

# FCC TEST REPORT

REPORT NO.: FCI0906065R

**MODEL NO.:** AWUN2462D

Trade Mark: AsiaRF

**RECEIVED:** July 2, 2009

TESTED: July 3, 2009 to July 13, 2009

**APPLICANT:** AsiaRF Ltd

**ADDRESS:** 4F.,No.2, Lane560, Zhongzheng Rd., Xindian City, Taipei Country 231, Taiwan

**ISSUED BY:** SHENZHEN SETEK TECHNOLOGY CO., LTD.

**LAB LOCATION:** 2/F, A3 Bldg, East Industry Zone, Overseas Chinese Town, Shenzhen, China

This test report consists of 76 pages in total, it may be duplicated completely for legal use with the approval of the applicant, It should not be reproduced except in full, without the written approval of our laboratory, The test results in the report only apply to the tested sample.

## SHENZHEN SETEK TECHNOLOGY CO., LTD.

Our website: <a href="www.setek.com.cn">www.setek.com.cn</a> E-mail:Service@setek.com.cn
TEL:86-755-26966362 FAX: 86-755-26966270



Prepared for : AsiaRF Ltd.

Address : 4F.,No.2, Lane 560, Zhongzheng Rd., Xindian City, Taipei Country 231,

Taiwan

Product : Wireless USB Dongle

Model No. : AWUN2462D

Trademark : AsiaRF

Test Standard : FCC Part 15 Subpart B:2007

Test Lab : Bontek Compliance Testing Laboratory Ltd

FCC registration No. : 338263

Address : 1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road,

Nanshan, Shenzhen, China

Tel: (86-755) 26966362 Fax:(86-755) 26966270

Prepared by :

Reviewer by :

Approved by :

Report Number : FCI0906065R

Date of Test : July 3, 2009 to July 13, 2009

Date of Report : July 17, 2009

Statement : N/A



# TABLE OF CONTENTS

1.	GE	NERAL INFORMATION	4
	1.1.	Description of Device (EUT)	4
	1.2.	Description of Support Device	5
	1.3.	Measurement Uncertainty	5
	1.4.	SUMMARY OF TEST RESULTS	<i>6</i>
	1.5.	Configuration of tested System	
	1.6.	Test Modes	
	1.7.	Applied standards	
	1.8.	Test equipments	
	1.0.	1 050 0 <b>4 1 1 1</b> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
2.	ТБ	ST RESULTS	11
∠.	112	ST RESULTS	11
	2.1.	Radiated Emission Measurements	11
	2.2.	Conducted Emission Measurements.	
	2.3.	6dB Bandwidth Measurement	
	2.3.	Maximum Peak Output Power	
	2.5.	Power Spectral Density Measurement	
	2.6.	Band Edges Measurement	
	2.7.	Antenna Requirement	95
3	RF	EXPOSURE	96



# 1. GENERAL INFORMATION

# 1.1.Description of Device (EUT)

EUT Wireless USB Dongle Model Number TKZAWUN2462D

DC5V Power Supply

**Applicant** AsiaRF Ltd

Address 4F., No.2, Lane 560, Zhongzheng Rd., Xindian City, Taipei Country

231, Taiwan

Manufacturer AsiaRF Ltd

Address Room 606, Light Industry Foreign Trade Building, No.1002, Aiguo

Road, LuohuDistrict, 518000, Shenzhen City, China

Frequency Range -IEEE

2412~2462MHz

802.11b/g & IEEE

802.11n (20MHz)

Frequency Range- IEEE 2422~2452MHz

802.11n (40MHz)

Channel Number (IEEE 11

802.11b/g IEEE 802.11n (20MHz))

7 Channel Number-

IEEE 802.11n (40MHz)

Type of Modulation Direct Sequence Spread Spectrum (DSSS)

(IEEE 802.11b)

Type of Modulation Orthogonal Frequency Division Multiplexing (OFDM)

(IEEE 802.11g)

Data Speed (IEEE 1Mbps, 2Mbps, 5.5Mbps, 11Mbps

802.11b)

Data Speed (IEEE 6Mbps,9Mbps,12Mbps,18Mbps,24Mbps,36Mbps,48Mbps,54Mbps

802.11g)

Data Speed (IEEE Support a subset of the combination of GI, MCS 0~MCS 7 and

bandwidth defined in 802.11n 802.11n)

Antenna 3.4dBi Channel Control Auto

Received July 2, 2009

Date of Test July 3, 2009 to July 13, 2009



# 1.2.Description of Support Device

PC : Manufacturer: DELL

M/N: PP26L S/N: 4XY6L2X

CCC,FCC,VCCI,GS,S,CE

Monitor : Manufacturer: DELL

M/N: E198FP

S/N: MH19H500468F

CCC,SA,UL

Mouse : Manufacturer: DELL

M/N: M056UOA S/N: F1101WOS

CE, VCCI,FCC,GS,UL

Keyboard : Manufacturer: DELL

M/N: SK-8135

S/N: CN-0DJ340-71616683-01U6

VCCI,CE, FCC

# 1.3. Measurement Uncertainty

Radiation Uncertainty :  $Ur = \pm 4.10 dB$ 

Conduction Uncertainty :  $Uc = \pm 2.91 dB$ 



# 1.4.SUMMARY OF TEST RESULTS

The EUT have been tested according to the applicable standards as referenced below.

EMISSION						
Description of Test Item	Standard	Results				
Power Line Conducted Emission Test	FCC Part 15: 15.207 ANSI C63.4: 2003 KDB558074	PASS				
Radiated Emission Test	FCC Part 15: 15.209 ANSI C63.4: 2003 KDB558074	PASS				
Band Edge Compliance Test	FCC Part 15: 15.247 KDB558074	PASS				
Conducted spurious emissions test	FCC Part 15: 15.247 KDB558074	PASS				
6dB Bandwidth Test	FCC Part 15: 15.247 KDB558074	PASS				
Output Power Test	FCC Part 15: 15.247 KDB558074	PASS				
Power Spectral Density Test	FCC Part 15: 15.247 KDB558074	PASS				
Antenna requirement	FCC Part 15: 15.203	PASS				
N/A is an abbreviation for Not Applicable.						

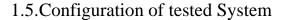
## Note:

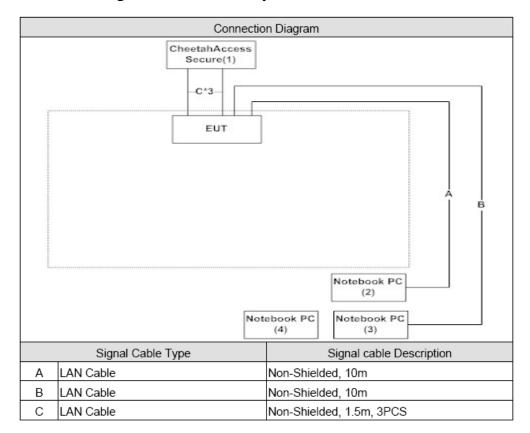
The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
Draft 802.11n (20MHz)	2TX
Draft 802.11n (40MHz)	2TX

The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.







# 1.6.Test Modes

Eleven channels are provided for 802.11b, 802.11g and draft 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

Seven channels are provided for draft 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2422MHz	5	2442MHz
2	2427MHz	6	2447MHz
3	2432MHz	7	2452MHz
4	2437MHz		



EUT CONFIGURE		APPLICA	DESCRIPTION		
MODE	RE≥1G	RE<1G	PLC	APCM	DESCRIPTION
А	V	<b>V</b>	V	√	For Detachable Dipole antenna
В	-	<b>V</b>	V	-	For Fixed Dipole antenna

Where PLC: Power Line Conducted Emission

RE<1G: Radiated Emission below 1GHz

RE≥1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

NOTE: "-" means no effect

## RADIATED EMISSION TEST (ABOVE 1 GHz):

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGI MODE	URE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
А		802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
А		802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
А		Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
А		Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15

#### RADIATED EMISSION TEST (BELOW 1 GHz):

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
Α	Draft 802.11n (20MHz)	1 to 11	1	OFDM	BPSK	7.2
В	Draft 802.11n (20MHz)	1 to 11	1	OFDM	BPSK	7.2

## POWER LINE CONDUCTED EMISSION TEST:

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
А	Draft 802.11n (20MHz)	1 to 11	1	OFDM	BPSK	7.2
В	Draft 802.11n (20MHz)	1 to 11	1	OFDM	BPSK	7.2



## **BANDEDGE MEASUREMENT:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
А	802.11b	1 to 11	1, 11	DSSS	DBPSK	1
Α	802.11g	1 to 11	1, 11	OFDM	BPSK	6
Α	Draft 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	7.2
А	Draft 802.11n (40MHz)	1 to 7	1, 7	OFDM	BPSK	15

# ANTENNA PORT CONDUCTED MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
А	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
А	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
А	Draft 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
А	Draft 802.11n (40MHz)	1 to 7	1, 4, 7	OFDM	BPSK	15

# 1.7. Applied standards

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C. (15.247) ANSI C63.4-2003

All test items have been performed and recorded as per the above standards.

**NOTE**: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.



# 1.8. Test equipments

Name	Manufacture	M/N	S/N	Calibrated date
Two-Line V-Network	R&S	ENV216	100013	2009/04
Two-Line V-Network	R&S	ENV216	100014	2009/04
EMI Test Receiver	R&S	ESCI	100726	2009/04
ISN	Schaffner	ISN T400	21648	2009/04
PLC ISN	Teseq GmbH	ISN PLC 25-16	24047	2009/04
PLC ISN	Teseq GmbH	ISN PLC 25-30	23387	2009/04
Matching Network	SHX	TZ5	06062902	2009/04
Matching Network	SHX	TZ5	06062903	2009/04
Combining Network	SHX	N-50KKK	N/A	2009/04
Power Analyzer	California	PACS-1	72419	2009/04
AC Power Source	California	5001iX-208	56741	2009/04
Spectrum Analyzer	Agilent	E4408B	MY45102679	2009/04
EMI Test Receiver	R&S	ESCI	100573	2009/04
Preamplifier	Quietek	AP-025C	QT-AP003	2009/04
Preamplifier	Quietek	AP-180C	CHM-0602012	2009/04
Bilog Type Antenna	Schaffner	CBL6112B	2932	2009/04
50ohm Coaxial Switch	Anritsu	MP59B	6200447304	2009/04
Coaxial Cable	Huber+Suhner	AC2-C	04	2009/04
Temperature/Humidity				
Meter	Zhicheng	ZC1-2	QT-TH002	2009/04

NOTE: 1. The calibration interval of the above test instruments is 12 months



# 2. TEST RESULTS

## 2.1.Radiated Emission Measurements

## Limits of radiated emission measurement

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400 / F(kHz)	300
0.490 ~ 1.705	24000 / F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

#### NOTE:

- 1. The lower limit shall apply at the transition frequencies.
- 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
- As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



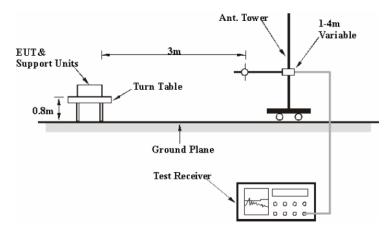
## **Test procedures**

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

#### NOTE:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
- 4. All modes of operation were investigated and the worst-case emissions are reported.

## **Test setup**



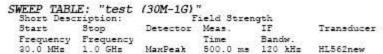
For the actual test configuration, please refer to the attached file (Test Setup Photo)

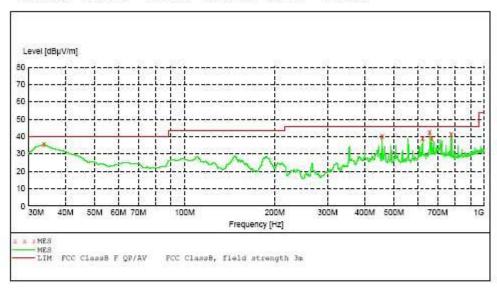


## **Test results**

## BELOW 1GHz WORST-CASE DATA: DRAFT 802.11n (20MHz) OFDM MODULATION

## Mode A:

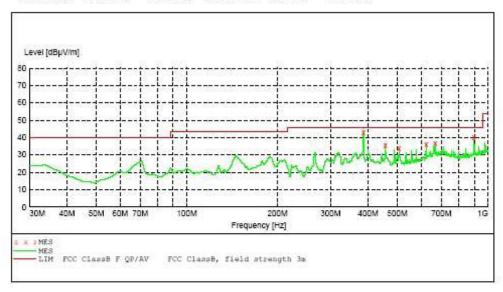




Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Asimuth deg	Polarisation
33,887776	35.70	19.0	40.0	4.3	QP	100.0	355.00	VERTICAL
455.711423	40.30	20.2	46.0	5.7	QP	100.0	86.00	VERTICAL
622.885772	39.00	23.7	46.0	7.0	QP	100.0	360.00	VERTICAL
657.875752	42.30	25.5	46.0	3.7	QP	100.0	281.00	VERTICAL
667.595190	39.10	25.7	46.0	6.9	QP	100.0	281.00	VERTICAL
776.452906	41.30	24.3	46.0	4.7	QP	100.0	281.00	VERTICAL



SWEEP TABLE: "test (30M-1G)"
Short Description: Field Strength
Start Stop Detector Meas. IF Transducer Frequency Time 30.0 MHz 1.0 GHz MaxPeak 500.0 ms 120 kHz HL562new

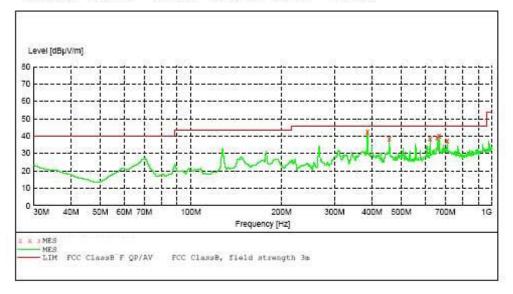


Frequency		Transd			Det.	Height		Polarisation
MHz	dBμV/m	dB	dBμV/m	dB		cm	deg	
385.731463	42.90	19.4	46.0	3.1	QP	100.0	323.00	HORIZONTAL
455.711423	35.70	20.2	46.0	10.3	QP	100.0	208.00	HORIZONTAL
506.252505	33.60	20.3	46.0	12.4	QP	100.0	208.00	HORIZONTAL
622.885772	36.00	23.7	46.0	10.0	QP	100.0	91.00	HORIZONTAL
667.595190	36.40	25.7	46.0	9.6	QP	100.0	52.00	HORIZONTAL
898.917836	39.90	25.4	46.0	6.1	OP	100.0	127.00	HORIZONTAL



