

FCC RF Test Report

APPLICANT : Huawei Technologies Co., Ltd.
EQUIPMENT : Mobile phone
BRAND NAME : HUAWEI
MODEL NAME : HUAWEI U8815N, U8815N
MARKETING NAME : HUAWEI Ascend G 300 NFC; Ascend G 300 NFC
FCC ID : QISU8815N
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Mar. 24, 2012 and completely tested on Apr. 27, 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
FR232401B	Rev. 01	Initial issue of report	May 04, 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 8.32 dB at 0.15 MHz
3.7	15.247(d)	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.24 dB at 4824 MHz
3.8	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Huawei Technologies Co., Ltd.

Bantian, Longgang District, Shenzhen, 518129 Guangdong, P.R.China

1.2 Manufacturer

Huawei Technologies Co., Ltd.

Bantian, Longgang District, Shenzhen, 518129 Guangdong, P.R.China

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Mobile phone
Brand Name	HUAWEI
Model Name	HUAWEI U8815N, U8815N
Marketing Name	HUAWEI Ascend G 300 NFC; Ascend G 300 NFC
FCC ID	QISU8815N
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
Channel Spacing	5 MHz
Maximum Output Power to Antenna	802.11b : 17.28 dBm (0.053 W) 802.11g : 21.67 dBm (0.147 W) 802.11n (BW 20MHz) : 20.11 dBm (0.103 W)
Duty Cycle	802.11b : 98.81% 802.11g : 94.04% 802.11n (BW 20MHz) : 94.05%
Antenna Type	IFA Antenna with gain -1.04 dBi
HW Version	HD1U8815M
SW Version	U8815NV100R001C00B876T
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.		FCC/IC Registration No.
	TH01-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
- 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	Agilent	E5515C	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GW	GPS-30300	N/A	N/A	Unshielded, 1.8 m
3.	Router	Netcore	NW616	N/A	N/A	Unshielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-108	N/A	N/A	N/A
5.	Notebook	DELL	VOSTRO 1440	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 (11b, 11g, 11g/n (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)	17.28	17.25	17.18	17.12

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)	21.67	21.59	21.46	21.36	21.26	21.13	21.01	20.96

2.4GHz 802.11n (BW 20MHz) mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	20.11	19.98	19.92	19.84	19.71	19.62	19.52	19.45

2.2 Maximum Peak Conducted Output Power:

Band	2.4GHz 802.11b Peak Power (dBm)			2.4GHz 802.11g Peak Power (dBm)		
Channel	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462
Peak Power	16.58	16.84	17.28	20.67	21.04	21.67

Band	2.4GHz 802.11n (BW 20MHz) Peak Power (dBm)		
Channel	1	6	11
Frequency (MHz)	2412	2437	2462
Peak Power	19.28	19.68	20.11

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 Power (dBm)			2.4GHz 802.11g Average Power (dBm)		
Channel	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462
Average Power	13.52	13.81	14.31	10.99	11.21	11.50

Band	2.4GHz 802.11n (BW 20MHz) Average Power (dBm)		
Channel	1	6	11
Frequency (MHz)	2412	2437	2462
Average Power	9.21	9.40	9.66

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

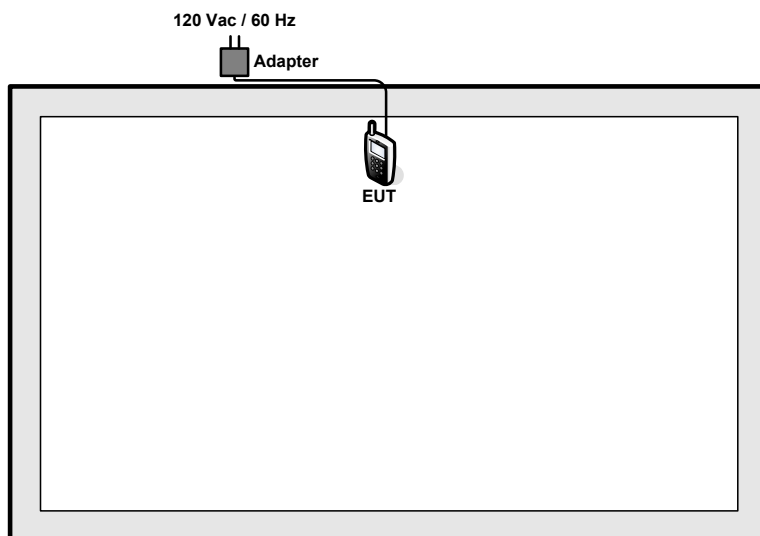
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 KHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic 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/E2 plane) and recorded in this report.

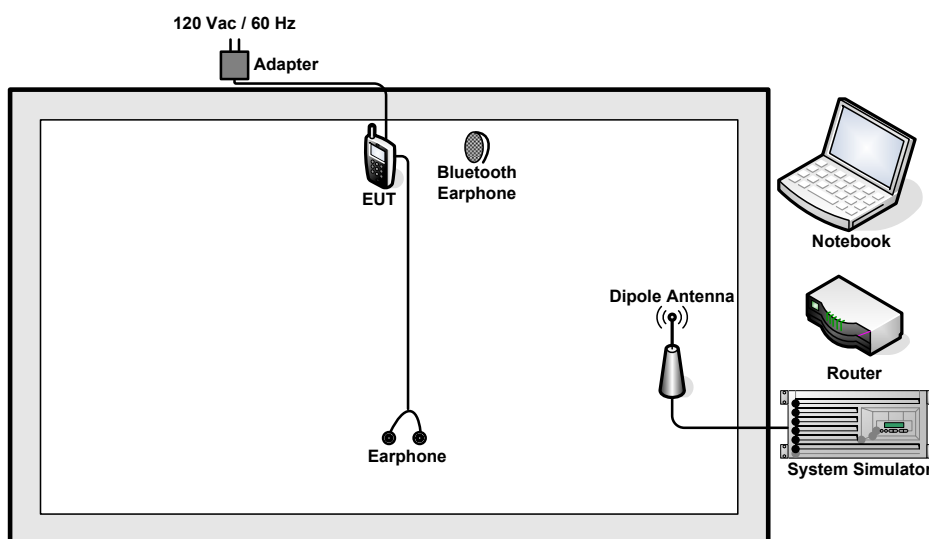
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 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 : GSM850 Idle + Bluetooth Link + WLAN Link + Adapter 2 + Earphone 2 + Camera + Battery 2	

