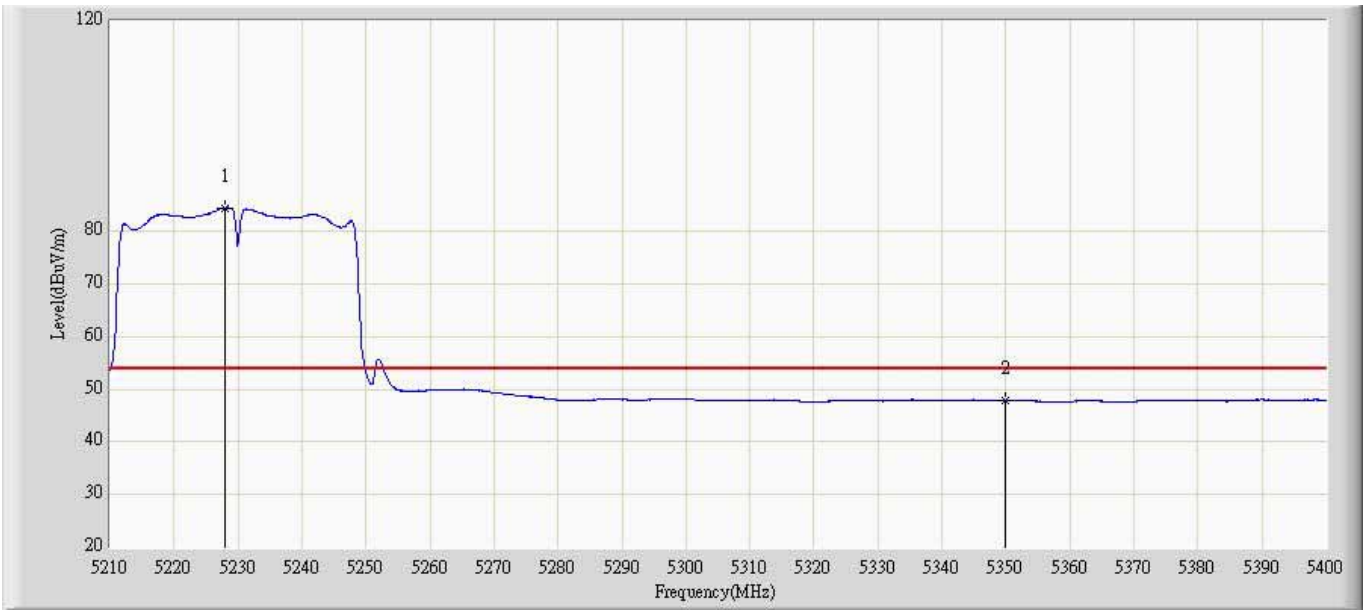
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5228.810	78.115	86.343	N/A	N/A	-8.227	AV
2			5350.000	47.892	56.094	-6.108	54.000	-8.201	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 15:10
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5230MHz by 802.11n40 chain 1	



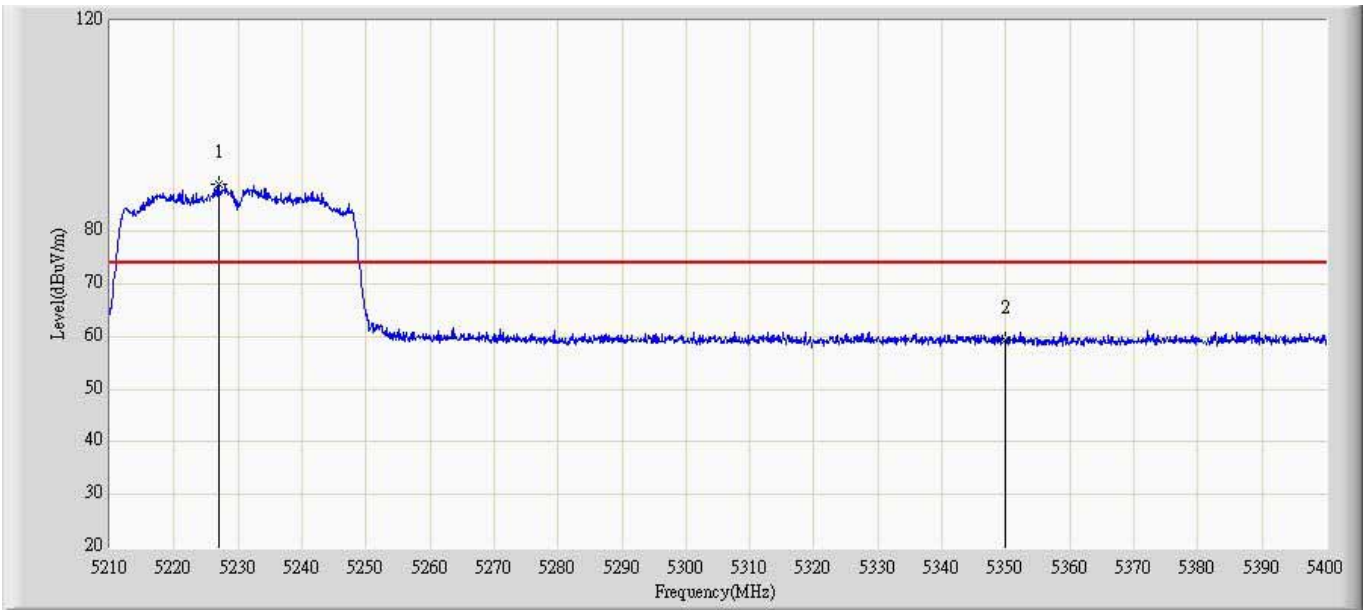
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5227.195	94.616	102.844	N/A	N/A	-8.228	PK
2			5350.000	59.396	67.598	-14.604	74.000	-8.201	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 15:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5230MHz by 802.11n40 chain 1	



