FCC RF Test Report

APPLICANT	:	Unimax Communications
EQUIPMENT	:	CDMA EVDO REV A 800/1900MHZ
BRAND NAME	:	UMX
MODEL NAME	:	U670C
FCC ID	:	P46-U670C
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on Mar. 16, 2012 and completely tested on Jul. 26, 2012. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance 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:

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
FR231609B	Rev. 01	Initial issue of report	Aug. 06, 2012

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.2	15.247(b)	A8.4	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	A8.2(b)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	A8.5	Conducted Band Edges	≤ 20dBc	Pass	-
			Conducted Spurious Emission		Pass	-
3.5	15.247(d)	A8.5	Radiated Band Edges	15.209(a) & 15.247(d)	Pass	-
			Radiated Spurious Emission		Pass	Under limit 4.54 dB at 36.640 MHz
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 5.82 dB at 1.500 MHz
3.7	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Unimax Communications
18201 McDurmott St. West Suite E, Irvine, CA 92614

1.2 Manufacturer

Unimax Communications
18201 McDurmott St. West Suite E, Irvine, CA 92614

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	CDMA EVDO REV A 800/1900MHZ
Brand Name	UMX
Model Name	U670C
FCC ID	P46-U670C
EUT supports Radios application	CDMA / EV-DO / WLAN 11bgn / Bluetooth
HW Version	F3610_BOARD_V1.2
SW Version	U670C.GB.12260689
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Product Specification subjective to this standard	
Tx/Rx Frequency Range	2412 MHz ~ 2462 MHz
Number of Channels	11
Carrier Frequency of Each Channel	2412+(n-1)*5 MHz; n=1~11
Maximum Output Power to Antenna	802.11b : 17.72 dBm (0.0592 W) 802.11g : 20.69 dBm (0.1172 W) 802.11n HT-20 : 19.88 dBm (0.0973 W)
Antenna Type	PIFA Antenna with gain 1.28 dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.4 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/IC Registration No.
	TH01-KS	CO01-KS	03CH01-KS	149928/4086E-1

1.5 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 v01
- FCC TCB Workshop 2012, April
- ANSI C63.4-2003 and ANSI C63.10-2009
- IC RSS-210 Issue 8
- IC RSS-Gen Issue 3

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.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GWINSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	P08S	QDS-BRCM1030	N/A	AC I/P: Unshielded, 0.9 m DC O/P: Shielded, 1.8 m
5.	Bluetooth Earphone	Nokia	BH-106	QTLBH-106	N/A	N/A

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency 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 as below table and the highest power data rates (11b, 11g, 11n HT-20 modes) were chosen for full test in the following sections to demonstrate compliance to the FCC limit line.

2.4GHz 802.11b mode				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	17.72	17.63	17.69	17.67

2.4GHz 802.11g mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	20.69	20.49	20.65	20.19	20.24	20.08	20.32	20.22

2.4GHz 802.11n HT-20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	19.70	19.58	19.64	19.54	19.43	19.61	19.88	19.77

2.3 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and ANSI C63.10-2009 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), radiated emission (30 MHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

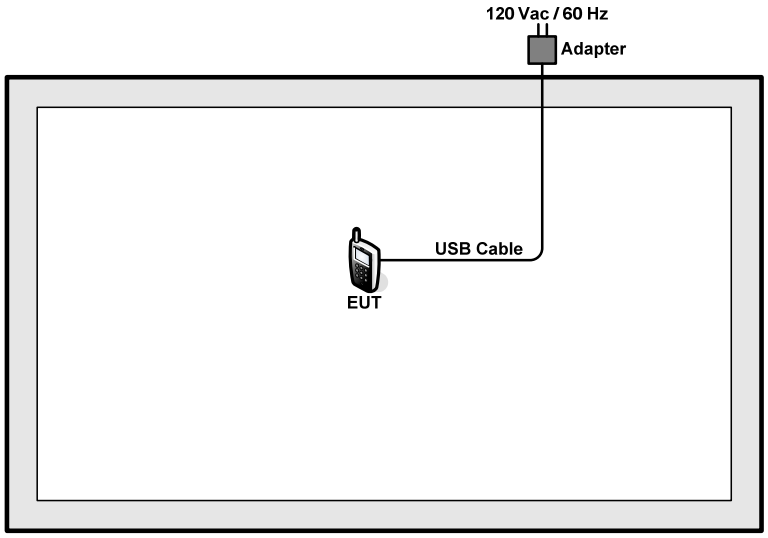
Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations.

The following tables are showing the test modes as the worst cases (Y/Z plane) and recorded in this report.

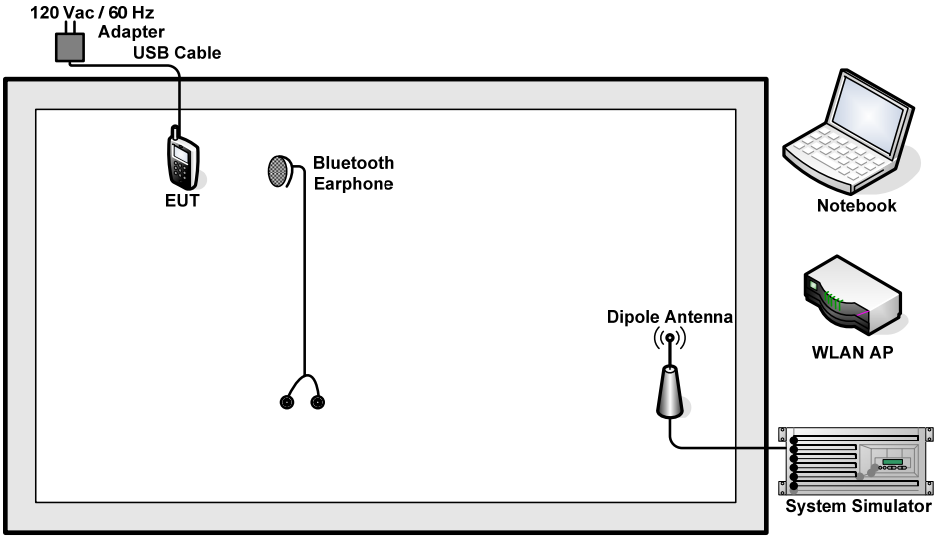
<table>
<tr><th colspan="2">Test Cases</th></tr>
<tr><th>Test Item</th><td>802.11b (Modulation : DSSS)
802.11g/n (Modulation : OFDM)</td></tr>
<tr><th>Conducted TCs</th><td>
<table>
<tr><th>Test Mode</th><th>802.11b</th><th>802.11g</th><th>802.11n HT-20</th></tr>
<tr><th>CH01</th><td>1</td><td>4</td><td>7</td></tr>
<tr><th>CH06</th><td>2</td><td>5</td><td>8</td></tr>
<tr><th>CH11</th><td>3</td><td>6</td><td>9</td></tr>
</table>
</td></tr>
<tr><th>Radiated TCs</th><td>
<table>
<tr><th>Test Mode</th><th>802.11b</th><th>802.11g</th><th>802.11n HT-20</th></tr>
<tr><th>CH01</th><td>1</td><td>4</td><td>7</td></tr>
<tr><th>CH06</th><td>2</td><td>5</td><td>8</td></tr>
<tr><th>CH11</th><td>3</td><td>6</td><td>9</td></tr>
</table>
</td></tr>
<tr><th>AC Conducted Emission</th><td>Mode 1 : CDMA2000 BC0 Idle + Bluetooth Link + WLAN Link + USB Cable (Charging from Adapter) + Camera</td></tr>
</table>

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 RF Utility

For WLAN function, execute “ADB” to make the EUT contact with WLAN AP for continuous transmitting and receiving signals.

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.

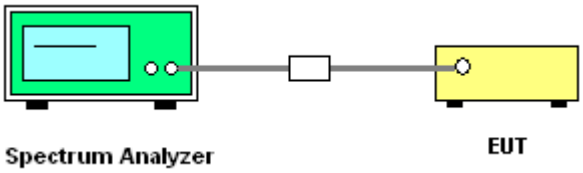
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 1-5% of the emission bandwidth (EBW).Set the Video bandwidth (VBW) ≥ 3 * RBW. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 KHz.
4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

3.1.4 Test Setup

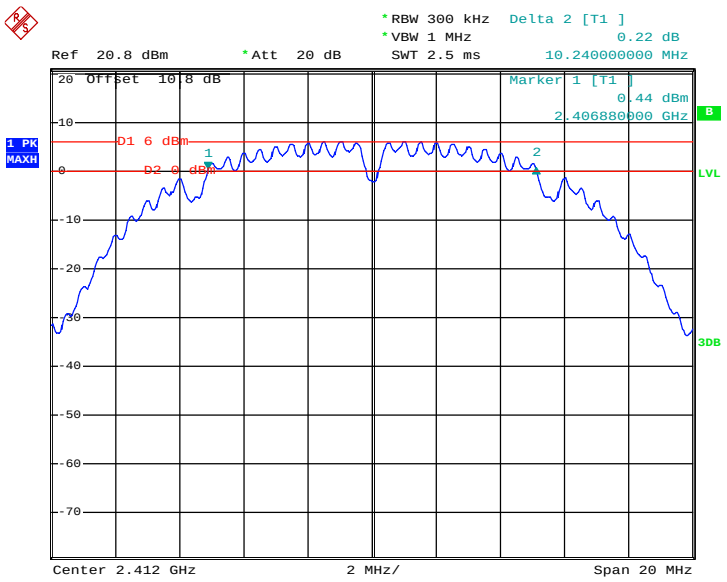


3.1.5 Test Result of 6dB Bandwidth

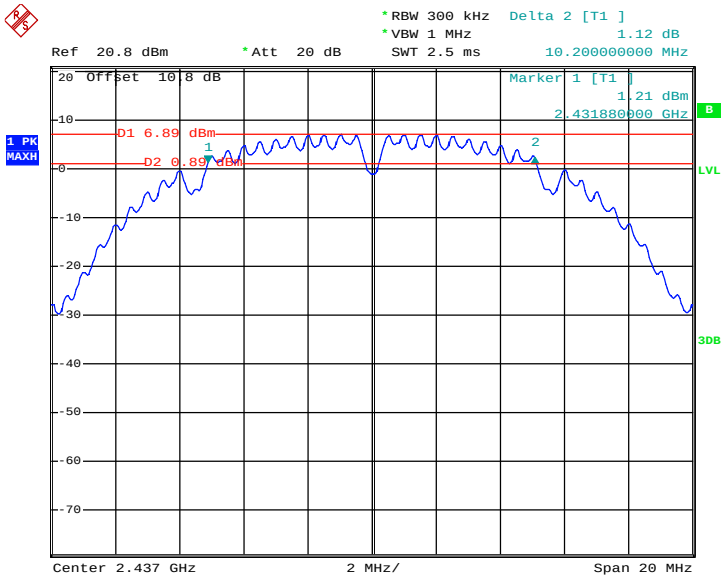
Test Mode :	802.11b	Temperature :	23~24℃
Test Engineer :	King Liu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	10.24	0.5	Pass
06	2437	10.20	0.5	Pass
11	2462	10.24	0.5	Pass

6 dB Bandwidth Plot on 802.11b Channel 01

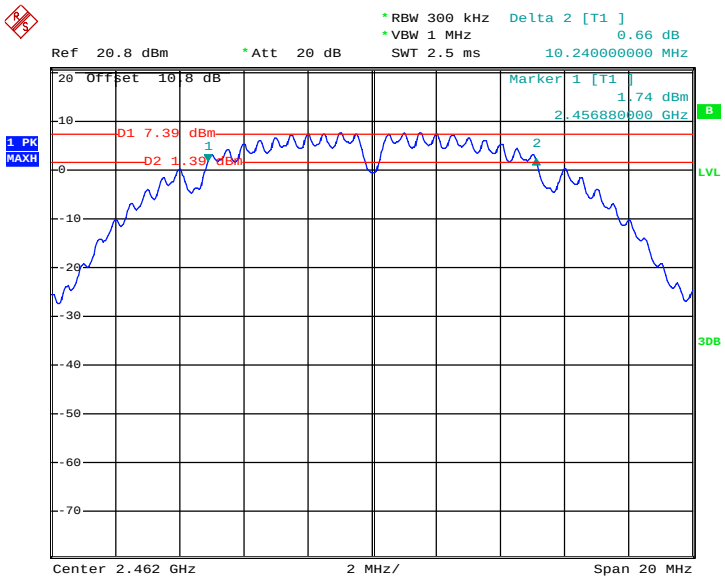


6 dB Bandwidth Plot on 802.11b Channel 06



Date: 26.JUL.2012 01:49:02

6 dB Bandwidth Plot on 802.11b Channel 11

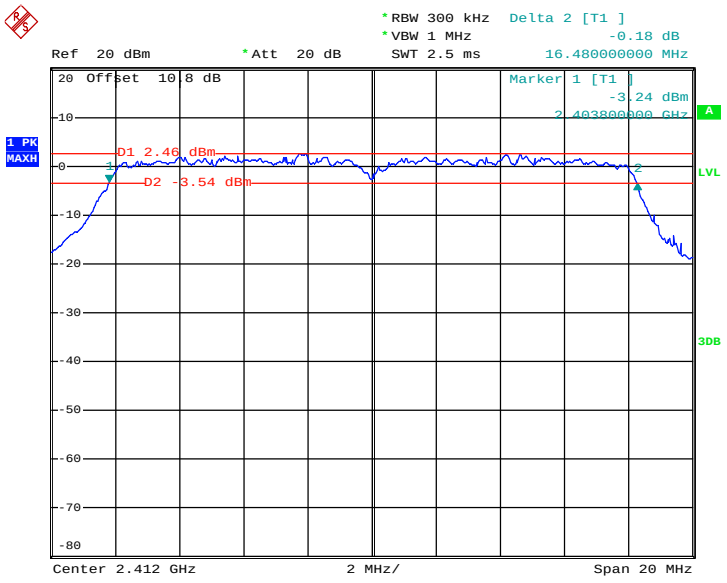


Date: 26.JUL.2012 02:22:05

Test Mode :	802.11g	Temperature :	23~24℃
Test Engineer :	King Liu	Relative Humidity :	47~48%

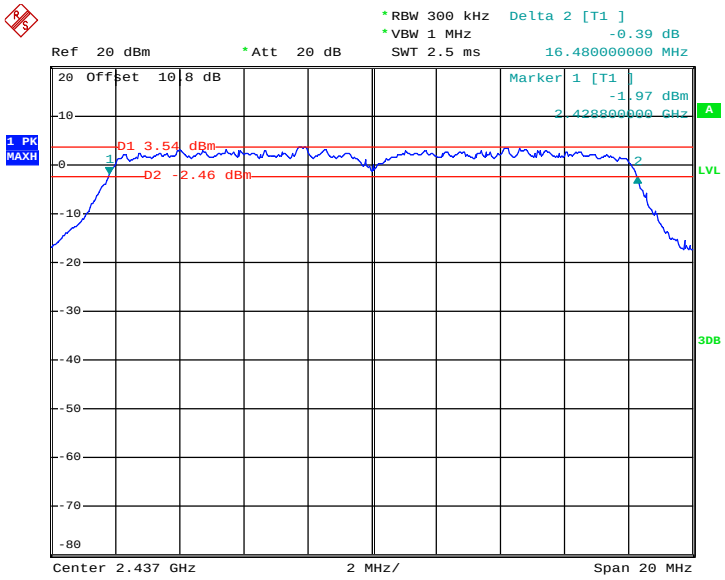
Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.48	0.5	Pass
06	2437	16.48	0.5	Pass
11	2462	16.48	0.5	Pass