2.5 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.6 RF Utility

The programmed RF utility "Bluetooth radio test" 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.

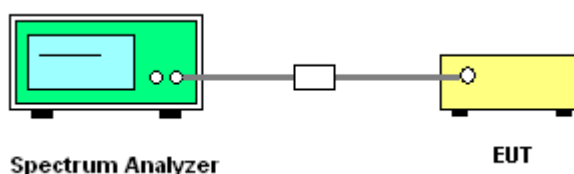
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
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) $\geq 3 * RBW$. 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

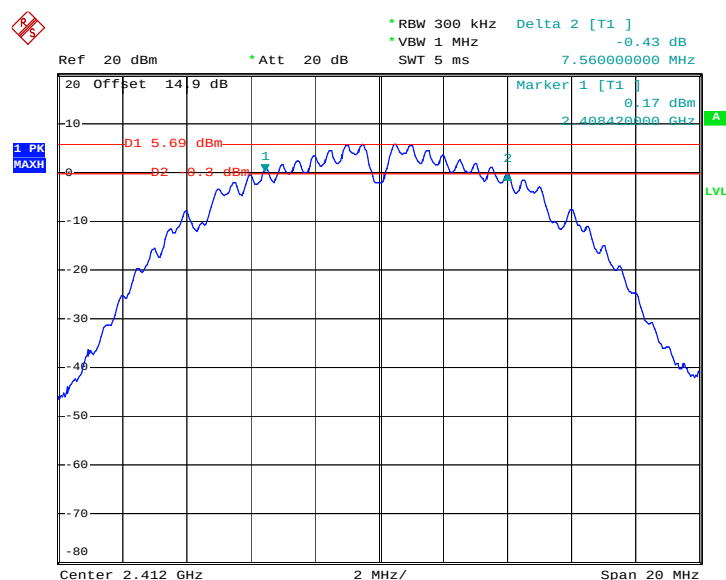


3.1.5 Test Result of 6dB Bandwidth

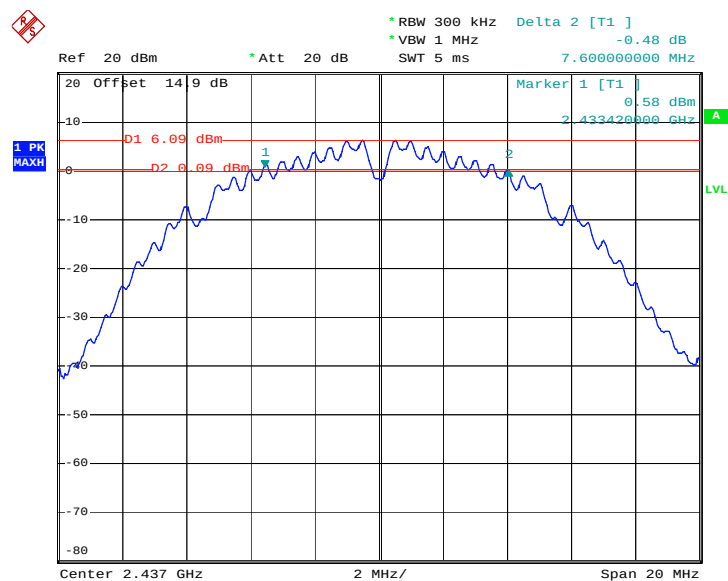
Test Mode :	Mode 1, 2, 3	Temperature :	23~24℃
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	7.56	0.5	Pass
06	2437	7.60	0.5	Pass
11	2462	7.20	0.5	Pass

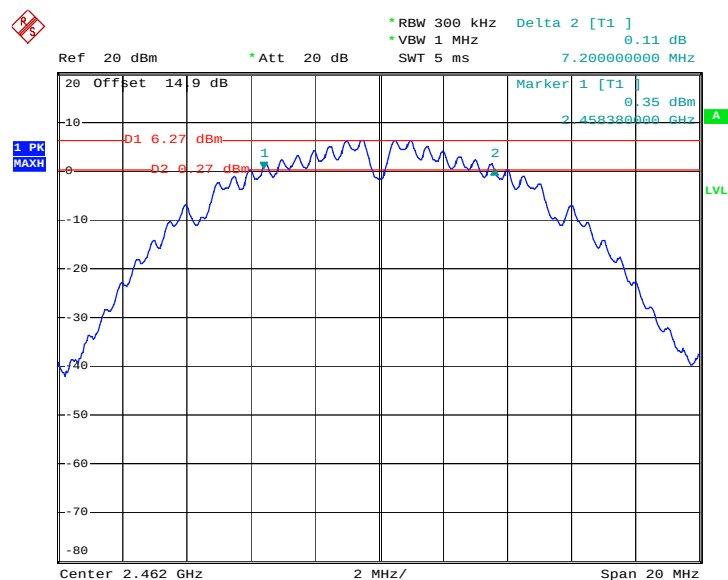
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 24.APR.2012 18:18:29

