

FCC RF Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : cdma2000 Digital Mobile Handset
BRAND NAME : ZTE
MODEL NAME : V8000
FCC ID : Q78-V8000
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Feb. 23, 2012 and completely tested on Mar. 06, 2012. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 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
FR222301B	Rev. 01	Initial issue of report	Mar. 08, 2012

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	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(d)	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.4	15.247(d)	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.5	15.247(e)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 5.63 dB at 0.15 MHz
3.7	15.247(d)	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 12.82 dB at 2390 MHz
3.8	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R.China

1.2 Manufacturer

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R.China

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	cdma2000 Digital Mobile Handset
Brand Name	ZTE
Model Name	V8000
FCC ID	Q78-V8000
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Number of Channels	11
Carrier Frequency of Each Channel	2412+(n-1)*5 MHz; n=1~11
Channel Spacing	5 MHz
Maximum Output Power to Antenna	802.11b : 16.69 dBm (0.047 W) 802.11g : 22.86 dBm (0.193 W) 802.11n (BW 20MHz) : 22.76 dBm (0.189 W)
Duty Cycle	802.11b : 98.62% 802.11g : 91.61% 802.11n (BW 20MHz) : 92.24%
Antenna Type	PIFA Antenna with gain -1.00 dBi
HW Version	QB8655-02A V1DMB_B
SW Version	V8000_CKT_1.05
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
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.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.
Test Site Location	No. 101, Complex Building C, Guanglong Village, Xili Town, Nanshan District, Shenzhen, Guangdong, P.R.C. TEL: +86-755-8637-9589 FAX: +86-755-8637-9595
Test Site No.	Sporton Site No. : CO01-SZ

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.	
	TH01-KS	03CH01-KS

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 (Measurement Guidelines of DTS)
- ♦ ANSI C63.4-2003

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.	System Simulator	Agilent	8960	N/A	N/A	Unshielded, 1.8 m
3.	DC Power Supply	GW	GPS-3030D	N/A	N/A	Unshielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	NA
5.	Bluetooth Earphone	Nokia	BH-108	N/A	NA	NA
6.	Router	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
7.	Router	D-Link	DIR-615	N/A	N/A	Unshielded, 1.8 m
8.	Notebook	Acer	Trave lmate 2413 Lci	QDS-BRCM1016	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
9.	Notebook	IBM	1706	FCC DoC	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m

2 Test Configuration of Equipment Under Test

2.1 Pre-Scanned RF Power

Preliminary tests were performed in different data rate as below table and the highest power data rates (802.11b, 802.11g and 802.11n (BW 20MHz) 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)	16.69	16.58	16.54	16.62

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)	22.86	22.84	22.81	22.78	22.79	22.82	22.78	22.71

2.4GHz 802.11n (BW 20MHz) mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	22.76	22.72	22.51	22.68	22.74	22.71	22.73	22.68

2.2 Maximum Peak Conducted Output Power:

Band	2.4GHz 802.11b Peak Conducted Output Power (dBm)			2.4GHz 802.11g Peak Conducted Output Power (dBm)		
Channel	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462
Peak Power	16.55	16.69	16.09	22.73	22.86	22.45

Band	2.4GHz 802.11n (BW 20MHz) Peak Conducted Output Power (dBm)		
Channel	1	6	11
Frequency (MHz)	2412	2437	2462
Peak Power	22.46	22.76	22.34

Remark:

The data rates of WLAN 802.11b/g/n were set in 1Mbps for 802.11b, 6Mbps for 802.11g and MCS0 for 802.11n (BW 20MHz) for all the test cases due to the highest RF output power.

2.3 Maximum Average Conducted Output Power:

Band	2.4GHz 802.11b Average Conducted Output Power (dBm)			2.4GHz 802.11g Average Conducted Output Power (dBm)		
Channel	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462
Average Power	13.45	13.58	12.98	13.48	13.65	13.21

Band	2.4GHz 802.11n (BW 20MHz) Average Conducted Output Power (dBm)		
Channel	1	6	11
Frequency (MHz)	2412	2437	2462
Average Power	13.64	13.75	13.32

Remark:

1. The average power, which is used by the test method, AVG2, in DTS Meas. Guidance v01, is reporting only.
2. The EUT is programmed to transmit signals continuously.

2.4 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 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).

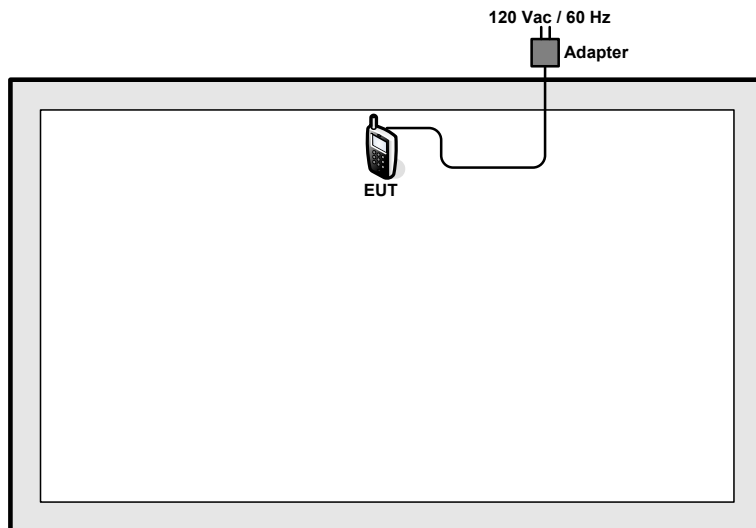
Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

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

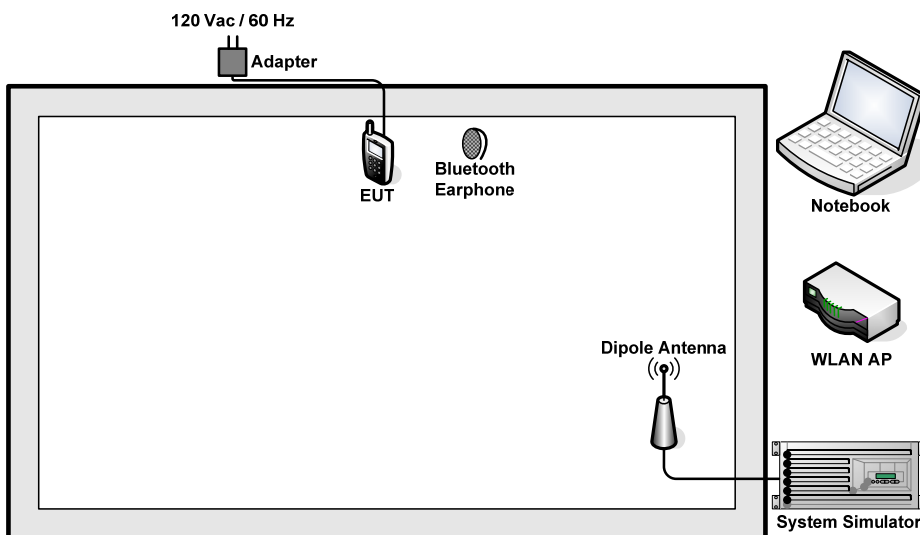
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 MHz Mode 8: 802.11n (BW 20M)_CH06_2437 MHz Mode 9: 802.11n (BW 20M)_CH11_2462 MHz
Radiated TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 MHz Mode 8: 802.11n (BW 20M)_CH06_2437 MHz Mode 9: 802.11n (BW 20M)_CH11_2462 MHz
AC Conducted Emission	Mode 1 : CDMA 850 Idle + Bluetooth Link + WLAN Link + Adapter + Camera	

2.5 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.6 RF Utility

The programmed RF utility "CMD" is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

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.

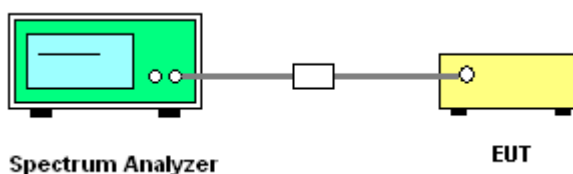
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW. 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

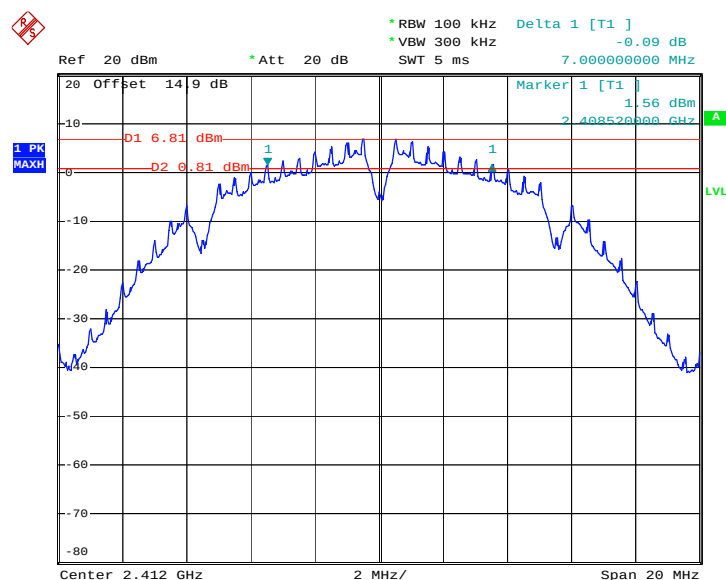


3.1.5 Test Result of 6dB Bandwidth

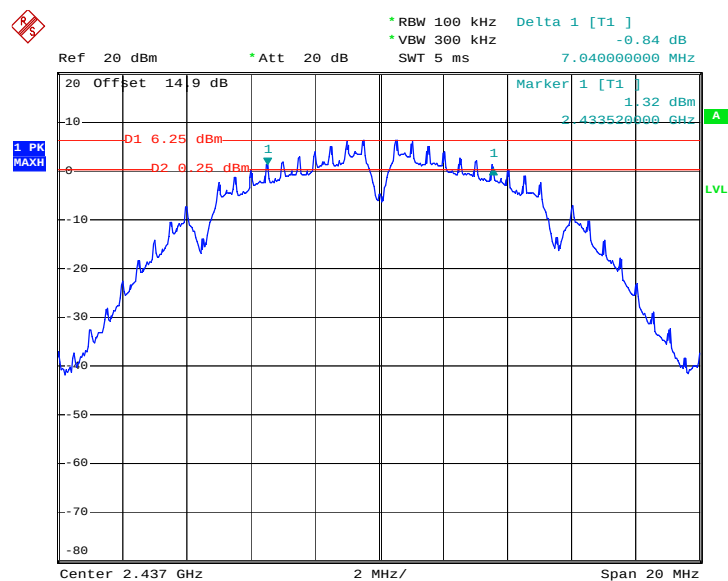
Test Mode :	Mode 1, 2, 3	Temperature :	23~24℃
Test Engineer :	Long Chen	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	7.00	0.5	Pass
06	2437	7.04	0.5	Pass
11	2462	7.08	0.5	Pass

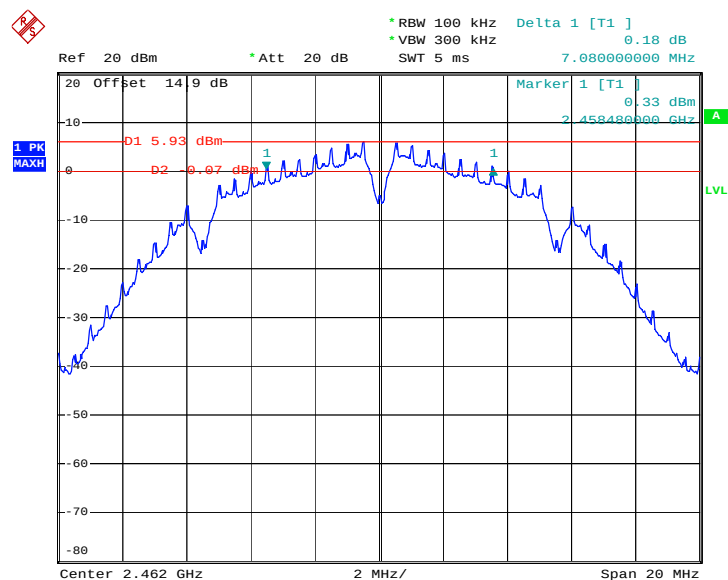
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 5.MAR.2012 20:26:06

Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06


Date: 5.MAR.2012 20:43:22

Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11


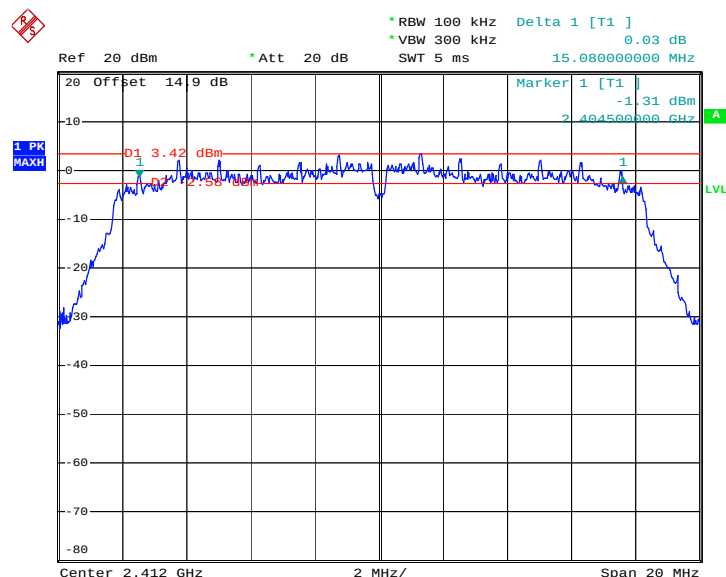
Date: 5.MAR.2012 20:57:31



Test Mode :	Mode 4, 5, 6	Temperature :	23~24°C
Test Engineer :	Long Chen	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.08	0.5	Pass
06	2437	15.08	0.5	Pass
11	2462	15.10	0.5	Pass

Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



Date: 5.MAR.2012 21:16:26



* RBW 100 kHz
 * VBW 300 kHz
 SWT 5 ms

Delta 1 [T1]
 0.37 dB
 15.08000000 MHz

Ref 20 dBm
 * Att 20 dB

20 Offset 14.9 dB

Marker 1 [T1]
 -1.15 dBm
 2.429500000 GHz

1 PK
 MAXH

01 3.49 dBm
 2.429500000 GHz

1

LVL

Center 2.437 GHz
 2 MHz/
 Span 20 MHz

Date: 5.MAR.2012 21:31:11

Ref 20 dBm * Att 20 dB Delta 1 [T1] 0.34 dB
 * RBW 100 kHz * VBW 300 kHz 15.100000000 MHz
 SWT 5 ms

