ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
INTENTIONAL RADIATOR CERTIFICATION TO
FCC PART 15 SUBPART C REQUIREMENT

OF

Tablet PC

Trade Name	**:** N/A
Model Number	**:** WP-800，PC-700，TP-700, WP-800, PC-800，TP-800, WP-1000，PC-1000，TP-1000
Report Number	**:** GSI111102025001
Date	**:** November 14, 2011
Regulations	**:** See below

FCC ID: S3JWP800

Issued to：

AMR Wireless Ltd
Flat 1A, 8/F, Block A, Hoi Tao Building, 7-11 Belcher Street, Kennedy Town, Hong Kong

Issued by：

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VERIFICATION OF COMPLIANCE

Applicant:	AMR Wireless Ltd Flat 1A, 8/F, Block A, Hoi Tao Building, 7-11 Belcher Street, Kennedy Town, Hong Kong
Manufacturer:	AMR Wireless Ltd Flat 1A, 8/F, Block A, Hoi Tao Building, 7-11 Belcher Street, Kennedy Town, Hong Kong
Product Description:	Tablet PC
Brand Name:	N/A
Model Number:	WP-800，PC-700，TP-700, WP-800, PC-800，TP-800, WP-1000，PC-1000，TP-1000 (Note: The samples are the same except color and model number are different. We prepare WP-800 for test.)
Serial Number:	N/A
File Number:	GSI111102025001
Date of Test:	November 02, 2011 to November 14, 2011

The product described above is tested by **Bontek Compliance Testing Laboratory Ltd.** The measurement results are contained in this test report and **Shenzhen GSI Electronic Technology Co.,Ltd.** assume full responsibility for the accuracy of the test results. Also, this report shows that the EUT (Equipment Under Test) technically complies with conducted and radiated emission limits of FCC Rules Part 15.247..

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of **Shenzhen GSI Electronic Technology Co.,Ltd.**

Prepared by : _____
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Approved & Authorized Signer: _____
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1. GENERAL INFORMATION

1.1 Product Description

A major technical descriptions of EUT is described as following:

A). Standards: IEEE802.11b/g
B). Operation Frequency: 2412-2462MHz
C). Modulation: OFDM with BPSK, QPSK, 16QAM, 64QAM(11g), BPSK, QPSK, CCK (11b)
D). Number of Channel: 11
E). Max Data Rate: 11Mbps(802.11b), 54Mbps(802.11g)
F). Conducted Power: 11.53dBm(802.11b), 10.14dBm(802.11g)
G). Antenna GAIN: 2.03dBi
H). Antenna Type: Integral Antenna
I). Power Supply: DC9V with AC Adapter or with battery
J). Adapter: M/N: Q6
Input: 100-240V~50/60Hz, 0.3A Max, 50-60Hz
Output: DC9V, 1.5A

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	5	2432	9	2452
2	2417	6	2437	10	2457
3	2422	7	2442	11	2462
4	2427	8	2447		

Note:
1. This device is a 2.4GHz Tablet PC included 802.11b and 802.11g 2.4GHz transceiver function.
2. Test of channel was included the lowest middle and highest frequency in highest data rate and to perform the test, then record on this report.

1.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC – Registration No.: 338263

Bontek Compliance Testing Laboratory Ltd, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 338263, March, 2008.

IC Registration No.: 7631A

The 3m alternate test site of Bontek Compliance Testing Laboratory Ltd EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the

performance of with Registration NO.: 7631A on August 2009. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

CNAS - Registration No.: L3923

Bontek Compliance Testing Laboratory Ltd to ISO/IEC 17025:25 General Requirements for the Competence of Testing and Calibration Laboratories(CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing. The acceptance letter from the CNAS is maintained in our files: Registration:L3923, February,2009.

1.3 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: S3JWP800 filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules. The composite system (receiver) is compliance with Subpart B is authorized under a DOC procedure.

1.4 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters.

1.5 Special Accessories

Not available for this EUT intended for grant.

1.6 Equipment Modifications

Not available for this EUT intended for grant.

2. System Test Configuration

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The Transmitter was operated in the normal operating mode. the Tx frequency was fixed which was for the purpose of the measurements.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4-2003.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode.

2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.4-2003.

2.4 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

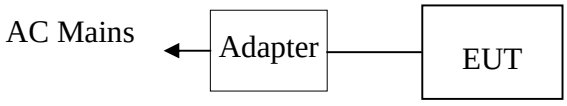


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
1.	Tablet PC	Careeror	WP-800	S3JWP800	N/A	***EUT***

Note:

(1) Unless otherwise denoted as EUT in『Remark』column , device(s) used in tested system is a support equipment.

2.5 Measurement Equipment Used

Item	Test Equipment	Manufacturer	Model No.	LAST CAL.	Due.Date
1	Spectrum Analyzer	HP	8594E	2011/04/15	2012/04/14
2	EMI Test Receiver	Rohde & Schwarz	ESCI	2011/04/15	2012/04/14
3	Radio Communication Tester	Rohde & Schwarz	CMU200	2011/04/15	2012/04/14
4	Dual Directional Coupler	Agilent	778D	2011/04/15	2012/04/14
5	10dB Attenuator	SCHWARZBECK	MTAIMP-136	2011/04/15	2012/04/14
6	Tunable Bandreject Filter	K&L	3TNF-800	2011/04/15	2012/04/14
7	Tunable Bandreject filter	K&L	5TNF-1700	2011/04/15	2012/04/14
8	High-Pass Filter	K&L	9SH10-2700/X12750-O/O	2011/04/15	2012/04/14
9	High-Pass Filter	K&L	41H10-1375/U12750-O/O	2011/04/15	2012/04/14
10	Coaxial Cable	Huber+Suhner	AC4-RF-H	2011/04/15	2012/04/14
11	AC Power Supply	IDRC	CR-500TP	2011/04/15	2012/04/14
12	DC Power Supply	IDRC	CD-035-020PR	2011/04/15	2012/04/14
13	RF Current Probe	FCC	F-33-4	2011/04/15	2012/04/14
14	Temperature/Humidity Meter	Zhicheng	ZC1-2	2011/04/15	2012/04/14
15	MICROWAVE AMPLIFIER	HP	8349B	2011/04/15	2012/04/14
16	Amplifier	HP	8447D	2011/04/15	2012/04/14
17	SIGNAL GENERATOR	HP	8647A	2011/04/15	2012/04/14
18	Log Periodic Antenna	ELECTRO-METRICS	EM-6950	2011/04/15	2012/04/14
19	Horn Antenna	Schwarzbeck	BBHA9120A	2011/04/15	2012/04/14
20	EMI Test Receiver	R&S	ESPI	2011/04/15	2012/04/14

3. Description of test modes

The Transmitter of EUT is a Tablet PC and powered by host equipment. This is Digital Transmission system(DTS) and have four type of modulation DBPSK DQPSK CCK&OFDM. The data rates are 54Mbps.
The equipment enables high-speed access without wires to network assets. This adapter uses the IEEE 802.11b/g protocol to enable wireless communications between the host computer and computers, in the same way that the computer would use an Ethernet adapter.

1. For lowest channel : 2412MHz(Channel 1)
2. For middle channel : 2437MHz(Channel 6)
3. For highest channel: 2462MHz(Channel 11)

EUT operating conditions:

The EUT exercise program used during conducted testing was designed to exercise the EUT in a manner similar to typical use, The exercise sequence is listed as below:

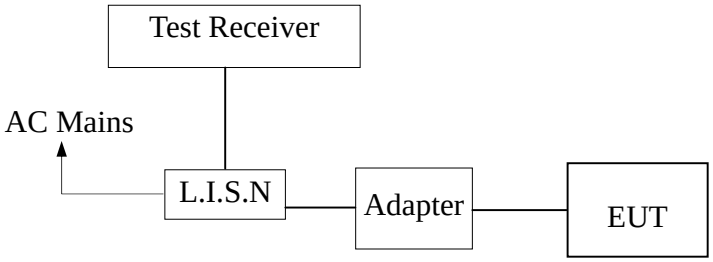
1. Setup the EUT and simulators as shown on 2.4.
2. Turn on the power of all equipments.
3. The EUT Ping with the wireless router.
4. Repeat the above steps.

4. Conducted Emissions Test

4.1 Measurement Procedure:

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

4.2 Test SET-UP (Block Diagram of Configuration)



4.3Conducted Emission Limit

(7) Conducted Emission

Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

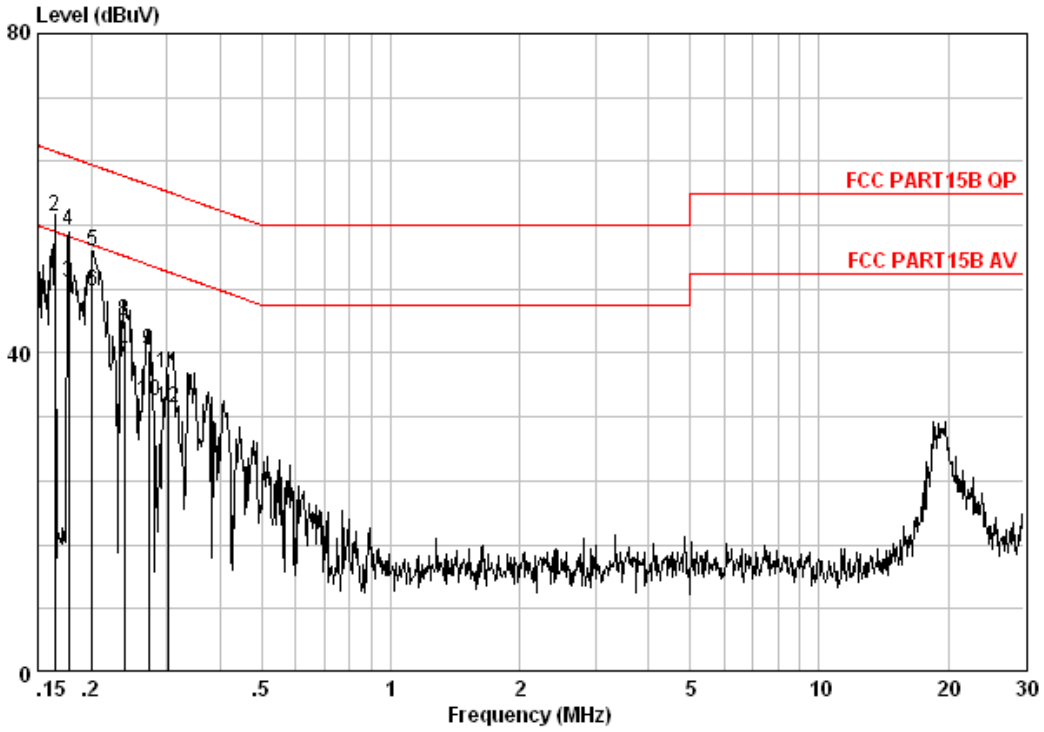
Note:

1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.4 Measurement Result:

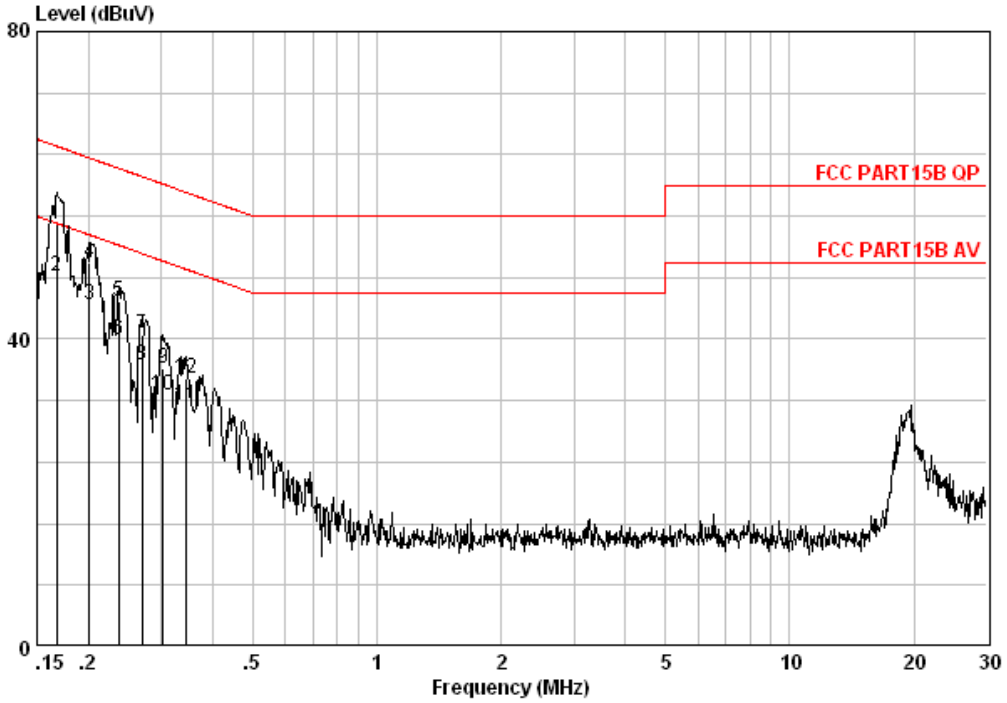
Date of Test:	November 04 2011	Temperature:	22℃
Frequency Detector:	0.15~30MHz	Humidity:	50%
Test Result:	PASS	Test Mode:	Wifi mode

Line:



	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.16414	0.04	9.60	38.74	48.38	55.25	-6.87	Average
2	0.16414	0.04	9.60	47.40	57.04	65.25	-8.21	QP
3	0.17678	0.04	9.60	39.25	48.89	54.64	-5.75	Average
4	0.17678	0.04	9.60	45.77	55.41	64.64	-9.22	QP
5	0.20075	0.04	9.60	43.05	52.69	63.58	-10.89	QP
6	0.20075	0.04	9.60	38.05	47.69	53.58	-5.89	Average
7	0.23910	0.04	9.60	29.09	38.74	52.13	-13.39	Average
8	0.23910	0.04	9.60	34.31	43.95	62.13	-18.17	QP
9	0.27152	0.05	9.60	30.73	40.38	61.07	-20.69	QP
10	0.27152	0.05	9.60	24.34	33.98	51.07	-17.09	Average
11	0.30348	0.05	9.60	27.77	37.42	60.15	-22.73	QP
12	0.30348	0.05	9.60	23.41	33.06	50.15	-17.09	Average

Neutral:



	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.16765	0.04	9.60	45.25	54.89	65.08	-10.19	QP
2	0.16765	0.04	9.60	38.45	48.09	55.08	-6.99	Average
3	0.20075	0.04	9.60	34.85	44.49	53.58	-9.09	Average
4	0.20075	0.04	9.60	40.24	49.88	63.58	-13.70	QP
5	0.23658	0.04	9.60	35.28	44.93	62.22	-17.29	QP
6	0.23658	0.04	9.60	30.15	39.80	52.22	-12.42	Average
7	0.27009	0.05	9.60	30.96	40.61	61.12	-20.51	QP
8	0.27009	0.05	9.60	27.08	36.73	51.12	-14.39	Average
9	0.30348	0.05	9.60	26.62	36.27	60.15	-23.87	QP
10	0.30348	0.05	9.60	22.95	32.60	50.15	-17.55	Average
11	0.34463	0.05	9.60	21.65	31.30	49.09	-17.79	Average
12	0.34463	0.05	9.60	25.14	34.79	59.09	-24.30	QP

4.5 Conducted Measurement Photos:

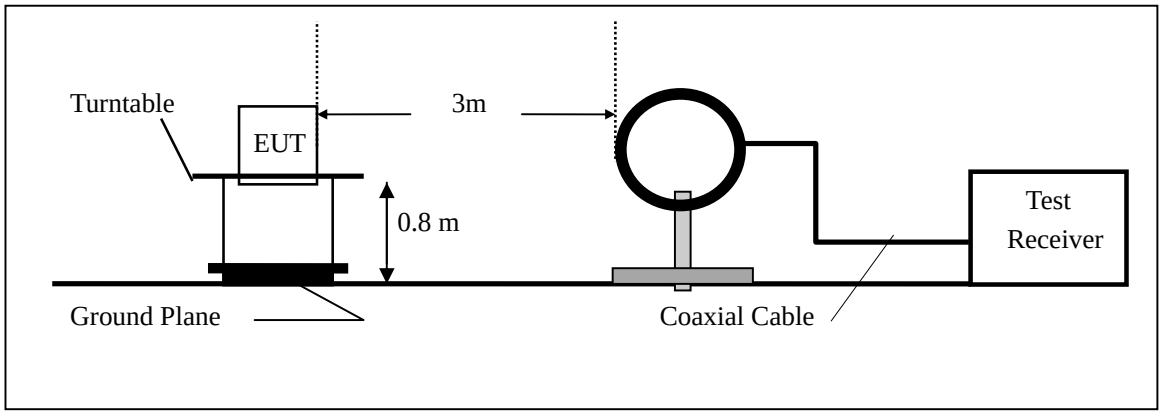
5. Radiated Emission Test

5.1 Measurement Procedure

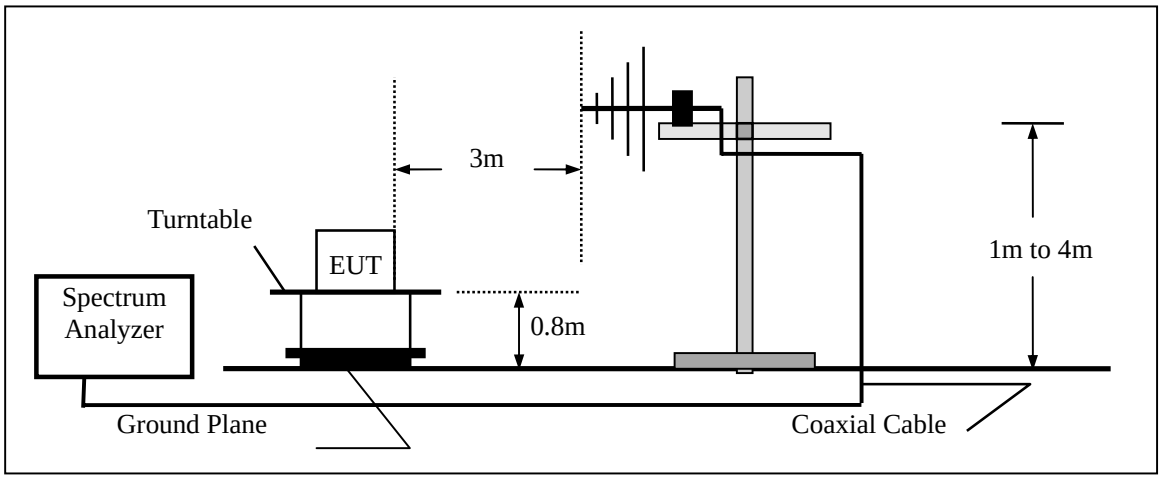
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.