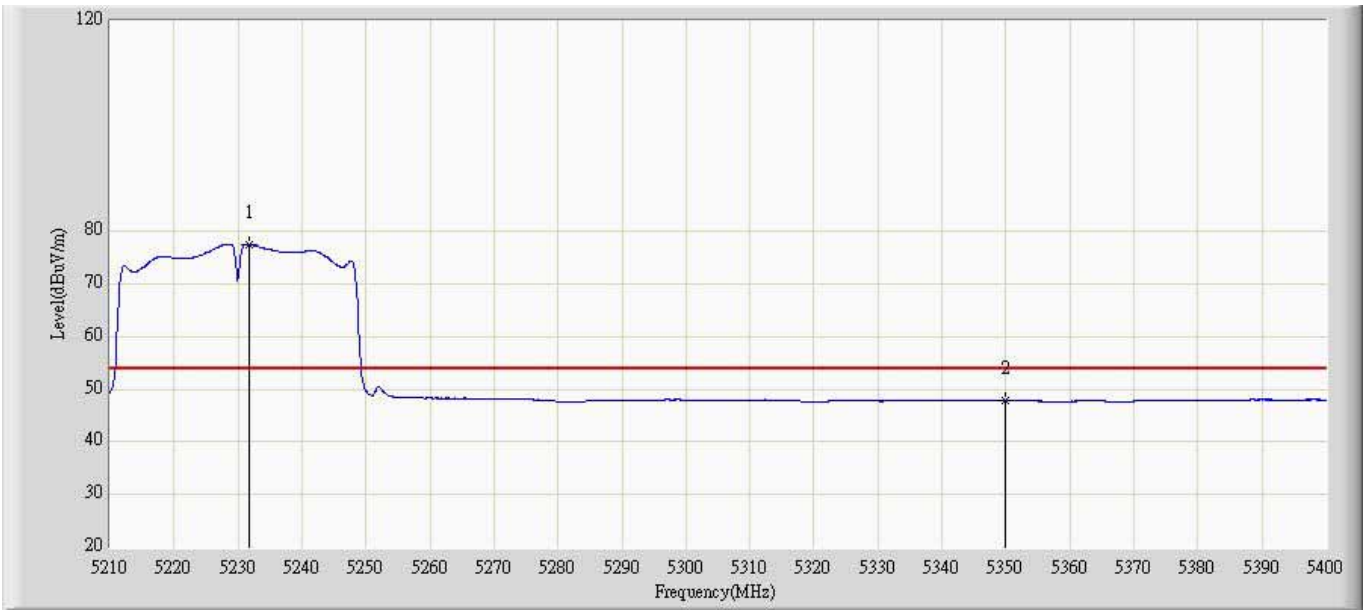
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5227.955	84.493	92.721	N/A	N/A	-8.228	AV
2			5350.000	47.893	56.095	-6.107	54.000	-8.201	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 15:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5230MHz by 802.11n40 chain 2	



