

FCC RF Test Report

APPLICANT : Quanta Computer Inc.
EQUIPMENT : 802.11b/g, PCI-E Half-sized mini card
BRAND NAME : QMI
MODEL NAME : EM113-MV
FCC ID : T5U-EM113MV
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was installed into Laptop Computer (Brand Name: OLPC, Model Name: XO-4 Touch, XO-4 HS Touch, XO-4, XO-4 HS) during test.

The product was received on Dec. 17, 2012 and testing was completed on Sep. 11, 2013. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown to be compliant with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (KUNSHAN) INC., the test report shall not be reproduced except in full.



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR2D1708	Rev. 01	Initial issue of report	Sep. 24, 2013

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.2	15.247(b)	Power Output Measurement	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(e)	Power Spectral Density	$\leq 8\text{dBm}/3\text{kHz}$	Pass	-
3.4	15.247(d)	Conducted Band Edges	$\leq 20\text{dBc}$	Pass	-
		Conducted Spurious Emission		Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 1.66 dB at 4924.000 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 9.50 dB at 3.450 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Quanta Computer Inc.

No.188, Wen Hwa 2nd Rd., Kuei Shan Hsiang, Tao Yuan Shien, TaiWan

1.2 Manufacturer

Quanta Computer Inc.

No.188, Wen Hwa 2nd Rd., Kuei Shan Hsiang, Tao Yuan Shien, TaiWan

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	802.11b/g, PCI-E Half-sized mini card
Brand Name	QMI
Model Name	EM113-MV
FCC ID	T5U-EM113MV
EUT supports Radios application	WLAN 2.4GHz 802.11b/g
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. EUT was installed into four models of the Laptop Computer, the differences between the host are summary below:

Sample List	Model Name	Configuration
Sample 1	XO-4 Touch	Child Product with touch screen
Sample 2	XO-4 HS Touch	ITE Product with touch screen
Sample 3	XO-4	Child Product without touch screen
Sample 4	XO-4 HS	ITE Product without touch screen

1.4 Product Specification of Equipment Under Test

Product Specification subjective to this standard			
Tx/Rx Channel Frequency Range	802.11b/g : 2412 MHz ~ 2462 MHz		
Maximum Output Power to Antenna	802.11b for Chain Port 0 : 17.51 dBm (0.0564 W) 802.11b for Chain Port 1 : 18.02 dBm (0.0634 W) 802.11g for Chain Port 0 : 21.96 dBm (0.1570 W) 802.11g for Chain Port 1 : 22.86 dBm (0.1932 W)		
Antenna Type	Chain Port 0: PIFA Antenna with gain 0.12 dBi Chain Port 1: PIFA Antenna with gain 1.37 dBi		
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g : OFDM (BPSK / QPSK / 16QAM / 64QAM)		
Antenna Function for Transmitter		Chain Port 0	Chain Port 1
	802.11 b	V	V
	802.11 g	V	V

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Testing Site

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.		
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958		
Test Site No.	Sporton Site No.		FCC Registration No.
	TH01-KS	CO01-KS	03CH01-KS
			149928

Note: The test site complies with ANSI C63.4 2003 requirement.



1.7 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz) and radiated emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, EUT is rotated on three test planes in Tablet PC configurations and one test plane in Laptop PC configuration to find out the worst emission.

The final configuration from all the combinations and the worst-case data rates were investigated by measuring the maximum power across all the data rates and modulation modes under section 2.2.

Based on the worst configuration found above, the RF power setting is set individually to meet FCC compliance limit for the final conducted and radiated tests shown in section 2.3.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437	-	-

2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and the highest data rates of peak power were chosen for full test shown in the following tables.

Antenna	Channel	Frequency (MHz)	2.4GHz 802.11b RF Power (dBm)			
			DSSS Data Rate			
			1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
Chain Port 0	CH 01	2412 MHz	16.11	15.71	15.83	16.44
	CH 06	2437 MHz	16.42	16.20	15.71	16.28
	CH 11	2462 MHz	17.51	17.06	16.26	16.27
Chain Port 1	CH 01	2412 MHz	18.02	17.91	17.01	17.22
	CH 06	2437 MHz	17.23	17.43	16.36	16.26
	CH 11	2462 MHz	17.10	16.58	15.58	15.76

Antenna	Channel	Frequency (MHz)	2.4GHz 802.11g RF Power (dBm)							
			OFDM Data Rate							
			6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
Chain Port 0	CH 01	2412 MHz	16.37	16.16	16.80	16.92	18.04	18.41	18.52	19.02
	CH 07	2442 MHz	17.46	16.61	17.64	17.55	18.93	19.20	19.67	19.78
	CH 13	2472 MHz	21.96	21.19	21.57	20.86	21.93	21.67	21.09	21.20
Chain Port 1	CH 01	2412 MHz	15.92	16.43	17.02	16.75	18.14	18.52	19.32	19.21
	CH 07	2442 MHz	20.12	19.89	21.25	20.86	21.96	21.63	21.99	22.03
	CH 13	2472 MHz	22.86	22.02	21.99	21.46	22.27	21.77	21.78	21.50

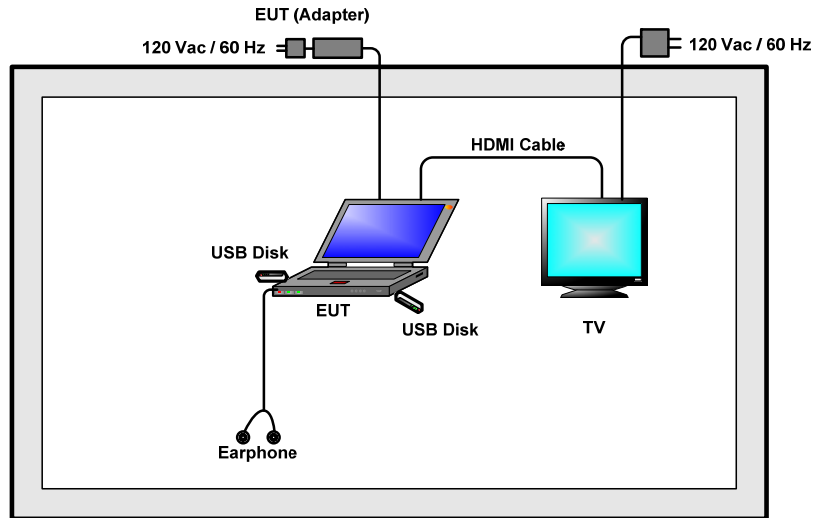
2.3 Test Mode

Final results of test modes, data rates and test channels are shown as following table.

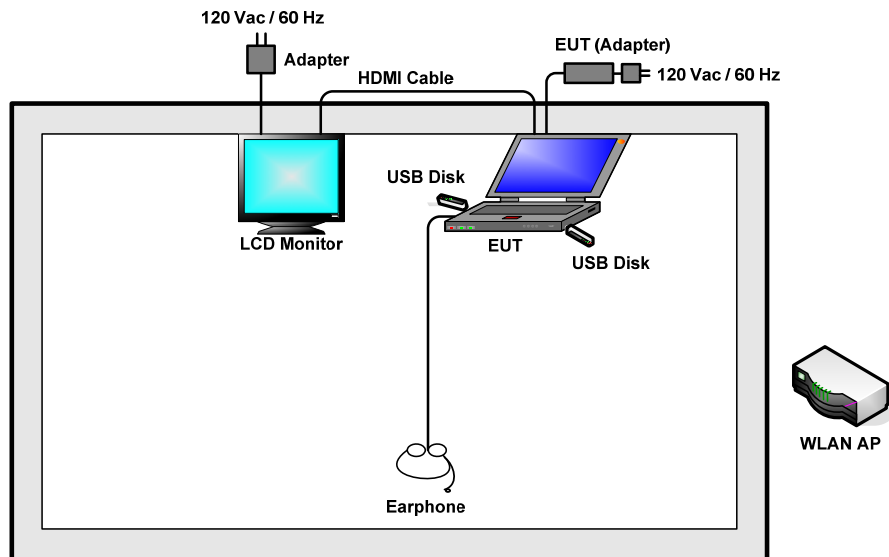
Test Cases						
	Test Items	Mode	Data Rate	Test Channel	Remark	
Conducted TCs	6dB BW Power Spectral Density	802.11b	1 Mbps	1/6/11	Chain Port 1	
		802.11g	6 Mbps	1/6/11	Chain Port 1	
	Output Power	802.11b	1 Mbps	1/6/11	Chain Port 0 Chain Port 1	
		802.11g	6 Mbps	1/6/11	Chain Port 0 Chain Port 1	
	Conducted Band Edge	802.11b	1 Mbps	1/11	Chain Port 1	
		802.11g	6 Mbps	1/11	Chain Port 1	
	Conducted Spurious Emission	802.11b	1 Mbps	1/6/11	Chain Port 1	
		802.11g	6 Mbps	1/6/11	Chain Port 1	
	Radiated TCs	Radiated Band Edge	802.11b	1 Mbps	1/11	Chain Port 1
			802.11g	6 Mbps	1/11	Chain Port 1
Radiated Spurious Emission		802.11b	1 Mbps	1/6/11	Chain Port 1	
		802.11g	6 Mbps	1/6/11	Chain Port 1	
AC Conducted Emission	Mode 1 : WLAN Link + USB Cable (Charging from Adapter 1) + TC for Sample 1 Mode 2 : WLAN Link + USB Cable (Charging from Adapter 2) + TC for Sample 2 Mode 3 : WLAN Link + USB Cable (Charging from Adapter 3) + TC for Sample 3 Mode 4 : WLAN Link + USB Cable (Charging from Adapter 4) + TC for Sample 4 Mode 5 : WLAN Link + USB Cable (Charging from Adapter 6) + TC for Sample 2					
Remark: 1. TC stands for Test Configuration, and consists of USB Disk, Earphone, HDMI Cable, SD Card. 2. The worst case of conducted emission is mode 5; only the test data of it was reported.						

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	DC Power Supply	GWINSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m
2.	TV	Lenovo	32A21	N/A	N/A	N/A
3.	LCD Monitor	Medion	MD20147	N/A	N/A	Unshielded, 1.8 m
4.	WLAN AP	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
5.	USB Disk	SarDisk	SDCZ51-004G	BH121023390B	N/A	N/A
6.	USB Disk	SarDisk	SDCZ51-004G	BH121124068B	N/A	N/A
7.	USB Disk	KingSton	G3	N/A	N/A	N/A
8.	Earphone	INTOPIC	Jazz-278	FCC DoC	Shielded, 2.2 m	N/A
9.	Earphone	Earphone	Lenovo	SH 100	N/A	N/A
10.	SD Card	Scan Disk	16G Class 10	FCC DoC	N/A	N/A

2.6 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuous transmit/receive.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.