5.2 Test SET-UP (Block Diagram of Configuration)

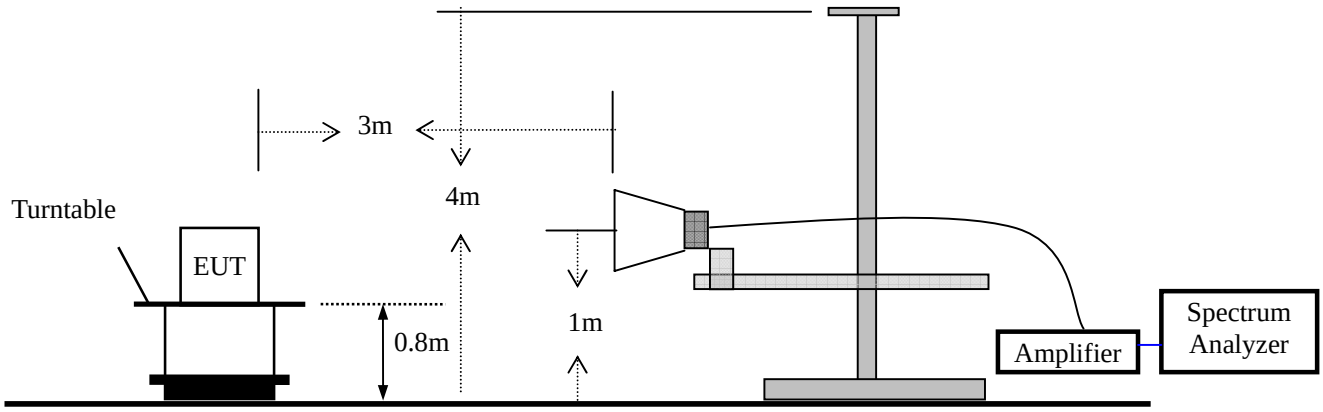
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



5.3 Radiated emission limit

FCC Class B Limit at 3m

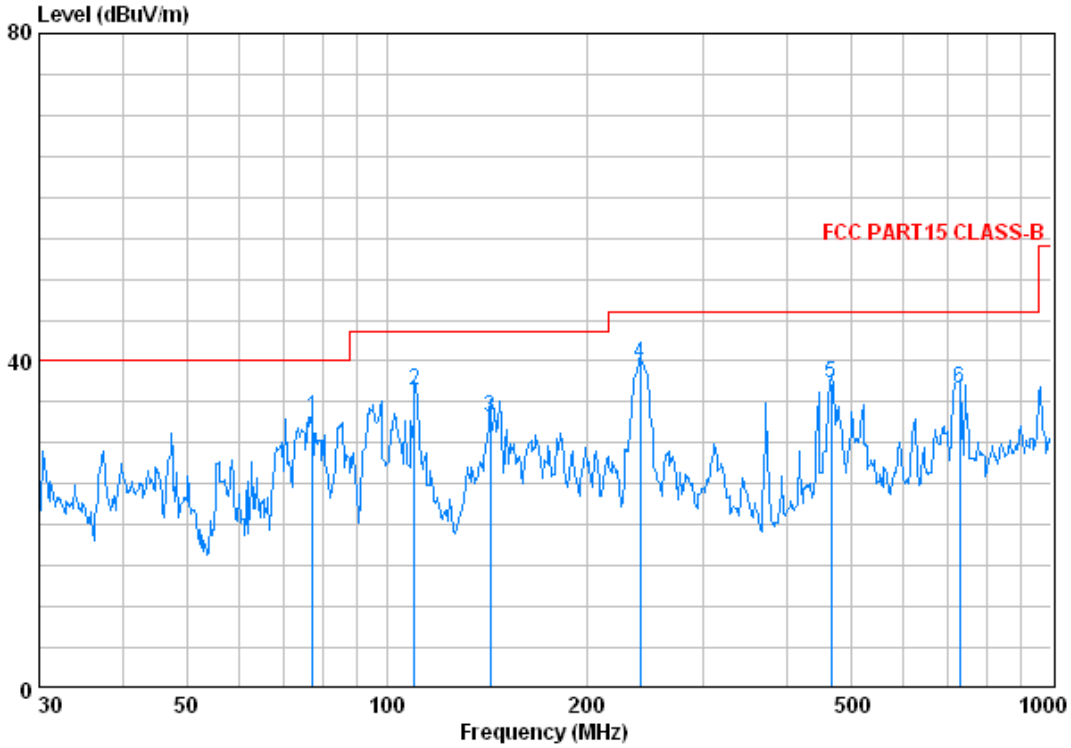
Frequency	Distance	Field Strength	
MHz	Meter	uV/m	dBuV/m
30~88	3	100	40.0
88~216	3	150	43.5
216~960	3	200	46.0
Above 960	3	500	54.0

Note: The frequencies above 1000MHz, as measured using instrumentation with a peak detector function was corresponding to 20dB above maximum permitted average limit.

5.4 Measurement Result

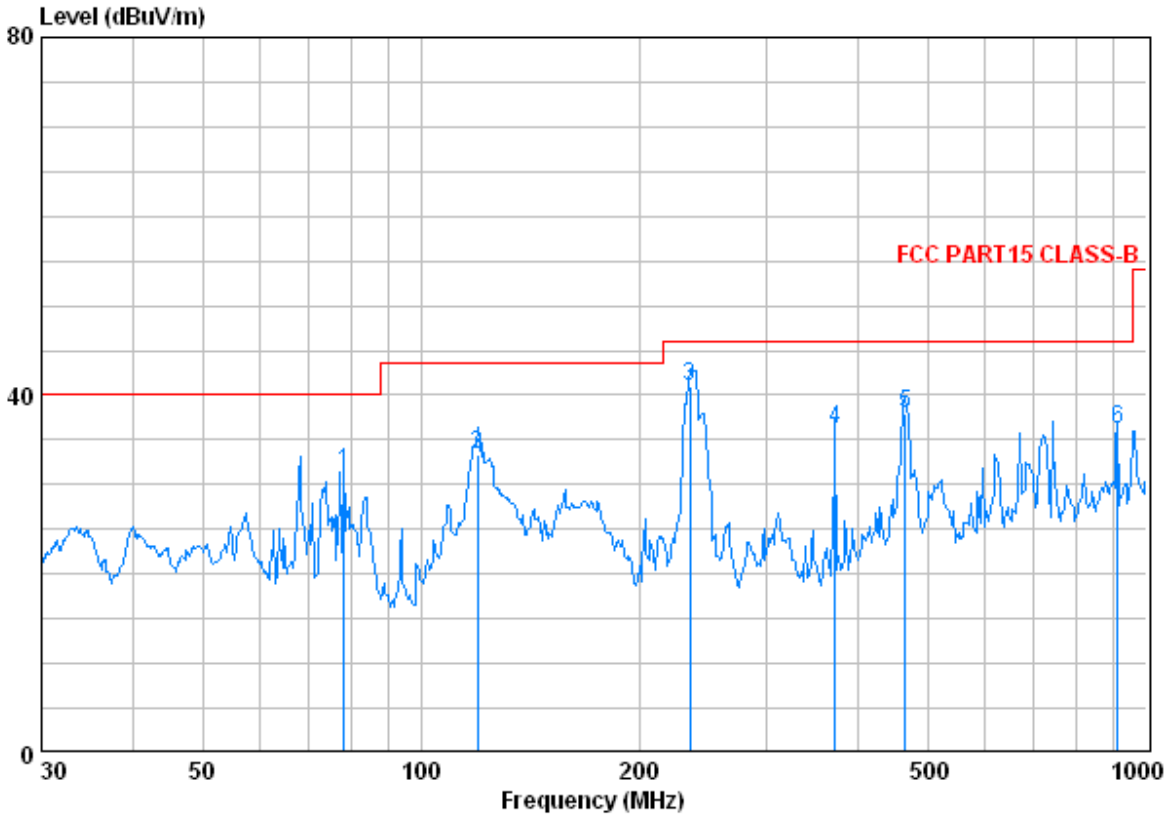
Operation Mode:	Wifi mode	Test Date :	November 09, 2011
Frequency Range:	30~1000MHz	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %
Measured Distance:	3m		

Vertical:



	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	77.321	1.02	7.50	27.23	51.90	33.18	40.00	-6.82
2	110.182	1.23	8.60	27.13	53.72	36.41	43.50	-7.09
3	143.326	1.30	8.38	26.94	50.46	33.22	43.50	-10.28
4	240.830	1.63	12.01	26.56	52.51	39.59	46.00	-6.41
5	467.235	2.48	17.54	27.54	44.81	37.29	46.00	-8.71
6	729.358	2.99	21.61	27.38	39.44	36.66	46.00	-9.34

Horizontal:



	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	78.413	1.05	7.59	27.23	49.99	31.40	40.00	-8.60
2	119.856	1.25	7.90	27.07	51.24	33.32	43.50	-10.18
3	234.991	1.60	11.81	26.58	54.07	40.90	46.00	-5.10
4	372.005	2.12	15.94	26.95	45.15	36.26	46.00	-9.74
5	465.599	2.47	17.48	27.52	45.42	37.85	46.00	-8.15
6	912.862	3.61	23.25	26.71	35.99	36.14	46.00	-9.86

Remark: the data above is tested with QP detector mode.

Operation Mode: 802.11b TX Channel 1 Test Date : November 09, 2011
Frequency Range: Above 1GHz Temperature : 28 ℃
Test Result: PASS Humidity : 65 %
Measured Distance: 3m

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m) PK	Emission Level(dBuV/m) AV	Limit 3m(dBuV/m) PK	Limit 3m(dBuV/m) AV	Margin(dB) PK	Margin(dB) AV
1673	V	52.63	40.85	74	54	-21.37	-13.15
2036	V	48.57	39.41	74	54	-25.43	-14.59
3721	V	43.07	32.79	74	54	-30.93	-21.21
4824	V	57.86	49.32	74	54	-16.14	-4.68
7236	V	53.19	46.40	74	54	-20.81	-7.60
7850	V	49.18	42.94	74	54	-24.82	-11.06
1673	H	50.32	39.87	74	54	-23.68	-14.13
1864	H	53.58	44.79	74	54	-20.42	-9.21
2319	H	49.86	37.04	74	54	-24.14	-16.96
2753	H	48.70	40.15	74	54	-25.30	-13.85
4824	H	55.27	49.03	74	54	-18.73	-4.97
7236	H	50.59	44.62	74	54	-23.41	-9.38

Operation Mode: 802.11b(Channel 6) Test Date : November 09, 2011
Frequency Range: Above 1GHz Temperature : 28 ℃
Test Result: PASS Humidity : 65 %
Measured Distance: 3m Test By:

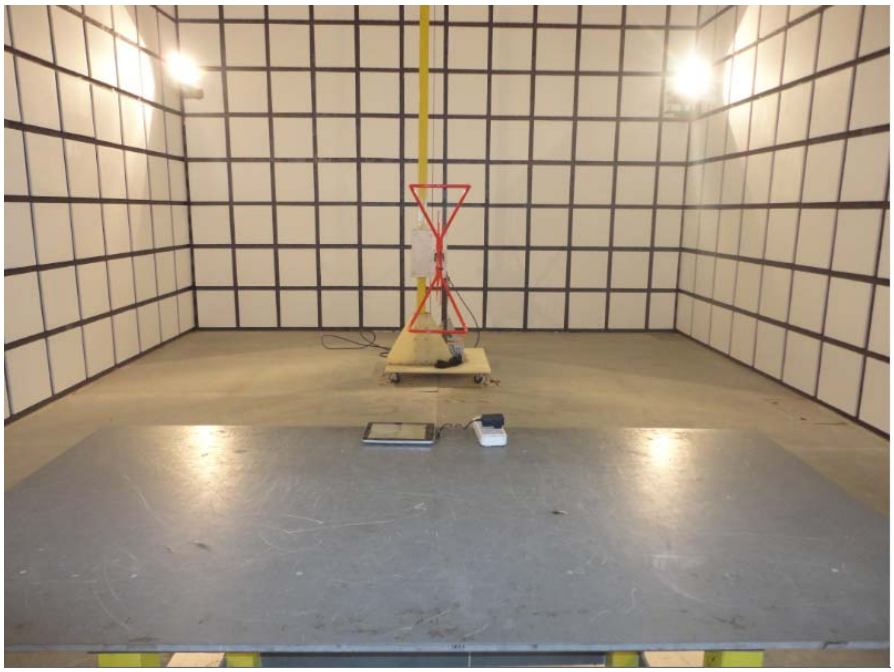
Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m) PK	Emission Level(dBuV/m) AV	Limit 3m(dBuV/m) PK	Limit 3m(dBuV/m) AV	Margin(dB) PK	Margin(dB) AV
1630	V	49.67	40.06	74	54	-24.33	-13.94
2971	V	50.23	40.82	74	54	-23.77	-13.18
3599	V	49.58	41.26	74	54	-24.42	-12.74
4357	V	46.47	37.95	74	54	-27.53	-16.05
4874	V	55.35	49.18	74	54	-18.65	-4.82
7311	V	53.07	46.91	74	54	-20.93	-7.09
1750	H	52.31	43.84	74	54	-21.69	-10.16
3562	H	50.72	39.69	74	54	-23.28	-14.31
4874	H	56.43	48.32	74	54	-17.57	-5.68
5260	H	50.57	41.60	74	54	-23.43	-12.40
5847	H	46.25	37.08	74	54	-27.75	-16.92
7311	H	51.49	43.51	74	54	-22.51	-10.49

Operation Mode:	802.11b(Channel 11)	Test Date :	November 09, 2011
Frequency Range:	Above 1GHz	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %
Measured Distance:	3m	Test By:	

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m) PK	Emission Level(dBuV/m) AV	Limit 3m(dBuV/m) PK	Limit 3m(dBuV/m) AV	Margin(dB) PK	Margin(dB) AV
1673	V	53.46	42.19	74	54	-20.54	-11.81
2173	V	50.77	41.30	74	54	-23.23	-12.70
2967	V	52.76	42.14	74	54	-21.24	-11.86
4924	V	57.49	49.87	74	54	-16.51	-4.13
5260	V	51.62	42.59	74	54	-22.38	-11.41
7386	V	54.34	46.35	74	54	-19.66	-7.65
2091	H	49.56	38.74	74	54	-24.44	-15.26
2967	H	53.40	43.79	74	54	-20.60	-10.21
4924	H	58.68	50.25	74	54	-15.32	-3.75
5260	H	52.63	44.52	74	54	-21.37	-9.48
7386	H	53.41	45.73	74	54	-20.59	-8.27
9848	H	53.66	37.85	74	54	-20.34	-16.15

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) Pre-scan the EUT in 802.11b and 802.11g modes and find out the worse case is 802.11b mode, Only the worse case data was displayed.

5.5 Radiated Measurement Photos:

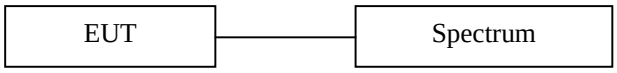


6. Occupied Bandwidth test

6.1 Measurement Procedure

The EUT was operating in IEEE 802.11b/g mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

6.2 Test SET-UP (Block Diagram of Configuration)



6.3 Measurement Equipment Used:

Same as 4.3 Radiated Emission Measurement.

6.4 Limit

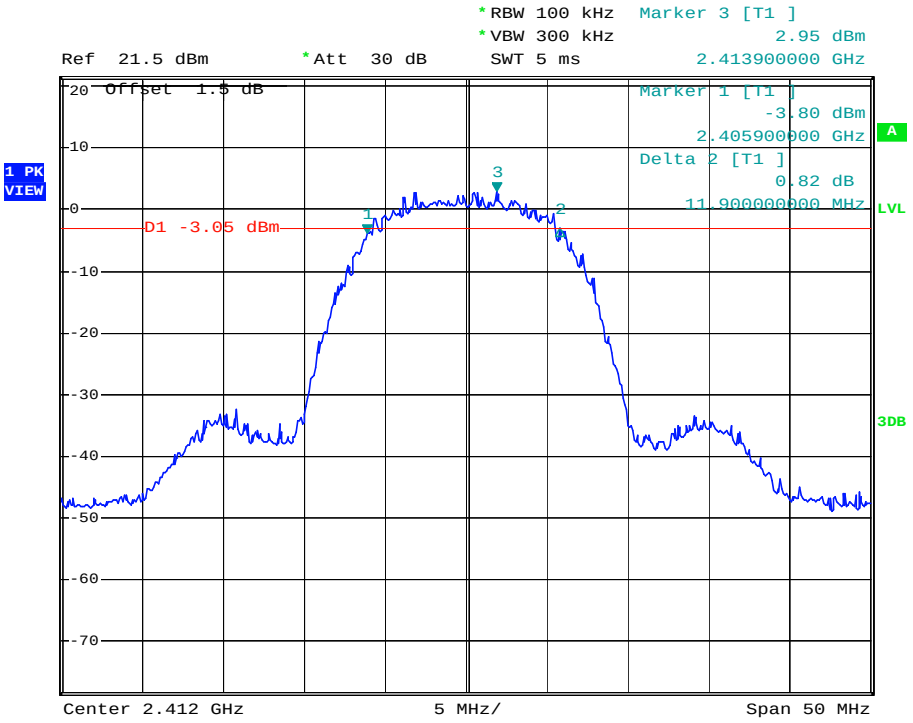
The minimum 6dB bandwidth shall be at least 500kHz.