20 Offset 14.9 dB

Marker 1 [T1] -2.00 dBm
 2.454480000 GHz

1 PK MAX

01 3.19 dBm

2.84 dBm

1

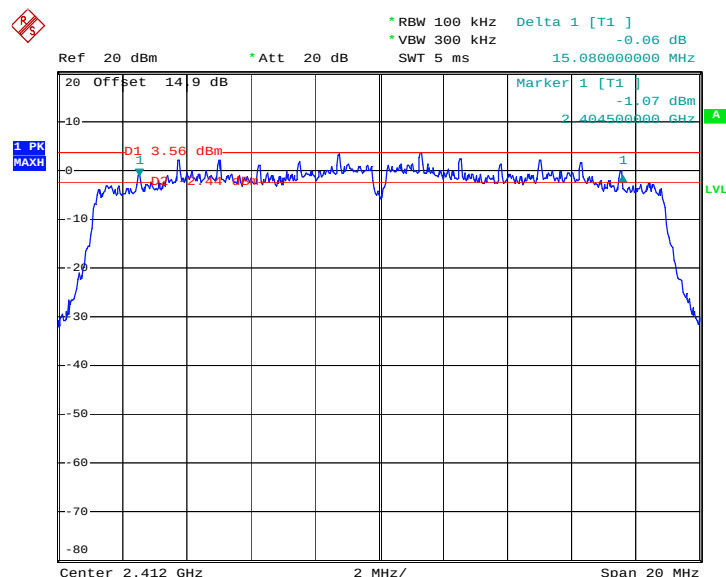
Center 2.462 GHz 2 MHz/ Span 20 MHz

Date: 5.MAR.2012 21:43:51

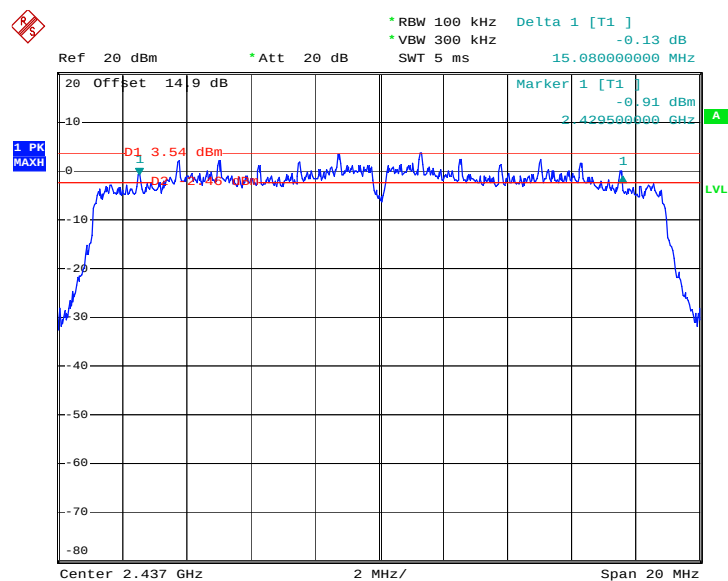
Test Mode :	Mode 7, 8, 9	Temperature :	23~24℃
Test Engineer :	Long Chen	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.08	0.5	Pass
06	2437	15.08	0.5	Pass
11	2462	15.08	0.5	Pass

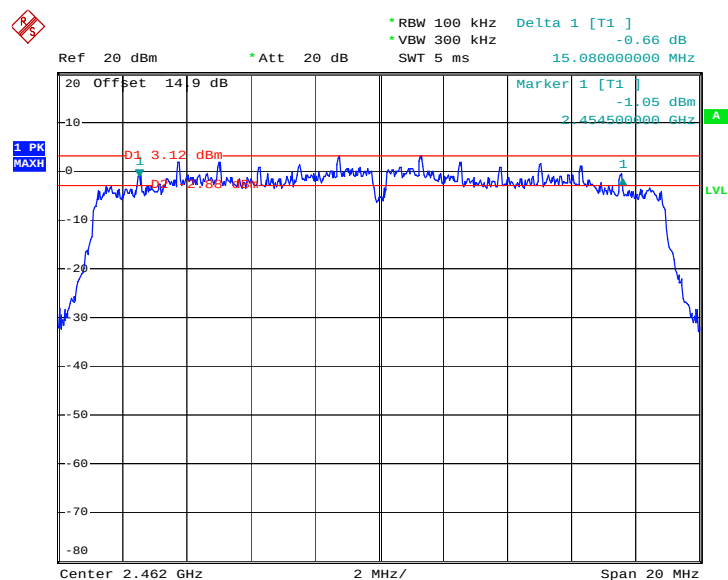
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 5.MAR.2012 21:58:54

Mode 8 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06


Date: 5.MAR.2012 22:15:10

Mode 9 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 11


Date: 5.MAR.2012 22:32:44

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.

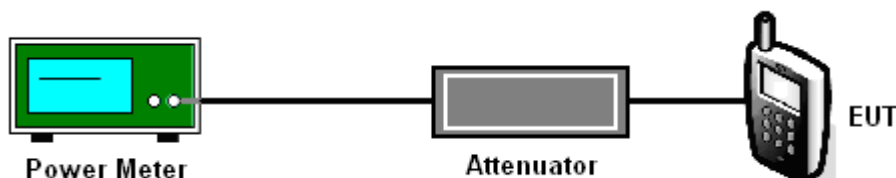
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
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 Output Power

Test Mode :	Mode 1, 2, 3	Temperature :	23~24℃
Test Engineer :	Long Chen	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	16.55	30	Pass
06	2437	16.69	30	Pass
11	2462	16.09	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	23~24℃
Test Engineer :	Long Chen	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.73	30	Pass
06	2437	22.86	30	Pass
11	2462	22.45	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	23~24℃
Test Engineer :	Long Chen	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.46	30	Pass
06	2437	22.76	30	Pass
11	2462	22.34	30	Pass

3.3 Band Edges Measurement

3.3.1 Limit of Band Edges

In any 100 KHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. 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.

3.3.2 Measuring Instruments

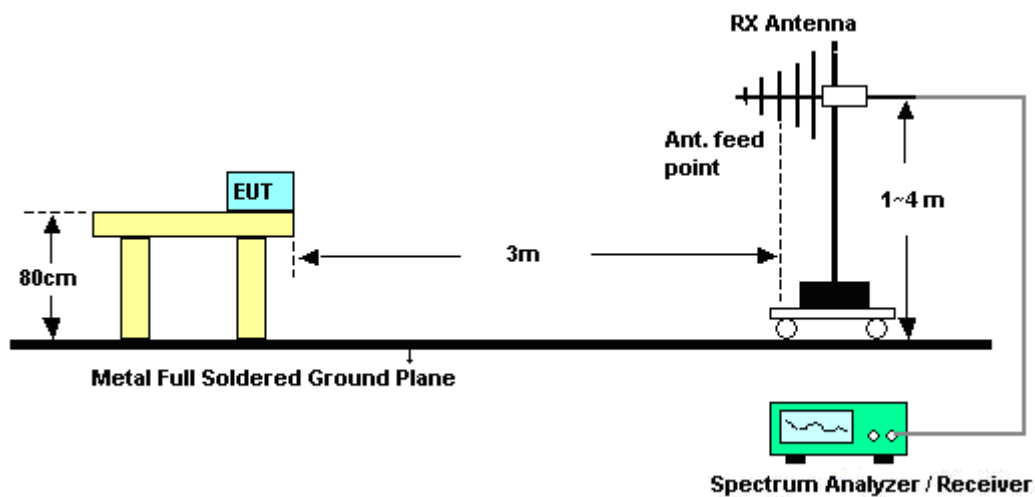
See list of measuring instruments of this test report.

3.3.3 Test Procedures

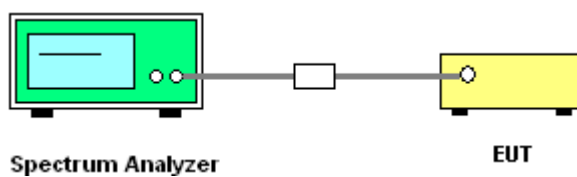
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 KHz, Video bandwidth (VBW) > RBW. Band edge emissions must be at least 20 dB below the highest emission level within the authorized band as measured with a 100 KHz RBW. Note: If the output power of this device was measured by power meter, the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Apply to band edge emissions that falling on the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurement above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, then modify the unit for continuous operation. Use the settings in this paragraph to correct the reading level by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation per 15.35(b) and (c).

3.3.4 Test Setup

<Radiated Band Edges>



<Conducted Band Edges>



3.3.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	21~22℃
Test Band :	802.11b	Relative Humidity :	41~42%
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
2384.29	50.56	-23.44	74	48.32	32.83	3.42	34.01	200	0	Peak
2384.29	37.52	-16.48	54	35.28	32.83	3.42	34.01	200	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
2388.28	49.93	-24.07	74	47.65	32.86	3.47	34.05	100	0	Peak
2388.28	37.9	-16.1	54	35.62	32.86	3.47	34.05	100	0	Average

Test Mode :	Mode 3	Temperature :	21~22℃
Test Band :	802.11b	Relative Humidity :	41~42%
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
2488.98	51.13	-22.87	74	48.59	33.05	3.72	34.23	200	31	Peak
2488.98	36.77	-17.23	54	34.23	33.05	3.72	34.23	200	31	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	51.42	-22.58	74	48.93	33.01	3.68	34.2	100	201	Peak
2483.66	38.1	-15.9	54	35.61	33.01	3.68	34.2	100	201	Average



Test Mode :	Mode 4	Temperature :	21~22°C
Test Band :	802.11g	Relative Humidity :	41~42%
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
2390	61.18	-12.82	74	58.9	32.86	3.47	34.05	200	0	Peak
2390	39.56	-14.44	54	37.28	32.86	3.47	34.05	200	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
2390	56.11	-17.89	74	53.83	32.86	3.47	34.05	100	201	Peak
2390	38.46	-15.54	54	36.18	32.86	3.47	34.05	100	201	Average

Test Mode :	Mode 6	Temperature :	21~22°C
Test Band :	802.11g	Relative Humidity :	41~42%
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	60.66	-13.34	74	58.17	33.01	3.68	34.2	200	103	Peak
2483.85	41.15	-12.85	54	38.66	33.01	3.68	34.2	200	103	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
2483.5	57.84	-16.16	74	55.35	33.01	3.68	34.2	100	22	Peak
2483.5	40.75	-13.25	54	38.26	33.01	3.68	34.2	100	22	Average

Test Mode :	Mode 7	Temperature :	21~22°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~42%
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
2390	59.08	-14.92	74	56.8	32.86	3.47	34.05	200	12	Peak
2390	40.48	-13.52	54	38.2	32.86	3.47	34.05	200	12	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	58.97	-15.03	74	56.69	32.86	3.47	34.05	100	119	Peak
2388.47	39.96	-14.04	54	37.68	32.86	3.47	34.05	100	119	Average

Test Mode :	Mode 9	Temperature :	21~22°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Chenmy Cheng

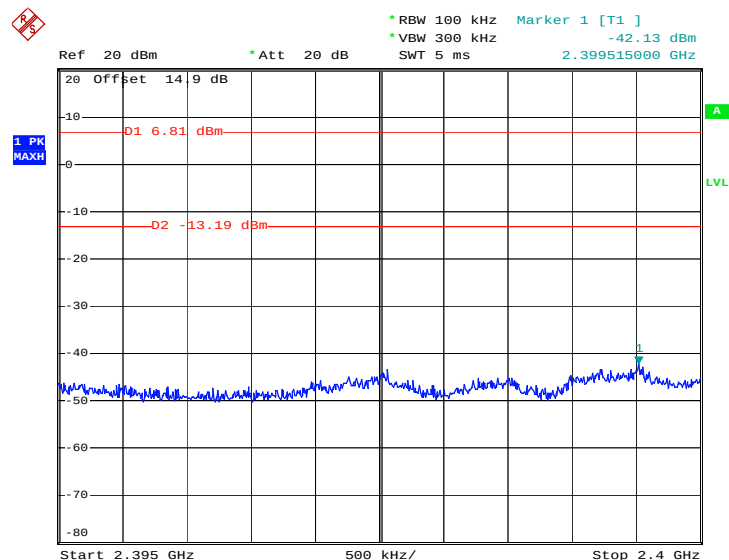
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	59.65	-14.35	74	57.16	33.01	3.68	34.2	200	115	Peak
2483.5	40.02	-13.98	54	37.53	33.01	3.68	34.2	200	115	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
2483.5	60.83	-13.17	74	58.34	33.01	3.68	34.2	100	0	Peak
2483.5	41.17	-12.83	54	38.68	33.01	3.68	34.2	100	0	Average

3.3.6 Test Plots of Conducted Band Edges

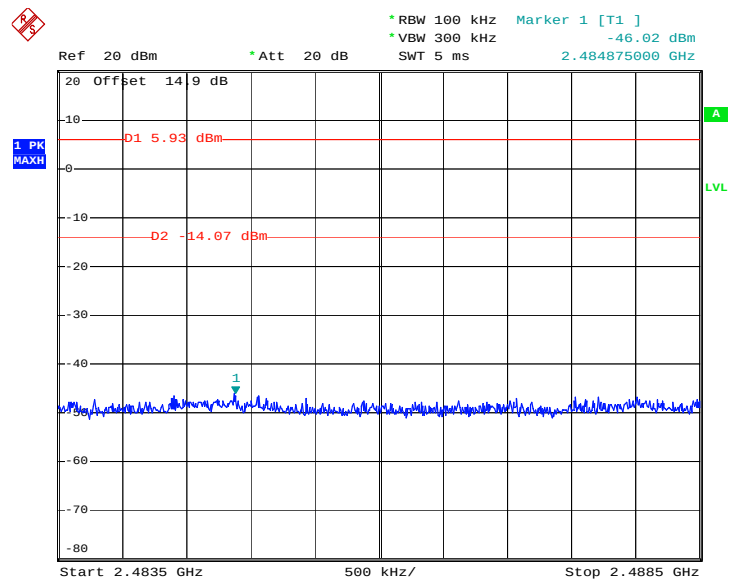
Test Mode :	Mode 1 and 3	Temperature :	23~24℃
Test Band :	802.11b	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Long Chen