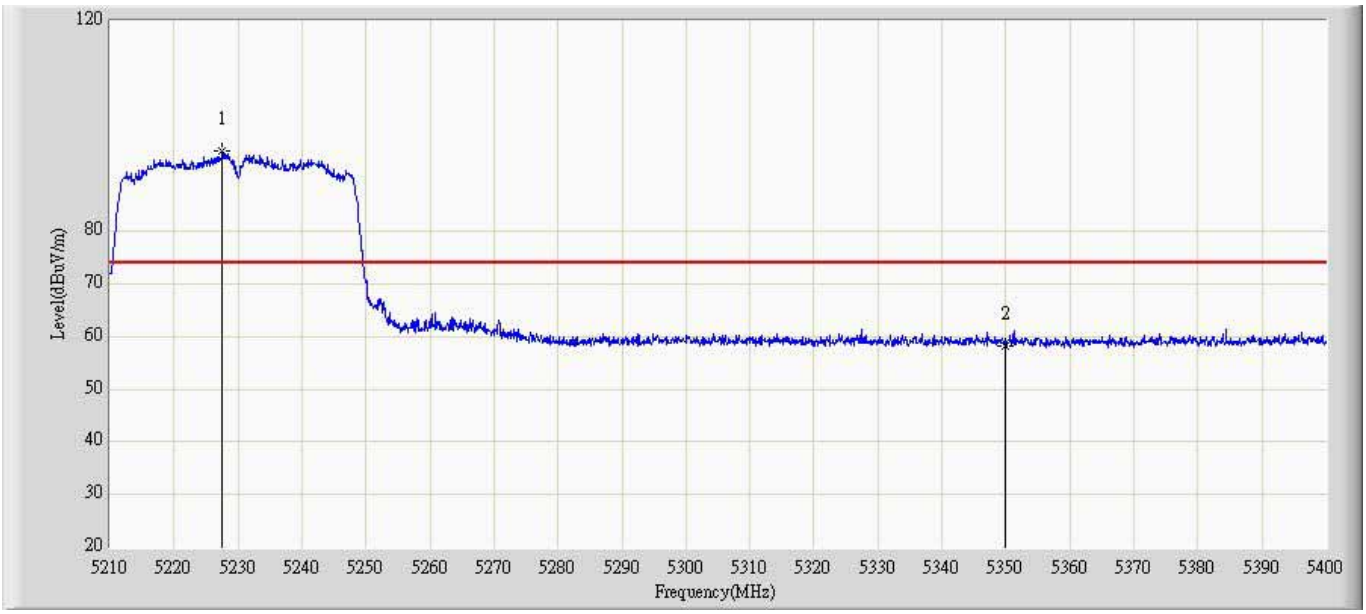
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5226.910	89.024	97.253	N/A	N/A	-8.229	PK
2			5350.000	59.451	67.653	-14.549	74.000	-8.201	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 15:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5230MHz by 802.11n40 chain 2	



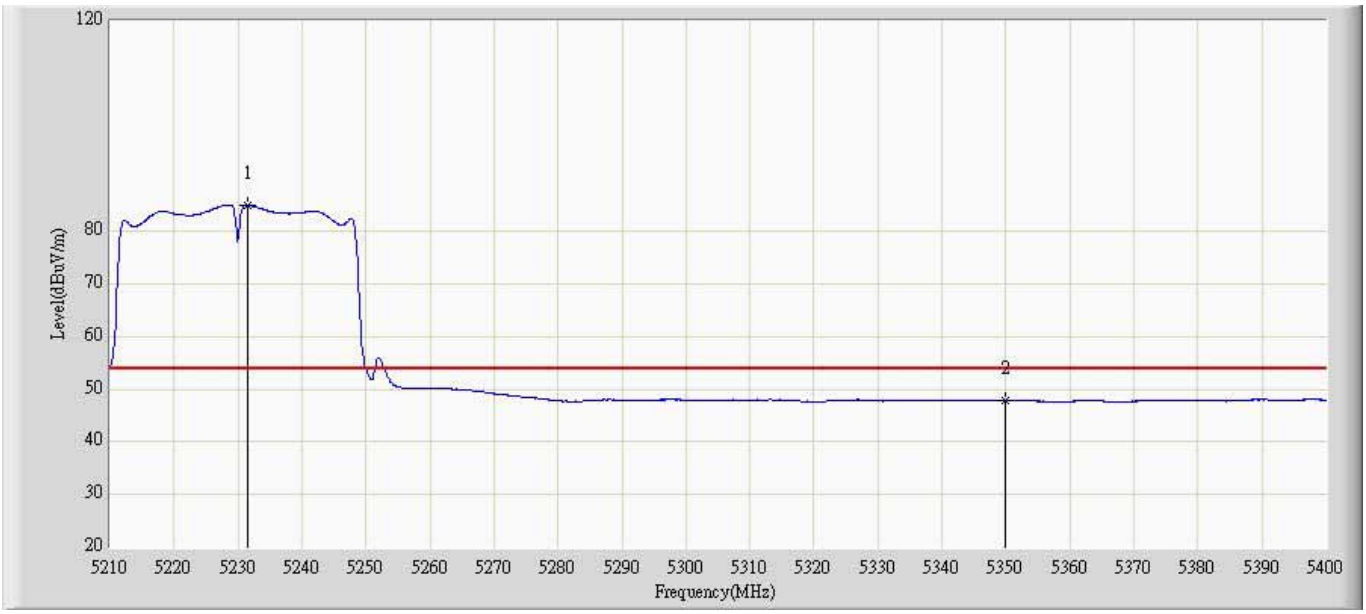
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5231.755	77.492	85.719	N/A	N/A	-8.227	AV
2			5350.000	47.910	56.112	-6.090	54.000	-8.201	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 15:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5230MHz by 802.11n40 chain 2	