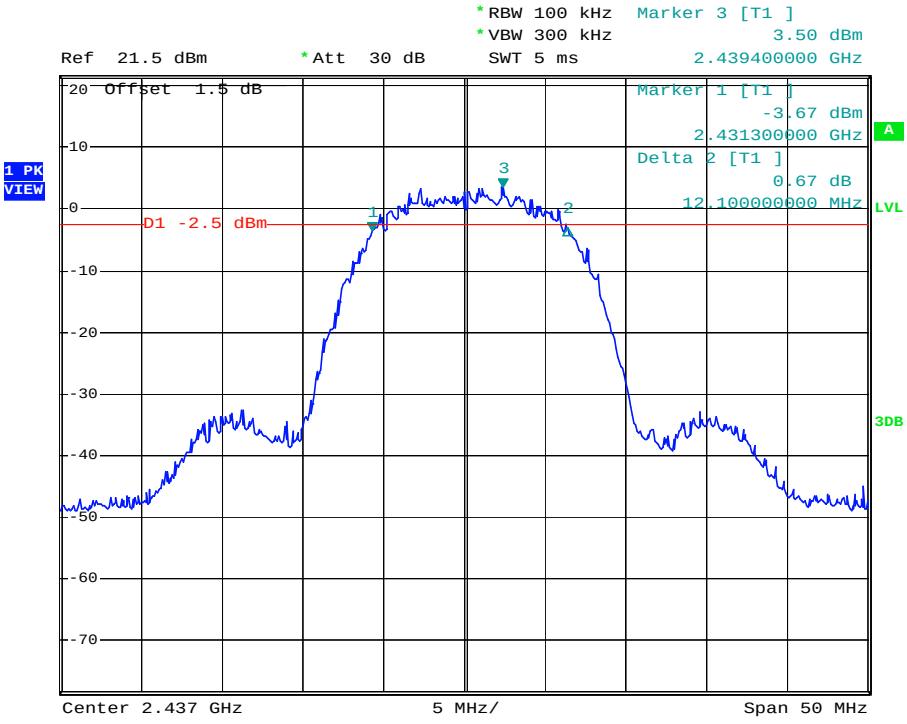
6.5 Measurement Results:

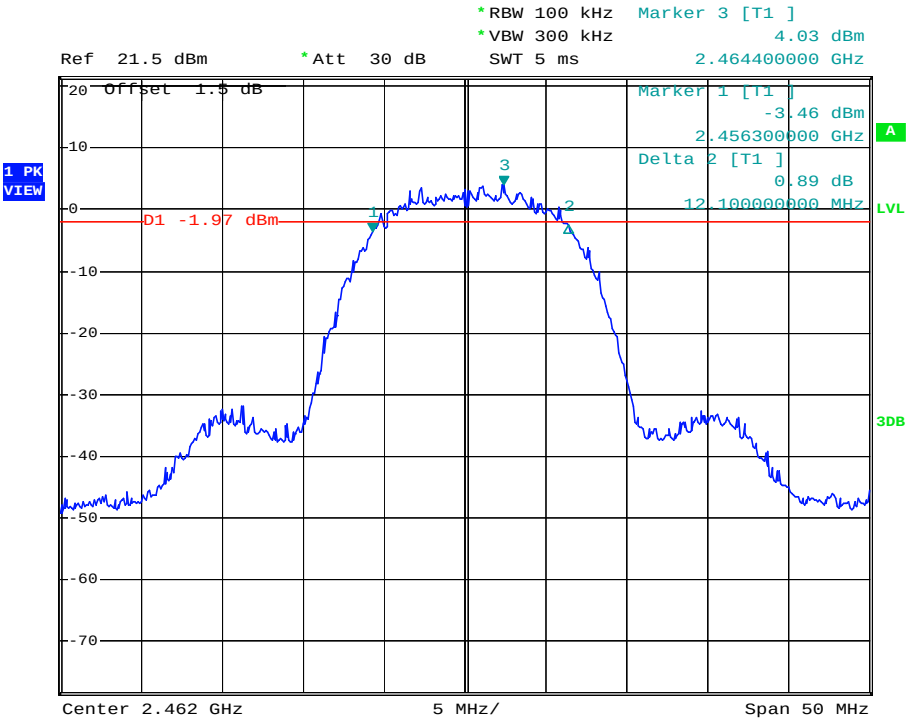
Refer to attached data chart.

Spectrum Detector:	PK	Test Date :	November 08, 2011
Operation Mode:	802.11 b	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %

Channel number	Channel frequency (MHz)	Measurement level (MHz)	Required Limit (KHz)
1	2412	11.9	>500
6	2437	12.1	>500
11	2462	12.1	>500

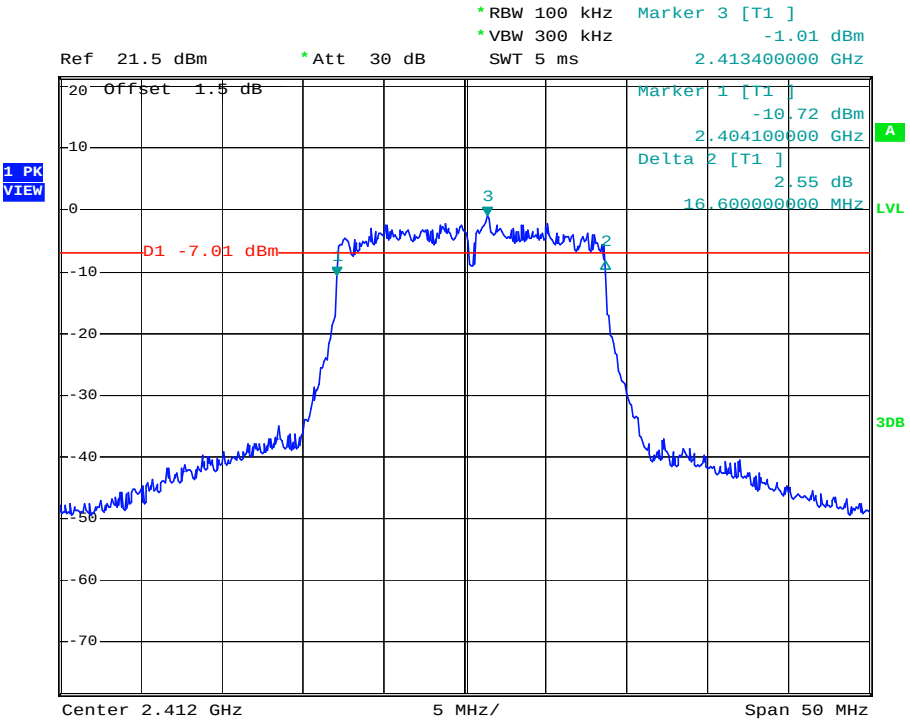

*RBW 100 kHz
*VBW 300 kHz
Ref 21.5 dBm
*Att 30 dB
SWT 5 ms
Marker 3 [T1]
2.95 dBm
2.413900000 GHz
Offset 1.5 dB
Marker 1 [T1]
-3.80 dBm
2.405900000 GHz
Delta 2 [T1]
0.82 dB
11.900000000 MHz
1 PK VIEW
D1 -3.05 dBm
A
LVL
3DB
Center 2.412 GHz
5 MHz/
Span 50 MHz

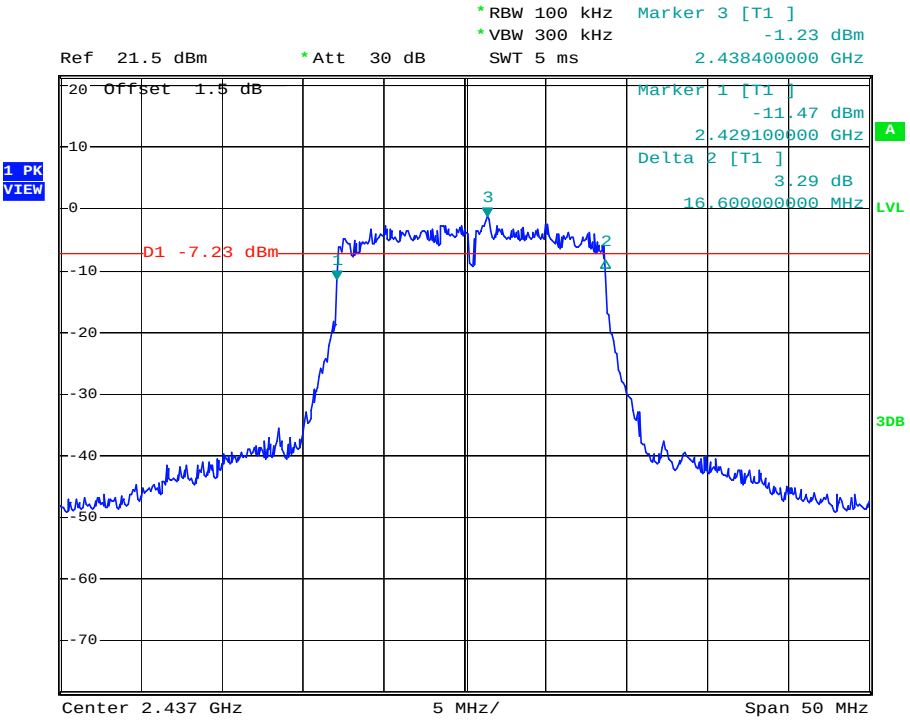

*RBW 100 kHz
*VBW 300 kHz
Ref 21.5 dBm
*Att 30 dB
SWT 5 ms
Marker 3 [T1]
3.50 dBm
2.439400000 GHz
Offset 1.5 dB
Marker 1 [T1]
-3.67 dBm
2.431300000 GHz
Delta 2 [T1]
0.67 dB
12.100000000 MHz
1 PK VIEW
D1 -2.5 dBm
A
LVL
3DB
Center 2.437 GHz
5 MHz/
Span 50 MHz

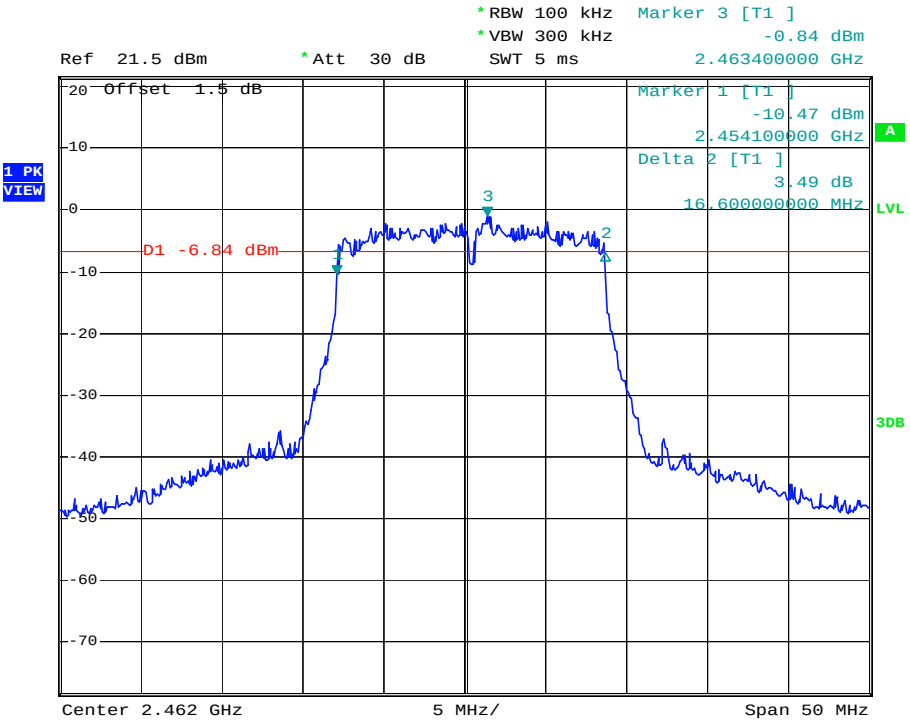


Spectrum Detector:	PK	Test Date :	November 08, 2011
Operation Mode:	802.11 g	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %

Channel number	Channel frequency (MHz)	Measurement level (MHz)	Required Limit (KHz)
1	2412	16.60	>500
6	2437	16.60	>500
11	2462	16.60	>500


*RBW 100 kHz
*VBW 300 kHz
Ref 21.5 dBm
*Att 30 dB
SWT 5 ms
Marker 3 [T1]
-1.01 dBm
2.413400000 GHz
Offset 1.5 dB
Marker 1 [T1]
-10.72 dBm
2.404100000 GHz
Delta 2 [T1]
2.55 dB
16.600000000 MHz
1 PK
VIEW
A
LVL
3DB
D1 -7.01 dBm
Center 2.412 GHz
5 MHz/
Span 50 MHz


*RBW 100 kHz
*VBW 300 kHz
Ref 21.5 dBm
*Att 30 dB
SWT 5 ms
Marker 3 [T1]
-1.23 dBm
2.438400000 GHz
Offset 1.5 dB
Marker 1 [T1]
-11.47 dBm
2.429100000 GHz
Delta 2 [T1]
3.29 dB
16.600000000 MHz
1 PK
VIEW
A
LVL
3DB
D1 -7.23 dBm
Center 2.437 GHz
5 MHz/
Span 50 MHz

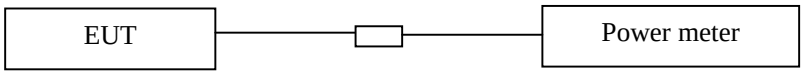

*RBW 100 kHz
*VBW 300 kHz
SWT 5 ms
Marker 3 [T1]
-0.84 dBm
2.463400000 GHz
Ref 21.5 dBm
*Att 30 dB
Offset 1.5 dB
Marker 1 [T1]
-10.47 dBm
2.454100000 GHz
Delta 2 [T1]
3.49 dB
16.600000000 MHz
1 PK
VIEW
A
LVL
3DB
D1 -6.84 dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
Center 2.462 GHz
5 MHz/
Span 50 MHz

7. MAX IMUM PEAK OUTPUT POWER TEST

7.1 Measurement Procedure

a. The Transmitter output (antenna port) was connected to the power meter.
b. Turn on the EUT and power meter and then record the peak power value.
c. Repeat above procedures on all channels needed to be tested.

7.2 Test SET-UP (Block Diagram of Configuration)



7.3 Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Power meter	Boonton	4232A	29001	11/28/2010	11/28/2011
Power sensor	Boonton	51011-EMC	31184	11/28/2010	11/28/2011

7.4 Peak Power output limit

The maximum peak power shall be less 1Watt.

7.5 Measurement Results:

Spectrum Detector:	PK	Test Date :	November 08, 2011
Operation Mode:	802.11b	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %

Channel number	Channel Frequency (MHz)	Peak Power output(dBm)	Peak Power Limit(W)	Pass/Fail
1	2412.00	11.53	1W(30dBm)	PASS
6	2437.00	10.37	1W(30dBm)	PASS
11	2462.00	10.03	1W(30dBm)	PASS

Spectrum Detector:	PK	Test Date :	November 08, 2011
Test By:	Andy	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %
Operation Mode: 802.11g			

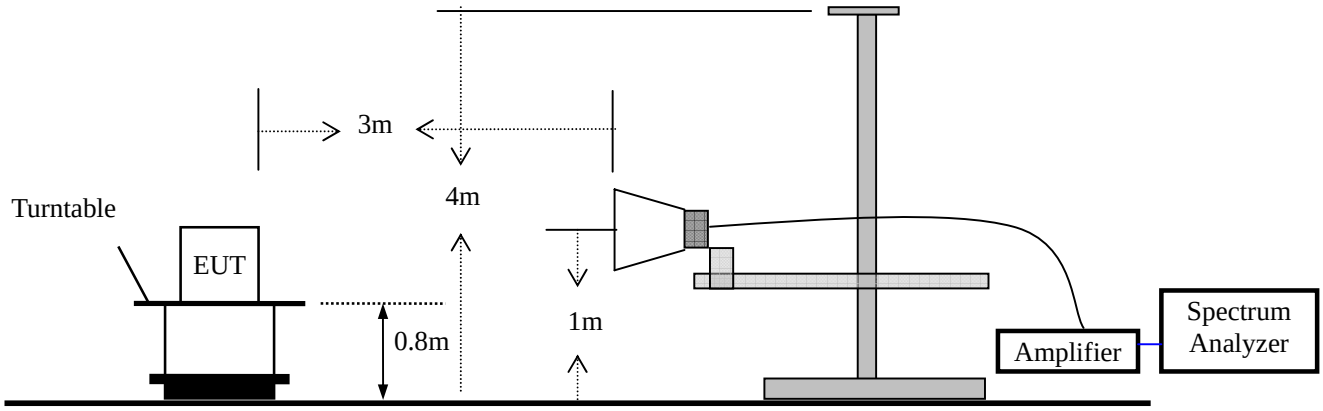
Channel number	Channel Frequency (MHz)	Peak Power output(dBm)	Peak Power Limit(W)	Pass/Fail
1	2412.00	10.14	1W(30dBm)	PASS
6	2437.00	9.88	1W(30dBm)	PASS
11	2462.00	9.52	1W(30dBm)	PASS

8. Band EDGE test

8.1 Measurement Procedure

1. The EUT was Operating in hopping mode or could be controlled its channel. Printed out test result from the spectrum by hard copy function.
2. The EUT was placed on a turn table which is 0.8m above ground plane.
3. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
4. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
5. Repeat above procedures until all frequency measured were complete.

8.2 Test SET-UP (Block Diagram of Configuration)



8.3 Measurement Equipment Used:

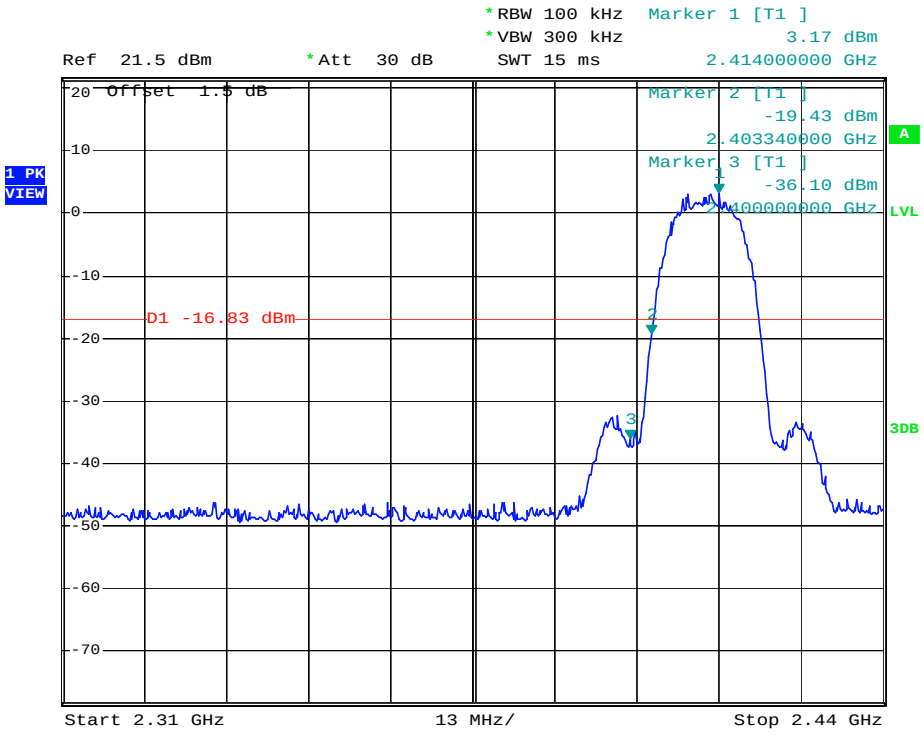
Same as 4.3 Radiated Emission Measurement.