Low Band Edge Plot on 802.11b Channel 01



Date: 5.MAR.2012 20:27:26

High Band Edge Plot on 802.11b Channel 11

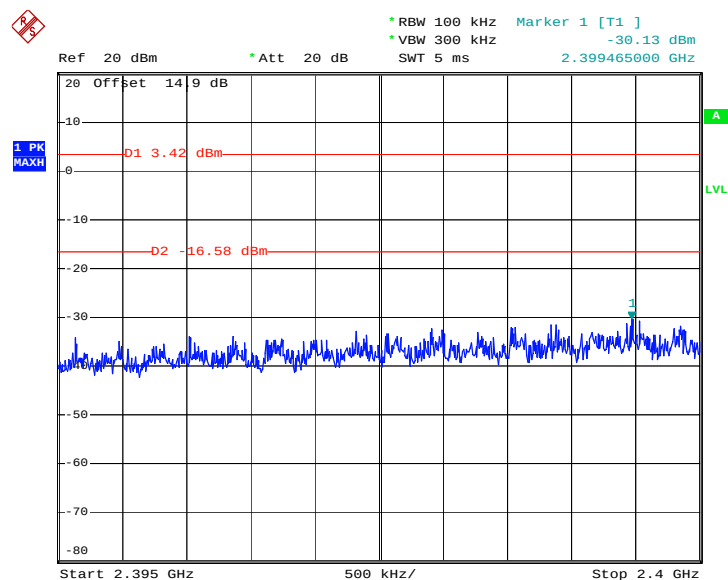


Date: 5.MAR.2012 20:58:22



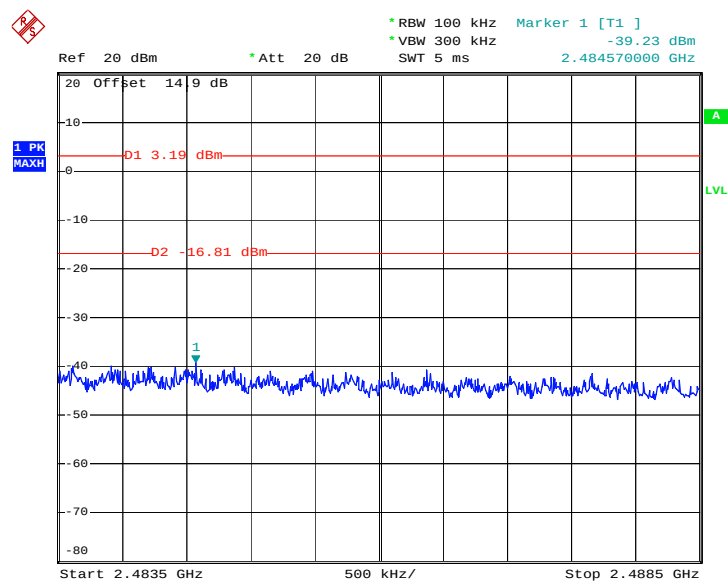
Test Mode :	Mode 4 and 6	Temperature :	23~24℃
Test Band :	802.11g	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Long Chen

Low Band Edge Plot on 802.11g Channel 01



Date: 5.MAR.2012 21:17:48

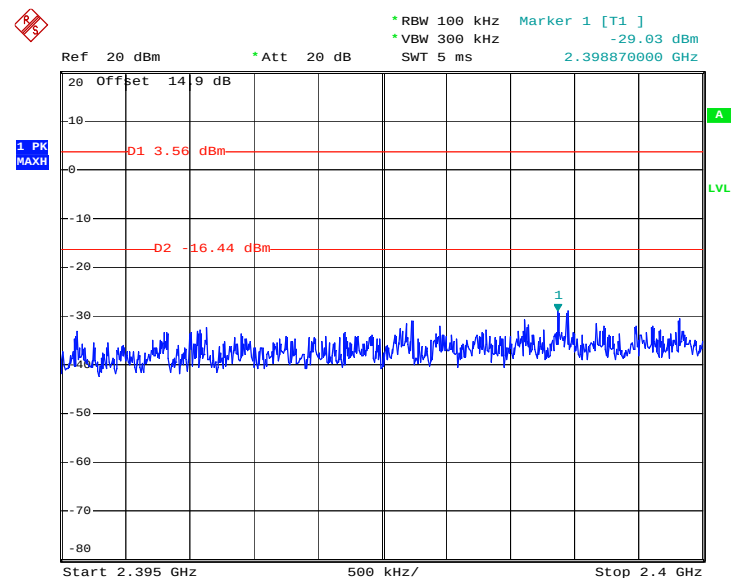
High Band Edge Plot on 802.11g Channel 11



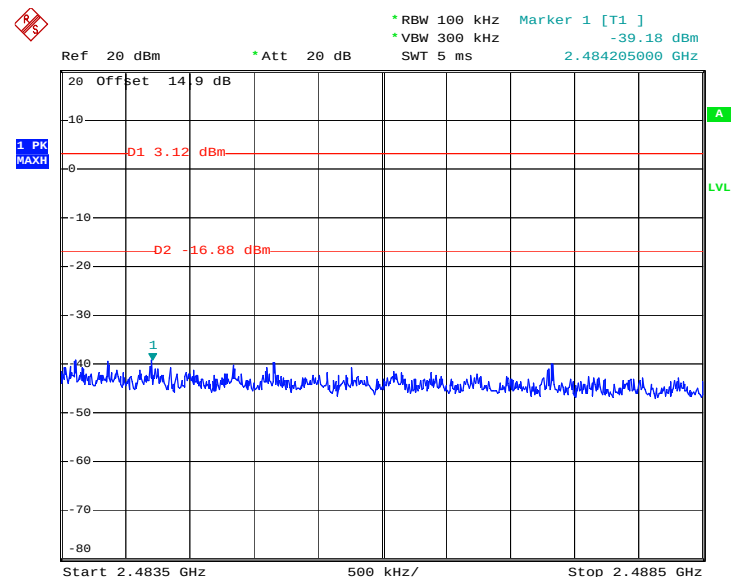
Date: 5.MAR.2012 21:44:50



Test Mode :	Mode 7 and 9	Temperature :	23~24℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Long Chen

Low Band Edge Plot on 802.11n (BW 20MHz) Channel 01

Date: 5.MAR.2012 22:00:05

High Band Edge Plot on 802.11n (BW 20MHz) Channel 11

Date: 5.MAR.2012 22:33:33

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

All harmonics/spurious must be at least 20 dB down from the highest emission level within the authorized band.

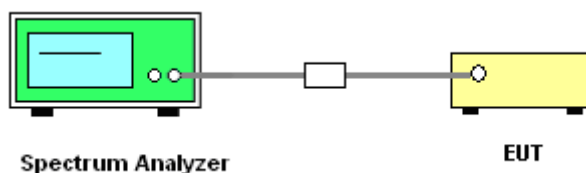
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, Video bandwidth (VBW) $\geq$ RBW, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

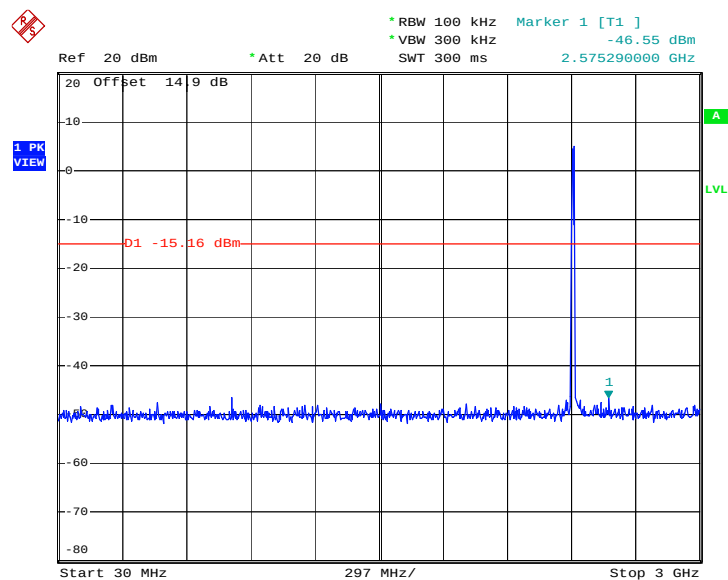
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

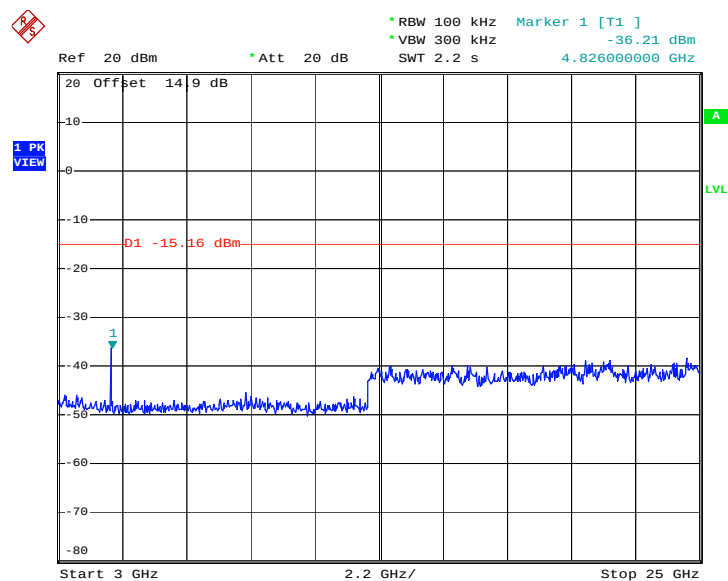
Test Mode :	Mode 1	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Long Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



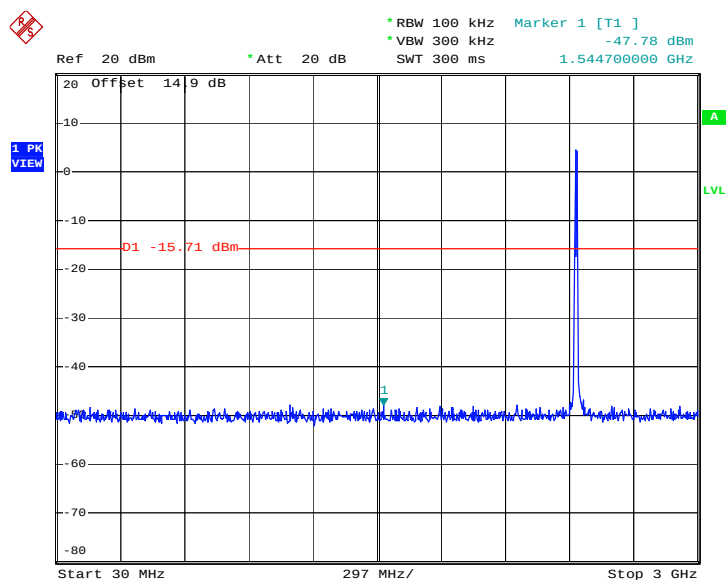
Date: 5.MAR.2012 20:28:21

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

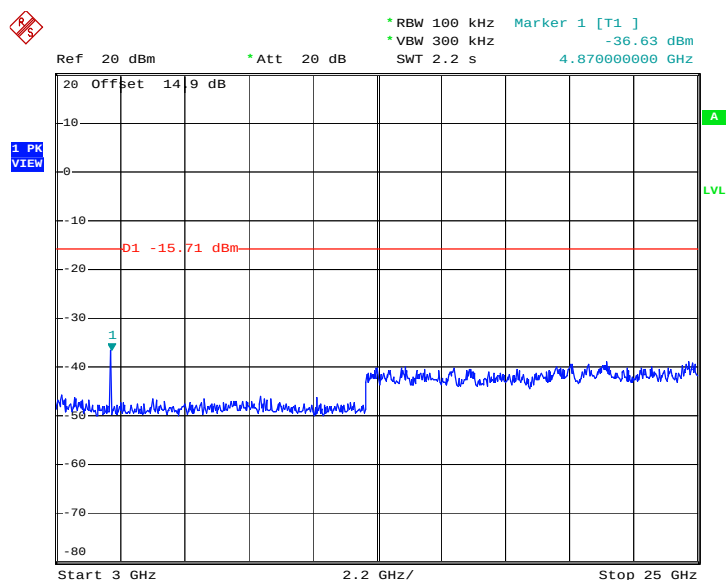


Date: 5.MAR.2012 20:28:38

Test Mode :	Mode 2	Temperature :	23~24℃
Test Band :	802.11b	Relative Humidity :	47~48%
Test Channel :	06	Test Engineer :	Long Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 5.MAR.2012 20:54:36

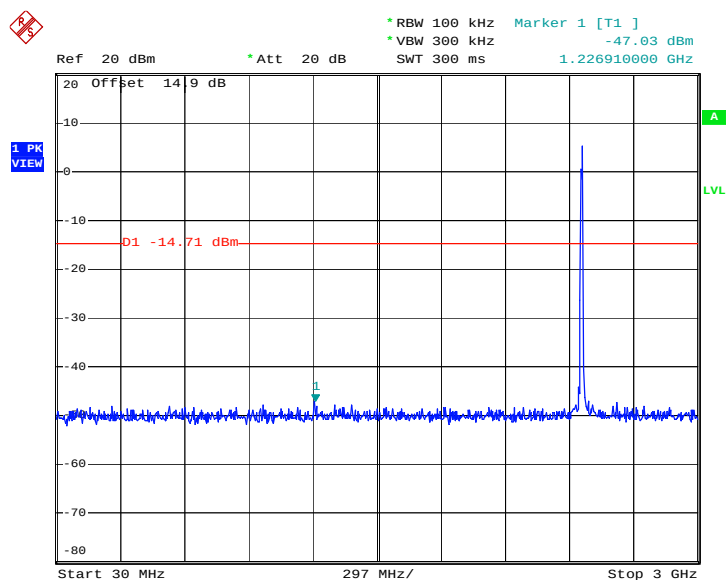
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 5.MAR.2012 20:54:53