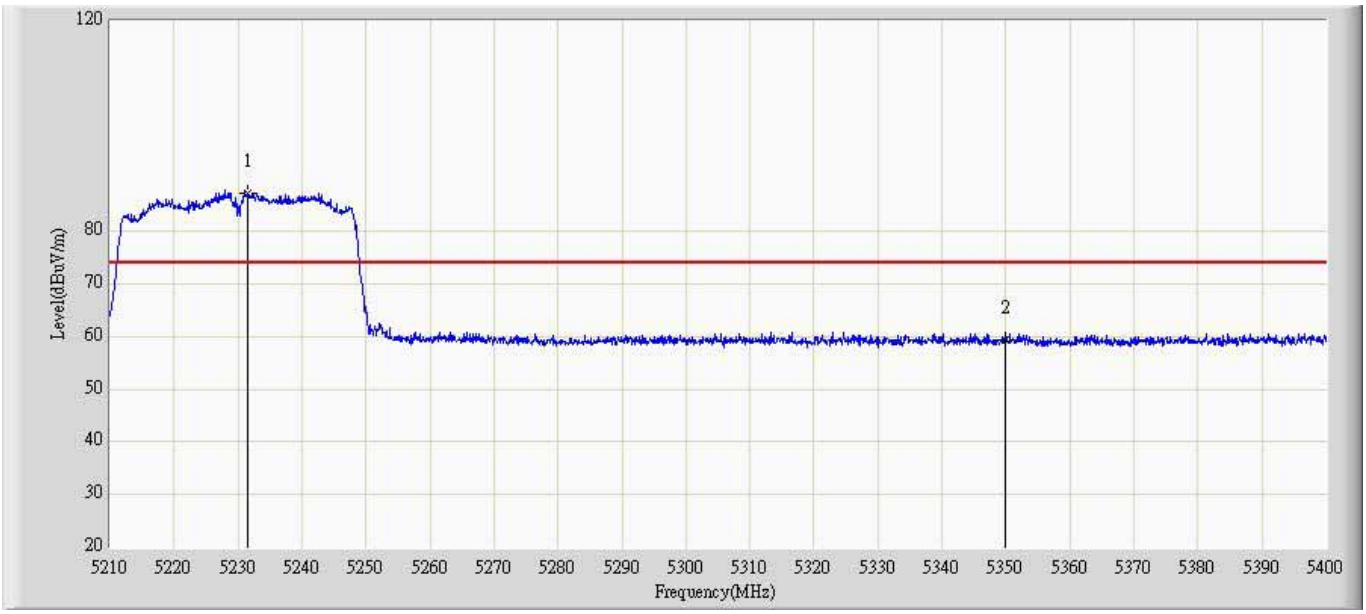
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5227.575	95.153	103.381	N/A	N/A	-8.228	PK
2			5350.000	58.351	66.553	-15.649	74.000	-8.201	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 15:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5230MHz by 802.11n40 chain 2	



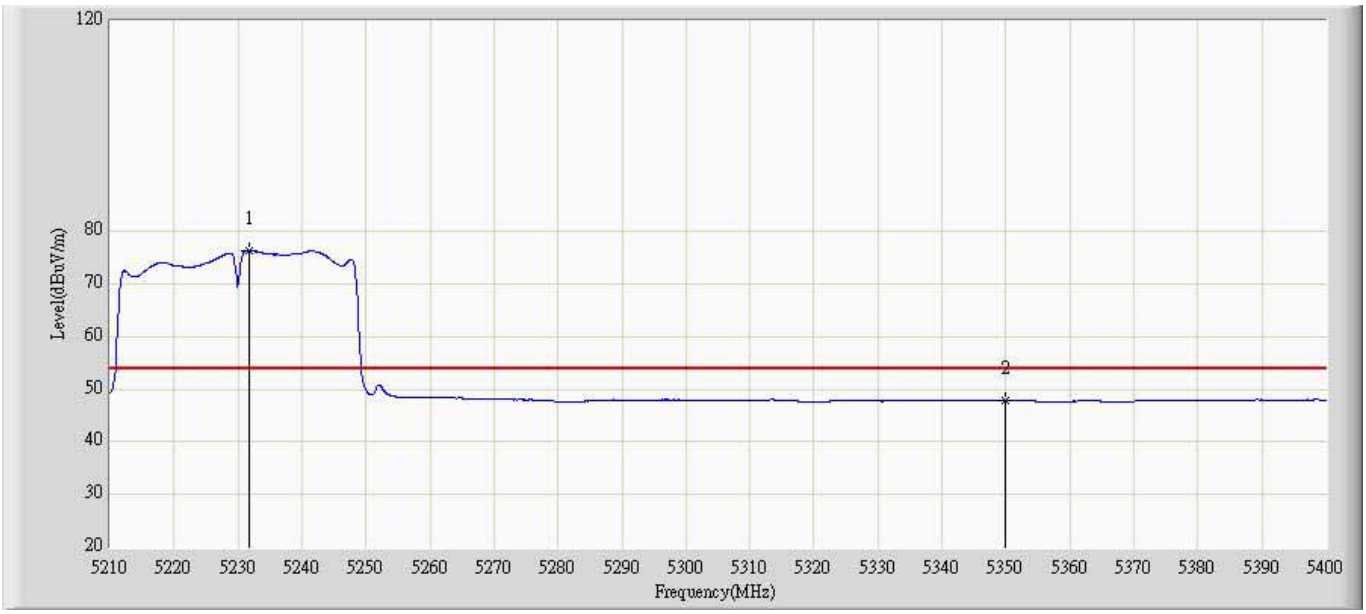
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5231.470	84.911	93.138	N/A	N/A	-8.227	AV
2			5350.000	47.868	56.070	-6.132	54.000	-8.201	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 15:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5230MHz by 802.11n40 Chain 1+2	



