TECHNICAL REPORT

ISO/IEC17025Accredited Lab.

Report No:	FCC	1104204-01
File reference No:		2011-07-20

Applicant: Gajah International (HK) Co., Ltd

Product: MID

Model No: M7003

Trademark: N/A

Test Standards: FCC Part 15 Subpart C, Paragraph 15.247

Test result: It is herewith confirmed and found to comply with the requirements set up by ANSI C63.4FCC Part 15 Subpart C, Paragraph 15.247 regulations for the evaluation of electromagnetic compatibility

Approved By

Jack Chung

Jack Chung
Manager

Dated: July 20, 2011

Results appearing herein relate only to the sample tested
The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District, Shenzhen,CHINA.

Tel (755) 83448688 Fax (755) 83442996

Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

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

CNAL-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 899988

The 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 No.: 899988.

IC- Registration No.: IC5205A-01

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration IC No.: 5205A-01.

Test Report Conclusion

Content

1.0 General Details

1.1 Test Lab Details

Name : SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

Address: 5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District, Shenzhen,CHINA.

Telephone: (755) 83448688

Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 899988

For 3m & 10 m OATS

Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205A-01

For 3m & 10 m OATS

1.2 Applicant Details

Applicant: Gajah International (HK) Co., Ltd

Address: 9A, Block Yinxing, Huamaoxin Garden, 7001 Hongli W, Shenzhen, Guangdong, China

Telephone: 86-755-82970307

Fax: 86-755-82970571

1.3 Description of EUT

Product:	MID
Manufacturer:	Gajah International (HK) Co., Ltd
Brand Name:	N/A
Model Number:	M7003
Additional model number:	N/A
Power Source Adapter	Model: PS12K0901500; Input：100-240V AC，50/60Hz，0.35A; Output: DC9V, 1.5A
Type of Modulation	IEEE 802.11b : DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g : OFDM(64QAM, 16AQM, QPSK, BPSK)
Frequency range	IEEE 802.11b/g: 2412-2462MHz
Channel Spacing	IEEE 802.11b/g: 5MHz
Air Data Rate	IEEE 802.11b : 11 long, 11 short, 5.5 long, 5.5 short, 2 long, 2 short, 1 long Mbps IEEE 802.11g : 54, 48, 36, 24, 18, 12, 9, 6 Mbps
Frequency Selection	By software
Channel Number	IEEE 802.11b/g : 11 Channels

1.4 Submitted Sample: 2 Sample

1.5 Test Duration

2011-07-01 to 2011-07-19

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions Uncertainty =4.7dB

1.7 Test Engineer

The sample tested by Terry Tang

Print Name: Terry Tang

6.0	Test Equipments				
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2011-04-26	2012-04-25
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2011-04-26	2012-04-25
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2011-04-26	2012-04-25
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	2011-04-26	2012-04-25
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2011-04-26	2012-04-25
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2011-04-26	2012-04-25
System Controller	CT	SC100	-	2011-04-26	2012-04-25
Printer	EPSON	PHOTO EX3	CFNH234850	2011-04-26	2012-04-25
Computer	IBM	8434	1S8434KCE99BLXLO*	-	-
Loop Antenna	EMCO	6502	00042960	2011-04-26	2012-04-25
ESPI Test Receiver	ROHDE&SCHWARZ	ESI26	838786/013	2011-04-26	2012-04-25
3m OATS	--	--	N/A	2011-04-26	2012-04-25
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170265	2011-04-26	2012-04-25
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-631	2011-04-26	2012-04-25
Power meter	Anritsu	ML2487A	6K00003613	2011-04-26	2012-04-25
Power sensor	Anritsu	MA2491A	32263	2011-04-26	2012-04-25
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2011-04-26	2012-04-25
LISN	AFJ	LS16C	10010947251	2011-04-26	2012-04-25
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2011-04-26	2012-04-25
9*6*6 Anechoic	--	--	N/A	2011-04-26	2012-04-25
EMI Test Receiver	RS	ESCS30	100139	2011-04-26	2012-04-25
LISN	AFJ	LS16C	10010947251	2011-04-26	2012-04-25
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2011-04-26	2012-04-25

3. DESCRIPTION OF TEST MODES

IEEE 802.11b, 802.11g mode

The EUT had been tested under operating condition. There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2412
Middle	2437
High	2462

IEEE 802.11b mode : 11Mbps data rate (worst case) were chosen for full testing. IEEE 802.11g mode : 6Mbps data rate (worst case) were chosen for full testing.

The worst-case data rates are determined according to the description above, based on the investigations by measuring the PSD and average power across all the data rates, bandwidths, modulations and spatial stream modes.

3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.107 & 15.207	Conducted Emission Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit	Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth>500kHz	PASS	Complies
FCC Part 15, Paragraph 15.247(b)	Maximum peak output power Limit: max. 30dBm	PASS	Complies
FCC Part 15, Paragraph 15.109,15.205 & 15.209	Transmitter Radiated Emission Limit: Table 15.209	PASS	Complies
FCC Part 15, Paragraph 15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Complies
FCC Part 15, Paragraph 15.247(e)	Out of Band Emission and Restricted Band Radiation Limit: 20dB less than peak value of fundamental frequency Restricted band limit: Table 15.209	PASS	Complies

3.2 Test Standards

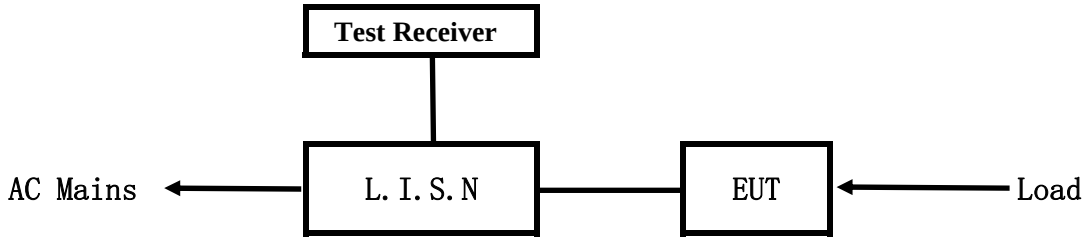
FCC Part 15 Subpart & Subpart C, Paragraph 15.247

4.0 EUT Modification

No modification by Shenzhen Timeway Technology Consulting Co.,Ltd

5. Power Line Conducted Emission Test

5.1 Schematics of the test



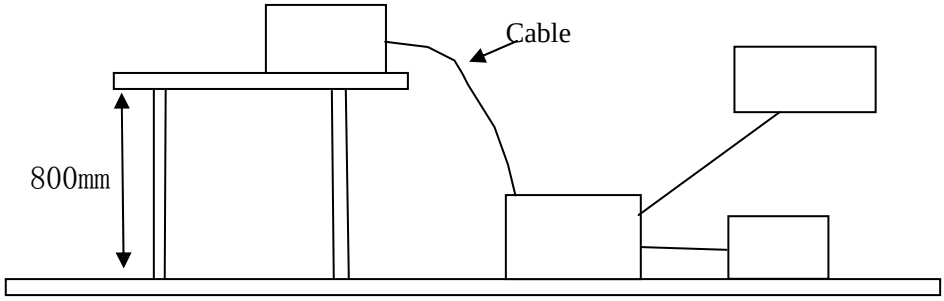
EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2009.The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2009.

Test Voltage: 120V~, 60Hz

Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model	FCC ID
MID	Gajah International (HK) Co., Ltd	M7003	UFKM7003

B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable
U-disk	Netac	U208	FCC DOC	--
Earphone	--	--	--	Data cable of 1.0m length
SD Card	Kingston	--	--	--
PC	IBM	R400	FCC DOC	--
Keyboard	DELL		FCC DOC	Data cable of 1.0m length
Mouse	DELL	--	FCC DOC	Data cable of 1.0m length

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207 and 15.107

Frequency (MHz)	Class A Limits (dB μ V)		Class B Limits (dB μ V)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ～ 0.50	79.0	66.0	66.0～56.0*	56.0～46.0*
0.50 ～ 5.00	73.0	60.0	56.0	46.0
5.00 ～ 30.00	73.0	60.0	60.0	50.0

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

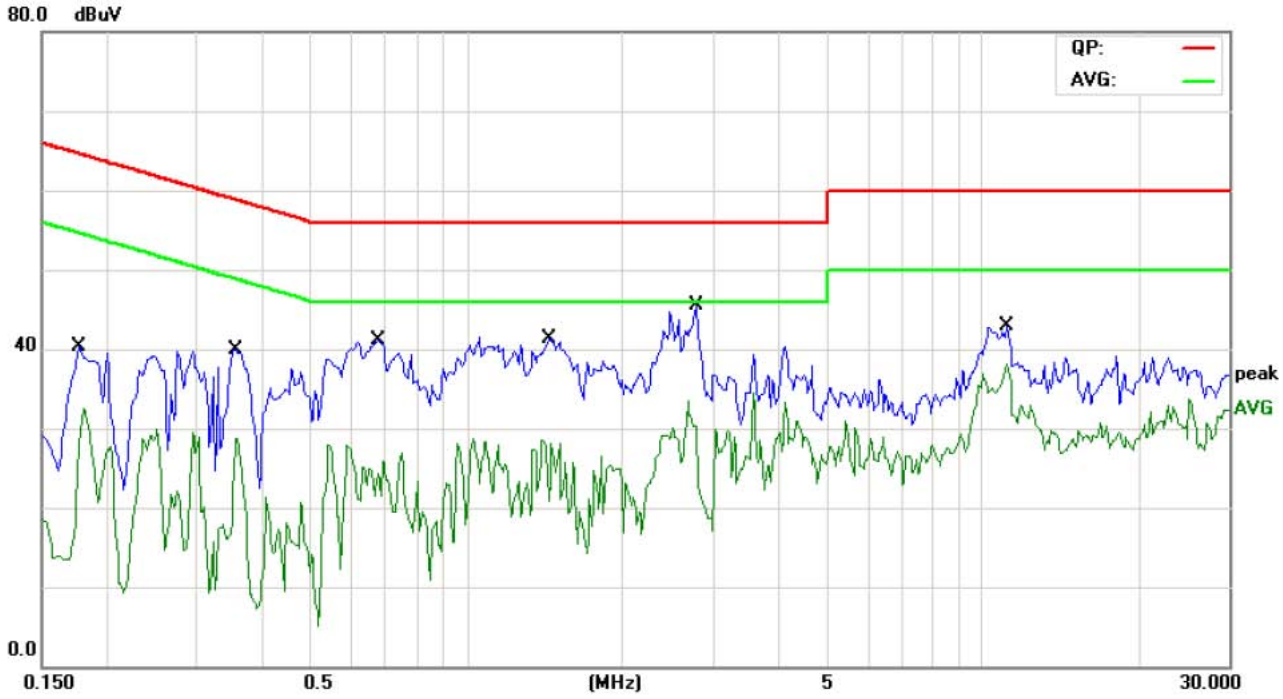
Note: the worse cases was selected to conducted the test

A Conducted Emission on Line Terminal of the power line (150kHz to 30MHz)

EUT set Condition: Keep EUT Transmitting under WIFI mode, Read SD card, Play USB And Run EMC test program

Results: **Pass**

Please refer to following diagram for individual



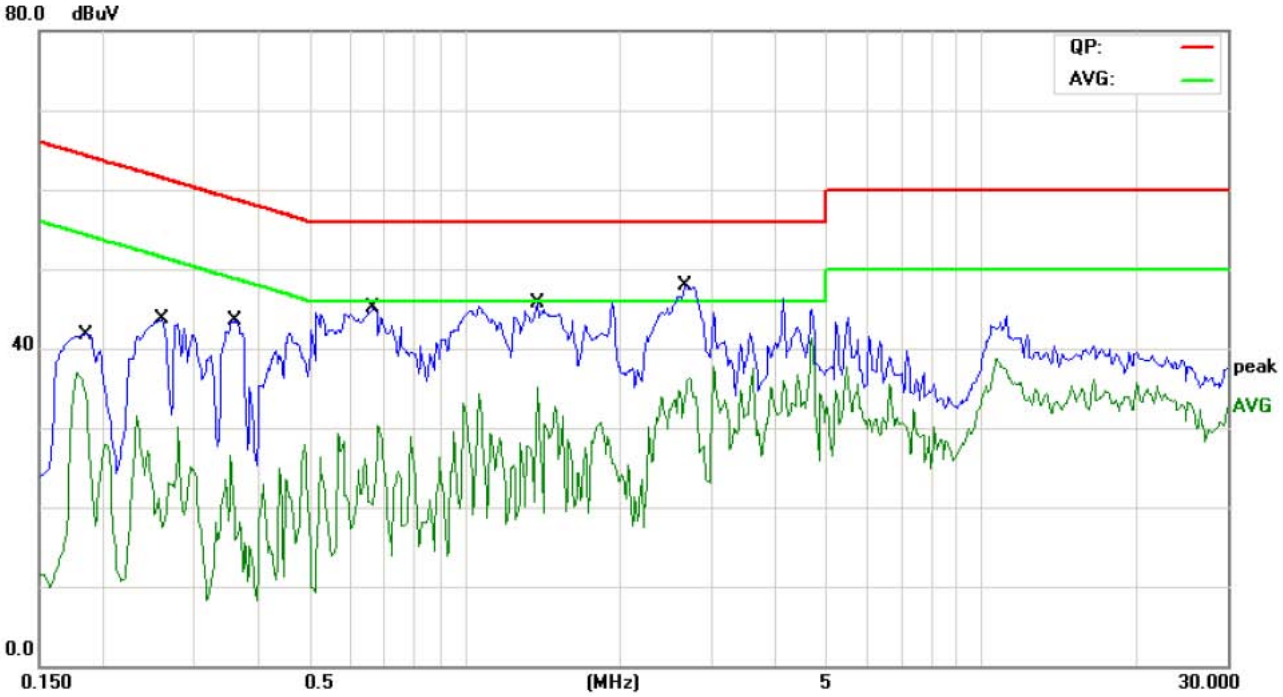
Frequency (MHz)	Reading(dB μ V)				Limit (dB μ V)	
	Neutral		Line			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.1773	--	--	36.30	27.04	64.61	54.61
0.3570	--	--	37.00	23.50	58.80	48.80
0.6734	--	--	37.88	25.49	56.00	46.00
1.4430	--	--	35.51	23.58	56.00	46.00
2.7828	--	--	35.97	25.01	56.00	46.00
11.1327	--	--	36.35	25.65	56.00	46.00

B Conducted Emission on Neutral Terminal of the power line (150kHz to 30MHz)

EUT set Condition: Keep EUT Transmitting under WIFI mode, Read SD card, Play USB And Run EMC test program

Results: **Pass**

Please refer to following diagram for individual



Frequency (MHz)	Reading(dB μ V)				Limit (dB μ V)	
	Neutral		Line			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.1812	40.47	29.87	--	--	64.43	54.43
0.2594	39.34	20.50	--	--	61.45	51.45
0.3608	40.89	26.98	--	--	58.71	48.71
0.6656	41.38	26.27	--	--	56.00	46.00
1.3844	40.15	28.31	--	--	56.00	46.00
2.6773	42.09	29.18	--	--	56.00	46.00

6 Radiated Emission Test

6.1 Test Method and test Procedure:

(1) The EUT was tested according to ANSI C63.4 –2009. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988

(2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.

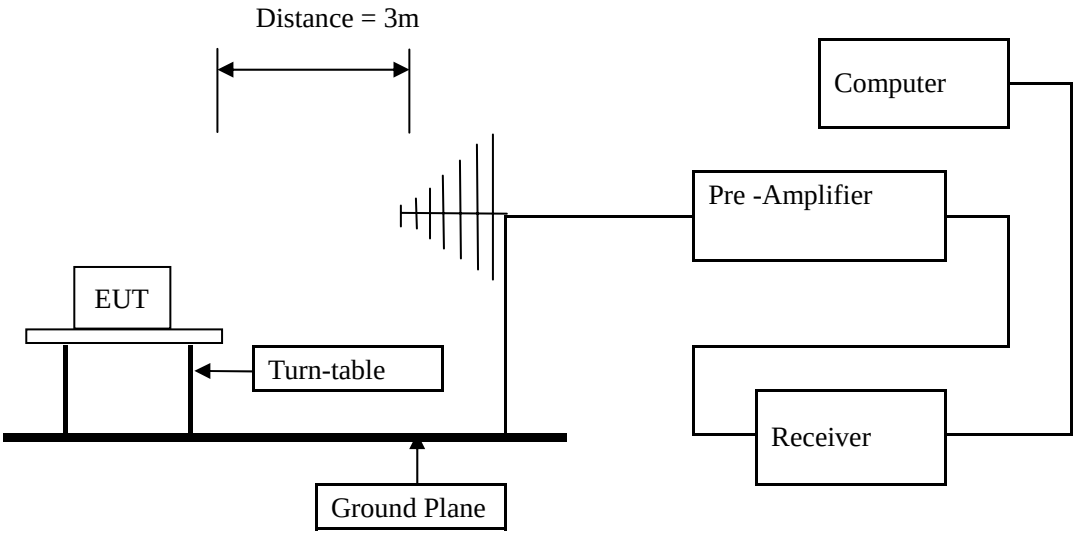
(3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector. Measurements were made at 3 meters.

(4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.

(5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "**QP**" in the data table.

(6) The antenna polarization : Vertical polarization and Horizontal polarization.
Test Voltage: 120V~, 60Hz

Block diagram of Test setup



6.2 Configuration of The EUT
Same as section 5.3 of this report

6.3 EUT Operating Condition
Same as section 5.4 of this report.

6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

Frequencies in restricted band are complied to limit on Paragraph 15.209 and 15.109

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note: 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. In the Above Table, the higher limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT

4. This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

5. For Radiated emissions below 30MHz, the emission level is much less than the limit value and meet the rule requirement.

Test result

General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Horizontal (30MHz----1000MHz)

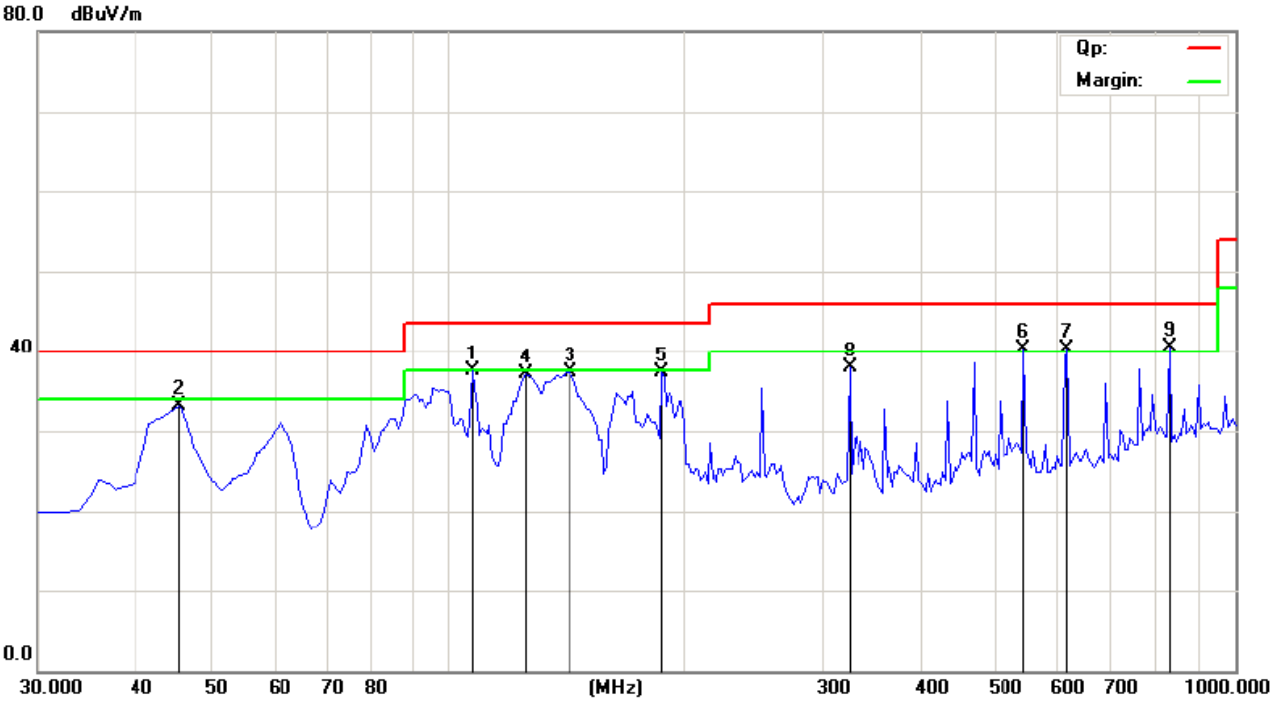
EUT set Condition: Keep EUT Transmitting under WIFI mode, Read SD card, Play USB And Run EMC test program**, Full Load**

Results: **Pass**

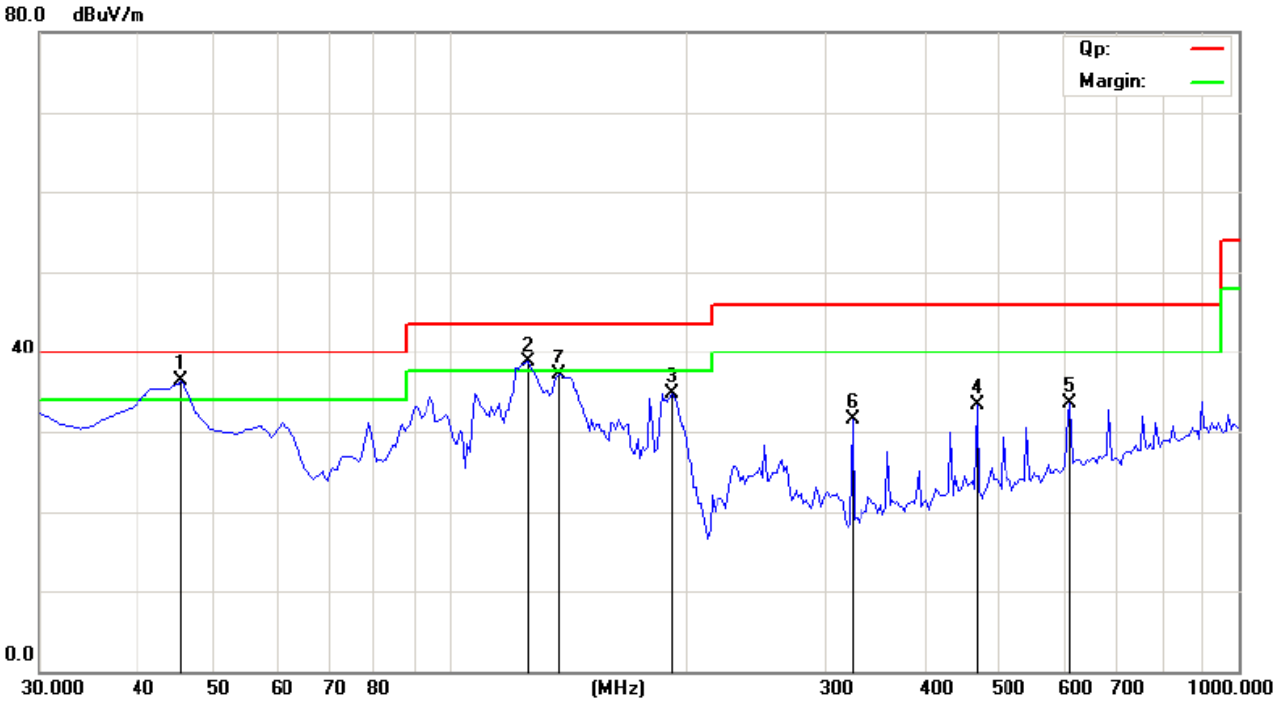
Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
107.7553	37.51	H	43.50
45.5510	33.20	H	40.00
142.7692	37.35	H	43.50
125.2505	37.13	H	43.50
187.4550	37.24	H	43.50
539.2985	40.31	H	46.00
613.1662	40.29	H	46.00
323.5271	37.99	H	46.00
828.9380	40.55	H	46.00
45.5511	36.23	V	40.00
125.2505	38.67	V	43.50
191.3427	34.72	V	43.50
467.3747	33.39	V	46.00
613.1662	33.59	V	46.00
323.5271	31.41	V	46.00
136.9138	37.10	V	43.50

Test Figure:

H



V



Operation Mode: Keep Transmitting in CH01 at 6Mbps

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
2412.00	86.64（PK）	V	Fundamental Frequency
2412.00	81.21（PK）	H	
4824.00	42.02（PK）	V	74(Peak)/ 54(AV)
4824.00	--	H	74(Peak)/ 54(AV)
7236.00	--	H/V	74(Peak)/ 54(AV)
9648.00	--	H/V	74(Peak)/ 54(AV)
12060	--	H/V	74(Peak)/ 54(AV)
14472	--	H/V	74(Peak)/ 54(AV)
16884	--	H/V	74(Peak)/ 54(AV)
19296	--	H/V	74(Peak)/ 54(AV)
21708	--	H/V	74(Peak)/ 54(AV)
24120	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark “---” means that the emissions level is too low to be measured

3. For 802.11g mode 6Mbps

Operation Mode: Keep Transmitting in CH06 at 6Mbps

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
2437.00	82.12（PK）	H	Fundamental Frequency
2437.00	88.19（PK)）	V	
4874.00	--	H	74(Peak)/ 54(AV)
4874.00	43.86	V	74(Peak)/ 54(AV)
7311.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)
12185	--	H/V	74(Peak)/ 54(AV)
14622	--	H/V	74(Peak)/ 54(AV)
17059	--	H/V	74(Peak)/ 54(AV)
19496	--	H/V	74(Peak)/ 54(AV)
21933	--	H/V	74(Peak)/ 54(AV)
24370	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark “---” means that the emissions level is too low to be measured

3. For 802.11g mode 6Mbps

Operation Mode: Keep Transmitting in CH11 at 6Mbps

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
2462.00	87.08（PK）	V	Fundamental Frequency
2462.00	80.43（PK）	H	
4924	--	H	74(Peak)/ 54(AV)
4924	43.82	V	74(Peak)/ 54(AV)
7368	--	H/V	74(Peak)/ 54(AV)
9848	--	H/V	74(Peak)/ 54(AV)
12310	--	H/V	74(Peak)/ 54(AV)
14772	--	H/V	74(Peak)/ 54(AV)
17234	--	H/V	74(Peak)/ 54(AV)
19696	--	H/V	74(Peak)/ 54(AV)
22158	--	H/V	74(Peak)/ 54(AV)
24650	--	H/V	74(Peak)/ 54(AV)