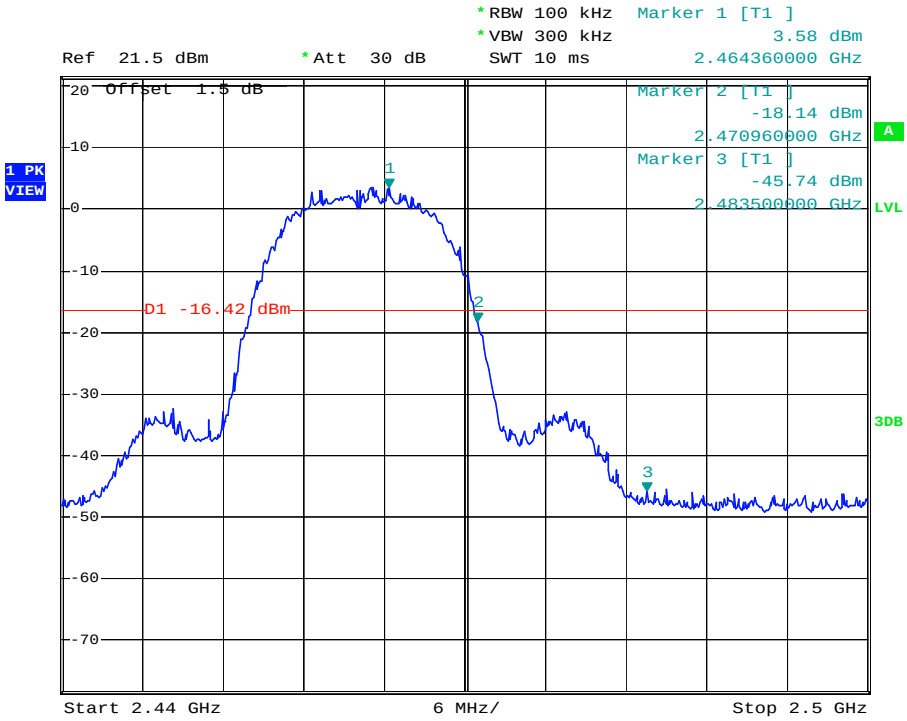
8.4 Measurement Results:

Refer to attached data chart.

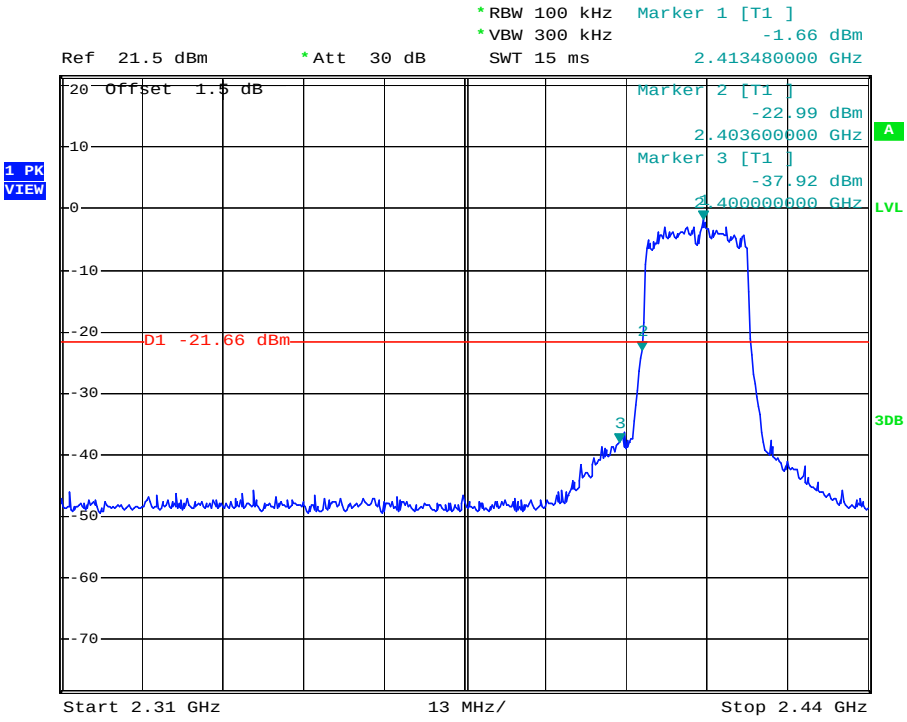
8.4.1.Conducted Test

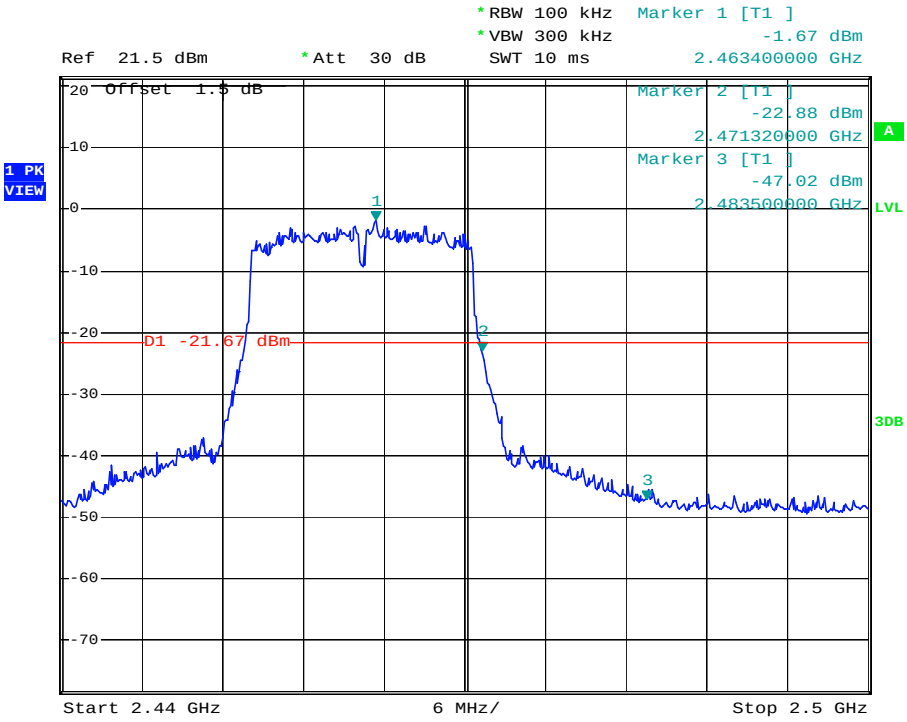
Spectrum Detector:	PK	Test Date :	November 08, 2011
Operation Mode:	802.11b	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %





Spectrum Detector:	PK	Test Date :	November 08, 2011
Operation Mode:	802.11g	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %

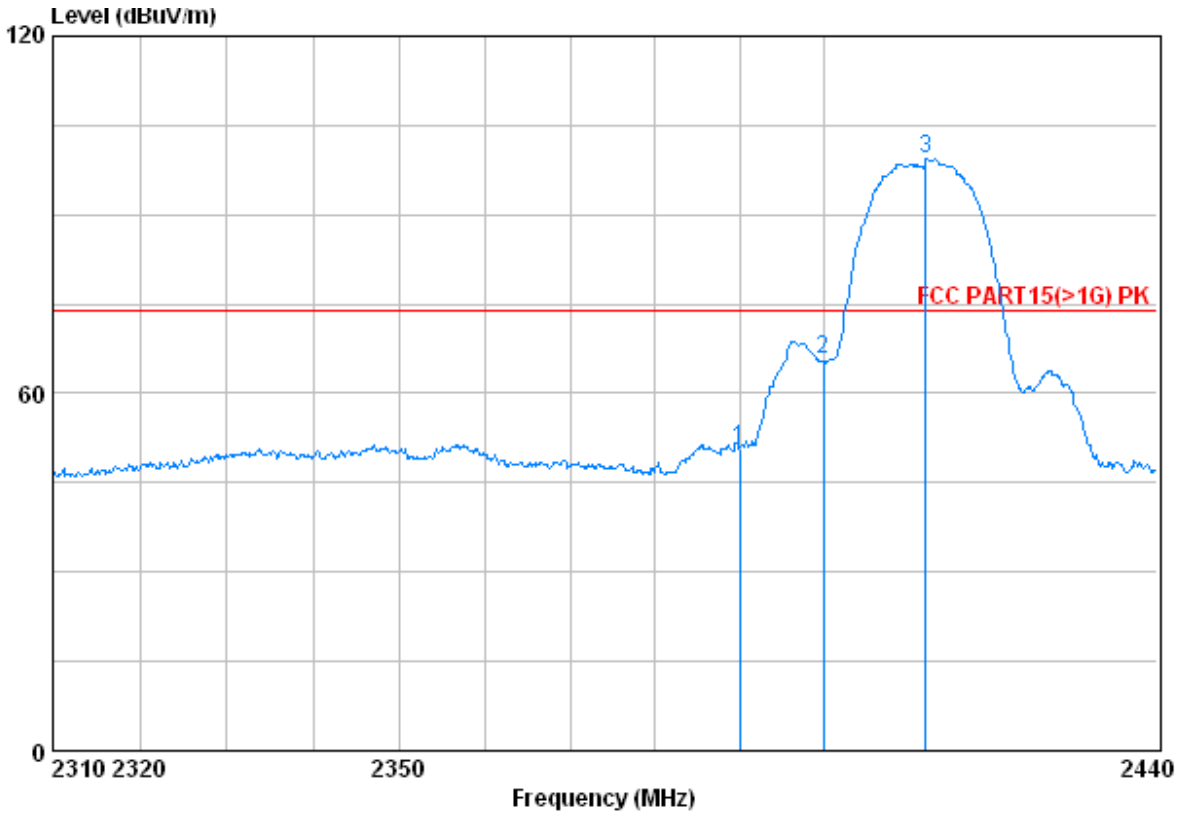



*RBW 100 kHz
*VBW 300 kHz
SWT 10 ms
Marker 1 [T1]
-1.67 dBm
2.463400000 GHz
Ref 21.5 dBm
*Att 30 dB
Offset 1.5 dB
Marker 2 [T1]
-22.88 dBm
2.471320000 GHz
Marker 3 [T1]
-47.02 dBm
2.483500000 GHz
1 PK
VIEW
A
LVL
3DB
D1 -21.67 dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
Start 2.44 GHz
6 MHz/
Stop 2.5 GHz

8.4.2. Radiated Test

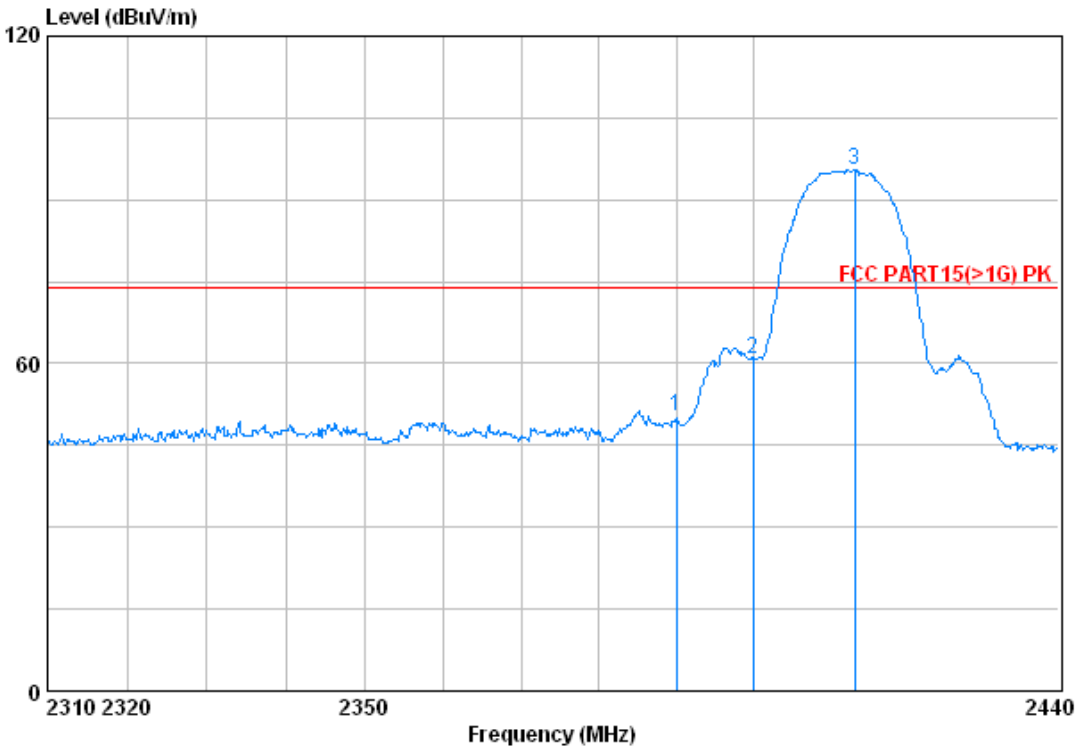
Spectrum Detector:	PK	Test Date :	November 07, 2011
Operation Mode:	802.11b	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %

Vertical:



	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	2.98	32.51	39.85	55.00	50.65	74.00	-23.35	Peak
2	2400.000	2.98	32.51	39.86	70.00	65.63	74.00	-8.37	Peak
3 @	2412.180	2.99	32.54	39.86	103.71	99.38	74.00	25.38	Peak

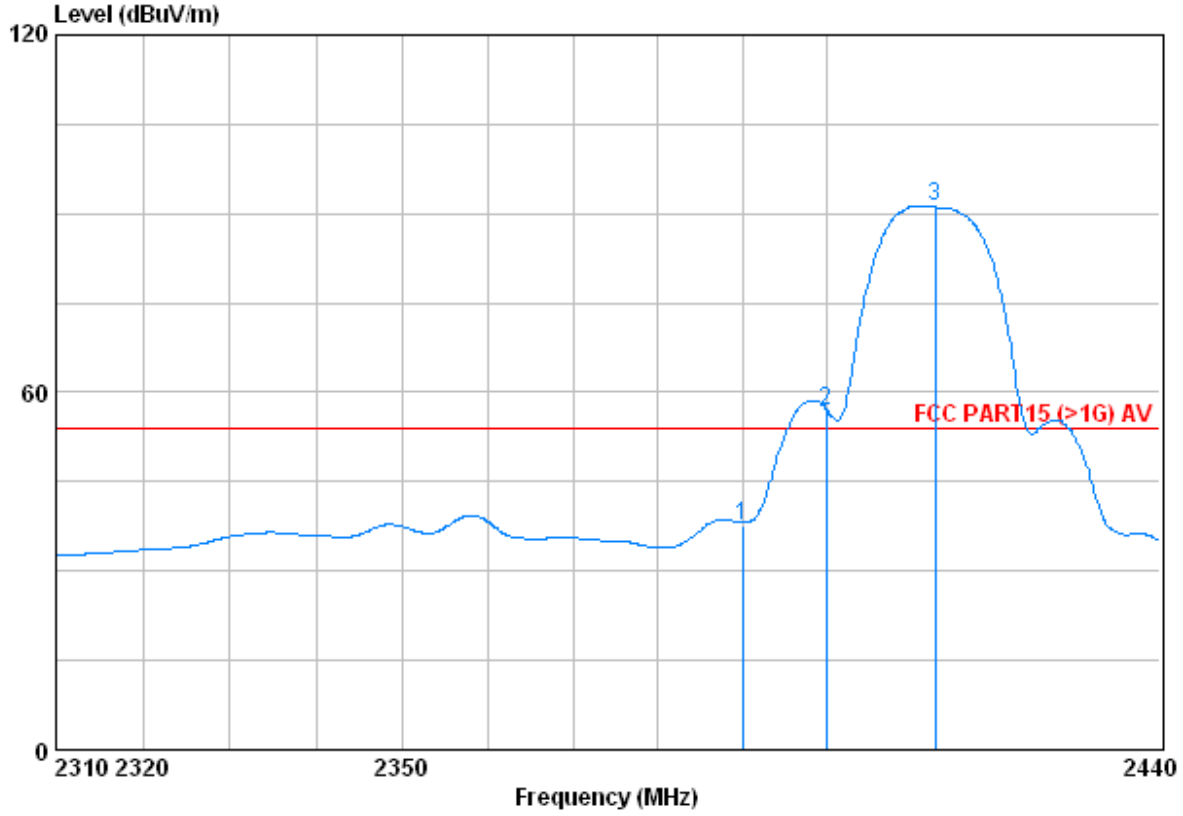
Horizontal:



	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	2.98	32.51	39.85	54.84	50.49	74.00	-23.51	Peak
2	2400.000	2.98	32.51	39.86	65.26	60.90	74.00	-13.10	Peak
3 @	2413.220	2.99	32.54	39.86	99.91	95.58	74.00	21.58	Peak