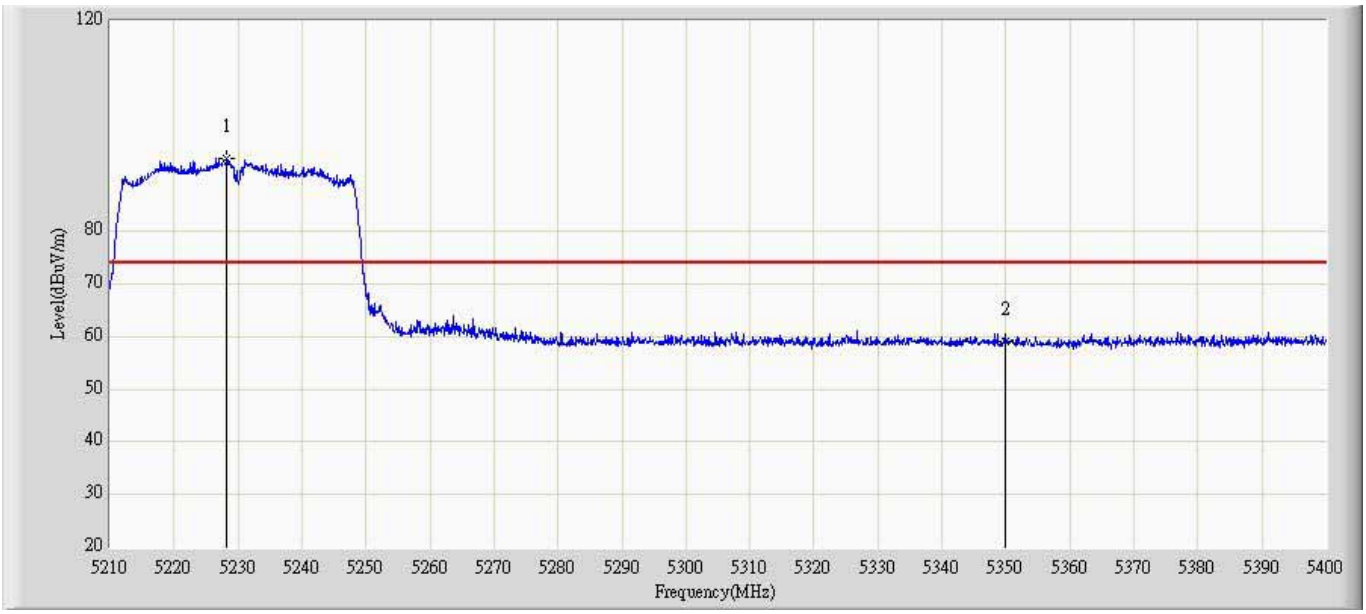
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5231.470	87.367	95.594	N/A	N/A	-8.227	PK
2			5350.000	59.493	67.695	-14.507	74.000	-8.201	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 15:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Horizontal
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5230MHz by 802.11n40 Chain 1+2	



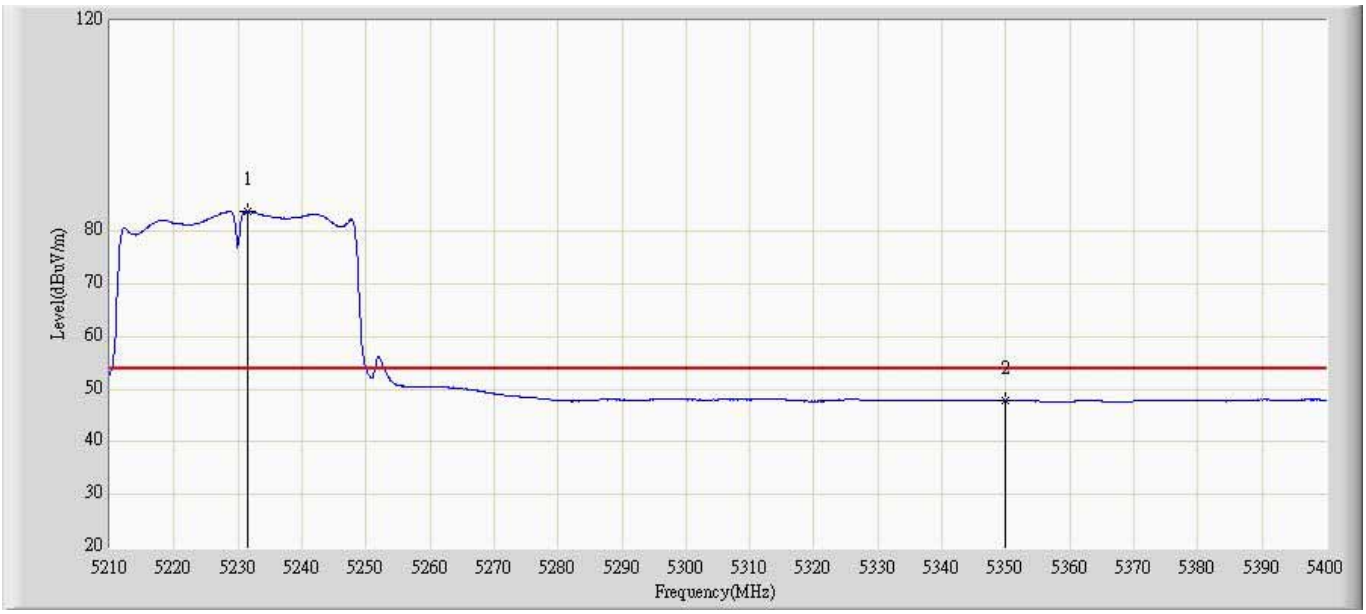
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5231.755	76.231	84.458	N/A	N/A	-8.227	AV
2			5350.000	47.867	56.069	-6.133	54.000	-8.201	AV