2.7 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 5.6 + 10 = 15.6 \text{ (dB)} \end{aligned}$$

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

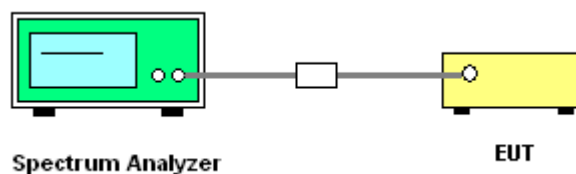
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v03r01.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. Measure and record the results in the test report.

3.1.4 Test Setup

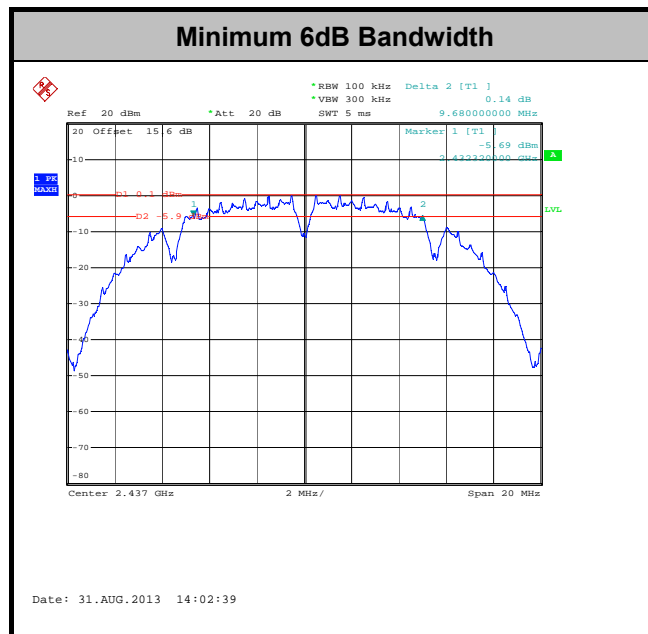




3.1.5 Test Result of 6dB Bandwidth

Test Band :	2.4GHz	Temperature :	22~25°C
Test Engineer :	Adonis Li	Relative Humidity :	42~45%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
					Chain Port 1		
11b	1Mbps	1	1	2412	10.00	0.5	Pass
11b	1Mbps	1	6	2437	9.68	0.5	Pass
11b	1Mbps	1	11	2462	9.72	0.5	Pass
11g	6Mbps	1	1	2412	16.44	0.5	Pass
11g	6Mbps	1	6	2437	16.56	0.5	Pass
11g	6Mbps	1	11	2462	16.56	0.5	Pass



3.2 Peak Output Power Measurement

3.2.1 Limit of Peak Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna with directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

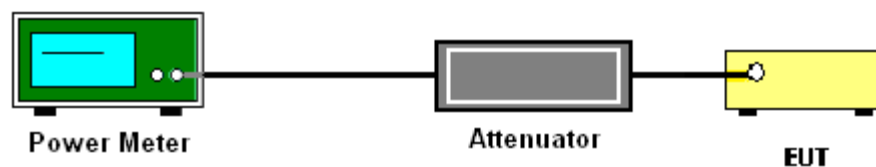
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v03r01.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

3.2.4 Test Setup





3.2.5 Test Result of Peak Output Power

Test Band :	2.4GHz	Temperature :	22~25°C
Test Engineer :	Adonis Li	Relative Humidity :	42~45%

Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Peak Conducted Power (dBm)		DG (dBi)	Pass/Fail
					Chain Port 0	Chain Port 1		
11b	1Mbps	1	1	2412	16.11	18.02	1.37	Pass
11b	1Mbps	1	6	2437	16.42	17.23	1.37	Pass
11b	1Mbps	1	11	2462	17.51	17.10	1.37	Pass
11g	6Mbps	1	1	2412	16.37	15.92	1.37	Pass
11g	6Mbps	1	6	2437	17.46	20.12	1.37	Pass
11g	6Mbps	1	11	2462	21.96	22.86	1.37	Pass

Note: Measured power (dBm) has offset with cable loss.



3.2.6 Test Result of Average output Power (Reporting Only)

Test Band :	2.4GHz	Temperature :	22~25°C
Test Engineer :	Adonis Li	Relative Humidity :	42~45%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)		RF Output Power (dBm)		Power Limit (dBm)	DG (dBi)	Pass/Fail
					Chain Port 0	Chain Port 1	Chain Port 0	Chain Port 1			
11b	1Mbps	1	1	2412	0.00	0.00	13.69	15.45	30	1.37	Pass
11b	1Mbps	1	6	2437	0.00	0.00	13.91	15.03	30	1.37	Pass
11b	1Mbps	1	11	2462	0.00	0.00	14.97	15.59	30	1.37	Pass
11g	6Mbps	1	1	2412	0.00	0.00	6.53	6.12	30	1.37	Pass
11g	6Mbps	1	6	2437	0.00	0.00	7.48	10.29	30	1.37	Pass
11g	6Mbps	1	11	2462	0.00	0.00	12.07	13.56	30	1.37	Pass

Note: Measured power (dBm) has offset with cable loss and duty factor.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

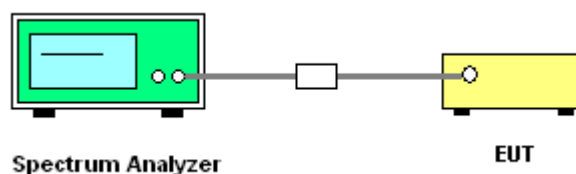
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.

3.3.4 Test Setup

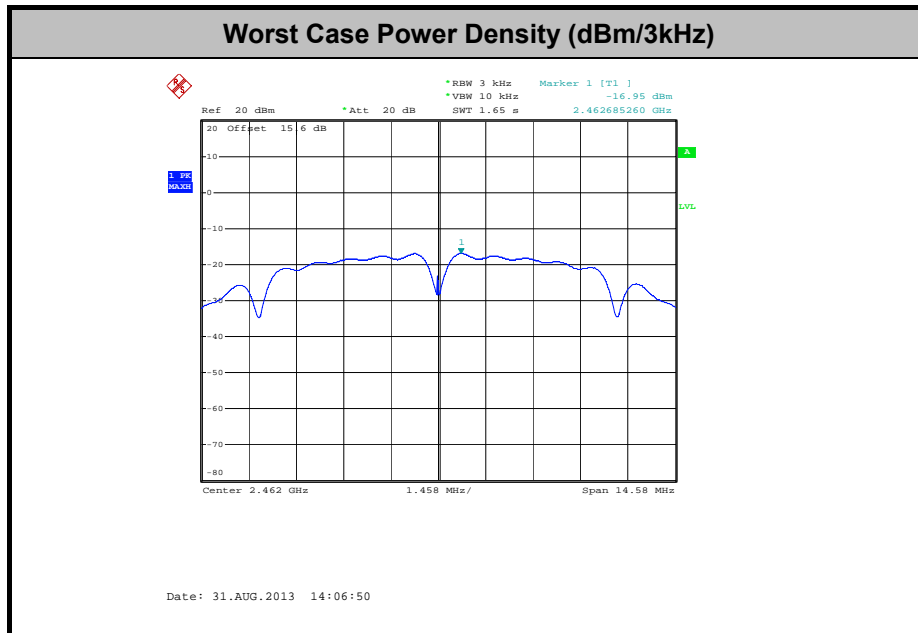


3.3.5 Test Result of Power Spectral Density

Test Band :	2.4GHz	Temperature :	22~25°C
Test Engineer :	Adonis Li	Relative Humidity :	42~45%

Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Peak Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	DG (dBi)	Pass/Fail
					Chain Port 1			
11b	1Mbps	1	1	2412	-18.92	8	1.37	Pass
11b	1Mbps	1	6	2437	-18.70	8	1.37	Pass
11b	1Mbps	1	11	2462	-16.95	8	1.37	Pass
11g	6Mbps	1	1	2412	-22.39	8	1.37	Pass
11g	6Mbps	1	6	2437	-20.40	8	1.37	Pass
11g	6Mbps	1	11	2462	-19.63	8	1.37	Pass

Note: Measured power density (dBm) has offset with cable loss.



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

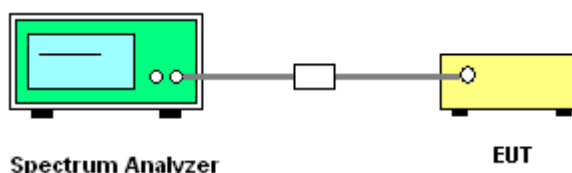
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

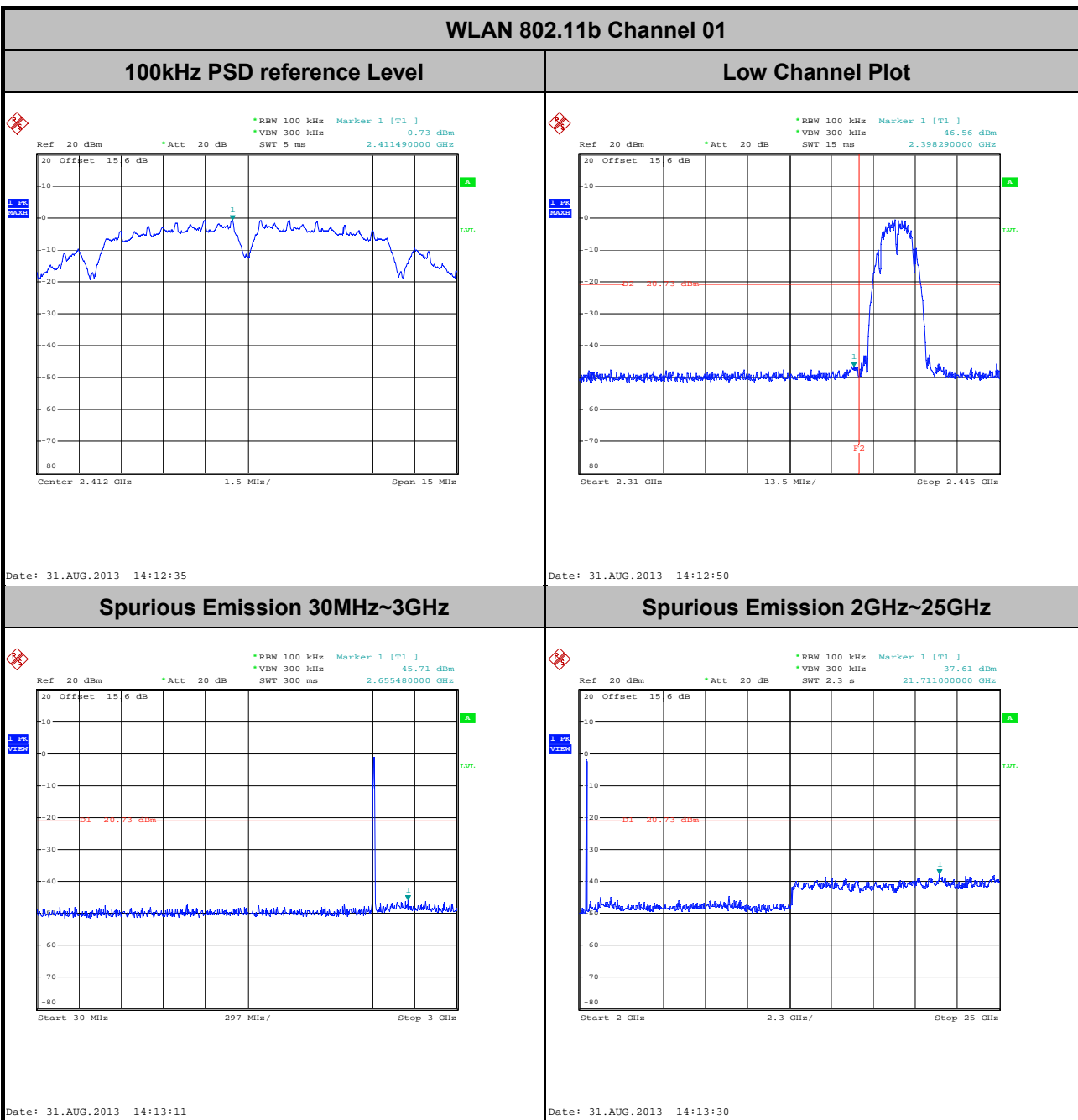
3.4.4 Test Setup





3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Number of TX	1	Ant Chain Port :	1
Test Mode :	802.11b	Temperature :	22~25°C
Test Band :	2.4GHz Low	Relative Humidity :	42~45%
Test Channel :	01	Test Engineer :	Adonis Li