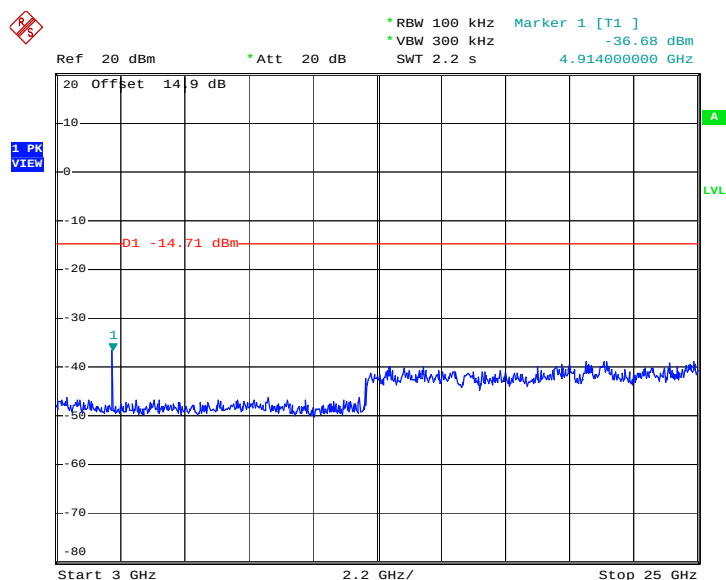
Test Mode :	Mode 3	Temperature :	23~24℃
Test Band :	802.11b	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Long Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



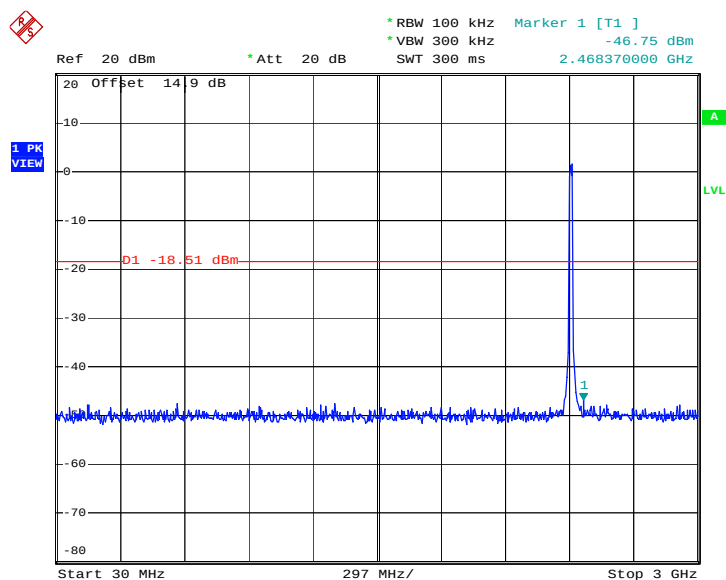
Date: 5.MAR.2012 21:01:50

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

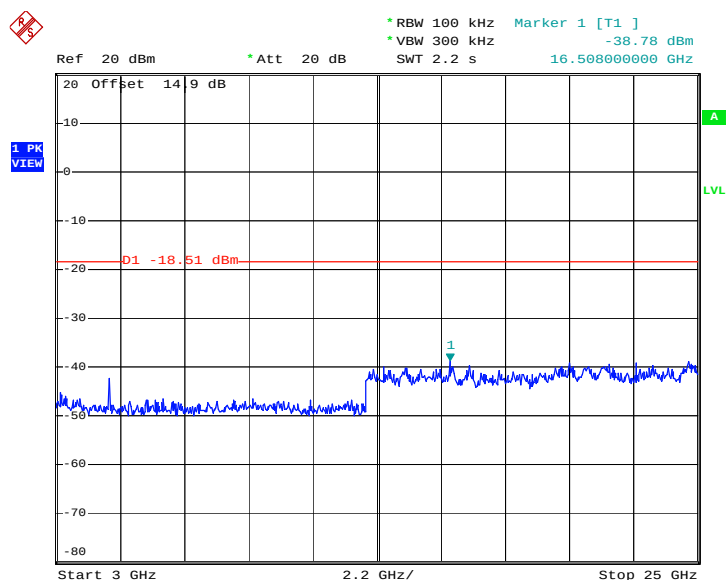


Date: 5.MAR.2012 21:02:07

Test Mode :	Mode 4	Temperature :	23~24℃
Test Band :	802.11g	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Long Chen

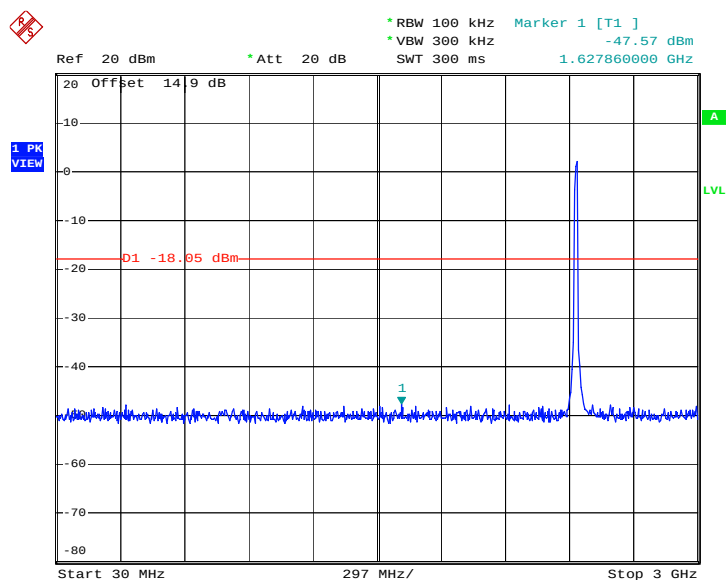
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 5.MAR.2012 21:20:06

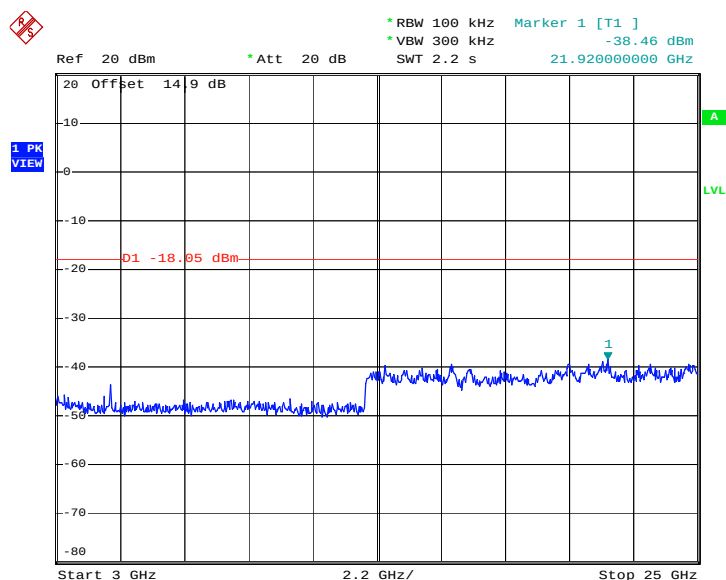
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 5.MAR.2012 21:20:23

Test Mode :	Mode 5	Temperature :	23~24
Test Band :	802.11g	Relative Humidity :	47~48
Test Channel :	06	Test Engineer :	Long Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 5.MAR.2012 21:32:04

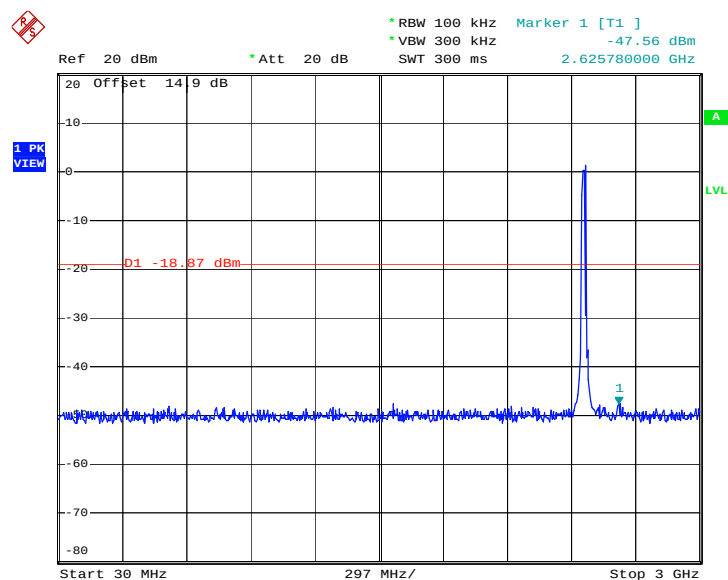
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 5.MAR.2012 21:32:21



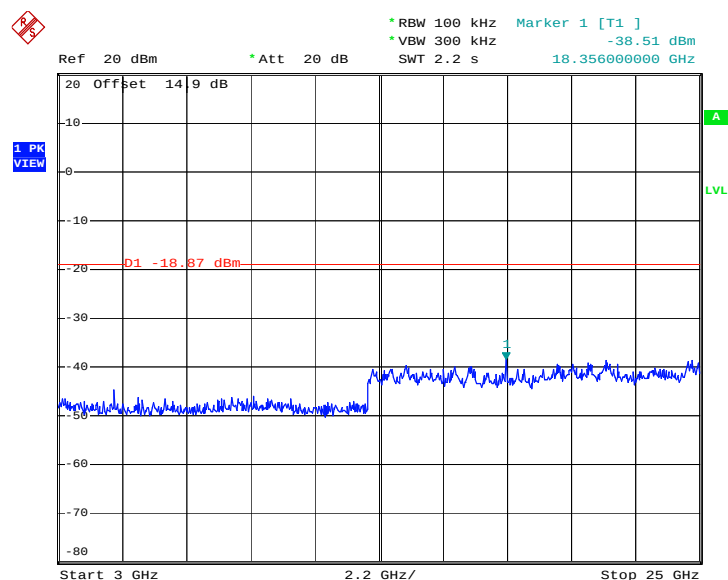
Test Mode :	Mode 6	Temperature :	23~24℃
Test Band :	802.11g	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Long Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 5.MAR.2012 21:46:19

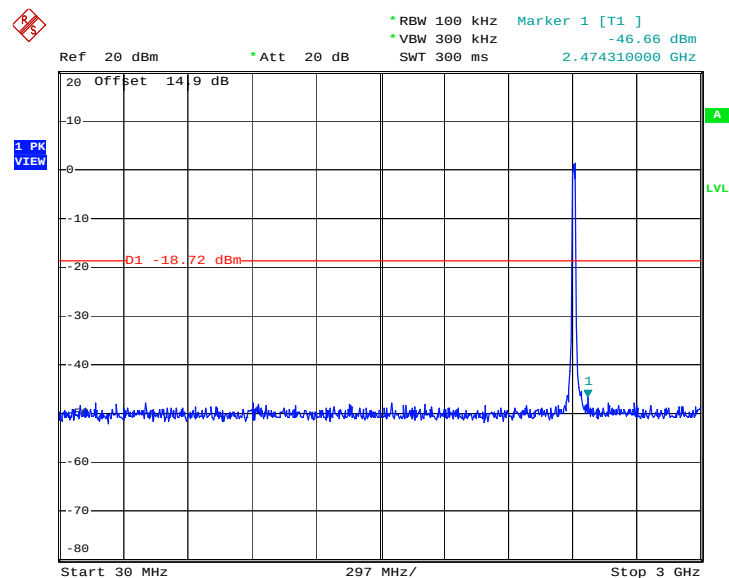
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



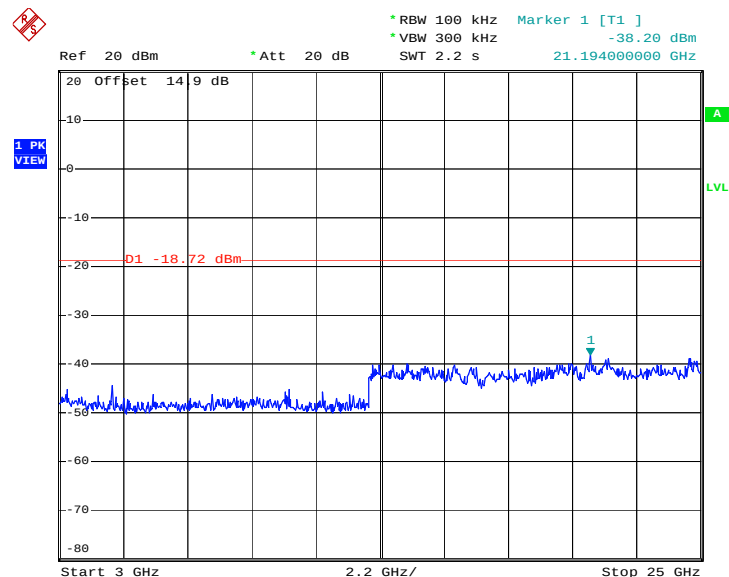
Date: 5.MAR.2012 21:46:36



Test Mode :	Mode 7	Temperature :	23~24℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Long Chen

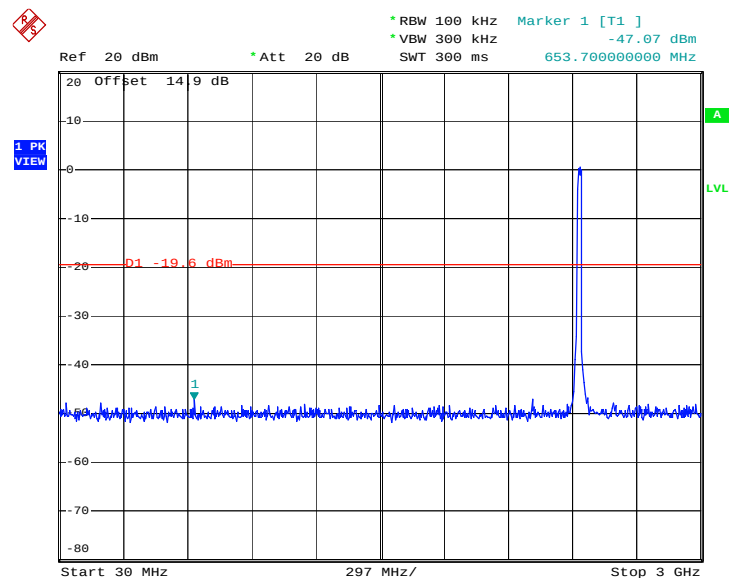
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