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 15:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5230MHz by 802.11n40 Chain 1+2	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5228.240	93.886	102.114	N/A	N/A	-8.228	PK
2			5350.000	59.084	67.286	-14.916	74.000	-8.201	PK

Engineer: Brgant	
Site: AC5	Time: 2012/09/22 - 15:31
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: BBHA 9120D_499(1-18GHz)	Polarity: Vertical
EUT: IP-STB	Power: AC 120V/60Hz
Note: Mode3: Transmit at channel 5230MHz by 802.11n40 Chain 1+2	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor	Type
1		*	5231.470	83.753	91.980	N/A	N/A	-8.227	AV
2			5350.000	47.853	56.055	-6.147	54.000	-8.201	AV

11. Frequency Stability

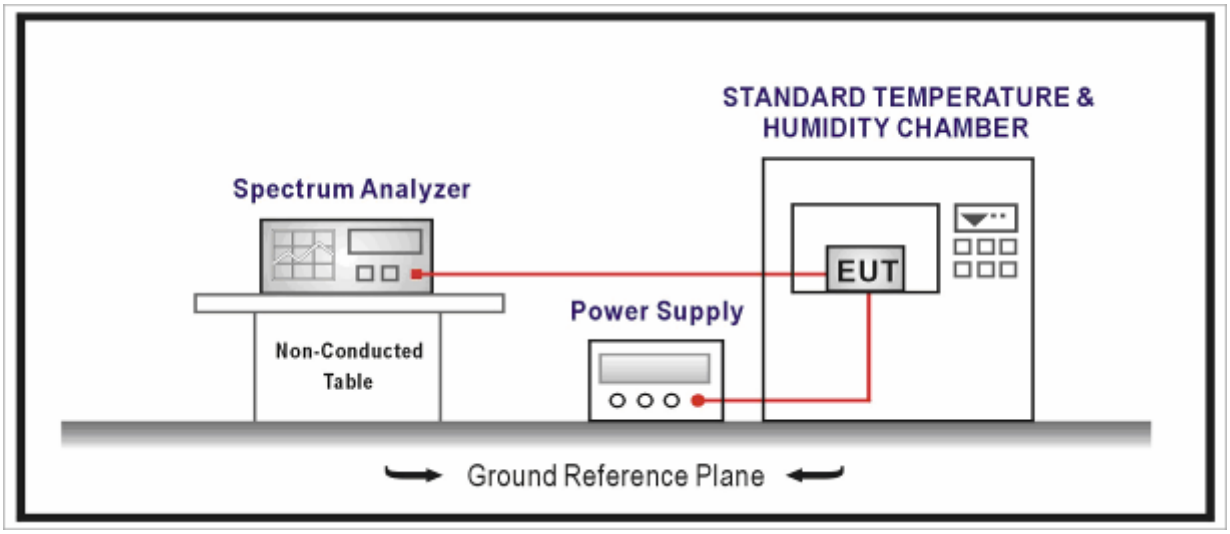
11.1. Test Equipment

Frequency Stability / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2013.04.18
AC Power Supply	IDRC	CF-500TP	979422	2012.09.22
DC Power Supply	IDRC	CD-035-020PR	977272	2012.09.22
Programmable Temperature & Humidity Chamber	Gaoyu	TH-1P-B	WIT-05121302	2013.01.13
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2013.05.07

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

11.2. Test Setup



11.3. Limit

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

11.4. Test Procedure

Frequency Stability Under Temperature Variations:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20℃ operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10℃ decreased per stage until the lowest temperature reached.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.
Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, record the maximum frequency change.