6 dB Bandwidth Plot on 802.11g Channel 01



Date: 17.JUL.2012 17:38:01

6 dB Bandwidth Plot on 802.11g Channel 06



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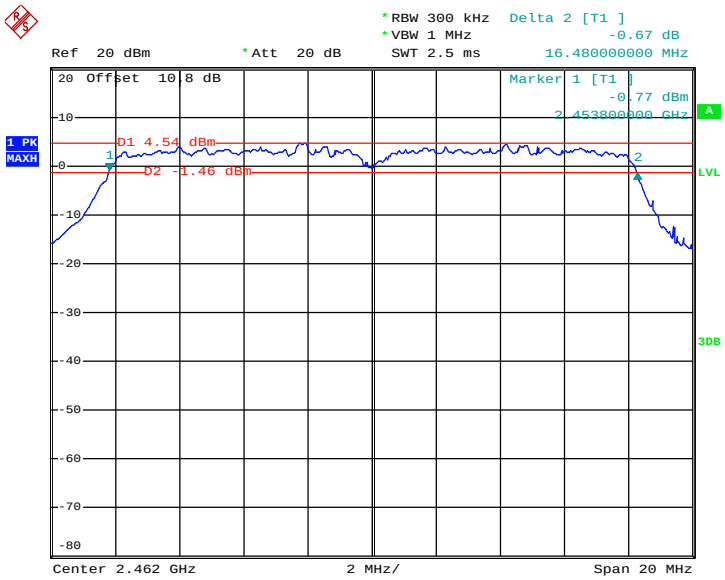
6 dB Bandwidth Plot on 802.11g Channel 11

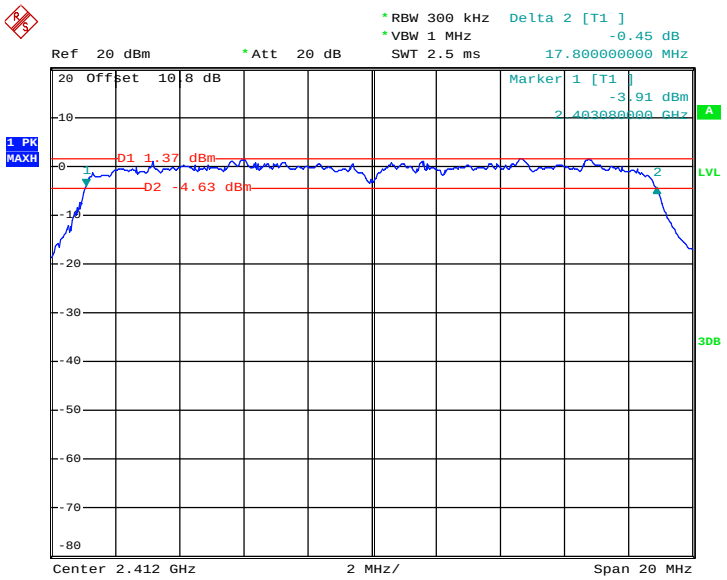


Date: 17.JUL.2012 17:40:38

Test Mode :	802.11n HT-20	Temperature :	23~24℃
Test Engineer :	King Liu	Relative Humidity :	47~48%

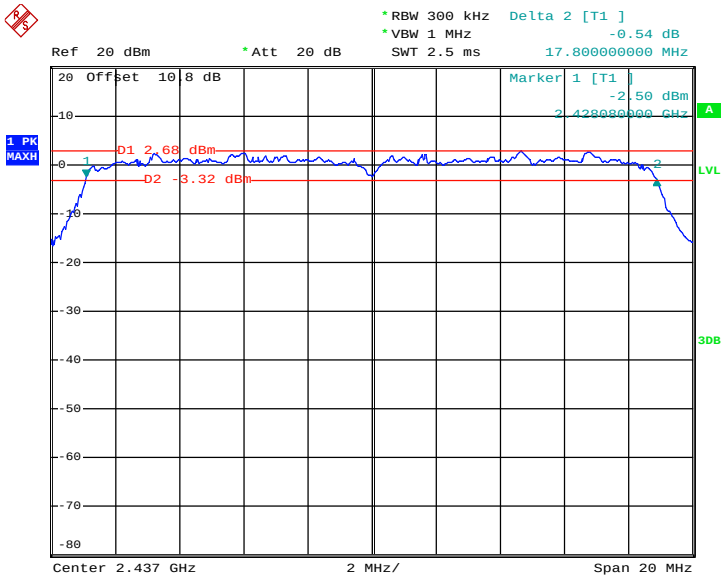
Channel	Frequency (MHz)	2.4GHz 802.11n HT-20 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.80	0.5	Pass
06	2437	17.80	0.5	Pass
11	2462	17.80	0.5	Pass

6 dB Bandwidth Plot on 802.11n HT-20 Channel 01



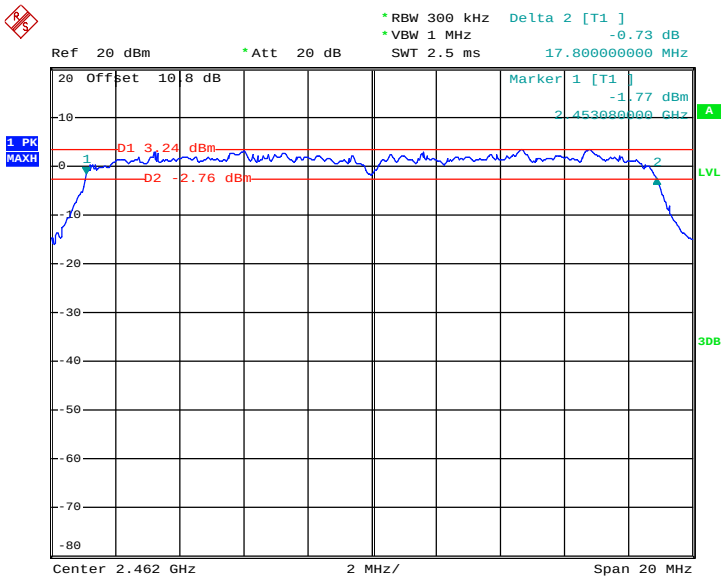
Date: 17.JUL.2012 17:42:12

6 dB Bandwidth Plot on 802.11n HT-20 Channel 06



Date: 17.JUL.2012 17:43:56

6 dB Bandwidth Plot on 802.11n HT-20 Channel 11



Date: 17.JUL.2012 17:45:19

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna of directional gain greater than 6dBi are 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.

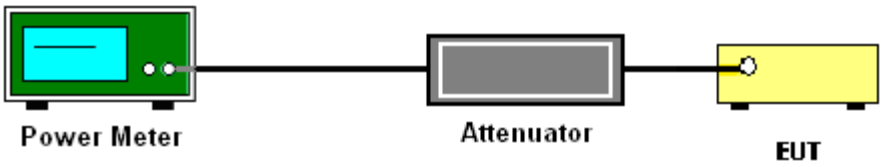
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure 7.2.1.3 Option 3(peak power meter method) of FCC KDB No. 558074 DTS Meas. Guidance DR01.
2. The RF output of EUT was connected to the power meter by a low loss cable
3. Measure the power by power meter.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Test Mode :	802.11b	Temperature :	23~24℃
Test Engineer :	King Liu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	17.04	30	Pass
06	2437	17.29	30	Pass
11	2462	17.72	30	Pass

Test Mode :	802.11g	Temperature :	23~24℃
Test Engineer :	King Liu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	19.48	30	Pass
06	2437	20.64	30	Pass
11	2462	20.69	30	Pass

Test Mode :	802.11n HT-20	Temperature :	23~24℃
Test Engineer :	King Liu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	2.4GHz 802.11n HT-20 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	19.18	30	Pass
06	2437	19.84	30	Pass
11	2462	19.88	30	Pass

3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	802.11b	Temperature :	23~24℃
Test Engineer :	King Liu	Relative Humidity :	47~48%
Duty Cycle:	98.78%	Duty Factor:	0.05dB

Channel	Frequency (MHz)	802.11b Average Output Power (dBm)
01	2412	14.09
06	2437	15.52
11	2462	16.07

Test Mode :	802.11g	Temperature :	23~24℃
Test Engineer :	King Liu	Relative Humidity :	47~48%
Duty Cycle:	96.50%	Duty Factor:	0.15dB

Channel	Frequency (MHz)	802.11g Average Output Power (dBm)
01	2412	9.90
06	2437	11.92
11	2462	12.59

Test Mode :	802.11n HT-20	Temperature :	23~24℃
Test Engineer :	King Liu	Relative Humidity :	47~48%
Duty Cycle:	94.29%	Duty Factor:	0.26dB

Channel	Frequency (MHz)	802.11n HT-20 Average Output Power (dBm)
01	2412	9.28
06	2437	10.42
11	2462	11.13

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.

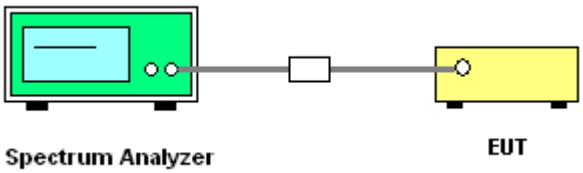
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 5.3.1 (Peak PSD) of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
3. Record the measurement data derived from spectrum analyzer.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 KHz. Video bandwidth (VBW) >= 300 KHz In order to make an accurate measurement, set the span to 5-30% greater than Emission Bandwidth (EBW)
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 in any 100 kHz band segment within the fundamental EBW.
6. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (3 kHz/100 kHz = -15.2 dB).

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

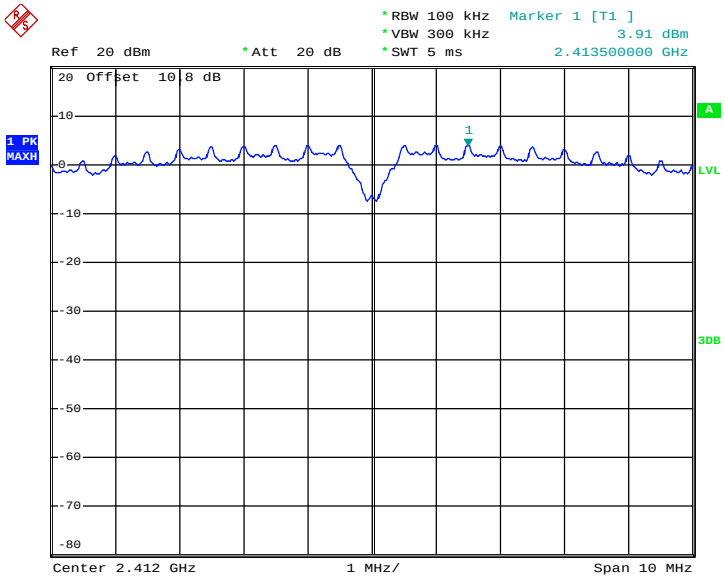
Test Mode :	802.11b	Temperature :	23~24℃
Test Engineer :	King Liu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11b Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	3.91	-11.29	8	Pass
06	2437	4.82	-10.38	8	Pass
11	2462	5.30	-9.90	8	Pass

Note:

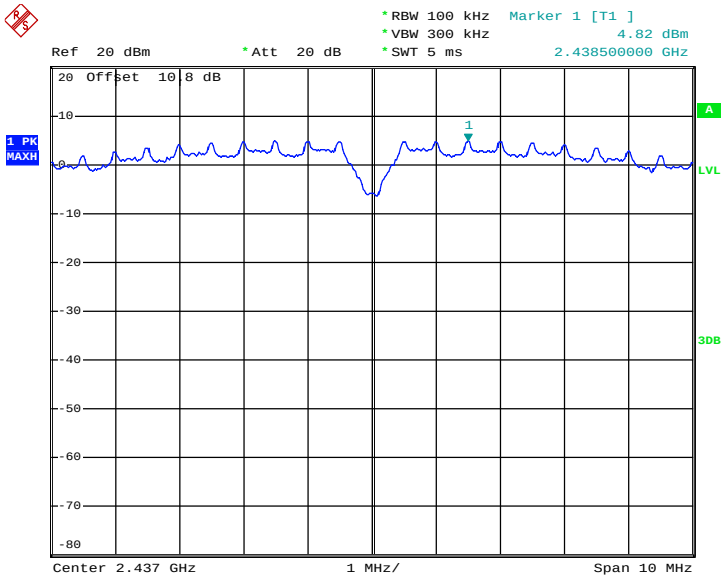
1. *Measured power density (dBm) has offset with cable loss.*
2. *BWCF (dB) = 10 log (3k/100k) = -15.2 dB*
3. *Power Density/ 3kHz (dBm)= Measured power density/ 100KHz (dBm) + BWCF (dB)*

PSD Plot on 802.11b Channel 01



Date: 16.JUL.2012 05:11:04

PSD Plot on 802.11b Channel 06



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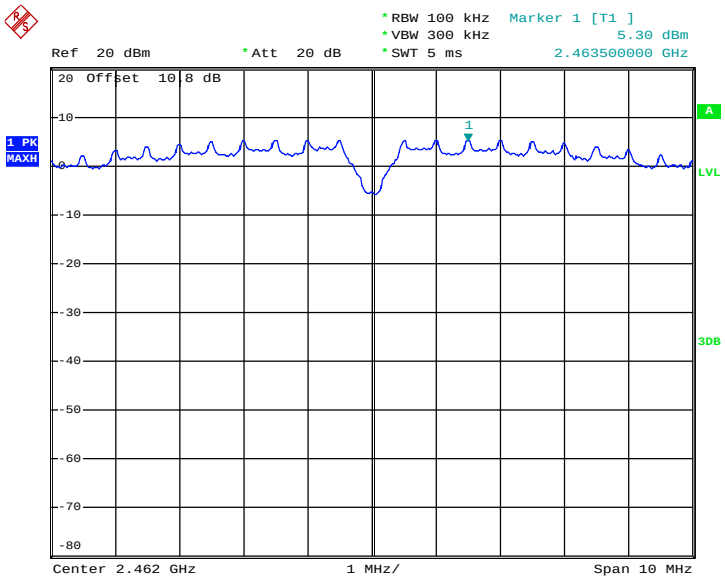
PSD Plot on 802.11b Channel 11