Date: 5.MAR.2012 22:02:15

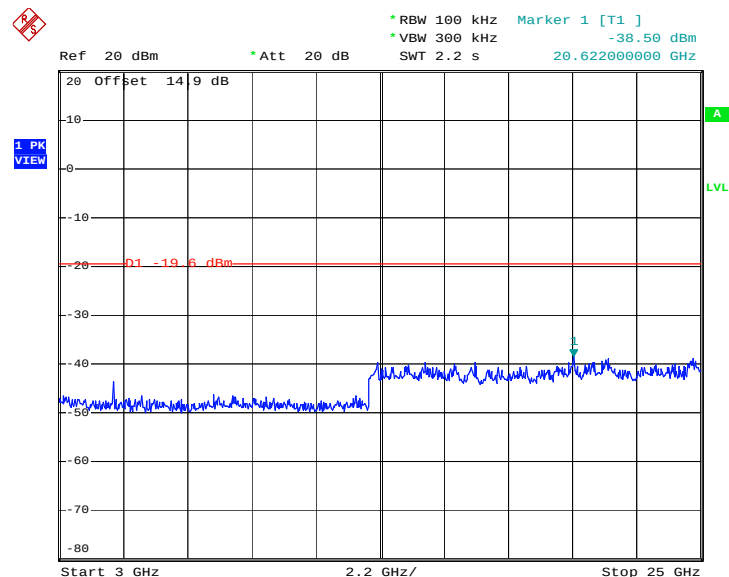
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

Date: 5.MAR.2012 22:02:32

Test Mode :	Mode 8	Temperature :	23~24℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~48%
Test Channel :	06	Test Engineer :	Long Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 5.MAR.2012 22:16:21

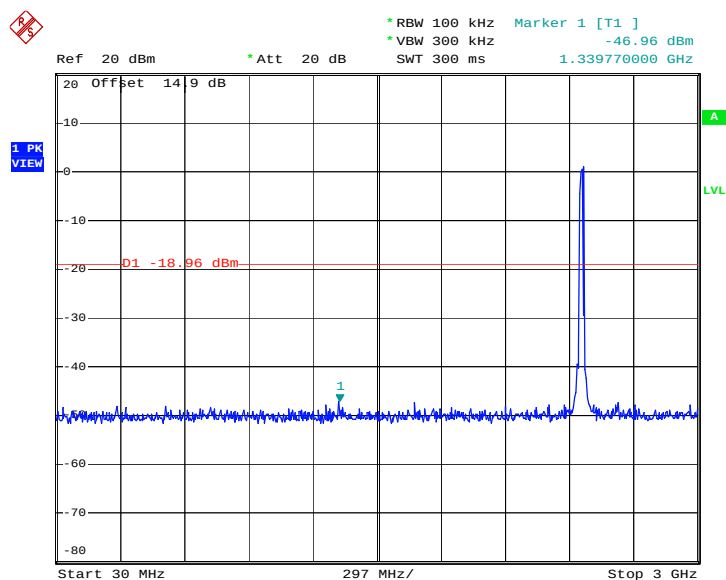
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 5.MAR.2012 22:16:38



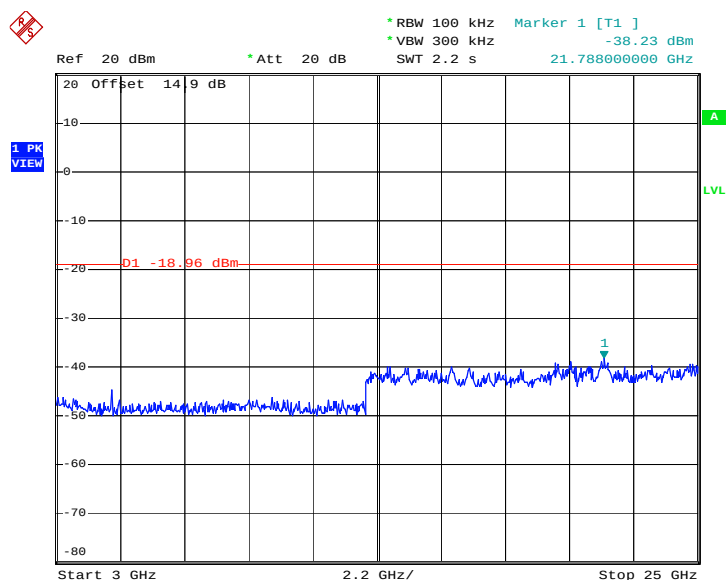
Test Mode :	Mode 9	Temperature :	23~24℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Long Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 5.MAR.2012 22:36:37

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 5.MAR.2012 22:36:54

3.5 Power Spectral Density Measurement

3.5.1 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.

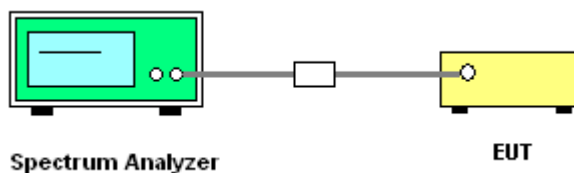
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The test follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Take the measured data from spectrum analyzer.

3.5.4 Test Setup

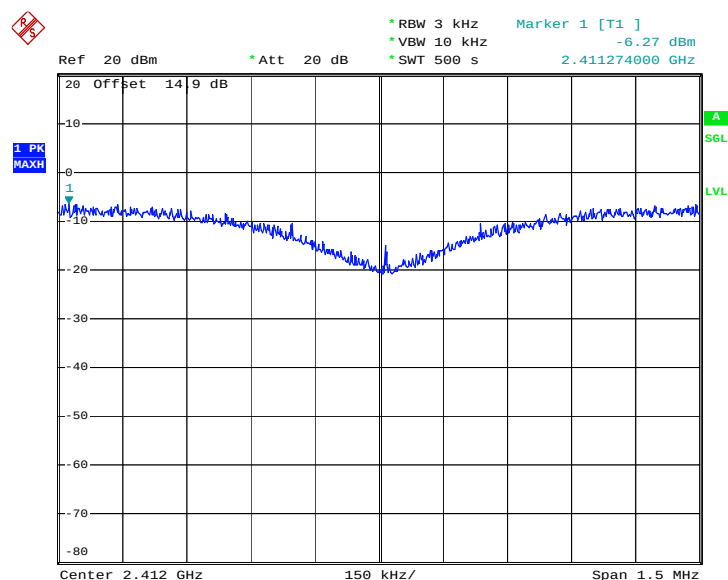


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	23~24℃
Test Engineer :	Long Chen	Relative Humidity :	47~48%

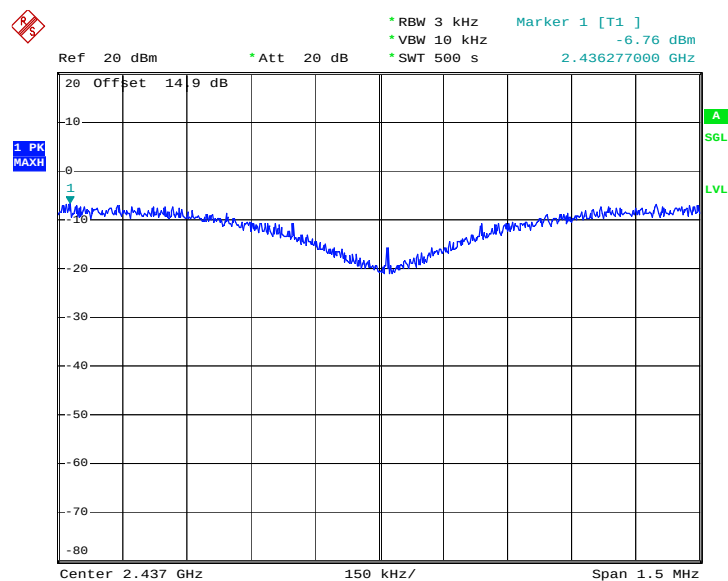
Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-6.27	8	Pass
06	2437	-6.76	8	Pass
11	2462	-7.16	8	Pass

Mode 1 : PSD Plot on 802.11b Channel 01



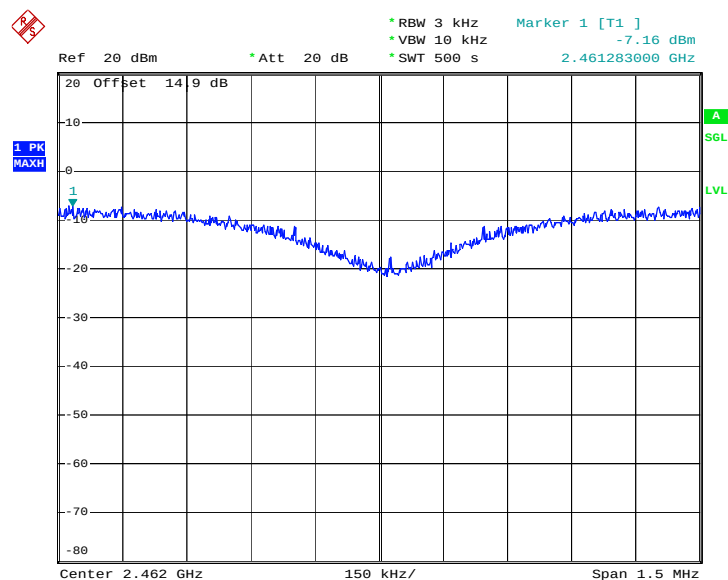
Date: 5.MAR.2012 20:40:29

Mode 2 : PSD Plot on 802.11b Channel 06



Date: 5.MAR.2012 20:52:55

Mode 3 : PSD Plot on 802.11b Channel 11

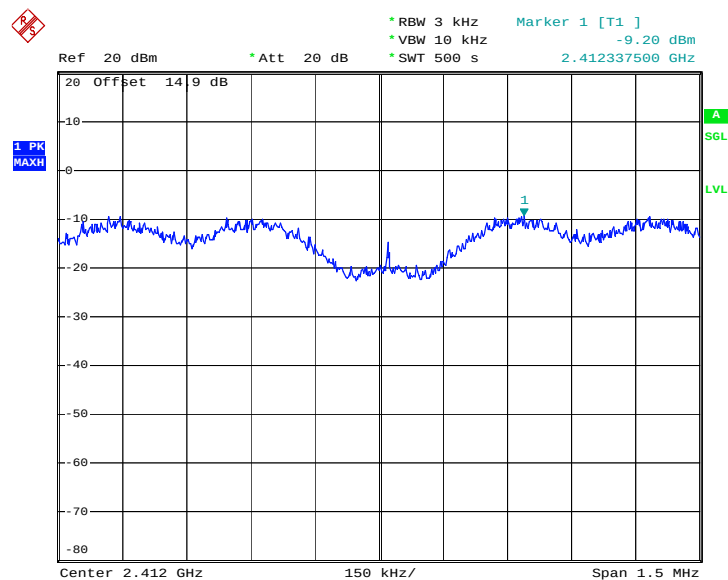


Date: 5.MAR.2012 21:11:13

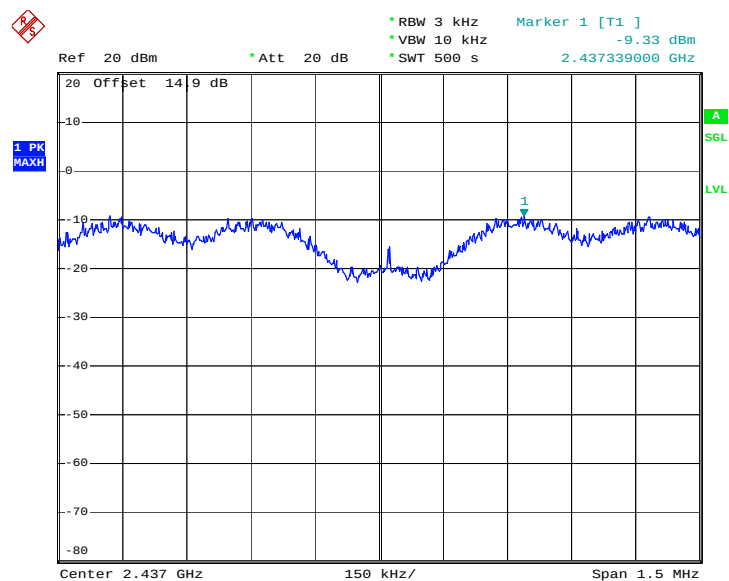


Test Mode :	Mode 4, 5, 6	Temperature :	23~24℃
Test Engineer :	Long Chen	Relative Humidity :	47~48%

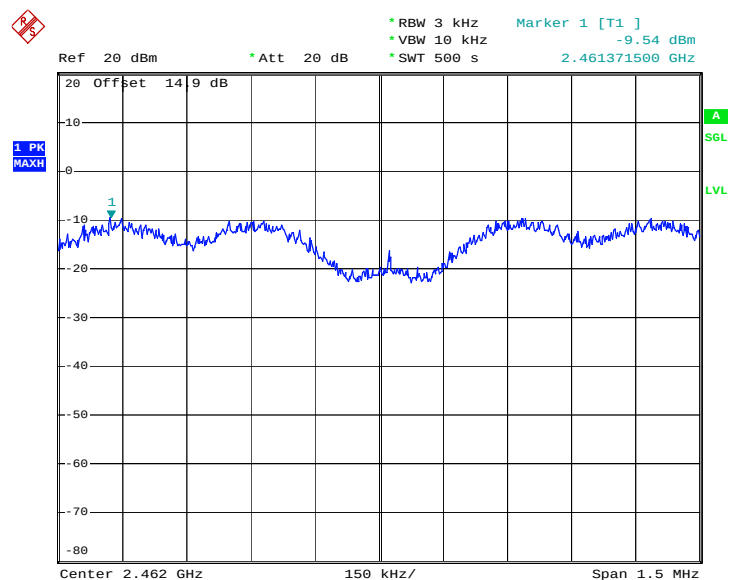
Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-9.20	8	Pass
06	2437	-9.33	8	Pass
11	2462	-9.54	8	Pass

Mode 4 : PSD Plot on 802.11g Channel 01

Date: 5.MAR.2012 21:29:28

Mode 5 : PSD Plot on 802.11g Channel 06


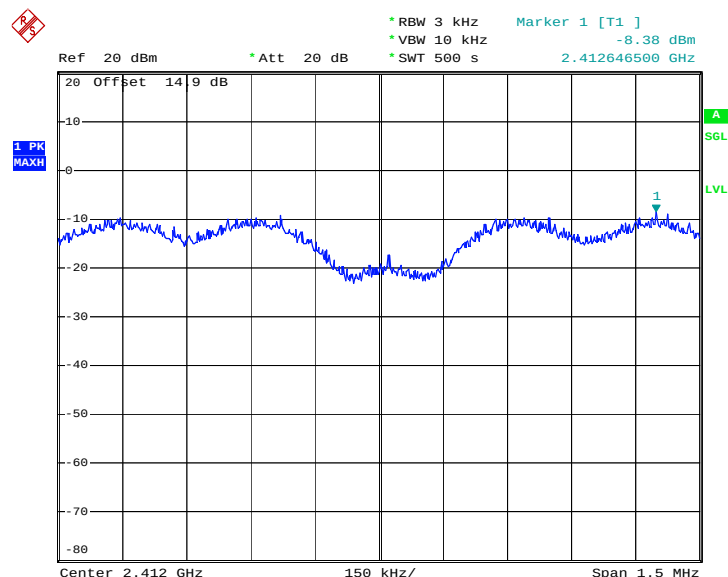
Date: 5.MAR.2012 21:41:36

Mode 6 : PSD Plot on 802.11g Channel 11


Date: 5.MAR.2012 21:55:45

Test Mode :	Mode 7, 8, 9	Temperature :	23~24℃
Test Engineer :	Long Chen	Relative Humidity :	47~48%