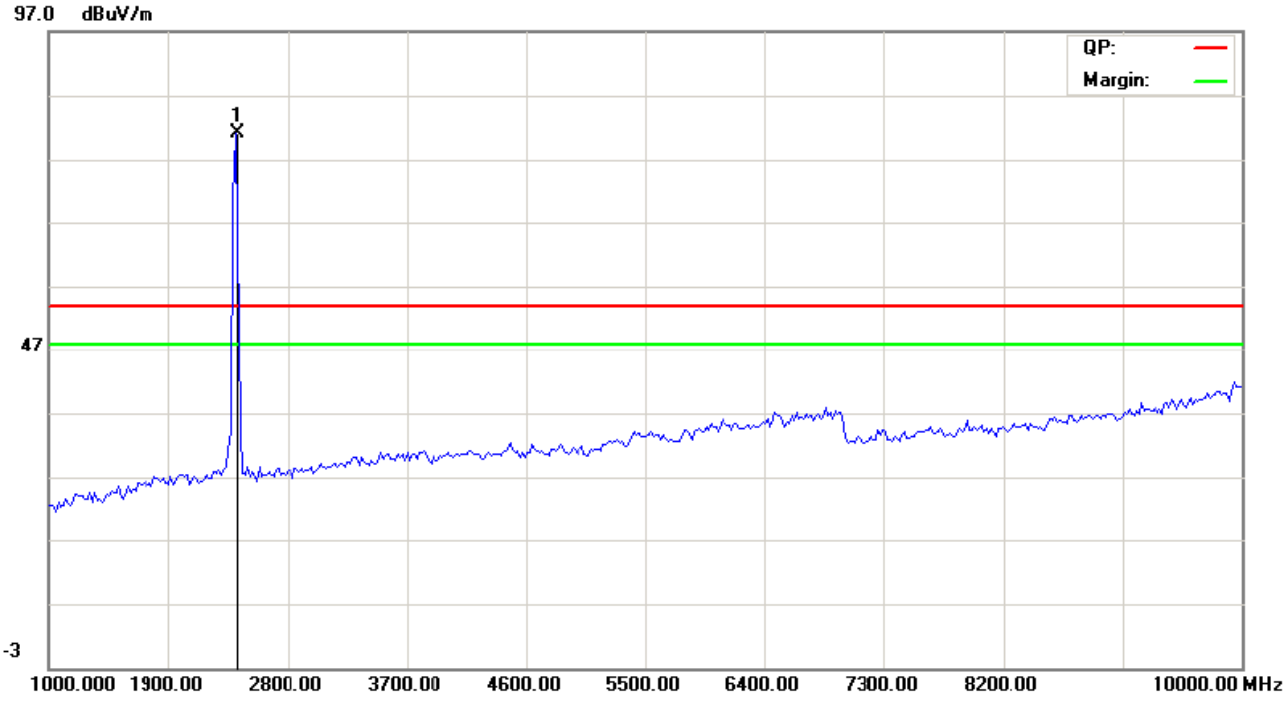
Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

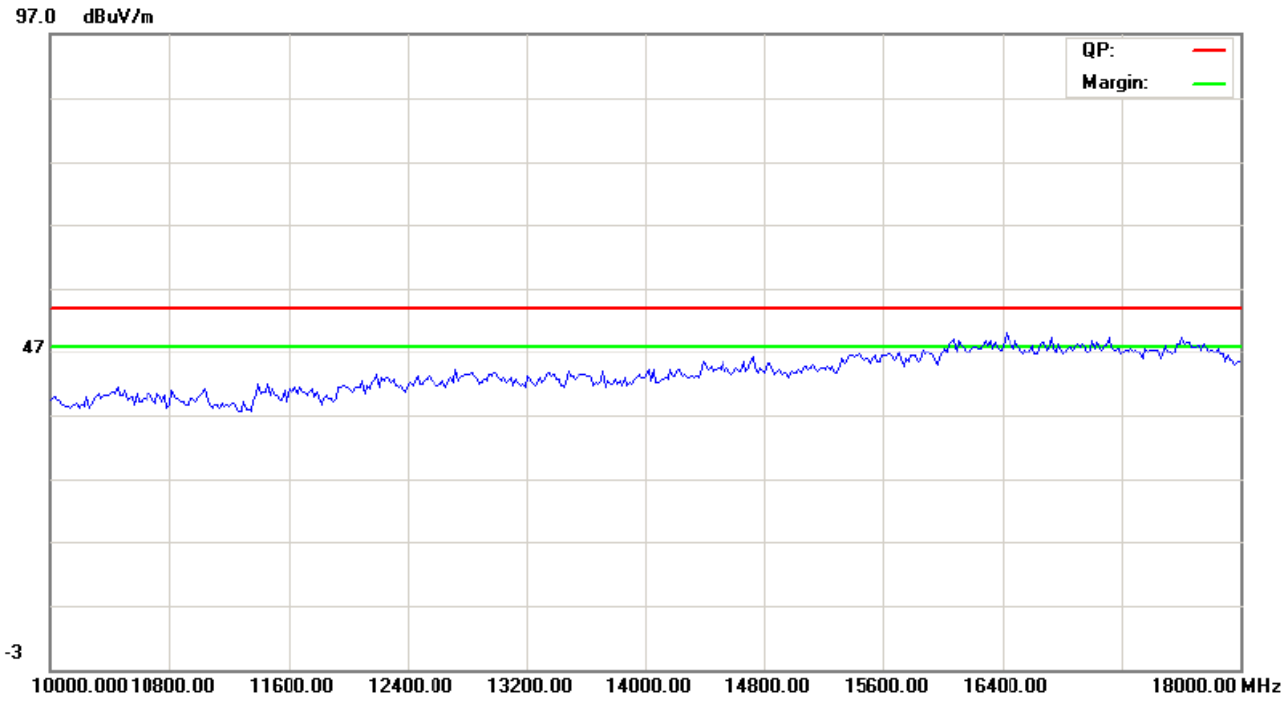
2. Remark “---” means that the emissions level is too low to be measured

3. For 802.11g mode at 6Mbps

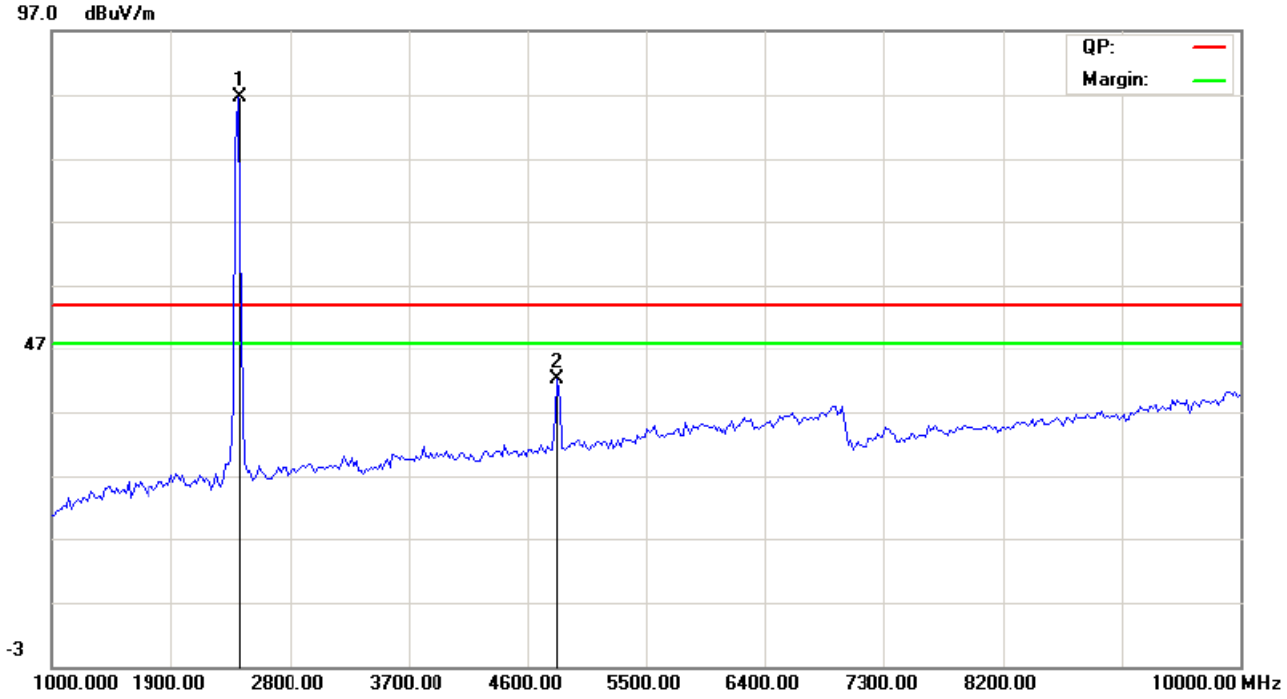
Please refer to the following test plots for details:

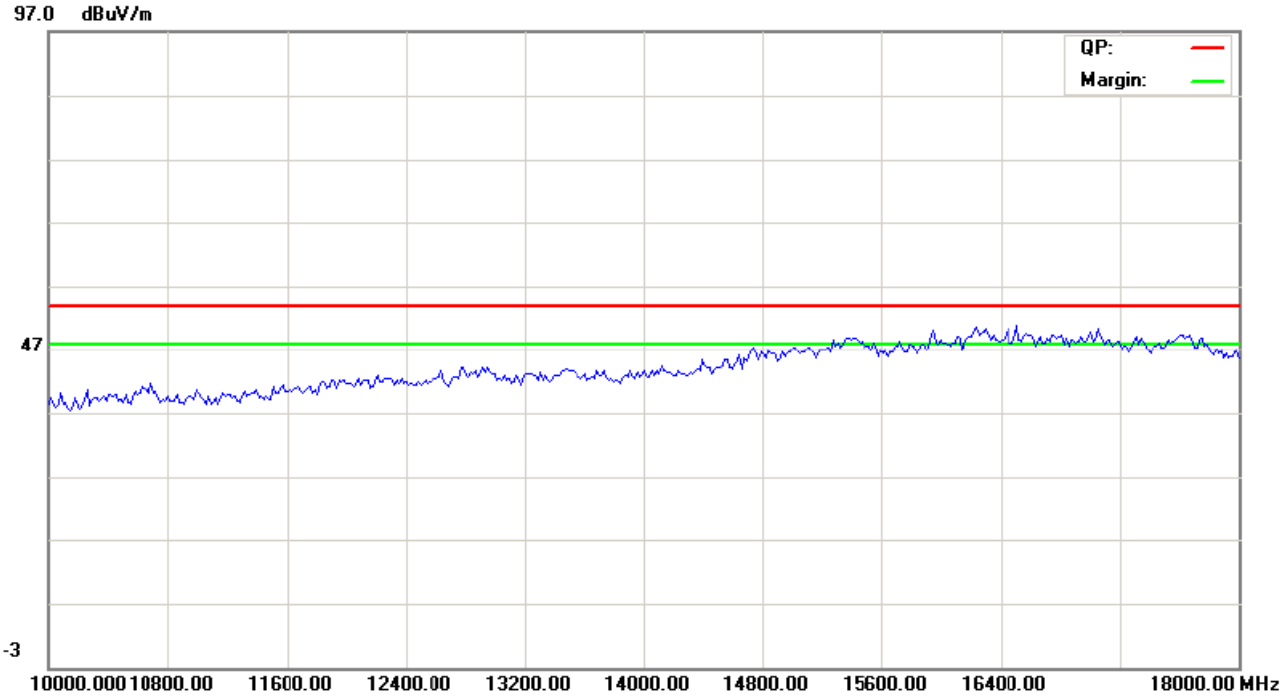
CH01 at 6Mbps: Horizontal



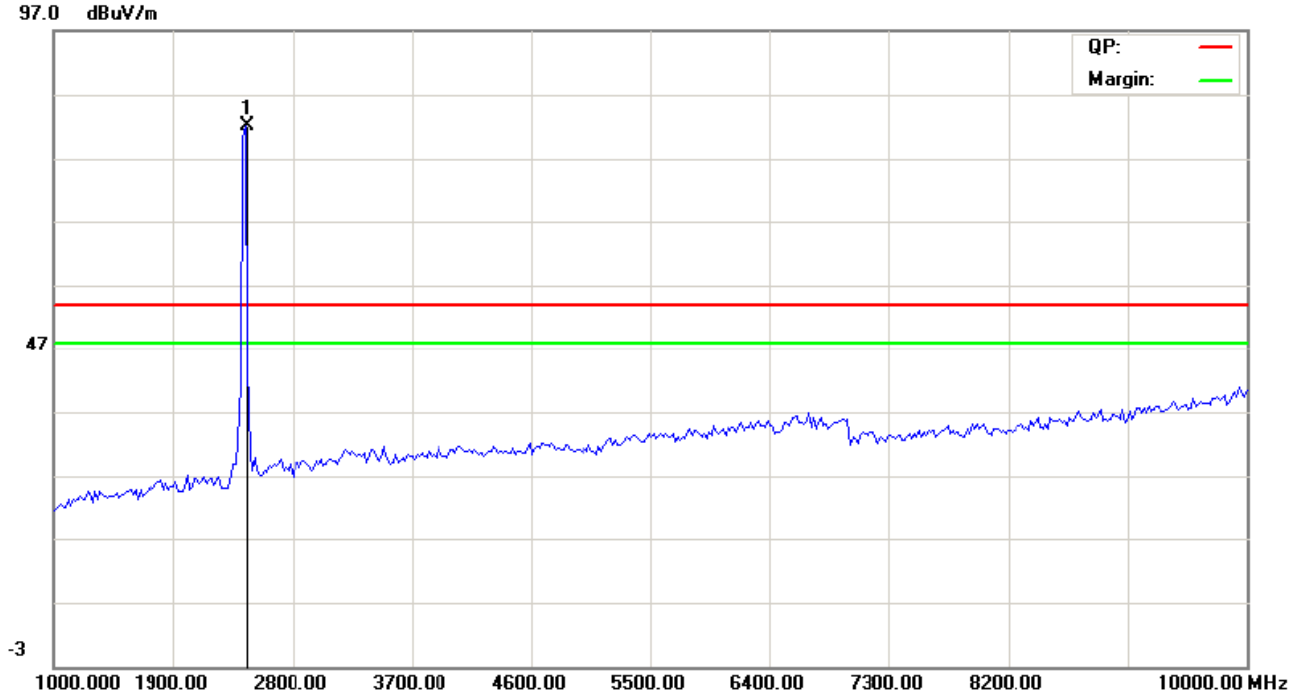


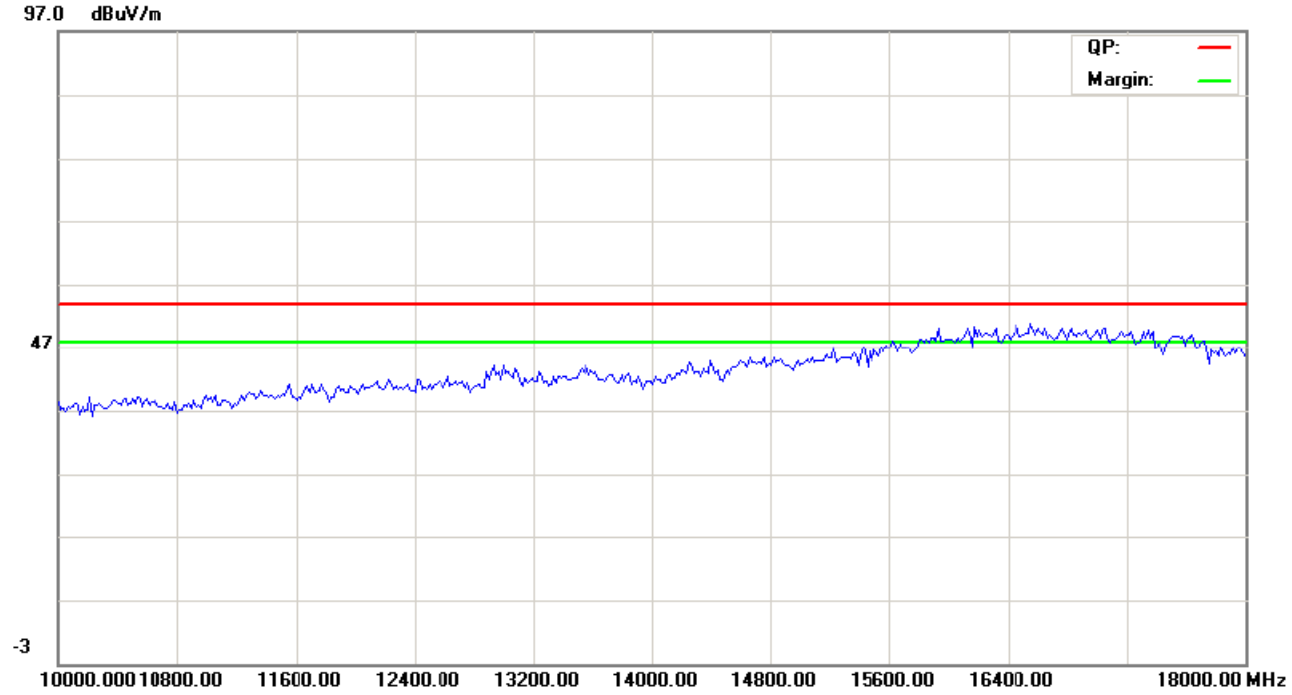
CH01 at 6Mbps: Vertical



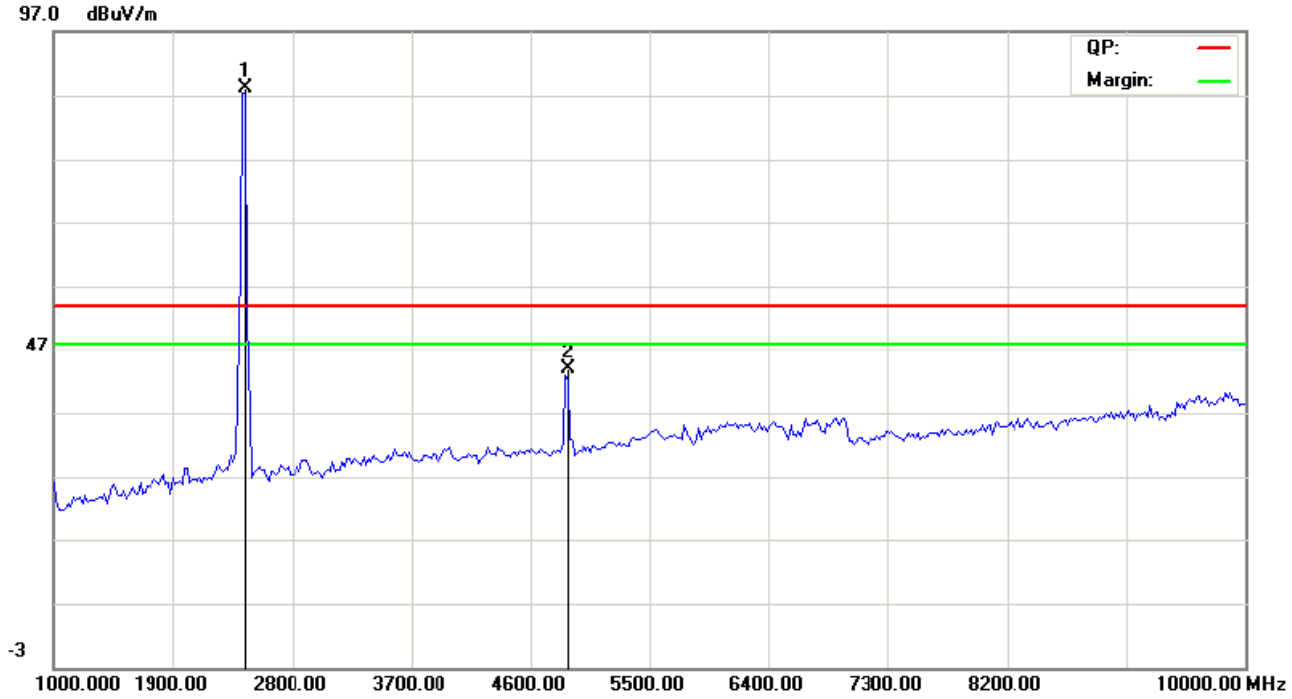


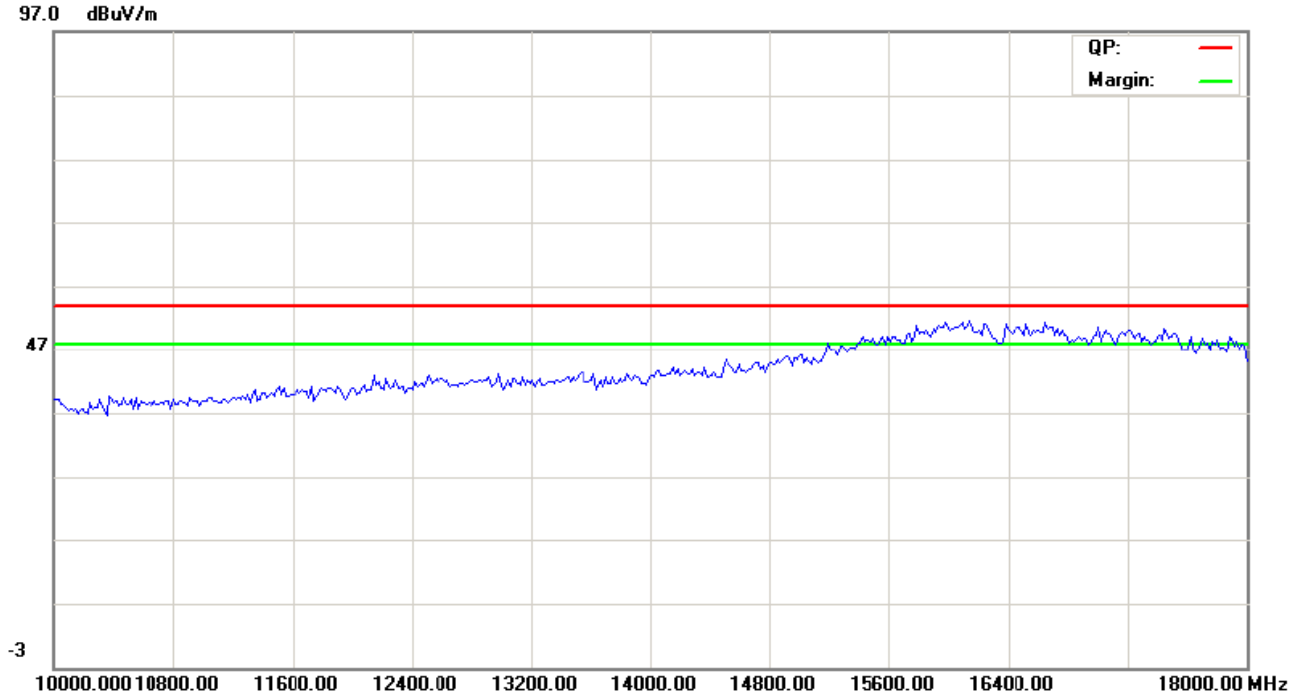
CH06 at 6Mbps: Horizontal



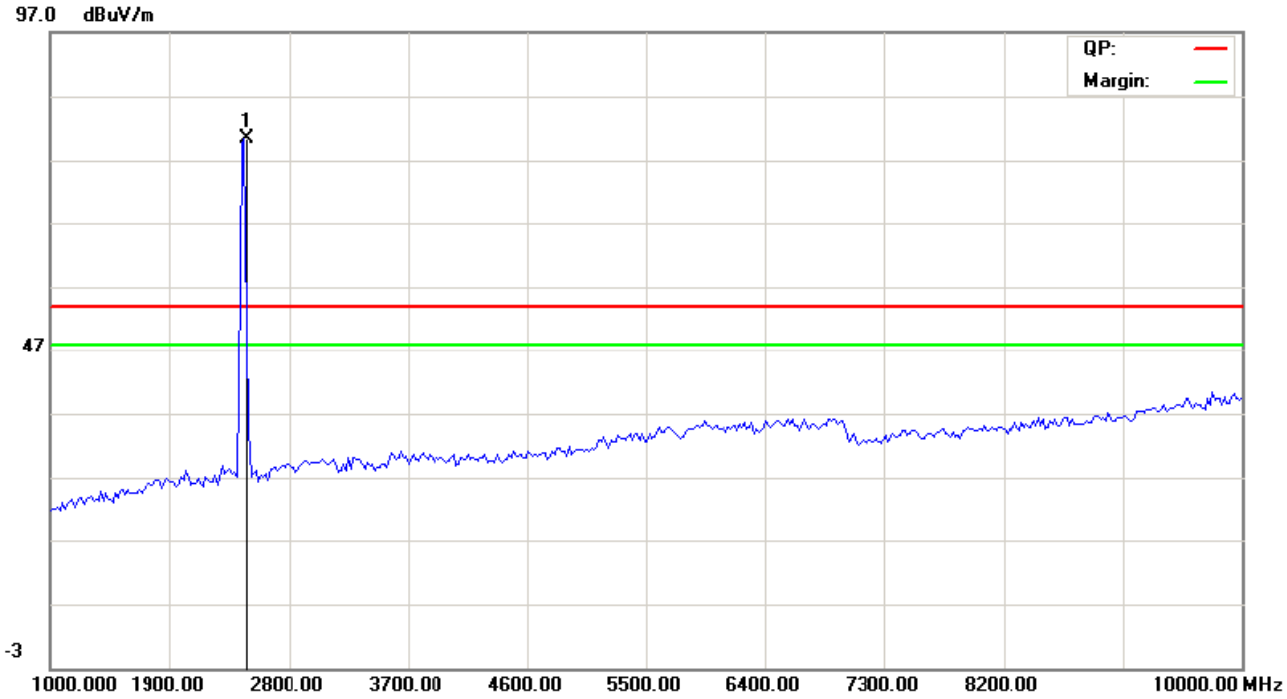


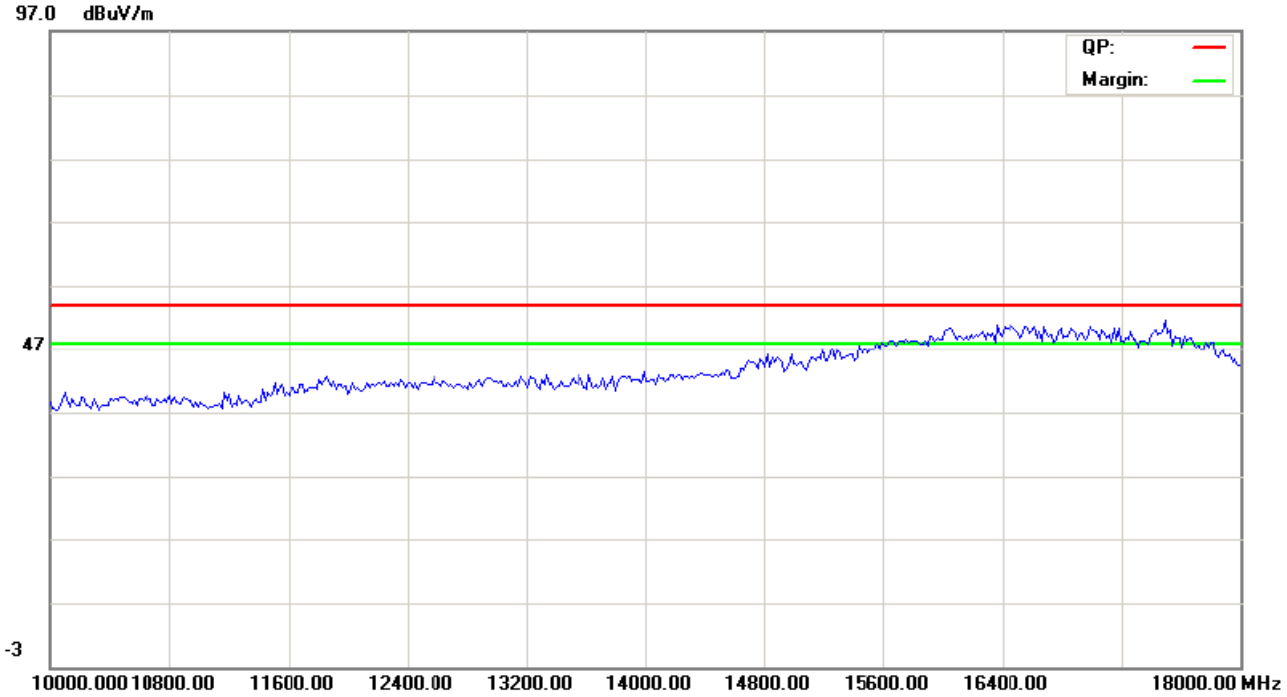
CH06 at 6Mbps: Vertical



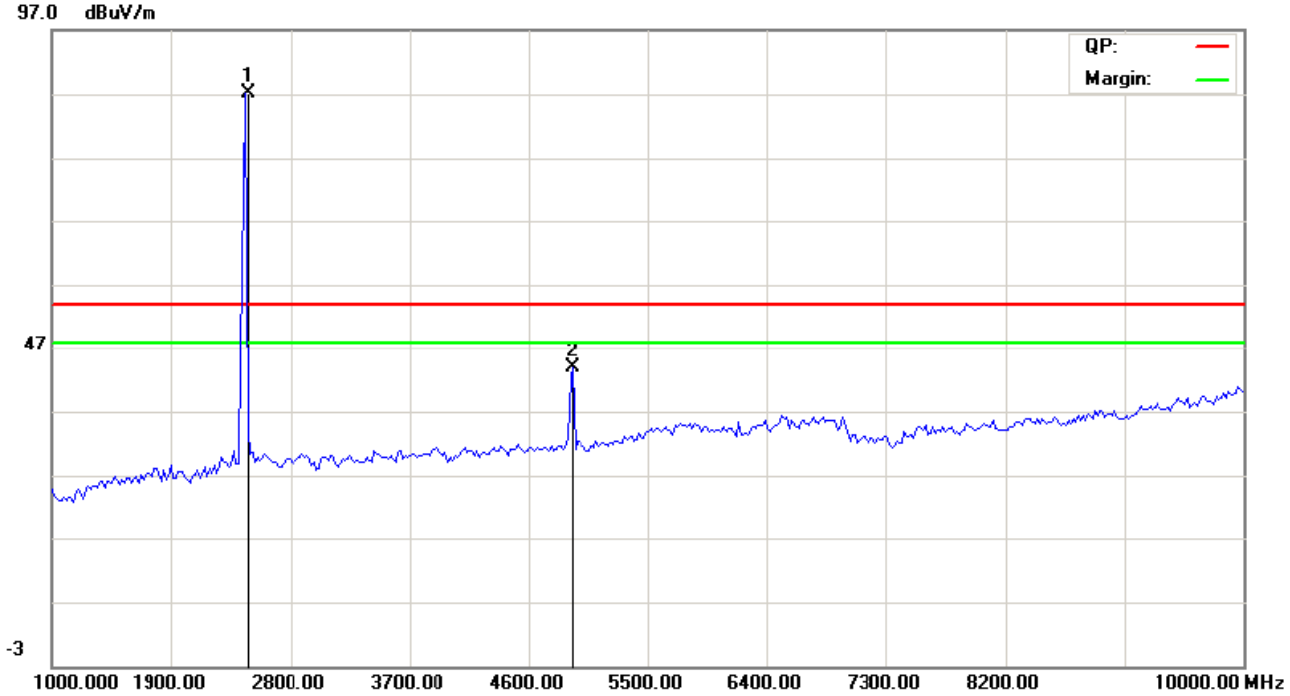


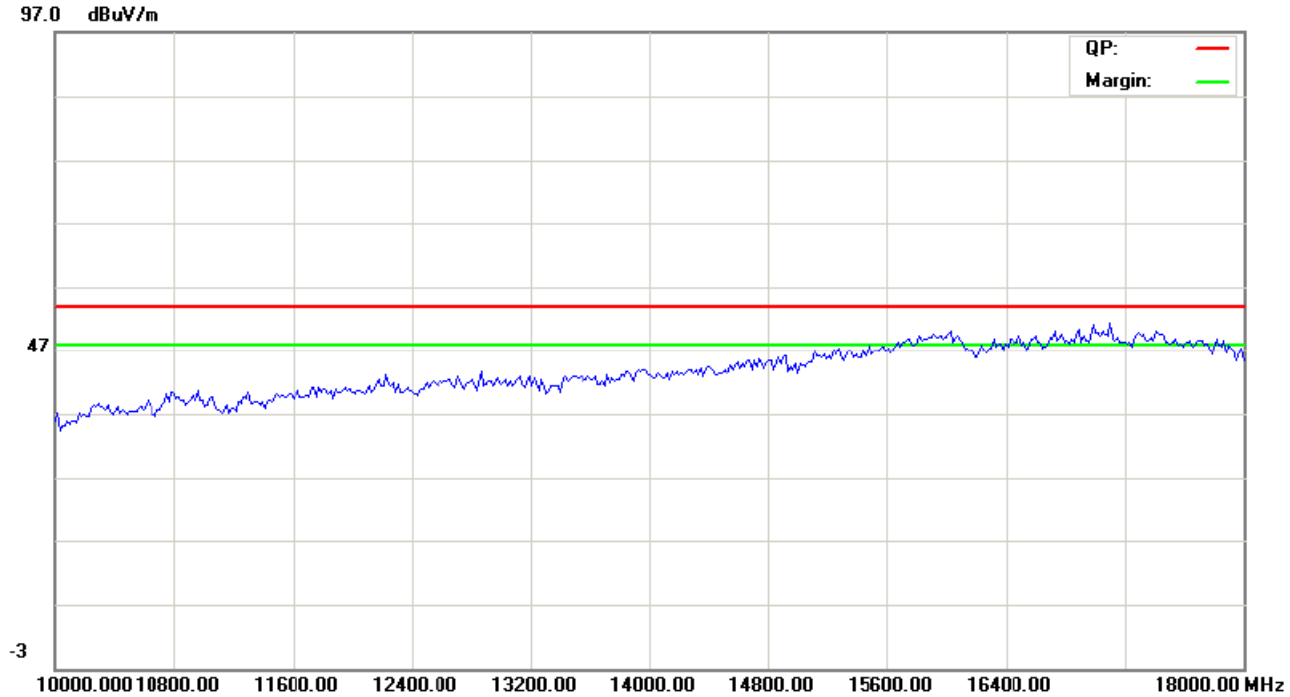
CH11 at 6Mbps: Horizontal





CH11at 6Mbps: Vertical





Note: For the radiated emissions from 18GHz-25GHz, it is the floor noise that meets the requirement of FCC rule.

Operation Mode: Keep Transmitting in CH01 at 11Mbps

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
2412.00	86.86 (PK)	V	Fundamental Frequency
2412.00	80.10 (PK)	H	
4824.00	43.26	H	74(Peak)/ 54(AV)
4824.00	45.63	V	74(Peak)/ 54(AV)
7236.00	--	H/V	74(Peak)/ 54(AV)
9648.00	--	H/V	74(Peak)/ 54(AV)
12060	--	H/V	74(Peak)/ 54(AV)
14472	--	H/V	74(Peak)/ 54(AV)
16684	--	H/V	74(Peak)/ 54(AV)
19296	--	H/V	74(Peak)/ 54(AV)
21708	--	H/V	74(Peak)/ 54(AV)
24120	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

3. For 802.11b mode 11Mbps

Operation Mode: Keep Transmitting in CH06 at 11Mbps

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
2437.00	84.71(PK)	H	Fundamental Frequency
2437.00	87.77 (PK)	V	
4874.00	--	H	74(Peak)/ 54(AV)
4874.00	46.88	V	74(Peak)/ 54(AV)
7311.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)
12185	--	H/V	74(Peak)/ 54(AV)
14622	--	H/V	74(Peak)/ 54(AV)
17059	--	H/V	74(Peak)/ 54(AV)
19496	--	H/V	74(Peak)/ 54(AV)
21933	--	H/V	74(Peak)/ 54(AV)
24370	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

3. For 802.11b mode **11Mbps**

Operation Mode: Keep Transmitting in CH11 at 11Mbps

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
2462.00	82.02(PK)	H	Fundamental Frequency
2462.00	89.88(PK)	V	
4924	--	H	74(Peak)/ 54(AV)
4924	43.26	V	74(Peak)/ 54(AV)
7368	--	H/V	74(Peak)/ 54(AV)
9848	--	H/V	74(Peak)/ 54(AV)
12310	--	H/V	74(Peak)/ 54(AV)
14772	--	H/V	74(Peak)/ 54(AV)
17234	--	H/V	74(Peak)/ 54(AV)
19696	--	H/V	74(Peak)/ 54(AV)
22158	--	H/V	74(Peak)/ 54(AV)
24650	--	H/V	74(Peak)/ 54(AV)

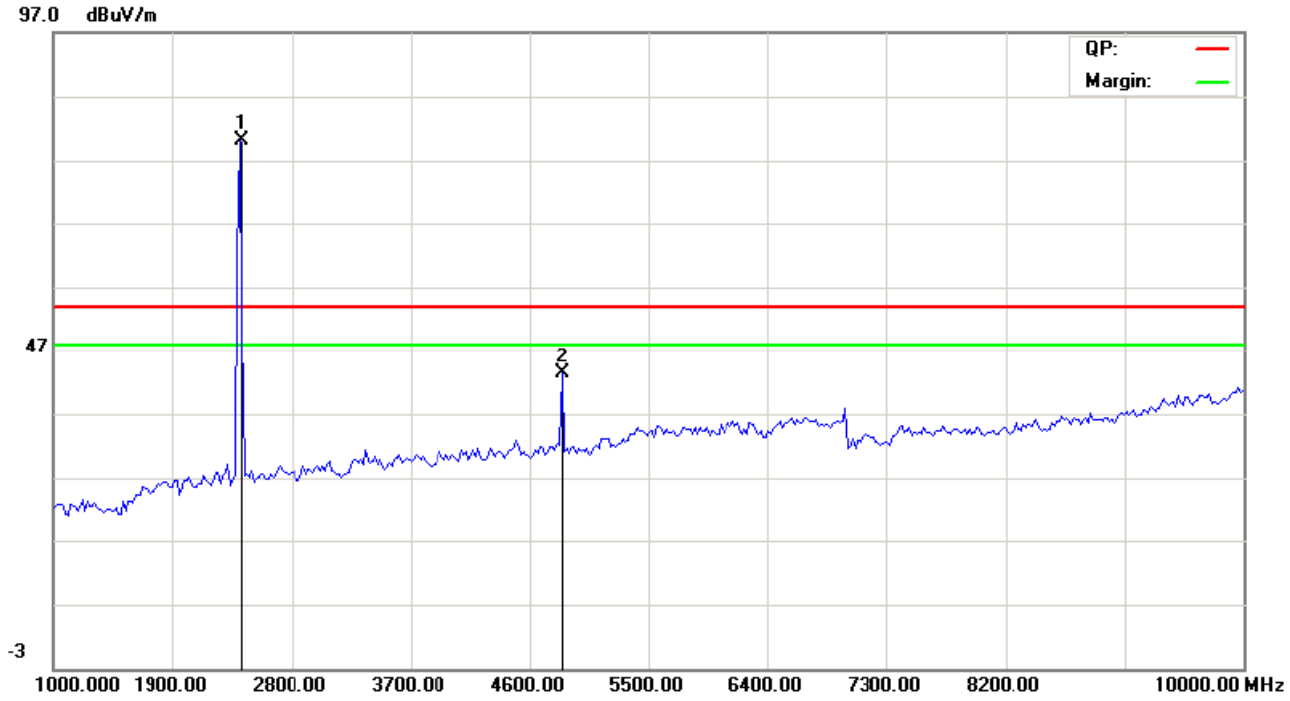
Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

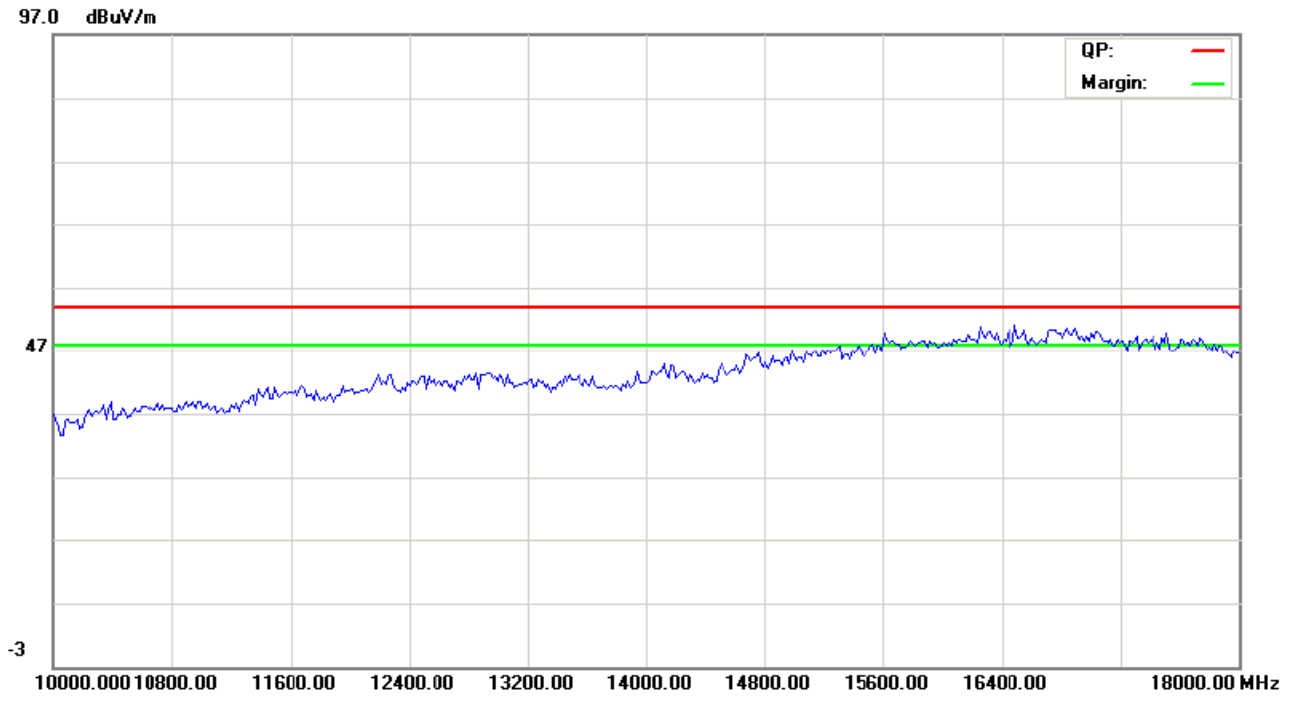
2. Remark “---” means that the emissions level is too low to be measured

3. For 802.11b mode at **11Mbps**

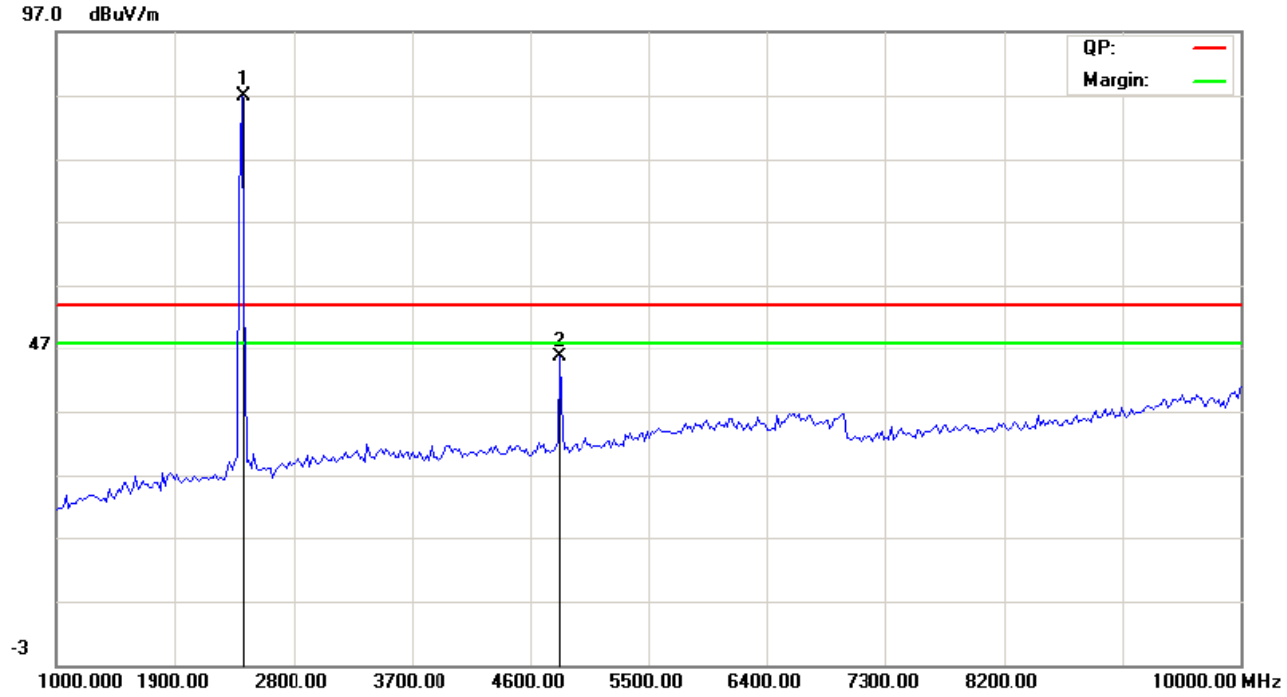
Please refer to the following test plots for details:

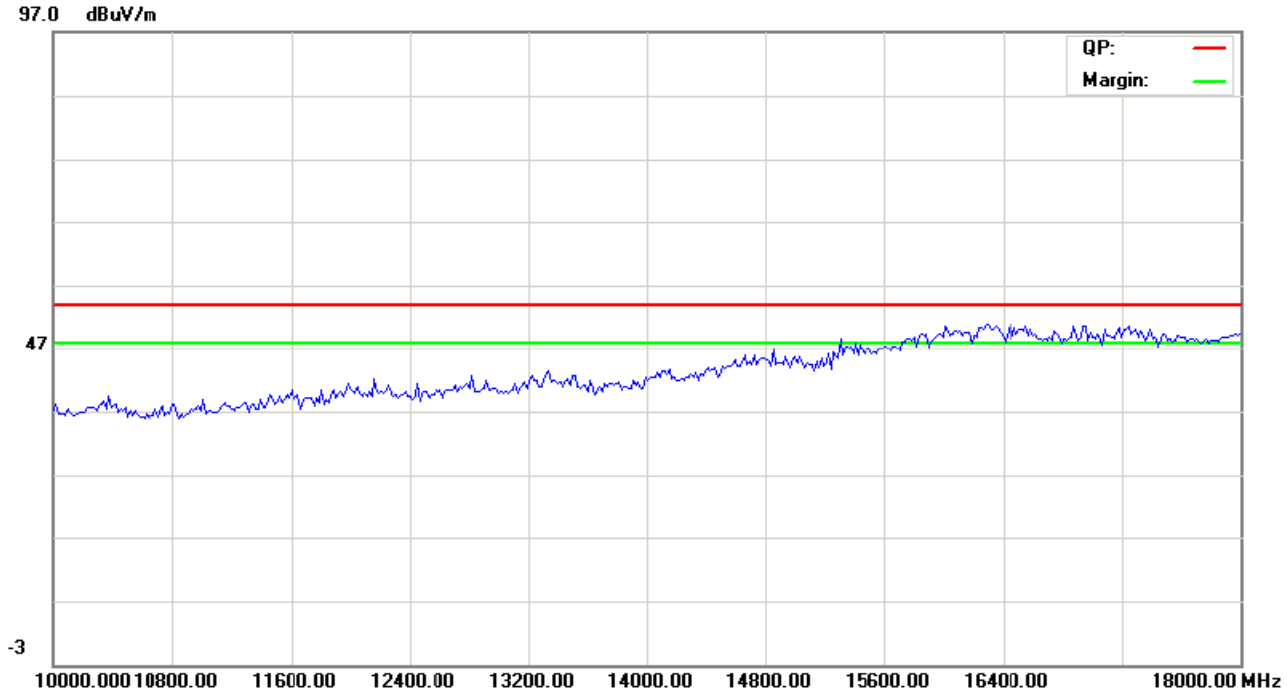
CH01 at 11Mbps: Horizontal



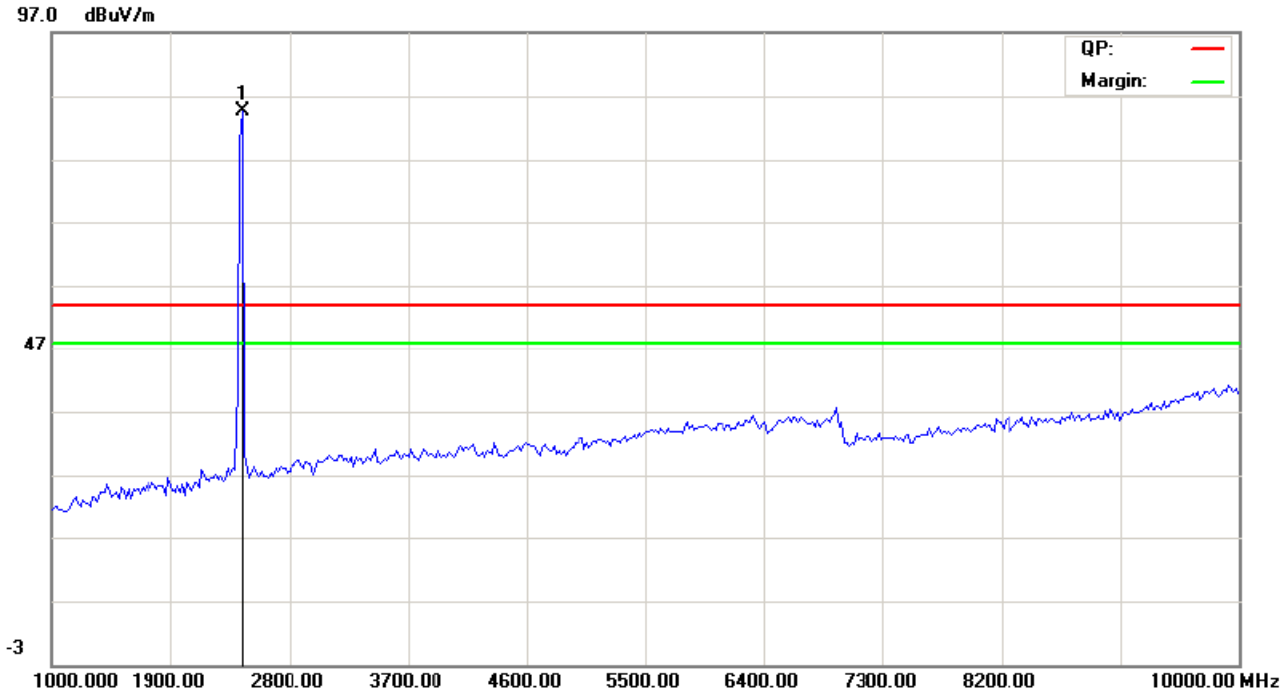


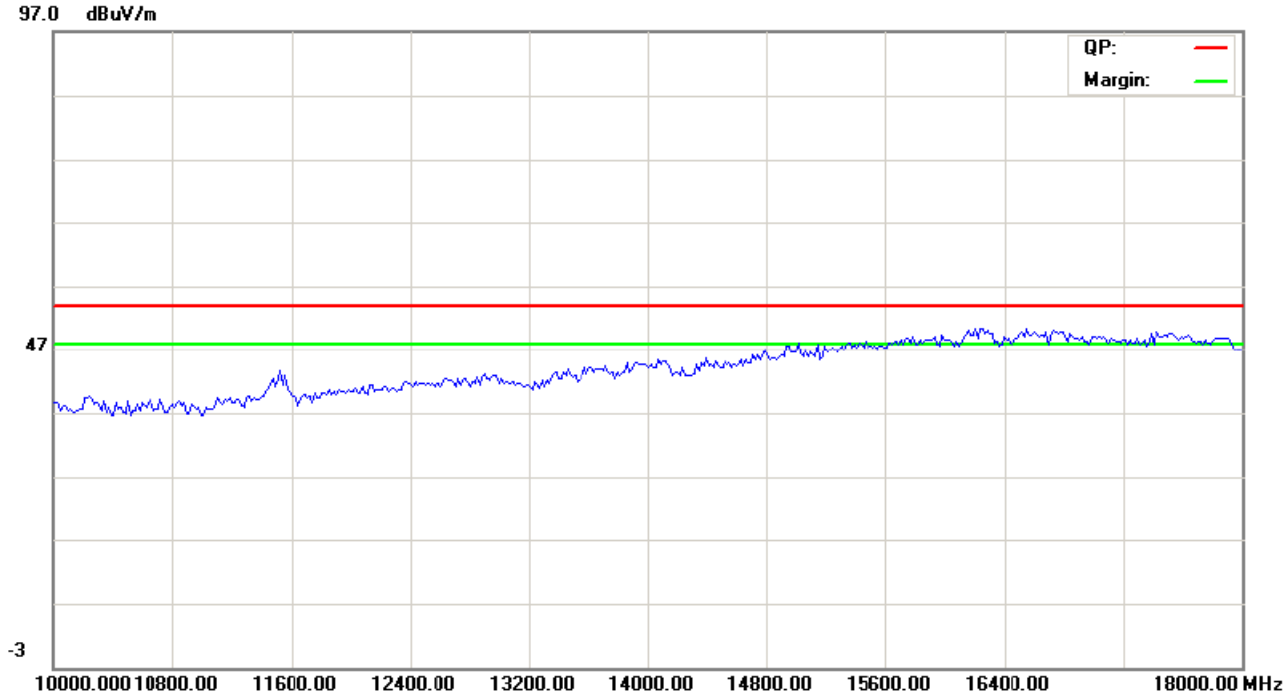
CH01 at 11Mbps: Vertical



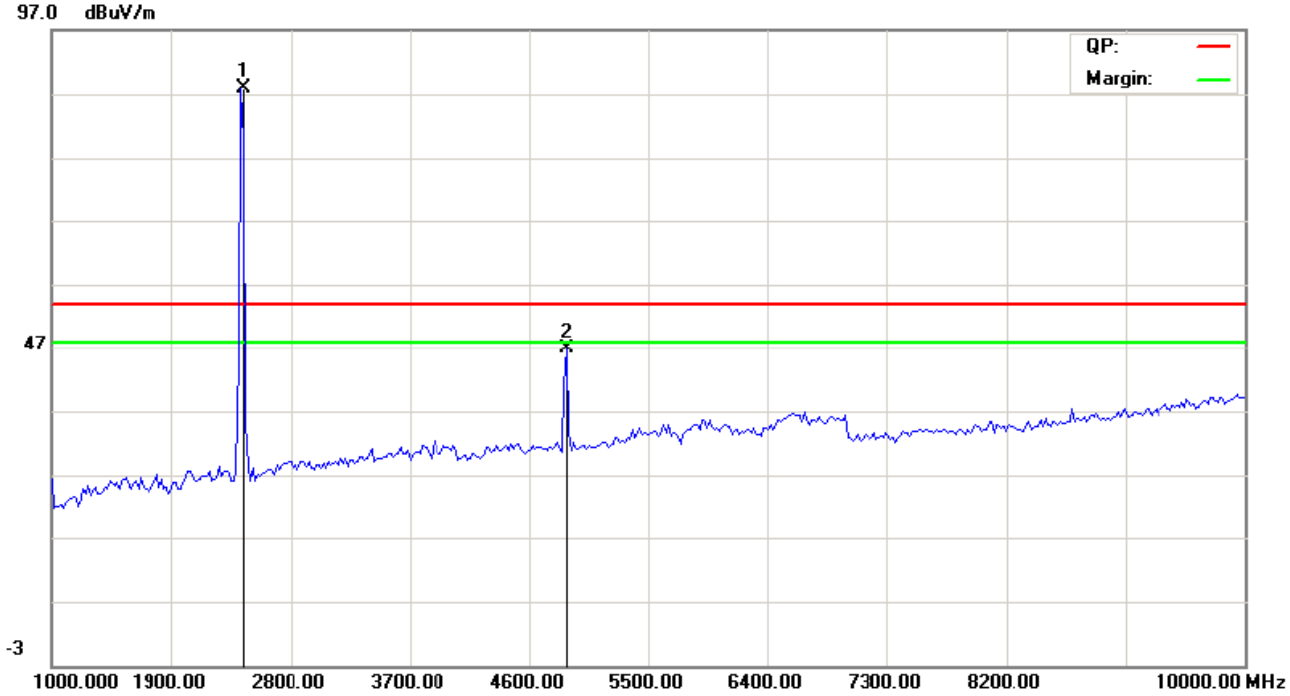


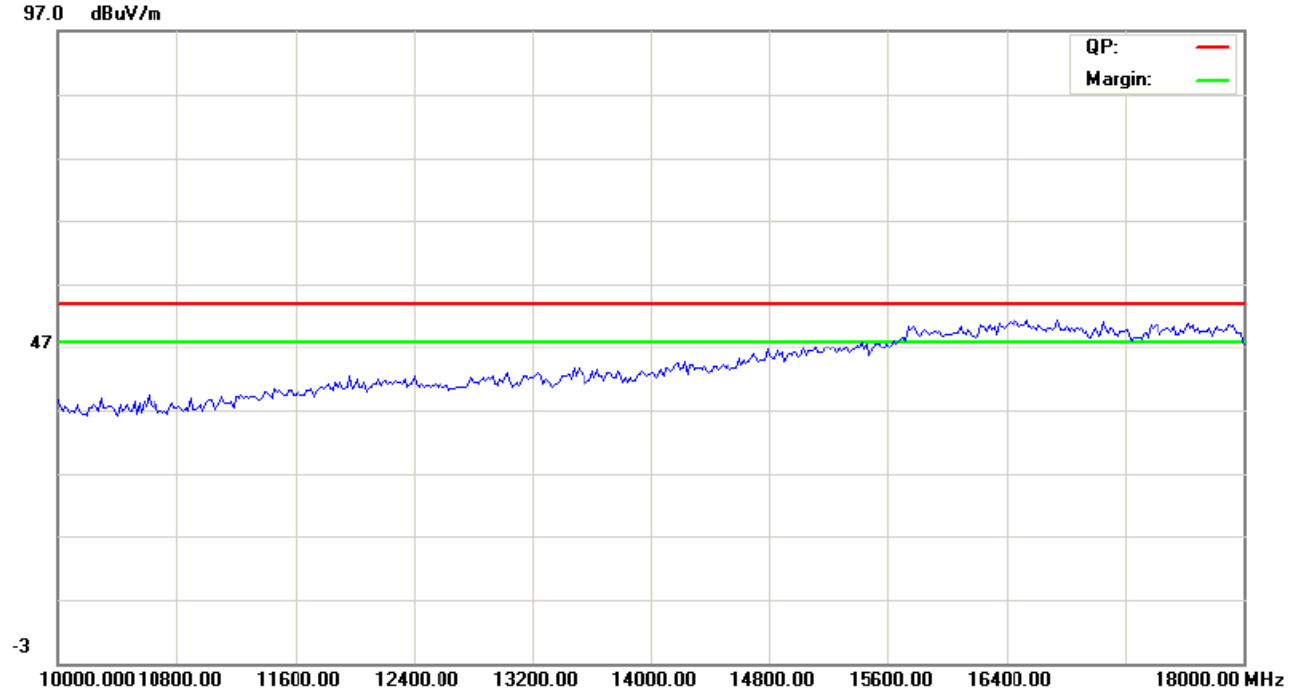
CH06 at 11Mbps: Horizontal



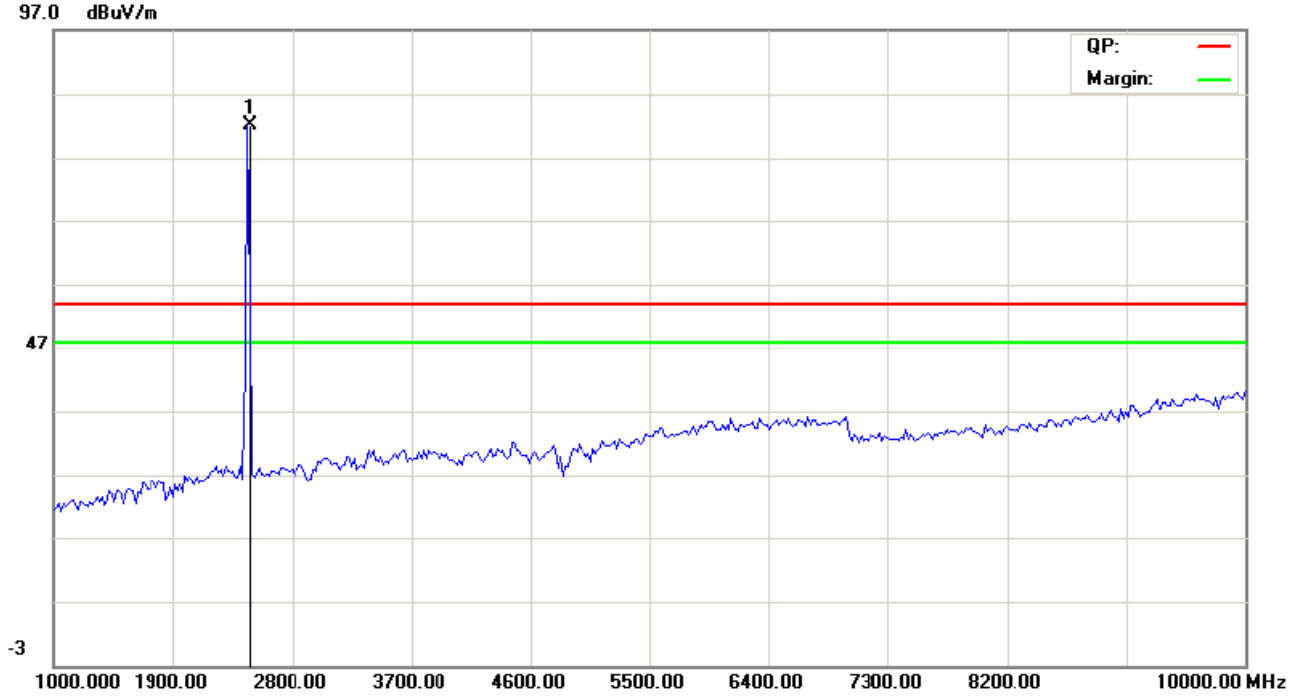


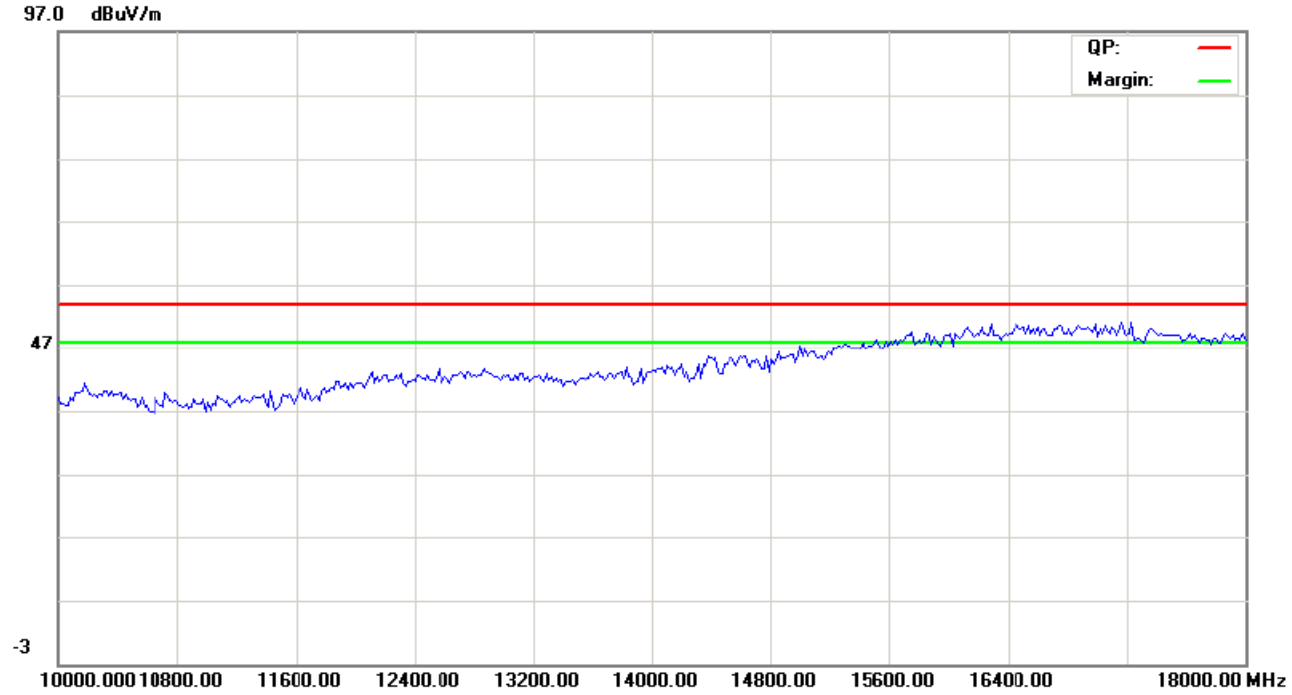
CH06 at 11Mbps: Vertical



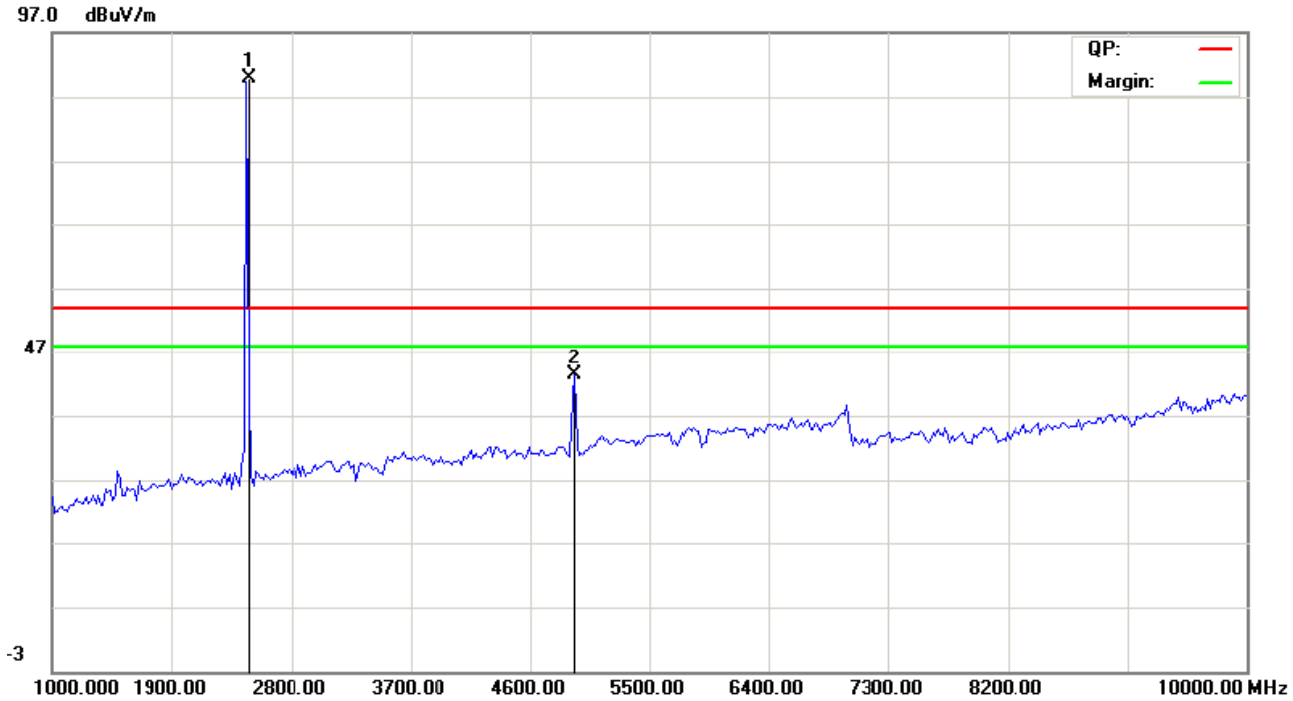


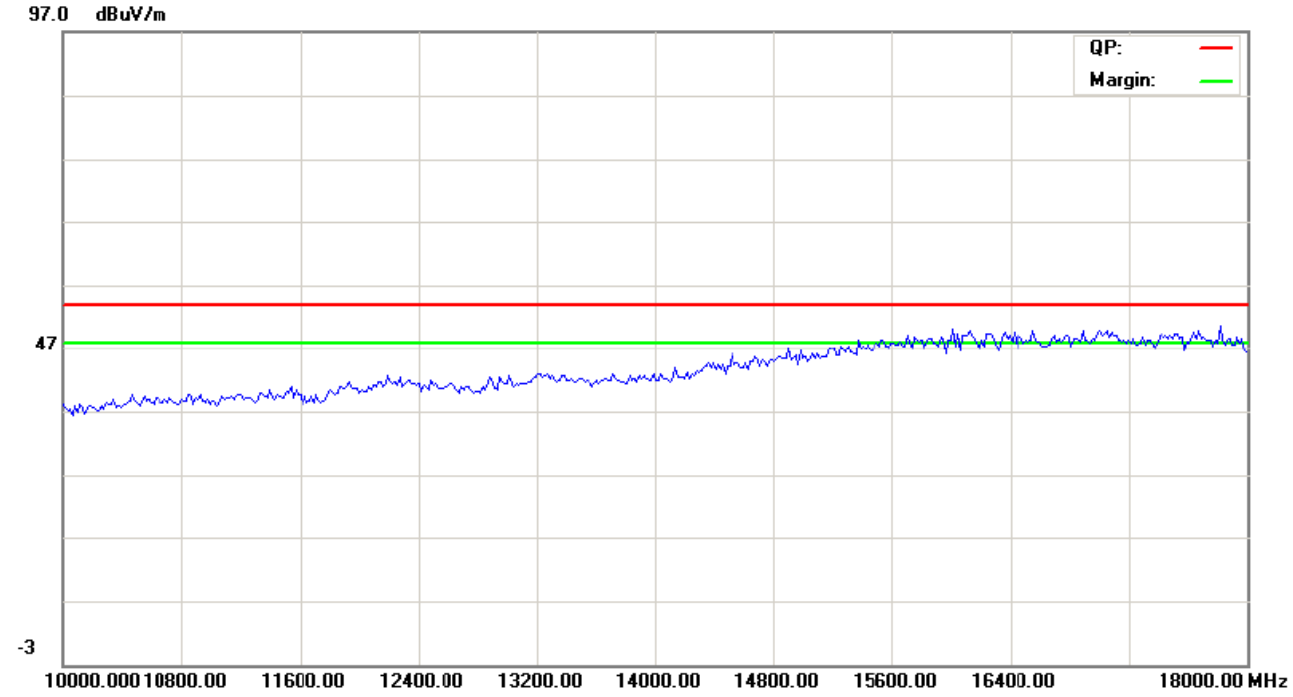
CH11 at 11Mbps: Horizontal





CH11 at 11Mbps: Vertical

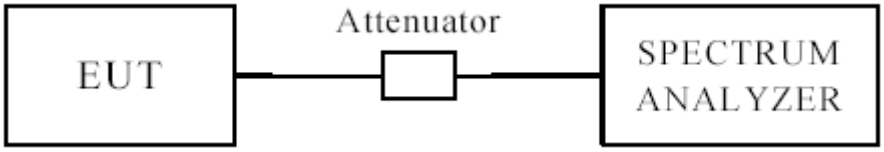




Note: For the radiated emissions from 18GHz-25GHz, it is the floor noise that meet the requirement of FCC rule.

7.0 6dB Bandwidth Measurement

7.1 Test Setup



7.2 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500kHz

7.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator.

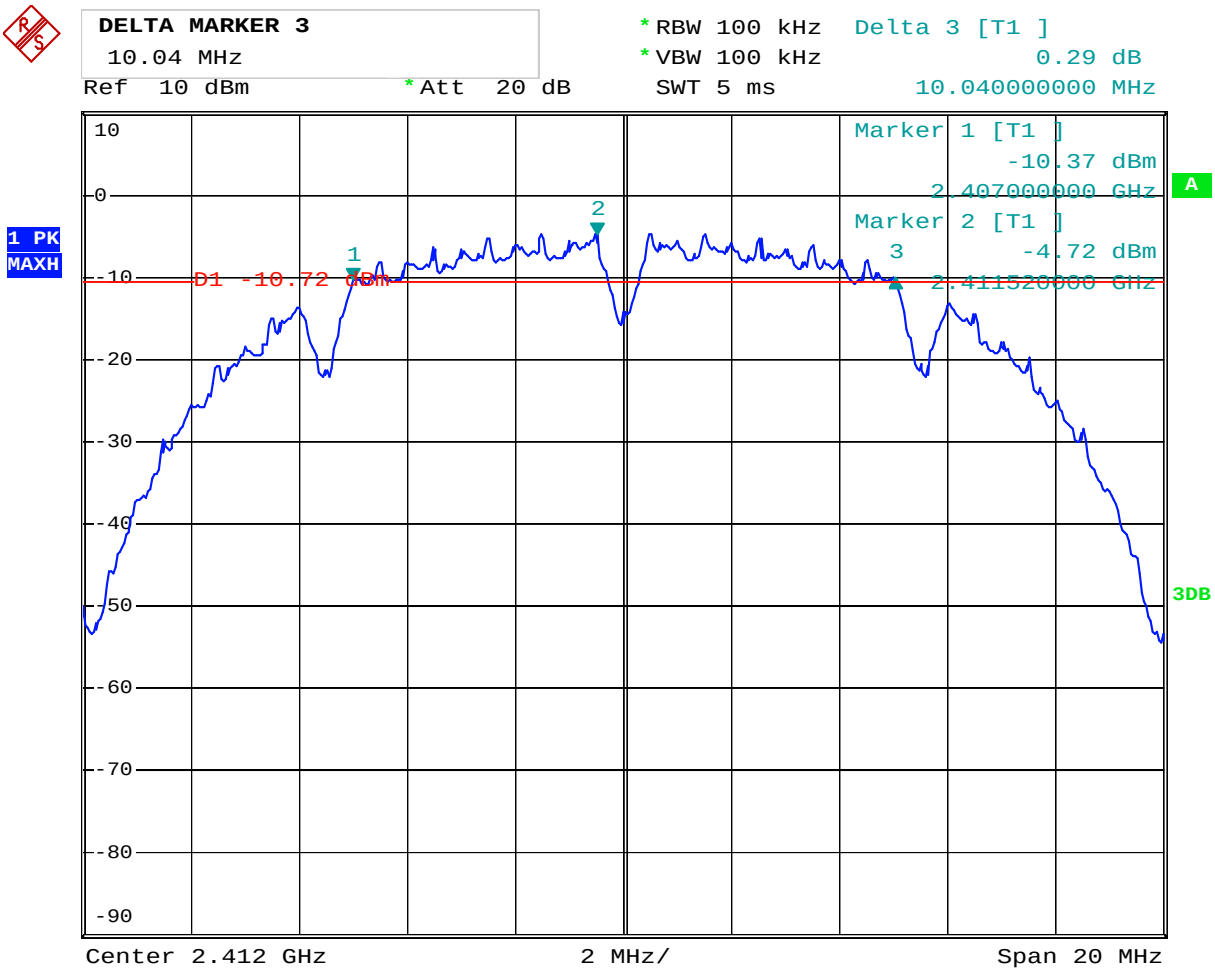
The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 kHz RBW and 100 kHz VBW for 802.11b/g mode; The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

7.4 Test Result

EUT	MID	Model	M7003
Mode	802.11b	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

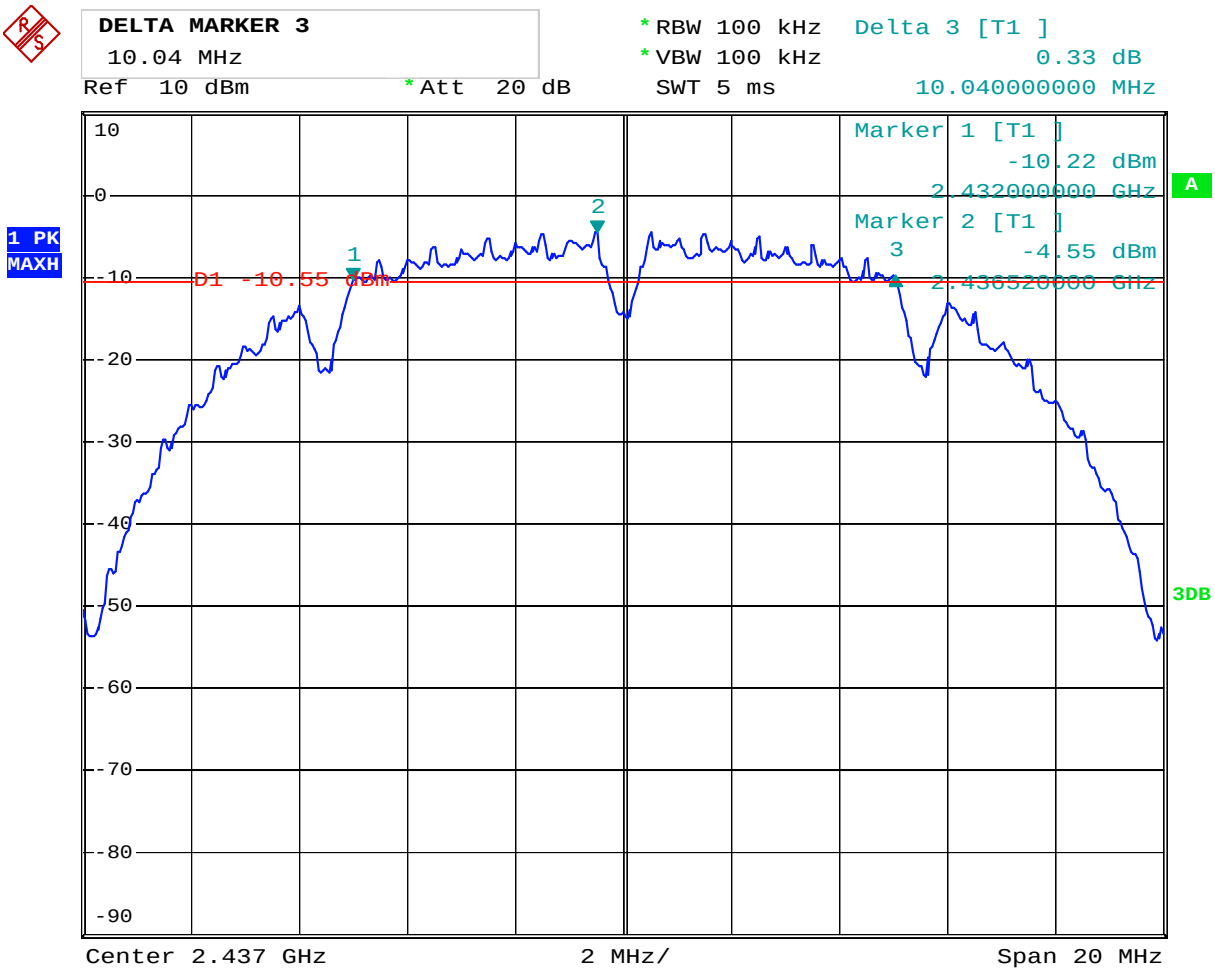
Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
1	2412	1	10.04	0.5	Pass
6	2437	1	10.04	0.5	Pass
11	2462	1	10.12	0.5	Pass