Date: 16.JUL.2012 05:19:24

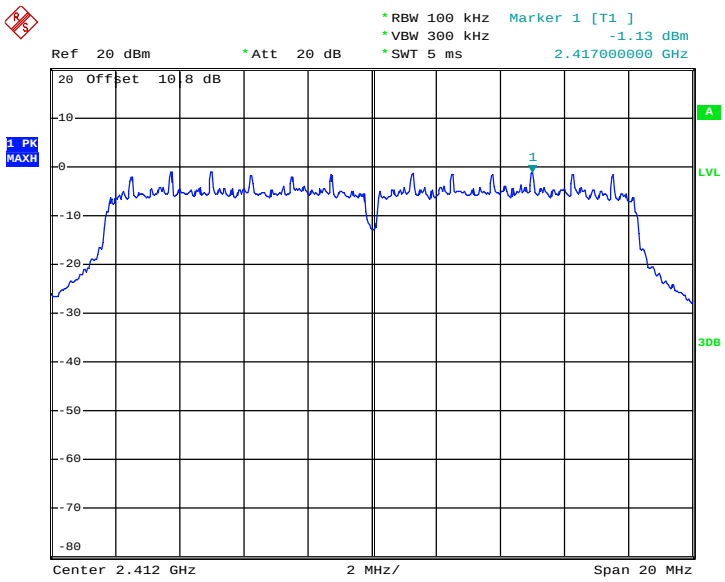
Test Mode :	802.11g	Temperature :	23~24℃
Test Engineer :	King Liu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11g Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	-1.13	-16.33	8	Pass
06	2437	0.47	-14.73	8	Pass
11	2462	1.11	-14.09	8	Pass

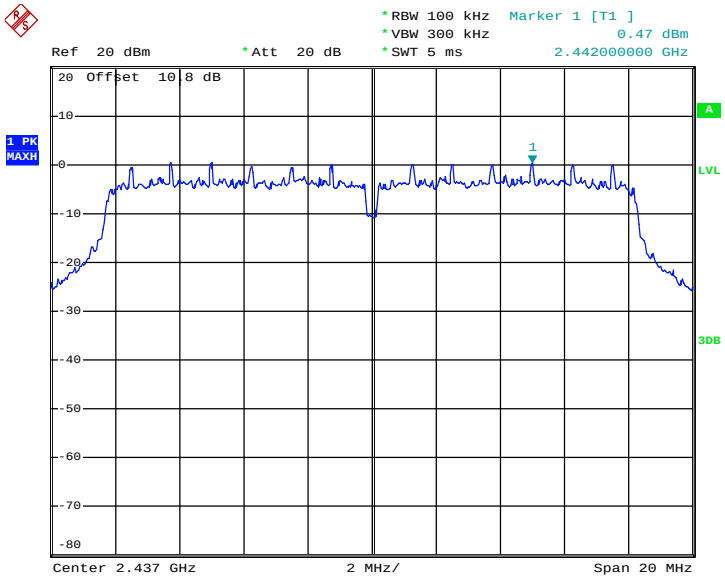
Note:

1. *Measured power density (dBm) has offset with cable loss.*
2. *BWCF (dB) = 10 log (3k/100k) = -15.2 dB*
3. *Power Density/ 3KHz (dBm)= Measured power density/ 100KHz (dBm) + BWCF (dB)*

PSD Plot on 802.11g Channel 01

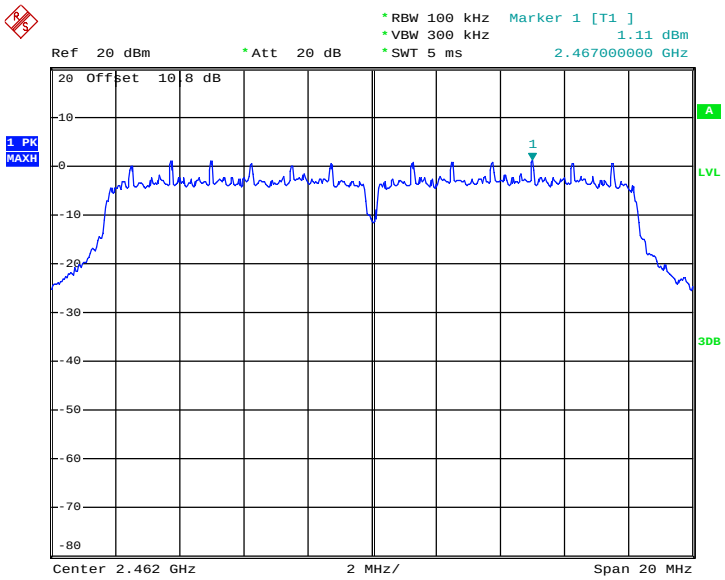


PSD Plot on 802.11g Channel 06



Date: 16.JUL.2012 05:38:27

PSD Plot on 802.11g Channel 11



Date: 16.JUL.2012 05:39:34

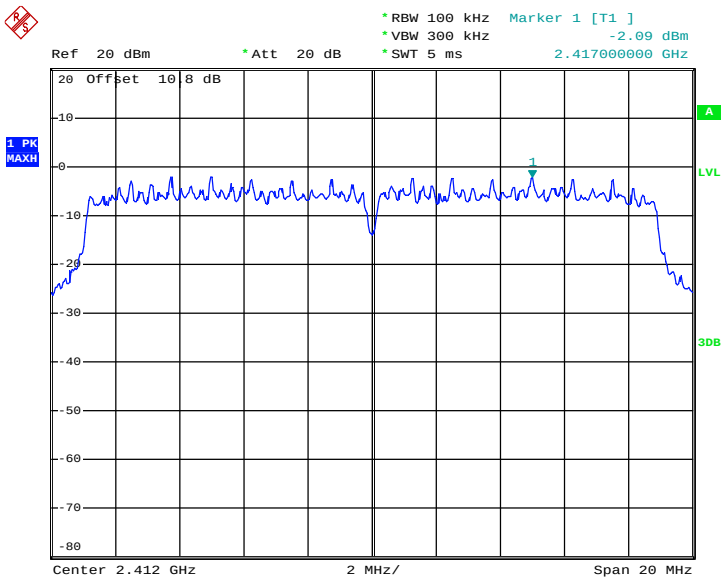
Test Mode :	802.11n HT-20	Temperature :	23~24℃
Test Engineer :	King Liu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11n HT-20 Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	-2.09	-17.29	8	Pass
06	2437	-1.21	-16.41	8	Pass
11	2462	-0.52	-15.72	8	Pass

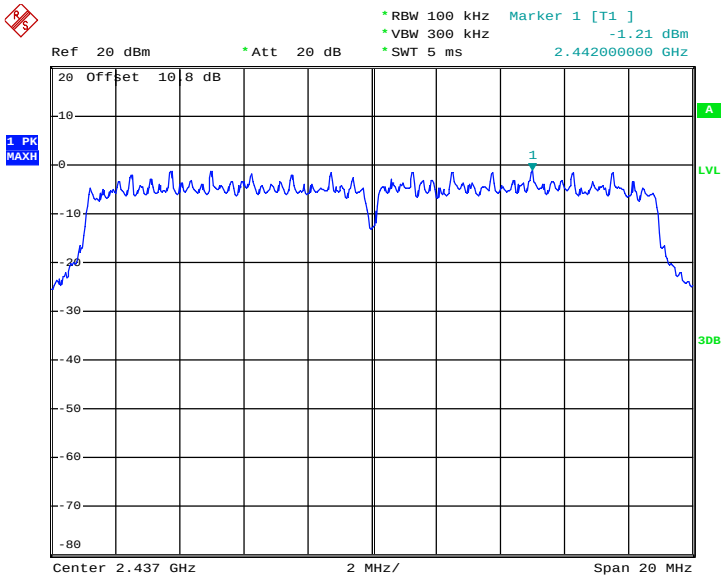
Note:

1. *Measured power density (dBm) has offset with cable loss.*
2. *BWCF (dB) = 10 log (3k/100k) = -15.2 dB*
3. *Power Density/ 3KHz (dBm)= Measured power density/ 100KHz (dBm) + BWCF (dB)*

PSD Plot on 802.11n HT-20 Channel 01

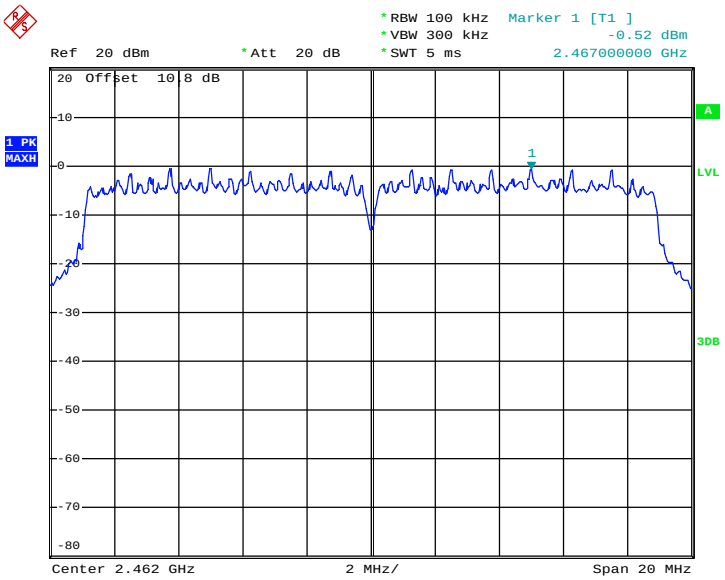


PSD Plot on 802.11n HT-20 Channel 06



Date: 16.JUL.2012 05:42:50

PSD Plot on 802.11n HT-20 Channel 11



Date: 16.JUL.2012 05:44:19

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

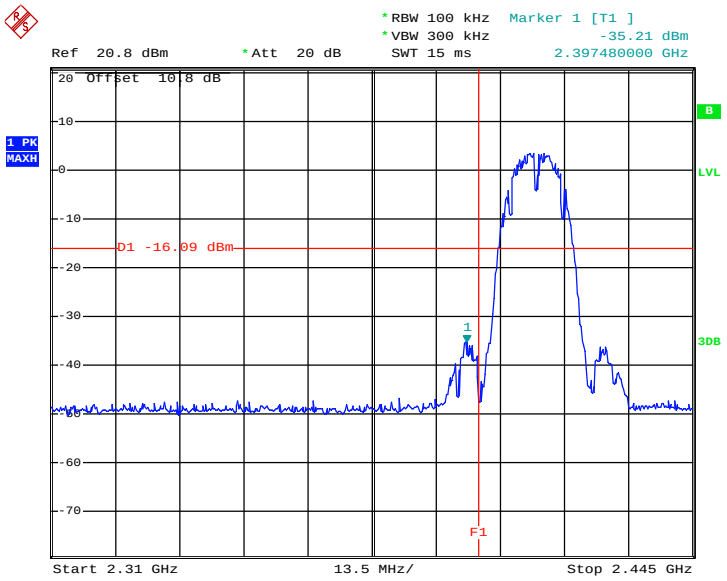
1. The testing follows the guidelines in the Measurement Procedure of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.
2. Set RBW = 100 KHz, VBW=300 KHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall 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. The attenuation is set to 30dB, when maximum conducted output power procedure is used.

3.4.4 Test Setup

3.4.5 Test Plots of Conducted Band Edges

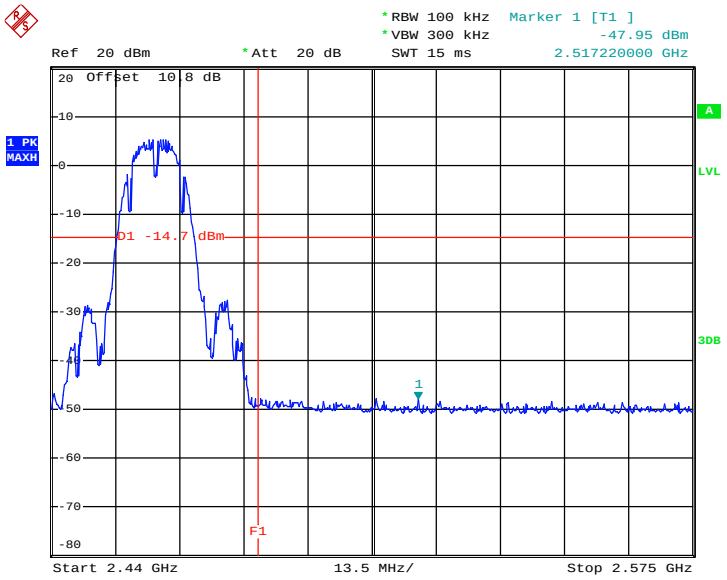
Test Mode :	802.11b	Temperature :	23~24℃
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	King Liu

Low Band Edge Plot on 802.11b Channel 01



Date: 26.JUL.2012 02:05:44

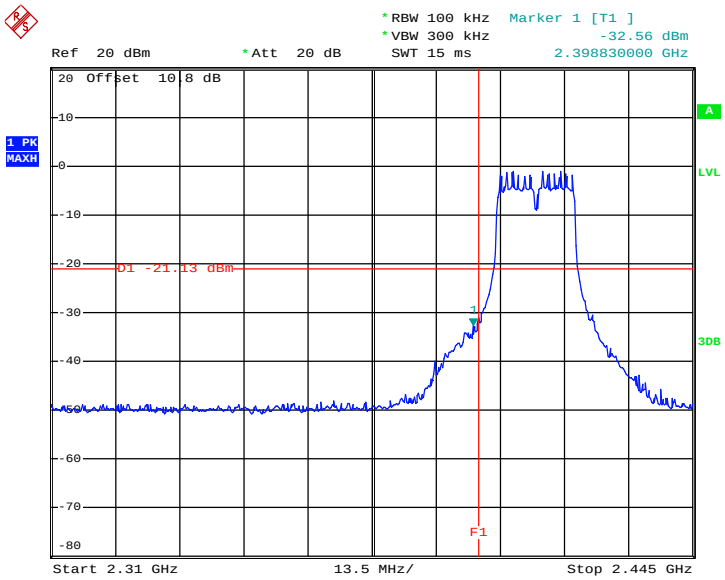
High Band Edge Plot on 802.11b Channel 11



Date: 17.JUL.2012 17:05:54

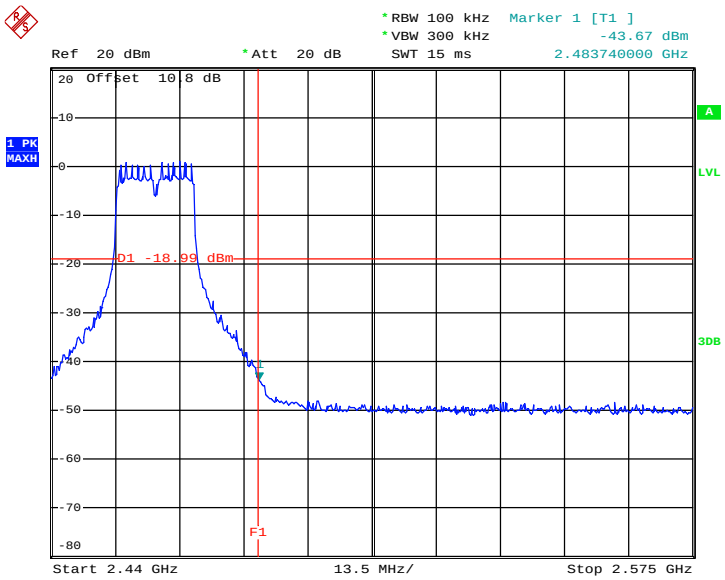
Test Mode :	802.11g	Temperature :	23~24℃
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	King Liu