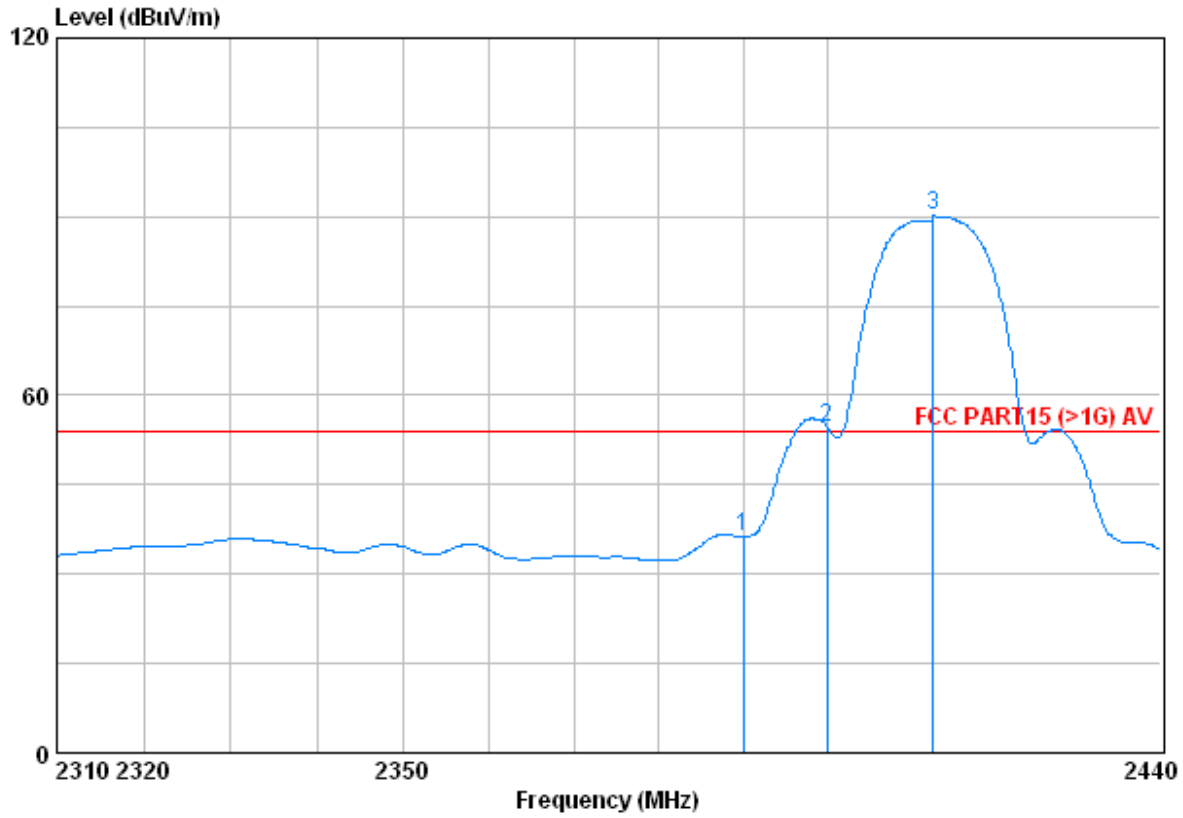
Spectrum Detector:	Average	Test Date :	November 07, 2011
Operation Mode:	802.11b	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %

Vertical:



		Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
		MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1		2390.000	2.98	32.51	39.85	42.00	37.65	54.00	-16.35	Average
2	X	2400.000	2.98	32.51	39.86	61.34	56.98	54.00	2.98	Average
3	@	2412.960	2.99	32.54	39.86	95.42	91.10	54.00	37.10	Average

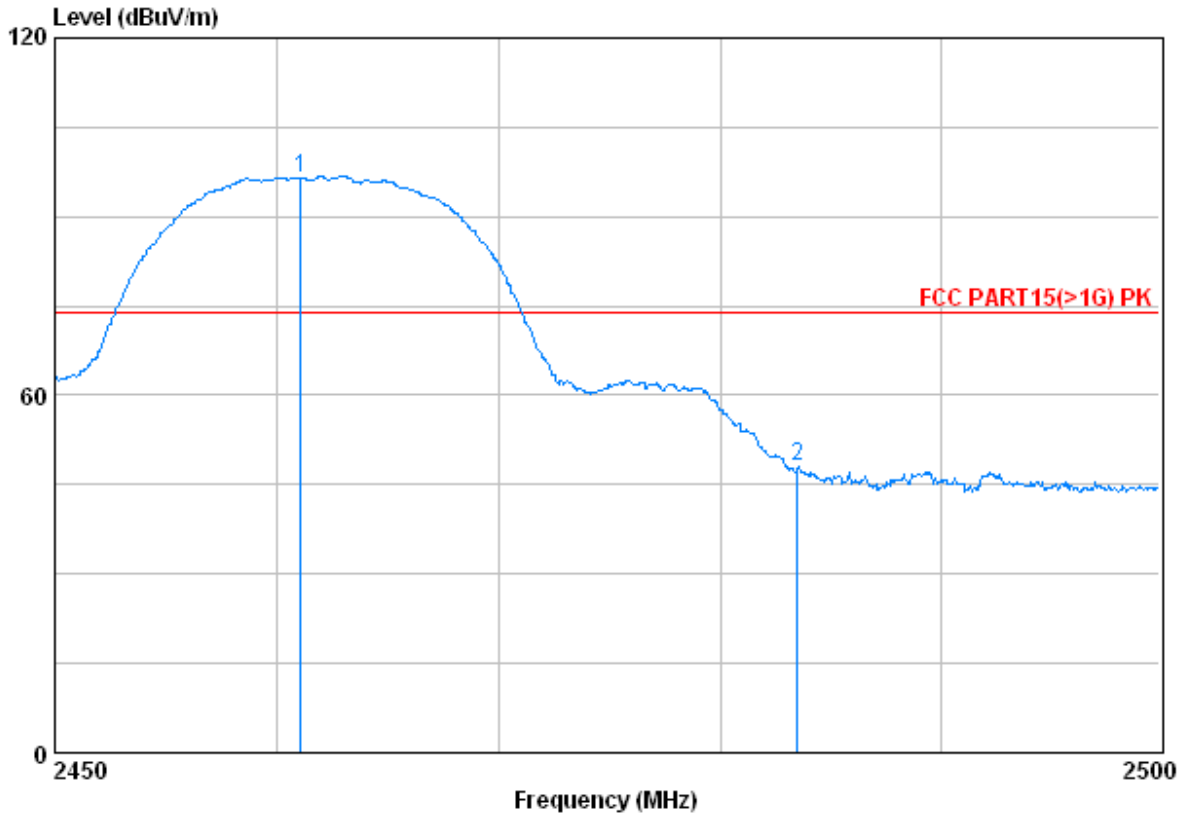
Horizontal:



		Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
		MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1		2390.000	2.98	32.51	39.85	40.61	36.25	54.00	-17.75	Average
2	X	2400.000	2.98	32.51	39.86	59.00	54.63	54.00	0.63	Average
3	@	2412.700	2.99	32.54	39.86	94.45	90.13	54.00	36.13	Average

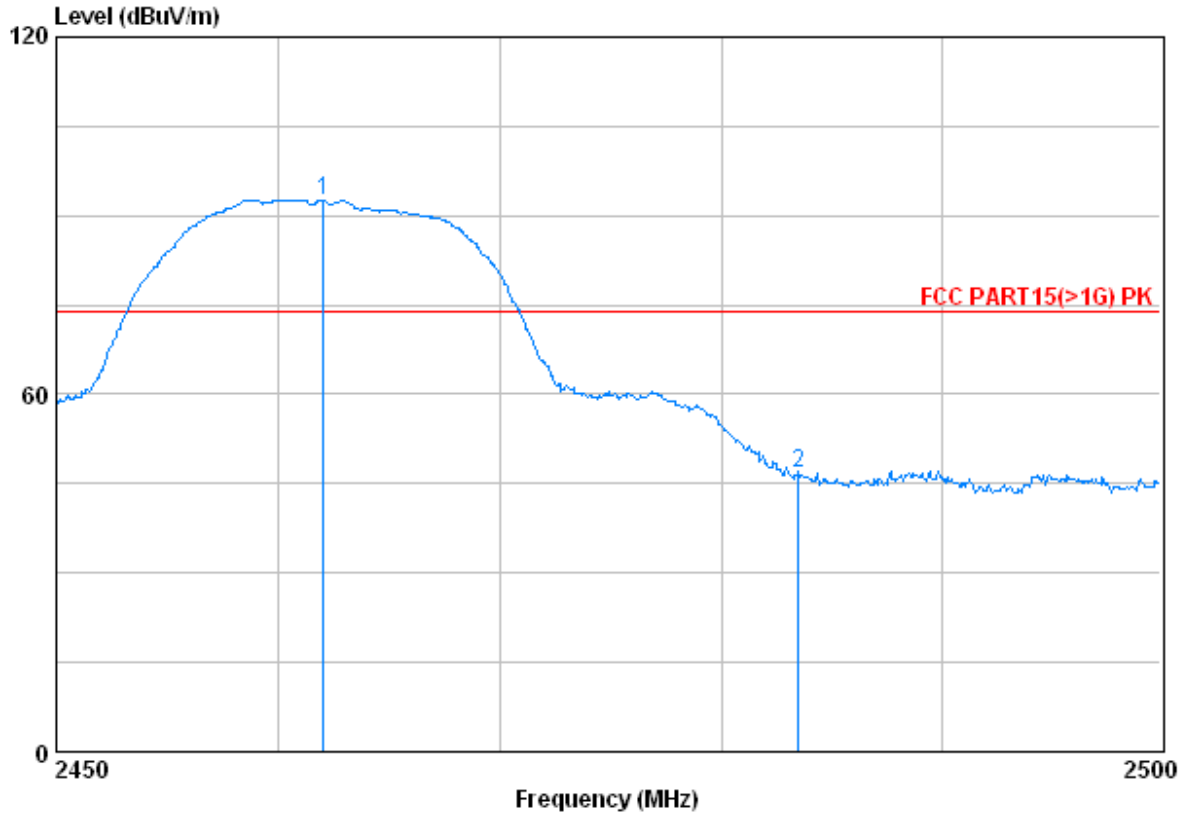
Spectrum Detector:	PK	Test Date :	November 07, 2011
Operation Mode:	802.11g	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %

Vertical:



	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 @	2461.050	3.02	32.64	39.91	100.69	96.44	74.00	22.44	Peak
2	2483.500	3.03	32.67	39.92	52.24	48.02	74.00	-25.98	Peak

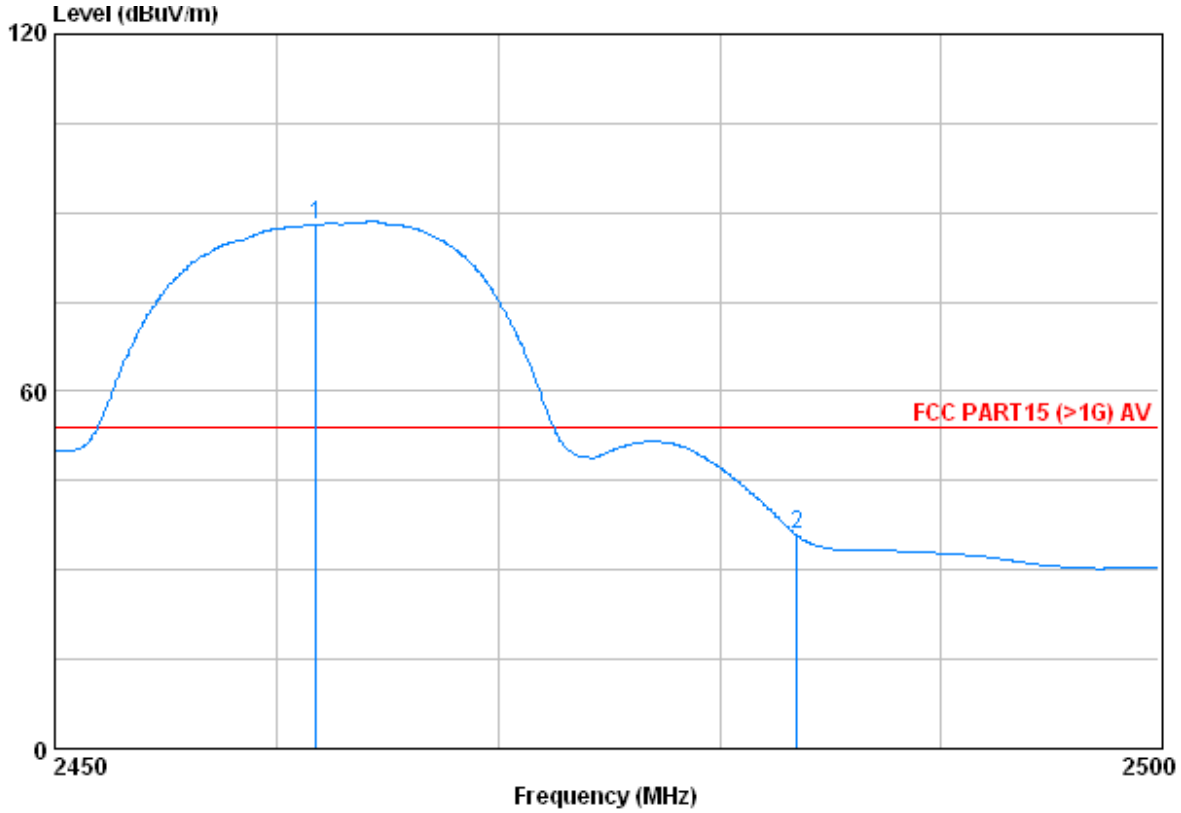
Horizontal:



		Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
		MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	X	2462.000	3.02	32.64	39.91	96.72	92.47	74.00	18.47	Peak
2		2483.500	3.03	32.67	39.92	51.00	46.78	74.00	-27.22	Peak

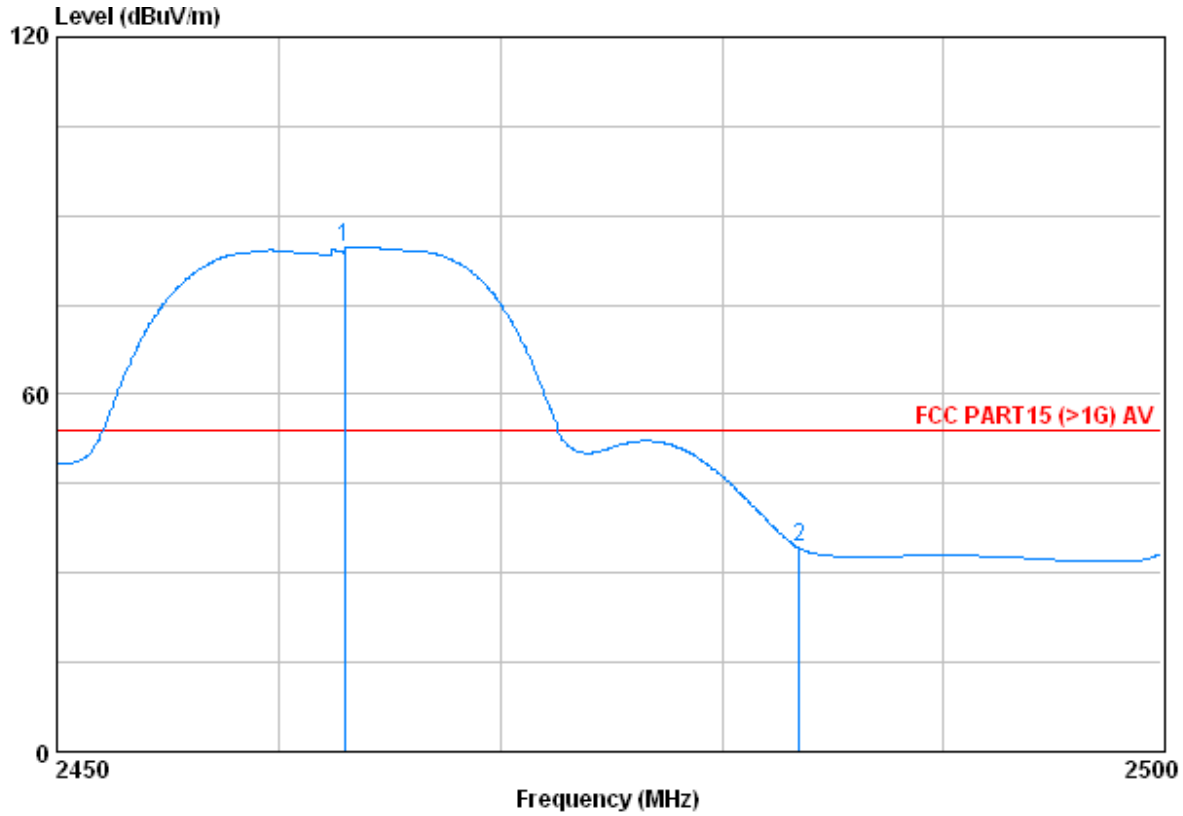
Spectrum Detector:	Average	Test Date :	November 07, 2011
Operation Mode:	802.11g	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %

Vertical:



	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 @	2461.750	3.02	32.64	39.91	92.35	88.10	54.00	34.10	Average
2	2483.500	3.03	32.67	39.92	40.17	35.95	54.00	-18.05	Average

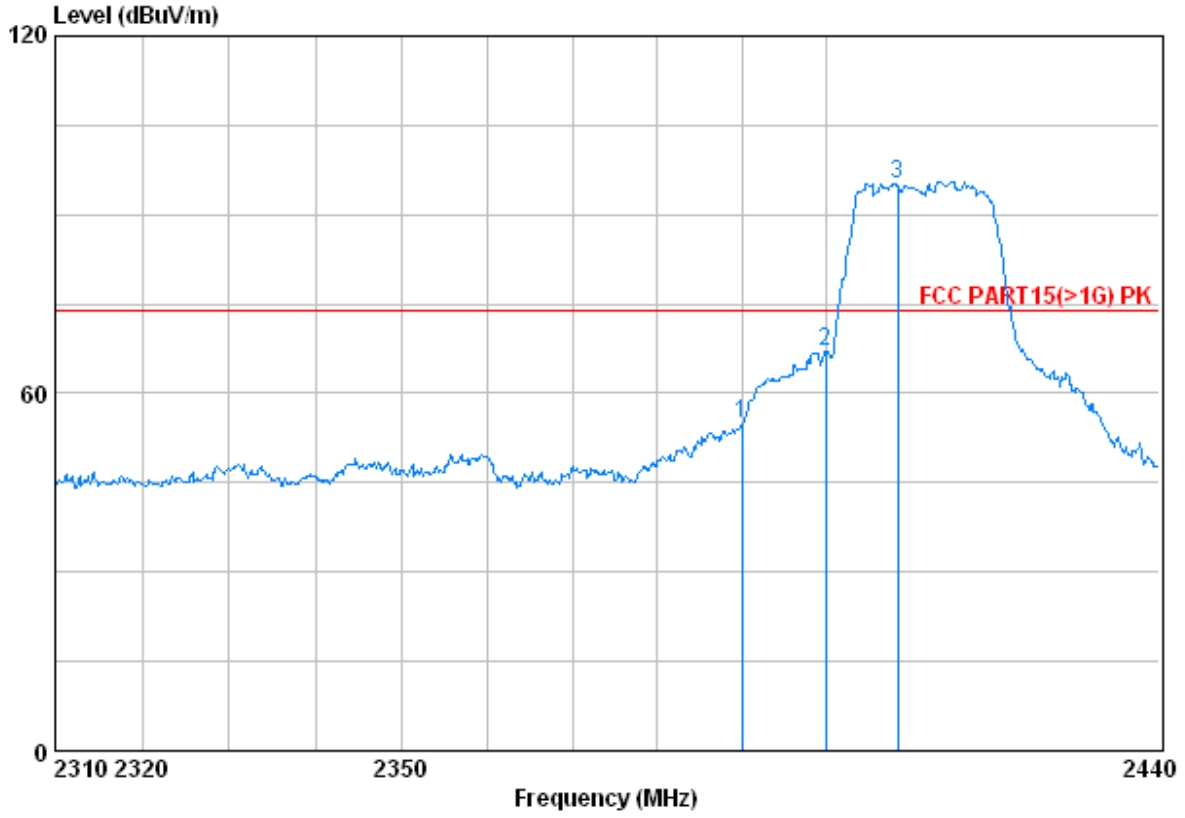
Horizontal:



	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 @	2462.950	3.02	32.64	39.91	89.07	84.82	54.00	30.82	Average
2	2483.500	3.03	32.67	39.92	38.49	34.27	54.00	-19.73	Average

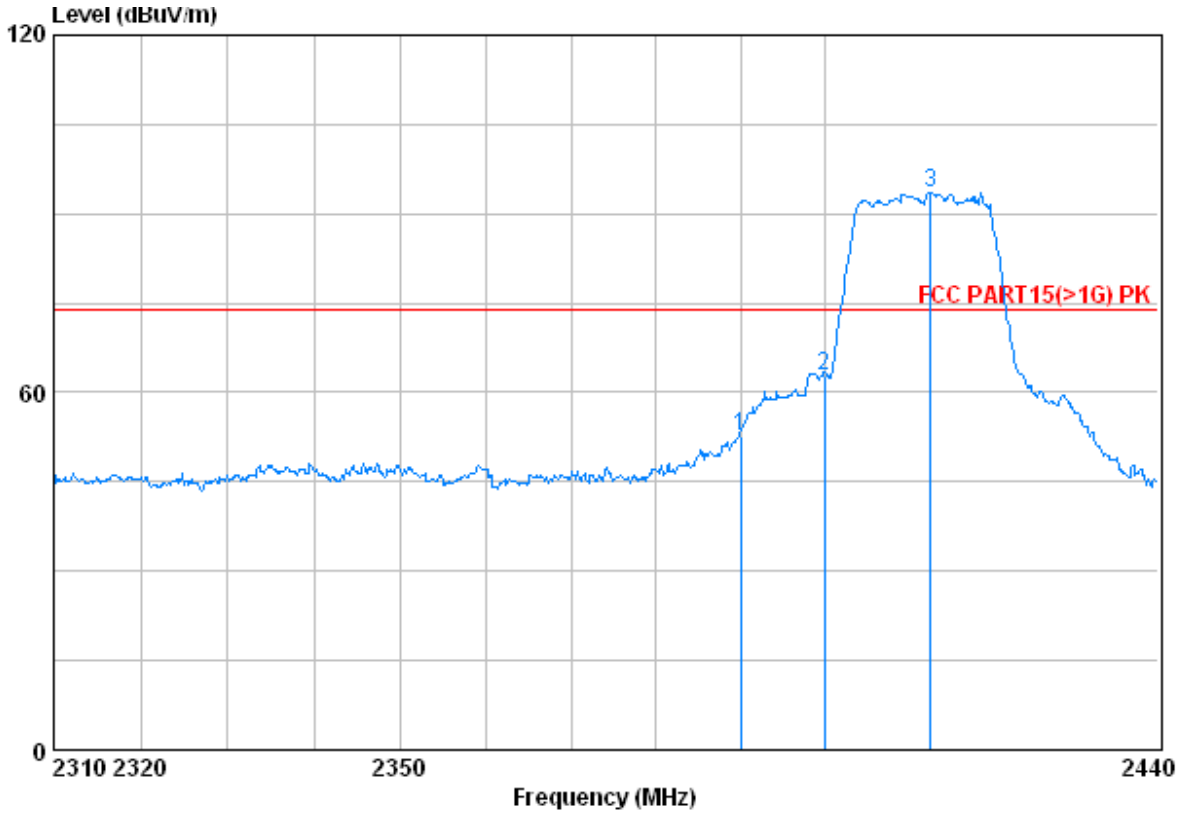
Test mode:	802.11g	Test channel:	Lowest	Remark:	Peak

Vertical:



	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	2.98	32.51	39.85	59.15	54.79	74.00	-19.21	Peak
2	2400.000	2.98	32.51	39.86	71.41	67.04	74.00	-6.96	Peak
3 X	2408.540	2.99	32.54	39.86	99.54	95.22	74.00	21.22	Peak

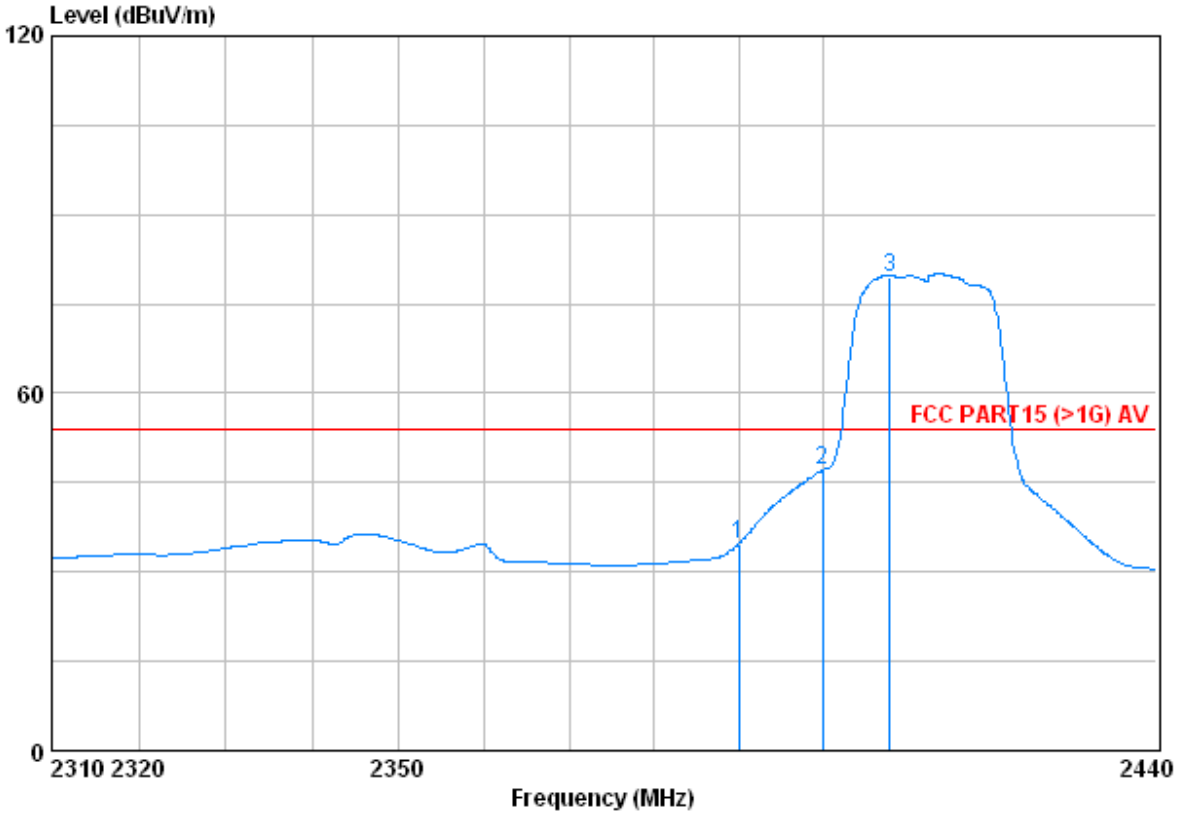
Horizontal:



		Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
		MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1		2390.000	2.98	32.51	39.85	56.90	52.55	74.00	-21.45	Peak
2		2400.000	2.98	32.51	39.86	67.01	62.64	74.00	-11.36	Peak
3	X	2412.700	2.99	32.54	39.86	97.80	93.47	74.00	19.47	Peak

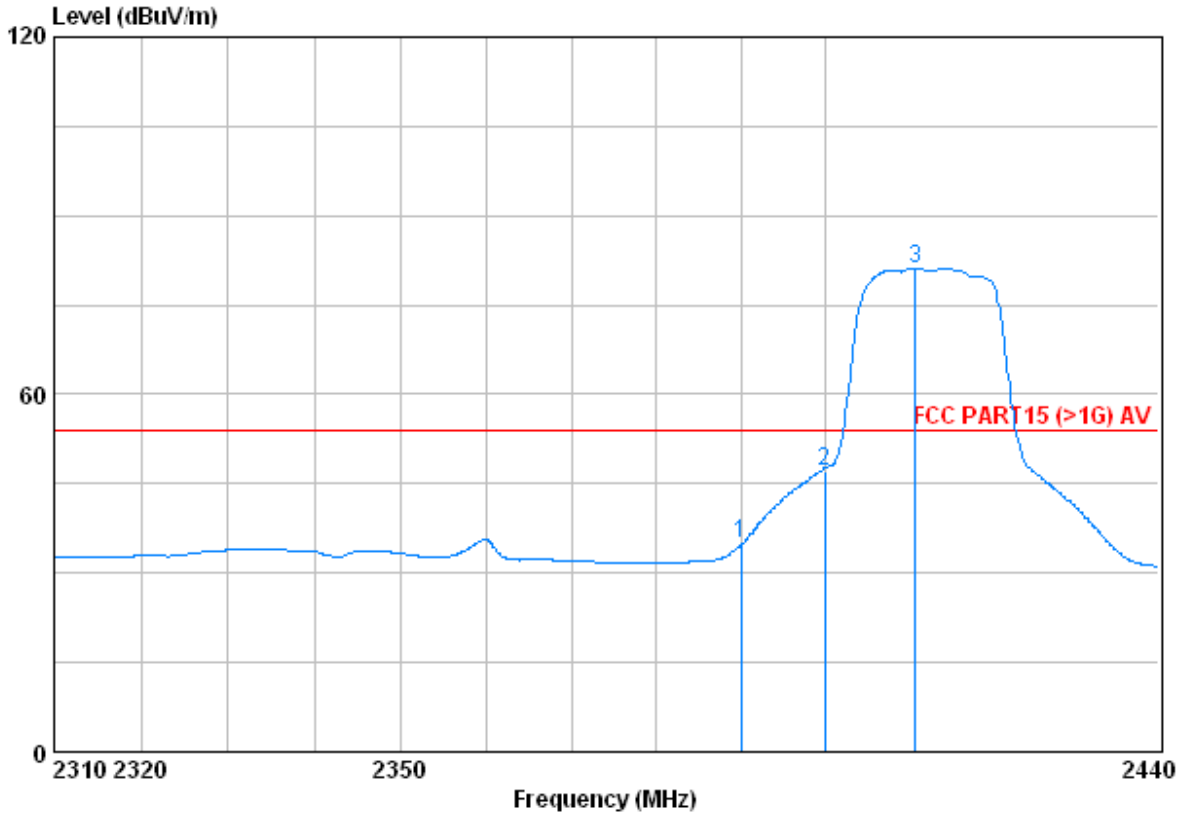
Test mode:	802.11g	Test channel:	Lowest	Remark:	Average

Vertical:



	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	2.98	32.51	39.85	39.00	34.65	54.00	-19.35	Average
2	2400.000	2.98	32.51	39.86	51.37	47.00	54.00	-7.00	Average
3 X	2408.020	2.99	32.54	39.86	83.80	79.47	54.00	25.47	Average

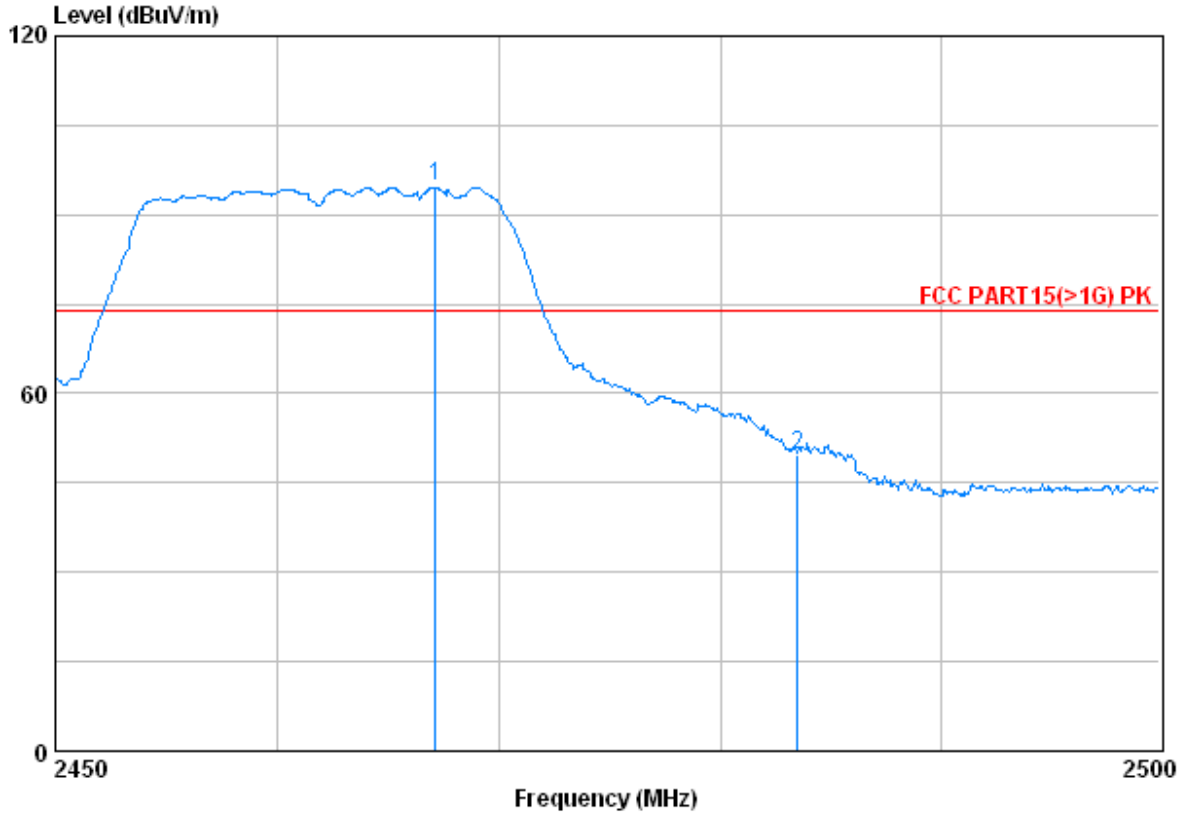
Horizontal:



		Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
		MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1		2390.000	2.98	32.51	39.85	39.18	34.83	54.00	-19.17	Average
2		2400.000	2.98	32.51	39.86	51.37	47.00	54.00	-7.00	Average
3	X	2410.750	2.99	32.54	39.86	85.55	81.22	54.00	27.22	Average

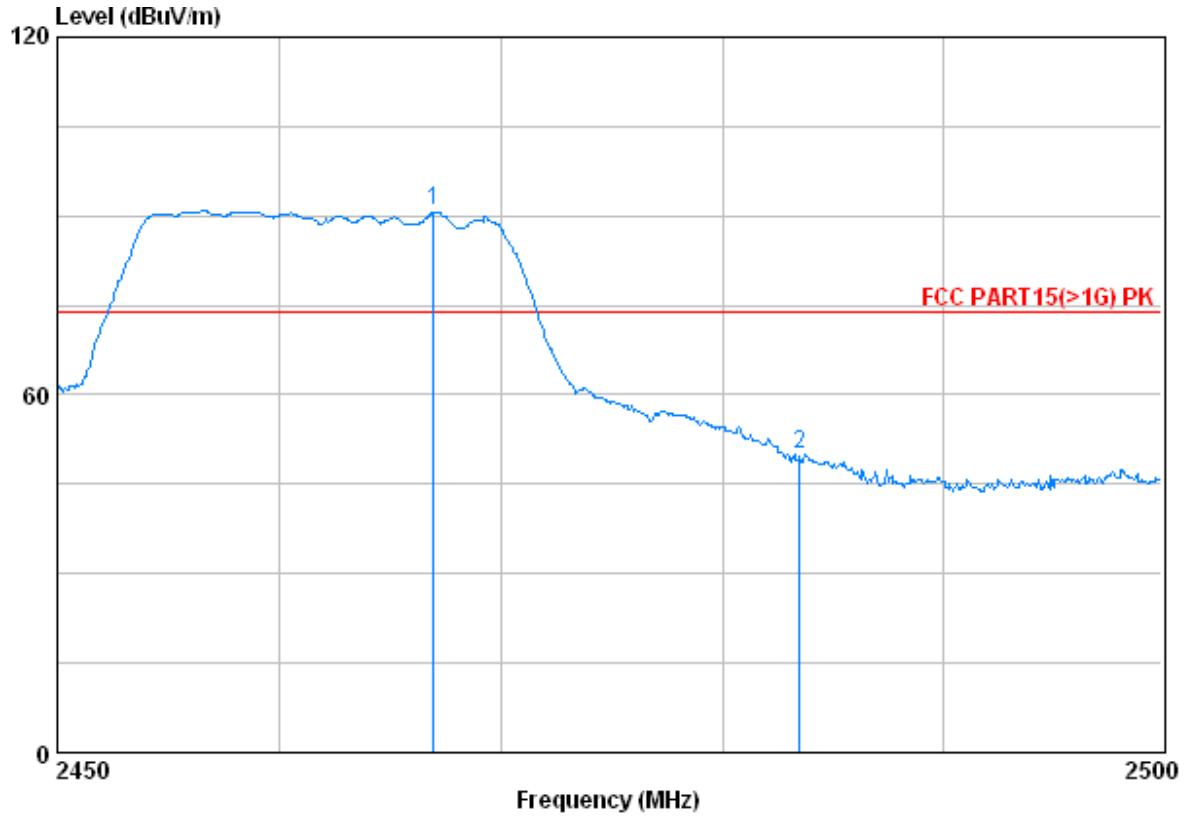
Test mode:	802.11g	Test channel:	Highest	Remark:	Peak

Vertical:



	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 X	2467.100	3.02	32.64	39.91	99.00	94.75	74.00	20.75	Peak
2	2483.500	3.03	32.67	39.92	54.00	49.78	74.00	-24.22	Peak