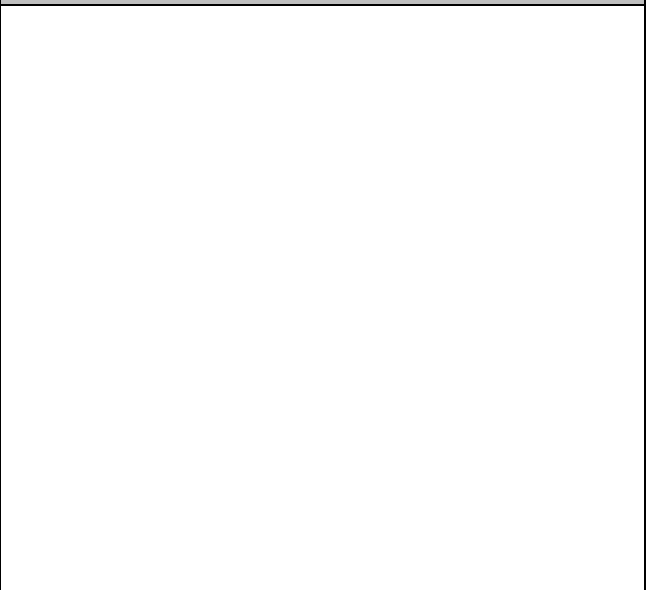
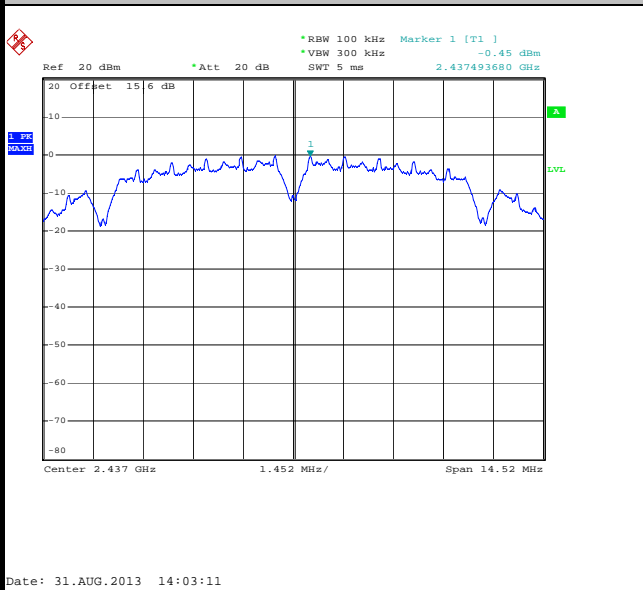


Number of TX :	1	Ant Chain Port :	1
Test Mode :	802.11b	Temperature :	22~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	42~45%
Test Channel :	06	Test Engineer :	Adonis Li

WLAN 802.11b Channel 06

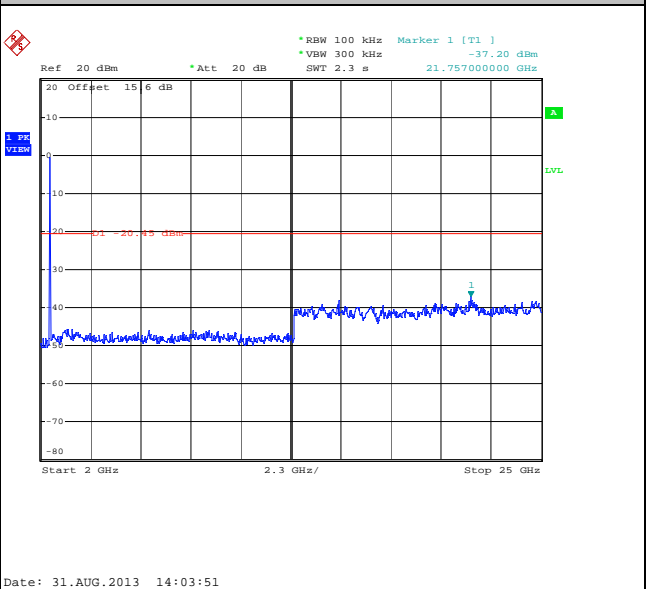
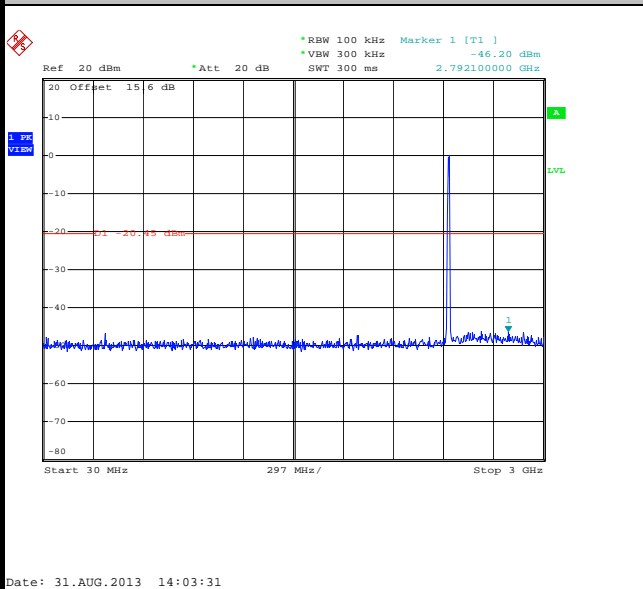
100kHz PSD reference Level

Mid Channel Plot



Spurious Emission 30MHz~3GHz

Spurious Emission 2GHz~25GHz

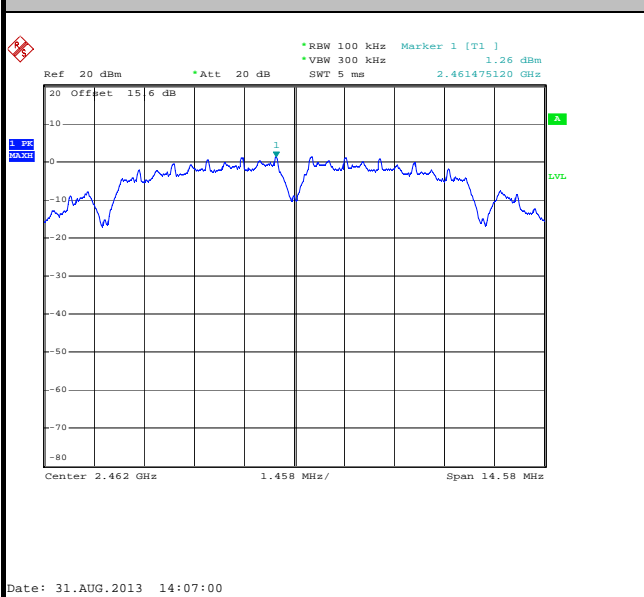




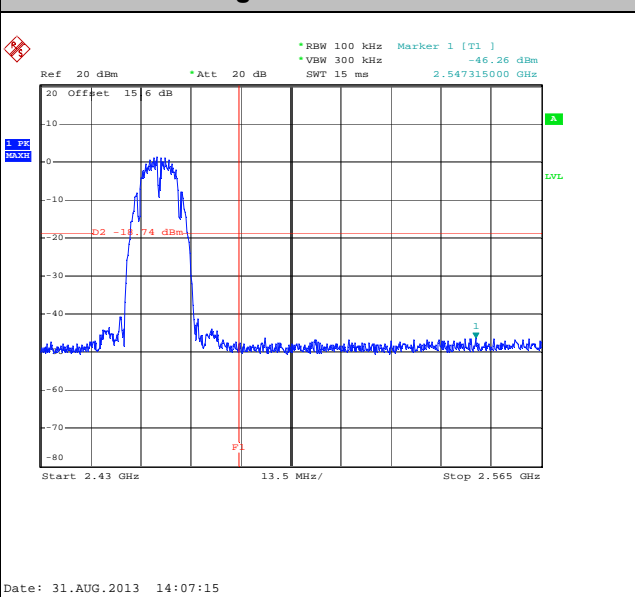
Number of TX :	1	Ant Chain Port :	1
Test Mode :	802.11b	Temperature :	22~25°C
Test Band :	2.4GHz High	Relative Humidity :	42~45%
Test Channel :	11	Test Engineer :	Adonis Li

WLAN 802.11b Channel 11

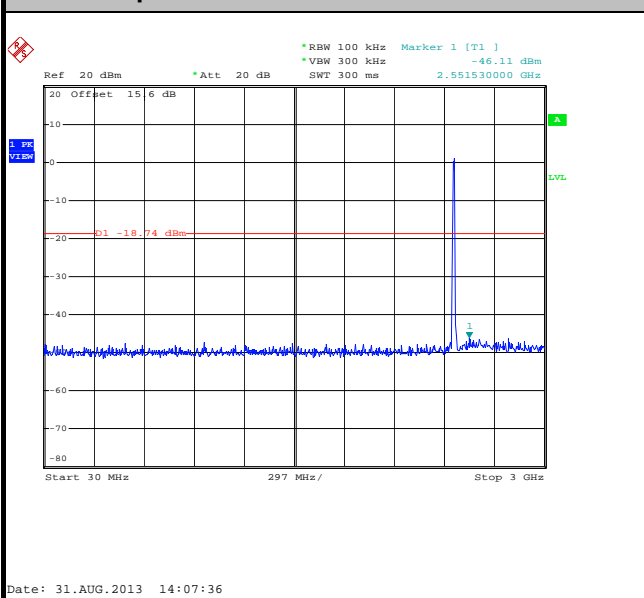
100kHz PSD reference Level



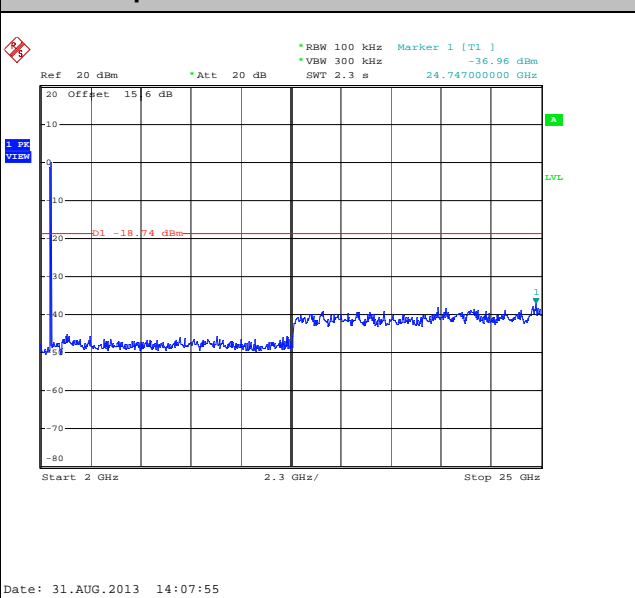
High Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