Low Band Edge Plot on 802.11g Channel 01



Date: 17.JUL.2012 17:12:14

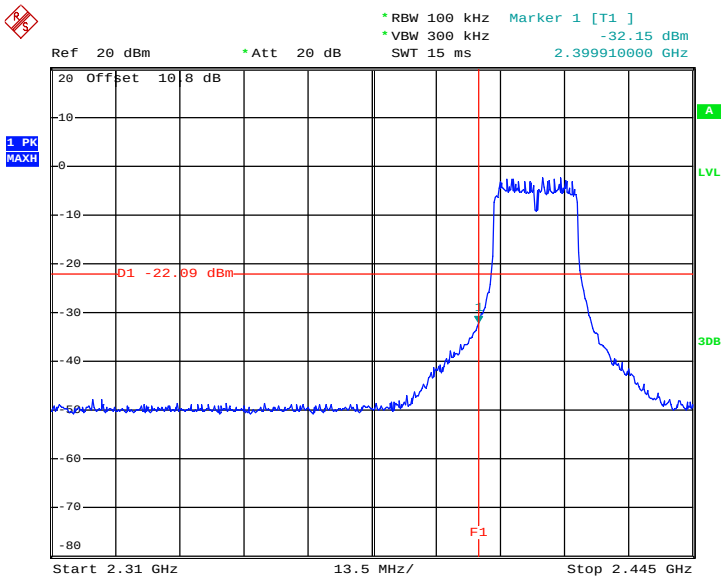
High Band Edge Plot on 802.11g Channel 11



Date: 17.JUL.2012 17:14:36

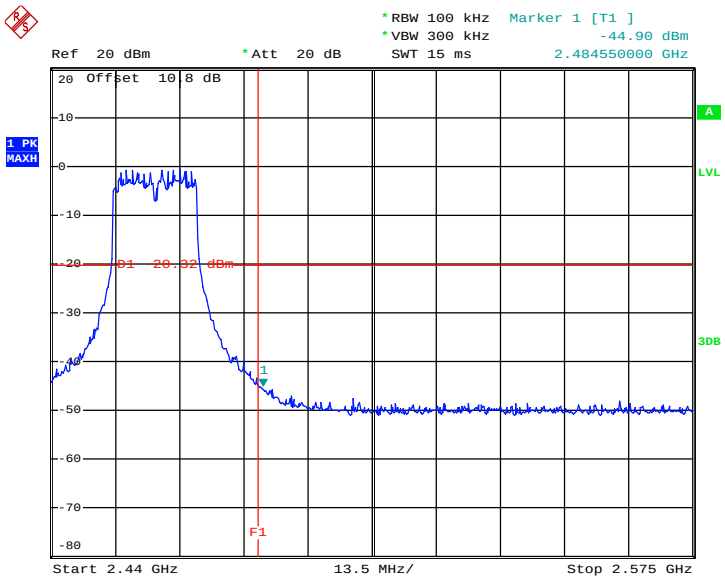
Test Mode :	802.11n HT-20	Temperature :	23~24℃
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	King Liu

Low Band Edge Plot on 802.11n HT-20 Channel 01



Date: 17.JUL.2012 17:17:13

High Band Edge Plot on 802.11n HT-20 Channel 11



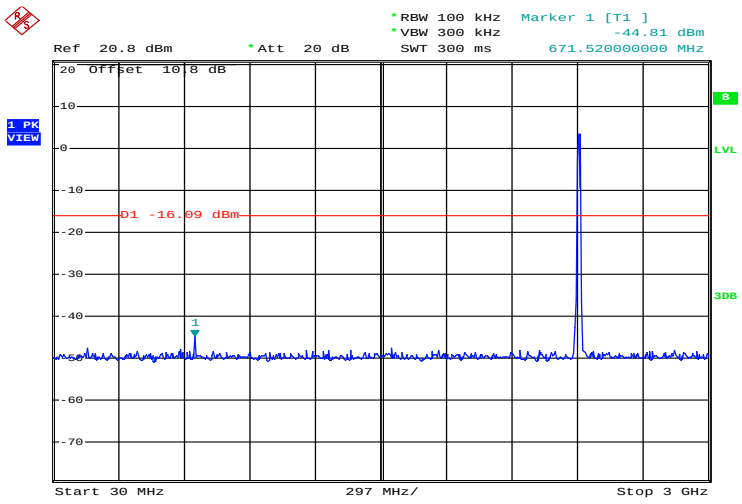
Date: 17.JUL.2012 17:18:39

3.4.6 Test Plots of Spurious Emission

Test Mode :	802.11b	Temperature :	23~24℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	47~48%
Test Channel :	01, 06, 11	Test Engineer :	King Liu

802.11b 30 MHz~3 GHz

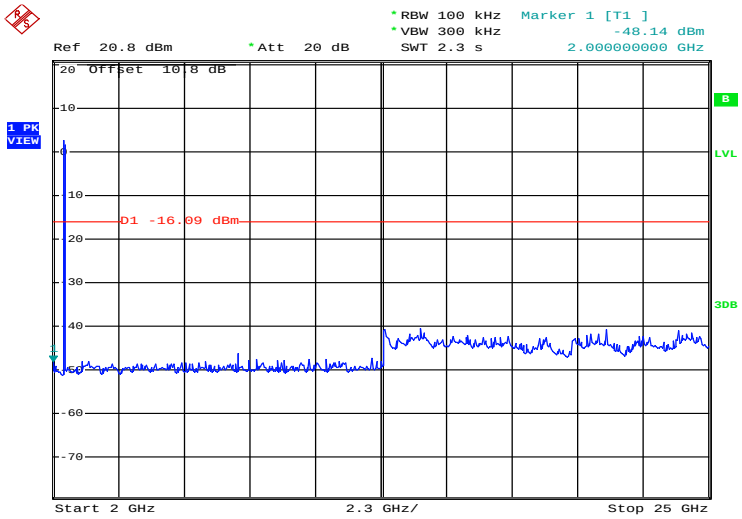
Conducted Spurious Emission Plot on Channel 01



Date: 26.JUL.2012 01:37:35

802.11b 2 GHz~25 GHz

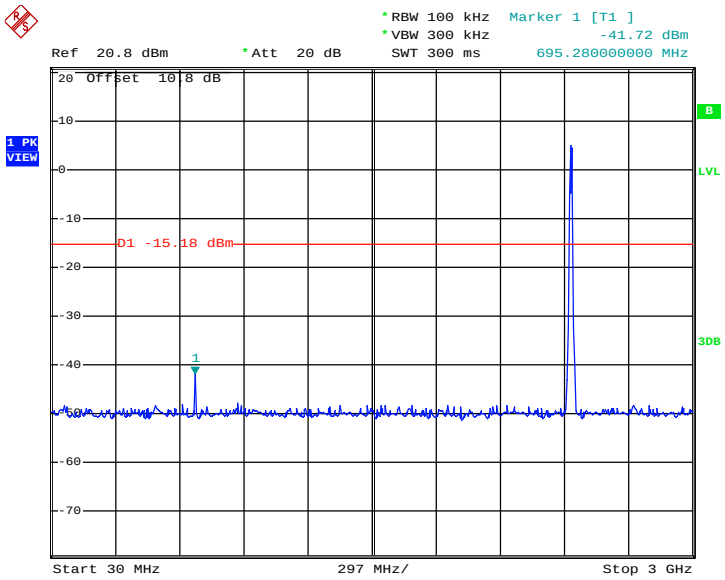
Conducted Spurious Emission Plot on Channel 01



Date: 26.JUL.2012 01:38:08

802.11b 30 MHz~3 GHz

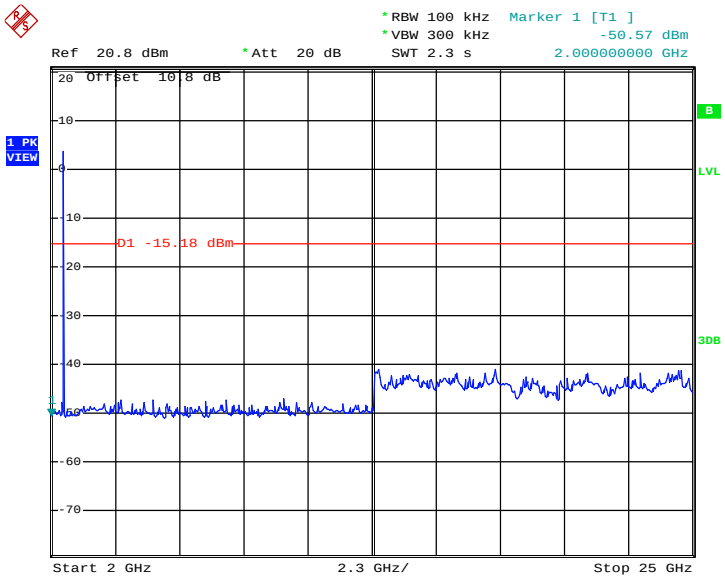
Conducted Spurious Emission Plot on Channel 06



Date: 26.JUL.2012 01:52:26

802.11b 2 GHz~25 GHz

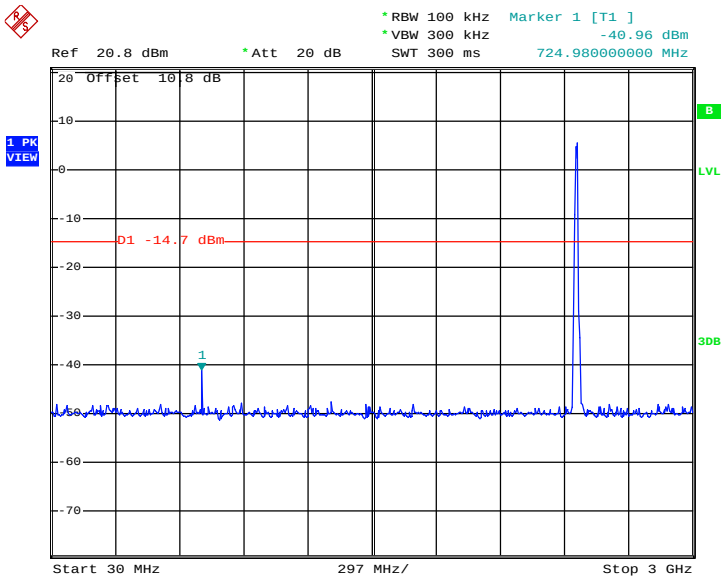
Conducted Spurious Emission Plot on Channel 06



Date: 26.JUL.2012 01:53:04

802.11b 30 MHz~3 GHz

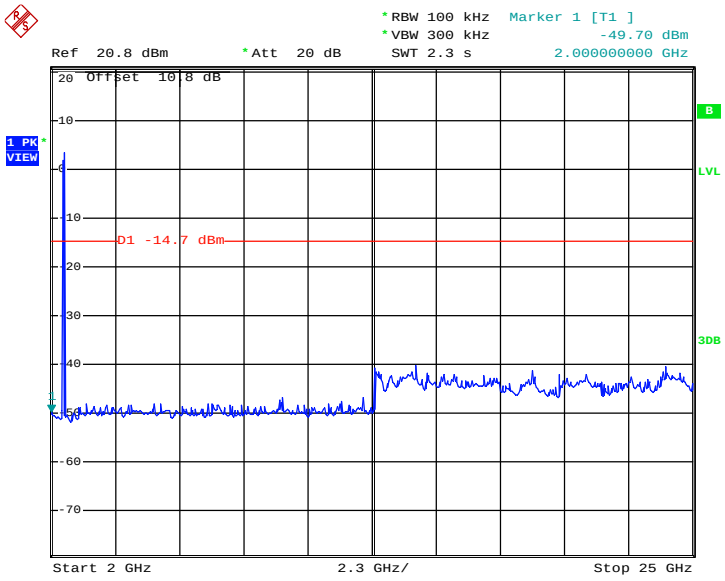
Conducted Spurious Emission Plot on Channel 11



Date: 26.JUL.2012 01:54:32

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

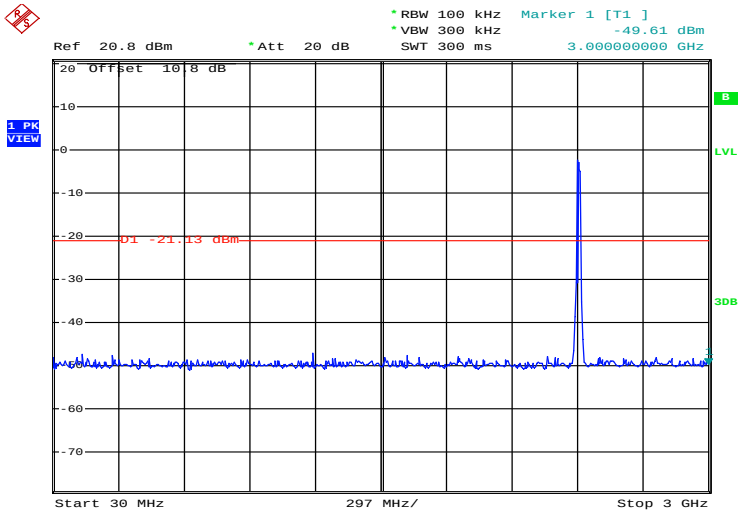


Date: 26.JUL.2012 01:54:53

Test Mode :	802.11g	Temperature :	23~24℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	47~48%
Test Channel :	01, 06, 11	Test Engineer :	King Liu

802.11g 30 MHz~3 GHz

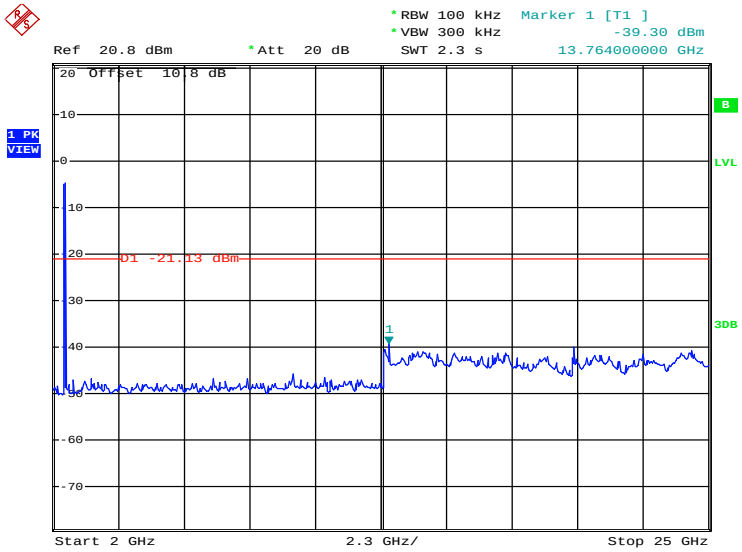
Conducted Spurious Emission Plot on Channel 01