## Mode B:

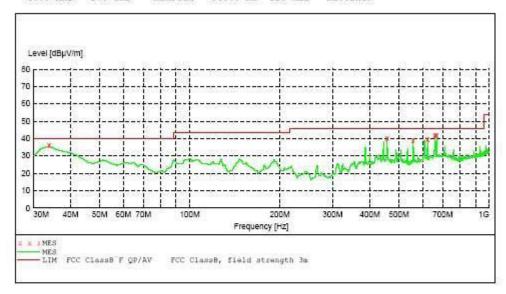




Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Asimuth deg	Polarisation	
385.731463	42.30	19.4	46.0	3.7	QP	100.0	320.00	HORIZONTAL	
455.711423	38.40	20.2	46.0	7.6	QP	100.0	163.00	HORIZONTAL	
622.885772	38.40	23.7	46.0	7.6	QP	100.0	202.00	HORIZONTAL	
657.875752	39.00	25.5	46.0	7.0	QP	100.0	242.00	HORIZONTAL	
667.595190	40.10	25.7	46.0	5.9	QP	100.0	47.00	HORIZONTAL	
710.360721	37.30	26.6	46.0	8.7	QP	100.0	202.00	HORIZONTAL	



SWEEP TABLE: "test (30M-1G)"
Short Description: Fi
Start Stop Detector Field Strength Detector Meas. IF Transducer Time Frequency 30.0 MHs Frequency 1.0 GHz Bandw 500.0 ms 120 kHs HL562new



Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Asimuth deg	Polarisation	
33.887776	35.90	19.0	40.0	4.1	QP	100.0	85.00	VERTICAL	
455.711423	40.20	20.2	46.0	5.8	OP	100.0	85.00	VERTICAL	
556.793587	39.10	21.7	46.0	6.9	QP	100.0	85.00	VERTICAL	
622.885772	39.50	23.7	46.0	6.5	QP	100.0	5.00	VERTICAL	
657.875752	41.90	25.5	46.0	4.1	OP	100.0	279.00	VERTICAL	
667.595190	41.90	25.7	46.0	4.1	OP	100.0	360.00	VERTICAL	



## **Above 1GHz:**

#### 802.11b CH1:

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1266.67	٧	51.64		-9.47	42.17		74.00	54.00	-11.83	Peak
1403.33	٧	51.98		-8.84	43.14		74.00	54.00	-10.86	Peak
1863.33	٧	51.98		-6.31	45.67		74.00	54.00	-8.33	Peak
2463.33	٧	50.22		-4.48	45.73		74.00	54.00	-8.27	Peak
4091.67	٧	43.83		1.18	45.00		74.00	54.00	-9.00	Peak
6150.00	٧	42.03		4.28	46.30		74.00	54.00	-7.70	Peak
7641.67	V	42.22		7.10	49.33		74.00	54.00	-4.67	Peak
1306.67	Н	51.20		-9.28	41.92		74.00	54.00	-12.08	Peak
1590.00	Н	50.62		-7.88	42.74		74.00	54.00	-11.26	Peak
2290.00	Н	51.49		-4.87	46.61		74.00	54.00	-7.39	Peak
2573.33	Н	50.46		-4.06	46.40		74.00	54.00	-7.60	Peak
4850.00	Н	42.00		1.96	43.96		74.00	54.00	-10.04	Peak
7558.33	Н	41.72		7.12	48.84		74.00	54.00	-5.16	Peak

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Margin (dB) = Remark result (dBuV/m) Average limit (dBuV/m).



## 802.11g CH1:

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1396.67	٧	53.97		-8.87	45.10		74.00	54.00	-8.90	Peak
1526.67	٧	51.57		-8.24	43.33		74.00	54.00	-10.67	Peak
2036.67	V	50.22		-5.45	44.78		74.00	54.00	-9.22	Peak
2123.33	V	50.26		-5.25	45.01		74.00	54.00	-8.99	Peak
2610.00	٧	50.04		-3.89	46.15		74.00	54.00	-7.85	Peak
4225.00	V	43.43		1.10	44.53		74.00	54.00	-9.47	Peak
5633.33	٧	41.87		3.60	45.48		74.00	54.00	-8.52	Peak
7458.33	٧	42.29		7.02	49.31		74.00	54.00	-4.69	Peak
1860.00	Н	50.34		-6.33	44.01		74.00	54.00	-9.99	Peak
2163.33	Н	50.42		-5.16	45.26		74.00	54.00	-8.74	Peak
2780.00	Н	49.17		-3.11	46.06		74.00	54.00	-7.94	Peak
4983.33	Н	41.78		2.35	44.13		74.00	54.00	-9.87	Peak
5908.33	Н	41.20		4.08	45.28		74.00	54.00	-8.72	Peak
7158.33	Н	41.50		6.21	47.72		74.00	54.00	-6.28	Peak

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Margin (dB) = Remark result (dBuV/m) Average limit (dBuV/m).



## 802.11n(20M) CH1:

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1263.33	٧	52.15		-9.48	42.67		74.00	54.00	-11.33	Peak
1870.00	٧	50.61		-6.27	44.34		74.00	54.00	-9.66	Peak
1930.00	٧	50.43		-5.93	44.50		74.00	54.00	-9.50	Peak
2630.00	٧	50.53		-3.80	46.73		74.00	54.00	-7.27	Peak
4825.00	٧	42.99		1.89	44.88		74.00	54.00	-9.12	Peak
5866.67	٧	41.80		4.01	45.81		74.00	54.00	-8.19	Peak
6175.00	٧	41.86		4.28	46.14		74.00	54.00	-7.86	Peak
7450.00	٧	41.45		7.00	48.44		74.00	54.00	-5.56	Peak
1210.00	Н	51.42		-9.73	41.69		74.00	54.00	-12.31	Peak
2163.33	Н	50.05		-5.16	44.89		74.00	54.00	-9.11	Peak
2570.00	Н	50.45		-4.08	46.37		74.00	54.00	-7.63	Peak
5333.33	Н	41.54		3.05	44.58		74.00	54.00	-9.42	Peak
6166.67	Н	41.57		4.28	45.85		74.00	54.00	-8.15	Peak
7733.33	Н	42.28		7.08	49.36		74.00	54.00	-4.64	Peak

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Margin (dB) = Remark result (dBuV/m) Average limit (dBuV/m).



## 802.11n(40M) CH3:

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1396.67	V	53.90		-8.87	45.03		74.00	54.00	-8.97	Peak
1860.00	٧	53.57		-6.33	47.24		74.00	54.00	-6.76	Peak
2886.67	٧	49.82		-2.62	47.20		74.00	54.00	-6.80	Peak
3541.67	٧	43.67		-0.47	43.20		74.00	54.00	-10.80	Peak
5116.67	٧	42.68		2.63	45.30		74.00	54.00	-8.70	Peak
N/A										
1750.00	Н	54.73		-6.96	47.77		74.00	54.00	-6.23	Peak
2170.00	Н	50.02		-5.15	44.88		74.00	54.00	-9.12	Peak
2776.67	Н	49.00		-3.13	45.88		74.00	54.00	-8.12	Peak
4975.00	Н	41.57		2.33	43.90		74.00	54.00	-10.10	Peak
7425.00	Н	41.30		6.93	48.23		74.00	54.00	-5.77	Peak
N/A										

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Margin (dB) = Remark result (dBuV/m) Average limit (dBuV/m).



## 802.11b CH6:

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1266.67	٧	51.81		-9.47	42.34		74.00	54.00	-11.66	Peak
1476.67	٧	51.79		-8.50	43.29		74.00	54.00	-10.71	Peak
1856.67	٧	51.95		-6.35	45.60		74.00	54.00	-8.40	Peak
2773.33	٧	49.31		-3.14	46.17		74.00	54.00	-7.83	Peak
5616.67	٧	41.98		3.57	45.56		74.00	54.00	-8.44	Peak
6233.33	٧	41.84		4.30	46.13		74.00	54.00	-7.87	Peak
7708.33	٧	42.31		7.09	49.40		74.00	54.00	-4.60	Peak
1566.67	Н	51.07		-8.01	43.06		74.00	54.00	-10.94	Peak
2316.67	Н	50.85		-4.81	46.03		74.00	54.00	-7.97	Peak
2583.33	Н	49.86		-4.02	45.84		74.00	54.00	-8.16	Peak
6133.33	Н	44.19		4.27	48.46		74.00	54.00	-5.54	Peak
6841.67	Н	42.37		5.34	47.71		74.00	54.00	-6.29	Peak
N/A										

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Margin (dB) = Remark result (dBuV/m) Average limit (dBuV/m).



# 802.11g CH6:

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1533.33	٧	52.67		-8.20	44.47		74.00	54.00	-9.53	Peak
1860.00	٧	51.87		-6.33	45.54		74.00	54.00	-8.46	Peak
1983.33	٧	50.01		-5.63	44.38		74.00	54.00	-9.62	Peak
2736.67	٧	49.67		-3.31	46.36		74.00	54.00	-7.64	Peak
5741.67	٧	41.44		3.79	45.23		74.00	54.00	-8.77	Peak
7075.00	٧	40.72		5.99	46.71		74.00	54.00	-7.29	Peak
7691.67	V	42.79		7.09	49.88		74.00	54.00	-4.12	Peak
1823.33	Н	50.17		-6.54	43.63		74.00	54.00	-10.37	Peak
2243.33	Н	50.29		-4.98	45.31		74.00	54.00	-8.69	Peak
2316.67	Н	50.32		-4.81	45.50		74.00	54.00	-8.50	Peak
5483.33	Н	41.00		3.34	44.34		74.00	54.00	-9.66	Peak
6941.67	Н	41.40		5.62	47.02		74.00	54.00	-6.98	Peak
7716.67	Н	41.99		7.09	49.08		74.00	54.00	-4.92	Peak

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- 4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Margin (dB) = Remark result (dBuV/m) Average limit (dBuV/m).



## 802.11n(20M) CH6:

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1396.67	٧	52.55		-8.87	43.68		74.00	54.00	-10.32	Peak
1860.00	٧	50.67		-6.33	44.34		74.00	54.00	-9.66	Peak
2163.33	٧	50.05		-5.16	44.89		74.00	54.00	-9.11	Peak
2660.00	٧	49.97		-3.66	46.31		74.00	54.00	-7.69	Peak
3950.00	٧	42.42		1.04	43.46		74.00	54.00	-10.54	Peak
5191.67	٧	42.08		2.77	44.86		74.00	54.00	-9.14	Peak
7291.67	٧	41.35		6.57	47.93		74.00	54.00	-6.07	Peak
1293.33	Н	51.16		-9.34	41.81		74.00	54.00	-12.19	Peak
2153.33	Н	49.65		-5.18	44.47		74.00	54.00	-9.53	Peak
2686.67	Н	49.35		-3.54	45.81		74.00	54.00	-8.19	Peak
5075.00	Н	41.94		2.55	44.48		74.00	54.00	-9.52	Peak
6533.33	Н	41.63		4.46	46.09		74.00	54.00	-7.91	Peak
7266.67	Н	41.07		6.50	47.57		74.00	54.00	-6.43	Peak

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- Data of measurement within this frequency range shown "--- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Margin (dB) = Remark result (dBuV/m) Average limit (dBuV/m).



## 802.11n(40M) CH6:

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1126.67	٧	53.14		-10.11	43.03		74.00	54.00	-10.97	Peak
1530.00	٧	51.26		-8.22	43.04		74.00	54.00	-10.96	Peak
1866.67	٧	52.08		-6.29	45.78		74.00	54.00	-8.22	Peak
2123.33	٧	52.97		-5.25	47.72		74.00	54.00	-6.28	Peak
2746.67	٧	49.12		-3.27	45.85		74.00	54.00	-8.15	Peak
3716.67	V	43.97		0.18	44.15		74.00	54.00	-9.85	Peak
5683.33	٧	41.39		3.69	45.08		74.00	54.00	-8.92	Peak
7033.33	٧	41.78		5.88	47.66		74.00	54.00	-6.34	Peak
1746.67	Н	50.03		-6.98	43.05		74.00	54.00	-10.95	Peak
2246.67	Н	49.50		-4.97	44.53		74.00	54.00	-9.47	Peak
2683.33	Н	49.65		-3.56	46.10		74.00	54.00	-7.90	Peak
2943.33	Н	48.92		-2.36	46.56		74.00	54.00	-7.44	Peak
5866.67	Н	41.82		4.01	45.83		74.00	54.00	-8.17	Peak
7408.33	Н	41.29		6.88	48.17		74.00	54.00	-5.83	Peak

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- Data of measurement within this frequency range shown "--- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Margin (dB) = Remark result (dBuV/m) Average limit (dBuV/m).



## 802.11b CH11:

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1893.33	V	50.54		-6.14	44.40		74.00	54.00	-9.60	Peak
2203.33	٧	49.44		-5.07	44.37		74.00	54.00	-9.63	Peak
2740.00	٧	48.64		-3.30	45.35		74.00	54.00	-8.65	Peak
4933.33	٧	41.85		2.20	44.05		74.00	54.00	-9.95	Peak
6141.67	٧	41.42		4.27	45.69		74.00	54.00	-8.31	Peak
7658.33	V	41.82		7.10	48.92		74.00	54.00	-5.08	Peak
1146.67	Н	51.89		-10.02	41.86		74.00	54.00	-12.14	Peak
1933.33	Н	50.01		-5.91	44.10		74.00	54.00	-9.90	Peak
2340.00	Н	51.00		-4.76	46.24		74.00	54.00	-7.76	Peak
2853.33	Н	49.45		-2.77	46.68		74.00	54.00	-7.32	Peak
5650.00	Н	41.77		3.63	45.40		74.00	54.00	-8.60	Peak
6541.67	Н	41.94		4.48	46.42		74.00	54.00	-7.58	Peak
7791.67	Н	41.44		7.07	48.51		74.00	54.00	-5.49	Peak

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Margin (dB) = Remark result (dBuV/m) Average limit (dBuV/m).



# 802.11g CH11:

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1396.67	٧	52.36		-8.87	43.49		74.00	54.00	-10.51	Peak
1636.67	V	52.06		-7.61	44.45		74.00	54.00	-9.55	Peak
1863.33	٧	52.57		-6.31	46.26		74.00	54.00	-7.74	Peak
2840.00	V	49.91		-2.84	47.08		74.00	54.00	-6.92	Peak
5466.67	V	42.19		3.31	45.50		74.00	54.00	-8.50	Peak
6216.67	٧	41.90		4.29	46.19		74.00	54.00	-7.81	Peak
7008.33	٧	41.96		5.81	47.78		74.00	54.00	-6.22	Peak
1540.00	Н	51.04		-8.16	42.88		74.00	54.00	-11.12	Peak
1723.33	Н	50.39		-7.11	43.28		74.00	54.00	-10.72	Peak
2326.67	Н	50.96		-4.79	46.17		74.00	54.00	-7.83	Peak
2853.33	Н	49.00		-2.77	46.22		74.00	54.00	-7.78	Peak
4791.67	Н	43.56		1.79	45.35		74.00	54.00	-8.65	Peak
5441.67	Н	42.06		3.26	45.31		74.00	54.00	-8.69	Peak
6908.33	Н	42.48		5.53	48.00		74.00	54.00	-6.00	Peak

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Margin (dB) = Remark result (dBuV/m) Average limit (dBuV/m).