1. 802.11b at 1Mbps of CH01



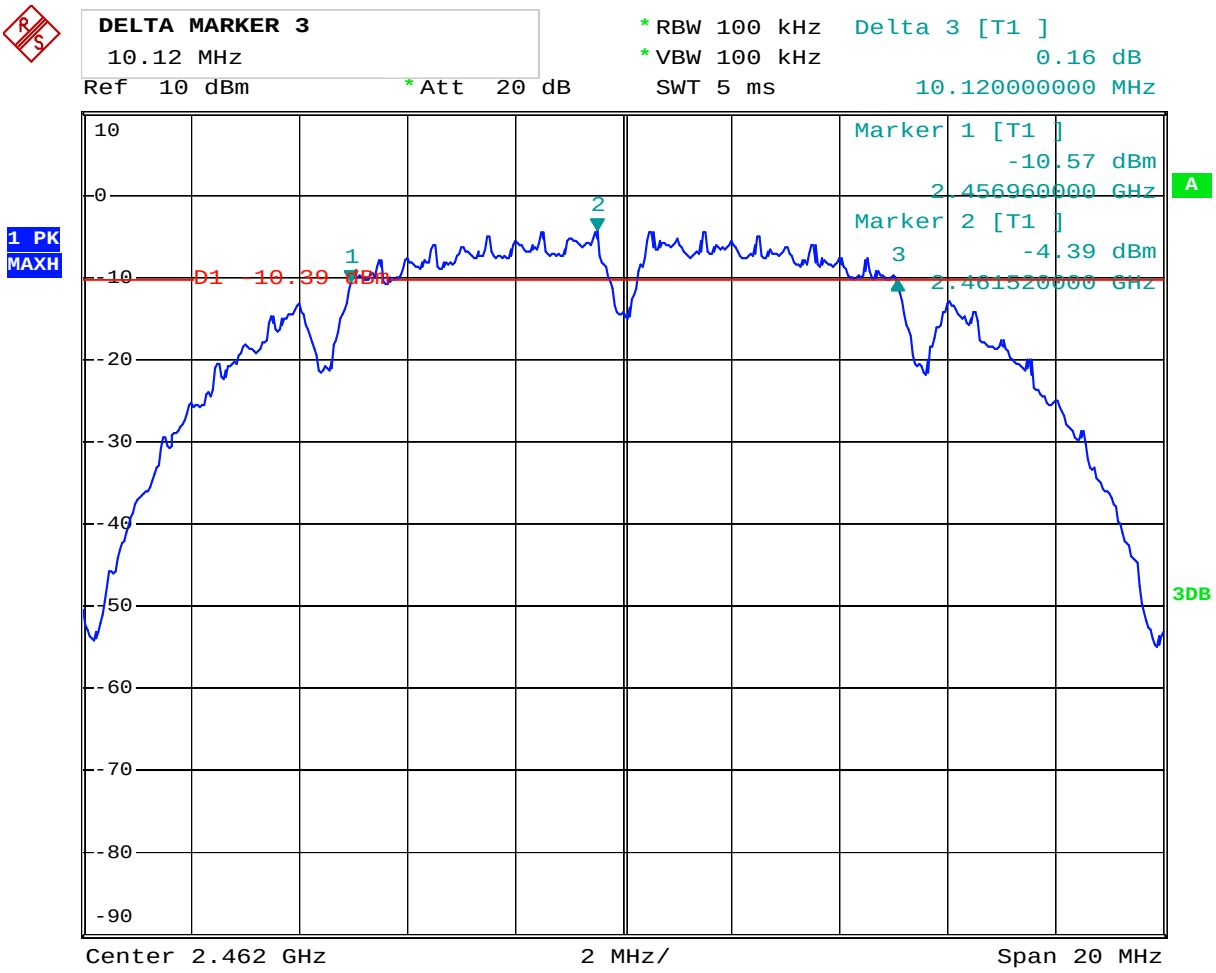
Date: 16.JUL.2011 14:02:59

2. 802.11b at 1Mbps of CH06



Date: 16.JUL.2011 14:04:39

3. 802.11b at 1Mbps of CH11



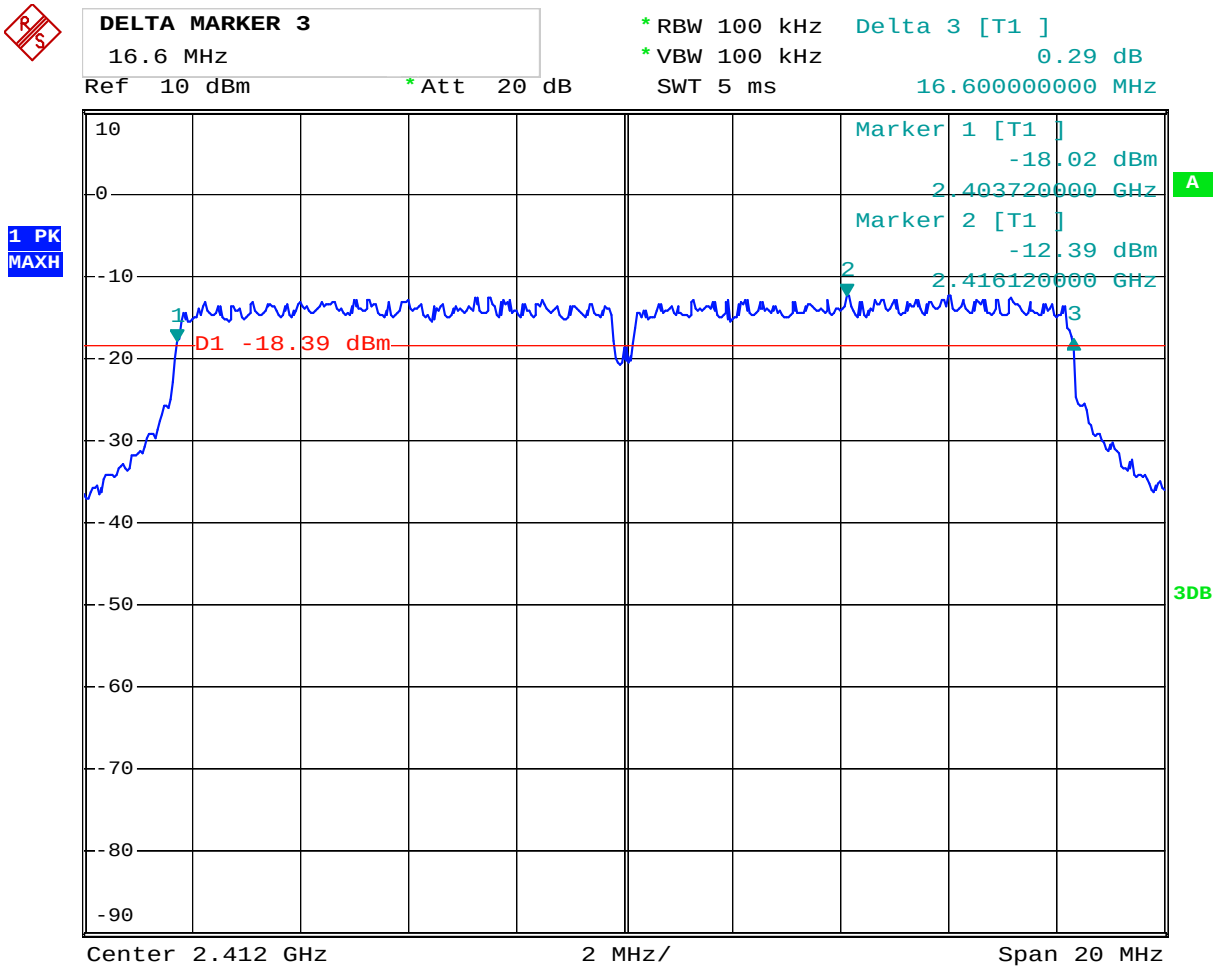
Date: 16.JUL.2011 14:05:40

EUT	MID	Model	M7003
Mode	802.11g	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
1	2412	6	16.60	0.5	Pass
6	2437	6	16.56	0.5	Pass
11	2462	6	16.60	0.5	Pass

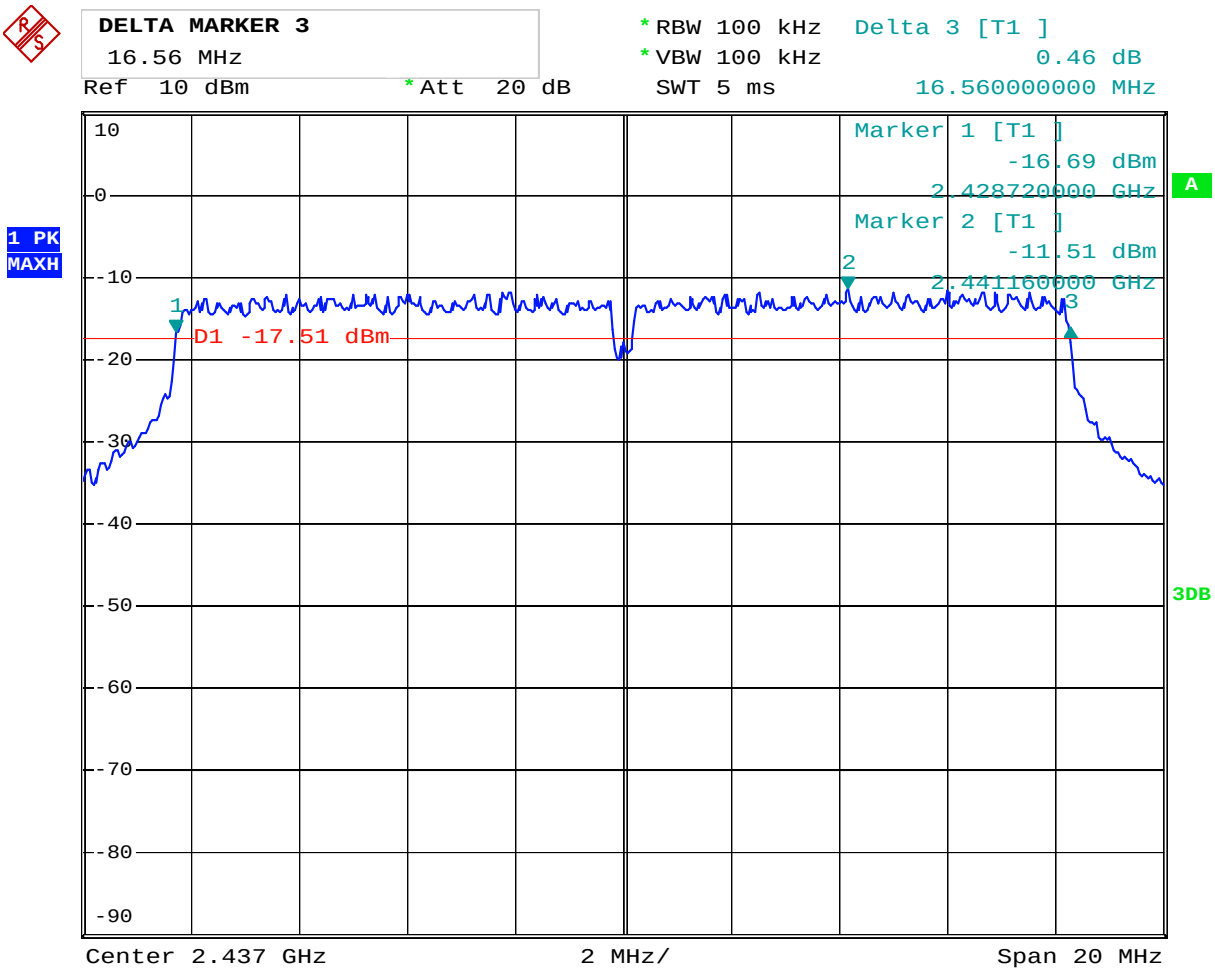
Test Plots:

1. 802.11g at 6Mbps of CH01



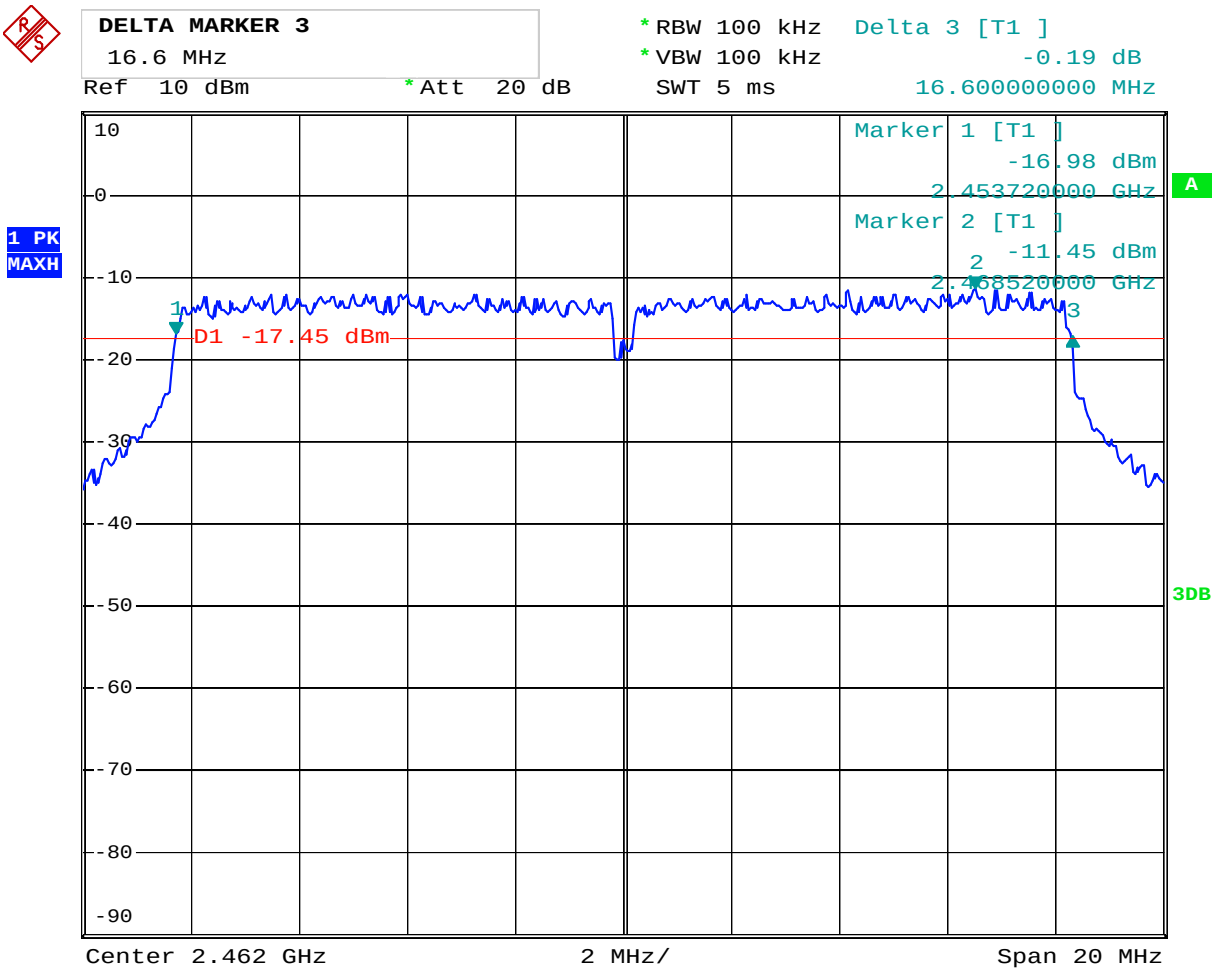
Date: 16.JUL.2011 14:09:34

2. 802.11g at 6Mbps of CH06



Date: 16.JUL.2011 14:08:40

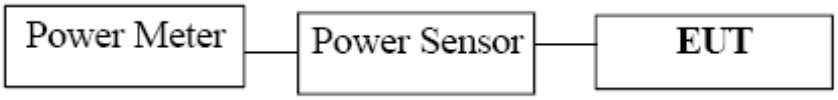
3. 802.11g at 6Mbps of CH11



Date: 16.JUL.2011 14:07:10

8. Maximum Peak Output Power

8.1 Test Setup



8.2 Limits of Maximum Peak Output Power

The Maximum Peak Output Power Measurement is 30dBm.

8.3 Test Procedure

The RF power output was measured with a Power meter connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate centre frequency.

Note: the peak power was measured

8.4Test Results

EUT	MID	Model	M7003
Mode	802.11b	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass/ Fail
1	2412	11.05	30	Pass
6	2437	10.79	30	Pass
11	2462	11.29	30	Pass

Note: 1. At finial test to get the worst-case emission at 11Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

EUT	MID	Model	M7003
Mode	802.11g	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass/ Fail
1	2412	9.87	30	Pass
6	2437	10.88	30	Pass
11	2462	11.45	30	Pass

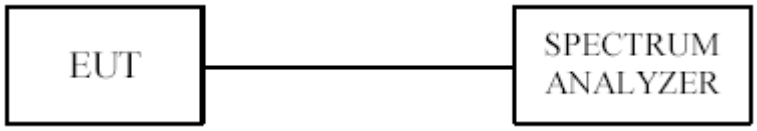
Note: 1. At finial test to get the worst-case emission at 6Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

9. Power Spectral Density Measurement

9.1 Test Setup



9.2 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm.

9.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3KHz RBW and 10kHz VBW, set sweep time=100s, **PK detector.**

The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span / 3KHz for a full response of the mixer in the spectrum analyzer.

9.4Test Result

EUT	MID	Model	M7003
Mode	802.11b	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Final RF Power Level in 3kHz BW (dBm)	Maximum Limit (dBm)	Pass/ Fail
1	2412	-17.48	8	Pass
6	2437	-17.28	8	Pass
11	2462	-17.03	8	Pass

Note: For 802.11b mode at finial test to get the worst-case emission at 11Mbps for CH11， CH06 and CH01

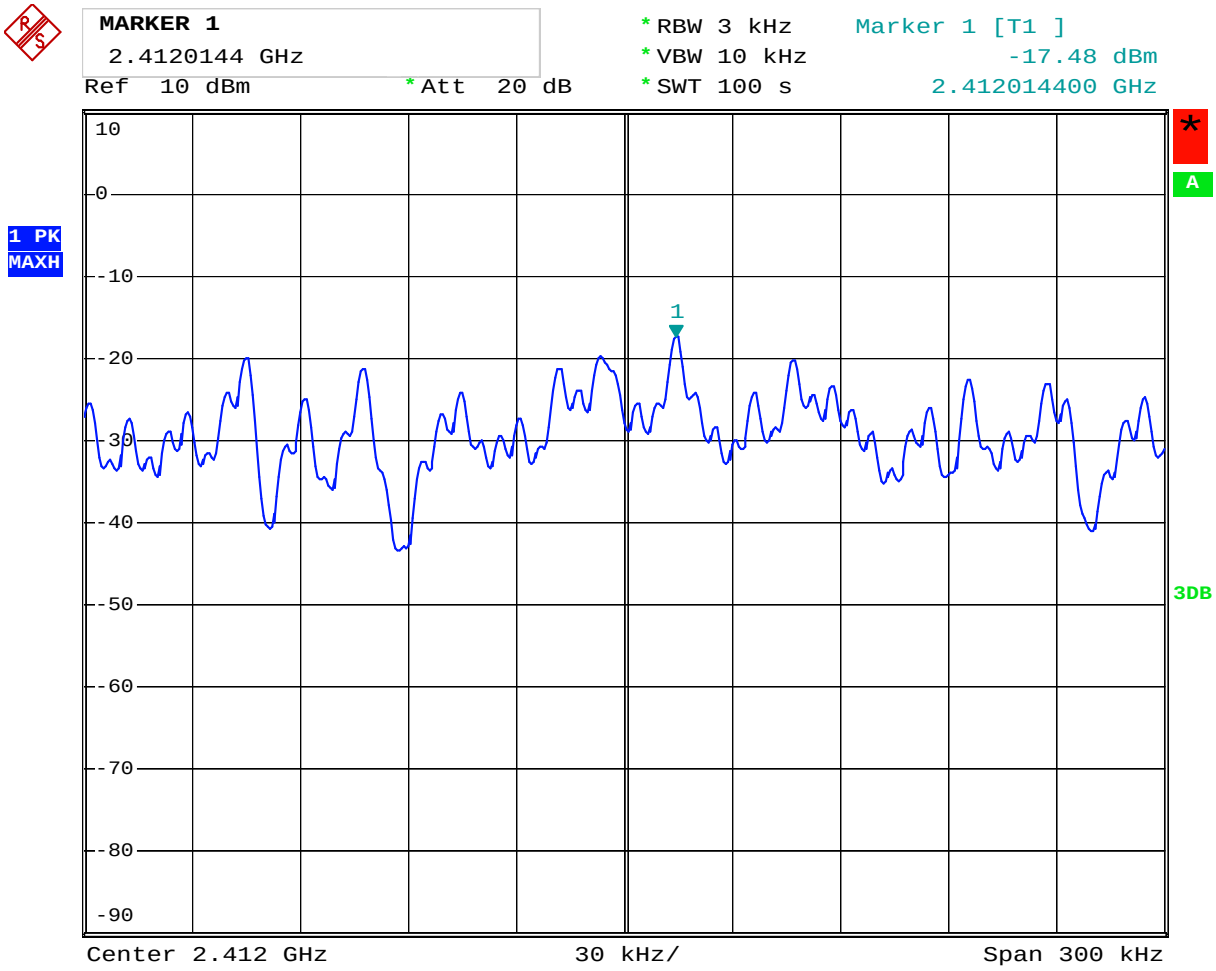
EUT	Mobile Internet Device	Model	MID
Mode	802.11g	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Final RF Power Level in 3kHz BW (dBm)	Maximum Limit (dBm)	Pass/ Fail
1	2412	-23.22	8	Pass
6	2437	-22.41	8	Pass
11	2462	-26.73	8	Pass

Note: For 802.11g mode at finial test to get the worst-case emission at 6Mbps for CH11，CH06 and CH01

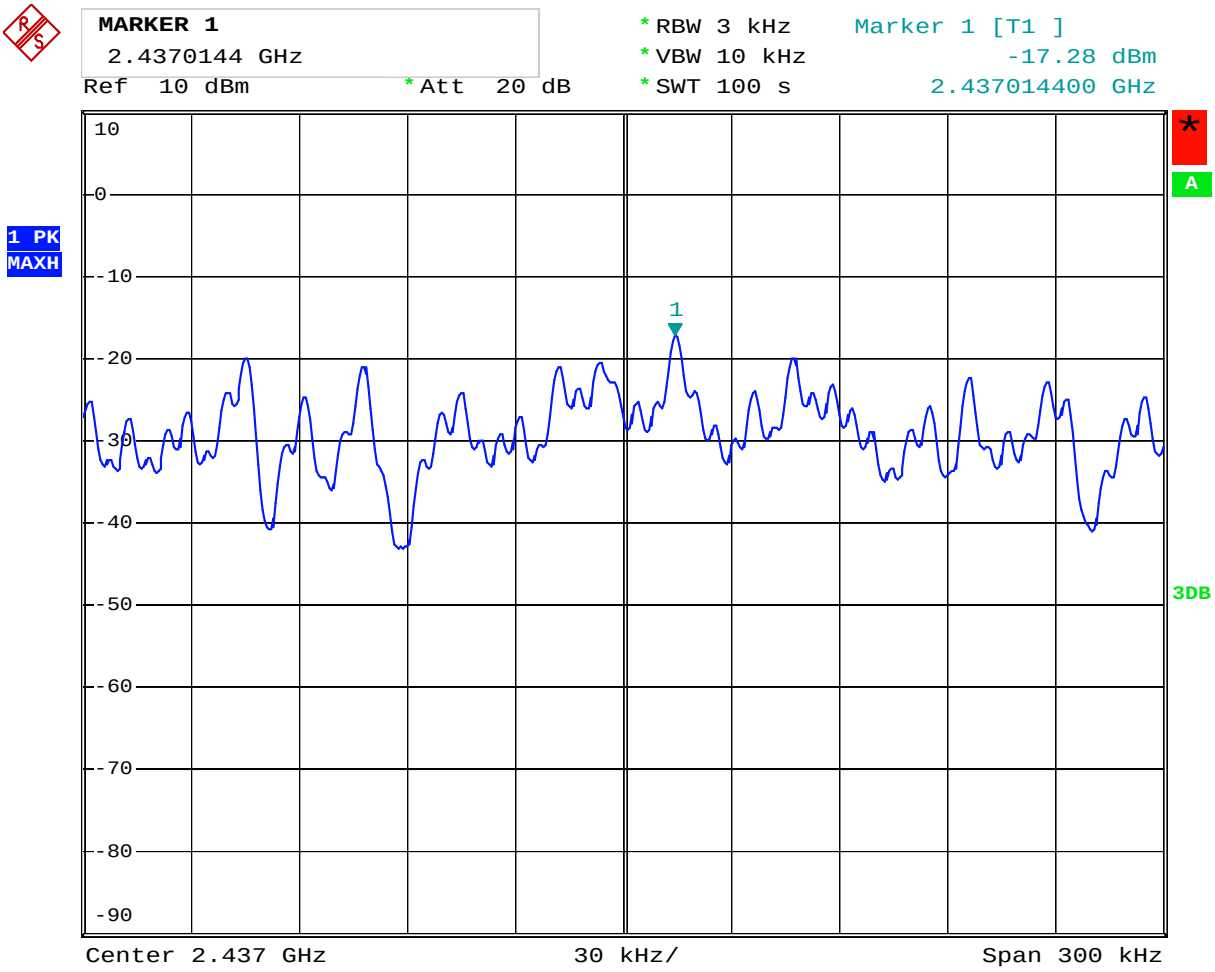
9.5 Photo of Power Spectral Density Measurement