Date: 26.JUL.2012 01:22:16

802.11g 2 GHz~25 GHz

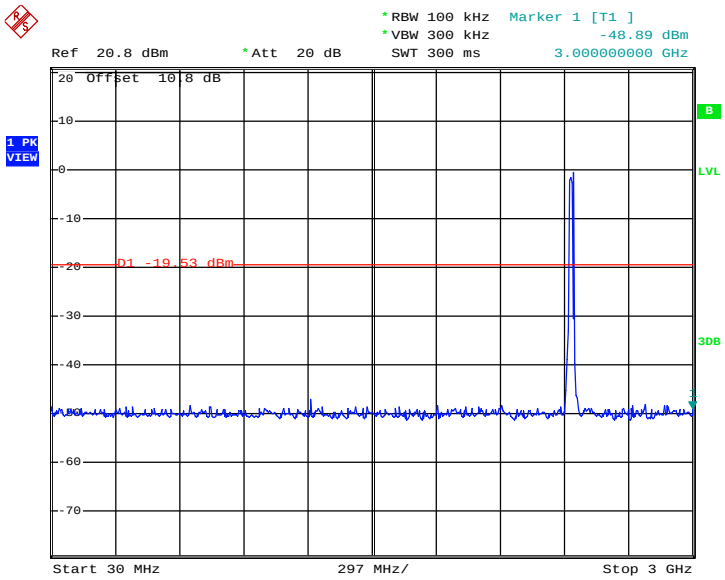
Conducted Spurious Emission Plot on Channel 01



Date: 26.JUL.2012 01:23:10

802.11g 30 MHz~3 GHz

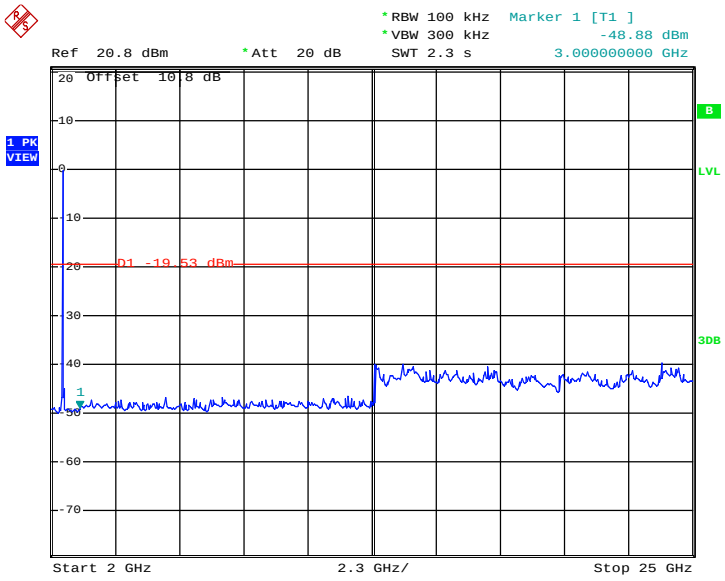
Conducted Spurious Emission Plot on Channel 06



Date: 26.JUL.2012 01:17:47

802.11g 2 GHz~25 GHz

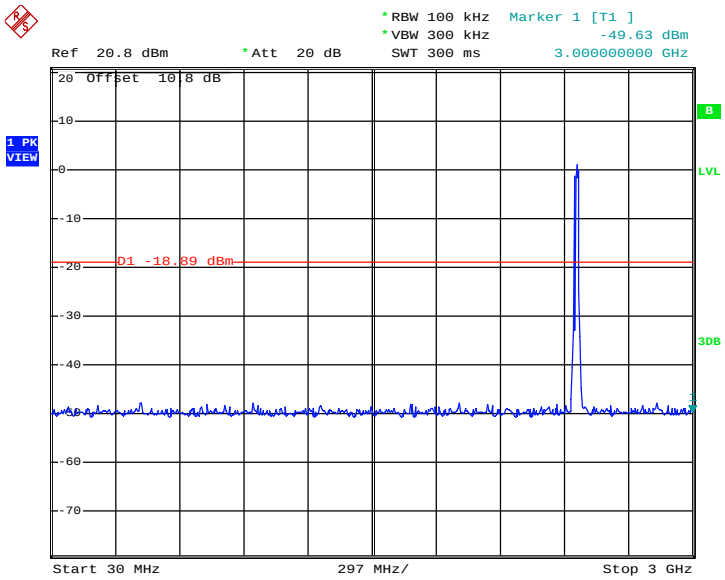
Conducted Spurious Emission Plot on Channel 06



Date: 26.JUL.2012 01:18:43

802.11g 30 MHz~3 GHz

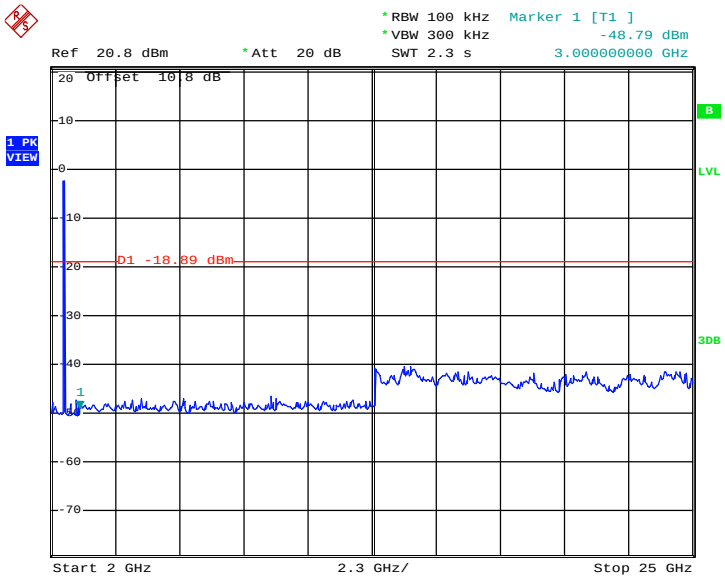
Conducted Spurious Emission Plot on Channel 11



Date: 26.JUL.2012 00:48:10

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

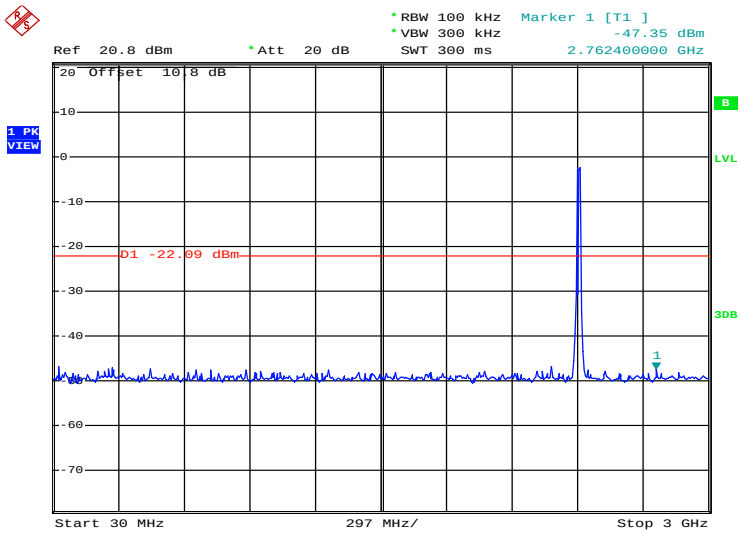


Date: 26.JUL.2012 00:47:20

Test Mode :	802.11n HT-20	Temperature :	23~24℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	47~48%
Test Channel :	01, 06, 11	Test Engineer :	King Liu

802.11n HT-20 30 MHz~3 GHz

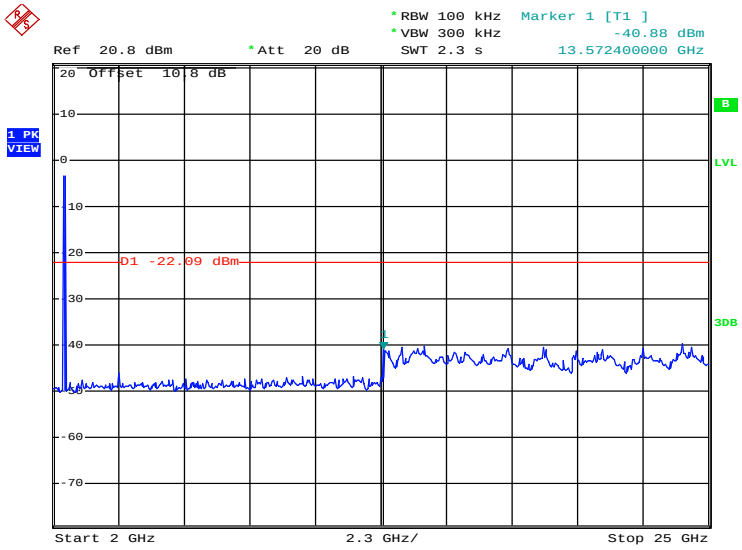
Conducted Spurious Emission Plot on Channel 01



Date: 26.JUL.2012 00:51:32

802.11n HT-20 2 GHz~25 GHz

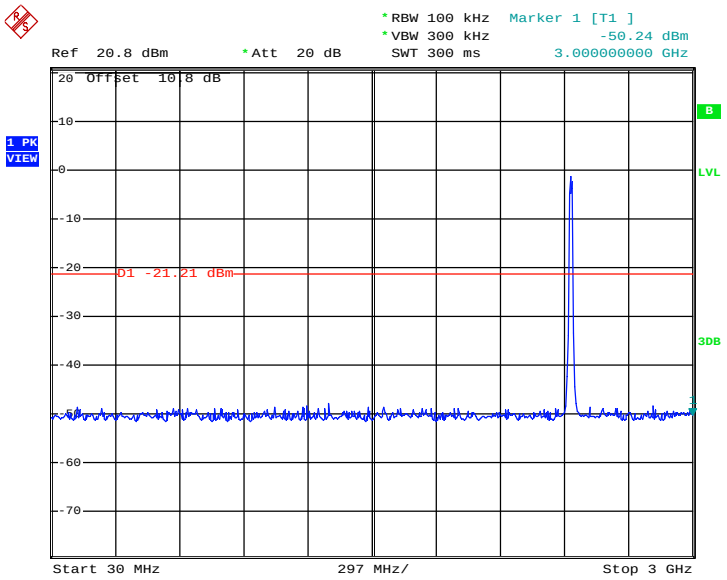
Conducted Spurious Emission Plot on Channel 01



Date: 26.JUL.2012 00:52:28

802.11n HT-20 30 MHz~3 GHz

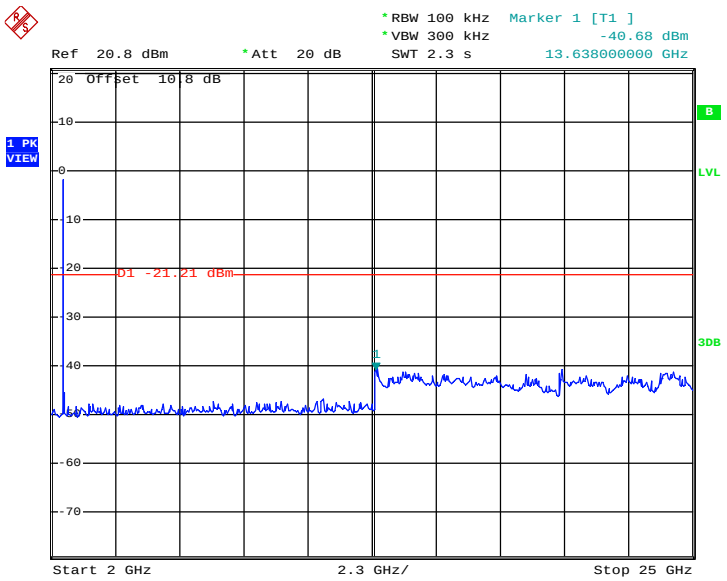
Conducted Spurious Emission Plot on Channel 06



Date: 26.JUL.2012 00:58:00

802.11n HT-20 2 GHz~25 GHz

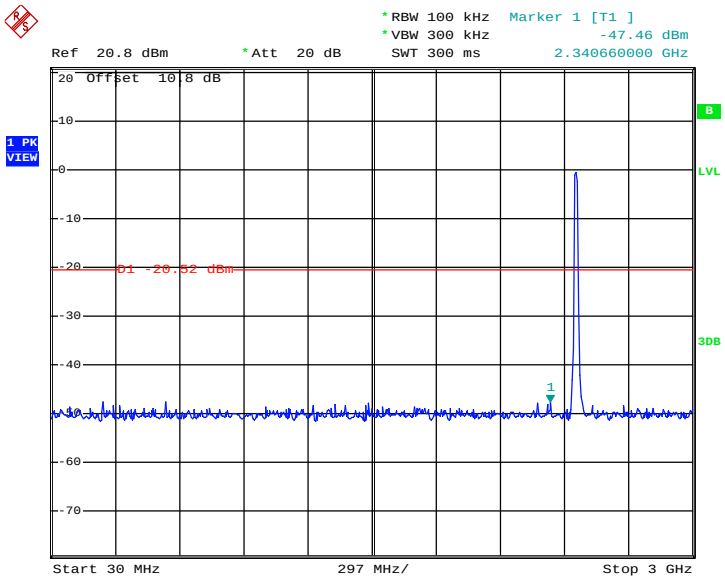
Conducted Spurious Emission Plot on Channel 06



Date: 26.JUL.2012 00:57:23

802.11n HT-20 30 MHz~3 GHz

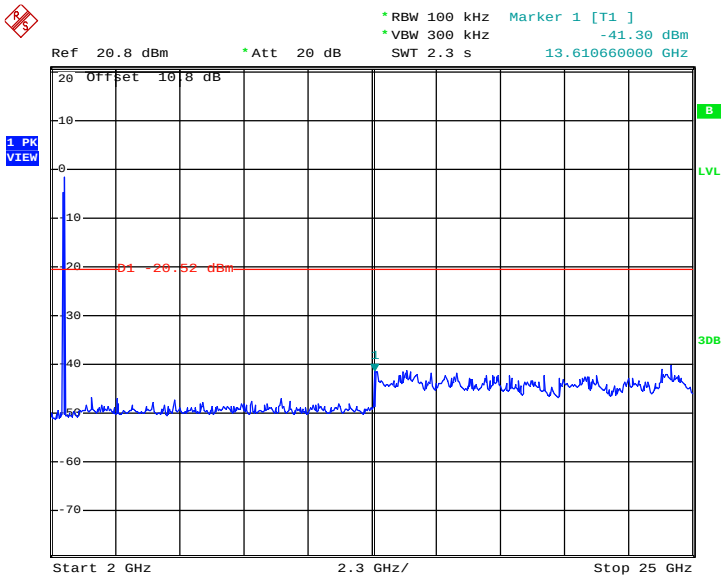
Conducted Spurious Emission Plot on Channel 11



Date: 26.JUL.2012 01:01:38

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



Date: 26.JUL.2012 01:02:16

3.5 Radiated Emission Measurement

3.5.1 Limit of Radiated Emission

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

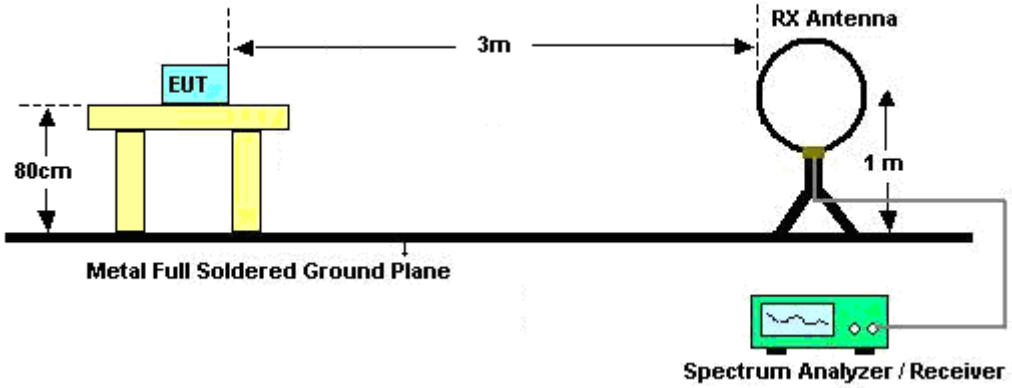
See list of measuring instruments of this test report.