11.5. Uncertainty

The measurement uncertainty is defined as ± 100 Hz

11.6. Test Result

Product	:	IP-STB
Test Item	:	Frequency Stability
Test Site	:	TR-8
Test Mode	:	Carrier Transmit

Operating Frequency: 5180MHz					
Temp (℃)	Voltage (AC)	Frequency Tolerance (ppm)			
		0 minutes	2 minutes	5 minutes	10 minutes
-10	102	2.44	2.45	2.48	2.47
	120	2.15	2.14	2.11	2.12
	138	2.34	2.32	2.31	2.37
20	102	2.45	2.45	2.49	2.48
	120	2.12	2.12	2.11	2.10
	138	2.33	2.31	2.31	2.38
55	102	2.48	2.47	2.47	2.46
	120	2.13	2.12	2.11	2.10
	138	2.38	2.35	2.35	2.33

12. Receiver Spurious Emission for Industry Canada RSS-Gen Requirement

12.1. Test Equipment

Radiated Emission / AC-2

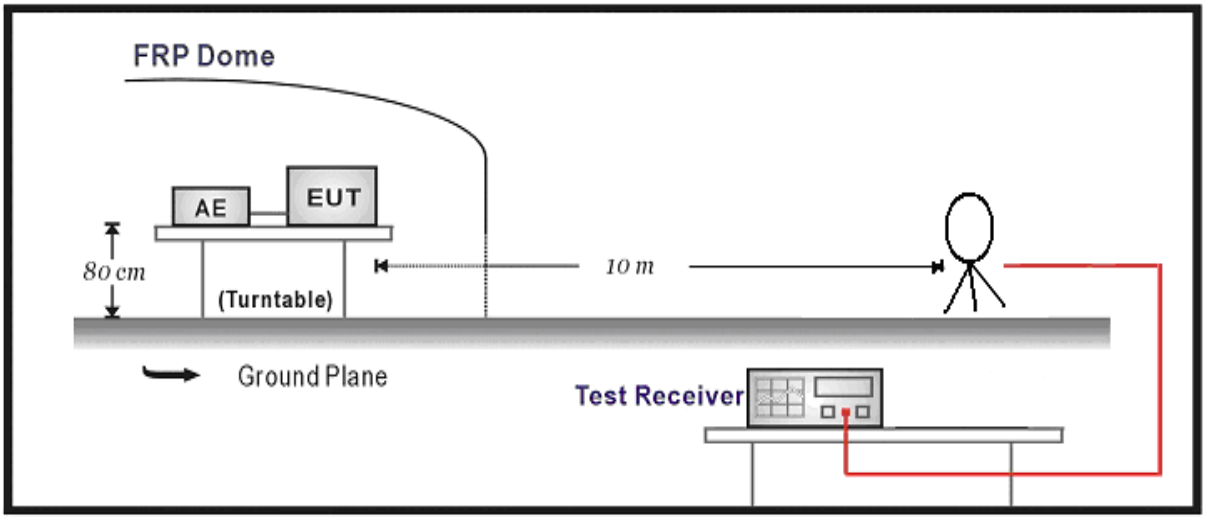
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
EMI Test Receiver	R&S	ESCI	100573	2013.04.18
Loop Antenna	R&S	HFH2-Z2	833799/003	2012.11.22
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2012.10.18
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2013.03.02
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2012.01.14

Radiated Emission / AC-5

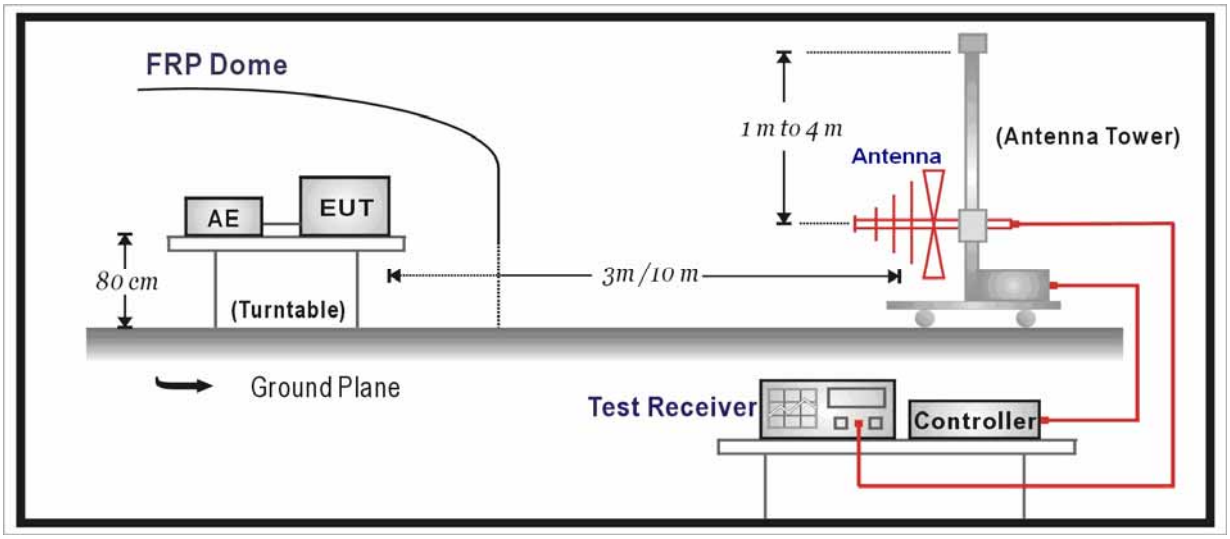
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2013.04.18
Preamplifier	Miteq	NSP1800-25	1364185	2013.05.04
Preamplifier	QuieTek	AP-040G	CHM-0906001	2013.05.04
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2012.10.18
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2014.06.08
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2013.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2013.03.02
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2013.03.02
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2013.03.02
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC5-TH	2013.01.10