## 802.11n(20M) CH9:

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1126.67	V	54.43		-10.11	44.32		74.00	54.00	-9.68	Peak
1386.67	٧	51.02		-8.91	42.11		74.00	54.00	-11.89	Peak
1990.00	٧	51.02		-5.59	45.43		74.00	54.00	-8.57	Peak
2696.67	٧	49.62		-3.50	46.13		74.00	54.00	-7.87	Peak
3983.33	V	42.17		1.17	43.34		74.00	54.00	-10.66	Peak
5258.33	V	41.57		2.90	44.47		74.00	54.00	-9.53	Peak
6875.00	٧	40.74		5.43	46.18		74.00	54.00	-7.82	Peak
1123.33	Н	51.41		-10.13	41.28		74.00	54.00	-12.72	Peak
1436.67	Н	51.27		-8.68	42.59		74.00	54.00	-11.41	Peak
1996.67	Н	49.92		-5.55	44.37		74.00	54.00	-9.63	Peak
2896.67	Н	49.16		-2.58	46.59		74.00	54.00	-7.41	Peak
N/A										

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Margin (dB) = Remark result (dBuV/m) Average limit (dBuV/m).



## 802.11n(40M) CH9:

Frequency (MHz)	Ant. Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
1740.00	٧	50.97		-7.02	43.95		74.00	54.00	-10.05	Peak
1873.33	٧	51.87		-6.25	45.62		74.00	54.00	-8.38	Peak
2240.00	٧	50.70		-4.99	45.72		74.00	54.00	-8.28	Peak
2743.33	٧	49.05		-3.28	45.77		74.00	54.00	-8.23	Peak
3808.33	٧	42.52		0.52	43.04		74.00	54.00	-10.96	Peak
7158.33	٧	41.58		6.21	47.79		74.00	54.00	-6.21	Peak
2006.67	Н	49.58		-5.51	44.07		74.00	54.00	-9.93	Peak
2196.67	Н	49.88		-5.09	44.80		74.00	54.00	-9.20	Peak
2780.00	Н	49.49		-3.11	46.38		74.00	54.00	-7.62	Peak
4191.67	Н	41.89		1.12	43.01		74.00	54.00	-10.99	Peak
5441.67	Н	41.55		3.26	44.81		74.00	54.00	-9.19	Peak
6841.67	Н	42.26		5.34	47.60		74.00	54.00	-6.40	Peak

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser, with "N/A" remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Margin (dB) = Remark result (dBuV/m) Average limit (dBuV/m).



## 2.2.Conducted Emission Measurements

## Limits of conducted emission measurement

FREQUENCY OF EMISSION (MHz)	CONDUCTED	LIMIT (dBµV)
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

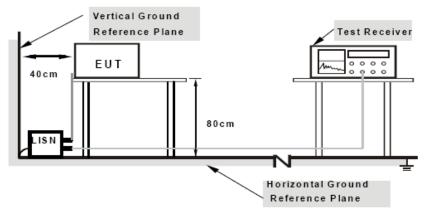
NOTE: 1. The lower limit shall apply at the transition frequencies.

- The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
- All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

## **Test procedures**

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

## **Test setup**



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).



## **Test results**

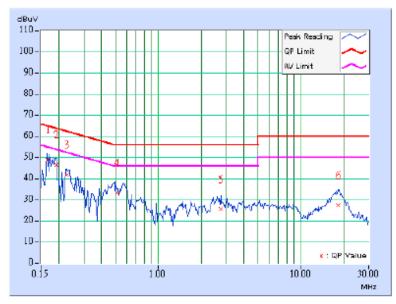
## CONDUCTED WORST-CASE DATA: 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION	N	MEASUREMENT DETAIL			
CHANNEL	Channel 1	PHASE	Line 1		
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz		
TRANSFER RATE	7.2Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz		
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH, 991hPa	TEST MODE	А		

	Freq.	Corr.	Readin	g Value	Emis Le	sion vel	Lir	nit	Mar	gin
No		Factor	[dB	(uV)]	[dB	(uV)]	[dB	(uV)]	(dl	B)
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.169	0.20	47.87	-	48.07	-	65.03	55.03	-16.96	-
2	0.193	0.20	45.79	-	45.99	-	63.91	53.91	-17.92	-
3	0.228	0.20	40.97	-	41.17	-	62.52	52.52	-21.35	-
4	0.514	0.20	32.50	1	32.70	-	56.00	46.00	-23.30	-
5	2.762	0.28	24.48	-	24.76	-	56.00	46.00	-31.24	-
6	18.371	0.94	26.63	1	27.57	1	60.00	50.00	-32.43	-

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.

- "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
- 3. The emission levels of other frequencies were very low against the limit.
- Margin value = Emission level Limit value
- Correction factor = Insertion loss + Cable loss
- Emission Level = Correction Factor + Reading Value.



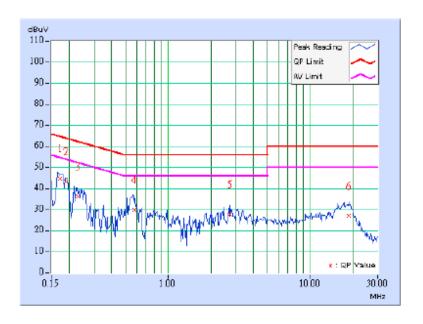


EUT TEST CONDITION	١	MEASUREMENT DETAIL				
CHANNEL	Channel 1	PHASE	Line 2			
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz			
TRANSFER RATE	7.2Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz			
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH, 991hPa	TEST MODE	А			

	Freq.	Corr.	Readin	g Value	Emis Le	sion vel	Lir	nit	Mar	gin
No		Factor	[dB	(uV)]	[dB (	(uV)]	[dB	(uV)]	(dl	B)
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.172	0.20	44.22	-	44.42	-	64.86	54.86	-20.44	-
2	0.190	0.20	42.97	-	43.17	-	64.02	54.02	-20.85	-
3	0.232	0.20	35.87	-	36.07	-	62.38	52.38	-26.31	-
4	0.580	0.20	29.42	-	29.62	-	56.00	46.00	-26.38	-
5	2.730	0.27	27.21	-	27.48	-	56.00	46.00	-28.52	-
6	18.664	0.51	26.66	-	27.17	,	60.00	50.00	-32.83	-

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.

- "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
- 3. The emission levels of other frequencies were very low against the limit.
- 4. Margin value = Emission level Limit value
- 5. Correction factor = Insertion loss + Cable loss
- 6. Emission Level = Correction Factor + Reading Value.



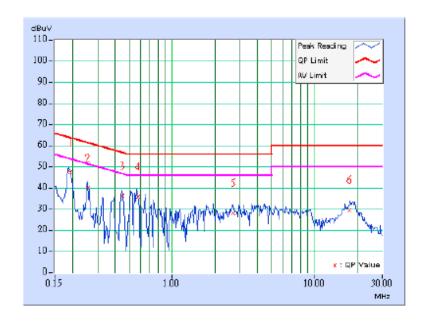


EUT TEST CONDITION	ı	MEASUREMENT DETAIL			
CHANNEL	Channel 1	PHASE	Line 1		
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz		
TRANSFER RATE	7.2Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz		
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH, 991hPa	TEST MODE	В		

	Freq.	Corr.	Reading	g Value	Emis Lev		Lir	nit	Mar	gin
No		Factor	[dB (	(uV)]	[dB (	uV)]	[dB	(uV)]	(dl	B)
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.192	0.20	46.35	-	46.55	-	63.93	53.93	-17.38	-
2	0.255	0.20	39.22	-	39.42	-	61.58	51.58	-22.16	-
3	0.448	0.20	35.41	-	35.61	-	56.91	46.91	-21.30	-
4	0.573	0.20	35.11	-	35.31	-	56.00	46.00	-20.69	-
5	2.675	0.27	27.26	-	27.53	-	56.00	46.00	-28.47	-
6	17.703	0.91	28.71	ı	29.62	-	60.00	50.00	-30.38	-

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.

- "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
- 3. The emission levels of other frequencies were very low against the limit.
- Margin value = Emission level Limit value
- 5. Correction factor = Insertion loss + Cable loss
- 6. Emission Level = Correction Factor + Reading Value.



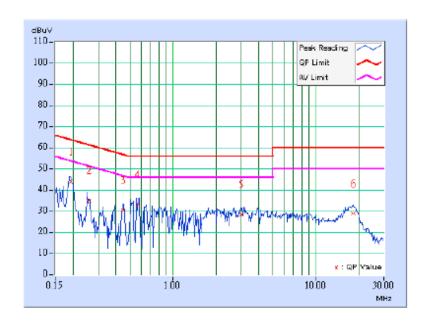


<u> </u>					
EUT TEST CONDITION		MEASUREMENT DETAIL			
CHANNEL	Channel 1	PHASE	Line 2		
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz		
TRANSFER RATE	7.2Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz		
ENVIRONMENTAL CONDITIONS	26deg. C, 66%RH, 991hPa	TEST MODE	В		

	Freq.	Corr.	Reading	g Value	Emis Le		Lir	nit	Mar	gin
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.193	0.20	43.74	-	43.94	-	63.91	53.91	-19.97	-
2	0.258	0.20	34.71	1	34.91	1	61.50	51.50	-26.59	-
3	0.449	0.20	29.94	1	30.14	1	56.89	46.89	-26.75	-
4	0.567	0.20	32.83	1	33.03	-	56.00	46.00	-22.97	-
5	3.004	0.30	27.87	1	28.17	1	56.00	46.00	-27.83	-
6	18.230	0.51	28.26	ı	28.77	1	60.00	50.00	-31.23	-

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.

- "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
- The emission levels of other frequencies were very low against the limit.
- 4. Margin value = Emission level Limit value
- Correction factor = Insertion loss + Cable loss
- Emission Level = Correction Factor + Reading Value.





## 2.3.6dB Bandwidth Measurement

## Limits of bandwidth measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

## **Test procedures**

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

## **Test setup**



## **Test results**

## 802.11b DSSS MODULATION

MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER (SYSTEM)	120Vac 60 Hz		25deg.C, 65%RH, 991hPa

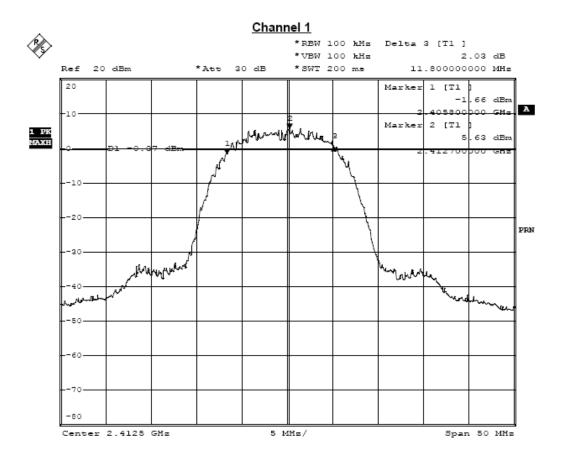
#### Chain 0:

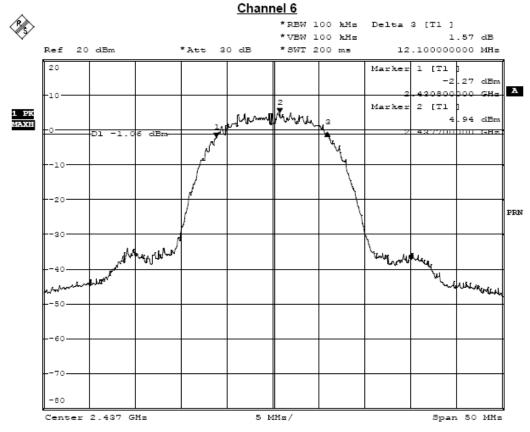
802.11 b					
Channel No.	Frequency Measurement Level		Required Limit	Result	
	(MHz)	(kHz)	(kHz)		
1	2412.00	11800	≥500	Pass	
6	2437.00	12100	≥500	Pass	
11	2462.00	12000	≥500	Pass	

## Chain 1:

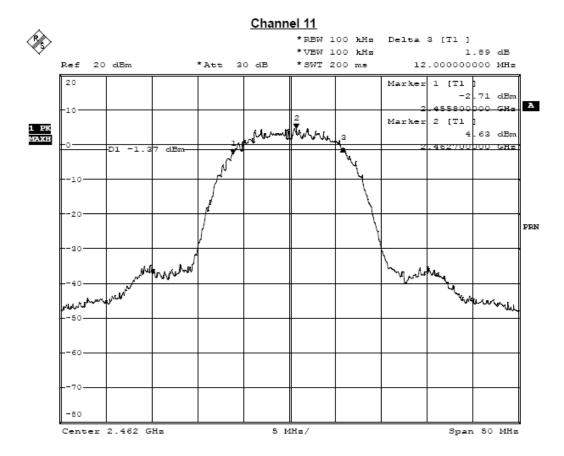
Channel No.	Frequency (MHz)	Measurement Level (KHz)	Required Limit (KHz)	Result
1	2412.00	11801	≥500	PASS
6	2437.00	12101	≥500	PASS
11	2462.00	12001	≥500	PASS













### 802.11g OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac 60 Hz		25deg.C, 65%RH, 991hPa

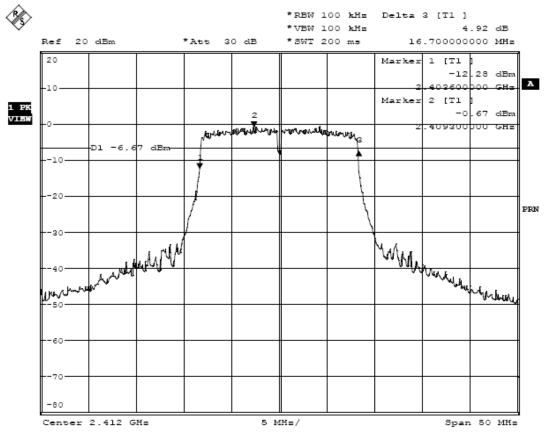
## Chain 0:

IEEE 802.11g					
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result	
1	2412.00	16700	≥500	Pass	
6	2437.00	16700	≥500	Pass	
11	2462.00	16700	≥500	Pass	

### Chain 1:

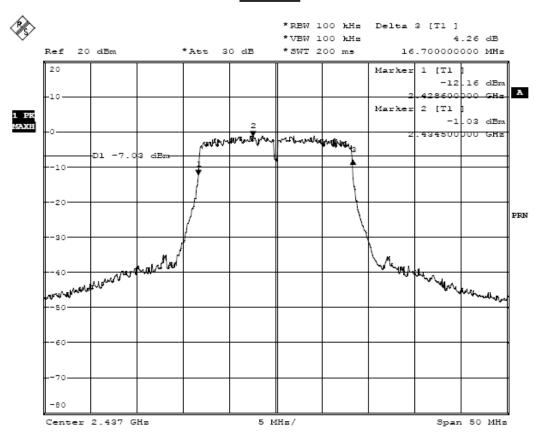
Channel No.	Frequency (MHz)	Measurement Level (KHz)	Required Limit (KHz)	Result
1	2412.00	16702	≥500	PASS
6	2437.00	16701	≥500	PASS
11	2462.00	16701	≥500	PASS

## Channel 1

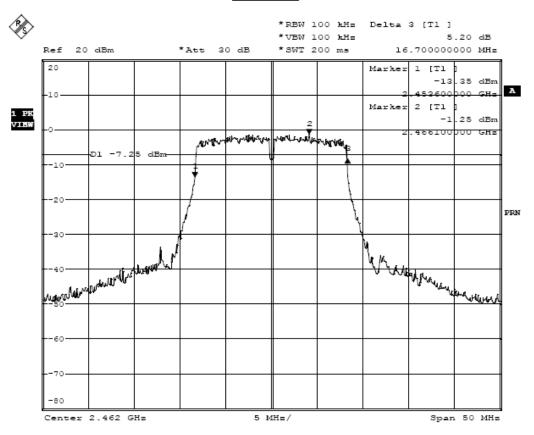




### Channel 6



### Channel 11



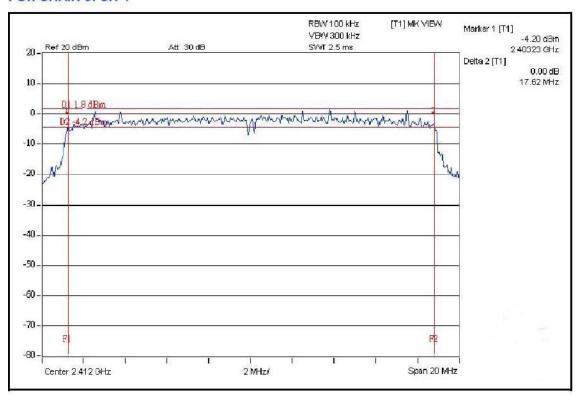


## DRAFT 802.11n (20MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac 60 Hz		25deg.C, 65%RH, 991hPa

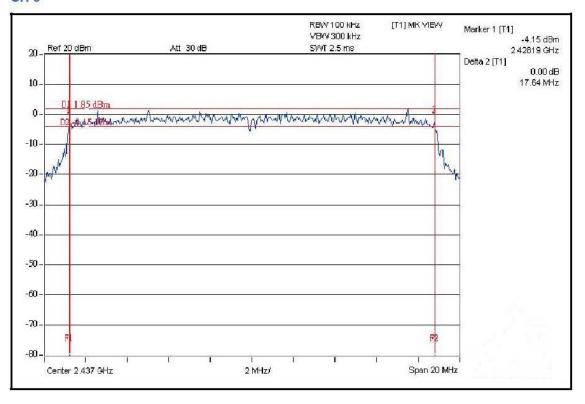
CHANNEL	CHANNEL FREQUENCY	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
	(MHz)	CHAIN 0 CHAIN 1		(2)	
1	2412	17.62	17.33	0.5	PASS
6	2437	17.64	17.58	0.5	PASS
11	2462	17.63	17.63	0.5	PASS

#### FOR CHAIN 0: CH 1

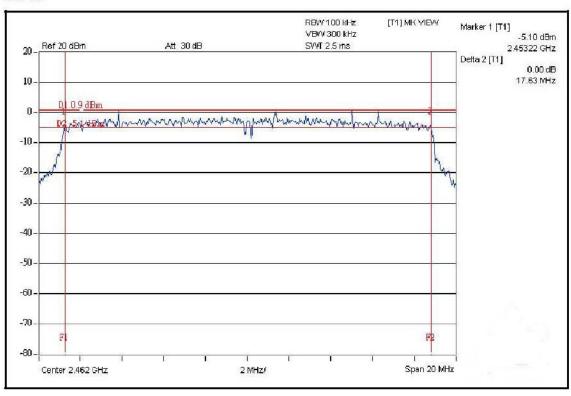




### CH 6

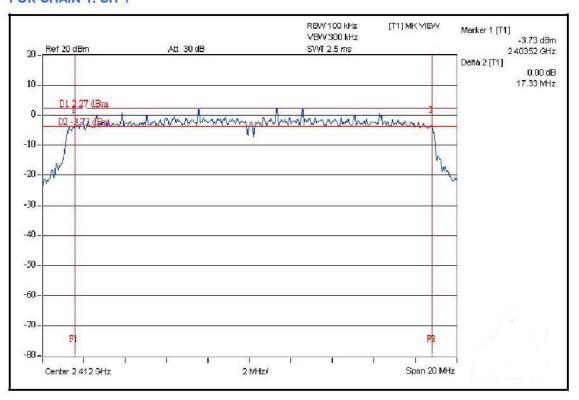


### CH 11

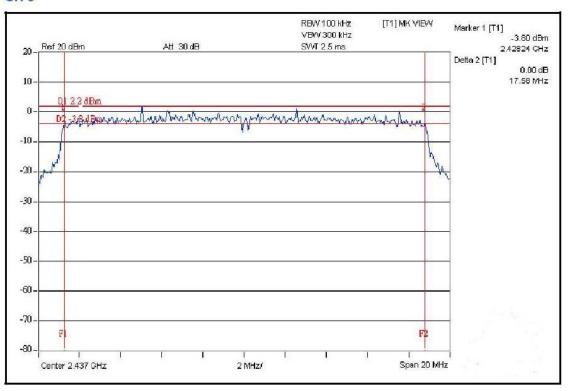




### FOR CHAIN 1: CH 1

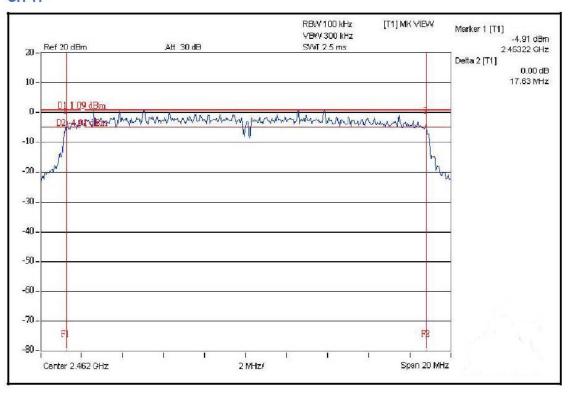


### CH 6





### **CH 11**



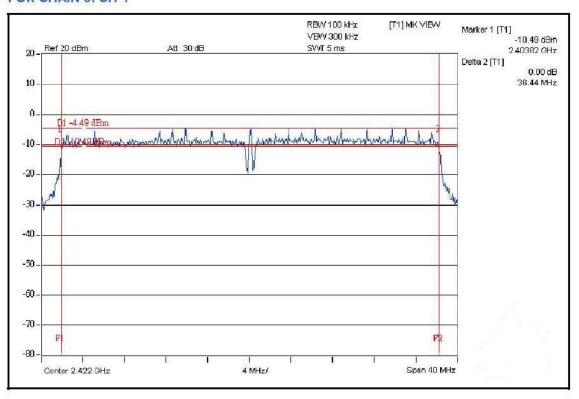
### DRAFT 802.11n (40MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER (SYSTEM)	120Vac 60 Hz		25deg.C, 65%RH, 991hPa

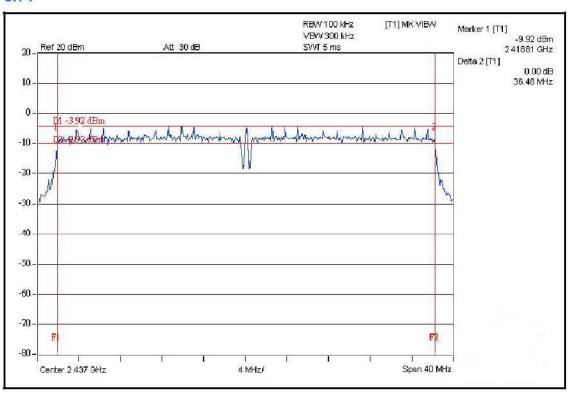
CHANNEL	CHANNEL FREQUENCY	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
	(MHz)	CHAIN 0	CHAIN 1	(11112)	
1	2422	36.44	36.46	0.5	PASS
4	2437	36.48	36.48	0.5	PASS
7	2452	36.51	36.47	0.5	PASS



### FOR CHAIN 0: CH 1

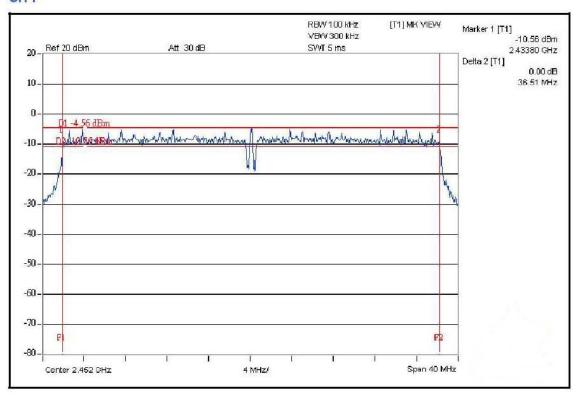


#### CH 4

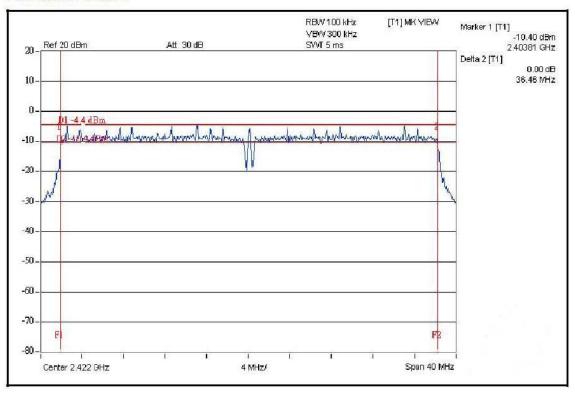




### CH 7

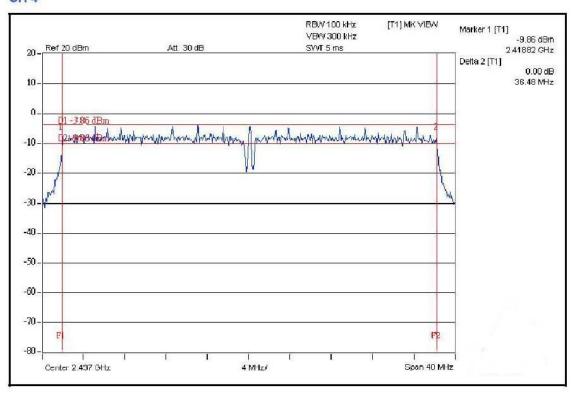


#### FOR CHAIN 1: CH 1

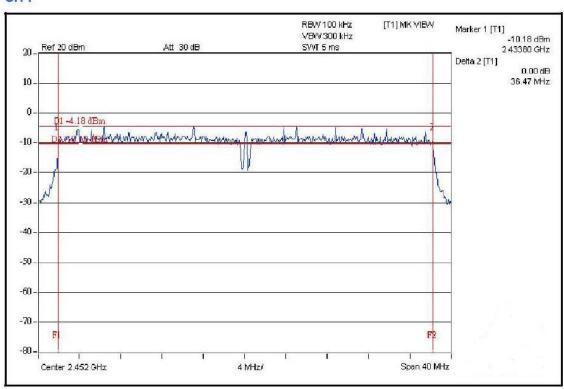




### CH 4



### CH 7





# 2.4. Maximum Peak Output Power

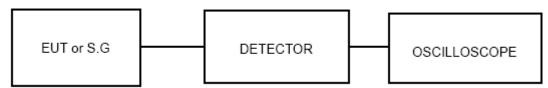
### Limits of maximum peak output power measurement

The Maximum Peak Output Power Measurement is 30dBm.

### **Test procedures**

- A detector was used on the output port of the EUT. An oscilloscope was used to read the response of the detector.
- Replaced the EUT by the signal generator. The center frequency of the S.G was adjusted to the center frequency of the measured channel.
- Adjusted the power to have the same reading on oscilloscope. Record the power level.

### **Test setup**



### **Test results**

#### 802.11b DSSS MODULATION

MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER (SYSTEM)	L120Vac 60 Hz		25deg.C, 65%RH, 991hPa

### **CHAIN 0:**

	CHANNEL	PEAK POWER	PEAK POWER	PEAK POWER	
CHAN	FREQUENCY	OUTPUT	OUTPUT	LIMIT	PASS/FAIL
	(MHz)	(mW)	(dBm)	(dBm/W)	
1	2412	20.22	13.06	30/1	PASS
6	2437	20.14	13.04	30/1	PASS
11	2462	20.01	13.01	30/1	PASS

### CHAIN 1:

CHAN	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm/W)	PASS/FAIL
1	2412	20.21	13.06	30/1	PASS
6	2437	20.14	13.04	30/1	PASS
11	2462	20.01	13.01	30/1	PASS



# 802.11g OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac 60 Hz		25deg.C, 65%RH, 991hPa

### **CHAIN 0:**

CHAN	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm/W)	PASS/FAIL
1	2412	22.25	13.47	30/1	PASS
6	2437	22.12	13.45	30/1	PASS
11	2462	21.85	13.39	30/1	PASS

### CHAIN 1:

CHAN	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm/W)	PASS/FAIL
1	2412	22.25	13.47	30/1	PASS
6	2437	22.13	13.45	30/1	PASS
11	2462	21.84	13.39	30/1	PASS

## DRAFT 802.11n (20MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac 60 Hz		25deg.C, 65%RH, 991hPa

### **CHAIN 0:**

CHAN	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm/W)	PASS/FAIL
1	2412	21.18	13.26	30/1	PASS
6	2437	21.03	13.23	30/1	PASS
11	2462	20.81	13.18	30/1	PASS

### **CHAIN 1:**

CHAN	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm/W)	PASS/FAIL
1	2412	21.14	13.25	30/1	PASS
6	2437	21.01	13.22	30/1	PASS
11	2462	20.77	13.17	30/1	PASS



# DRAFT 802.11n (40MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	15.0Mbps
INPUT POWER (SYSTEM)	120Vac 60 Hz		25deg.C, 65%RH, 991hPa

## CHAIN 0:

CHAN	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm/W)	PASS/FAIL
1	2422	19.74	12.95	30/1	PASS
6	2437	19.55	12.91	30/1	PASS
11	2452	19.42	12.88	30/1	PASS

## CHAIN 1:

CHAN	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm/W)	PASS/FAIL
1	2422	19.70	12.94	30/1	PASS
6	2437	19.52	12.90	30/1	PASS
11	2452	19.39	12.86	30/1	PASS



# 2.5. Power Spectral Density Measurement

### Limits of power spectral density measurement

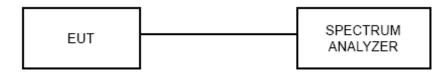
The Maximum of Power Spectral Density Measurement is 8dBm.