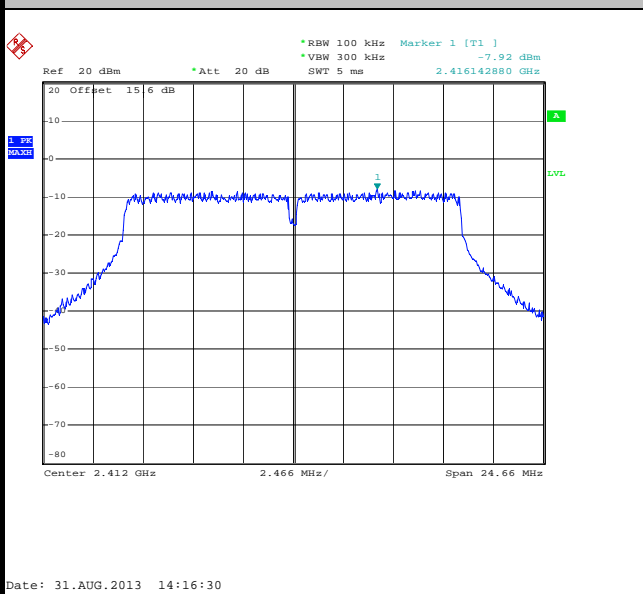




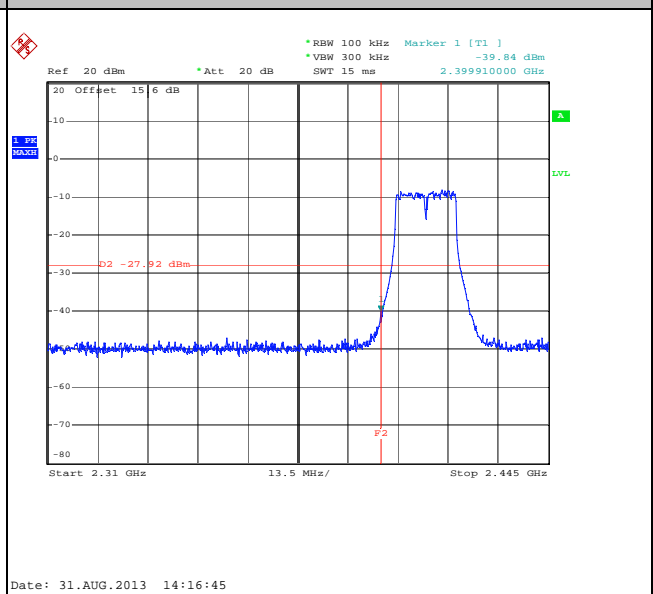
Number of TX :	1	Ant Chain Port :	1
Test Mode :	802.11g	Temperature :	22~25°C
Test Band :	2.4GHz Low	Relative Humidity :	42~45%
Test Channel :	01	Test Engineer :	Adonis Li

WLAN 802.11g Channel 01

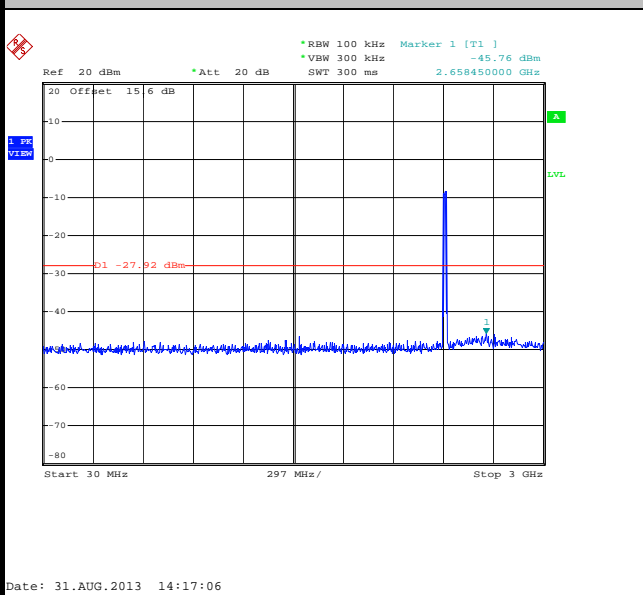
100kHz PSD reference Level



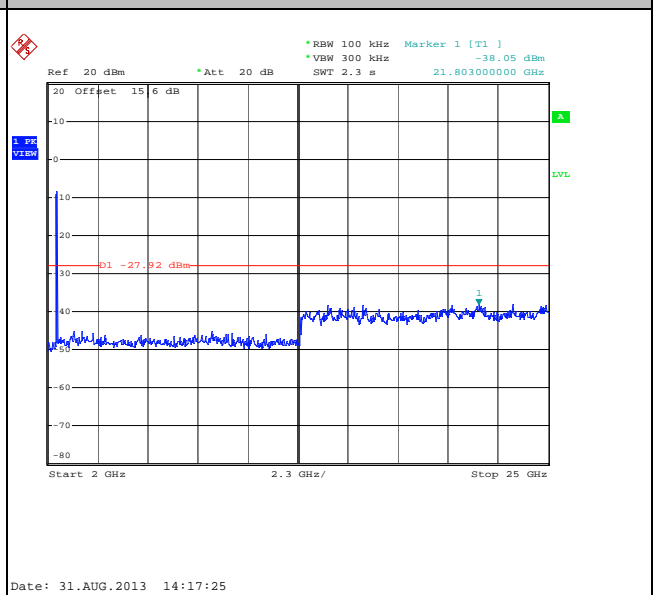
Low Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz



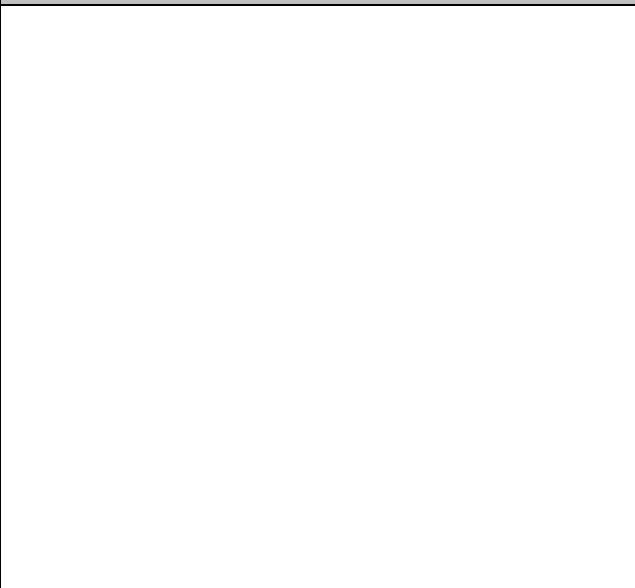
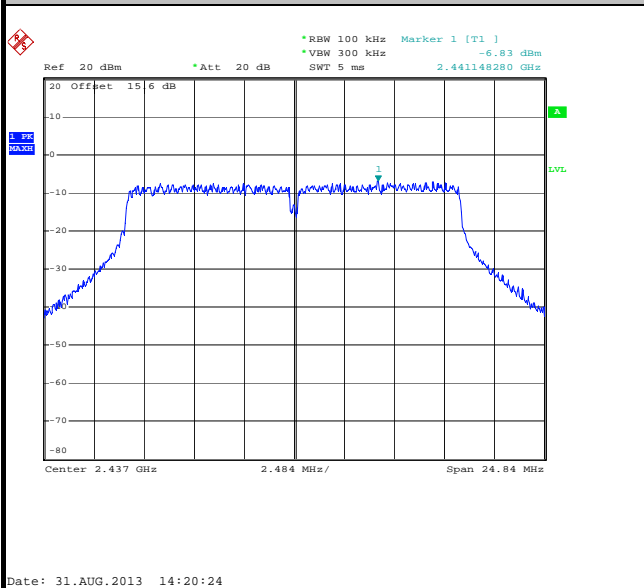


Number of TX :	1	Ant Chain Port :	1
Test Mode :	802.11g	Temperature :	22~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	42~45%
Test Channel :	06	Test Engineer :	Adonis Li

WLAN 802.11g Channel 06

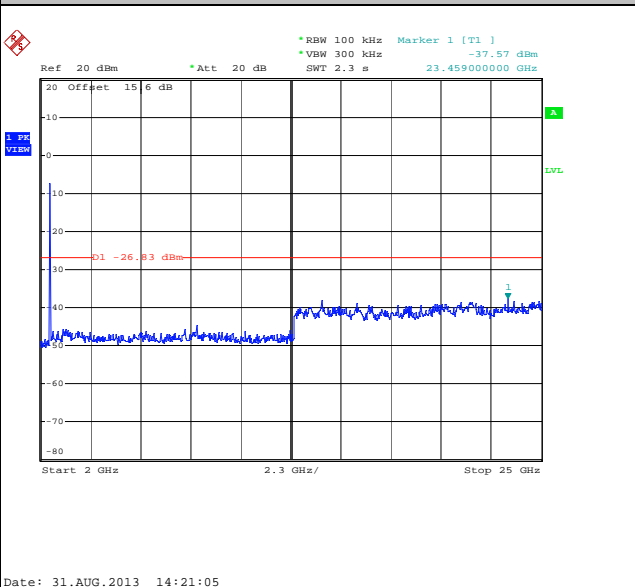
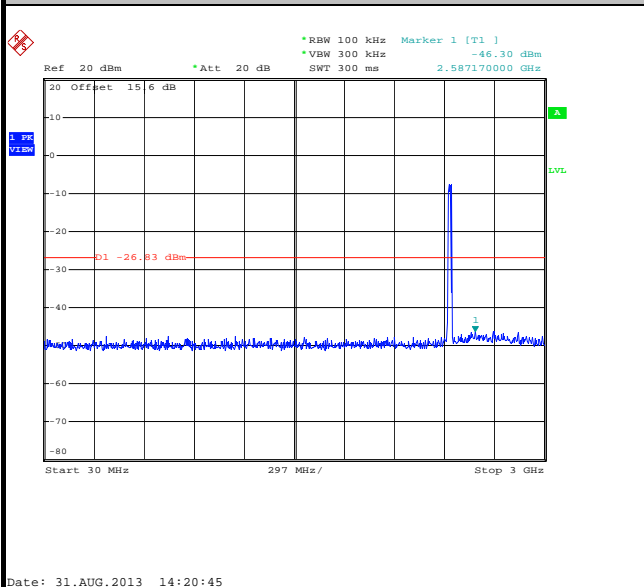
100kHz PSD reference Level