3.5.3 Test Procedures

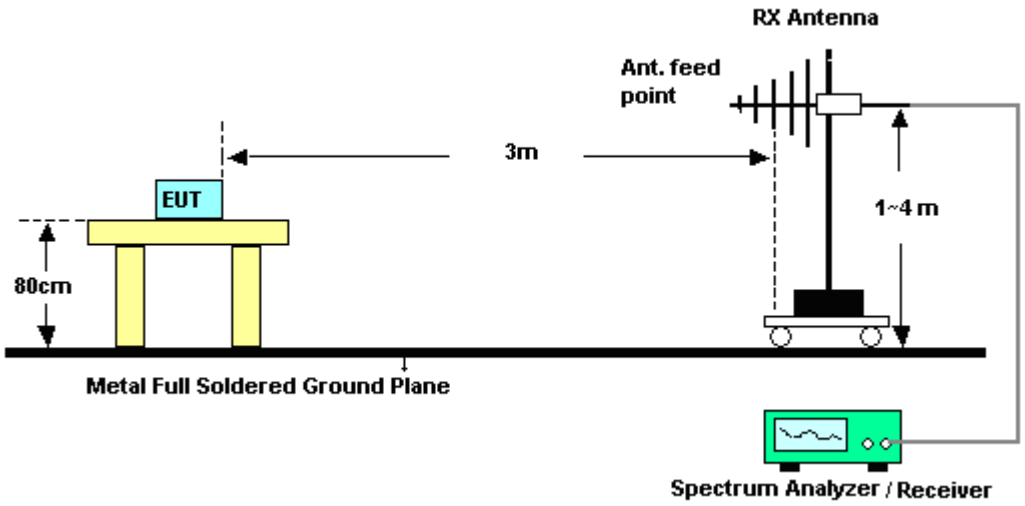
1. The testing follows TCB Workshop 2012, April and fulfills ANSI C63.4-2003 and the guidelines in ANSI C63.10-2009 test site requirement. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) 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 to comply with the guidelines.
2. The EUT was placed on a turntable with 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving Antenna, which was mounted on the top of a variable height Antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest radiation.
5. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW = 1 MHz for f ≥ 1 GHz, 100 KHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
7. If the emission level of the EUT measured by the peak detector is more than 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

3.5.4 Test Setup

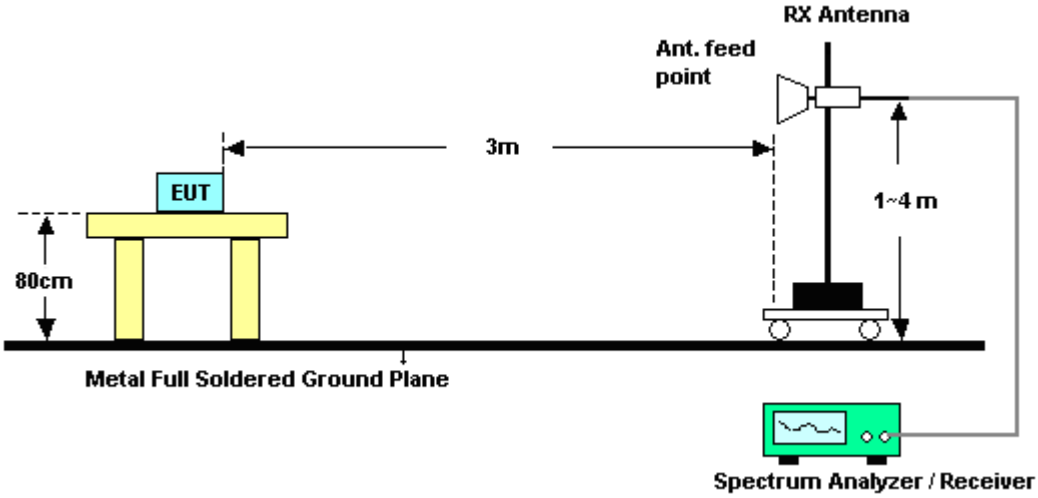
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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 Band Edges

Test Mode :	802.11b	Temperature :	21~22℃
Test Band :	Low	Relative Humidity :	46~47%
Test Channel :	01	Test Engineer :	Chenmy Cheng

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
2383.53	51.36	-22.64	74	49.12	32.83	3.42	34.01	108	48	Peak
2383.53	38.48	-15.52	54	36.24	32.83	3.42	34.01	108	48	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
2389.42	52.89	-21.11	74	50.61	32.86	3.47	34.05	102	39	Peak
2389.42	39.29	-14.71	54	37.01	32.86	3.47	34.05	102	39	Average

Test Mode :	802.11b	Temperature :	21~22℃
Test Band :	High	Relative Humidity :	46~47%
Test Channel :	11	Test Engineer :	Chenmy Cheng

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
2483.66	54.11	-19.89	74	51.62	33.01	3.68	34.2	129	87	Peak
2483.66	41.44	-12.56	54	38.95	33.01	3.68	34.2	129	87	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
2484.04	55.07	-18.93	74	52.58	33.01	3.68	34.2	125	341	Peak
2484.04	41.82	-12.18	54	39.33	33.01	3.68	34.2	125	341	Average

Test Mode :	802.11g	Temperature :	21~22℃
Test Band :	Low	Relative Humidity :	46~47%
Test Channel :	01	Test Engineer :	Chenmy Cheng

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
2389.99	55.31	-18.69	74	53.03	32.86	3.47	34.05	100	360	Peak
2389.99	40.99	-13.01	54	38.71	32.86	3.47	34.05	100	360	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
2389.99	65.32	-8.68	74	63.04	32.86	3.47	34.05	100	360	Peak
2389.99	49.06	-4.94	54	46.78	32.86	3.47	34.05	100	360	Average

Test Mode :	802.11g	Temperature :	21~22℃
Test Band :	High	Relative Humidity :	46~47%
Test Channel :	11	Test Engineer :	Chenmy Cheng

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
2483.85	68.09	-5.91	74	65.6	33.01	3.68	34.2	100	360	Peak
2483.85	37.03	-16.97	54	34.54	33.01	3.68	34.2	100	360	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
2483.85	68.28	-5.72	74	65.79	33.01	3.68	34.2	100	0	Peak
2483.85	48.6	-5.4	54	46.11	33.01	3.68	34.2	100	0	Average

Test Mode :	802.11n HT-20	Temperature :	21~22℃
Test Band :	Low	Relative Humidity :	46~47%
Test Channel :	01	Test Engineer :	Chenmy Cheng

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
2388.47	62.54	-11.46	74	60.26	32.86	3.47	34.05	100	0	Peak
2388.47	44	-10	54	41.72	32.86	3.47	34.05	100	0	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
2388.47	64.5	-9.5	74	62.22	32.86	3.47	34.05	100	360	Peak
2388.47	45.55	-8.45	54	43.27	32.86	3.47	34.05	100	360	Average

Test Mode :	802.11n HT-20	Temperature :	21~22℃
Test Band :	High	Relative Humidity :	46~47%
Test Channel :	11	Test Engineer :	Chenmy Cheng

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
2483.66	66.36	-7.64	74	63.87	33.01	3.68	34.2	108	89	Peak
2483.66	49.11	-4.89	54	46.62	33.01	3.68	34.2	108	89	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
2483.66	59.16	-14.84	74	56.67	33.01	3.68	34.2	134	279	Peak
2483.66	43.26	-10.74	54	40.77	33.01	3.68	34.2	134	279	Average

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

Test Mode :	802.11b	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

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
35.75	35.26	-4.74	40	50.46	14.65	0.23	30.08	115	248	Peak
37.94	32.91	-7.09	40	49.03	13.7	0.24	30.06	-	-	Peak
199.99	24.19	-19.31	43.5	44.61	9	0.59	30.01	-	-	Peak
460.73	29.96	-16.04	46	42.38	16.45	0.91	29.78	-	-	Peak
537.59	19.97	-26.03	46	30.43	18.24	0.99	29.69	-	-	Peak
614.21	31.59	-14.41	46	41.48	18.67	1.07	29.63	-	-	Peak
2383.53	38.48	-15.52	54	36.24	32.83	3.42	34.01	108	48	Average
2383.53	51.36	-22.64	74	49.12	32.83	3.42	34.01	108	48	Peak
2412	108.91	-	-	106.58	32.89	3.52	34.08	100	51	Peak
2412	100.86	-	-	98.53	32.89	3.52	34.08	100	51	Average
2484.42	38.08	-15.92	54	35.59	33.01	3.68	34.2	108	92	Average
2484.42	51.19	-22.81	74	48.7	33.01	3.68	34.2	108	92	Peak
4824	52.32	-21.68	74	44.45	35.17	4.97	32.27	124	86	Peak
4824	41.93	-12.07	54	34.06	35.17	4.97	32.27	124	86	Average

Test Mode :	802.11b	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

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
37.55	30.97	-9.03	40	47.09	13.7	0.24	30.06	129	84	Peak
189.07	21.53	-21.97	43.5	42.41	8.49	0.57	29.94	-	-	Peak
340.78	20.09	-25.91	46	34.94	14.28	0.81	29.94	-	-	Peak
576.64	27.21	-18.79	46	37.26	18.56	1.04	29.65	-	-	Peak
614.21	35.49	-10.51	46	45.38	18.67	1.07	29.63	-	-	Peak
654.23	32.66	-13.34	46	42.3	18.93	1.09	29.66	-	-	Peak
2389.42	39.29	-14.71	54	37.01	32.86	3.47	34.05	102	39	Average
2389.42	52.89	-21.11	74	50.61	32.86	3.47	34.05	102	39	Peak
2412	108.85	-	-	106.52	32.89	3.52	34.08	100	15	Peak
2412	101.46	-	-	99.13	32.89	3.52	34.08	100	15	Average
2485.37	37.77	-16.23	54	35.28	33.01	3.68	34.2	100	360	Average
2485.37	51.06	-22.94	74	48.57	33.01	3.68	34.2	100	360	Peak
4824	52.09	-21.91	74	44.22	35.17	4.97	32.27	100	360	Peak
4824	37.29	-16.71	54	29.42	35.17	4.97	32.27	100	360	Average

Test Mode :	802.11b	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

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
37.81	31.93	-8.07	40	48.05	13.7	0.24	30.06	100	360	Peak
199.99	27.68	-15.82	43.5	48.1	9	0.59	30.01	-	-	Peak
460.73	30.59	-15.41	46	43.01	16.45	0.91	29.78	-	-	Peak
537.59	29.73	-16.27	46	40.19	18.24	0.99	29.69	-	-	Peak
614.21	31.86	-14.14	46	41.75	18.67	1.07	29.63	-	-	Peak
654.23	31.45	-14.55	46	41.09	18.93	1.09	29.66	-	-	Peak
2380.3	37.52	-16.48	54	35.28	32.83	3.42	34.01	112	49	Average
2380.3	50.82	-23.18	74	48.58	32.83	3.42	34.01	112	49	Peak
2437	106.65	-	-	104.25	32.95	3.6	34.15	108	42	Peak
2437	100.75	-	-	98.35	32.95	3.6	34.15	108	42	Average
2492.78	37.91	-16.09	54	35.37	33.05	3.72	34.23	100	360	Average
2492.78	51.27	-22.73	74	48.73	33.05	3.72	34.23	100	360	Peak
4874	54.97	-19.03	74	47.08	35.18	4.98	32.27	100	313	Peak
4874	43.73	-10.27	54	35.84	35.18	4.98	32.27	100	313	Average

Test Mode :	802.11b	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

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
38.62	32.74	-7.26	40	49.55	12.98	0.25	30.04	125	360	Peak
189.74	22.87	-20.63	43.5	43.73	8.5	0.58	29.94	-	-	Peak
506.48	24.17	-21.83	46	35.63	17.31	0.96	29.73	-	-	Peak
614.21	35.5	-10.5	46	45.39	18.67	1.07	29.63	-	-	Peak
654.23	32.59	-13.41	46	42.23	18.93	1.09	29.66	-	-	Peak
719.2	29.92	-16.08	46	38.91	19.52	1.15	29.66	-	-	Peak
2336.98	37.72	-16.28	54	35.55	32.78	3.33	33.94	110	360	Average
2336.98	51.2	-22.8	74	49.03	32.78	3.33	33.94	110	360	Peak
2437	109.05	-	-	106.65	32.95	3.6	34.15	118	45	Peak
2437	102.15	-	-	99.75	32.95	3.6	34.15	118	45	Average
2493.92	38.43	-15.57	54	35.89	33.05	3.72	34.23	105	89	Average
2493.92	50.82	-23.18	74	48.28	33.05	3.72	34.23	105	89	Peak
4874	52.79	-21.21	74	44.9	35.18	4.98	32.27	140	2	Peak
4874	40	-14	54	32.11	35.18	4.98	32.27	140	2	Average

Test Mode :	802.11b	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

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
37.94	33.16	-6.84	40	49.28	13.7	0.24	30.06	124	356	Peak
149.49	20.06	-23.44	43.5	39.45	10.07	0.51	29.97	-	-	Peak
199.99	23.53	-19.97	43.5	43.95	9	0.59	30.01	-	-	Peak
460.73	25.96	-20.04	46	38.38	16.45	0.91	29.78	-	-	Peak
654.23	27.82	-18.18	46	37.46	18.93	1.09	29.66	-	-	Peak
807.43	29.91	-16.09	46	38.34	19.92	1.25	29.6	-	-	Peak
2319.88	37.08	-16.92	54	34.95	32.76	3.27	33.9	142	86	Average
2319.88	51.09	-22.91	74	48.96	32.76	3.27	33.9	142	86	Peak
2462	111.43	-	-	108.98	32.98	3.64	34.17	138	47	Peak
2462	105.43	-	-	102.98	32.98	3.64	34.17	138	47	Average
2483.66	41.44	-12.56	54	38.95	33.01	3.68	34.2	129	87	Average
2483.66	54.11	-19.89	74	51.62	33.01	3.68	34.2	129	87	Peak
4929	54.3	-19.7	74	46.38	35.19	4.99	32.26	154	360	Peak
4929	43.04	-10.96	54	35.12	35.19	4.99	32.26	154	360	Average