1.802.11b at 11Mbps of CH01



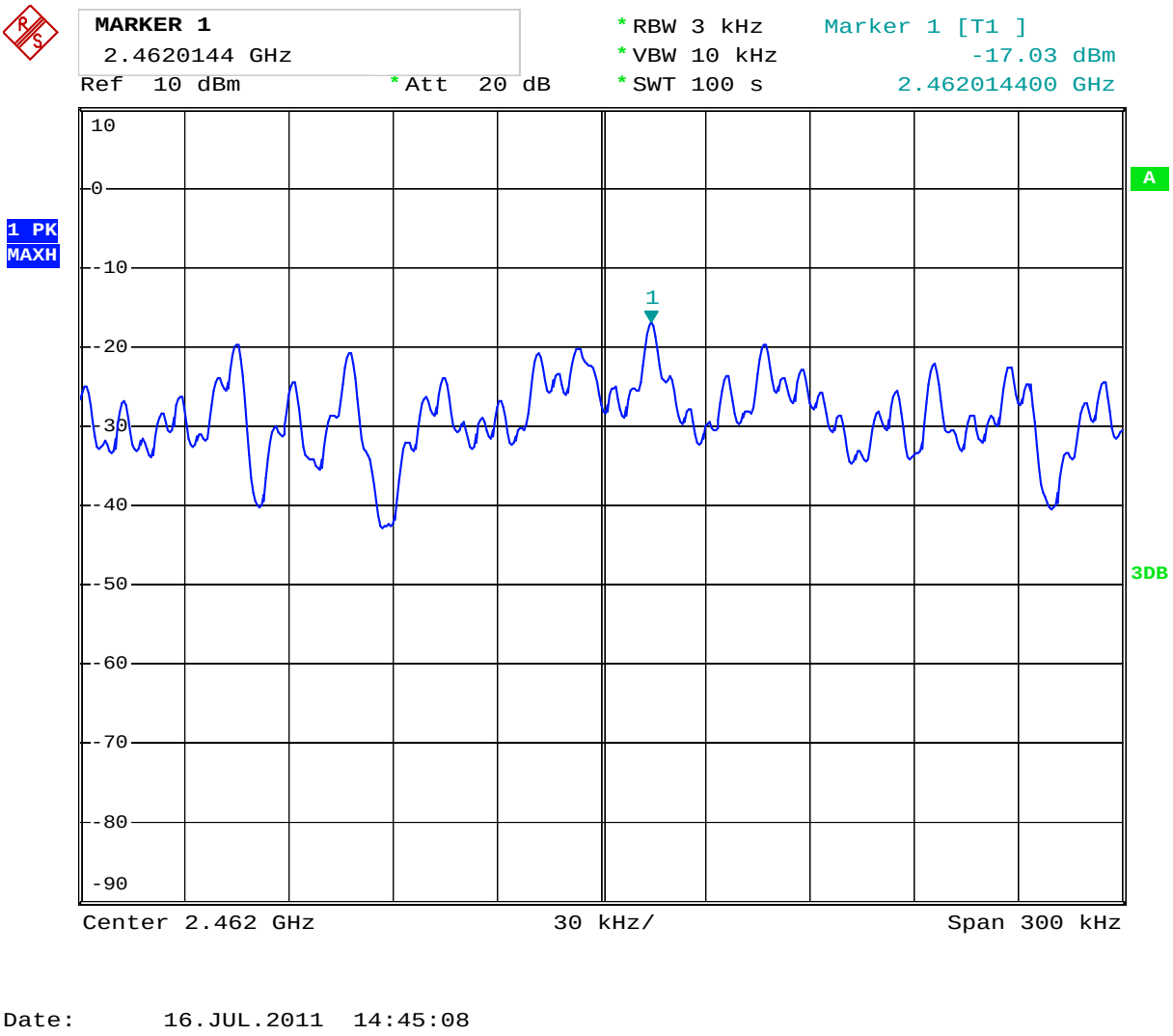
Date: 16.JUL.2011 14:37:36

2. 802.11b at 11Mbps at CH06



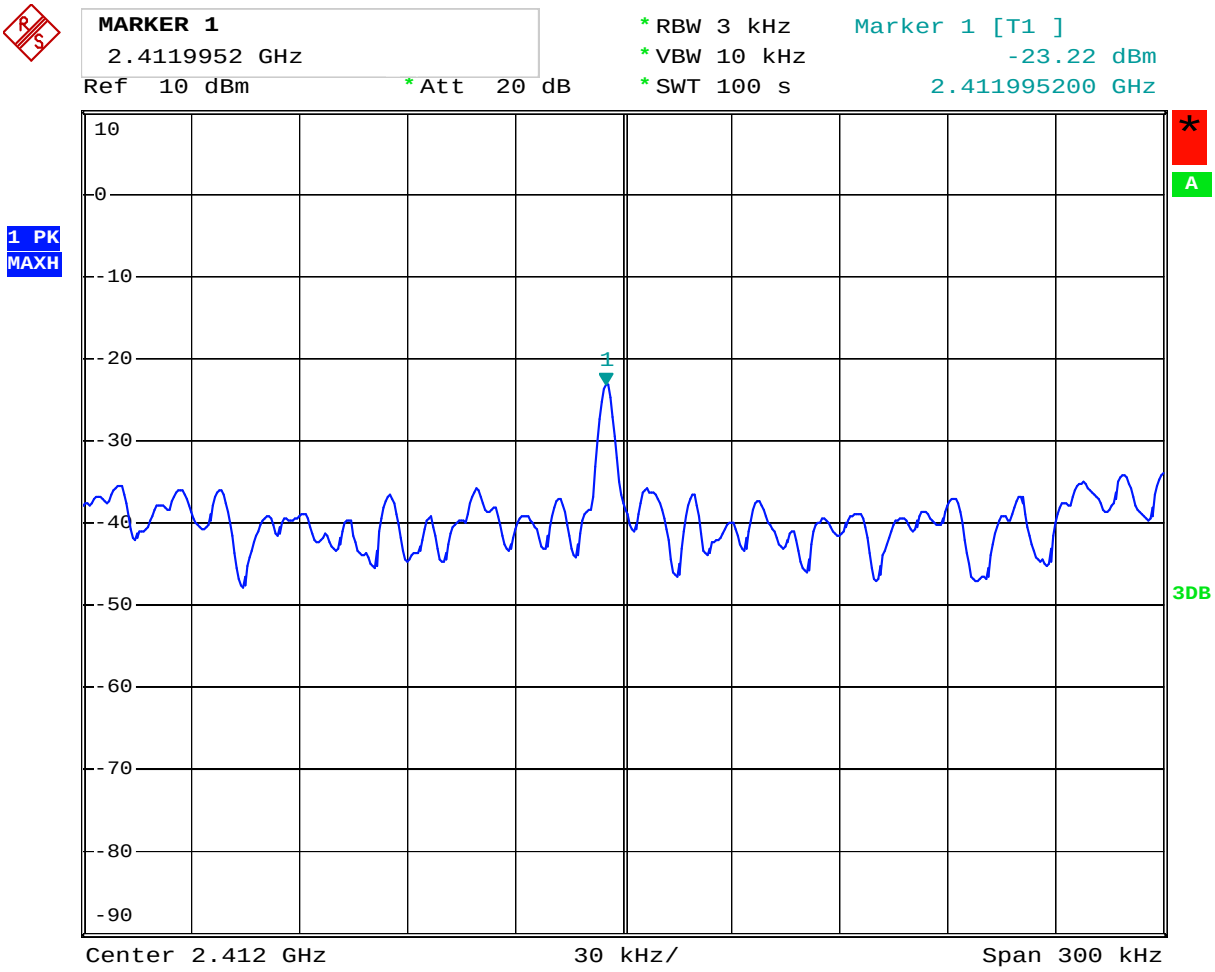
Date: 16.JUL.2011 14:40:35

3. 802.11b at 1Mbps of CH11



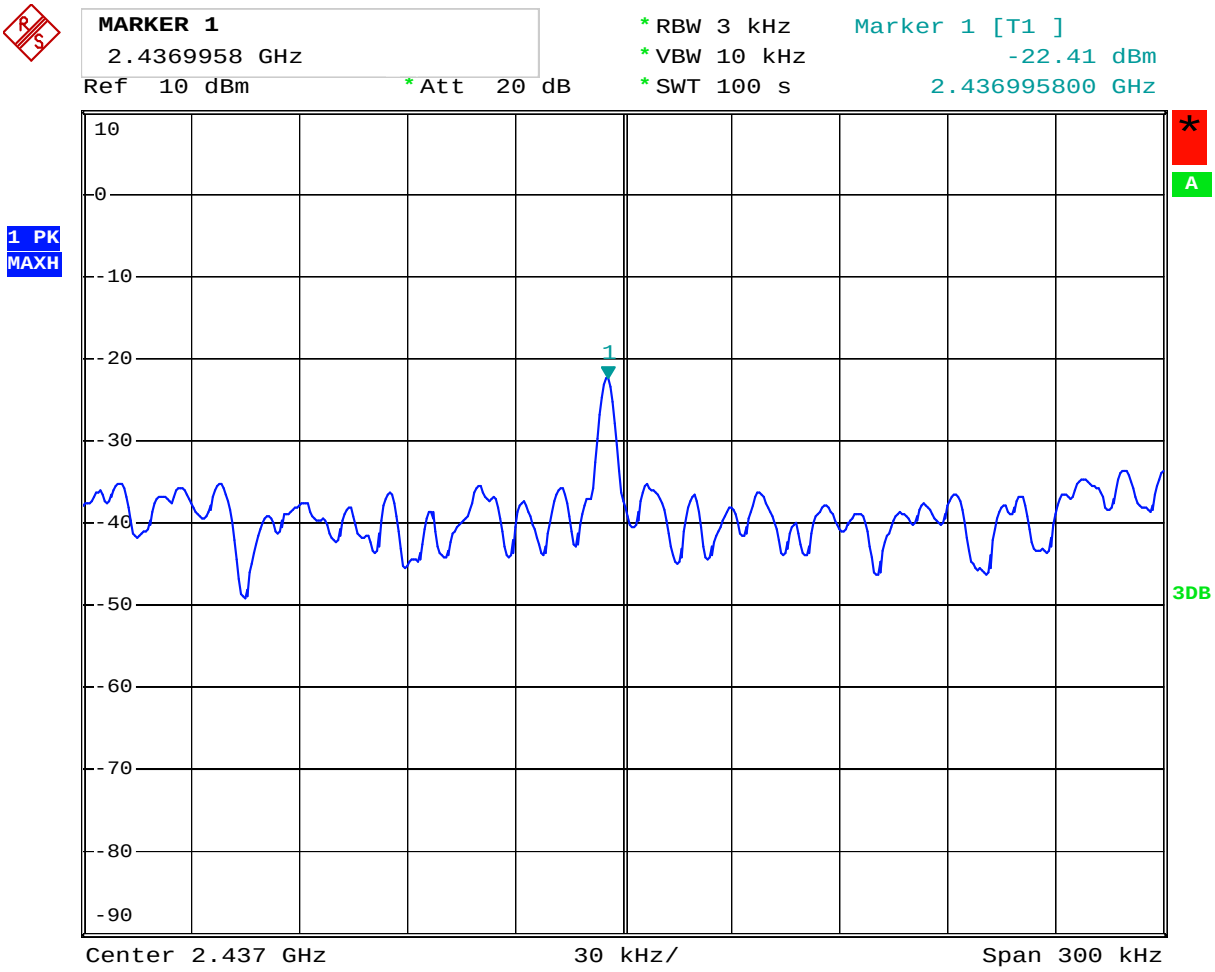
Date: 16.JUL.2011 14:45:08

4. 802.11g at 6Mbps of CH01



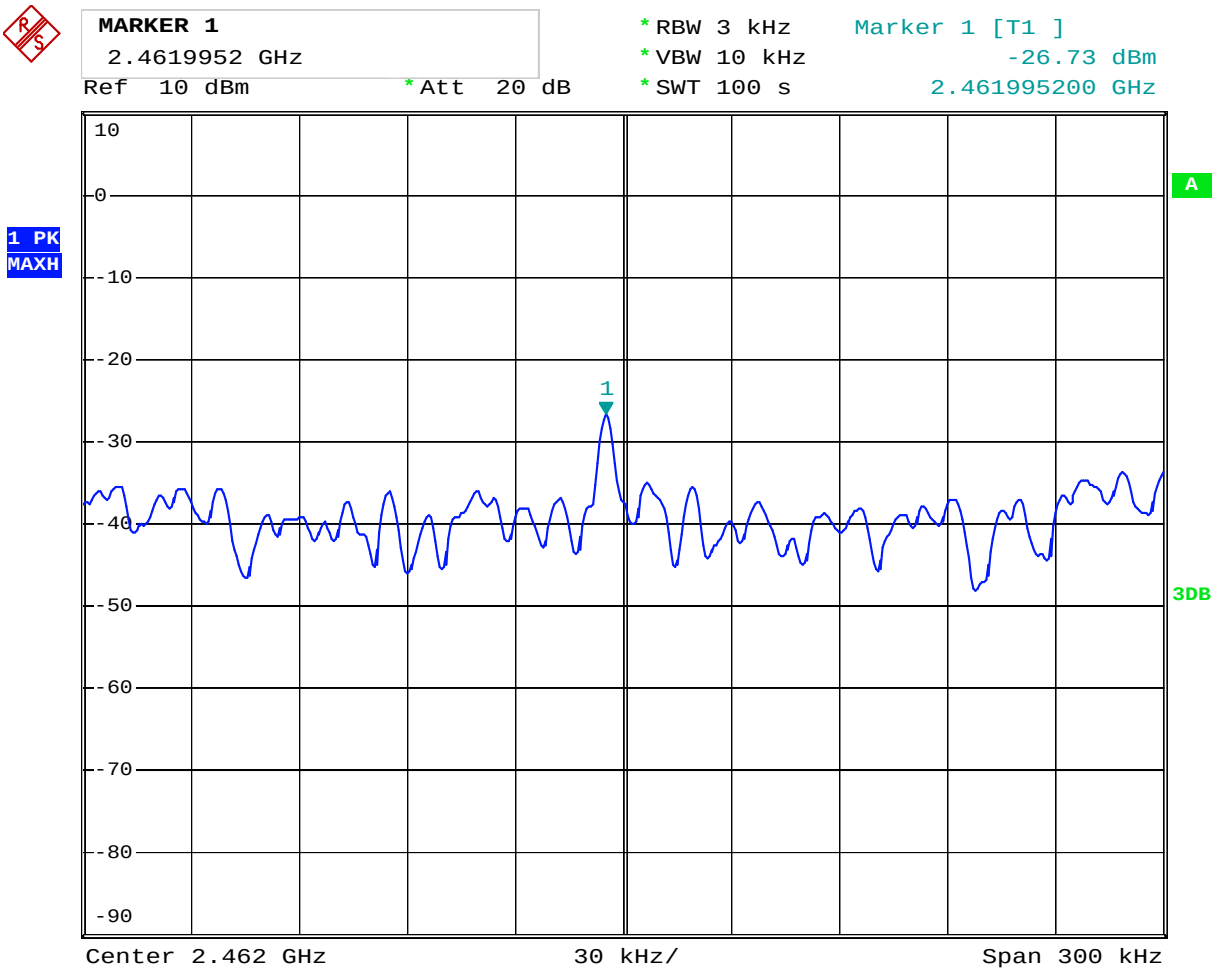
Date: 16.JUL.2011 14:34:48

5. 802.11g at 6Mbps of CH06



Date: 16.JUL.2011 14:32:48

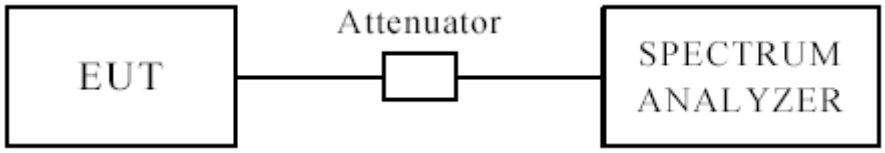
6. 802.11g at 6Mbps of CH11



Date: 16.JUL.2011 14:30:00

10 Out of Band Measurement

10.1 Test Setup for band edge



The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup

10.2 Limits of Out of Band Emissions Measurement

1. Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

10.3 Test Procedure

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of radiated emission test.(Peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector)

For bandage test, the spectrum set as follows: RBW=VBW=100 kHz. A conducted measurement used

10.4 Test Result

Please see next pages

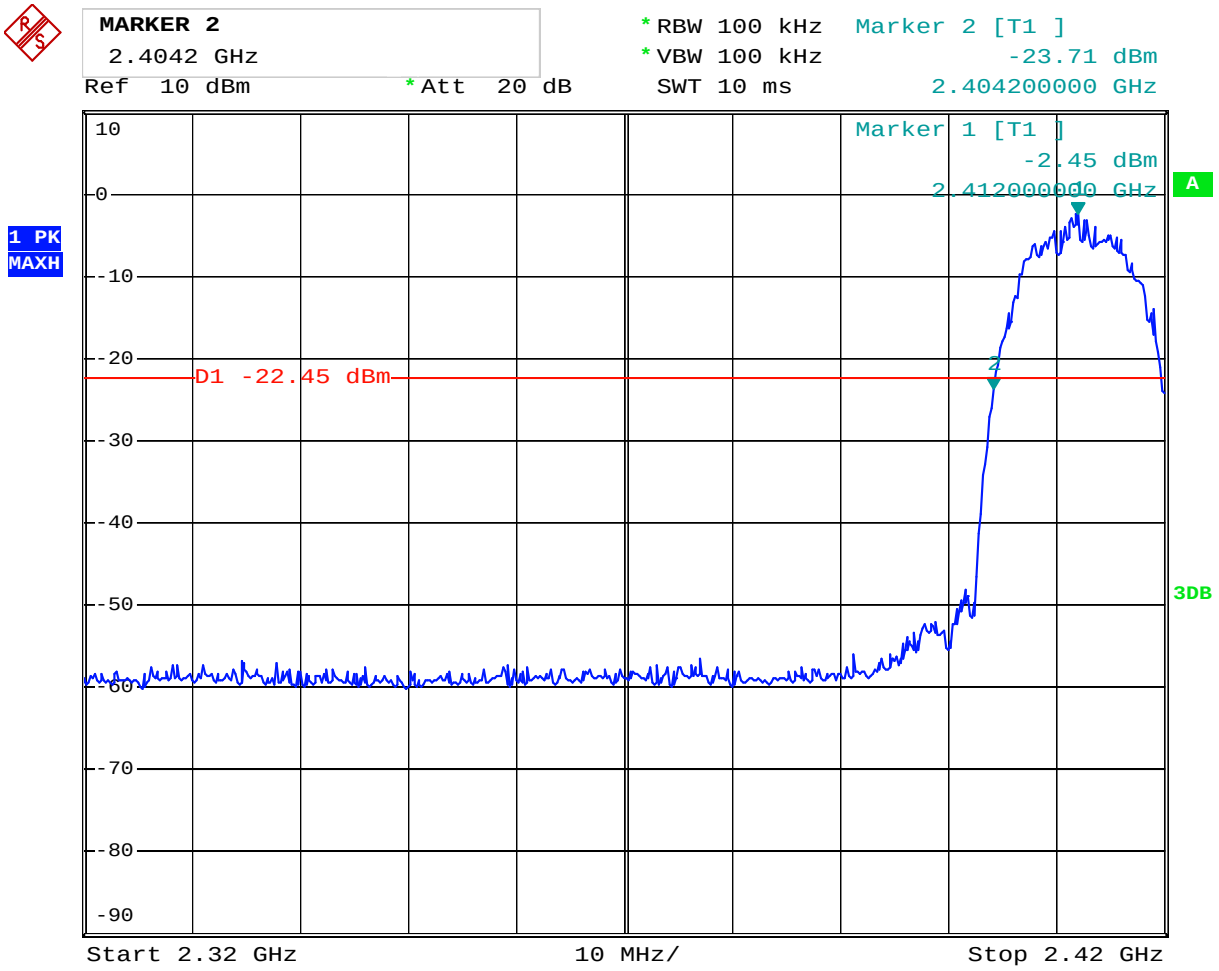
For 802.11b mode

CH01 at 11Mbps

10.4 Band-edge Measurement

Product:	MID	Test Mode:	CH1
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



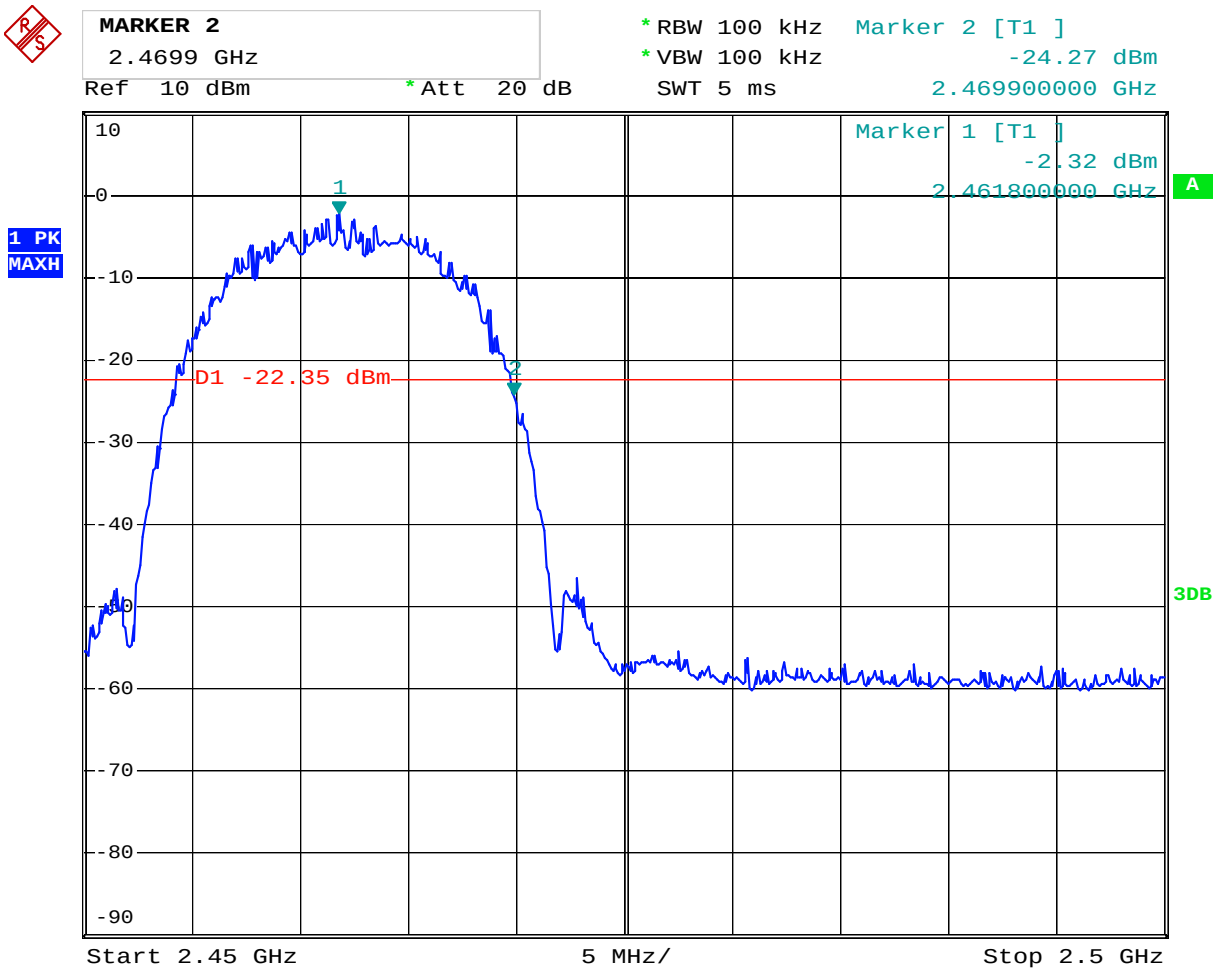
Date: 16.JUL.2011 14:21:07

CH11 at 1Mbps

10.4 Band-edge Measurement

Product:	MID	Test Mode:	CH11
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



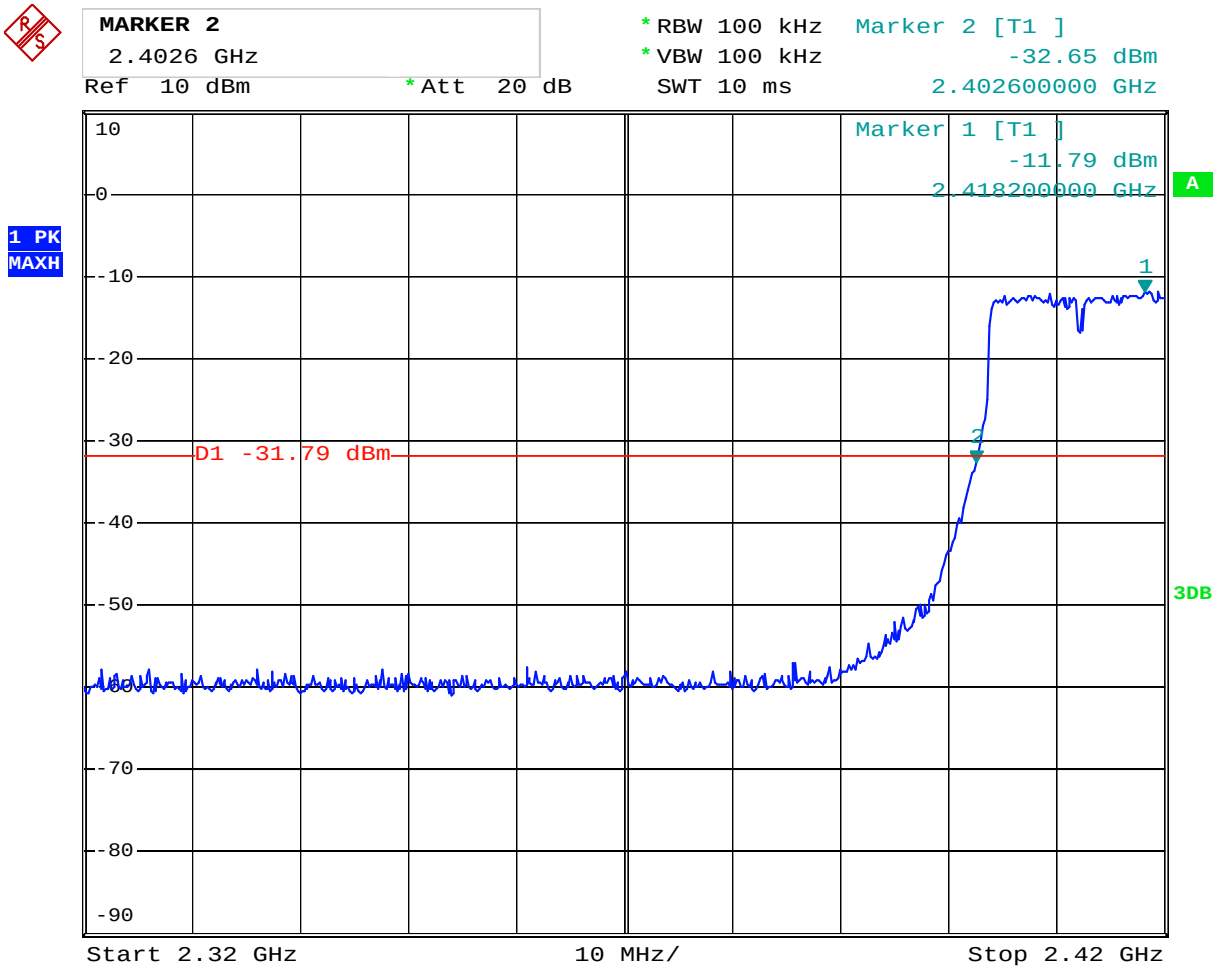
For 802.11g mode

CH01 at 6Mbps

10.4 Band-edge Measurement

Product:	MID	Test Mode:	CH1
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:

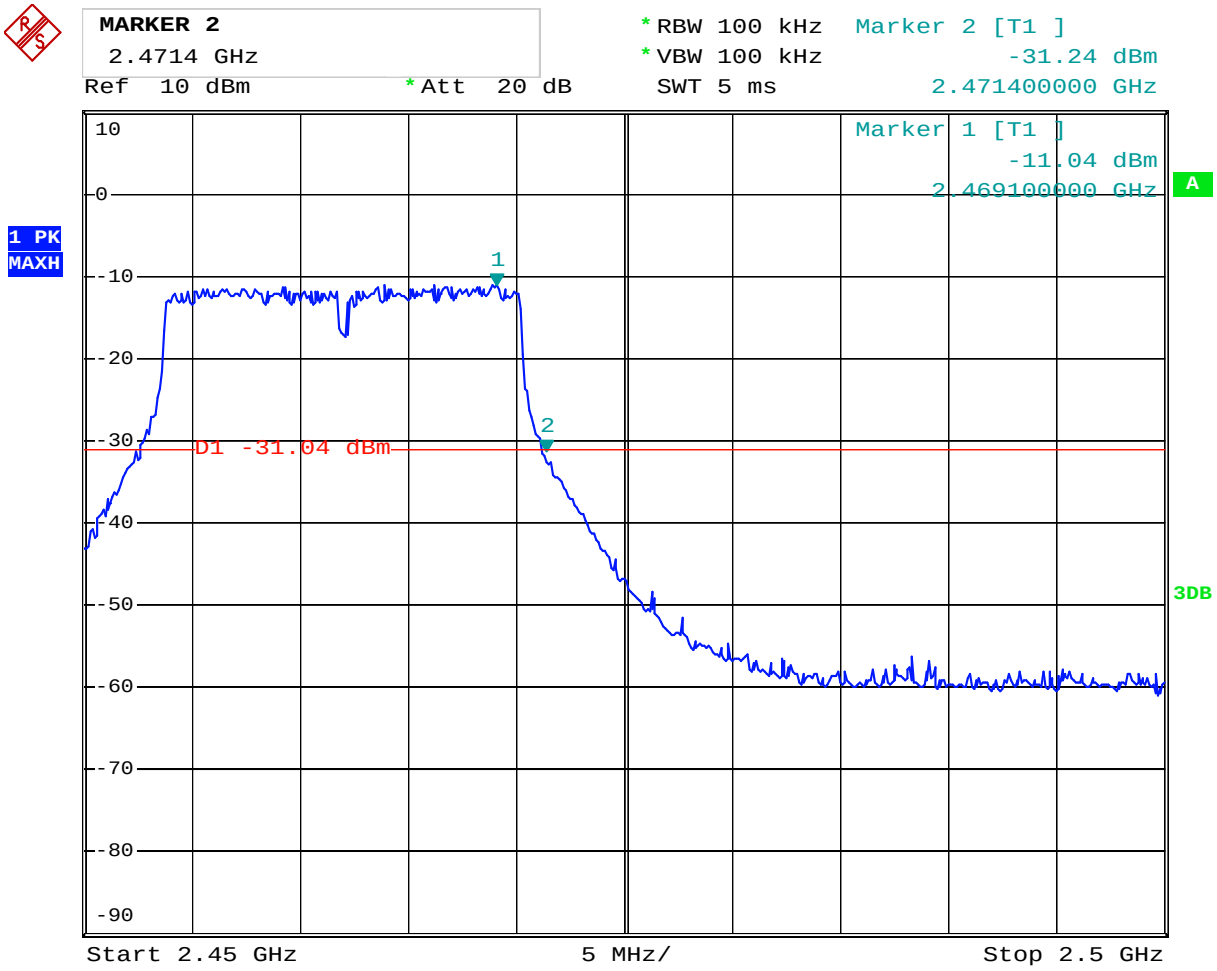


CH11 at 6Mbps

10.4 Band-edge Measurement

Product:	MID		Test Mode:	CH11
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:		Pass	Detector	PK

Test Figure:



Date: 16.JUL.2011 14:23:31

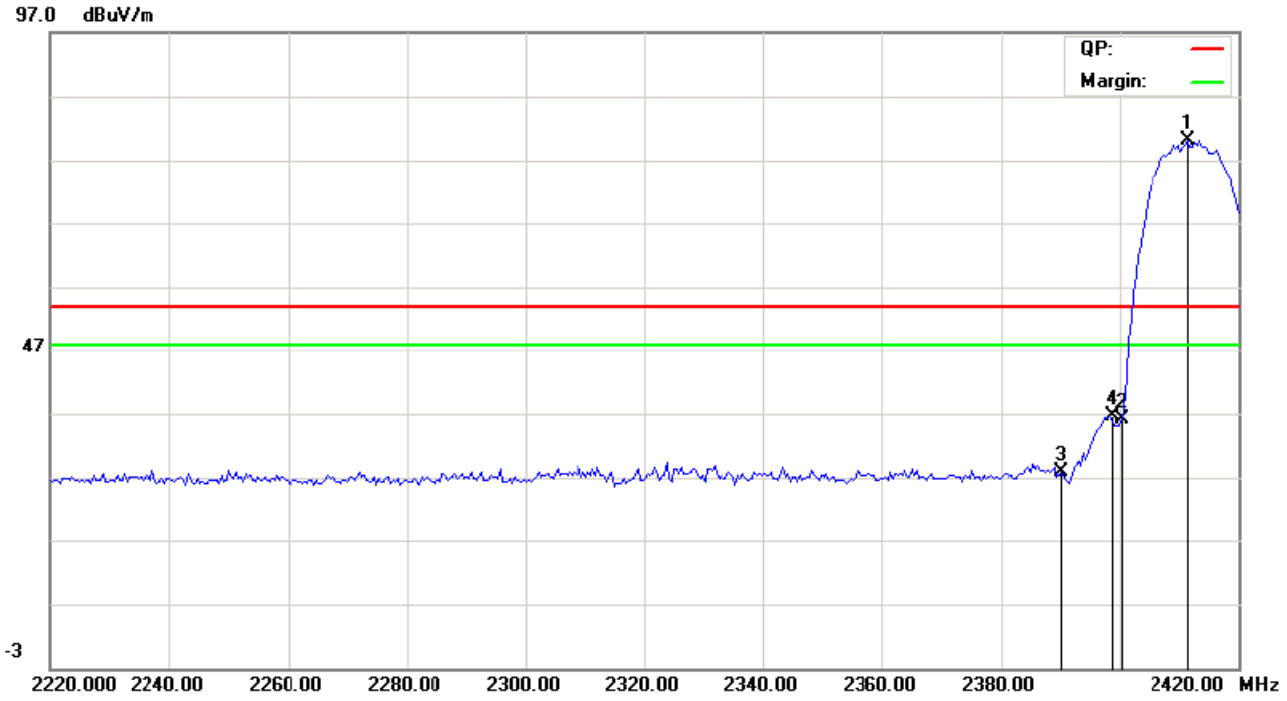
For 802.11b mode

CH01 at 11Mbps

10.4 Restricted band Measurement

Product:	MID		Model:	M7003
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2400	PK (dBμV/m)	36.17	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2390	PK (dBμV/m)	27.87	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2398.357	PK (dBμV/m)	36.55	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure: Horizontal



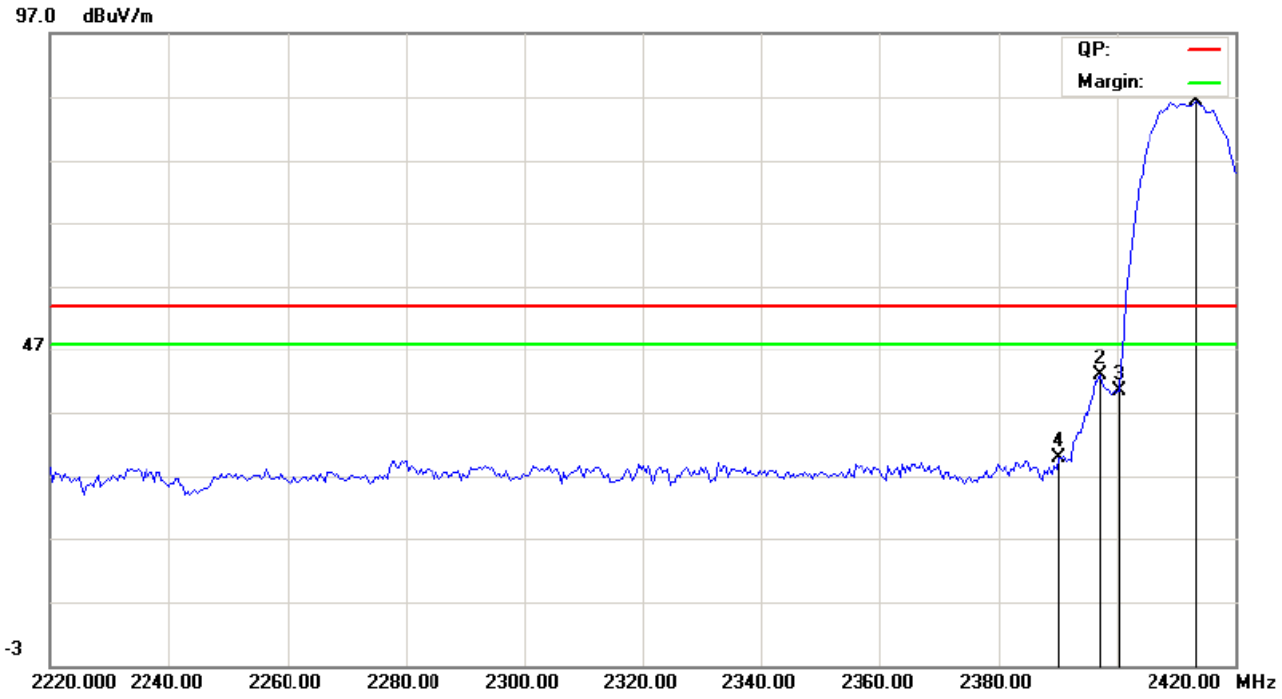
For 802.11b mode

CH01 at 11Mbps

10.4 Restricted band Measurement

Product:	MID		Model:	M7003
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2400	PK (dBμV/m)	40.46	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2390	PK (dBμV/m)	29.95	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2397	PK (dBμV/m)	42.77	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure: Vertical



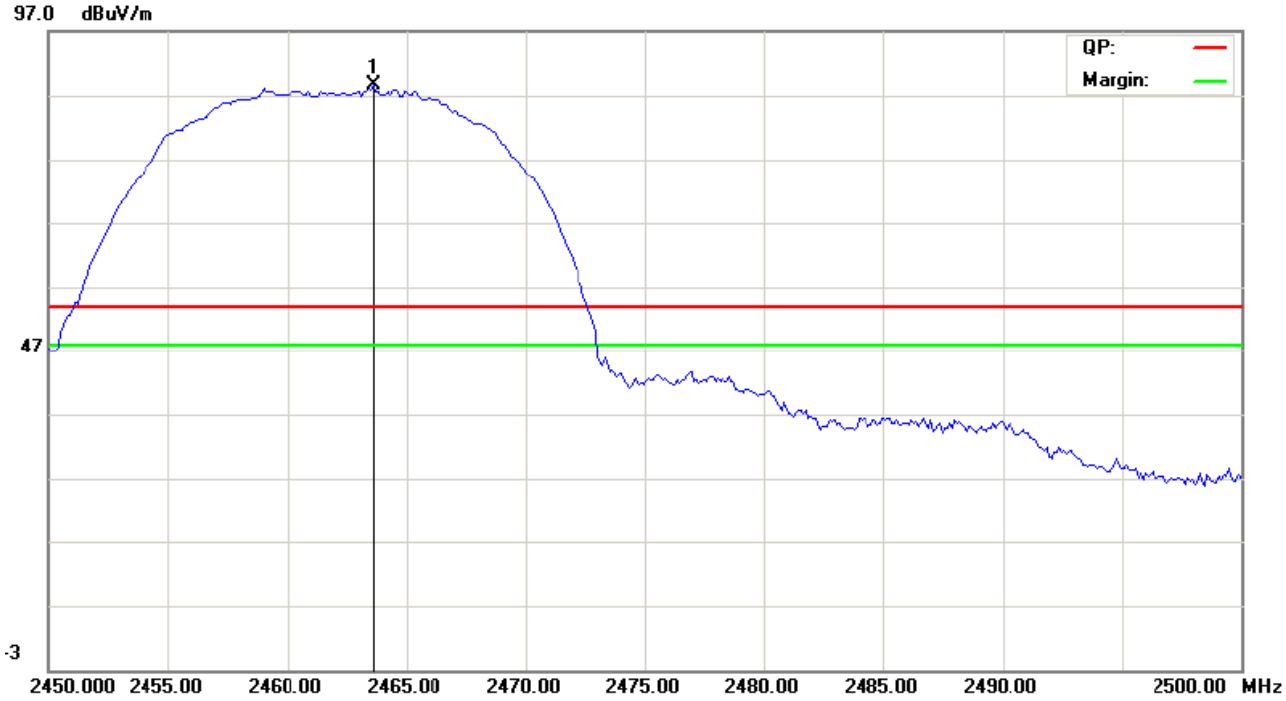
For 802.11b mode

CH11 at 11Mbps

10.4 Restricted band Measurement

Product:	MID		Model:	M7003
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	35.59	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure: Vertical



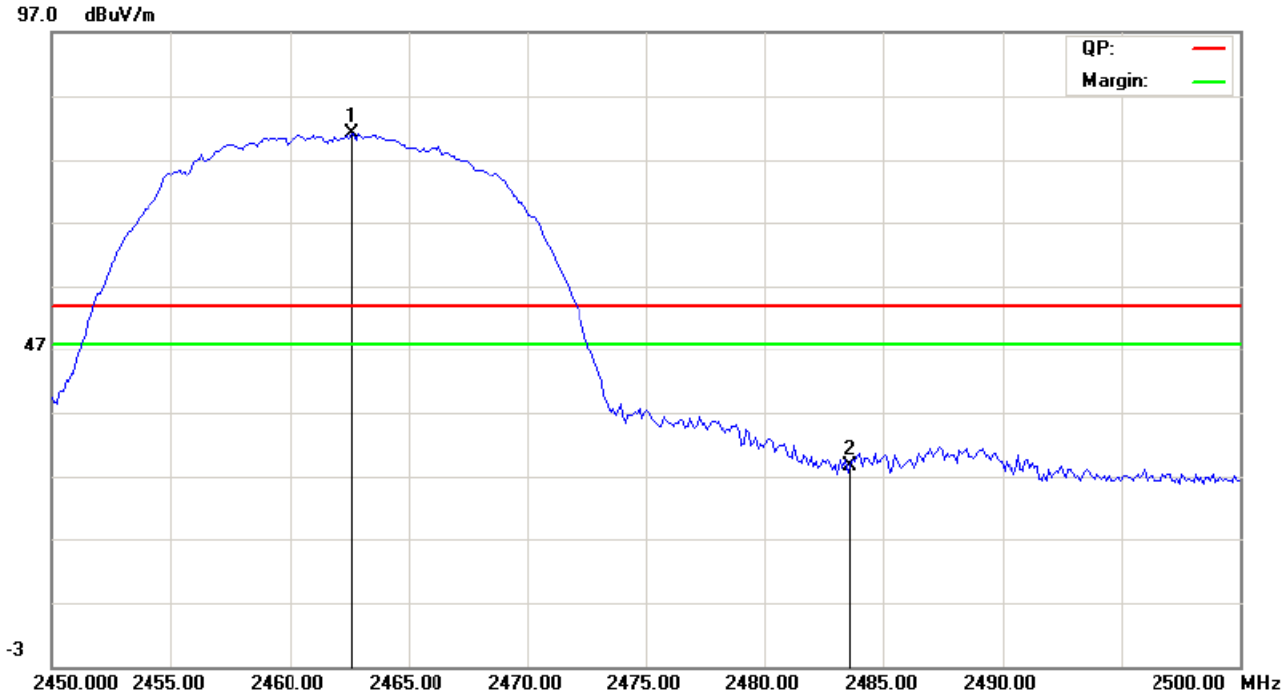
For 802.11b mode

CH11 at 11Mbps

10.4 Restricted band Measurement

Product:	MID		Model:	M7003
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	28.76	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure: Horizontal



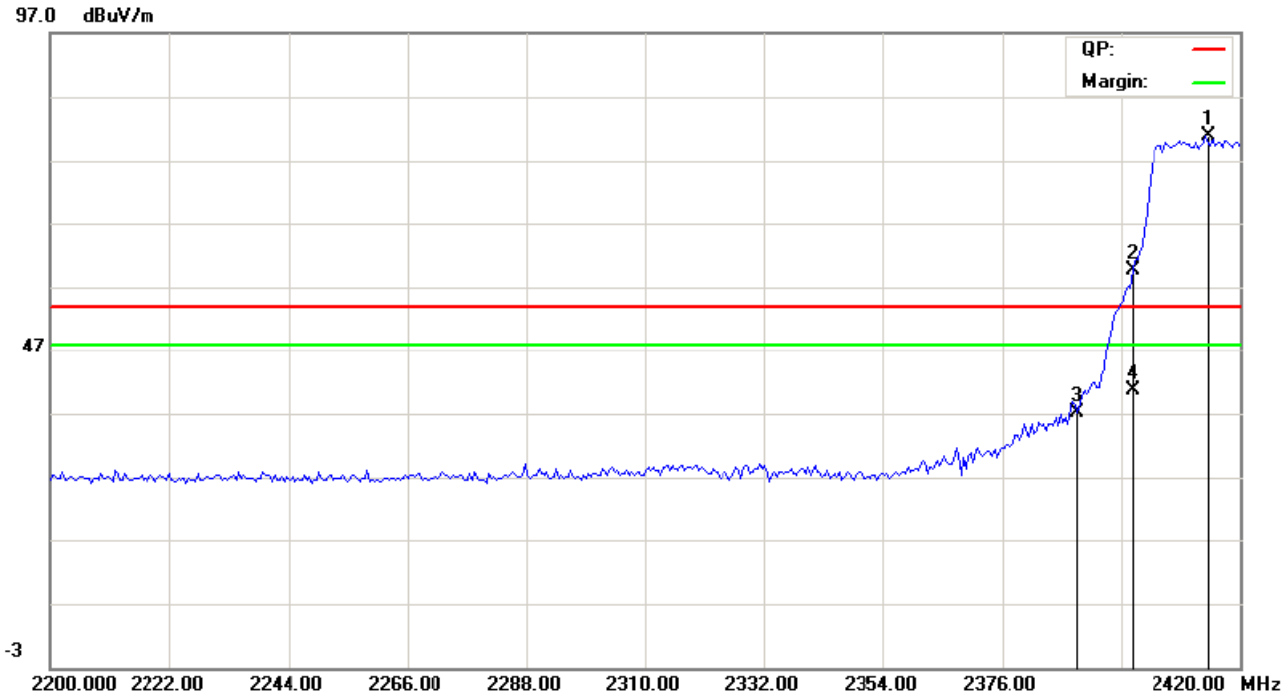
For 802.11g mode

CH01 at 6Mbps

10.4 Restricted band Measurement

Product:	MID		Model:	M7003
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2390.000	PK (dBμV/m)	37.01	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2400.000	PK (dBμV/m)	59.67	Limit	74(dBμV/m)
	AV (dBμV/m)	40.67		54(dBμV/m)

Test Figure: Horizontal



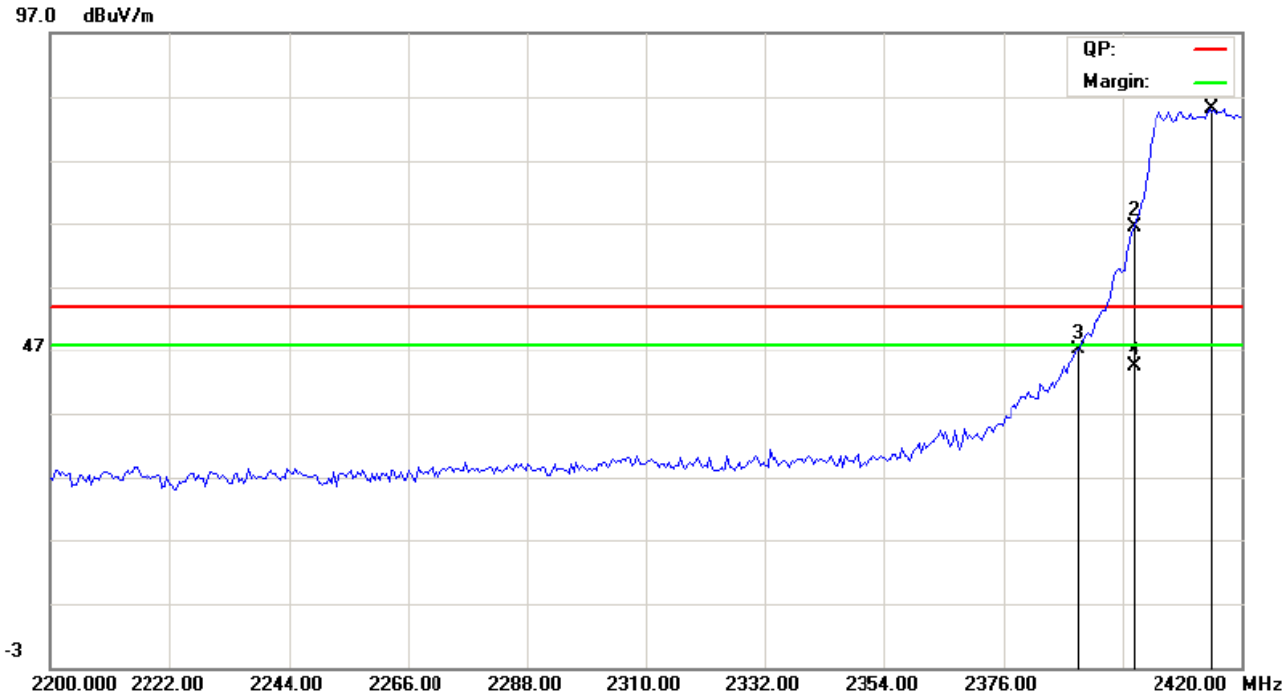
For 802.11g mode

CH01 at 6Mbps

10.4 Restricted band Measurement

Product:	MID		Model:	M7003
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2390.000	PK (dBμV/m)	47.11	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2400.000	PK (dBμV/m)	66.33	Limit	74(dBμV/m)
	AV (dBμV/m)	47.05		54(dBμV/m)

Test Figure: Vertical



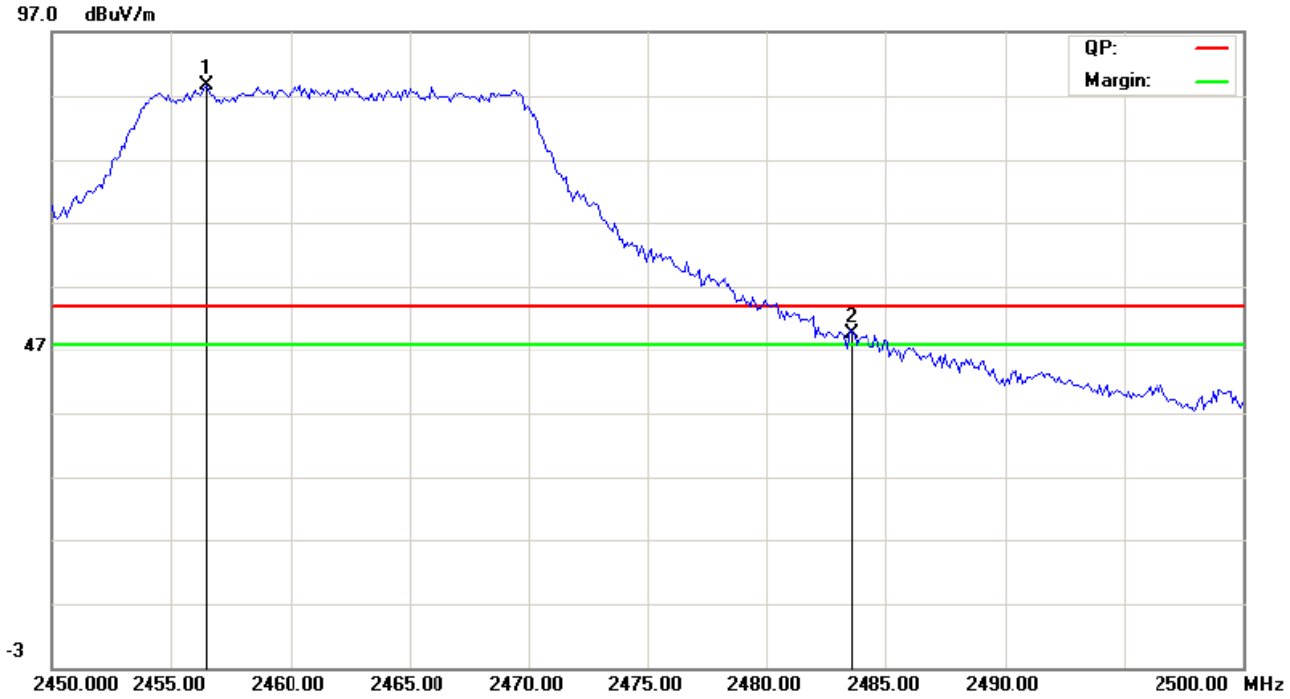
For 802.11g mode

CH11 at 6Mbps

10.4 Restricted band Measurement

Product:	MID		Model:	M7003
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	49.59	Limit	74(dBμV/m)
	AV (dBμV/m)	-		54(dBμV/m)

Test Figure: Vertical



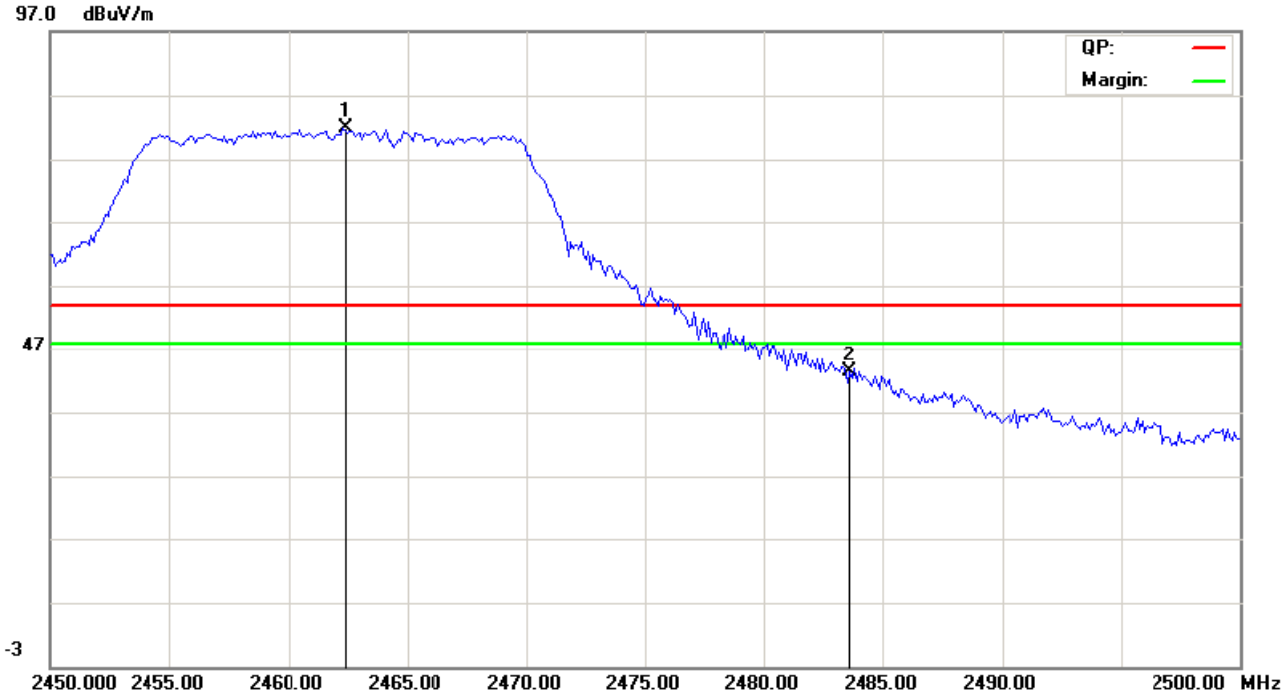
For 802.11g mode

CH11 at 6Mbps

10.4 Restricted band Measurement

Product:	MID		Model:	M7003
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	43.50	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure: Horizontal



11.0 Antenna Requirement

11.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the mount in dB that the directional gain of the antenna exceeds 6 dBi.