Mid Channel Plot



Spurious Emission 30MHz~3GHz

Spurious Emission 2GHz~25GHz

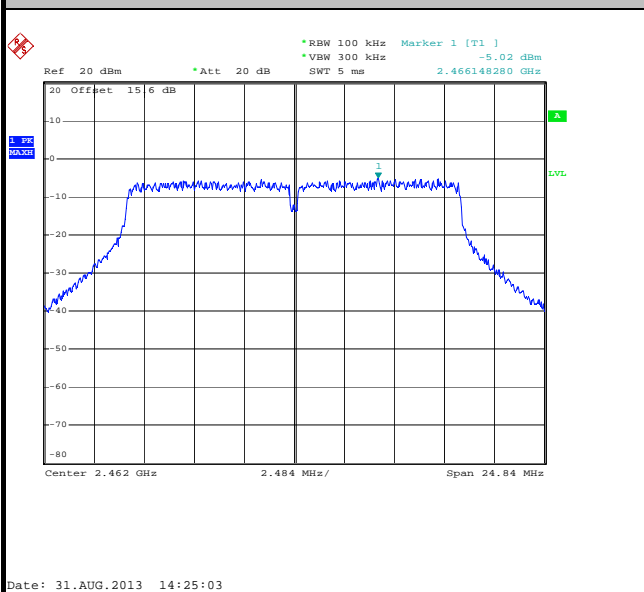




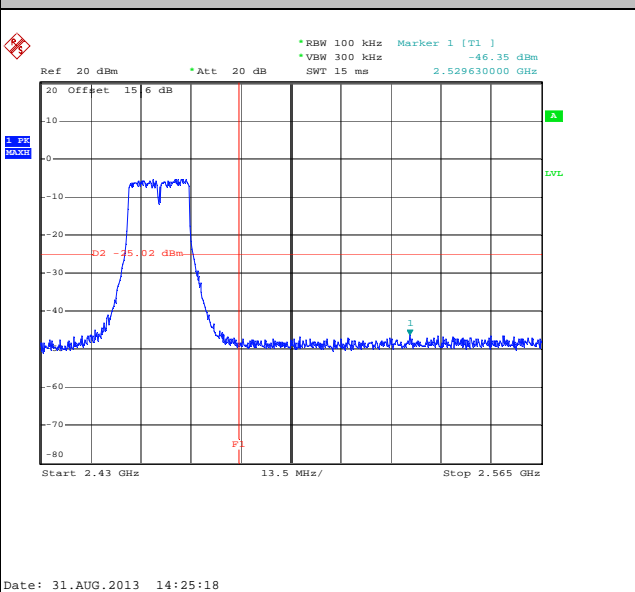
Number of TX :	1	Ant Chain Port :	1
Test Mode :	802.11g	Temperature :	22~25°C
Test Band :	2.4GHz High	Relative Humidity :	42~45%
Test Channel :	11	Test Engineer :	Adonis Li

WLAN 802.11g Channel 11

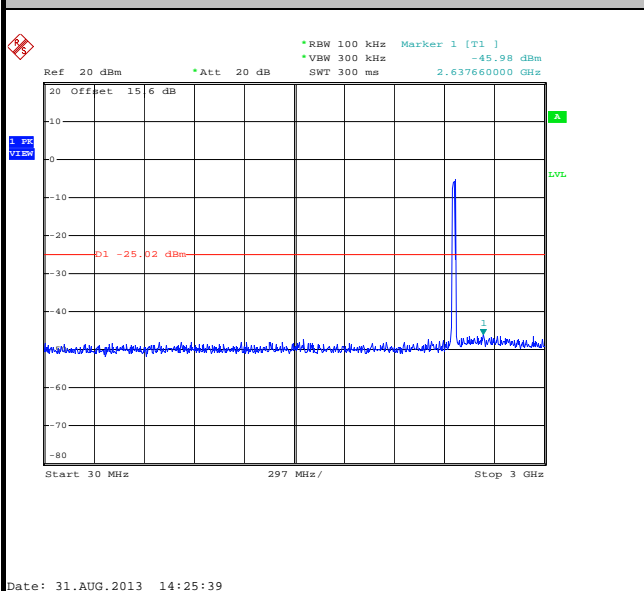
100kHz PSD reference Level



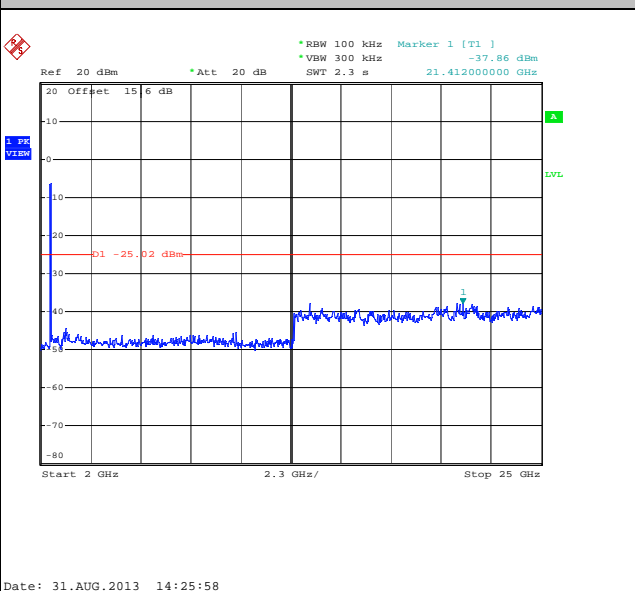
High Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz



3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency (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

3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

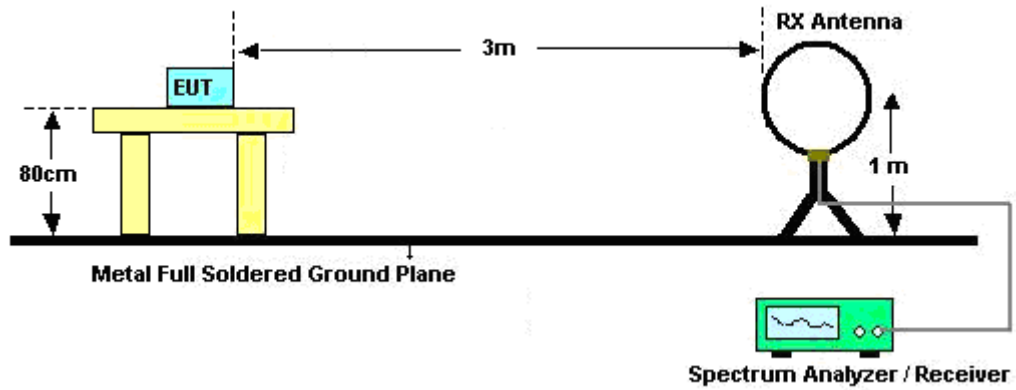
3.5.3 Test Procedure

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW=100 kHz for $f < 1$ GHz; $VBW \geq RBW$; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement.
 For average measurement:
 - $VBW = 10$ Hz, when duty cycle is no less than 98 percent.
 - $VBW \geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

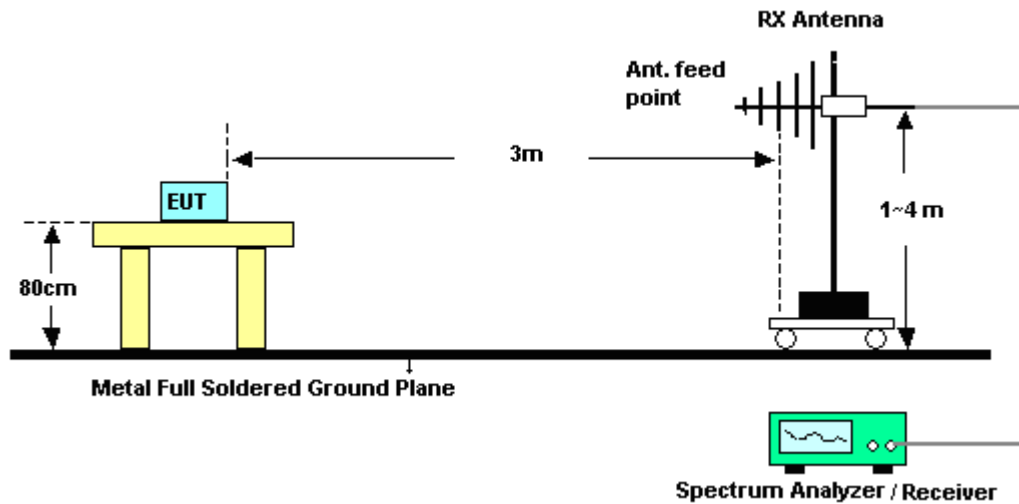
Band	Duty Cycle (%)	T(ms)	1/T(kHz)	VBW Setting
802.11b	100%	-	-	10Hz
802.11g	100%	-	-	

3.5.4 Test Setup

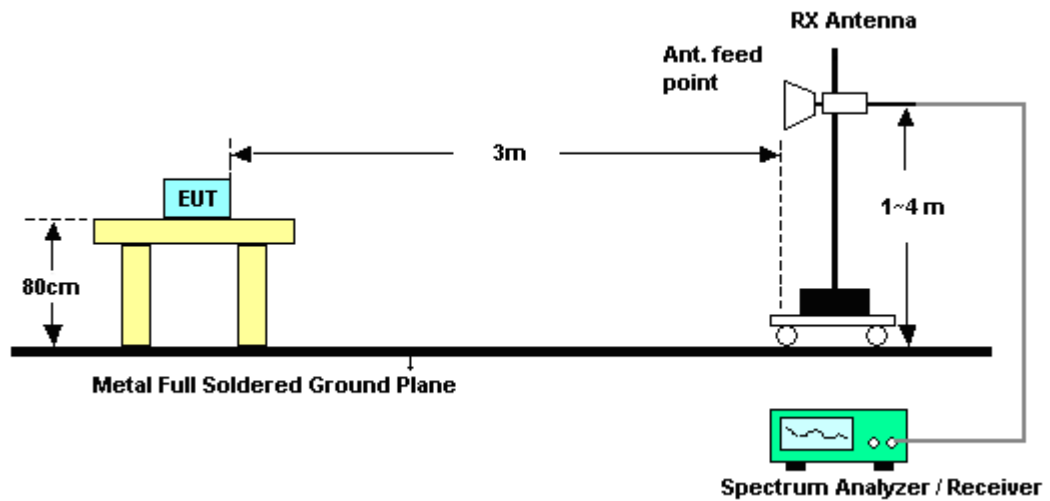
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 Test Results of Radiated Emissions (9kHz ~ 30MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