Test Mode :	802.11b	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

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
37.02	33.95	-6.05	40	49.59	14.19	0.24	30.07	100	29	Peak
199.99	21.03	-22.47	43.5	41.45	9	0.59	30.01	-	-	Peak
230.1	23.14	-22.86	46	41.5	10.9	0.64	29.9	-	-	Peak
460.73	28.61	-17.39	46	41.03	16.45	0.91	29.78	-	-	Peak
614.21	31.1	-14.9	46	40.99	18.67	1.07	29.63	-	-	Peak
807.43	28.44	-17.56	46	36.87	19.92	1.25	29.6	-	-	Peak
2354.46	36.94	-17.06	54	34.73	32.81	3.38	33.98	118	328	Average
2354.46	50.27	-23.73	74	48.06	32.81	3.38	33.98	118	328	Peak
2462	112.08	-	-	109.63	32.98	3.64	34.17	121	362	Peak
2462	105.24	-	-	102.79	32.98	3.64	34.17	121	362	Average
2484.04	41.82	-12.18	54	39.33	33.01	3.68	34.2	125	341	Average
2484.04	55.07	-18.93	74	52.58	33.01	3.68	34.2	125	341	Peak
4923	51.93	-22.07	74	44.01	35.19	4.99	32.26	100	360	Peak
4923	39.97	-14.03	54	32.05	35.19	4.99	32.26	100	360	Average

Test Mode :	802.11g	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

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
36.64	33.15	-6.85	40	48.79	14.19	0.24	30.07	108	62	Peak
153.74	21.58	-21.92	43.5	41.18	9.84	0.52	29.96	-	-	Peak
189.74	20.75	-22.75	43.5	41.61	8.5	0.58	29.94	-	-	Peak
230.1	21.08	-24.92	46	39.44	10.9	0.64	29.9	-	-	Peak
460.73	25.62	-20.38	46	38.04	16.45	0.91	29.78	-	-	Peak
614.21	28.28	-17.72	46	38.17	18.67	1.07	29.63	-	-	Peak
2389.99	40.99	-13.01	54	38.71	32.86	3.47	34.05	100	360	Average
2389.99	55.31	-18.69	74	53.03	32.86	3.47	34.05	100	360	Peak
2412	94	-	-	91.67	32.89	3.52	34.08	100	0	Peak
2412	84.1	-	-	81.77	32.89	3.52	34.08	100	0	Average
2494.49	36.22	-17.78	54	33.68	33.05	3.72	34.23	100	360	Average
2494.49	48.66	-25.34	74	46.12	33.05	3.72	34.23	100	360	Peak
4824	51.33	-22.67	74	43.46	35.17	4.97	32.27	100	0	Peak
4824	39.78	-14.22	54	31.91	35.17	4.97	32.27	100	0	Average

Test Mode :	802.11g	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

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
37.29	30.41	-9.59	40	46.53	13.7	0.24	30.06	100	360	Peak
153.74	17.85	-25.65	43.5	37.45	9.84	0.52	29.96	-	-	Peak
230.91	23.53	-22.47	46	41.81	10.97	0.64	29.89	-	-	Peak
537.59	28.34	-17.66	46	38.8	18.24	0.99	29.69	-	-	Peak
691.99	29.75	-16.25	46	39.1	19.25	1.12	29.72	-	-	Peak
982.62	29.83	-24.17	54	36.98	20.99	1.39	29.53	-	-	Peak
2389.99	49.06	-4.94	54	46.78	32.86	3.47	34.05	100	360	Average
2389.99	65.32	-8.68	74	63.04	32.86	3.47	34.05	100	360	Peak
2412	103.27	-	-	100.94	32.89	3.52	34.08	100	0	Peak
2412	93.26	-	-	90.93	32.89	3.52	34.08	100	0	Average
2488.41	37.47	-16.53	54	34.93	33.05	3.72	34.23	100	360	Average
2488.41	49.41	-24.59	74	46.87	33.05	3.72	34.23	100	360	Peak
4827	54.5	-19.5	74	46.63	35.17	4.97	32.27	100	0	Peak
4827	43.69	-10.31	54	35.82	35.17	4.97	32.27	100	0	Average

Test Mode :	802.11g	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

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
37.02	31.75	-8.25	40	47.39	14.19	0.24	30.07	125	48	Peak
153.74	20.44	-23.06	43.5	40.04	9.84	0.52	29.96	-	-	Peak
460.73	27.28	-18.72	46	39.7	16.45	0.91	29.78	-	-	Peak
691.99	29.37	-16.63	46	38.72	19.25	1.12	29.72	-	-	Peak
807.43	30.56	-15.44	46	38.99	19.92	1.25	29.6	-	-	Peak
982.62	31.28	-22.72	54	38.43	20.99	1.39	29.53	-	-	Peak
2315.89	36.03	-17.97	54	33.94	32.73	3.22	33.86	140	300	Average
2315.89	49.33	-24.67	74	47.24	32.73	3.22	33.86	140	300	Peak
2437	102.07	-	-	99.67	32.95	3.6	34.15	136	330	Peak
2437	92.42	-	-	90.02	32.95	3.6	34.15	136	330	Average
2494.11	36.52	-17.48	54	33.98	33.05	3.72	34.23	136	330	Average
2494.11	49.5	-24.5	74	46.96	33.05	3.72	34.23	136	330	Peak
4874	51.39	-22.61	74	43.5	35.18	4.98	32.27	100	0	Peak
4874	39.9	-14.1	54	32.01	35.18	4.98	32.27	100	0	Average

Test Mode :	802.11g	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

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
36.64	35.46	-4.54	40	51.1	14.19	0.24	30.07	142	189	Peak
153.74	19.41	-24.09	43.5	39.01	9.84	0.52	29.96	-	-	Peak
230.1	24.13	-21.87	46	42.49	10.9	0.64	29.9	-	-	Peak
614.21	31.53	-14.47	46	41.42	18.67	1.07	29.63	-	-	Peak
691.99	32.08	-13.92	46	41.43	19.25	1.12	29.72	-	-	Peak
982.62	33.8	-20.2	54	40.95	20.99	1.39	29.53	-	-	Peak
2386.19	36.9	-17.1	54	34.62	32.86	3.47	34.05	100	0	Average
2386.19	50.2	-23.8	74	47.92	32.86	3.47	34.05	100	0	Peak
2437	105.38	-	-	102.98	32.95	3.6	34.15	100	25	Peak
2437	95.33	-	-	92.93	32.95	3.6	34.15	100	25	Average
2498.67	36.67	-17.33	54	34.13	33.05	3.72	34.23	100	0	Average
2498.67	49.65	-24.35	74	47.11	33.05	3.72	34.23	100	0	Peak
4874	54.68	-19.32	74	46.79	35.18	4.98	32.27	100	360	Peak
4874	42.68	-11.32	54	34.79	35.18	4.98	32.27	100	360	Average

Test Mode :	802.11g	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

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
37.81	29.33	-10.67	40	45.45	13.7	0.24	30.06	124	56	Peak
230.1	20.04	-25.96	46	38.4	10.9	0.64	29.9	-	-	Peak
307.83	19.8	-26.2	46	35.85	13.17	0.73	29.95	-	-	Peak
460.73	22.6	-23.4	46	35.02	16.45	0.91	29.78	-	-	Peak
691.99	24.75	-21.25	46	34.1	19.25	1.12	29.72	-	-	Peak
872.18	24.91	-21.09	46	32.72	20.49	1.29	29.59	-	-	Peak
2386.19	36.63	-17.37	54	34.35	32.86	3.47	34.05	100	109	Average
2386.19	49.67	-24.33	74	47.39	32.86	3.47	34.05	100	109	Peak
2462	94.46	-	-	92.01	32.98	3.64	34.17	100	56	Average
2462	104.51	-	-	102.06	32.98	3.64	34.17	100	56	Peak
2483.85	37.03	-16.97	54	34.54	33.01	3.68	34.2	100	360	Average
2483.85	68.09	-5.91	74	65.6	33.01	3.68	34.2	100	360	Peak
4923	41.14	-12.86	54	33.22	35.19	4.99	32.26	100	360	Average
4923	52.58	-21.42	74	44.66	35.19	4.99	32.26	100	360	Peak

Test Mode :	802.11g	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

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
37.81	29.32	-10.68	40	45.44	13.7	0.24	30.06	120	360	Peak
199.99	25.16	-18.34	43.5	45.58	9	0.59	30.01	-	-	Peak
230.1	23.68	-22.32	46	42.04	10.9	0.64	29.9	-	-	Peak
460.73	27.75	-18.25	46	40.17	16.45	0.91	29.78	-	-	Peak
691.99	30.3	-15.7	46	39.65	19.25	1.12	29.72	-	-	Peak
982.62	33.24	-20.76	54	40.39	20.99	1.39	29.53	-	-	Peak
2312.66	37.28	-16.72	54	35.19	32.73	3.22	33.86	100	360	Average
2312.66	49.42	-24.58	74	47.33	32.73	3.22	33.86	100	360	Peak
2462	105.32	-	-	102.87	32.98	3.64	34.17	100	65	Peak
2462	94.99	-	-	92.54	32.98	3.64	34.17	100	65	Average
2483.85	48.6	-5.4	54	46.11	33.01	3.68	34.2	100	0	Average
2483.85	68.28	-5.72	74	65.79	33.01	3.68	34.2	100	0	Peak
4929	56.1	-17.9	74	48.18	35.19	4.99	32.26	100	55	Peak
4929	42.98	-11.02	54	35.06	35.19	4.99	32.26	100	55	Average

Test Mode :	802.11n-HT20	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

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
37.81	29.33	-10.67	40	45.45	13.7	0.24	30.06	129	35	Peak
230.1	20.04	-25.96	46	38.4	10.9	0.64	29.9	-	-	Peak
307.83	19.8	-26.2	46	35.85	13.17	0.73	29.95	-	-	Peak
460.73	22.6	-23.4	46	35.02	16.45	0.91	29.78	-	-	Peak
654.23	24.74	-21.26	46	34.38	18.93	1.09	29.66	-	-	Peak
787.85	25.37	-20.63	46	33.85	19.86	1.24	29.58	-	-	Peak
2388.47	44	-10	54	41.72	32.86	3.47	34.05	100	0	Average
2388.47	62.54	-11.46	74	60.26	32.86	3.47	34.05	100	0	Peak
2412	99.9	-	-	97.57	32.89	3.52	34.08	114	360	Peak
2412	83.9	-	-	81.57	32.89	3.52	34.08	114	360	Average
2494.3	36.27	-17.73	54	33.73	33.05	3.72	34.23	100	360	Average
2494.3	49.09	-24.91	74	46.55	33.05	3.72	34.23	100	360	Peak
4824	50.81	-23.19	74	42.94	35.17	4.97	32.27	100	0	Peak
4824	39.24	-14.76	54	31.37	35.17	4.97	32.27	100	0	Average

Test Mode :	802.11n-HT20	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

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
37.81	29.9	-10.1	40	46.02	13.7	0.24	30.06	105	128	Peak
153.74	18.73	-24.77	43.5	38.33	9.84	0.52	29.96	-	-	Peak
230.1	24.67	-21.33	46	43.03	10.9	0.64	29.9	-	-	Peak
460.73	27.13	-18.87	46	39.55	16.45	0.91	29.78	-	-	Peak
614.21	29.61	-16.39	46	39.5	18.67	1.07	29.63	-	-	Peak
691.99	32.13	-13.87	46	41.48	19.25	1.12	29.72	-	-	Peak
2388.47	45.55	-8.45	54	43.27	32.86	3.47	34.05	100	360	Average
2388.47	64.5	-9.5	74	62.22	32.86	3.47	34.05	100	360	Peak
2412	102.46	-	-	100.13	32.89	3.52	34.08	100	100	Peak
2412	86.57	-	-	84.24	32.89	3.52	34.08	100	100	Average
2498.29	36.49	-17.51	54	33.95	33.05	3.72	34.23	100	0	Average
2498.29	48.98	-25.02	74	46.44	33.05	3.72	34.23	100	0	Peak
4824	53.24	-20.76	74	45.37	35.17	4.97	32.27	100	0	Peak
4824	40.27	-13.73	54	32.4	35.17	4.97	32.27	100	0	Average

Test Mode :	802.11n-HT20	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

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
37.42	34.23	-5.77	40	50.35	13.7	0.24	30.06	129	86	Peak
153.74	21.54	-21.96	43.5	41.14	9.84	0.52	29.96	-	-	Peak
230.1	20.71	-25.29	46	39.07	10.9	0.64	29.9	-	-	Peak
460.73	26.35	-19.65	46	38.77	16.45	0.91	29.78	-	-	Peak
691.99	28.97	-17.03	46	38.32	19.25	1.12	29.72	-	-	Peak
807.43	30.76	-15.24	46	39.19	19.92	1.25	29.6	-	-	Peak
2315.32	37.08	-16.92	54	34.99	32.73	3.22	33.86	100	0	Average
2315.32	50.63	-23.37	74	48.54	32.73	3.22	33.86	100	0	Peak
2437	85.73	-	-	83.33	32.95	3.6	34.15	200	58	Average
2437	101.5	-	-	99.1	32.95	3.6	34.15	200	58	Peak
2488.22	36.4	-17.6	54	33.86	33.05	3.72	34.23	200	60	Average
2488.22	49.37	-24.63	74	46.83	33.05	3.72	34.23	200	60	Peak
4875	40.56	-13.44	54	32.67	35.18	4.98	32.27	100	360	Average
4875	51.54	-22.46	74	43.65	35.18	4.98	32.27	100	360	Peak

Test Mode :	802.11n-HT20	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

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
37.81	29.93	-10.07	40	46.05	13.7	0.24	30.06	152	34	Peak
230.1	23.77	-22.23	46	42.13	10.9	0.64	29.9	-	-	Peak
460.73	25.89	-20.11	46	38.31	16.45	0.91	29.78	-	-	Peak
614.21	30.23	-15.77	46	40.12	18.67	1.07	29.63	-	-	Peak
721.73	30.71	-15.29	46	39.66	19.55	1.15	29.65	-	-	Peak
989.54	32.02	-21.98	54	39.09	21.04	1.41	29.52	-	-	Peak
2341.73	35.94	-18.06	54	33.77	32.78	3.33	33.94	100	360	Average
2341.73	49.25	-24.75	74	47.08	32.78	3.33	33.94	100	360	Peak
2437	85.83	-	-	83.43	32.95	3.6	34.15	100	320	Average
2437	102.32	-	-	99.92	32.95	3.6	34.15	100	320	Peak
2499.24	37.36	-16.64	54	34.82	33.05	3.72	34.23	100	360	Average
2499.24	50.19	-23.81	74	47.65	33.05	3.72	34.23	100	360	Peak
4875	40.57	-13.43	54	32.68	35.18	4.98	32.27	100	0	Average
4875	51.97	-22.03	74	44.08	35.18	4.98	32.27	100	0	Peak