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


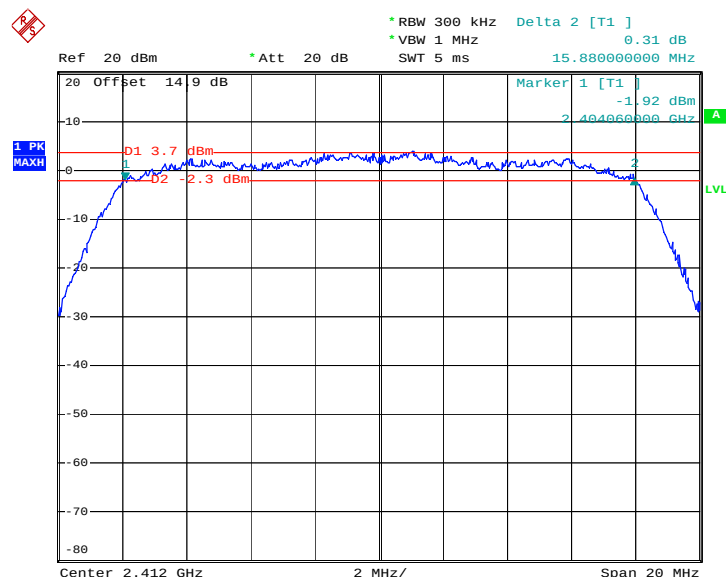
Date: 24.APR.2012 18:21:32

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


Date: 24.APR.2012 18:25:25

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

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.88	0.5	Pass
06	2437	15.84	0.5	Pass
11	2462	16.04	0.5	Pass

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


Date: 24.APR.2012 18:29:57



1 PK
MAXH

Ref 20 dBm * Att 20 dB * RBW 300 kHz Delta 2 [T1] -0.40 dB
* VBW 1 MHz SWT 5 ms 15.840000000 MHz

20 Offset 14.9 dB

Marker 1 [T1] -1.85 dBm
2.429100000 GHz

D1 3.59 dBm
D2 -2.41 dBm

Center 2.437 GHz 2 MHz/ Span 20 MHz

Date: 24.APR.2012 18:33:54

* RBW 300 kHz Delta 2 [T1] 0.36 dB
 * VBW 1 MHz
 SWT 5 ms 16.04000000 MHz

Ref 20 dBm * Att 20 dB

20 Offset 14.9 dB

Marker 1 [T1] -1.59 dBm
 2 453940000 GHz

1 PK MAX

D1 4.3 dBm
 D2 -1.7 dBm

LVL

Center 2.462 GHz 2 MHz/ Span 20 MHz

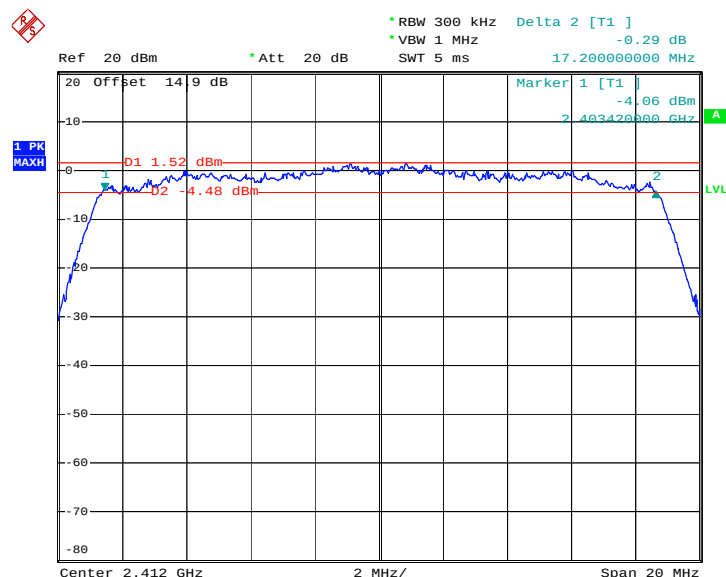
Date: 24.APR.2012 18:38:37



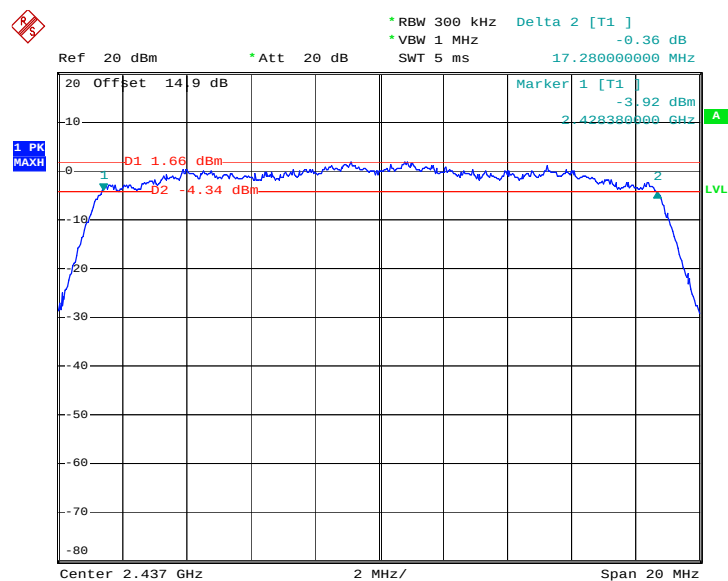
Test Mode :	Mode 7, 8, 9	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.20	0.5	Pass
06	2437	17.28	0.5	Pass
11	2462	17.24	0.5	Pass