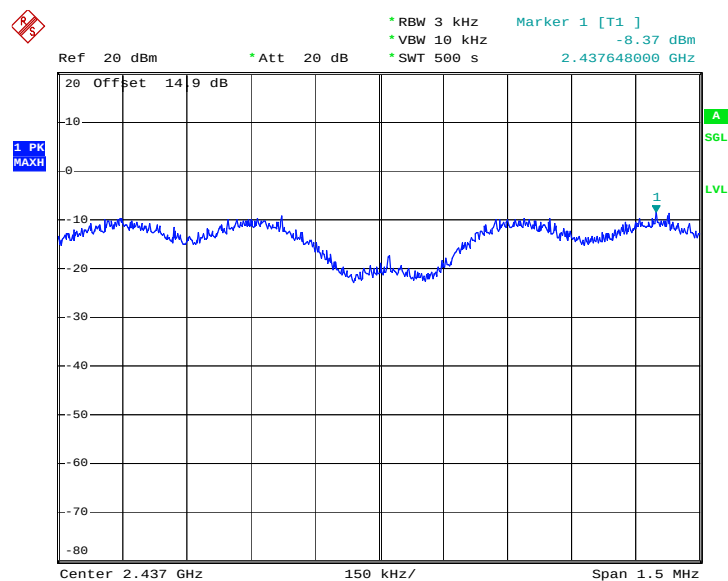
Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-8.38	8	Pass
06	2437	-8.37	8	Pass
11	2462	-8.82	8	Pass

Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01


Date: 5.MAR.2012 22:13:23

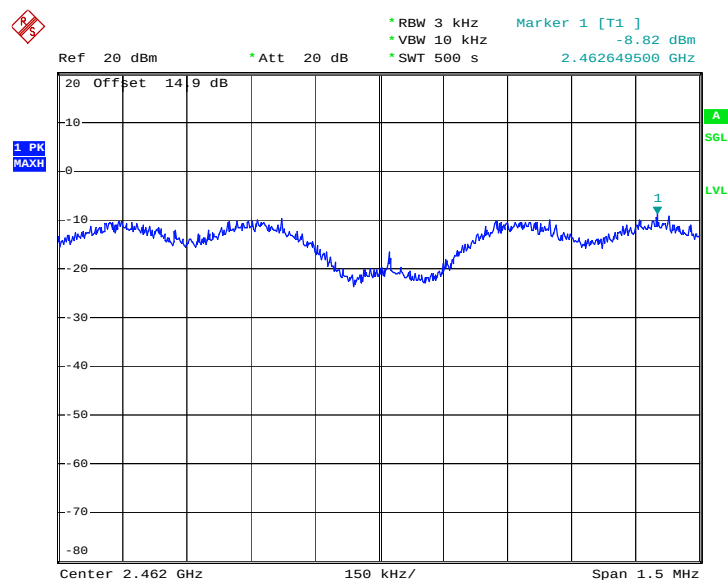


Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06



Date: 5.MAR.2012 22:26:29

Mode 9 : PSD Plot on 802.11n (BW 20MHz) Channel 11



Date: 5.MAR.2012 22:46:42

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.

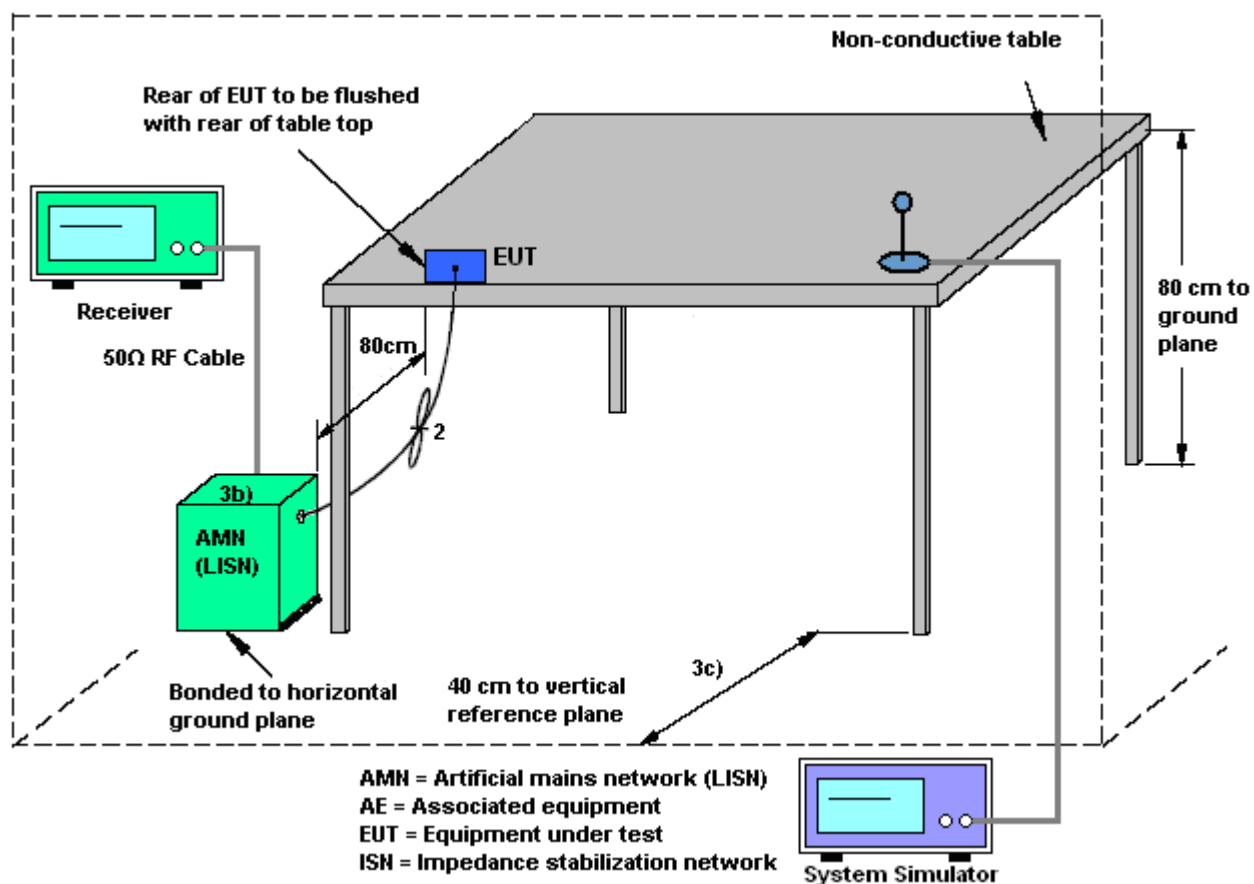
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

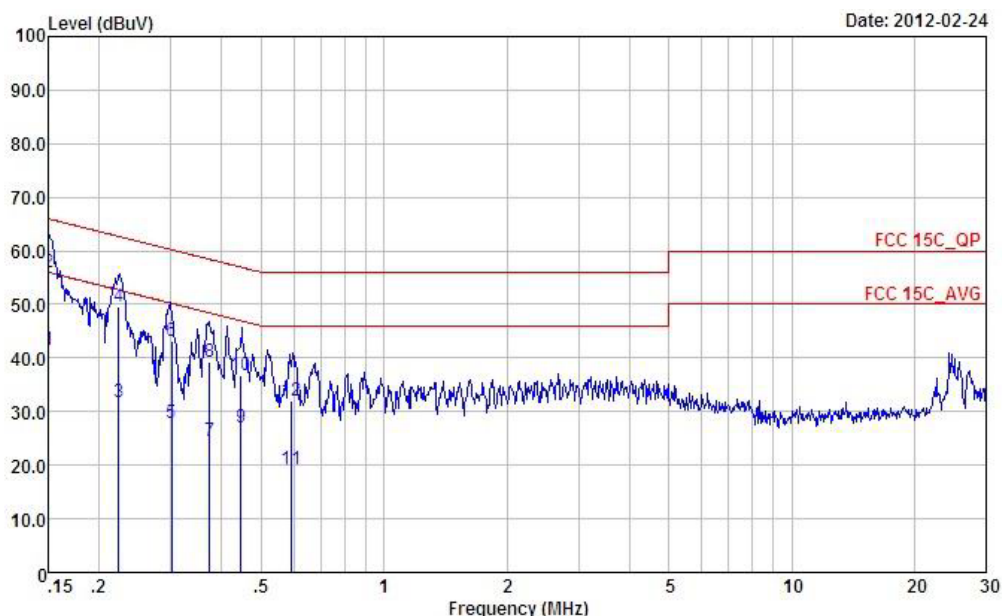
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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.

Test Setup



3.6.4 Test Result of AC Conducted Emission

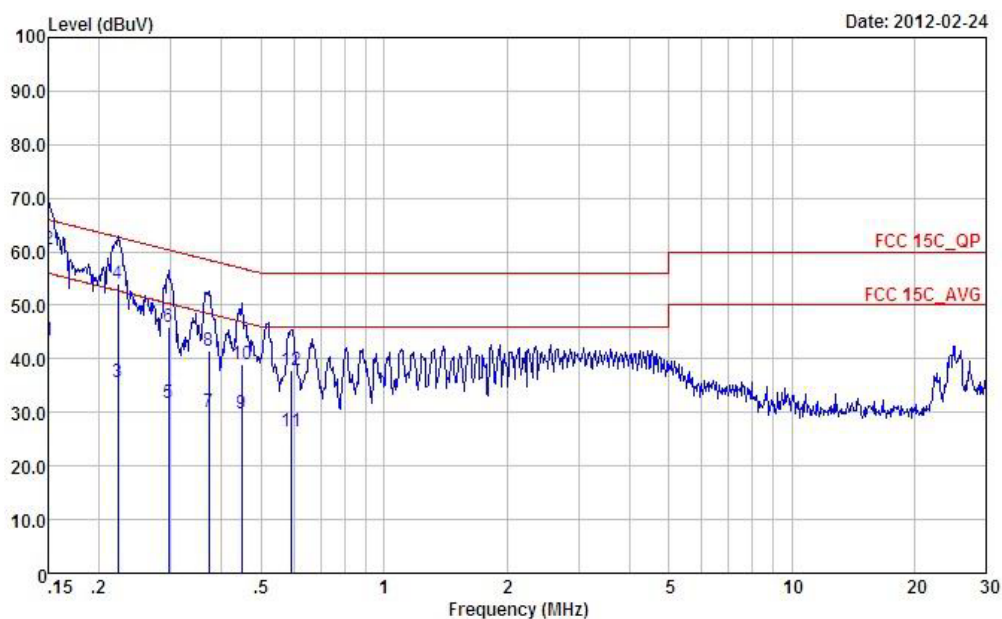
Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	King Liu	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	CDMA 850 Idle + Bluetooth Link + WLAN Link + Adapter + Camera		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-SZ
 Condition : FCC 15C_QP LISN_L_2000601 LINE
 Project : (FR) 222301
 Mode : Mode1

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.15	41.58	-14.42	56.00	31.50	0.03	10.05	Average
2	0.15	55.88	-10.12	66.00	45.80	0.03	10.05	QP
3	0.22	31.68	-21.03	52.71	21.60	0.02	10.06	Average
4	0.22	49.58	-13.13	62.71	39.50	0.02	10.06	QP
5	0.30	27.89	-22.33	50.22	17.81	0.02	10.06	Average
6	0.30	43.09	-17.13	60.22	33.01	0.02	10.06	QP
7	0.37	24.49	-23.94	48.43	14.40	0.02	10.07	Average
8	0.37	39.19	-19.24	58.43	29.10	0.02	10.07	QP
9	0.45	27.10	-19.85	46.95	17.00	0.02	10.08	Average
10	0.45	36.70	-20.25	56.95	26.60	0.02	10.08	QP
11	0.59	19.12	-26.88	46.00	9.01	0.02	10.09	Average
12	0.59	32.02	-23.98	56.00	21.91	0.02	10.09	QP

Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	King Liu	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	CDMA 850 Idle + Bluetooth Link + WLAN Link + Adapter + Camera		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-SZ
 Condition : FCC 15C_QP LISN_N_2000601 NEUTRAL
 Project : (FR) 222301
 Mode : Mode1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	43.57	-12.43	56.00	33.50	0.02	10.05	Average
2	0.15	60.37	-5.63	66.00	50.30	0.02	10.05	QP
3	0.22	35.67	-17.07	52.74	25.59	0.02	10.06	Average
4	0.22	54.07	-8.67	62.74	43.99	0.02	10.06	QP
5	0.30	31.78	-18.59	50.37	21.70	0.02	10.06	Average
6	0.30	45.98	-14.39	60.37	35.90	0.02	10.06	QP
7	0.37	30.19	-18.28	48.47	20.10	0.02	10.07	Average
8	0.37	41.49	-16.98	58.47	31.40	0.02	10.07	QP
9	0.45	29.70	-17.23	46.93	19.60	0.02	10.08	Average
10	0.45	38.90	-18.03	56.93	28.80	0.02	10.08	QP
11	0.59	26.41	-19.59	46.00	16.30	0.02	10.09	Average
12	0.59	38.01	-17.99	56.00	27.90	0.02	10.09	QP

3.7 Radiated Emission Measurement

3.7.1 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

3.7.2 Measuring Instruments

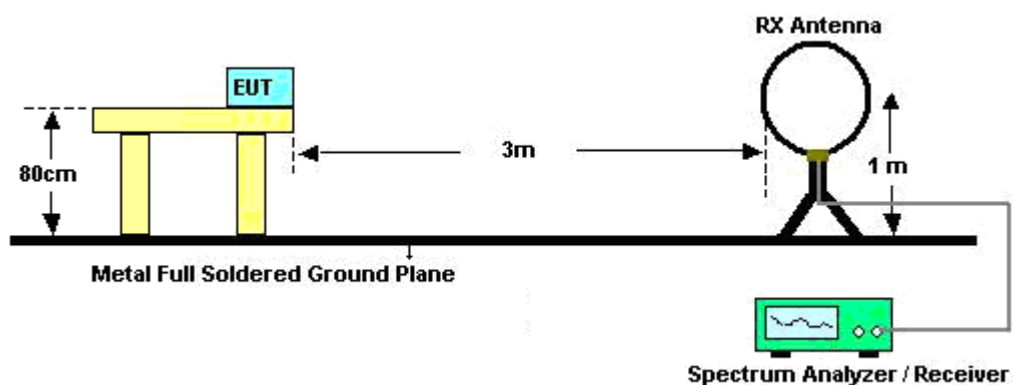
See list of measuring instruments of this test report.