### **Test procedures**

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 30kHz VBW, set sweep time = span/3kHz. 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.

## **Test setup**



# **Test results**



#### 802.11b DSSS MODULATION

MODULATION TYPE	DBPSK	TRANSFER RATE	1.0Mbps
INPUT POWER (SYSTEM)	120Vac 60 Hz		25deg.C, 65%RH, 991hPa

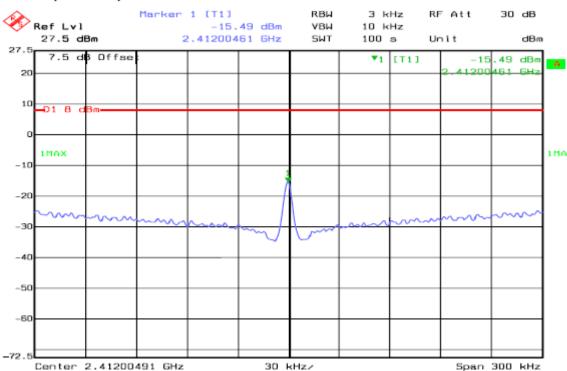
### **CHAIN 0:**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-15.49		PASS
Mid	2437	-14.91	8.00	PASS
High	2462	-14.95		PASS

### CHAIN 1:

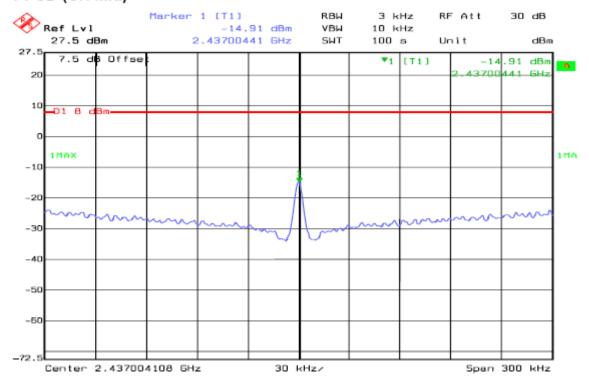
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Res (dBm/W)
Low	2412	-15.50		PASS
Mid	2437	-14.92	8.00	PASS
High	2462	-14.95		PASS

# PPSD (CH Low)

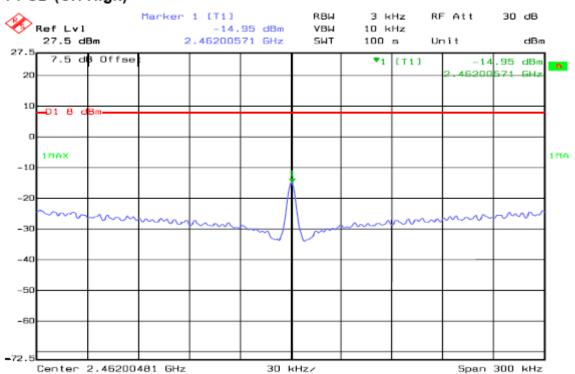




# PPSD (CH Mid)



# PPSD (CH High)





### 802.11g OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	6.0Mbps
INPUT POWER (SYSTEM)	120Vac 60 Hz		25deg.C, 65%RH, 991hPa

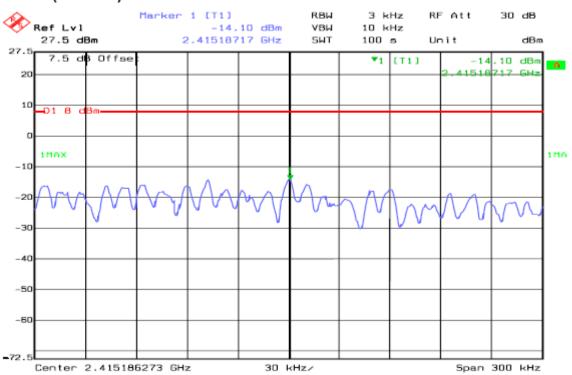
### **CHAIN 0:**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-14.10		PASS
Mid	2437	-13.62	8.00	PASS
High	2462	-14.40		PASS

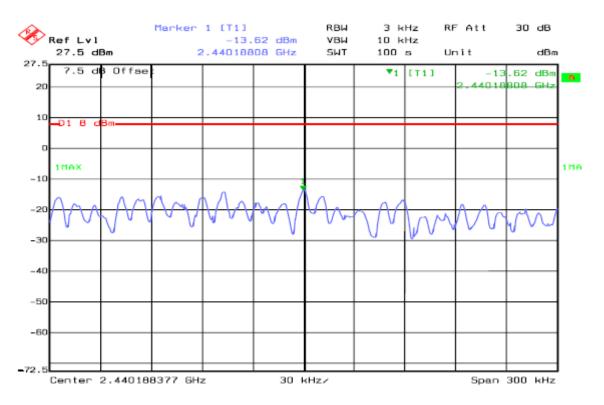
### CHAIN 1:

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Res (dBm/W)
Low	2412	-14.10		PASS
Mid	2437	-13.62	8.00	PASS
High	2462	-14.41		PASS

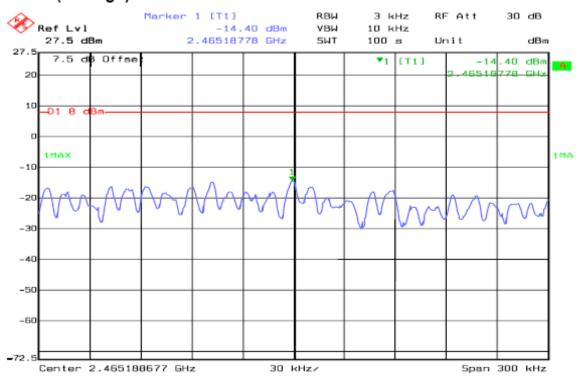
# PPSD (CH Low)







# PPSD (CH High)





### DRAFT 802.11n (20MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac 60 Hz		25deg.C, 65%RH, 991hPa

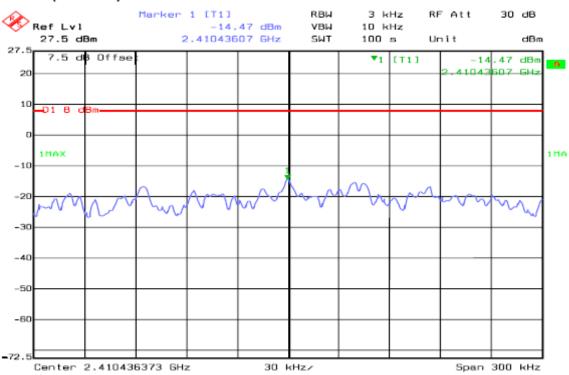
### **CHAIN 0:**

Channel	Frequency (MHz)	PP <b>S</b> D (dBm)	Limit (dBm)	Result
Low	2412	-14.47		PASS
Mid	2437	-13.96	8.00	PASS
High	2462	-14.63		PASS

### **CHAIN 1:**

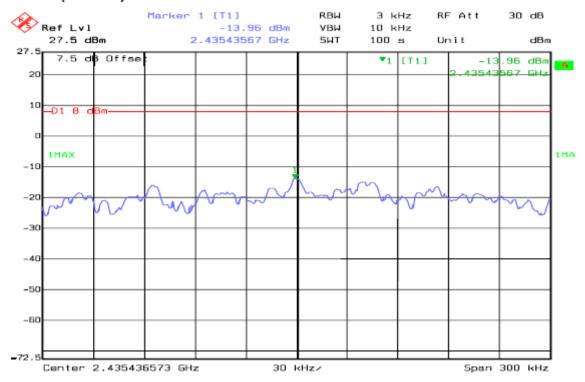
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Res (dBm/W)
Low	2412	-14.48		PASS
Mid	2437	-13.97	8.00	PASS
High	2462	-14.63		PASS

# PPSD (CH Low)





# PPSD (CH Mid)



# PPSD (CH High)





### DRAFT 802.11n (40MHz) OFDM MODULATION

MODULATION TYPE	BPSK	TRANSFER RATE	15Mbps
INPUT POWER (SYSTEM)	120Vac 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 65%RH, 991hPa

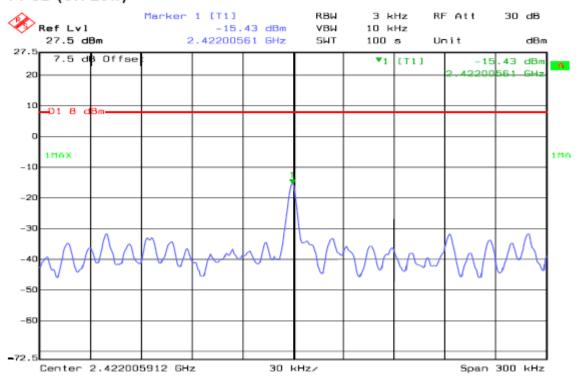
### **CHAIN 0:**

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2422	-15.43		PASS
Mid	2437	-15.19	8.00	PASS
High	2452	-15.03		PASS

### **CHAIN 1:**

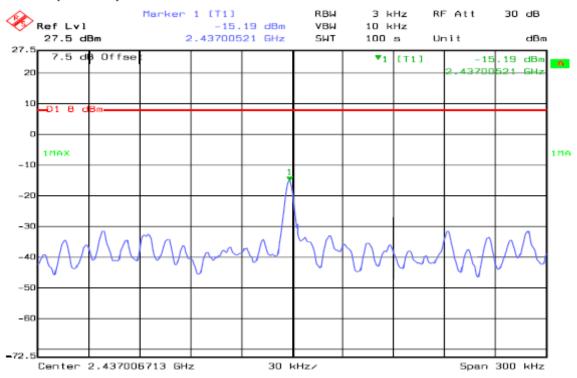
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Res (dBm/W)
Low	2422	-15.44		PASS
Mid	2437	-15.20	8.00	PASS
High	2452	-15.03		PASS

# PPSD (CH Low)

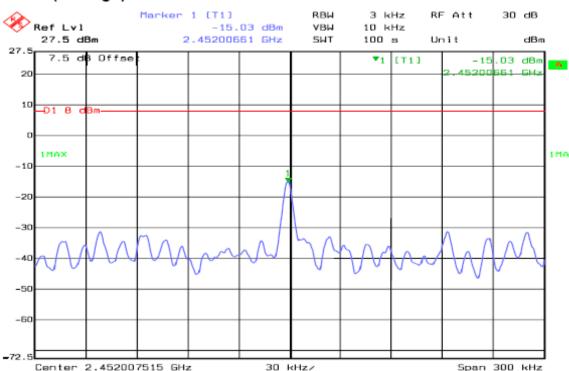




# PPSD (CH Mid)



# PPSD (CH High)





# 2.6.Band Edges Measurement

### **Limits of band edges measurement**

Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

### **Test procedures**

#### FOR CONDUCTED MEASUREMENT

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW = 100kHz, VBW = 300kHz; Average RBW = 1MHz, VBW = 10Hz) are attached on the following pages.

#### FOR RADIATED MEASUREMENT

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.
  - The spectrum plots (Peak RBW = 100kHz, VBW = 300kHz; Average RBW = 1MHz, VBW = 10Hz)



### **Test results**

The spectrum plots are attached on the following 24 images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

#### 802.11b DSSS MODULATION

**NOTE 1:** The band edge emission plot on the next page shows 54.35dBc between carrier maximum power and local maximum emission in restrict band (2.3864GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 112.27dBuV/m (Peak), so the maximum field strength in restrict band is 112.27 – 54.35 = 57.92dBuV/m which is under 74dBuV/m limit.

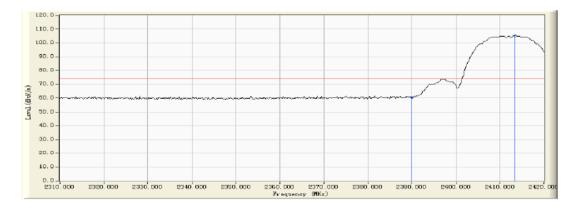
The band edge emission plot on the next page shows 57.61dBc between carrier maximum power and local maximum emission in restrict band (2.3862GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 107.53dBuV/m (Average), so the maximum field strength in restrict band is 107.53 – 57.61 = 49.92dBuV/m which is under 54dBuV/m limit.

**NOTE 2:** The band edge emission plot on the next second page shows 54.34dBc between carrier maximum power and local maximum emission in restrict band (2.4878GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 112.18dBuV/m (Peak), so the maximum field strength in restrict band is 112.18 – 54.34 = 57.84dBuV/m which is under 74dBuV/m limit.

The band edge emission plot on the next third page shows 56.81dBc between carrier maximum power and local maximum emission in restrict band (2.4878GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 107.47dBuV/m (Average), so the maximum field strength in restrict band is 107.47 – 56.81 = 50.66dBuV/m which is under 54dBuV/m limit.



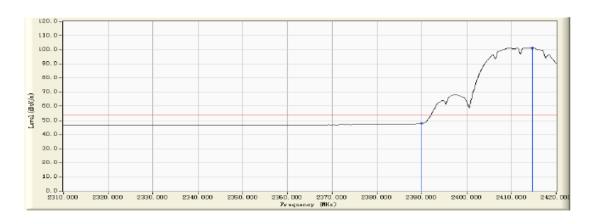
# CHAIN 0: Horizontal:



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	27.701	60.423	-13.547	73.970	PEAK
2	*	2413.400	32.735	72.392	105.126	N/A	N/A	PEAK

Note:

Peak detector set as follows: RBW = 1MHz, VBW = 3MHz, sweep time = 500ms.