3.5.6 Test Result of Radiated Spurious at Band Edges

<with Adapter 1 for Sample 1 in Laptop Mode>

Test Mode :	802.11b	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Jun Liu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386.05	57.84	-16.16	74	52.49	32.86	3.17	30.68	123	66	Peak
2390	43.81	-10.19	54	38.46	32.86	3.17	30.68	123	66	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2387.85	56.79	-17.21	74	51.44	32.86	3.17	30.68	109	31	Peak
2390	42.93	-11.07	54	37.58	32.86	3.17	30.68	109	31	Average

Test Mode :	802.11b	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Jun Liu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2488.39	59.38	-14.62	74	53.69	33.05	3.23	30.59	119	83	Peak
2491.12	45.99	-8.01	54	40.3	33.05	3.23	30.59	119	83	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2488.15	58.8	-15.2	74	53.11	33.05	3.23	30.59	100	37	Peak
2487.31	44.86	-9.14	54	39.23	33.01	3.22	30.6	100	37	Average



<with Adapter 1 for Sample 1 in Tablet Mode>

Test Mode :	802.11b	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Jun Liu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2487.79	63.06	-10.94	74	57.37	33.05	3.23	30.59	106	109	Peak
2490.55	47.8	-6.2	54	42.11	33.05	3.23	30.59	106	109	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2497.06	54.52	-19.48	74	48.83	33.05	3.23	30.59	176	282	Peak
2494.51	40.56	-13.44	54	34.87	33.05	3.23	30.59	176	282	Average

<with Adapter 2 for Sample 2 in Tablet Mode>

Test Mode :	802.11b	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Jun Liu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2486.71	60.62	-13.38	74	54.99	33.01	3.22	30.6	130	116	Peak
2487.28	46.67	-7.33	54	41.04	33.01	3.22	30.6	130	116	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2498.32	53.43	-20.57	74	47.74	33.05	3.23	30.59	100	2	Peak
2485.42	39.21	-14.79	54	33.58	33.01	3.22	30.6	100	2	Average



<with Adapter 3 for Sample 3 in Tablet Mode>

Test Mode :	802.11b	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Jun Liu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2487.46	61.01	-12.99	74	55.38	33.01	3.22	30.6	106	238	Peak
2489.14	46.89	-7.11	54	41.2	33.05	3.23	30.59	106	238	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2485.72	55.61	-18.39	74	49.98	33.01	3.22	30.6	123	160	Peak
2485.06	42.14	-11.86	54	36.51	33.01	3.22	30.6	123	160	Average

<with Adapter 4 for Sample 4 in Tablet Mode >

Test Mode :	802.11b	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Jun Liu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2490.04	59.82	-14.18	74	54.13	33.05	3.23	30.59	105	238	Peak
2490.19	46.1	-7.9	54	40.41	33.05	3.23	30.59	105	238	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2488.36	53.61	-20.39	74	47.92	33.05	3.23	30.59	100	164	Peak
2497.3	40.51	-13.49	54	34.82	33.05	3.23	30.59	100	164	Average



<with Adapter 6 for Sample 1 in Tablet Mode >

Test Mode :	802.11b	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Jun Liu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2492.47	62.14	-11.86	74	56.45	33.05	3.23	30.59	103	111	Peak
2491.15	47.74	-6.26	54	42.05	33.05	3.23	30.59	103	111	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.83	56.37	-17.63	74	50.74	33.01	3.22	30.6	175	295	Peak
2492.98	41.98	-12.02	54	36.29	33.05	3.23	30.59	175	295	Average



<with Adapter 1 for Sample 1 in Laptop Mode>

Test Mode :	802.11g	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Jun Liu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	57.89	-16.11	74	52.54	32.86	3.17	30.68	124	73	Peak
2390	43.99	-10.01	54	38.64	32.86	3.17	30.68	124	73	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	57.24	-16.76	74	51.89	32.86	3.17	30.68	128	290	Peak
2390	41.84	-12.16	54	36.49	32.86	3.17	30.68	128	290	Average

Test Mode :	802.11g	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Jun Liu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2490.01	60.93	-13.07	74	55.24	33.05	3.23	30.59	118	76	Peak
2489.74	47.28	-6.72	54	41.59	33.05	3.23	30.59	118	76	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.53	59.78	-14.22	74	54.15	33.01	3.22	30.6	103	0	Peak
2486.59	45.56	-8.44	54	39.93	33.01	3.22	30.6	103	0	Average



<with Adapter 1 for Sample 1 in Tablet Mode>

Test Mode :	802.11g	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Jun Liu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2494.12	62.98	-11.02	74	57.29	33.05	3.23	30.59	103	204	Peak
2490.16	47.63	-6.37	54	41.94	33.05	3.23	30.59	103	204	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.1	55.69	-18.31	74	50.06	33.01	3.22	30.6	175	22	Peak
2483.5	42.35	-11.65	54	36.72	33.01	3.22	30.6	175	22	Average

3.5.7 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic)

Note: Pre-scanned all test modes and only choose the worst case mode recorded in the test report for radiated spurious emission below 1GHz.

<with Adapter 1 for Sample 1 in Laptop Mode>

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 7236 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 106.86 dBµV/m-20dB = 86.86 dBµV/m.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	106.86	-	-	101.45	32.89	3.18	30.66	146	66	Peak
2412	101.99	-	-	96.58	32.89	3.18	30.66	146	66	Average
2752	60.47	-13.53	74	54.16	33.45	3.33	30.47	110	112	Peak
2752	48.98	-5.02	54	42.67	33.45	3.33	30.47	110	112	Average
4824	57.39	-16.61	74	46.96	35.17	4.58	29.32	102	82	Peak
4824	46.81	-7.19	54	36.38	35.17	4.58	29.32	102	82	Average
7236	51.62	-35.24	86.86	39.97	36.18	5.62	30.15	100	23	Peak



Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2412 MHz is Fundamental signal which can be ignored. 2. 7236 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	104.88	-	-	99.47	32.89	3.18	30.66	107	31	Peak
2412	100.13	-	-	94.72	32.89	3.18	30.66	107	31	Average
2732	58.09	-15.91	74	51.82	33.43	3.32	30.48	100	125	Peak
2732	46.91	-7.09	54	40.64	33.43	3.32	30.48	100	125	Average
4824	59.29	-14.71	74	48.86	35.17	4.58	29.32	127	6	Peak
4824	48.02	-5.98	54	37.59	35.17	4.58	29.32	127	6	Average
7236	50.7	-34.18	84.88	39.05	36.18	5.62	30.15	100	21	Peak



Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	109.3	-	-	103.78	32.95	3.2	30.63	147	74	Peak
2437	104.44	-	-	98.92	32.95	3.2	30.63	147	74	Average
2796	57.85	-16.15	74	51.43	33.51	3.35	30.44	100	235	Peak
2796	46.83	-7.17	54	40.41	33.51	3.35	30.44	100	235	Average
4874	60.63	-13.37	74	50.17	35.18	4.6	29.32	102	84	Peak
4874	49.99	-4.01	54	39.53	35.18	4.6	29.32	102	84	Average
7312	51.76	-22.24	74	40.1	36.2	5.64	30.18	100	256	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	107.93	-	-	102.41	32.95	3.2	30.63	102	312	Peak
2437	103.12	-	-	97.6	32.95	3.2	30.63	102	312	Average
2814	58.15	-15.85	74	51.7	33.52	3.36	30.43	100	88	Peak
2814	47.5	-6.5	54	41.05	33.52	3.36	30.43	100	88	Average
4874	61.6	-12.4	74	51.14	35.18	4.6	29.32	102	347	Peak
4874	50.7	-3.3	54	40.24	35.18	4.6	29.32	102	347	Average
7312	52.13	-21.87	74	40.47	36.2	5.64	30.18	100	261	Peak



Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	109.55	-	-	103.98	32.98	3.21	30.62	119	83	Peak
2462	104.91	-	-	99.34	32.98	3.21	30.62	119	83	Average
2764	58.65	-15.35	74	52.31	33.47	3.33	30.46	100	300	Peak
2764	47.16	-6.84	54	40.82	33.47	3.33	30.46	100	300	Average
4924	61.18	-12.82	74	50.69	35.19	4.61	29.31	100	82	Peak
4924	51.13	-2.87	54	40.64	35.19	4.61	29.31	100	82	Average
7386	52.64	-21.36	74	40.96	36.24	5.66	30.22	100	126	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	108.46	-	-	102.89	32.98	3.21	30.62	101	37	Peak
2462	103.85	-	-	98.28	32.98	3.21	30.62	101	37	Average
2866	58.72	-15.28	74	52.17	33.58	3.38	30.41	100	86	Peak
2866	47.39	-6.61	54	40.84	33.58	3.38	30.41	100	86	Average
4924	60.91	-13.09	74	50.42	35.19	4.61	29.31	100	287	Peak
4924	49.71	-4.29	54	39.22	35.19	4.61	29.31	100	287	Average
7386	51.03	-22.97	74	39.35	36.24	5.66	30.22	100	25	Peak



<with Adapter 1 for Sample 1 in Tablet Mode>

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	109.63	-	-	104.06	32.98	3.21	30.62	106	109	Peak
2462	104.87	-	-	99.3	32.98	3.21	30.62	106	109	Average
2768	61.8	-12.2	74	55.46	33.47	3.33	30.46	122	122	Peak
2768	50.68	-3.32	54	44.34	33.47	3.33	30.46	122	122	Average
4924	61.73	-12.27	74	51.24	35.19	4.61	29.31	100	86	Peak
4924	52.23	-1.77	54	41.74	35.19	4.61	29.31	100	86	Average
7386	50.92	-23.08	74	39.24	36.24	5.66	30.22	100	156	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	102.04	-	-	96.47	32.98	3.21	30.62	100	282	Peak
2462	97.18	-	-	91.61	32.98	3.21	30.62	100	282	Average
2778	55.39	-18.61	74	49.01	33.49	3.34	30.45	147	156	Peak
2778	44.78	-9.22	54	38.4	33.49	3.34	30.45	147	156	Average
4924	57.76	-16.24	74	47.27	35.19	4.61	29.31	189	171	Peak
4924	46	-8	54	35.51	35.19	4.61	29.31	189	171	Average
7386	51.28	-22.72	74	39.6	36.24	5.66	30.22	100	12	Peak