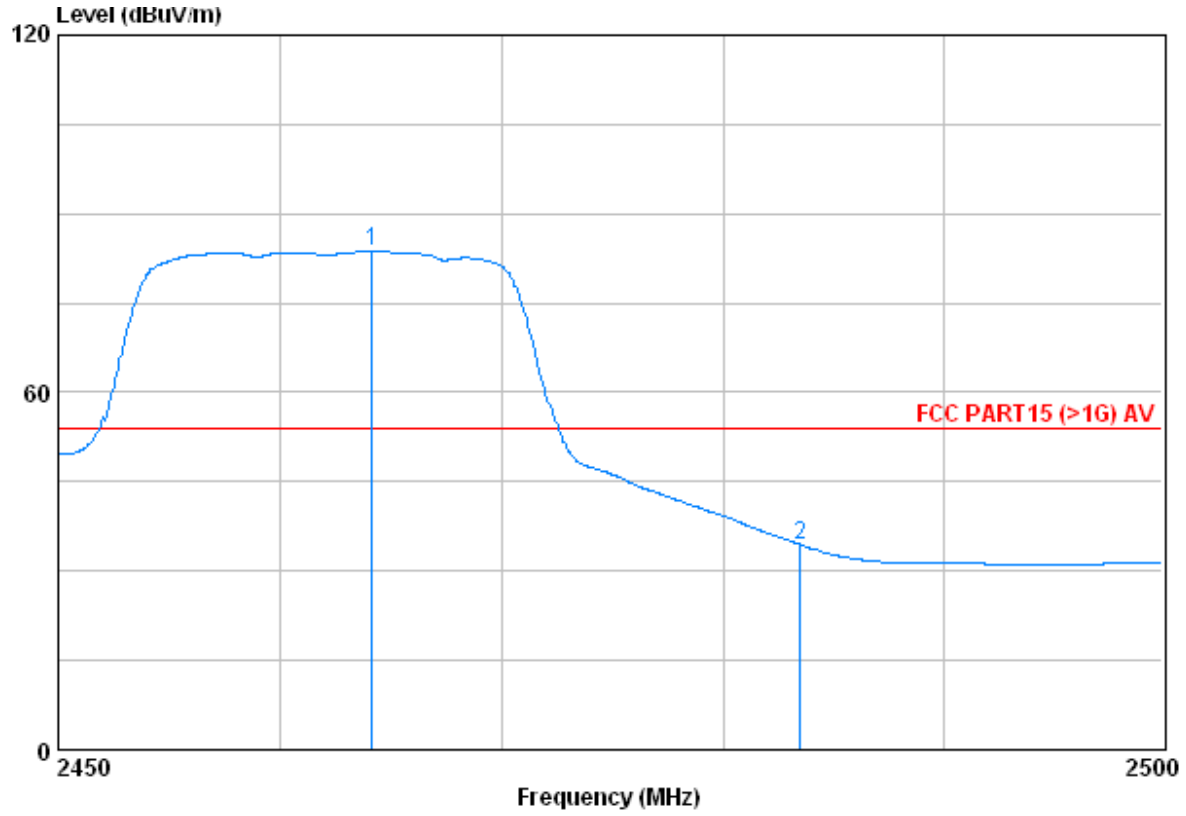
Horizontal:



		Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
		MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	X	2466.950	3.02	32.64	39.91	95.00	90.75	74.00	16.75	Peak
2		2483.500	3.03	32.67	39.92	54.22	50.00	74.00	-24.00	Peak

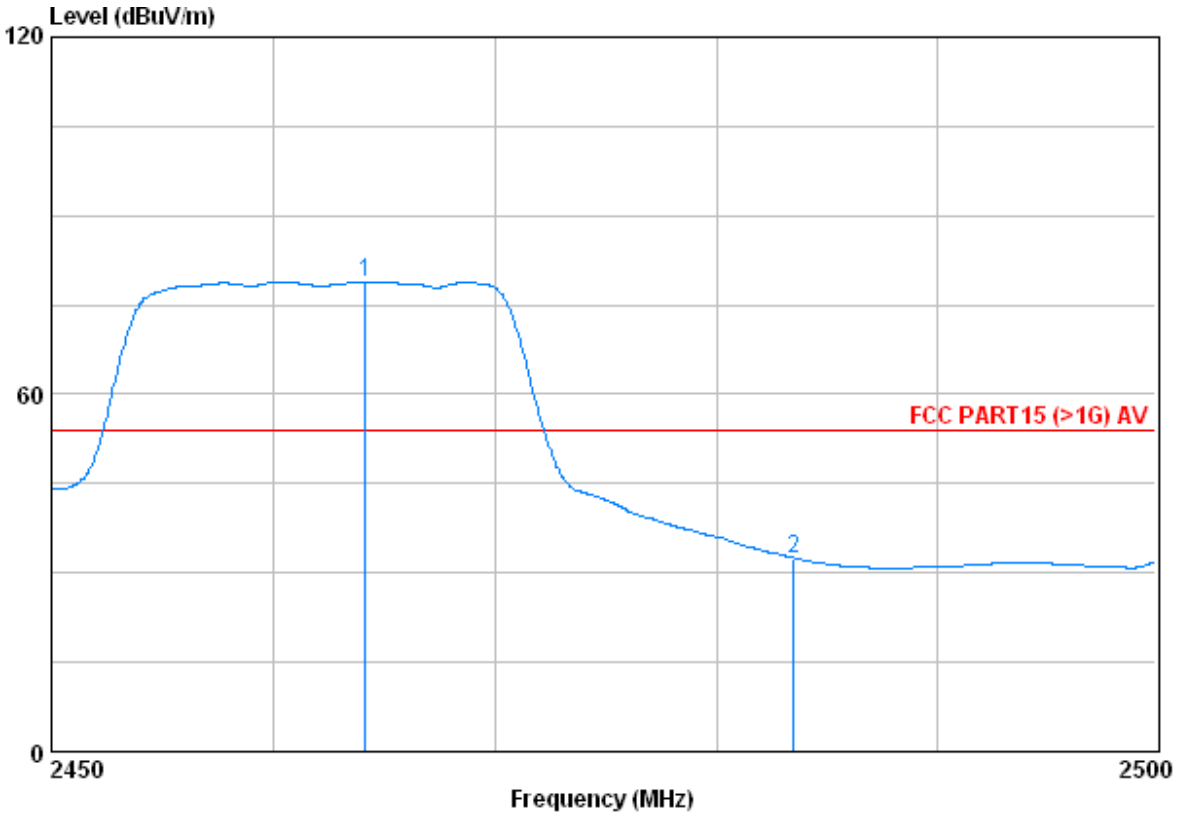
Test mode:	802.11g	Test channel:	Highest	Remark:	Average

Vertical:



	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 @	2464.100	3.02	32.64	39.91	87.96	83.71	54.00	29.71	Average
2	2483.500	3.03	32.67	39.92	38.70	34.48	54.00	-19.52	Average

Horizontal:



	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 X	2464.100	3.02	32.64	39.91	83.00	78.75	54.00	24.75	Average
2	2483.500	3.03	32.67	39.92	36.50	32.28	54.00	-21.72	Average

9. Power density

9.1 Test Equipment

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	HP	8594E	88156318	2011/04/15	2012/04/14

9.2 Measuring Instruments and setting

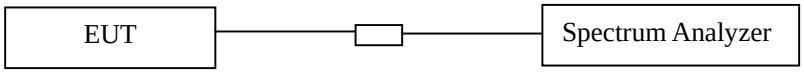
The following table is the setting of spectrum analyzer.

Spectrum analyzer	Setting
Attenuation	Auto
Span Frequency	300kHz
RB	3kHz
VB	10kHz
Detector	Peak
Trace	Max hold
Sweep Time	100s

9.3 Test Procedures

a. The transmitter output (antenna port) was connected to the spectrum analyzer.
b. Set RBW of spectrum analyzer to 3kHz and VBW to 30kHz, Set Detector to Peak, Trace to Max Hold.
c. Mark the frequency with maximum peak power as the center of the display of the spectrum.
d. Set the span to 300kHz and the sweep time to 100s and record the maximum peak value.

9.4 Block Diagram of Test setup



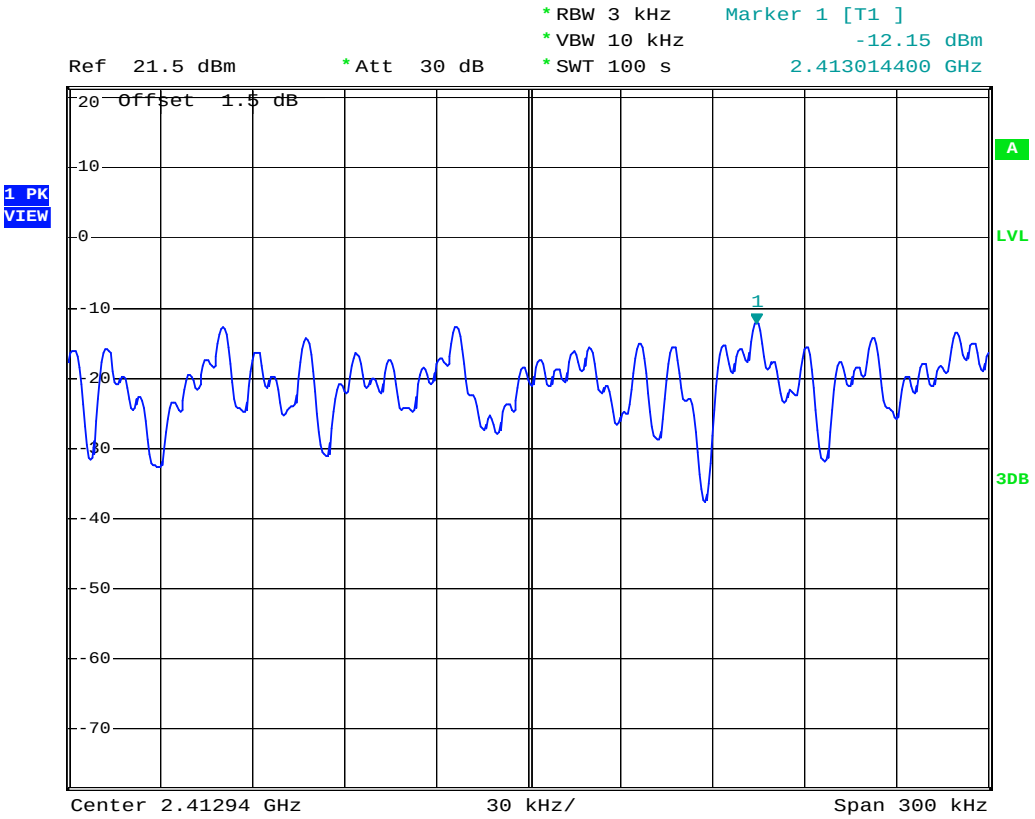
9.5 Limit

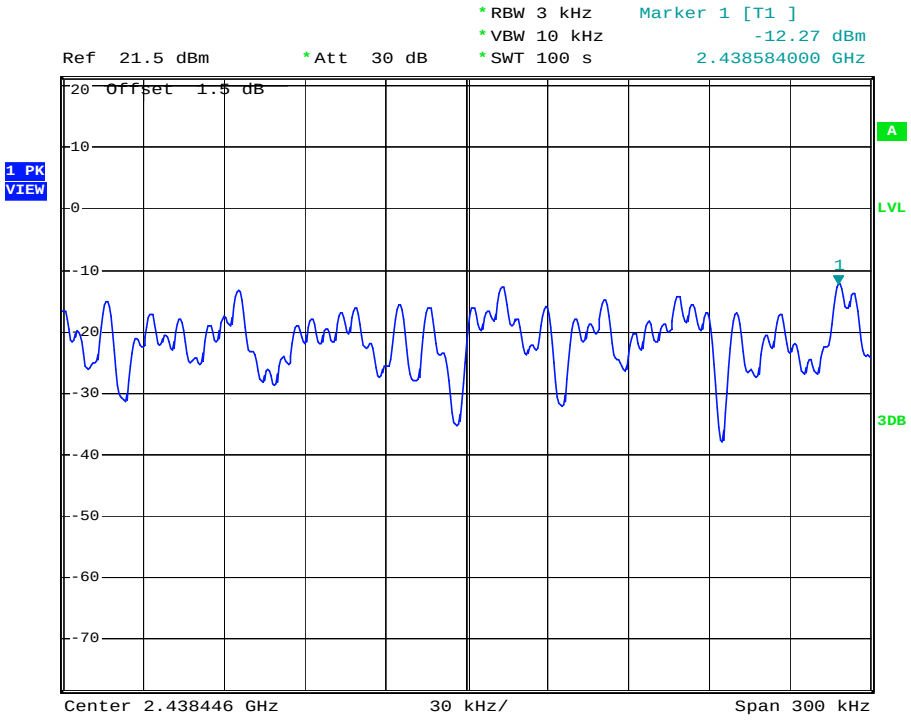
The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3KHz bandwidth.

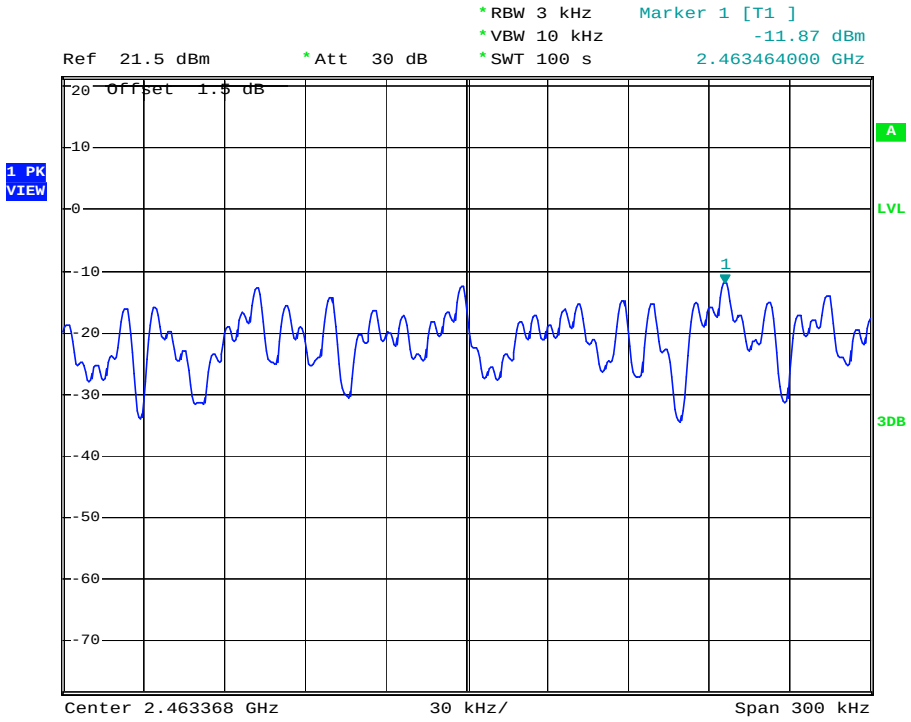
9.6. Test Result

Spectrum Detector:	PK	Test Date :	November 08, 2011
Operation Mode:	802.11 b	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %

Frequency (MHz)	Measurement Level (dBm)	Required limit (dBm)	Result
2412.00	-12.15	<8dBm	PASS
2437.00	-12.27	<8dBm	PASS
2462.00	-11.87	<8dBm	PASS

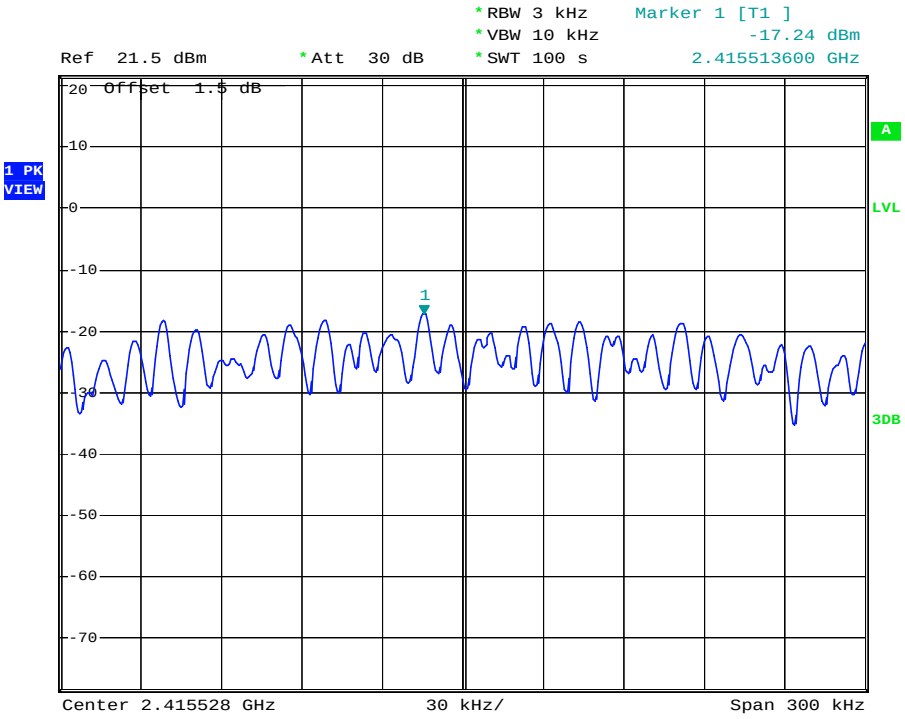


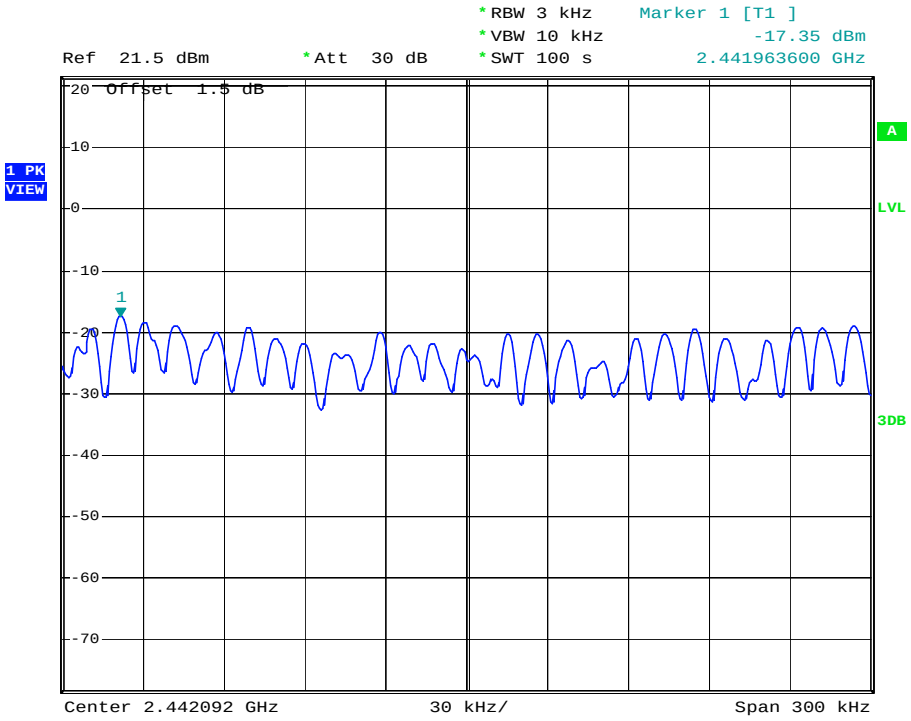

*RBW 3 kHz
*VBW 10 kHz
*SWT 100 s
Marker 1 [T1]
-12.27 dBm
2.438584000 GHz
Ref 21.5 dBm
*Att 30 dB
Offset 1.5 dB
1 PK
VIEW
A
LVL
3DB
Center 2.438446 GHz
30 kHz/
Span 300 kHz