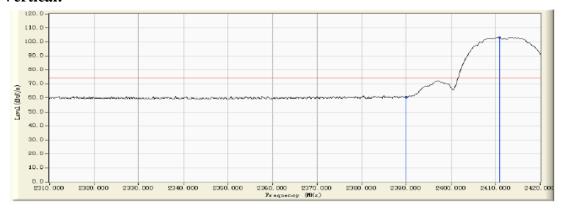


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	15.258	47.980	-5.990	53.970	AVERAGE
2	*	2414.683	32.737	68.565	101.302	N/A	N/A	AVERAGE

Note:



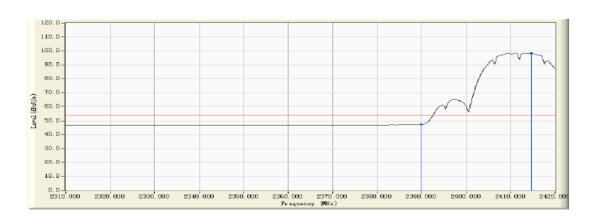
### Vertical:



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	27.800	60.522	-13.448	73.970	PEAK
2	*	2410.833	32.730	70.623	103.353	N/A	N/A	PEAK

Note:

Peak detector set as follows: RBW = 1MHz, VBW = 3MHz, sweep time = 500ms.

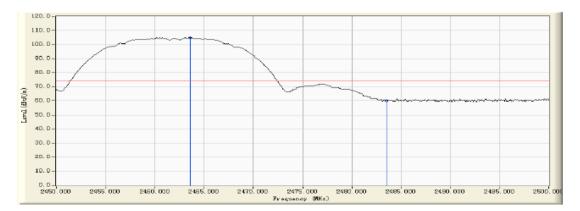


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	14.651	47.373	-6.597	53.970	AVERAGE
2	*	2414.683	32.737	65.620	98.357	N/A	N/A	AVERAGE

Note:



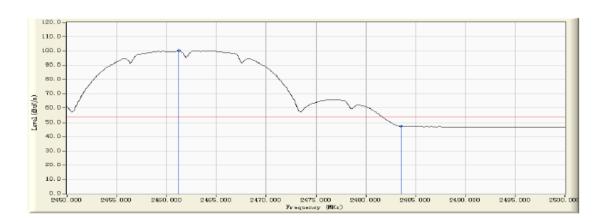
# **Horizontal:**



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2463.583	32.790	72.134	104.924	N/A	N/A	PEAK
2		2483.500	32.787	27.367	60.154	-13.816	73.970	PEAK

Note:

Peak detector set as follows: RBW = 1MHz, VBW = 3MHz, sweep time = 500ms.

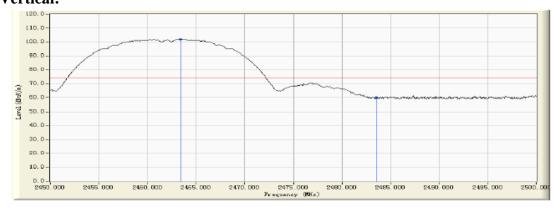


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2461.250	32.790	67.477	100.267	N/A	N/A	AVERAGE
2	!	2483.500	32.787	14.369	47.156	-6.814	53.970	AVERAGE

Note:



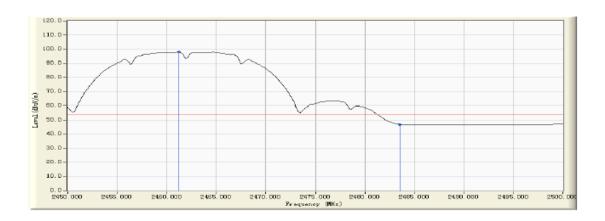
### Vertical:



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2463.417	32.790	69.167	101.957	N/A	N/A	PEAK
2		2483.500	32.787	27.250	60.037	-13.933	73.970	PEAK

Note:

Peak detector set as follows: RBW = 1MHz, VBW = 3MHz, sweep time = 500ms.

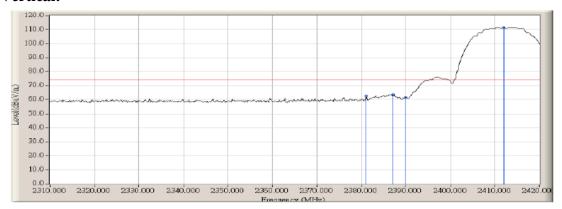


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2461.250	32.790	65.260	98.050	N/A	N/A	AVERAGE
2		2483.500	32.787	13.984	46.771	-7.199	53.970	AVERAGE

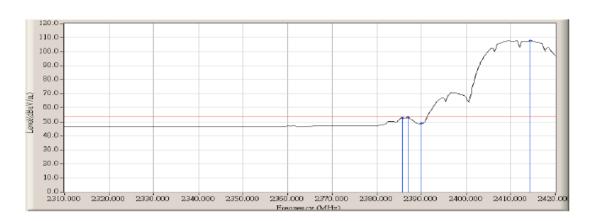
Note:



# CHAIN 1: Vertical:



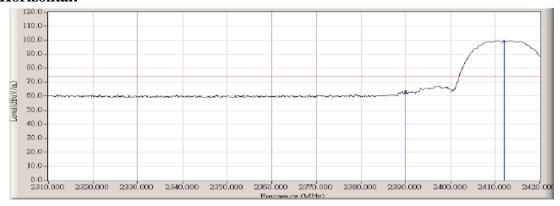
		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2381.133	32.728	29.944	62.672	-11.298	73.970	PEAK
2		2387.183	32.724	31.070	63.794	-10.176	73.970	PEAK
3		2390.000	32.722	29.178	61.900	-12.070	73.970	PEAK
4	*	2411.933	32.731	78.965	111.697	N/A	N/A	PEAK



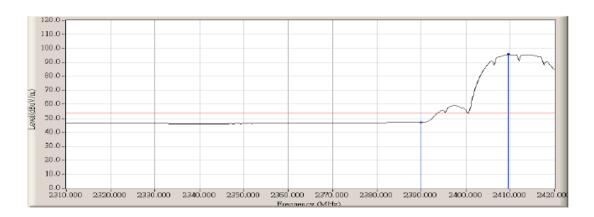
		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2385.717	32.725	20.129	52.854	-1.116	53.970	AVERAGE
2		2387.000	32.724	20.276	53.000	-0.970	53.970	AVERAGE
3		2390.000	32.722	16.022	48.744	-5.226	53.970	AVERAGE
4	*	2414.317	32.736	75.101	107.837	N/A	N/A	AVERAGE



### **Horizontal:**



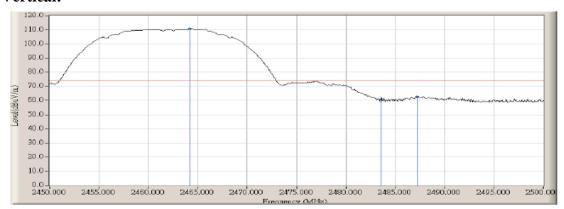
		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	30.671	63.393	-10.577	73.970	PEAK
2	*	2411.933	32.731	66.830	99.562	N/A	N/A	PEAK



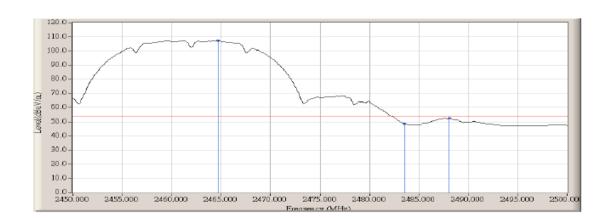
		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	14.179	46.901	-7.069	53.970	AVERAGE
2	*	2409.550	32.729	63.193	95.922	N/A	N/A	AVERAGE



### Vertical:



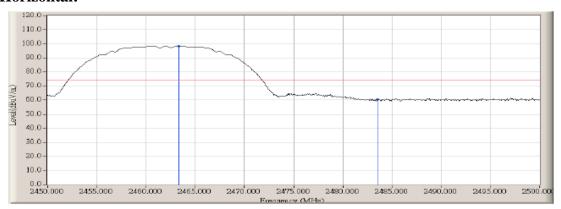
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2464.167	32.790	77.814	110.604	N/A	N/A	PEAK
2		2483.500	32.787	27.270	60.057	-13.913	73.970	PEAK
3		2487.250	32.785	30.053	62.838	-11.132	73.970	PEAK



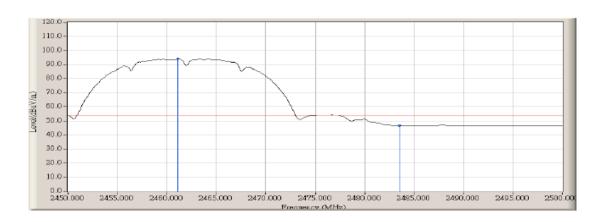
		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2464.667	32.790	74.553	107.343	N/A	N/A	AVERAGE
2		2483.500	32.787	15.889	48.676	-5.294	53.970	AVERAGE
3		2488.083	32.785	19.594	52.379	-1.591	53.970	AVERAGE



### **Horizontal:**



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2463.333	32.790	65.514	98.304	N/A	N/A	PEAK
2		2483.500	32.787	27.551	60.338	-13.632	73.970	PEAK



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2461.083	32.789	61.405	94.194	N/A	N/A	AVERAGE
2		2483.500	32.787	13.727	46.514	-7.456	53.970	AVERAGE



### 802.11g OFDM MODULATION

**NOTE 1:** The band edge emission plot on the next page shows 44.50dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 111.93dBuV/m (Peak), so the maximum field strength in restrict band is 111.93 – 44.50 = 67.43dBuV/m which is under 74dBuV/m limit.

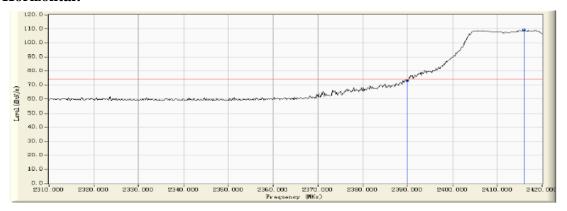
The band edge emission plot on the next page shows 48.25dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 100.83dBuV/m (Average), so the maximum field strength in restrict band is 100.83 – 48.25 = 52.58dBuV/m which is under 54dBuV/m limit.

**NOTE 2:** The band edge emission plot on the next second page shows 43.86dBc between carrier maximum power and local maximum emission in restrict band (2.4836GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 110.26dBuV/m (Peak), so the maximum field strength in restrict band is 110.26 – 43.86 = 66.40dBuV/m which is under 74dBuV/m limit.

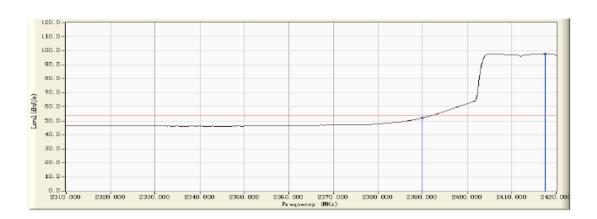
The band edge emission plot on the next third page shows 45.59dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 98.27dBuV/m (Average), so the maximum field strength in restrict band is 98.27 – 45.59 = 52.68dBuV/m which is under 54dBuV/m limit.



# CHAIN 0: Horizontal:



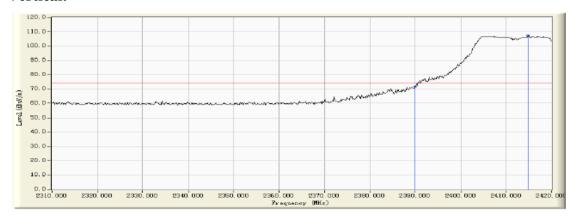
		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	40.179	72.901	-1.069	73.970	PEAK
2	*	2415.967	32.739	76.537	109.276	N/A	N/A	PEAK



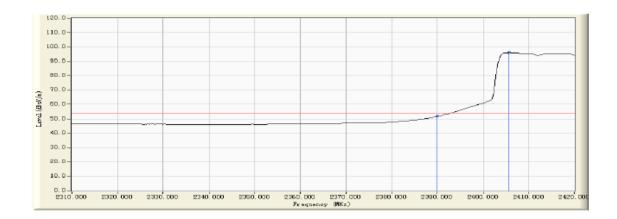
		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	19.413	52.135	-1.835	53.970	AVERAGE
2	*	2417.433	32.741	65.016	97.757	N/A	N/A	AVERAGE



### Vertical:



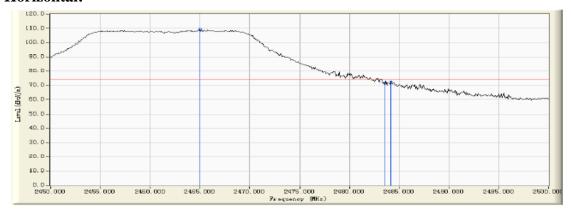
		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	38.895	71.617	-2.353	73.970	PEAK
2	*	2414.867	32.737	74.608	107.345	N/A	N/A	PEAK



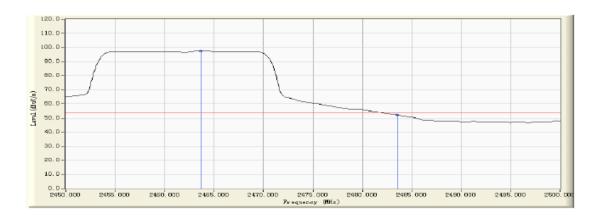
		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	Τ	2390.000	32.722	19.000	51.722	-2.248	53.970	AVERAGE
2	*	2405.700	32.727	63.368	96.095	N/A	N/A	AVERAGE



### **Horizontal:**



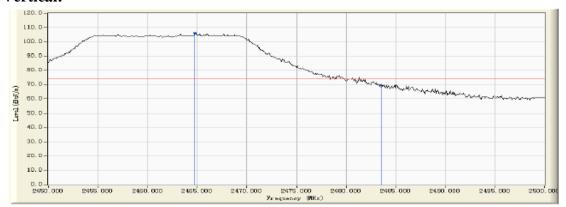
		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2465.000	32.790	76.723	109.513	N/A	N/A	PEAK
2		2483.500	32.787	39.091	71.878	-2.092	73.970	PEAK
3		2484.167	32.787	39.564	72.351	-1.619	73.970	PEAK



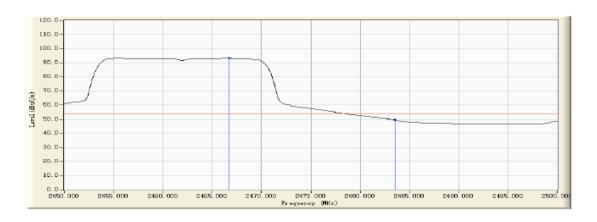
		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2463.667	32.790	64.665	97.455	N/A	N/A	AVERAGE
2		2483.500	32.787	19.359	52.146	-1.824	53.970	AVERAGE