11.2 Antenna Connected construction

It is A PCB antenna. The maximum Gain of the antenna is 2.0dBi.

12.0 RF Exposure

Applicable Standard

According to §1.1307(b)(5), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline. This is a Portable device. **KDB616217 was used as the guidance.**

According to §1.1310 and §2.1093 RF exposure is calculated.

Measurement Result

For 802.11g Mode:

This is a Mobile Internet Device and the conducted output power is 11.45dBm (17.58mW)，so the EIRP is 13.96*1.585=22.1266mW which is lower than low threshold 60/fGHz mW (60/2.462GHz= 24.37 mW), and the antenna is 2dBi which is less than 6dBi.

For 802.11b Mode:

This is a Mobile Internet Device and the conducted output power is 11.29dBm (16.94mW)，so the EIRP is 13.46*1.585=21.3341mW which is lower than low threshold 60/fGHz mW (60/2.462GHz= 24.37 mW), and the antenna is 2dBi which is less than 6dBi.

The SAR measurement is not necessary.

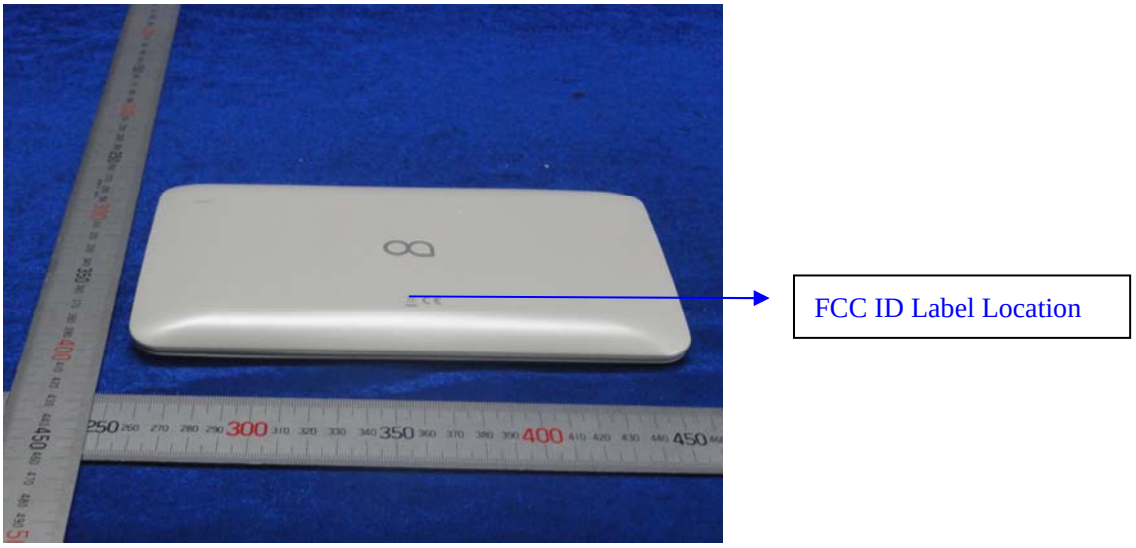
13.0 FCC ID Label

FCC ID: UFKM7003

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

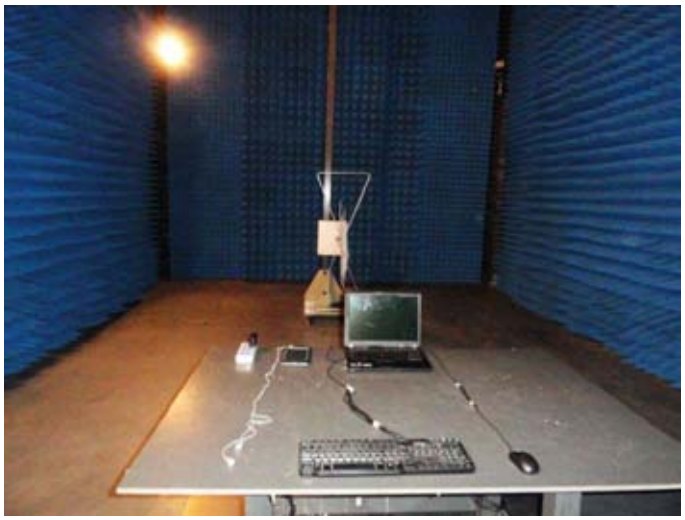
Mark Location:

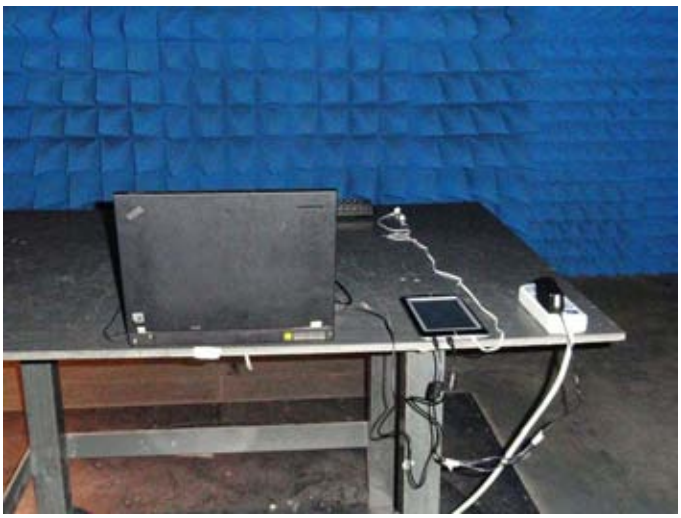


14.0 Photo of testing

Conducted Emissions

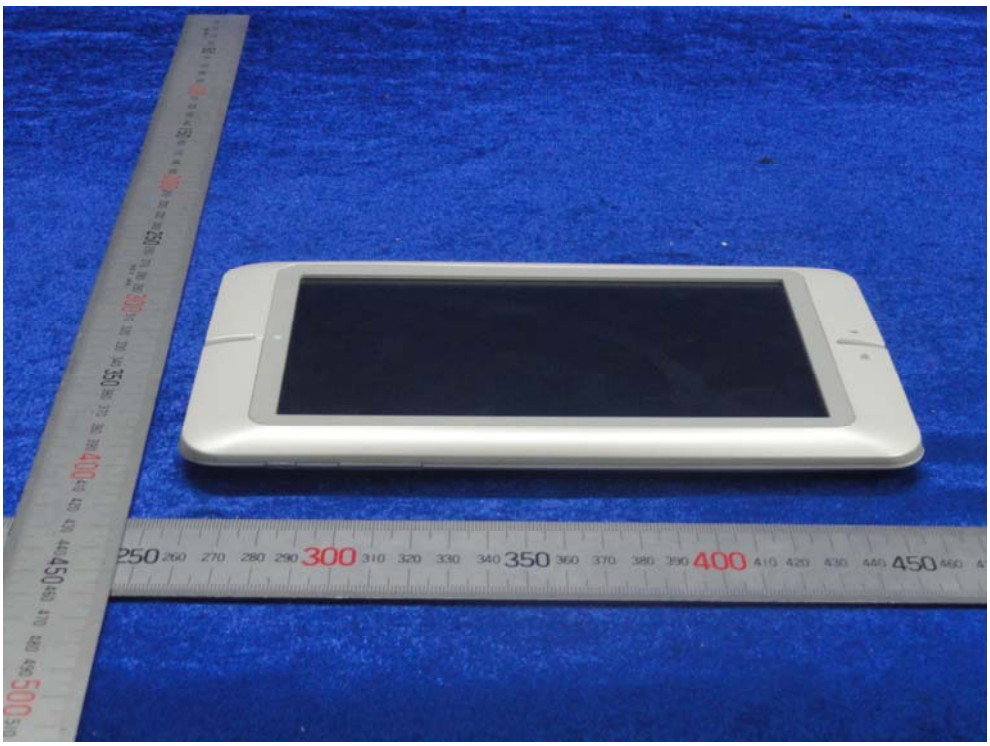
Radiated Emissions



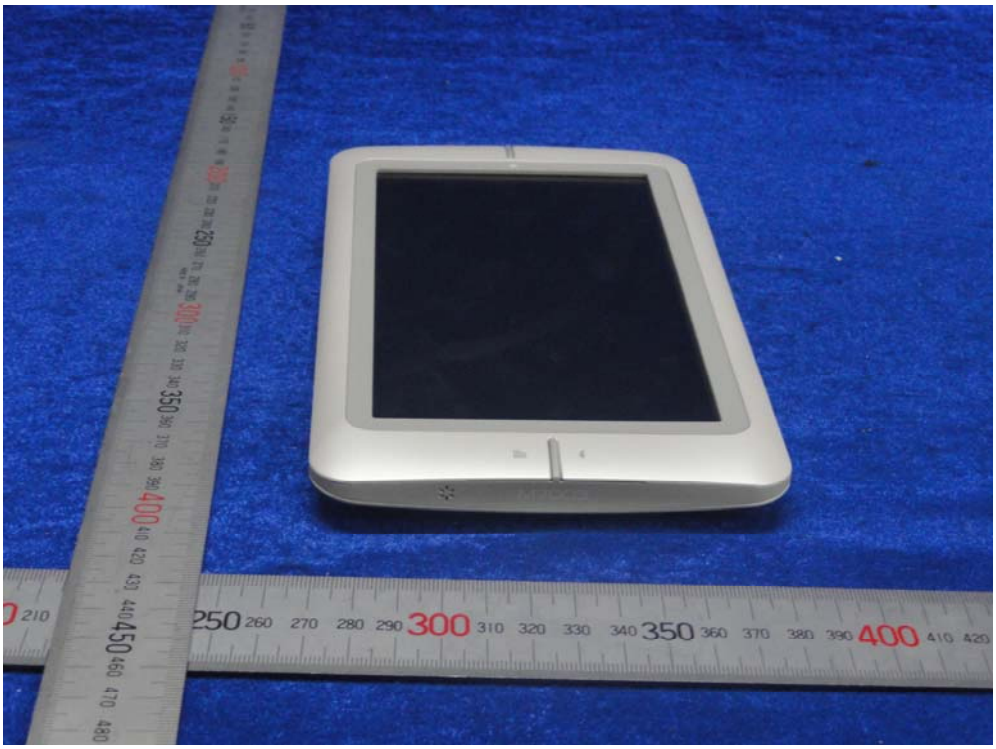


14.3 Photographs - EUT

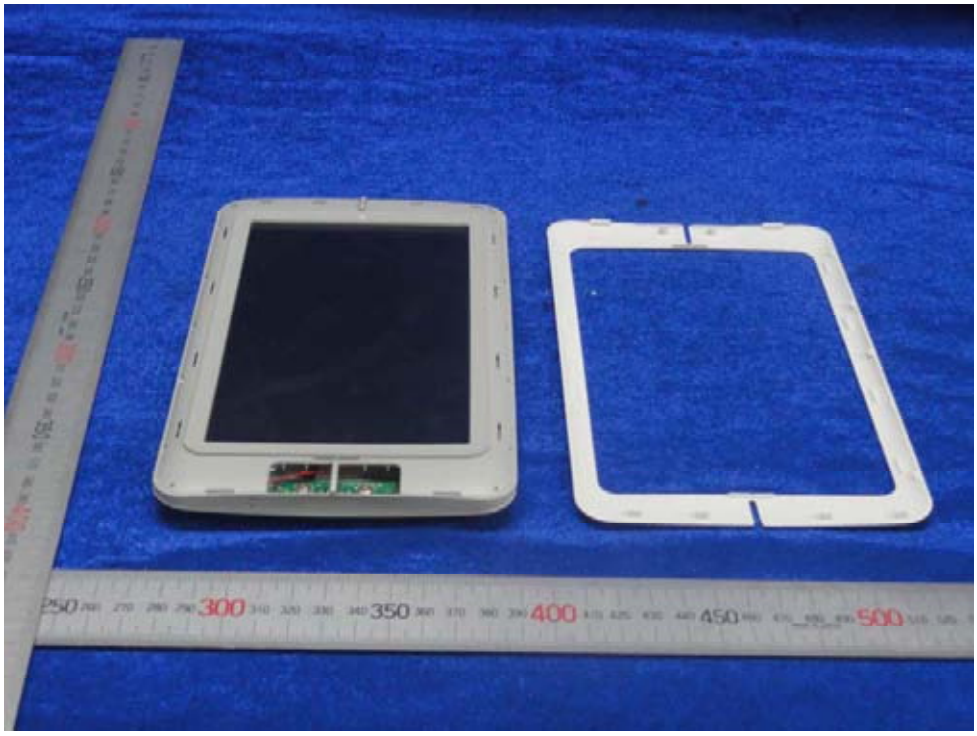
Outside View

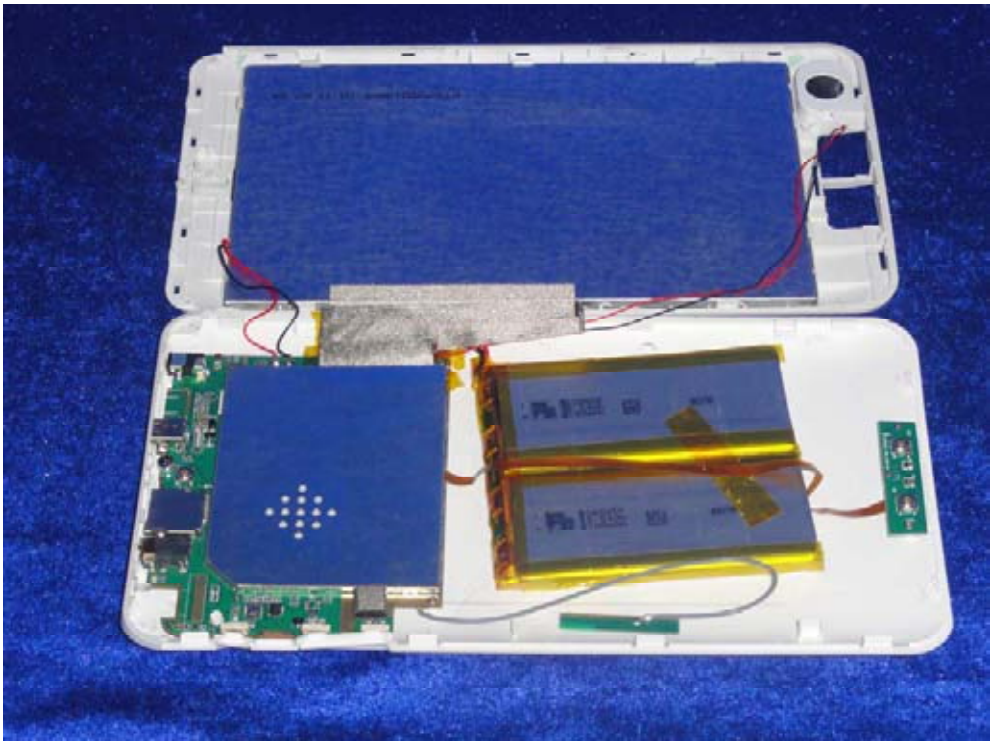


Outside View

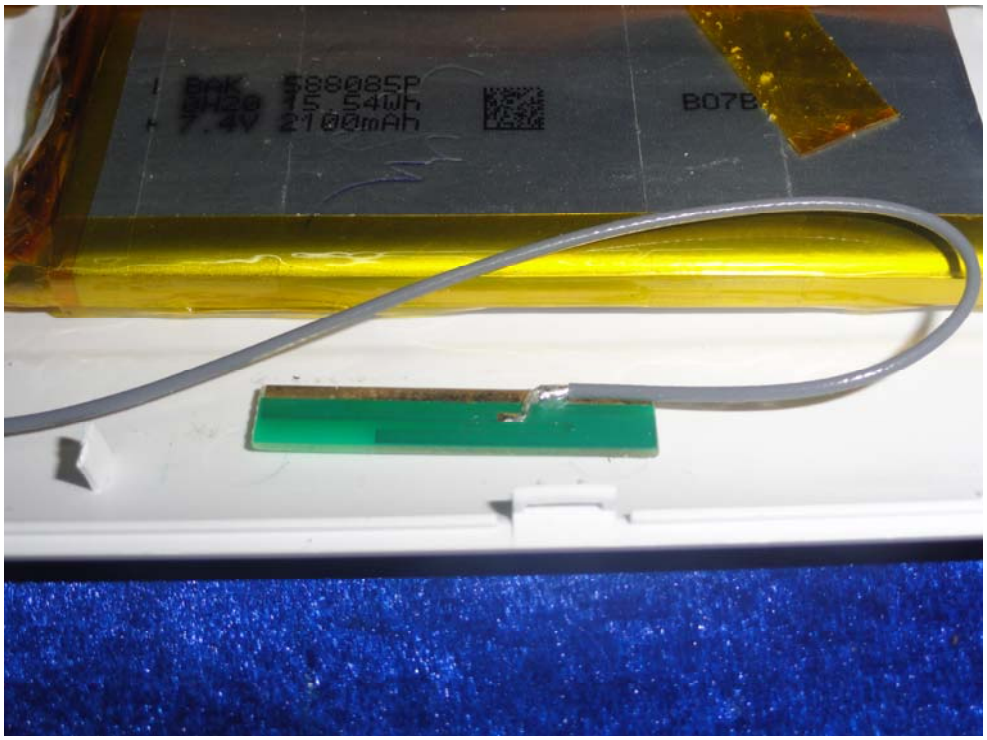


Interior View

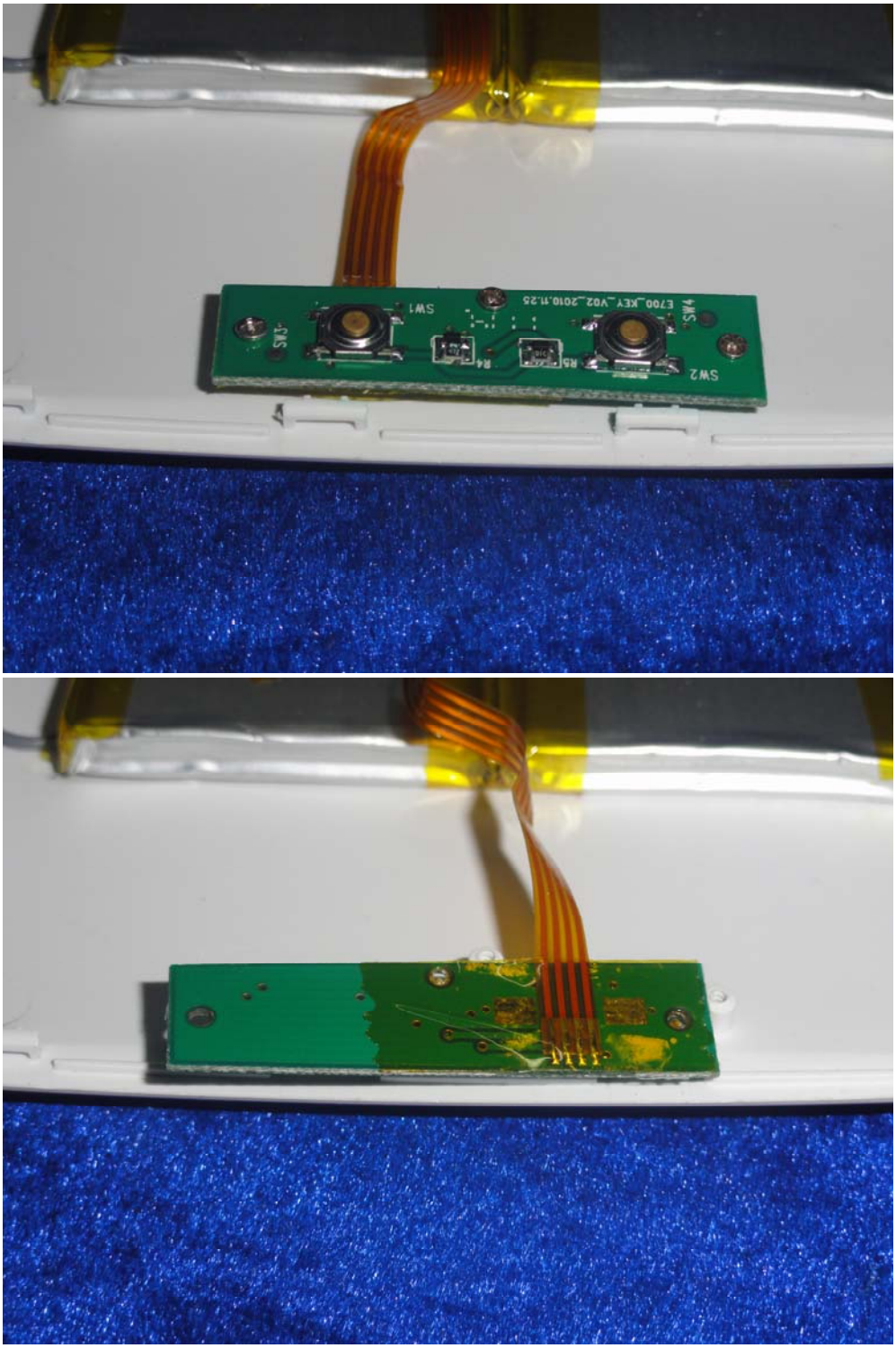




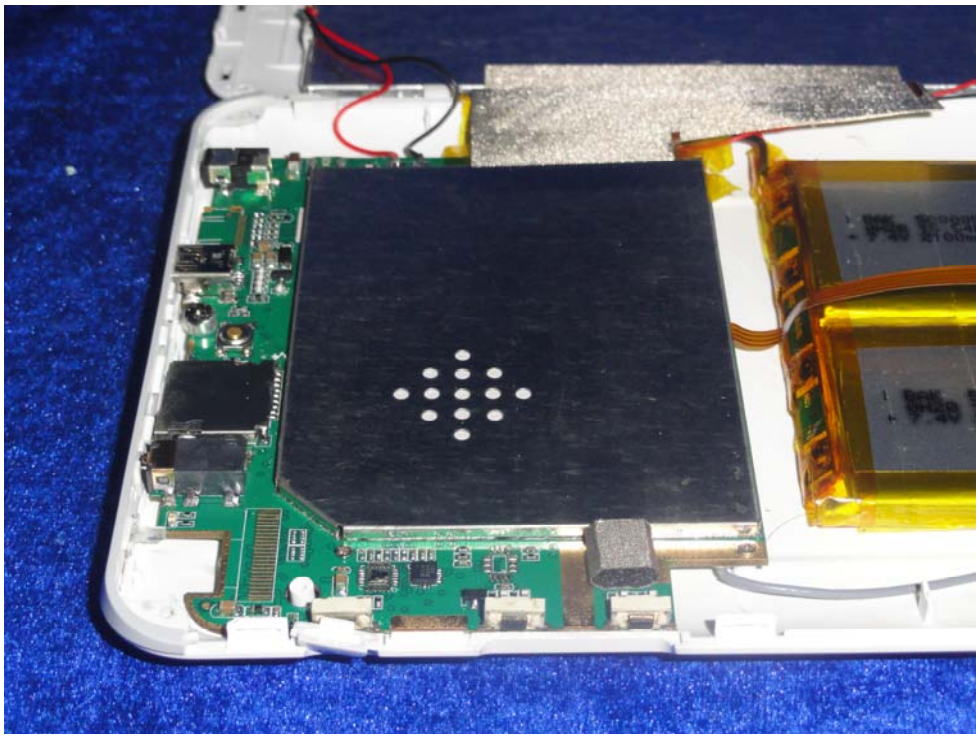
Interior View



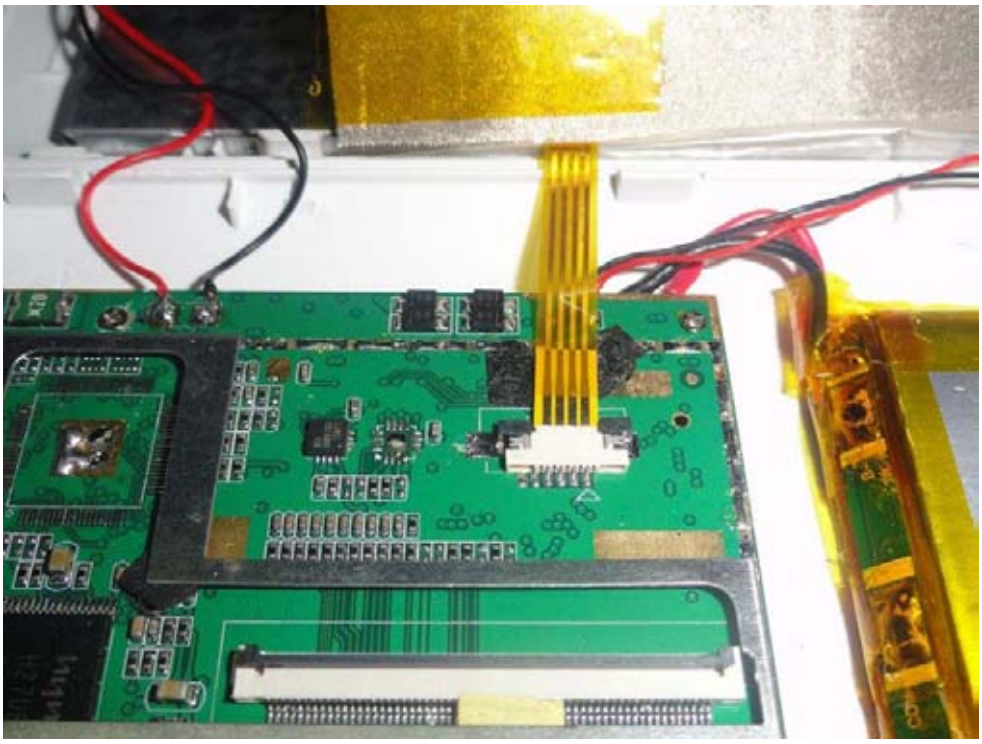
Interior View



Interior View



Interior View



Interior View

--End of the Report--