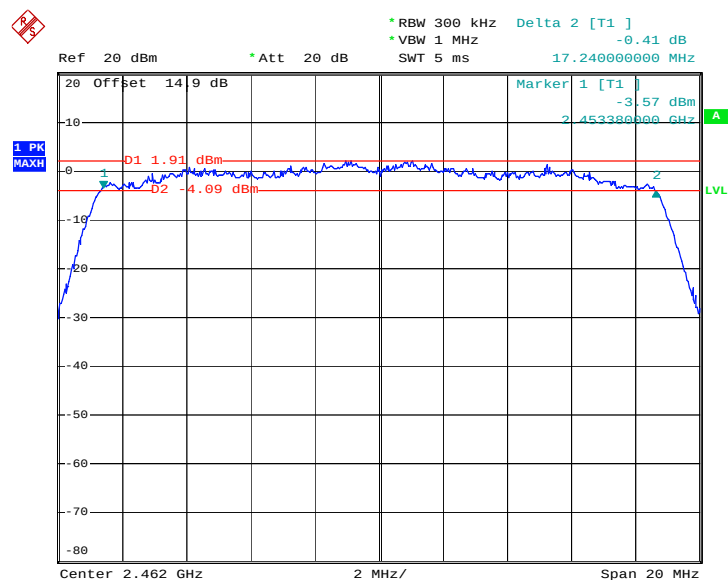
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 24.APR.2012 18:43:51

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


Date: 24.APR.2012 19:25:25

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


Date: 24.APR.2012 19:29:28

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.

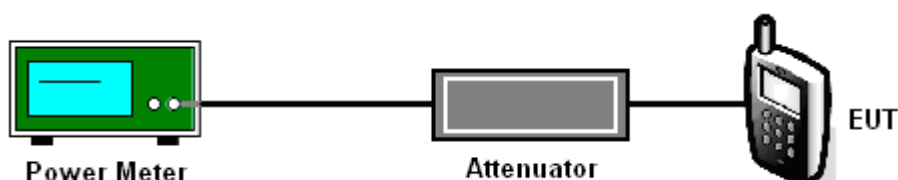
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure PK2 of FCC KDB No. 558074 DTS Meas. Guidance v01.
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 :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	16.58	30	Pass
06	2437	16.84	30	Pass
11	2462	17.28	30	Pass

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

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.67	30	Pass
06	2437	21.04	30	Pass
11	2462	21.67	30	Pass

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

Channel	Frequency (MHz)	802.11n (BW 20MHz) Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	19.28	30	Pass
06	2437	19.68	30	Pass
11	2462	20.11	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

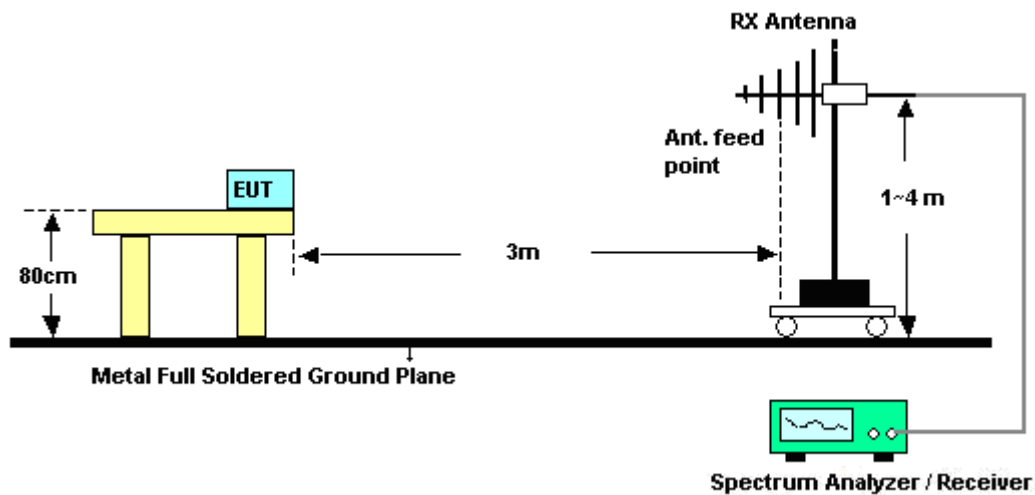
See list of measuring instruments of this test report.

3.3.3 Test Procedures

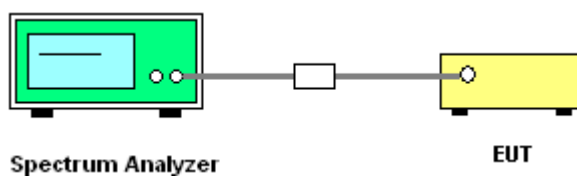
1. The testing follows the guidelines in ANSI C63.4-2003 and the Measurement Procedure of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
2. Conducted emission test: Set RBW = 100 KHz, Video bandwidth (VBW) $\geq$ RBW. Out of the authorized frequency band emissions must be at least 20 dB lower than the highest emission level within the authorized band as measured with a 100 KHz RBW. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
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 :	20~21℃
Test Band :	802.11b	Relative Humidity :	42~43%
Test Channel :	01	Test Engineer :	Jack Li

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
2389.8	51.91	-22.09	74	49.63	32.86	3.47	34.05	195	317	Peak
2389.8	39.77	-14.23	54	37.49	32.86	3.47	34.05	195	317	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
2338.69	49.82	-24.18	74	47.65	32.78	3.33	33.94	102	12	Peak
2338.69	41.65	-12.35	54	39.48	32.78	3.33	33.94	102	12	Average