3.7.3 Test Procedures

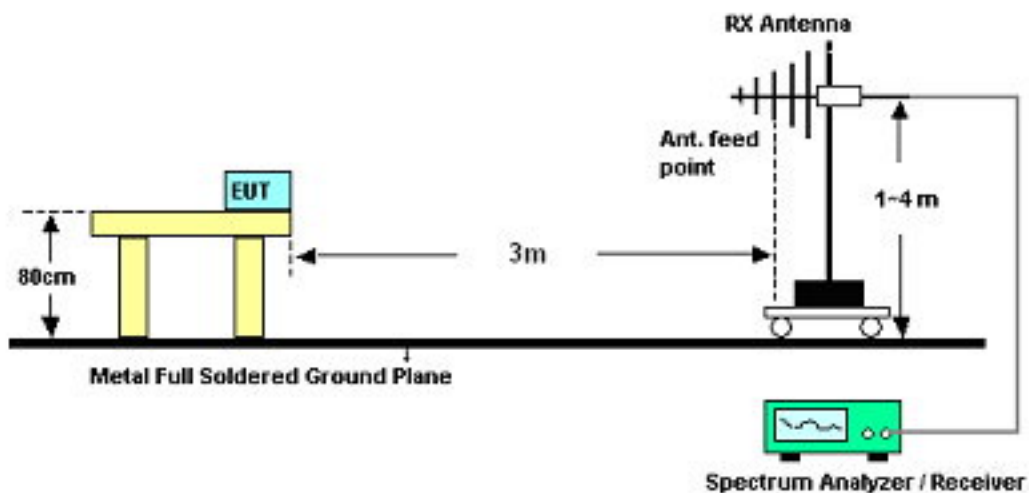
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
 - Span shall wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 KHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
Distance extrapolation factor = $20 \log (\text{specific distance [3m]} / \text{test distance [1m]})$ (dB)
- Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

3.7.4 Test Setup

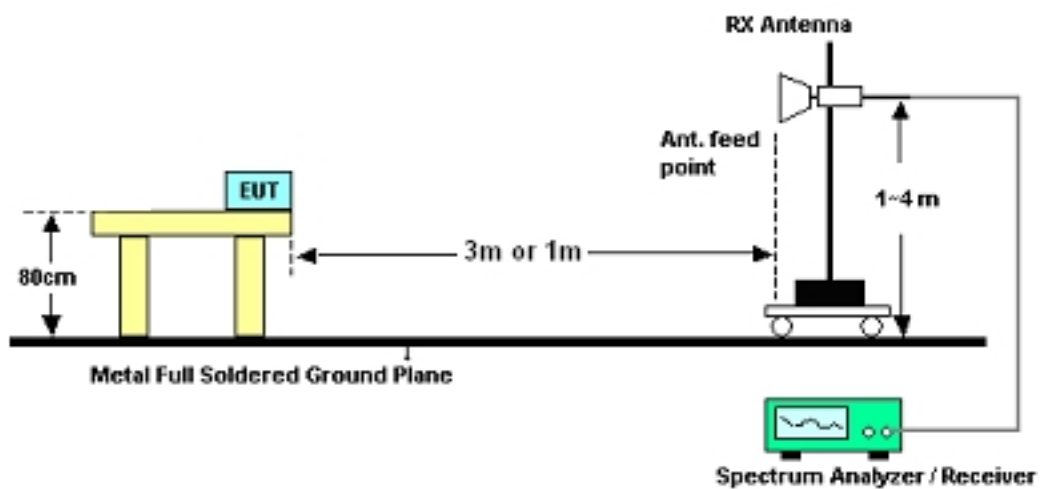
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.7.5 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.

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

Test Mode :	Mode 1	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	41~42%
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
31.89	18.94	-21.06	40	32.24	16.55	0.24	30.09	100	16	Peak
86.43	14.54	-25.46	40	36.29	7.89	0.37	30.01	-	-	Peak
260.58	18.28	-27.72	46	35.29	12.17	0.68	29.86	-	-	Peak
836.9	23.02	-22.98	46	31.03	20.37	1.27	29.65	-	-	Peak
872.6	23.94	-22.06	46	31.75	20.48	1.29	29.58	-	-	Peak
944.7	25.31	-28.69	54	32.81	20.71	1.33	29.54	-	-	Peak
2384.29	50.56	-23.44	74	48.32	32.83	3.42	34.01	200	0	Peak
2384.29	37.52	-16.48	54	35.28	32.83	3.42	34.01	200	0	Average
2412	97.31	-	-	94.98	32.89	3.52	34.08	200	36	Peak
2412	92.68	-	-	90.35	32.89	3.52	34.08	200	36	Average
2493.54	49.83	-24.17	74	47.29	33.05	3.72	34.23	200	16	Peak
2493.54	36.86	-17.14	54	34.32	33.05	3.72	34.23	200	16	Average

Test Mode :	Mode 1	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	41~42%
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
85.89	21.49	-18.51	40	43.24	7.89	0.37	30.01	100	28	Peak
162.84	20.49	-23.01	43.5	40.4	9.49	0.53	29.93	-	-	Peak
172.02	21.61	-21.89	43.5	41.88	9.08	0.55	29.9	-	-	Peak
872.6	24.57	-21.43	46	32.38	20.48	1.29	29.58	-	-	Peak
944	26.03	-27.97	54	33.52	20.71	1.33	29.53	-	-	Peak
992.3	23.04	-30.96	54	30.09	21.06	1.41	29.52	-	-	Peak
2388.28	49.93	-24.07	74	47.65	32.86	3.47	34.05	100	0	Peak
2388.28	37.9	-16.1	54	35.62	32.86	3.47	34.05	100	0	Average
2412	96.33	-	-	94	32.89	3.52	34.08	100	122	Peak
2412	92.5	-	-	90.17	32.89	3.52	34.08	100	122	Average
2492.78	49.94	-24.06	74	47.4	33.05	3.72	34.23	100	118	Peak
2492.78	36.89	-17.11	54	34.35	33.05	3.72	34.23	100	118	Average

Test Mode :	Mode 2	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
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
85.89	14.13	-25.87	40	35.88	7.89	0.37	30.01	-	-	85.89
164.73	17.49	-26.01	43.5	37.48	9.4	0.54	29.93	-	-	164.73
270.57	19.55	-26.45	46	36.38	12.39	0.69	29.91	-	-	270.57
748	21.5	-24.5	46	29.99	19.88	1.18	29.55	-	-	748
939.8	25.84	-20.16	46	33.35	20.69	1.33	29.53	100	0	939.8
957.3	23.9	-30.1	54	31.33	20.77	1.34	29.54	-	-	957.3
2380.87	49.93	-24.07	74	47.69	32.83	3.42	34.01	200	0	2380.87
2380.87	37.19	-16.81	54	34.95	32.83	3.42	34.01	200	0	2380.87
2437	100.48	-	-	98.08	32.95	3.6	34.15	200	50	2437
2437	96.66	-	-	94.26	32.95	3.6	34.15	200	50	2437
2486.7	50.96	-23.04	74	48.47	33.01	3.68	34.2	200	12	2486.7
2486.7	37.75	-16.25	54	35.26	33.01	3.68	34.2	200	12	2486.7

Test Mode :	Mode 2	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
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
30.27	19.99	-20.01	40	31.81	18	0.26	30.08	-	-	Peak
85.89	21.37	-18.63	40	43.12	7.89	0.37	30.01	100	21	Peak
172.02	21.71	-21.79	43.5	41.98	9.08	0.55	29.9	-	-	Peak
709.5	22.46	-23.54	46	31.63	19.39	1.14	29.7	-	-	Peak
872.6	23.6	-22.4	46	31.41	20.48	1.29	29.58	-	-	Peak
939.8	25.77	-20.23	46	33.28	20.69	1.33	29.53	-	-	Peak
2379.92	50.27	-23.73	74	48.03	32.83	3.42	34.01	100	16	Peak
2379.92	36.76	-17.24	54	34.52	32.83	3.42	34.01	100	16	Average
2437	100.23	-	-	97.83	32.95	3.6	34.15	100	320	Peak
2437	95.56	-	-	93.16	32.95	3.6	34.15	100	320	Average
2490.12	49.53	-24.47	74	46.99	33.05	3.72	34.23	100	0	Peak
2490.12	36.79	-17.21	54	34.25	33.05	3.72	34.23	100	0	Average

Test Mode :	Mode 3	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
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
30.54	19.61	-20.39	40	32.15	17.29	0.25	30.08	100	112	Peak
224.67	18.09	-27.91	46	36.9	10.5	0.63	29.94	-	-	Peak
255.99	18.32	-27.68	46	35.41	12.09	0.67	29.85	-	-	Peak
872.6	24.51	-21.49	46	32.32	20.48	1.29	29.58	-	-	Peak
904.8	25.15	-20.85	46	32.86	20.47	1.3	29.48	-	-	Peak
944.7	27.28	-26.72	54	34.78	20.71	1.33	29.54	-	-	Peak
2369.85	50.45	-23.55	74	48.21	32.83	3.42	34.01	200	10	Peak
2369.85	37.36	-16.64	54	35.12	32.83	3.42	34.01	200	10	Average
2462	100.99	-	-	98.54	32.98	3.64	34.17	200	36	Peak
2462	97.06	-	-	94.61	32.98	3.64	34.17	200	36	Average
2488.98	51.13	-22.87	74	48.59	33.05	3.72	34.23	200	31	Peak
2488.98	36.77	-17.23	54	34.23	33.05	3.72	34.23	200	31	Average

Test Mode :	Mode 3	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
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
49.98	17.63	-22.37	40	40.08	7.4	0.28	30.13	-	-	Peak
85.89	20.99	-19.01	40	42.74	7.89	0.37	30.01	100	102	Peak
172.02	21.59	-21.91	43.5	41.86	9.08	0.55	29.9	-	-	Peak
872.6	23.38	-22.62	46	31.19	20.48	1.29	29.58	-	-	Peak
944.7	26.26	-27.74	54	33.76	20.71	1.33	29.54	-	-	Peak
957.3	23.33	-30.67	54	30.76	20.77	1.34	29.54	-	-	Peak
2386	50.34	-23.66	74	48.06	32.86	3.47	34.05	100	102	Peak
2386	37.6	-16.4	54	35.32	32.86	3.47	34.05	100	102	Average
2462	99.48	-	-	97.03	32.98	3.64	34.17	100	281	Peak
2462	95.76	-	-	93.31	32.98	3.64	34.17	100	281	Average
2483.66	51.42	-22.58	74	48.93	33.01	3.68	34.2	100	201	Peak
2483.66	38.1	-15.9	54	35.61	33.01	3.68	34.2	100	201	Average

Test Mode :	Mode 4	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	41~42%
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
31.08	19	-21	40	31.54	17.29	0.25	30.08	100	188	Peak
172.02	18.88	-24.62	43.5	39.15	9.08	0.55	29.9	-	-	Peak
268.95	18.52	-27.48	46	35.39	12.34	0.69	29.9	-	-	Peak
872.6	23.32	-22.68	46	31.13	20.48	1.29	29.58	-	-	Peak
944.7	28.06	-25.94	54	35.56	20.71	1.33	29.54	-	-	Peak
957.3	24.01	-29.99	54	31.44	20.77	1.34	29.54	-	-	Peak
2390	61.18	-12.82	74	58.9	32.86	3.47	34.05	200	0	Peak
2390	39.56	-14.44	54	37.28	32.86	3.47	34.05	200	0	Average
2412	99.07	-	-	96.74	32.89	3.52	34.08	200	0	Peak
2412	84.03	-	-	81.7	32.89	3.52	34.08	200	0	Average
2498.1	50.17	-23.83	74	47.63	33.05	3.72	34.23	200	118	Peak
2498.1	36.92	-17.08	54	34.38	33.05	3.72	34.23	200	118	Average

Test Mode :	Mode 4	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	41~42%
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
51.06	18.49	-21.51	40	41.13	7.21	0.28	30.13	-	-	Peak
86.43	21.61	-18.39	40	43.36	7.89	0.37	30.01	100	0	Peak
172.02	21.65	-21.85	43.5	41.92	9.08	0.55	29.9	-	-	Peak
872.6	23.69	-22.31	46	31.5	20.48	1.29	29.58	-	-	Peak
944	26.09	-27.91	54	33.58	20.71	1.33	29.53	-	-	Peak
957.3	24.42	-29.58	54	31.85	20.77	1.34	29.54	-	-	Peak
2390	56.11	-17.89	74	53.83	32.86	3.47	34.05	100	201	Peak
2390	38.46	-15.54	54	36.18	32.86	3.47	34.05	100	201	Average
2412	97.58	-	-	95.25	32.89	3.52	34.08	100	0	Peak
2412	83.58	-	-	81.25	32.89	3.52	34.08	100	0	Average
2493.16	49.46	-24.54	74	46.92	33.05	3.72	34.23	100	0	Peak
2493.16	36.77	-17.23	54	34.23	33.05	3.72	34.23	100	0	Average

Test Mode :	Mode 5	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
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
30.81	19.15	-20.85	40	31.69	17.29	0.25	30.08	100	0	Peak
85.89	16.72	-23.28	40	38.47	7.89	0.37	30.01	-	-	Peak
172.02	19.47	-24.03	43.5	39.74	9.08	0.55	29.9	-	-	Peak
872.6	23.92	-22.08	46	31.73	20.48	1.29	29.58	-	-	Peak
944.7	27.57	-26.43	54	35.07	20.71	1.33	29.54	-	-	Peak
957.3	24.63	-29.37	54	32.06	20.77	1.34	29.54	-	-	Peak
2355.6	49.92	-24.08	74	47.71	32.81	3.38	33.98	200	0	Peak
2355.6	37.31	-16.69	54	35.1	32.81	3.38	33.98	200	0	Average
2437	101.95	-	-	99.55	32.95	3.6	34.15	200	0	Peak
2437	87.03	-	-	84.63	32.95	3.6	34.15	200	0	Average
2483.5	49.58	-24.42	74	47.09	33.01	3.68	34.2	200	10	Peak
2483.5	37.55	-16.45	54	35.06	33.01	3.68	34.2	200	10	Average