Test Mode :	802.11n-HT20	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

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
36.51	31.66	-8.34	40	47.3	14.19	0.24	30.07	108	36	Peak
153.74	19.82	-23.68	43.5	39.42	9.84	0.52	29.96	-	-	Peak
199.99	26.59	-16.91	43.5	47.01	9	0.59	30.01	-	-	Peak
460.73	26.11	-19.89	46	38.53	16.45	0.91	29.78	-	-	Peak
731.92	29.22	-16.78	46	37.93	19.72	1.17	29.6	-	-	Peak
807.43	31.23	-14.77	46	39.66	19.92	1.25	29.6	-	-	Peak
2311.33	36.06	-17.94	54	33.97	32.73	3.22	33.86	108	74	Average
2311.33	50.85	-23.15	74	48.76	32.73	3.22	33.86	108	74	Peak
2462	107.66	-	-	105.21	32.98	3.64	34.17	100	26	Peak
2462	94.42	-	-	91.97	32.98	3.64	34.17	100	26	Average
2483.66	49.11	-4.89	54	46.62	33.01	3.68	34.2	108	89	Average
2483.66	66.36	-7.64	74	63.87	33.01	3.68	34.2	108	89	Peak
4923	51.87	-22.13	74	43.95	35.19	4.99	32.26	125	39	Peak
4923	40.18	-13.82	54	32.26	35.19	4.99	32.26	125	39	Average

Test Mode :	802.11n-HT20	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	46~47%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

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
36.64	32.98	-7.02	40	48.62	14.19	0.24	30.07	121	45	Peak
230.1	24.19	-21.81	46	42.55	10.9	0.64	29.9	-	-	Peak
460.73	27.52	-18.48	46	39.94	16.45	0.91	29.78	-	-	Peak
614.21	31.32	-14.68	46	41.21	18.67	1.07	29.63	-	-	Peak
691.99	31.51	-14.49	46	40.86	19.25	1.12	29.72	-	-	Peak
731.92	31.5	-14.5	46	40.21	19.72	1.17	29.6	-	-	Peak
2345.91	35.83	-18.17	54	33.66	32.78	3.33	33.94	129	89	Average
2345.91	50.27	-23.73	74	48.1	32.78	3.33	33.94	129	89	Peak
2462	100.9	-	-	98.45	32.98	3.64	34.17	142	309	Peak
2462	88.03	-	-	85.58	32.98	3.64	34.17	142	309	Average
2483.66	43.26	-10.74	54	40.77	33.01	3.68	34.2	134	279	Average
2483.66	59.16	-14.84	74	56.67	33.01	3.68	34.2	134	279	Peak
4923	52.44	-21.56	74	44.52	35.19	4.99	32.26	114	41	Peak
4923	39.67	-14.33	54	31.75	35.19	4.99	32.26	114	41	Average

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 (dBuV)	
	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.

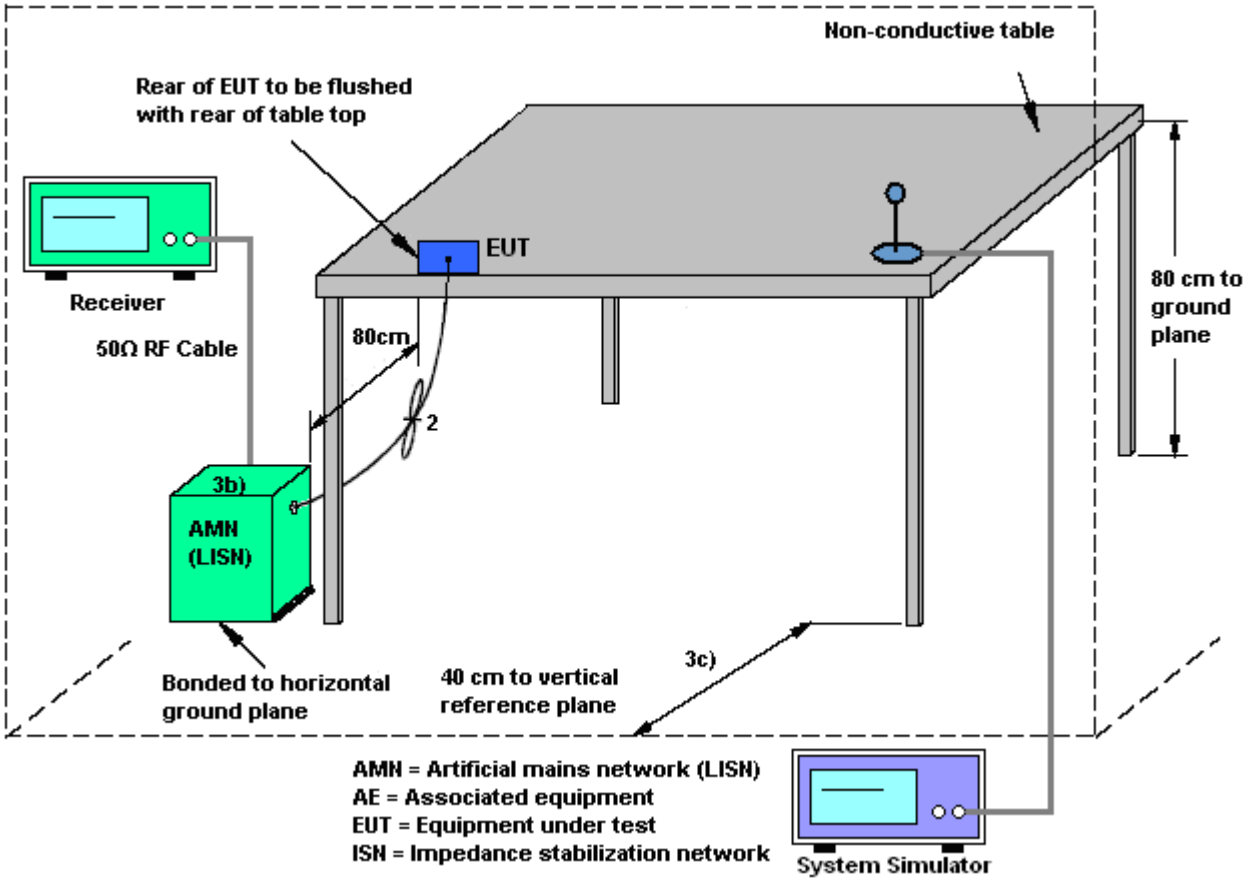
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

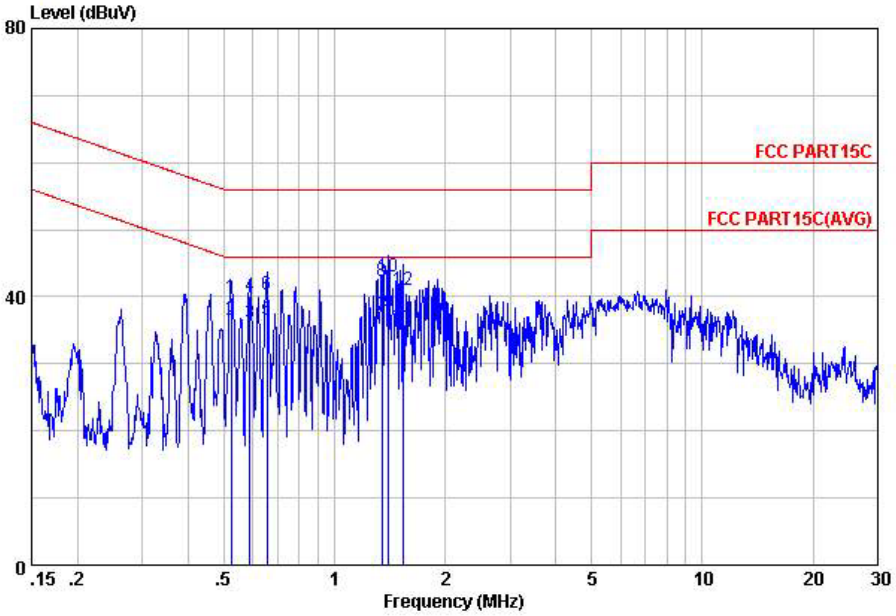
1. The testing follows the guidelines in ANSI C63.4-2003 and ANSI C63.10-2009.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 KHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	19~20℃
Test Engineer :	Tom Wang	Relative Humidity :	39~40%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	CDMA2000 BC0 Idle + Bluetooth Link + WLAN Link + USB Cable (Charging from Adapter) + Camera		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

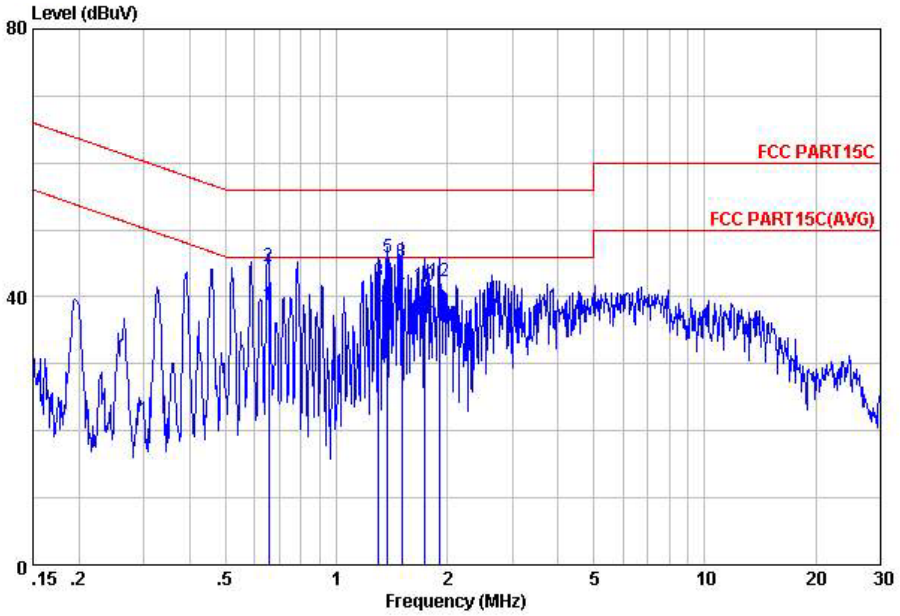


Site : C001-KS
Condition: FCC PART15C LISN-111230 LINE

mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.52	39.84	-16.16	56.00	29.29	-0.08	10.63	QP
2	0.52	36.44	-9.56	46.00	25.89	-0.08	10.63	Average
3	0.59	36.05	-9.95	46.00	25.50	-0.08	10.63	Average
4	0.59	40.05	-15.95	56.00	29.50	-0.08	10.63	QP
5	0.65	36.65	-9.35	46.00	26.10	-0.09	10.64	Average
6	0.65	40.35	-15.65	56.00	29.80	-0.09	10.64	QP
7	1.34	37.16	-8.84	46.00	26.59	-0.10	10.67	Average
8	1.34	42.36	-13.64	56.00	31.79	-0.10	10.67	QP
9	1.40	37.57	-8.43	46.00	27.00	-0.10	10.67	Average
10	1.40	43.07	-12.93	56.00	32.50	-0.10	10.67	QP
11	1.54	35.58	-10.42	46.00	25.01	-0.11	10.68	Average
12	1.54	41.08	-14.92	56.00	30.51	-0.11	10.68	QP

Test Mode :	Mode 1	Temperature :	19~20℃
Test Engineer :	Tom Wang	Relative Humidity :	39~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	CDMA2000 BC0 Idle + Bluetooth Link + WLAN Link + USB Cable (Charging from Adapter) + Camera		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
Condition: FCC PART15C LISN-111230 NEUTRAL

mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.65	38.76	-7.24	46.00	28.20	-0.08	10.64	Average
2	0.65	44.46	-11.54	56.00	33.90	-0.08	10.64	QP
3	1.30	42.27	-13.73	56.00	31.71	-0.10	10.66	QP
4	1.30	38.17	-7.83	46.00	27.61	-0.10	10.66	Average
5	1.37	45.97	-10.03	56.00	35.40	-0.10	10.67	QP
6	1.37	40.07	-5.93	46.00	29.50	-0.10	10.67	Average
7	1.50	40.18	-5.82	46.00	29.60	-0.10	10.68	Average
8	1.50	45.18	-10.82	56.00	34.60	-0.10	10.68	QP
9	1.73	35.99	-10.01	46.00	25.41	-0.11	10.69	Average
10	1.73	41.59	-14.41	56.00	31.01	-0.11	10.69	QP
11	1.90	36.09	-9.91	46.00	25.50	-0.11	10.70	Average
12	1.90	42.29	-13.71	56.00	31.70	-0.11	10.70	QP

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 Connected Construction

Non-standard connector 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. 30, 2011	Jul. 16, 2012~ Jul. 26, 2012	Dec. 29, 2012	Conducted (TH01-KS)
Power Meter	Agilent	E4416A	MY45101555	N/A	Aug. 23, 2011	Jul. 16, 2012~ Jul. 26, 2012	Aug. 22, 2012	Conducted (TH01-KS)
Power Sensor	Agilent	E9327A	MY44421198	N/A	Aug. 23, 2011	Jul. 16, 2012~ Jul. 26, 2012	Aug. 22, 2012	Conducted (TH01-KS)
DC Power Supply	GWINSTEK	GPS-3030D	E1884515	N/A	Aug. 23, 2011	Jul. 16, 2012~ Jul. 26, 2012	Aug. 22, 2012	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	N/A	Dec. 30, 2011	Jul. 16, 2012~ Jul. 26, 2012	Dec. 29, 2012	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 09, 2011	Jul. 19, 2012	Nov. 08, 2012	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Jul. 19, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 08, 2011	Jul. 19, 2012	Dec. 07, 2012	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	860004/00	9 kHz~30 MHz	Jul. 28, 2011	Jul. 19, 2012	Jul. 27, 2012	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2012	Jul. 19, 2012	Jan. 05, 2013	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060004	30MHz~2GHz	Dec. 30, 2011	Jul. 19, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 30, 2011	Jul. 19, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701023	1GHz~18GHz	Nov. 07, 2011	Jul. 19, 2012	Nov. 06, 2012	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Oct. 11, 2011	Jul. 19, 2012	Oct.10, 2012	Radiation (03CH01-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	Jun. 01, 2012	Jul. 14, 2012	May 31, 2013	Conduction (CO01-KS)
LISN	MessTec	AN3016	60103	9kHz~30MHz	Dec. 30, 2011	Jul. 14, 2012	Dec. 29, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60105	9kHz~30MHz	Dec. 30, 2011	Jul. 14, 2012	Dec. 29, 2012	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 16, 2011	Jul. 14, 2012	Nov. 15, 2012	Conduction (CO01-KS)
System Simulator	R&S	CMU200	837587/066	2G Full-Band	Dec. 30, 2011	Jul. 14, 2012	Dec. 29, 2012	Conduction (CO01-KS)

5 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.54

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

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

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.26

Appendix A. Photographs of EUT

Please refer to Sporton report number EP231609 as below.