Test Mode :	Mode 3	Temperature :	20~21℃
Test Band :	802.11b	Relative Humidity :	42~43%
Test Channel :	11	Test Engineer :	Jack Li

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
2488.41	54.74	-19.26	74	52.2	33.05	3.72	34.23	102	354	Peak
2488.41	47.92	-6.08	54	45.38	33.05	3.72	34.23	102	354	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2488.98	53.35	-20.65	74	50.81	33.05	3.72	34.23	102	347	Peak
2488.98	45	-9	54	42.46	33.05	3.72	34.23	102	347	Average



Test Mode :	Mode 4	Temperature :	20~21℃
Test Band :	802.11g	Relative Humidity :	42~43%
Test Channel :	01	Test Engineer :	Jack Li

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
2388.85	55.99	-18.01	74	53.71	32.86	3.47	34.05	112	314	Peak
2388.85	44.63	-9.37	54	42.35	32.86	3.47	34.05	112	314	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	54.91	-19.09	74	52.63	32.86	3.47	34.05	102	188	Peak
2389.99	43.56	-10.44	54	41.28	32.86	3.47	34.05	102	188	Average

Test Mode :	Mode 6	Temperature :	20~21℃
Test Band :	802.11g	Relative Humidity :	42~43%
Test Channel :	11	Test Engineer :	Jack Li

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2487.27	66	-8	74	63.51	33.01	3.68	34.2	100	283	Peak
2487.27	45.51	-8.49	54	43.02	33.01	3.68	34.2	100	283	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2485.37	61.01	-12.99	74	58.52	33.01	3.68	34.2	100	132	Peak
2485.37	42.09	-11.91	54	39.6	33.01	3.68	34.2	100	132	Average



Test Mode :	Mode 7	Temperature :	20~21℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	42~43%
Test Channel :	01	Test Engineer :	Jack Li

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
2389.23	60.4	-13.6	74	58.12	32.86	3.47	34.05	102	271	Peak
2389.23	44.38	-9.62	54	42.1	32.86	3.47	34.05	102	271	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	56.63	-17.37	74	54.35	32.86	3.47	34.05	100	256	Peak
2389.99	42.85	-11.15	54	40.57	32.86	3.47	34.05	100	256	Average

Test Mode :	Mode 9	Temperature :	20~21℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	42~43%
Test Channel :	11	Test Engineer :	Jack Li

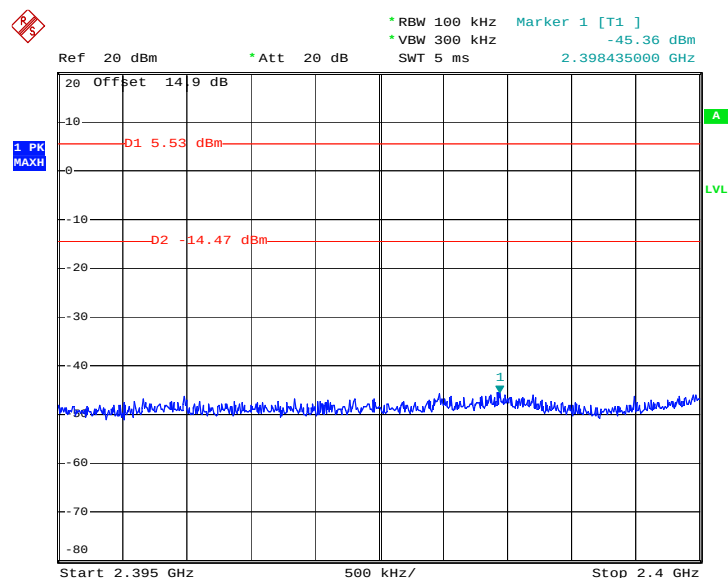
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	56.38	-17.62	74	53.89	33.01	3.68	34.2	100	254	Peak
2483.5	44.72	-9.28	54	42.23	33.01	3.68	34.2	100	254	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2485.75	52.39	-21.61	74	49.9	33.01	3.68	34.2	200	345	Peak
2485.75	39.97	-14.03	54	37.48	33.01	3.68	34.2	200	345	Average

3.3.6 Test Plots of Conducted Band Edges

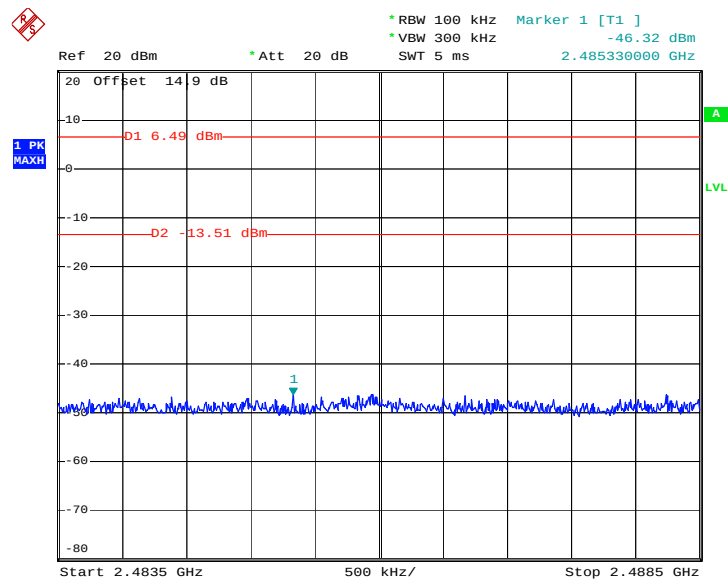
Test Mode :	Mode 1 and 3	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Zhi Lu