### Vertical:



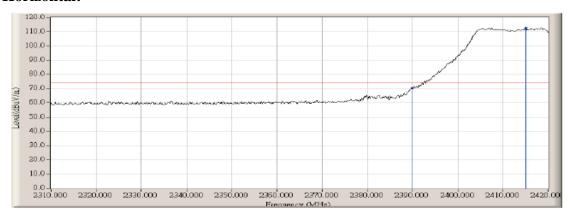
		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2464.750	32.790	73.415	106.205	N/A	N/A	PEAK
2		2483.500	32.787	36.297	69.084	-4.886	73.970	PEAK



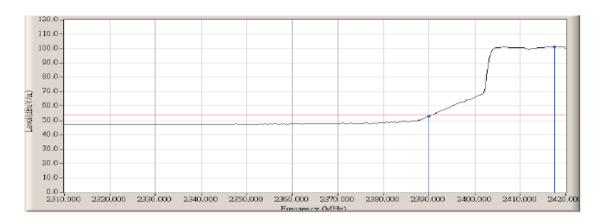
			Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
			(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	1	*	2466.750	32.790	60.577	93.367	N/A	N/A	AVERAGE
2	2		2483.500	32.787	16.726	49.513	-4.457	53.970	AVERAGE



# CHAIN 1: Horizontal:

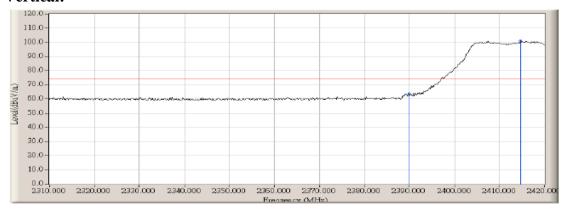


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	37.835	70.557	-3.413	73.970	PEAK
2	*	2415.050	32.738	80.336	113.073	N/A	N/A	PEAK

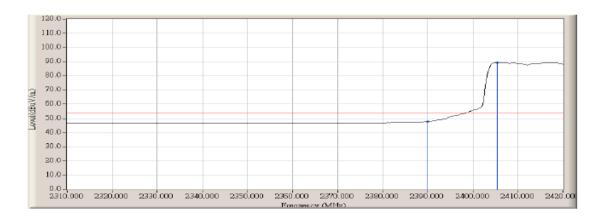


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	20.175	52.897	-1.073	53.970	AVERAGE
2	*	2417.433	32.741	68.530	101.271	N/A	N/A	AVERAGE



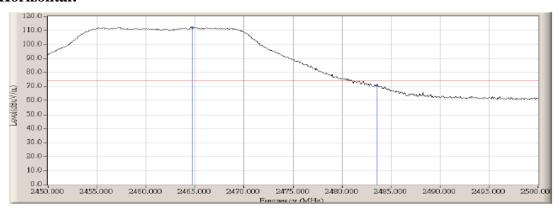


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	30.932	63.654	-10.316	73.970	PEAK
2	*	2414.683	32.737	68.442	101.179	N/A	N/A	PEAK

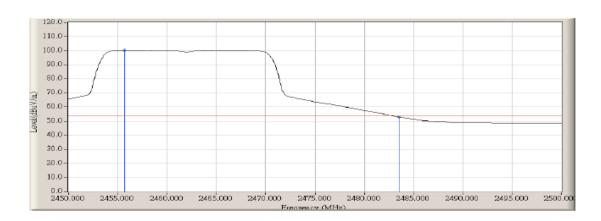


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	14.974	47.696	-6.274	53.970	AVERAGE
2	*	2405.333	32.726	56.762	89.489	N/A	N/A	AVERAGE



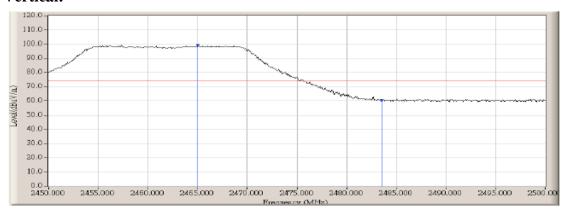


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2464.667	32.790	79.617	112.407	N/A	N/A	PEAK
2		2483.500	32.787	37.854	70.641	-3.329	73.970	PEAK

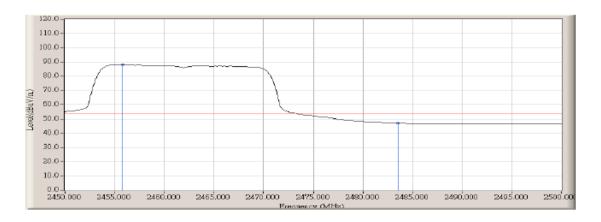


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2455.667	32.786	67.678	100.464	N/A	N/A	AVERAGE
2		2483.500	32.787	20.129	52.916	-1.054	53.970	AVERAGE





		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2465.000	32.790	67.082	99.872	N/A	N/A	PEAK
2		2483.500	32.787	27.607	60.394	-13.576	73.970	PEAK



Г		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2455.833	32.786	55.392	88.178	N/A	N/A	AVERAGE
2		2483.500	32.787	14.192	46.979	-6.991	53.970	AVERAGE



#### DRAFT 802.11n (20MHz) OFDM MODULATION

**NOTE 1:** The band edge emission plot on the next page shows 43.04dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 113.64dBuV/m (Peak), so the maximum field strength in restrict band is 113.64 – 43.04 = 70.60dBuV/m which is under 74dBuV/m limit.

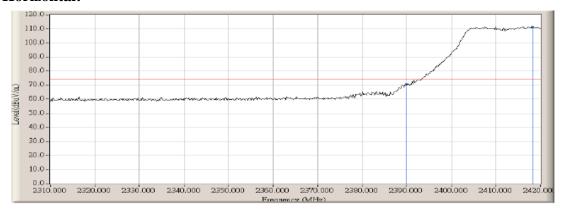
The band edge emission plot on the next page shows 48.68dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 101.17dBuV/m (Average), so the maximum field strength in restrict band is 101.17 – 48.68 = 52.49dBuV/m which is under 54dBuV/m limit.

**NOTE 2:** The band edge emission plot on the next second page shows 45.77 dBc between carrier maximum power and local maximum emission in restrict band (2.4838 GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 113.61 dBuV/m (Peak), so the maximum field strength in restrict band is 113.61 - 45.77 = 67.84 dBuV/m which is under 74 dBuV/m limit.

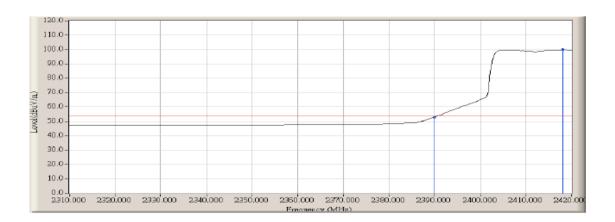
The band edge emission plot on the next third page shows 50.08dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 101.48dBuV/m (Average), so the maximum field strength in restrict band is 101.48 – 50.08 = 51.40dBuV/m which is under 54dBuV/m limit.



# CHAIN 0: Horizontal:

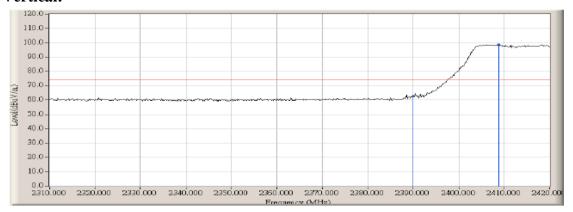


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	37.932	70.654	-3.316	73.970	PEAK
2	*	2418.167	32.743	78.667	111.410	N/A	N/A	PEAK

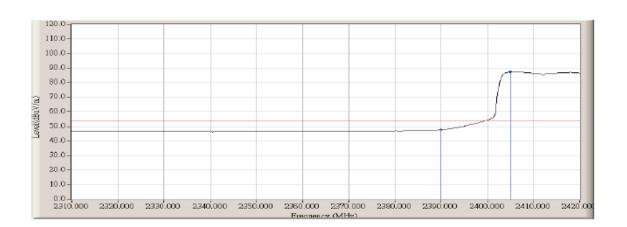


			Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
			(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	ı		2390.000	32.722	20.193	52.915	-1.055	53.970	AVERAGE
2	2	*	2417.983	32.742	67.163	99.905	N/A	N/A	AVERAGE



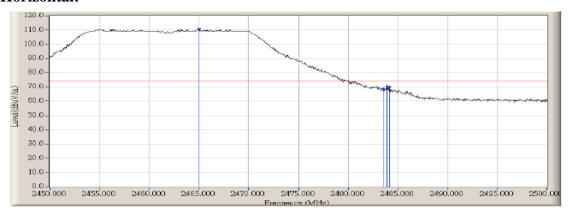


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	30.062	62.784	-11.186	73.970	PEAK
2	*	2408.817	32.728	66.167	98.896	N/A	N/A	PEAK

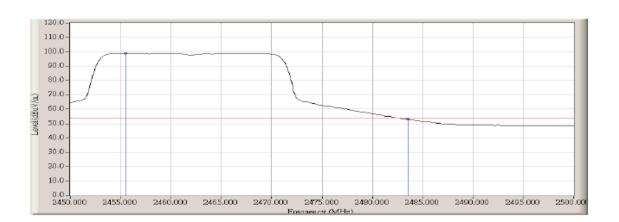


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	14.980	47.702	-6.268	53.970	AVERAGE
2	*	2404.967	32.727	54.666	87.392	N/A	N/A	AVERAGE



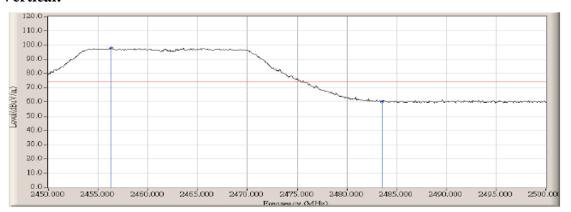


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2465.000	32.790	78.245	111.035	N/A	N/A	PEAK
2		2483.500	32.787	35.982	68.769	-5.201	73.970	PEAK
3		2483.917	32.787	37.638	70.425	-3.545	73.970	PEAK
4		2484.167	32.787	37.505	70.292	-3.678	73.970	PEAK

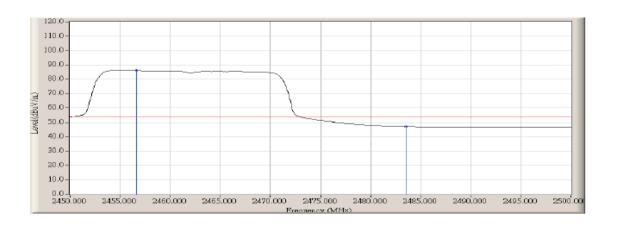


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2455.500	32.786	66.315	99.101	N/A	N/A	AVERAGE
2		2483.500	32.787	20.147	52.934	-1.036	53.970	AVERAGE





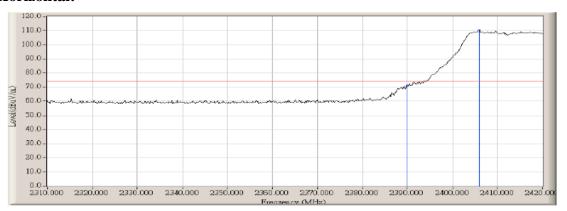
	Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
	(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	* 2456.333	32.787	65.245	98.032	N/A	N/A	PEAK
2	2483.500	32.787	27.482	60.269	-13.701	73.970	PEAK



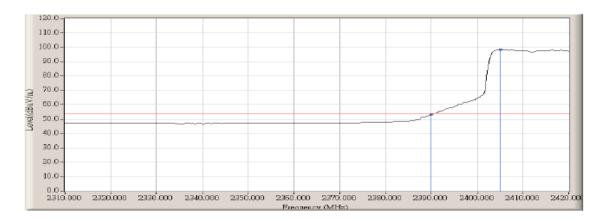
		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2456.667	32.787	53.584	86.371	N/A	N/A	AVERAGE
2		2483.500	32.787	14.189	46.976	-6.994	53.970	AVERAGE



# CHAIN 1: Horizontal:

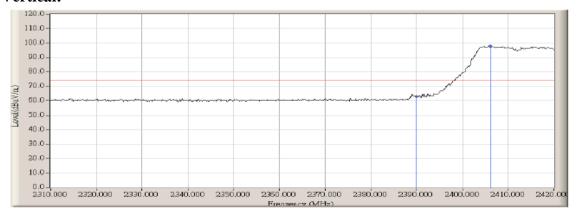


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	38.248	70.970	-3.000	73.970	PEAK
2	*	2405.883	32.727	77.164	109.891	N/A	N/A	PEAK

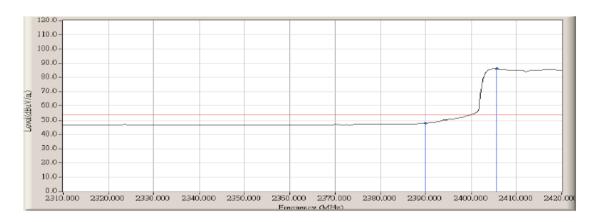


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	20.305	53.027	-0.943	53.970	AVERAGE
2	*	2405.150	32.726	65.748	98.475	N/A	N/A	AVERAGE



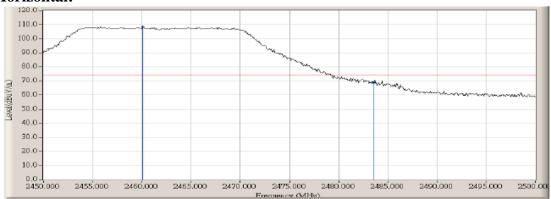


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	30.473	63.195	-10.775	73.970	PEAK
2	*	2406.067	32.727	65.407	98.134	N/A	N/A	PEAK

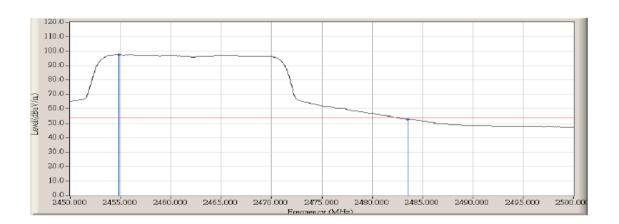


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	15.192	47.914	-6.056	53.970	AVERAGE
2	*	2405.700	32.727	53.651	86.378	N/A	N/A	AVERAGE



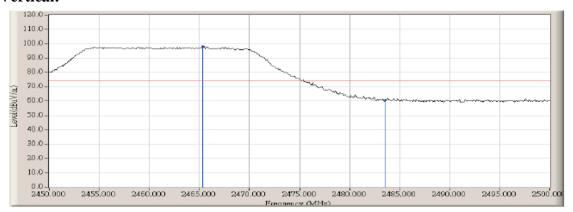


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2460.083	32.789	75.814	108.603	N/A	N/A	PEAK
2		2483.500	32.787	35.959	68.746	-5.224	73.970	PEAK

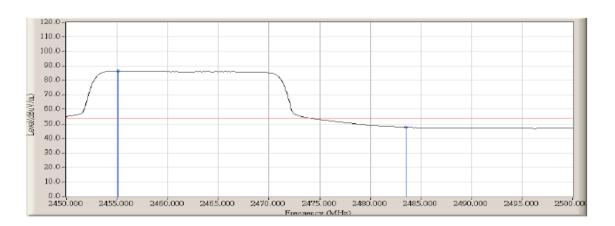


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2454.833	32.786	64.668	97.454	N/A	N/A	AVERAGE
2		2483.500	32.787	19.920	52.707	-1.263	53.970	AVERAGE





		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2465.333	32.790	65.335	98.125	N/A	N/A	PEAK
2		2483.500	32.787	27.771	60.558	-13.412	73.970	PEAK



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2455.083	32.786	53.889	86.675	N/A	N/A	AVERAGE
2		2483.500	32.787	14.877	47.664	-6.306	53.970	AVERAGE



#### DRAFT 802.11n (40MHz) OFDM MODULATION

**NOTE 1:** The band edge emission plot on the next page shows 35.80dBc between carrier maximum power and local maximum emission in restrict band (2.3896GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 106.45dBuV/m (Peak), so the maximum field strength in restrict band is 106.45 – 35.80 = 70.65dBuV/m which is under 74dBuV/m limit.