Test Mode :	Mode 5	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
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
50.25	18.04	-21.96	40	40.49	7.4	0.28	30.13	-	-	Peak
85.35	20.92	-19.08	40	42.86	7.7	0.37	30.01	100	110	Peak
172.02	21.29	-22.21	43.5	41.56	9.08	0.55	29.9	-	-	Peak
872.6	24.58	-21.42	46	32.39	20.48	1.29	29.58	-	-	Peak
944.7	26.43	-27.57	54	33.93	20.71	1.33	29.54	-	-	Peak
957.3	25.08	-28.92	54	32.51	20.77	1.34	29.54	-	-	Peak
2384.1	50.15	-23.85	74	47.91	32.83	3.42	34.01	100	122	Peak
2384.1	36.92	-17.08	54	34.68	32.83	3.42	34.01	100	122	Average
2437	100.71	-	-	98.31	32.95	3.6	34.15	100	81	Peak
2437	85.98	-	-	83.58	32.95	3.6	34.15	100	81	Average
2483.47	49.83	-24.17	74	47.34	33.01	3.68	34.2	100	0	Peak
2483.47	37.61	-16.39	54	35.12	33.01	3.68	34.2	100	0	Average

Test Mode :	Mode 6	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
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
31.08	19.32	-20.68	40	31.86	17.29	0.25	30.08	100	182	Peak
172.02	18.62	-24.88	43.5	38.89	9.08	0.55	29.9	-	-	Peak
255.99	18.98	-27.02	46	36.07	12.09	0.67	29.85	-	-	Peak
872.6	22.96	-23.04	46	30.77	20.48	1.29	29.58	-	-	Peak
944.7	26.25	-27.75	54	33.75	20.71	1.33	29.54	-	-	Peak
957.3	24.79	-29.21	54	32.22	20.77	1.34	29.54	-	-	Peak
2356.36	50	-24	74	47.79	32.81	3.38	33.98	200	61	Peak
2356.36	37.03	-16.97	54	34.82	32.81	3.38	33.98	200	61	Average
2462	102.54	-	-	100.09	32.98	3.64	34.17	200	0	Peak
2462	87.74	-	-	85.29	32.98	3.64	34.17	200	0	Average
2483.85	60.66	-13.34	74	58.17	33.01	3.68	34.2	200	103	Peak
2483.85	41.15	-12.85	54	38.66	33.01	3.68	34.2	200	103	Average

Test Mode :	Mode 6	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
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
32.43	18.67	-21.33	40	32.48	16.04	0.24	30.09	-	-	Peak
85.89	21.3	-18.7	40	43.05	7.89	0.37	30.01	100	66	Peak
172.02	20.69	-22.81	43.5	40.96	9.08	0.55	29.9	-	-	Peak
872.6	23.73	-22.27	46	31.54	20.48	1.29	29.58	-	-	Peak
944	26.23	-27.77	54	33.72	20.71	1.33	29.53	-	-	Peak
957.3	25.64	-28.36	54	33.07	20.77	1.34	29.54	-	-	Peak
2375.36	50.46	-23.54	74	48.22	32.83	3.42	34.01	100	116	Peak
2375.36	37.4	-16.6	54	35.16	32.83	3.42	34.01	100	116	Average
2462	100.68	-	-	98.23	32.98	3.64	34.17	100	0	Peak
2462	86.13	-	-	83.68	32.98	3.64	34.17	100	0	Average
2483.5	57.84	-16.16	74	55.35	33.01	3.68	34.2	100	22	Peak
2483.5	40.75	-13.25	54	38.26	33.01	3.68	34.2	100	22	Average

Test Mode :	Mode 7	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	41~42%
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
31.08	18.75	-21.25	40	31.29	17.29	0.25	30.08	100	201	Peak
85.89	15.53	-24.47	40	37.28	7.89	0.37	30.01	-	-	Peak
170.4	16.51	-26.99	43.5	36.73	9.14	0.55	29.91	-	-	Peak
878.2	23	-23	46	30.79	20.47	1.29	29.55	-	-	Peak
944.7	28.23	-25.77	54	35.73	20.71	1.33	29.54	-	-	Peak
957.3	23.85	-30.15	54	31.28	20.77	1.34	29.54	-	-	Peak
2390	59.08	-14.92	74	56.8	32.86	3.47	34.05	200	12	Peak
2390	40.48	-13.52	54	38.2	32.86	3.47	34.05	200	12	Average
2412	98.4	-	-	96.07	32.89	3.52	34.08	200	0	Peak
2412	85.09	-	-	82.76	32.89	3.52	34.08	200	0	Average
2484.42	50	-24	74	47.51	33.01	3.68	34.2	200	101	Peak
2484.42	37.12	-16.88	54	34.63	33.01	3.68	34.2	200	101	Average

Test Mode :	Mode 7	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	41~42%
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
31.35	19.57	-20.43	40	32.11	17.29	0.25	30.08	-	-	Peak
86.43	20.58	-19.42	40	42.33	7.89	0.37	30.01	100	159	Peak
172.02	20.89	-22.61	43.5	41.16	9.08	0.55	29.9	-	-	Peak
872.6	23.23	-22.77	46	31.04	20.48	1.29	29.58	-	-	Peak
944.7	26.53	-27.47	54	34.03	20.71	1.33	29.54	-	-	Peak
960.1	24.43	-29.57	54	31.84	20.79	1.34	29.54	-	-	Peak
2388.47	58.97	-15.03	74	56.69	32.86	3.47	34.05	100	119	Peak
2388.47	39.96	-14.04	54	37.68	32.86	3.47	34.05	100	119	Average
2412	97.74	-	-	95.41	32.89	3.52	34.08	100	0	Peak
2412	83.55	-	-	81.22	32.89	3.52	34.08	100	0	Average
2496.58	50.14	-23.86	74	47.6	33.05	3.72	34.23	100	256	Peak
2496.58	37.65	-16.35	54	35.11	33.05	3.72	34.23	100	256	Average

Test Mode :	Mode 8	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
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
31.89	19.19	-20.81	40	32.49	16.55	0.24	30.09	100	201	Peak
172.02	17.62	-25.88	43.5	37.89	9.08	0.55	29.9	-	-	Peak
255.99	19.56	-26.44	46	36.65	12.09	0.67	29.85	-	-	Peak
872.6	24.31	-21.69	46	32.12	20.48	1.29	29.58	-	-	Peak
944.7	28.26	-25.74	54	35.76	20.71	1.33	29.54	-	-	Peak
957.3	26.63	-27.37	54	34.06	20.77	1.34	29.54	-	-	Peak
2388.28	50.12	-23.88	74	47.84	32.86	3.47	34.05	200	115	Peak
2388.28	37.47	-16.53	54	35.19	32.86	3.47	34.05	200	115	Average
2437	101.42	-	-	99.02	32.95	3.6	34.15	200	0	Peak
2437	88.01	-	-	85.61	32.95	3.6	34.15	200	0	Average
2484.04	49.83	-24.17	74	47.34	33.01	3.68	34.2	200	306	Peak
2484.04	37.17	-16.83	54	34.68	33.01	3.68	34.2	200	306	Average

Test Mode :	Mode 8	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
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
85.62	20.25	-19.75	40	42.19	7.7	0.37	30.01	100	0	Peak
163.38	20.01	-23.49	43.5	39.96	9.44	0.54	29.93	-	-	Peak
172.02	21.19	-22.31	43.5	41.46	9.08	0.55	29.9	-	-	Peak
873.3	23.46	-22.54	46	31.27	20.48	1.29	29.58	-	-	Peak
944.7	26.8	-27.2	54	34.3	20.71	1.33	29.54	-	-	Peak
957.3	24.69	-29.31	54	32.12	20.77	1.34	29.54	-	-	Peak
2383.91	49.94	-24.06	74	47.7	32.83	3.42	34.01	100	0	Peak
2383.91	36.87	-17.13	54	34.63	32.83	3.42	34.01	100	0	Average
2437	99.4	-	-	97	32.95	3.6	34.15	100	62	Peak
2437	83.98	-	-	81.58	32.95	3.6	34.15	100	62	Average
2485.18	49.3	-24.7	74	46.81	33.01	3.68	34.2	100	22	Peak
2485.18	36.8	-17.2	54	34.31	33.01	3.68	34.2	100	22	Average

Test Mode :	Mode 9	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
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
30.81	19.09	-20.91	40	31.63	17.29	0.25	30.08	100	162	Peak
172.02	17.59	-25.91	43.5	37.86	9.08	0.55	29.9	-	-	Peak
265.71	19.79	-26.21	46	36.72	12.27	0.68	29.88	-	-	Peak
872.6	22.53	-23.47	46	30.34	20.48	1.29	29.58	-	-	Peak
944.7	25.9	-28.1	54	33.4	20.71	1.33	29.54	-	-	Peak
957.3	23.77	-30.23	54	31.2	20.77	1.34	29.54	-	-	Peak
2385.43	50.37	-23.63	74	48.13	32.83	3.42	34.01	200	10	Peak
2385.43	37.57	-16.43	54	35.33	32.83	3.42	34.01	200	10	Average
2462	100.5	-	-	98.05	32.98	3.64	34.17	200	0	Peak
2462	85.91	-	-	83.46	32.98	3.64	34.17	200	0	Average
2483.5	59.65	-14.35	74	57.16	33.01	3.68	34.2	200	115	Peak
2483.5	40.02	-13.98	54	37.53	33.01	3.68	34.2	200	115	Average

Test Mode :	Mode 9	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
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
85.62	20.95	-19.05	40	42.89	7.7	0.37	30.01	100	301	Peak
163.11	20.96	-22.54	43.5	40.87	9.49	0.53	29.93	-	-	Peak
172.02	21.45	-22.05	43.5	41.72	9.08	0.55	29.9	-	-	Peak
872.6	23.68	-22.32	46	31.49	20.48	1.29	29.58	-	-	Peak
944.7	26.49	-27.51	54	33.99	20.71	1.33	29.54	-	-	Peak
957.3	25.52	-28.48	54	32.95	20.77	1.34	29.54	-	-	Peak
2376.88	50.53	-23.47	74	48.29	32.83	3.42	34.01	100	119	Peak
2376.88	38.36	-15.64	54	36.12	32.83	3.42	34.01	100	119	Average
2462	100.82	-	-	98.37	32.98	3.64	34.17	100	256	Peak
2462	86.27	-	-	83.82	32.98	3.64	34.17	100	256	Average
2483.5	60.83	-13.17	74	58.34	33.01	3.68	34.2	100	0	Peak
2483.5	41.17	-12.83	54	38.68	33.01	3.68	34.2	100	0	Average

3.8 Antenna Requirements

3.8.1 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.

3.8.2 Antenna Connected Construction

The antennas type used in this product is PIFA Antenna without connector and it is considered to meet antenna requirement.

3.8.3 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	Mar. 05, 2012	Dec. 29, 2012	Conducted (TH01-KS)
System Simulator	R&S	CMU200	837587/066	2G Full-Band	Dec. 30, 2011	Mar. 05, 2012	Dec. 29, 2012	Conducted (TH01-KS)
DC Power Supply	TOPWARD	GPS-3030D	E1884515	N/A	Aug. 23, 2011	Mar. 05, 2012	Aug. 22, 2012	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	N/A	Dec. 30, 2011	Mar. 05, 2012	Dec. 29, 2012	Conducted (TH01-KS)
ESCIO TEST Receiver	R&S	1142.8007.03	100724	9K-3GHz	Mar. 08, 2011	Feb. 24, 2012	Mar. 07, 2012	Conduction (CO01-SZ)
AC LISN	ETS-LINDGREN	3816/2SH	00103912	0.1MHz~108MHz	Feb. 28, 2011	Feb. 24, 2012	Feb. 27, 2012	Conduction (CO01-SZ)
AC LISN	ETS-LINDGREN	3816/2SH	00103892	0.1MHz~108MHz	Feb. 28, 2011	Feb. 24, 2012	Feb. 27, 2012	Conduction (CO01-SZ)
AVR	Throma	61602	616020000891	N/A	Oct. 12, 2011	Feb. 24, 2012	Oct. 11, 2012	Conduction (CO01-SZ)
AC Filter	ETS-LINDGREN	LRE-2030/PE N 256260	00093783	N/A	N/A	Feb. 24, 2012	N/A	Conduction (CO01-SZ)
AC Filter	ETS-LINDGREN	LRE-2030/PE N 256260	00097973	N/A	N/A	Feb. 24, 2012	N/A	Conduction (CO01-SZ)
System Simulator	Agilent	8960	MY50264168	GSM/WCDMA /CDMA2000	Mar. 14, 2011	Feb. 24, 2012	Mar. 13, 2012	Conduction (CO01-SZ)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 09, 2011	Mar. 06, 2012	Nov. 08, 2012	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Mar. 06, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 08, 2011	Mar. 06, 2012	Dec. 07, 2012	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	860004/00	9 kHz~30 MHz	Jul. 28, 2011	Mar. 06, 2012	Jul. 27, 2012	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2012	Mar. 06, 2012	Jan. 05, 2013	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060004	30MHz~2GHz	Dec. 30, 2011	Mar. 06, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 30, 2011	Mar. 06, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701023	1GHz~18GHz	Nov. 07, 2011	Mar. 06, 2012	Nov. 06, 2012	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Oct. 11, 2011	Mar. 06, 2012	Oct.10, 2012	Radiation (03CH01-KS)
System Simulator	R&S	CMU200	837587/066	2G Full-Band	Dec. 30, 2011	Mar. 06, 2012	Dec. 29, 2012	Radiation (03CH01-KS)

5 Uncertainty of Evaluation

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty $U_c(y)$	1.13		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.26		

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty $U_c(y)$	1.27		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.54		

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

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	± 0.10	Normal ($k=2$)	0.10	1	0.10
Antenna Factor Calibration	± 1.70	Normal ($k=2$)	0.85	1	0.85
Cable Loss Calibration	± 0.50	Normal ($k=2$)	0.25	1	0.25
Receiver Correction	± 2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	± 1.50	Rectangular	0.87	1	0.87
Site Imperfection	± 2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\log(1-\Gamma_1*\Gamma_2)$	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty $U_c(y)$	2.36				
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.72				



Appendix A. Photographs of EUT

Please refer to Sporton report number EP222301 as below.