Low Band Edge Plot on 802.11b Channel 01



Date: 24.APR.2012 12:00:19

High Band Edge Plot on 802.11b Channel 11

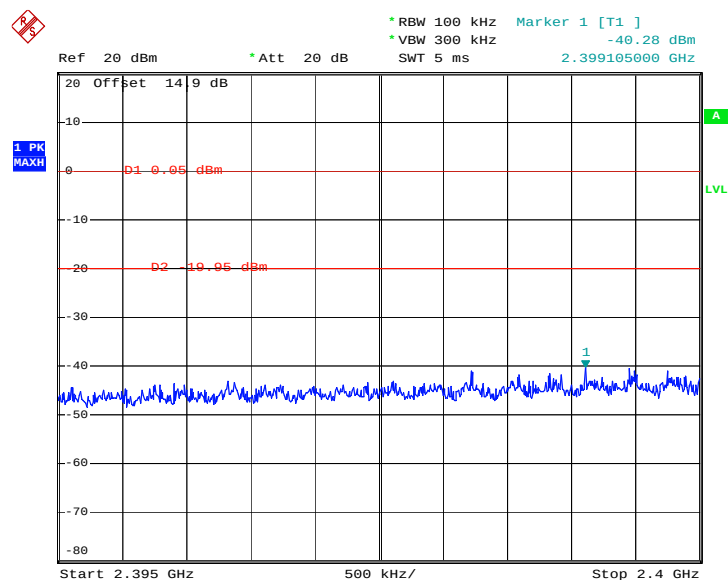


Date: 24.APR.2012 12:07:30



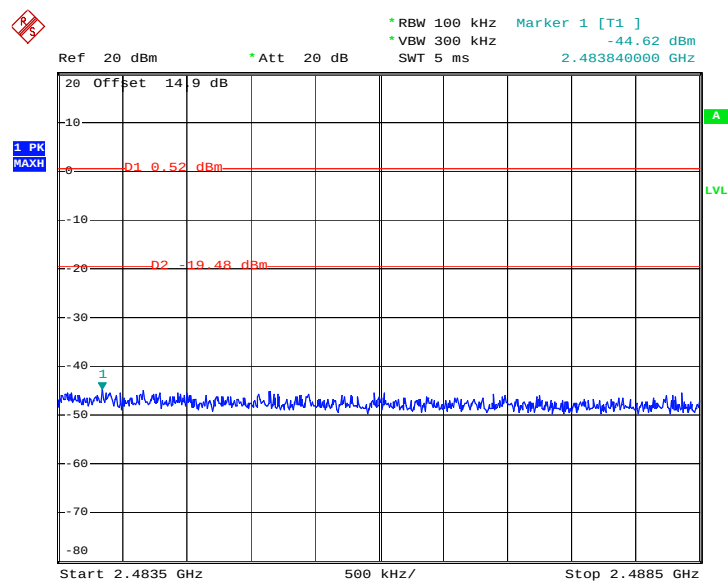
Test Mode :	Mode 4 and 6	Temperature :	23~24℃
Test Band :	802.11g	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Zhi Lu

Low Band Edge Plot on 802.11g Channel 01



Date: 24.APR.2012 12:10:50

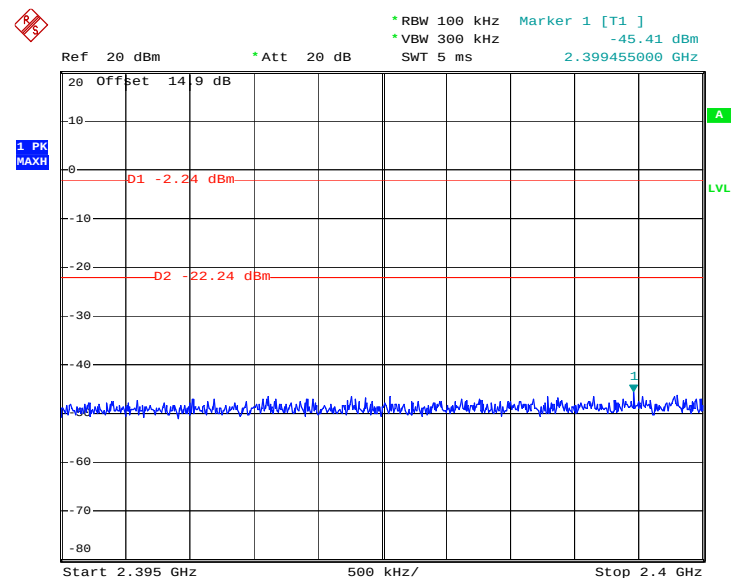
High Band Edge Plot on 802.11g Channel 11



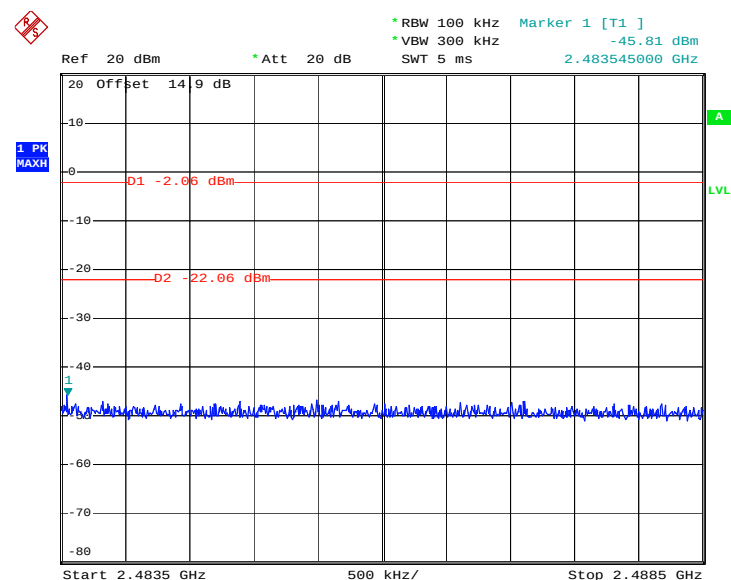
Date: 24.APR.2012 12:17:01



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 :	Zhi Lu

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

Date: 24.APR.2012 12:21:47

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

Date: 24.APR.2012 12:31:55

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.