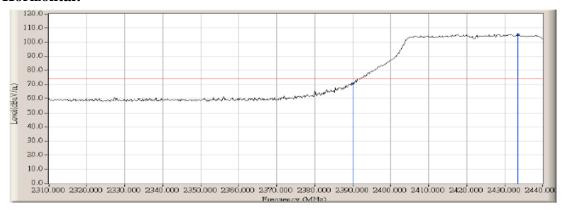
The band edge emission plot on the next page shows 42.06dBc between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 92.87dBuV/m (Average), so the maximum field strength in restrict band is 92.87 – 42.06 = 50.81dBuV/m which is under 54dBuV/m limit.

**NOTE 2:** The band edge emission plot on the next second page shows 33.99dBc between carrier maximum power and local maximum emission in restrict band (2.4856GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.2.7 is 106.68dBuV/m (Peak), so the maximum field strength in restrict band is 106.68 – 33.99 = 72.69dBuV/m which is under 74dBuV/m limit.

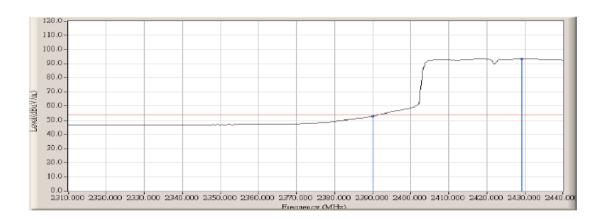
The band edge emission plot on the next third page shows 40.92dBc between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 7 at the item 4.2.7 is 93.45dBuV/m (Average), so the maximum field strength in restrict band is 93.45 – 40.92 = 52.53dBuV/m which is under 54dBuV/m limit.



# CHAIN 0: Horizontal:

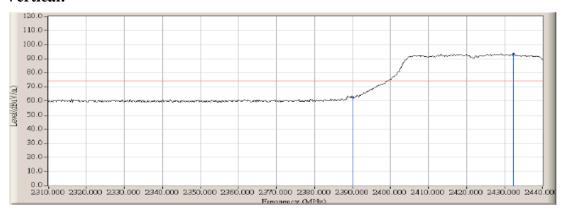


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	38.056	70.778	-3.192	73.970	PEAK
2	*	2433.500	32.767	72.730	105.496	N/A	N/A	PEAK

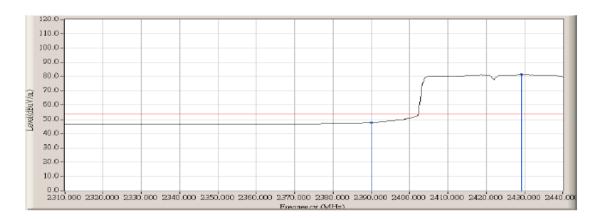


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	20.180	52.902	-1.068	53.970	AVERAGE
2	*	2429.167	32.761	60.668	93.429	N/A	N/A	AVERAGE



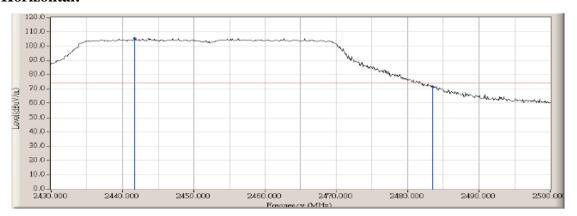


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	30.112	62.834	-11.136	73.970	PEAK
2	*	2432.417	32.765	60.861	93.626	N/A	N/A	PEAK

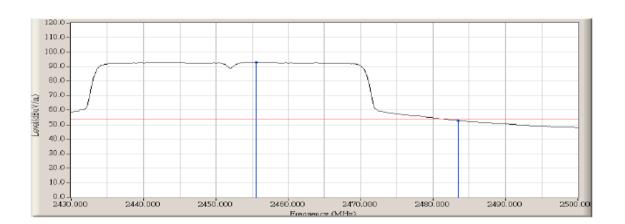


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	14.984	47.706	-6.264	53.970	AVERAGE
2	*	2429.167	32.761	48.649	81.410	N/A	N/A	AVERAGE



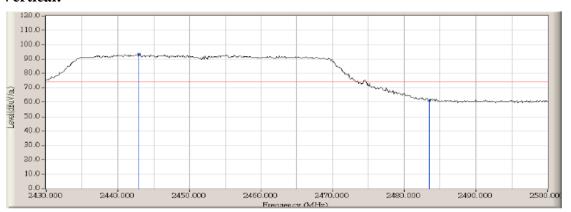


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2441.667	32.776	72.753	105.529	N/A	N/A	PEAK
2		2483.500	32.787	39.068	71.855	-2.115	73.970	PEAK

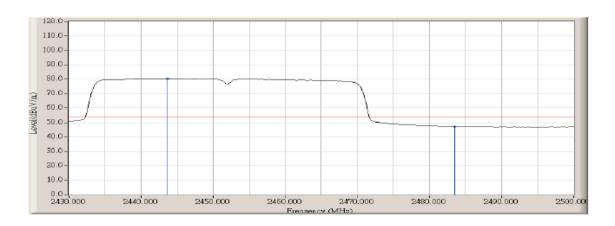


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2455.550	32.786	60.050	92.836	N/A	N/A	AVERAGE
2		2483.500	32.787	19.979	52.766	-1.204	53.970	AVERAGE





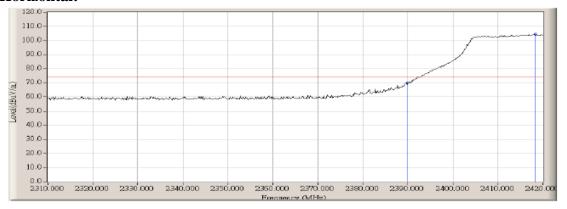
		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2442.950	32.777	60.830	93.608	N/A	N/A	PEAK
2		2483.500	32.787	28.197	60.984	-12.986	73.970	PEAK



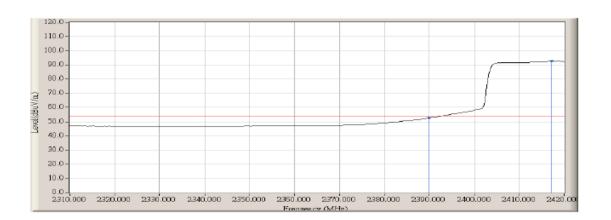
			Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
			(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
Γ.	1	*	2443.650	32.779	47.809	80.587	N/A	N/A	AVERAGE
	2		2483.500	32.787	14.300	47.087	-6.883	53.970	AVERAGE



# CHAIN 1: Horizontal:

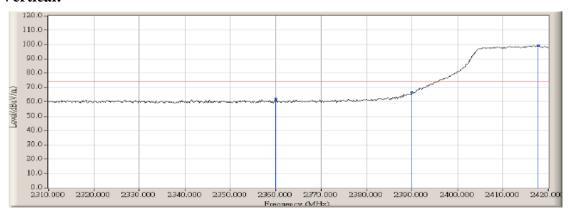


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	37.471	70.193	-3.777	73.970	PEAK
2	*	2418.350	32.743	71.864	104.607	N/A	N/A	PEAK

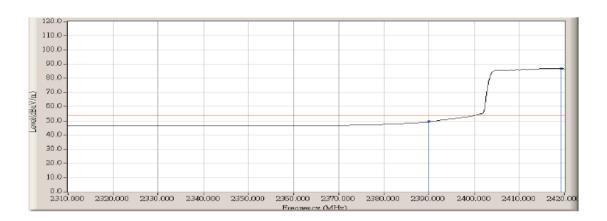


			Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
			(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1			2390.000	32.722	19.944	52.666	-1.304	53.970	AVERAGE
2	2	*	2417.250	32.741	59.905	92.646	N/A	N/A	AVERAGE



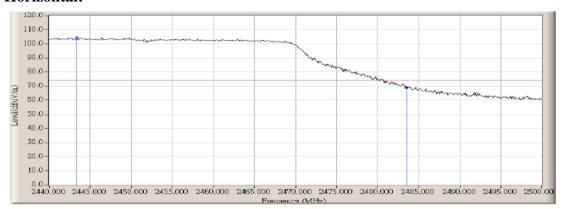


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2360.050	32.750	29.277	62.027	-11.943	73.970	PEAK
2		2390.000	32.722	33.733	66.455	-7.515	73.970	PEAK
3	*	2417.800	32.742	66.588	99.330	N/A	N/A	PEAK

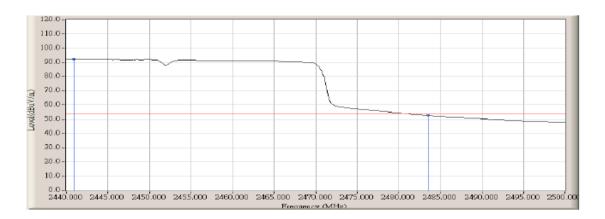


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2390.000	32.722	16.744	49.466	-4.504	53.970	AVERAGE
2	*	2419.267	32.744	54.202	86.947	N/A	N/A	AVERAGE



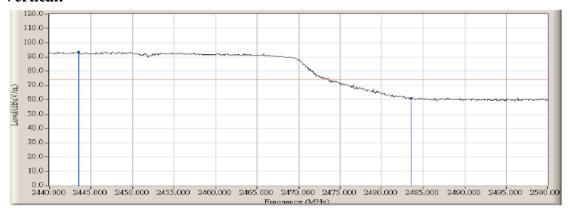


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2443.400	32.778	71.771	104.549	N/A	N/A	PEAK
2		2483.500	32.787	36.067	68.854	-5.116	73.970	PEAK

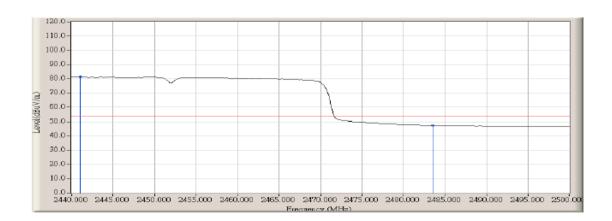


		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2440.900	32.775	59.404	92.179	N/A	N/A	AVERAGE
2		2483.500	32.787	19.886	52.673	-1.297	53.970	AVERAGE





		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2443.500	32.778	60.864	93.642	N/A	N/A	PEAK
2		2483.500	32.787	27.890	60.677	-13.293	73.970	PEAK



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	2441.100	32.775	48.634	81.409	N/A	N/A	AVERAGE
2		2483.500	32.787	14.454	47.241	-6.729	53.970	AVERAGE



## 2.7. Antenna Requirement

### 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 transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### **Antenna connected construction**

The antenna used in this product is Dipole antenna with R-SAM antenna connector. The maximum Gain of the antenna is 3.4dBi.



## 3. RF EXPOSURE

### **LIMIT**

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

**EUT Specification** 

EUT Specification				
EUT	Wireless USB Dongle			
Frequency band (Operating)	<ul> <li>WLAN: 2.412GHz ~ 2.462GHz</li> <li>WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz</li> <li>WLAN: 5.745GHz ~ 5.825GHz</li> <li>Others</li> </ul>			
Device category	Portable (<20cm separation)  Mobile (>20cm separation)  Others			
Exposure classification	Occupational/Controlled exposure (S = 5mW/cm²)  General Population/Uncontrolled exposure (S=1mW/cm²)			
Antenna diversity	Single antenna  Multiple antennas (1 for TX/RX function; 1 for RX only)  Tx diversity  Rx diversity  Tx/Rx diversity			
Max. output power	IEEE 802.11b mode: 13.06 dBm (20.22 mW) IEEE 802.11g mode: 13.47dBm (22.25 mW) draft 802.11n 20 MHz Channel mode: 13.26 dBm (21.18mW) draft 802.11n 40 MHz Channel mode: 12.95 dBm (19.74mW)			
Antenna gain (Max)	3.4dBi (Numeric gain: 1.25)			
Evaluation applied	☐MPE Evaluation* ☐SAR Evaluation ☐N/A			
Remark: 1. The maximum output power is 13.47dBm (22.25mW) at 2412MHz (with 1.25numeric antenna gain.)				

## **TEST RESULTS**

No non-compliance noted.

(According to RF Exposure Procedures and Equipment Authorization Policies, SAR evaluation is not required for the PORTABLE device while its maximum average output power is lower than 60/f (GHz)=60/2.412=24.88mW)

#### Remark:

802.11b maximum peak power is 13.06dBm = 20.22mW < (60/f); Individual SAR is not required.

802.11g maximum peak power is 13.47dBm = 22.25mW < (60/f); Individual SAR is not required.

The device described above is tested by SHENZHEN SETEK TECHNOLOGY CO., LTD. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. This report applies to above tested sample only and shall not be reproduced in part without written approval of SHENZHEN SETEK TECHNOLOGY CO., LTD.