12.2. Test Setup

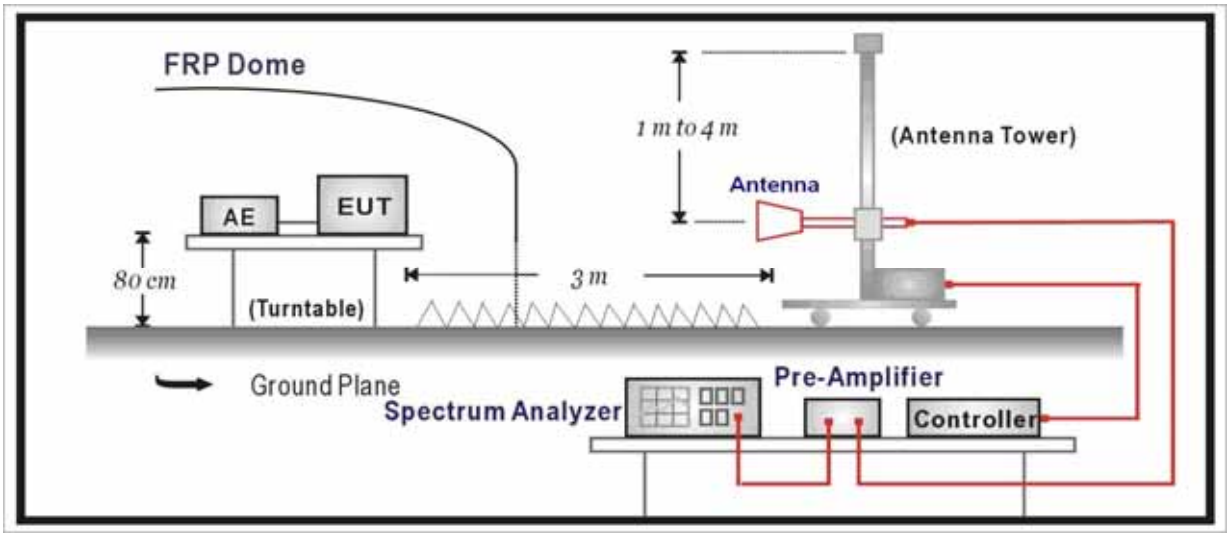
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



12.3. Limit

FCC Part 15 Subpart B Paragraph 15.109		
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)

12.4. Test Procedure

According to ANSI C63.10: 2009.
The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4: 2009 on radiated measurement.
The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.
The frequency range from 9kHz to10th harmonic is checked.
Note: When doing emission measurement above 1GHz, the horn antenna will be bended down a little (as horn antenna has the narrow beamwidth) in order to keeping the antenna in the “cone of radiation” of EUT. The 3dB beamwidth is 60~10 degrees for H-plane and 90~10 degrees for E-plane.

12.5. Uncertainty

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

12.6. 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

Mode 1: Receive by 802.11n (20MHz)

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Chain 0+1	36	H	582.9	13.8	21.2	35.0	46	-11.0	QP
		V	564.5	13.6	21.2	34.8	46	-11.2	QP
		H	2215.5	53.9	-16.9	36.8	54(Note1)	-17.2	PK
		V	2215.5	55.5	-16.9	38.6	54(Note1)	-15.4	PK
	40	H	593.6	13.7	21.2	34.9	46	-11.1	QP
		V	599.9	13.7	21.2	34.9	46	-11.1	QP
		H	2215.5	57.0	-16.9	40.1	54(Note1)	-13.9	PK
		V	2657.5	55.6	-15.4	40.2	54(Note1)	-13.8	PK
	48	H	820.1	13.5	22.9	36.4	46	-9.6	QP
		V	800.2	15.0	22.8	37.8	46	-8.2	QP
		H	2215.5	56.9	-16.9	40.0	54(Note1)	-14.0	PK
		V	2215.5	54.0	-16.9	37.1	54(Note1)	-16.9	PK

Note1: 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.

Mode 2: Receive by 802.11n (40MHz)

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Chain 0+1	38	H	391.3	14.2	17.4	31.6	46	-14.4	QP
		V	351.1	14.4	16.3	30.7	46	-15.3	QP
		H	2215.5	55.7	-16.9	38.8	54(Note1)	-15.2	PK
		V	2657.5	54.4	-15.4	39.0	54(Note1)	-15.0	PK
	46	H	500.0	15.9	19.7	35.6	46	-10.4	QP
		V	500.0	16.8	19.7	36.5	46	-9.5	QP
		H	2207.0	55.8	-16.9	38.9	54(Note1)	-15.1	PK
		V	2657.5	54.8	-15.4	39.4	54(Note1)	-14.6	PK

Note1: 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.