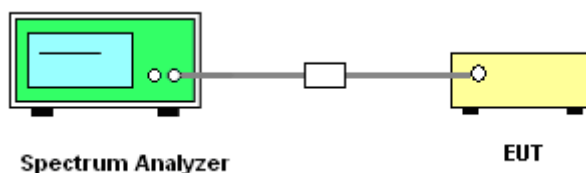
3.4.2 Measuring Instruments

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. The path loss was compensated to the results for each measurement.
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.

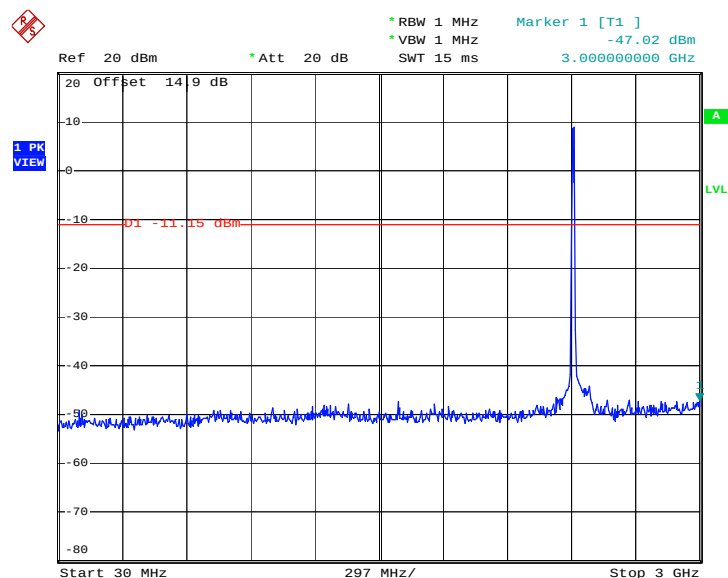
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

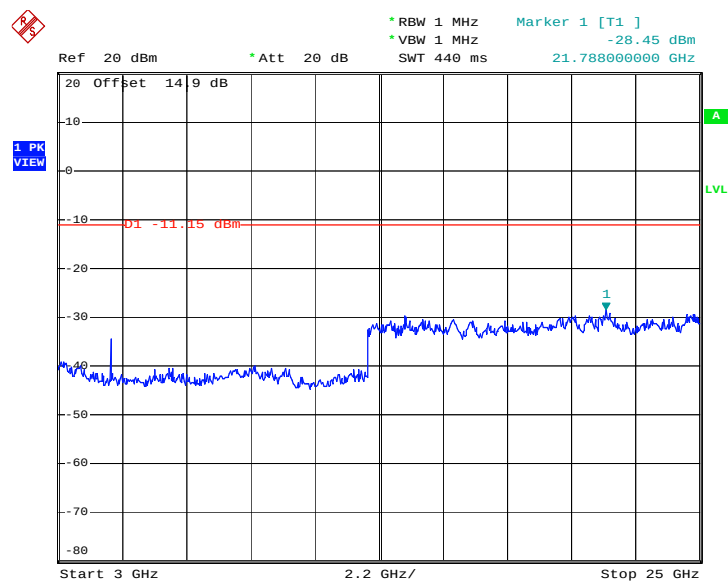
Test Mode :	Mode 1	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 27.APR.2012 15:12:53