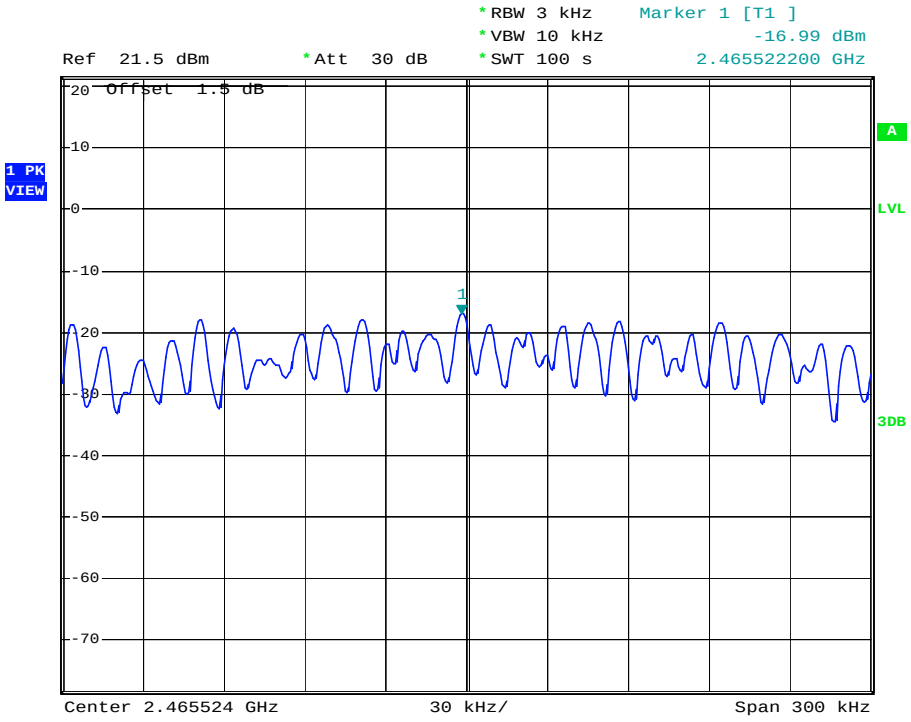

*RBW 3 kHz
*VBW 10 kHz
*SWT 100 s
Marker 1 [T1]
-11.87 dBm
2.463464000 GHz
Ref 21.5 dBm
*Att 30 dB
Offset 1.5 dB
1 PK
VIEW
A
LVL
3DB
Center 2.463368 GHz
30 kHz/
Span 300 kHz

Spectrum Detector:	PK	Test Date :	November 08, 2011
Operation Mode:	802.11 g	Temperature :	28 ℃
Test Result:	PASS	Humidity :	65 %

Frequency (MHz)	Measurement Level (dBm)	Required limit (dBm)	Result
2412.00	-17.24	<8dBm	PASS
2437.00	-17.35	<8dBm	PASS
2462.00	-16.99	<8dBm	PASS




*RBW 3 kHz
*VBW 10 kHz
*SWT 100 s
Marker 1 [T1]
-17.35 dBm
2.441963600 GHz
Ref 21.5 dBm
*Att 30 dB
Offset 1.5 dB
1 PK
VIEW
A
LVL
3DB
Center 2.442092 GHz
30 kHz/
Span 300 kHz


*RBW 3 kHz
*VBW 10 kHz
*SWT 100 s
Marker 1 [T1]
-16.99 dBm
2.465522200 GHz
Ref 21.5 dBm
*Att 30 dB
Offset 1.5 dB
1 PK
VIEW
A
LVL
3DB
Center 2.465524 GHz
30 kHz/
Span 300 kHz

10.Antenna Port Emission

10.1 Test Equipment

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	Rohde & Schwarz	ESU	1302.6005.26	11/28/2010	11/28/2011

10.2 Measuring Instruments and setting

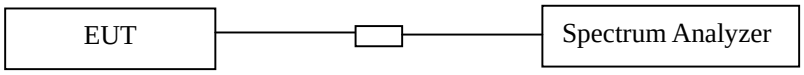
The following table is the setting of spectrum analyzer.

Spectrum analyzer	Setting
Attenuation	Auto
RB	100kHz
VB	300kHz
Detector	Peak
Trace	Max hold

10.3 Test Procedures

The conducted spurious emissions were measured conducted using a spectrum analyzer at low, mid, and hi channels, The limit was determined by attenuation 20dB of the RF peak power output.

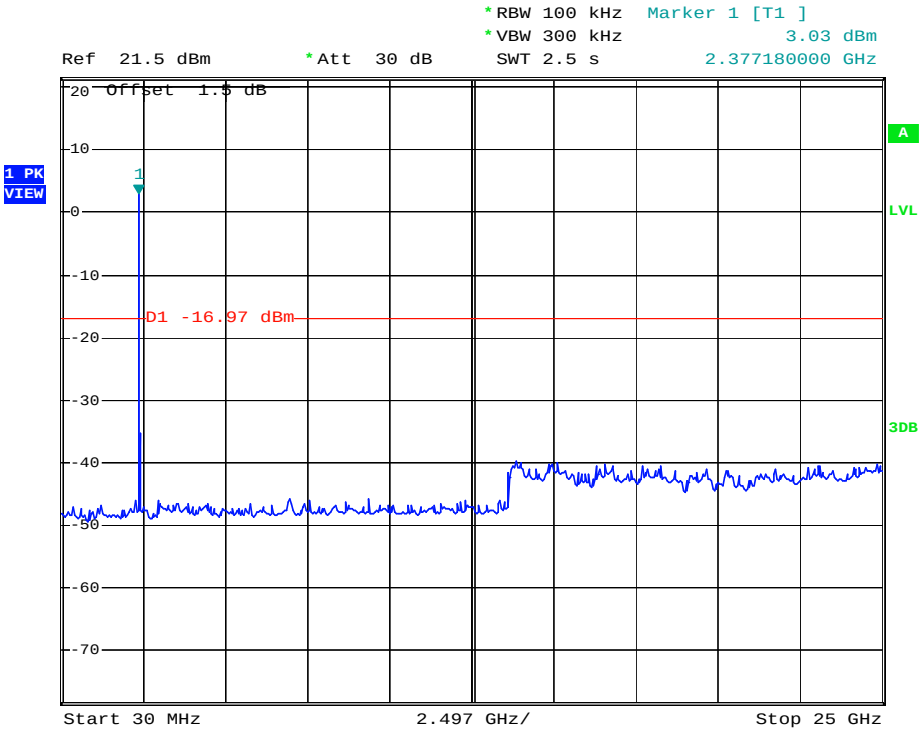
10.4 Block Diagram of Test setup



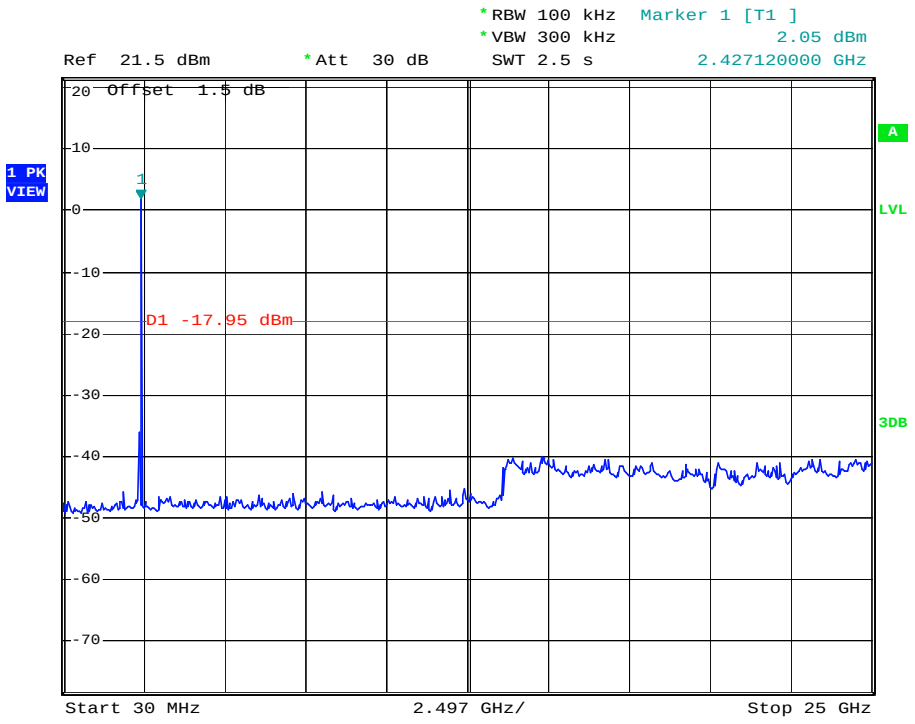
10.6. Test Result

PASS.

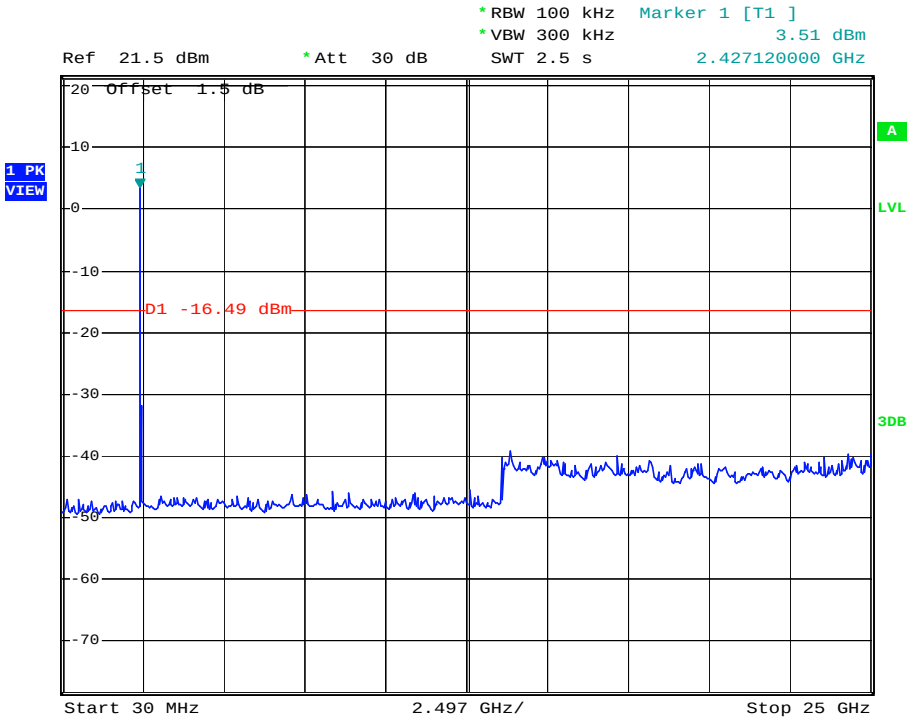
802.11b Low Channel 1



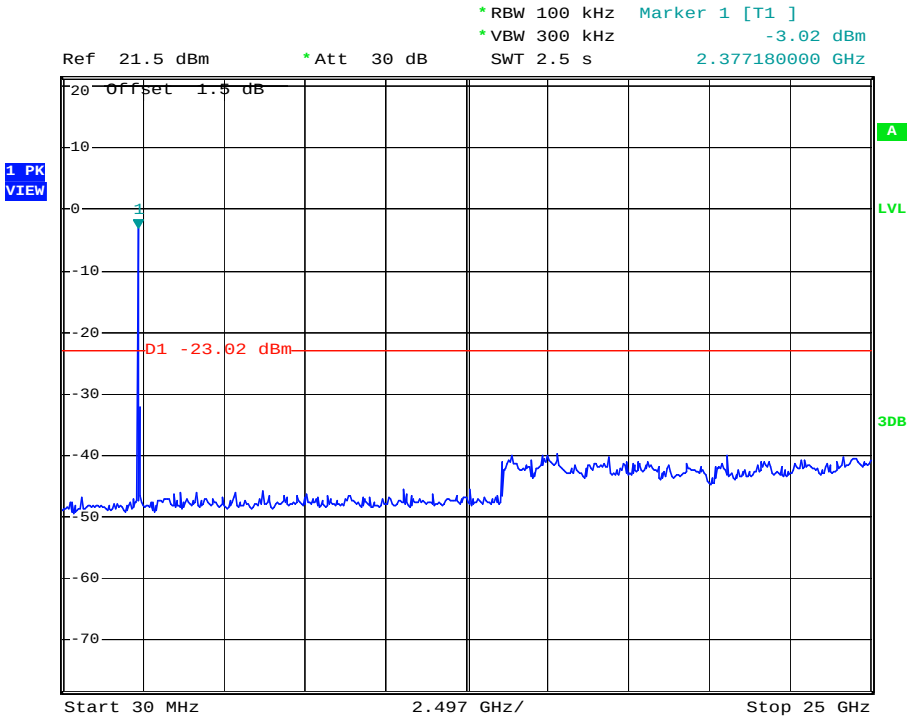
802.11b Middle Channel 6



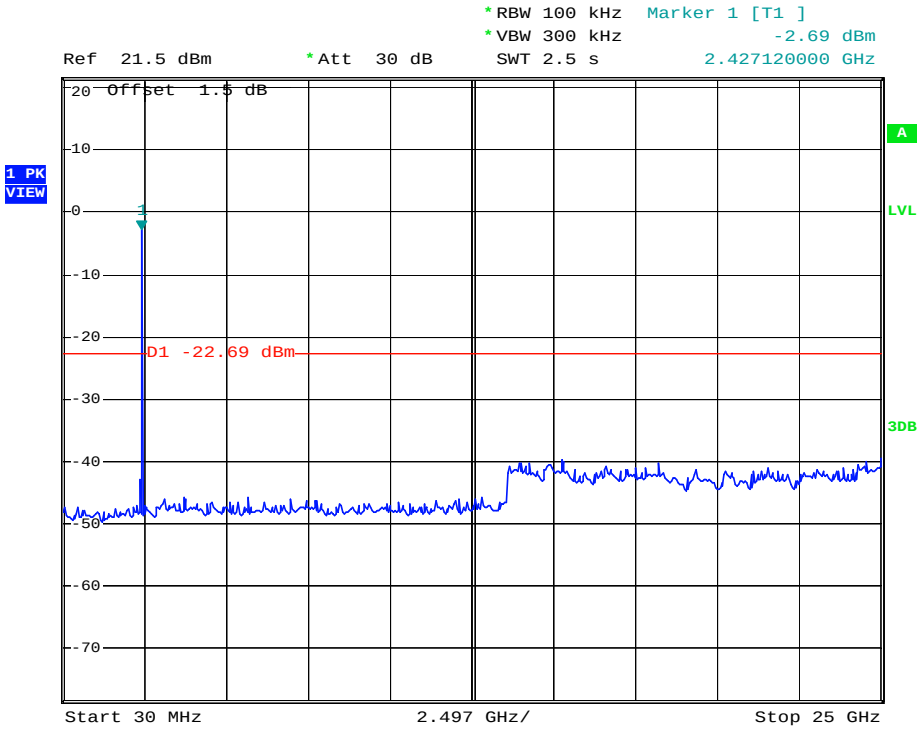
802.11b Highest Channel 11



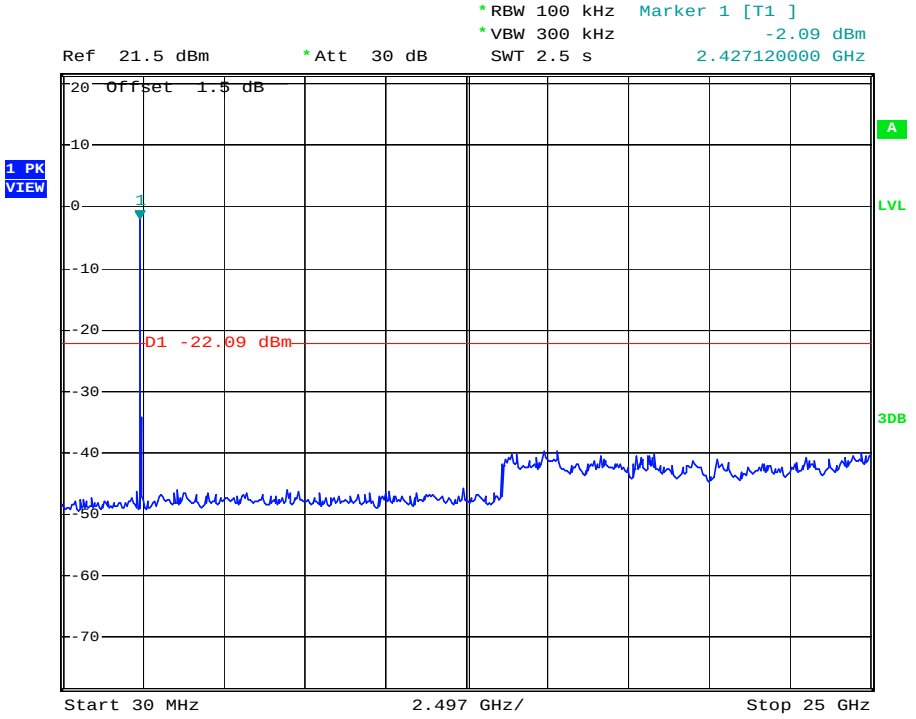
802.11g Low Channel 1



802.11g Middle Channel 6



802.11g Highest Channel 11



11.Antenna Application

11.1 Antenna requirement

The EUT'S antenna is met the requirement of FCC part 15C section 15.203.

11.2 Result

The EUT'S antenna is Integral antenna on PCB. The antenna's gain is 2.03dBi and meets the requirement.