<with Adapter 2 for Sample 2 in Tablet Mode>

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	110.19	-	-	104.62	32.98	3.21	30.62	130	116	Peak
2462	105.23	-	-	99.66	32.98	3.21	30.62	118	76	Average
2768	60.12	-13.88	74	53.78	33.47	3.33	30.46	101	202	Peak
2768	49.85	-4.15	54	43.51	33.47	3.33	30.46	101	202	Average
4924	61.96	-12.04	74	51.47	35.19	4.61	29.31	100	270	Peak
4924	50.26	-3.74	54	39.77	35.19	4.61	29.31	100	270	Average
7386	52.7	-21.3	74	41.02	36.24	5.66	30.22	100	12	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	101.69	-	-	96.12	32.98	3.21	30.62	100	2	Peak
2462	95.79	-	-	90.22	32.98	3.21	30.62	100	2	Average
2740	56.34	-17.66	74	50.07	33.43	3.32	30.48	100	147	Peak
2740	45.78	-8.22	54	39.51	33.43	3.32	30.48	100	147	Average
4924	59	-15	74	48.51	35.19	4.61	29.31	175	291	Peak
4924	48.35	-5.65	54	37.86	35.19	4.61	29.31	175	291	Average
7386	50.72	-23.28	74	39.04	36.24	5.66	30.22	100	122	Peak



<with Adapter 3 for Sample 3 in Tablet Mode>

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	108.88	-	-	103.31	32.98	3.21	30.62	106	238	Peak
2462	103.87	-	-	98.3	32.98	3.21	30.62	106	238	Average
2706	59.98	-14.02	74	53.8	33.38	3.3	30.5	100	185	Peak
2706	49.85	-4.15	54	43.67	33.38	3.3	30.5	100	185	Average
4924	61.1	-12.9	74	50.61	35.19	4.61	29.31	100	269	Peak
4924	51.27	-2.73	54	40.78	35.19	4.61	29.31	100	269	Average
7386	51.28	-22.72	74	39.6	36.24	5.66	30.22	132	20	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	102.82	-	-	97.25	32.98	3.21	30.62	118	160	Peak
2462	96.92	-	-	91.35	32.98	3.21	30.62	118	160	Average
2774	56.16	-17.84	74	49.82	33.47	3.33	30.46	100	148	Peak
2774	47.85	-6.15	54	41.51	33.47	3.33	30.46	100	148	Average
4924	57.74	-16.26	74	47.25	35.19	4.61	29.31	103	221	Peak
4924	45.53	-8.47	54	35.04	35.19	4.61	29.31	103	221	Average
7386	50.59	-23.41	74	38.91	36.24	5.66	30.22	100	21	Peak



<with Adapter 4 for Sample 4 in Tablet Mode>

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	106.26	-	-	100.69	32.98	3.21	30.62	105	238	Peak
2462	101.5	-	-	95.93	32.98	3.21	30.62	105	238	Average
2760	59.93	-14.07	74	53.59	33.47	3.33	30.46	114	117	Peak
2760	50.67	-3.33	54	44.33	33.47	3.33	30.46	114	117	Average
4924	60.86	-13.14	74	50.37	35.19	4.61	29.31	100	238	Peak
4924	51.86	-2.14	54	41.37	35.19	4.61	29.31	100	238	Average
7386	51.08	-22.92	74	39.4	36.24	5.66	30.22	100	41	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	100.8	-	-	95.23	32.98	3.21	30.62	101	164	Peak
2462	94.3	-	-	88.73	32.98	3.21	30.62	101	164	Average
2798	56.41	-17.59	74	49.99	33.51	3.35	30.44	102	158	Peak
2798	45.88	-8.12	54	39.46	33.51	3.35	30.44	102	158	Average
4924	56.91	-17.09	74	46.42	35.19	4.61	29.31	169	193	Peak
4924	44.71	-9.29	54	34.22	35.19	4.61	29.31	169	193	Average
7386	51.45	-22.55	74	39.77	36.24	5.66	30.22	100	26	Peak



<with Adapter 6 for Sample 1 in Tablet Mode>

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
184.23	35	-8.5	43.5	58.89	8.44	1.24	33.57	-	-	Peak
398.6	38.43	-7.57	46	53.91	15.98	1.85	33.31	100	26	Peak
448.07	37.94	-8.06	46	52.91	16.29	1.95	33.21	-	-	Peak
547.98	37.05	-8.95	46	49.51	18.47	2.09	33.02	-	-	Peak
747.8	32.8	-13.2	46	43.24	19.88	2.46	32.78	-	-	Peak
847.71	34.1	-11.9	46	43.71	20.49	2.63	32.73	-	-	Peak
2462	111.25	-	-	105.68	32.98	3.21	30.62	103	110	Peak
2462	106.38	-	-	100.81	32.98	3.21	30.62	103	110	Average
2768	63.15	-10.85	74	56.81	33.47	3.33	30.46	141	125	Peak
2768	50.62	-3.38	54	44.28	33.47	3.33	30.46	141	125	Average
4924	61.3	-12.7	74	50.81	35.19	4.61	29.31	100	86	Peak
4924	52.34	-1.66	54	41.85	35.19	4.61	29.31	100	86	Average
7386	49.56	-24.44	74	37.88	36.24	5.66	30.22	100	126	Peak



Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
47.46	28.89	-11.11	40	53.35	8.5	0.64	33.6	-	-	Peak
249.22	34.29	-11.71	46	54.32	11.96	1.45	33.44	-	-	Peak
448.07	37.18	-8.82	46	52.15	16.29	1.95	33.21	100	162	Peak
547.98	33.3	-12.7	46	45.76	18.47	2.09	33.02	-	-	Peak
647.89	33.04	-12.96	46	44.79	18.89	2.31	32.95	-	-	Peak
945.68	31.61	-14.39	46	40.53	20.71	2.81	32.44	-	-	Peak
2462	103.99	-	-	98.42	32.98	3.21	30.62	175	295	Peak
2462	99.15	-	-	93.58	32.98	3.21	30.62	175	295	Average
2788	56.26	-17.74	74	49.88	33.49	3.34	30.45	100	145	Peak
2788	45.23	-8.77	54	38.85	33.49	3.34	30.45	100	145	Average
4926	58.23	-15.77	74	47.74	35.19	4.61	29.31	191	196	Peak
4926	46.14	-7.86	54	35.65	35.19	4.61	29.31	191	196	Average
7386	51.01	-22.99	74	39.33	36.24	5.66	30.22	100	12	Peak



<with Adapter 1 for Sample 1 in Laptop Mode>

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 7236 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	105.73	-	-	100.32	32.89	3.18	30.66	147	73	Peak
2412	95.01	-	-	89.6	32.89	3.18	30.66	147	73	Average
2760	60.15	-13.85	74	53.81	33.47	3.33	30.46	124	125	Peak
2760	49.22	-4.78	54	42.88	33.47	3.33	30.46	124	125	Average
4824	50.63	-23.37	74	40.2	35.17	4.58	29.32	100	124	Peak
7236	51.33	-34.4	85.73	39.68	36.18	5.62	30.15	100	156	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 7236 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	104.14	-	-	98.73	32.89	3.18	30.66	105	290	Peak
2412	93.27	-	-	87.86	32.89	3.18	30.66	105	290	Average
2768	57.84	-16.16	74	51.5	33.47	3.33	30.46	125	133	Peak
2768	46.98	-7.02	54	40.64	33.47	3.33	30.46	125	133	Average
4824	50	-24	74	39.57	35.17	4.58	29.32	100	126	Peak
7236	51.71	-32.43	84.14	40.06	36.18	5.62	30.15	100	45	Peak



Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	105.5	-	-	99.98	32.95	3.2	30.63	146	71	Peak
2437	94.73	-	-	89.21	32.95	3.2	30.63	146	71	Average
2766	60.19	-13.81	74	53.85	33.47	3.33	30.46	125	144	Peak
2766	50.36	-3.64	54	44.02	33.47	3.33	30.46	125	144	Average
4874	49.25	-24.75	74	38.79	35.18	4.6	29.32	100	148	Peak
7312	51.71	-22.29	74	40.05	36.2	5.64	30.18	100	215	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	104.83	-	-	99.31	32.95	3.2	30.63	100	314	Peak
2437	93.55	-	-	88.03	32.95	3.2	30.63	100	314	Average
2774	57.68	-16.32	74	51.34	33.47	3.33	30.46	100	314	Peak
2774	48.11	-5.89	54	41.77	33.47	3.33	30.46	110	125	Average
4874	49.37	-24.63	74	38.91	35.18	4.6	29.32	100	41	Peak
7312	51.78	-22.22	74	40.12	36.2	5.64	30.18	123	65	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	108.1	-	-	102.53	32.98	3.21	30.62	118	76	Peak
2462	97.04	-	-	91.47	32.98	3.21	30.62	118	76	Average
2768	61.23	-12.77	74	54.89	33.47	3.33	30.46	114	251	Peak
2768	50.46	-3.54	54	44.12	33.47	3.33	30.46	114	251	Average
4924	50.57	-23.43	74	40.08	35.19	4.61	29.31	100	26	Peak
7386	51.75	-22.25	74	40.07	36.24	5.66	30.22	100	26	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	106.59	-	-	101.02	32.98	3.21	30.62	103	0	Peak
2462	94.81	-	-	89.24	32.98	3.21	30.62	103	0	Average
2722	58.87	-15.13	74	52.64	33.41	3.31	30.49	110	125	Peak
2722	49.52	-4.48	54	43.29	33.41	3.31	30.49	110	125	Average
4924	49.98	-24.02	74	39.49	35.19	4.61	29.31	100	21	Peak
7386	52.05	-21.95	74	40.37	36.24	5.66	30.22	100	41	Peak



<with Adapter 1 for Sample 1 in Tablet Mode>

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	107.35	-	-	101.78	32.98	3.21	30.62	106	204	Peak
2462	96.26	-	-	90.69	32.98	3.21	30.62	106	204	Average
2740	60.86	-13.14	74	54.59	33.43	3.32	30.48	145	268	Peak
2740	50.12	-3.88	54	43.85	33.43	3.32	30.48	145	268	Average
4924	49.33	-24.67	74	38.84	35.19	4.61	29.31	100	21	Peak
7386	52.23	-21.77	74	40.55	36.24	5.66	30.22	100	25	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	99.67	-	-	94.1	32.98	3.21	30.62	175	13	Peak
2462	88.42	-	-	82.85	32.98	3.21	30.62	175	13	Average
2742	56.43	-17.57	74	50.16	33.43	3.32	30.48	100	125	Peak
2742	46.23	-7.77	54	39.96	33.43	3.32	30.48	100	125	Average
4924	50.57	-23.43	74	40.08	35.19	4.61	29.31	100	21	Peak
7386	51.88	-22.12	74	40.2	36.24	5.66	30.22	100	126	Peak

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

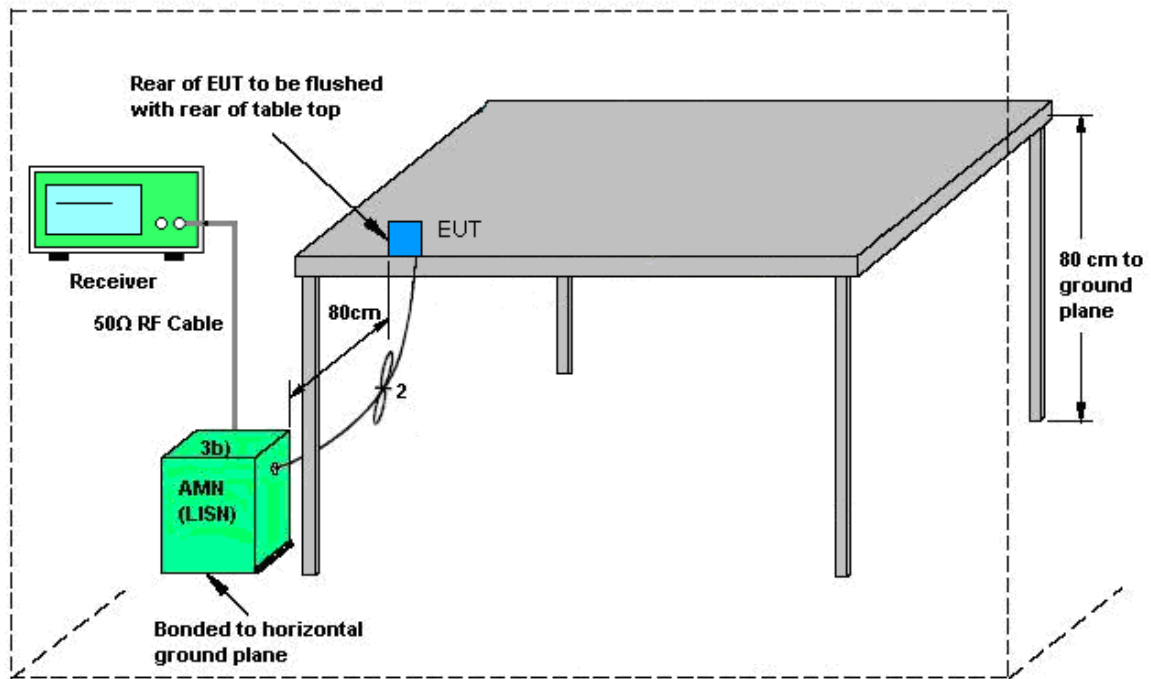
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.6.4 Test Setup

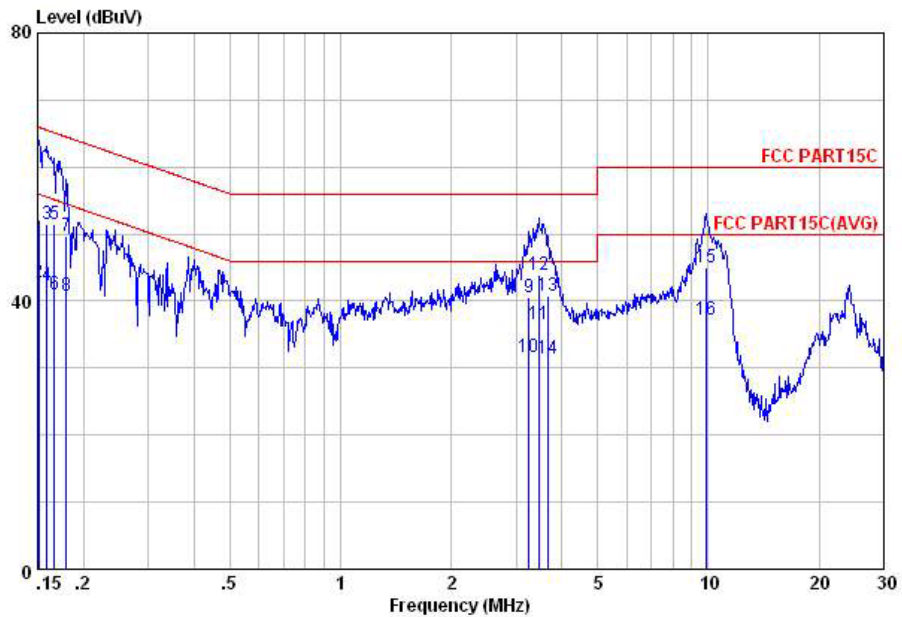


AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~24°C
Test Engineer :	Harry Tang	Relative Humidity :	51~53%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + USB Cable (Charging from Adapter 6) + TC for Sample 2		

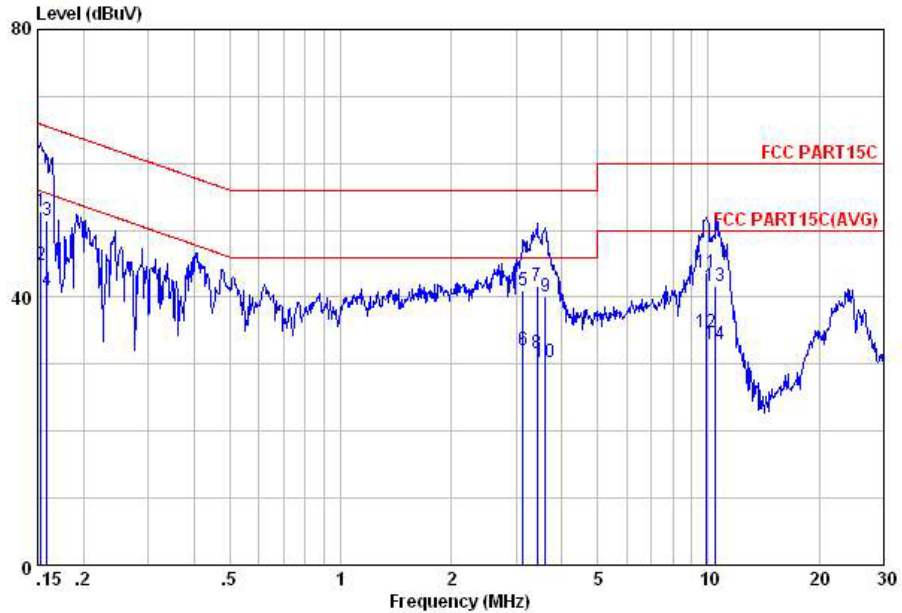


Site : C001-KS
 Condition: FCC PART15C LISN-L20130306 LINE
 Project : (FR) 2D1708
 mode : Mode 5

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	52.25	-13.71	65.96	39.59	1.94	10.72	QP
2	0.15	42.85	-13.11	55.96	30.19	1.94	10.72	Average
3	0.16	51.38	-14.14	65.52	38.90	1.80	10.68	QP
4	0.16	42.38	-13.14	55.52	29.90	1.80	10.68	Average
5	0.17	51.49	-13.63	65.12	39.20	1.64	10.65	QP
6	0.17	41.09	-14.03	55.12	28.80	1.64	10.65	Average
7	0.18	49.73	-14.77	64.50	37.80	1.31	10.62	QP
8	0.18	40.83	-13.67	54.50	28.90	1.31	10.62	Average
9	3.26	40.49	-15.51	56.00	30.10	0.16	10.23	QP
10	3.26	31.59	-14.41	46.00	21.20	0.16	10.23	Average
11	3.45	36.50	-9.50	46.00	26.10	0.17	10.23	Average
12	3.45	44.00	-12.00	56.00	33.60	0.17	10.23	QP
13	3.68	40.71	-15.29	56.00	30.29	0.18	10.24	QP
14	3.68	31.51	-14.49	46.00	21.09	0.18	10.24	Average
15	9.86	44.96	-15.04	60.00	34.40	0.20	10.36	QP
16	9.86	37.16	-12.84	50.00	26.60	0.20	10.36	Average



Test Mode :	Mode 1	Temperature :	22~24°C
Test Engineer :	Harry Tang	Relative Humidity :	51~53%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + USB Cable (Charging from Adapter 6) + TC for Sample 2		



Site : C001-KS
 Condition: FCC PART15C LISN-N20130306 NEUTRAL
 Project : (FR) 2D1708
 mode : Mode 5

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.15	52.76	-13.06	65.82	40.21	1.85	10.70	QP
2	0.15	44.86	-10.96	55.82	32.31	1.85	10.70	Average
3	0.16	51.54	-13.98	65.52	39.10	1.76	10.68	QP
4	0.16	41.04	-14.48	55.52	28.60	1.76	10.68	Average
5	3.14	41.07	-14.93	56.00	30.69	0.15	10.23	QP
6	3.14	32.17	-13.83	46.00	21.79	0.15	10.23	Average
7	3.42	41.70	-14.30	56.00	31.30	0.17	10.23	QP
8	3.42	31.60	-14.40	46.00	21.20	0.17	10.23	Average
9	3.60	40.21	-15.79	56.00	29.81	0.17	10.23	QP
10	3.60	30.21	-15.79	46.00	19.81	0.17	10.23	Average
11	9.91	43.76	-16.24	60.00	33.20	0.20	10.36	QP
12	9.91	34.66	-15.34	50.00	24.10	0.20	10.36	Average
13	10.45	41.57	-18.43	60.00	31.00	0.21	10.36	QP
14	10.45	33.07	-16.93	50.00	22.50	0.21	10.36	Average

3.7 Antenna Requirements

3.7.1 Standard Applicable

If directional gain of transmitting Antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the Antenna exceeds 6 dBi. The use of a permanently attached Antenna or of an Antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 29, 2012	Aug. 31, 2013	Dec. 28, 2013	Conducted (TH01-KS)
Power Meter	Agilent	E4418B	MY45107368	N/A	Aug. 21, 2013	Aug. 31, 2013	Aug. 20, 2014	Conducted (TH01-KS)
Power Sensor	Agilent	N9304A H18	MY41498364	1nW~100mW (-60~+20dBm) 9kHz~18GHz	Aug. 21, 2013	Aug. 31, 2013	Aug. 20, 2014	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 08, 2012	Sep. 10, 2013	Nov. 07, 2013	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP30	101399	9kHz~30GHz	May 23, 2013	Sep. 10, 2013	May 22, 2014	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 07, 2012	Sep. 10, 2013	Dec. 06, 2013	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 22, 2012	Sep. 10, 2013	Oct. 21, 2013	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	75959	1GHz~18GHz	Dec. 07, 2012	Sep. 10, 2013	Dec. 06, 2013	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161069	1MHz~1GHz	May 23, 2013	Sep. 10, 2013	May 22, 2014	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 29, 2012	Sep. 10, 2013	Dec. 28, 2013	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701023	1GHz~18GHz	Nov. 07, 2012	Sep. 10, 2013	Nov. 06, 2013	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Nov. 23, 2012	Sep. 10, 2013	Nov. 22, 2013	Radiation (03CH01-KS)
Turn Table	MF	MF7802	N/A	0 ~ 360 degree	N/A	Sep. 10, 2013	N/A	Radiation (03CH01-KS)
Antenna Mast	MF	MF7802	N/A	1 m - 4 m	N/A	Sep. 10, 2013	N/A	Radiation (03CH01-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	May 23, 2013	Sep. 11, 2013	May 22, 2014	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Dec. 29, 2012	Sep. 11, 2013	Dec. 28, 2013	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Dec. 29, 2012	Sep. 11, 2013	Dec. 28, 2013	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 15, 2012	Sep. 11, 2013	Nov. 14, 2013	Conduction (CO01-KS)

5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.26
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Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.54
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Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.72
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