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

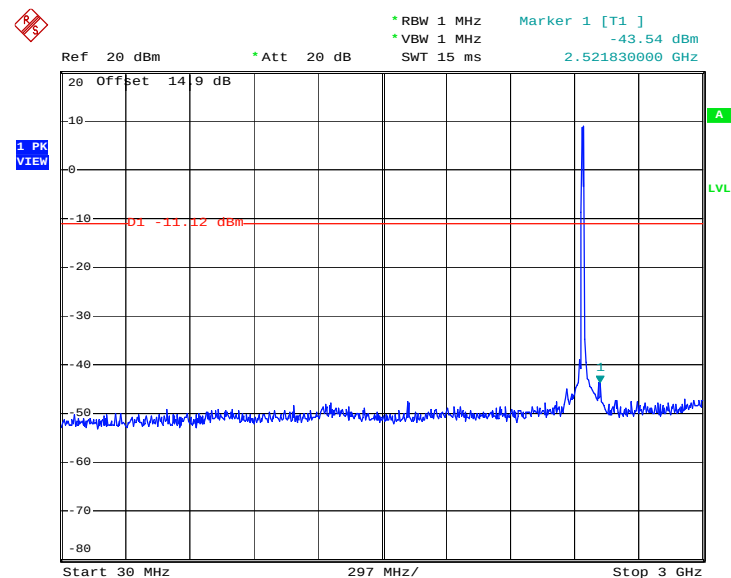


Date: 27.APR.2012 15:13:11



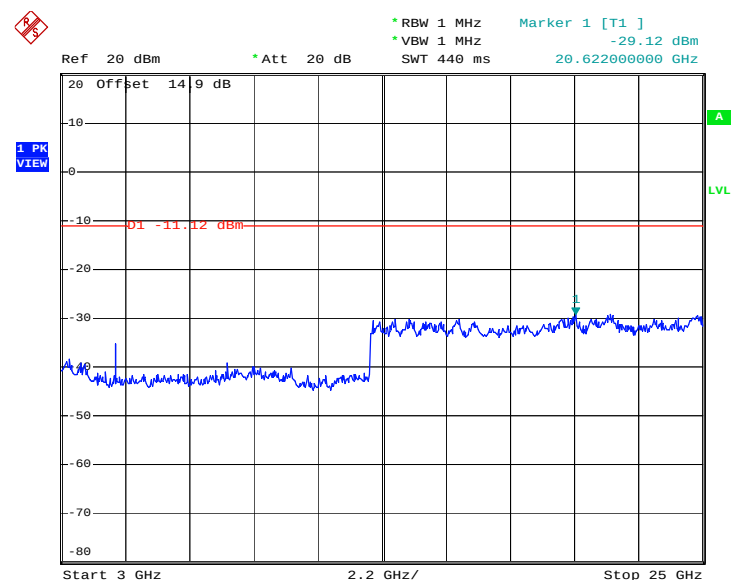
Test Mode :	Mode 2	Temperature :	23~24℃
Test Band :	802.11b	Relative Humidity :	47~48%
Test Channel :	06	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 27.APR.2012 15:13:50

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

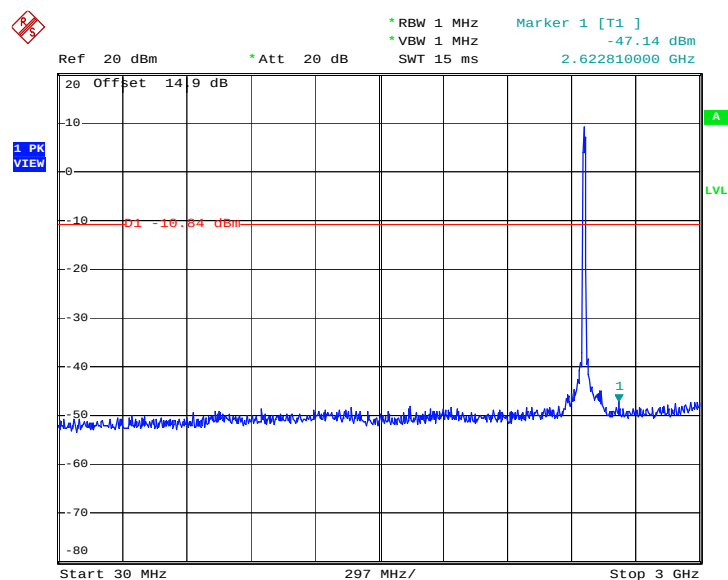


Date: 27.APR.2012 15:14:08



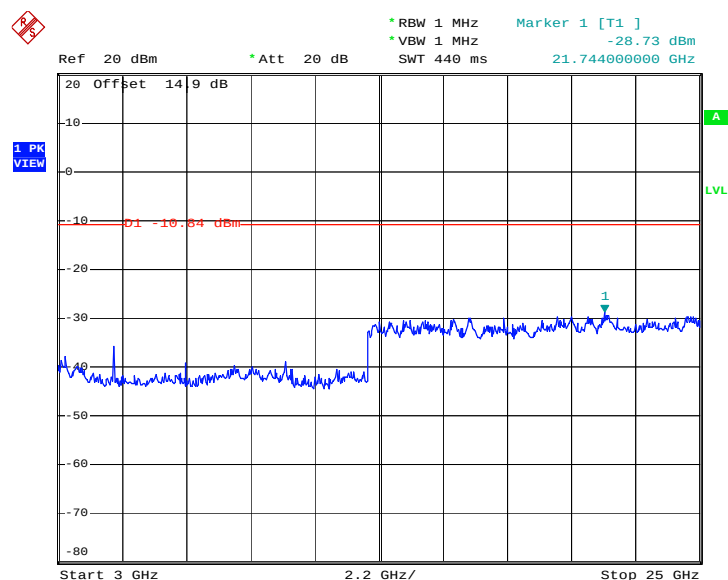
Test Mode :	Mode 3	Temperature :	23~24℃
Test Band :	802.11b	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 27.APR.2012 15:14:57

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

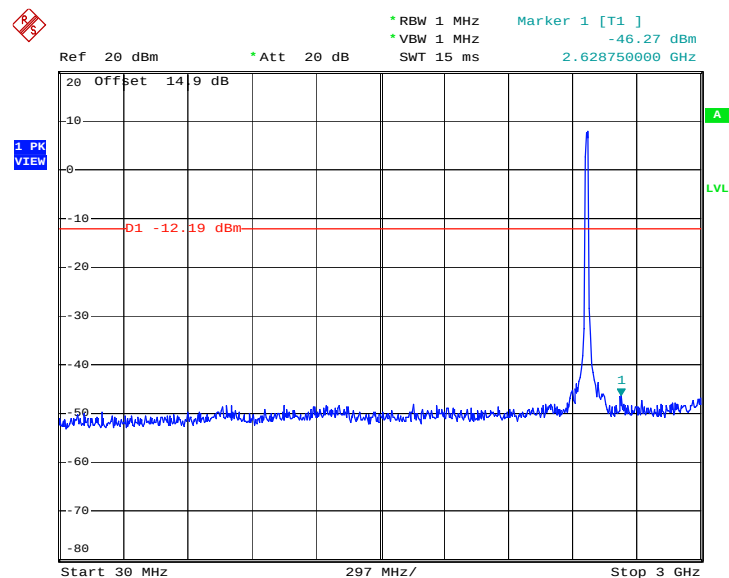


Date: 27.APR.2012 15:15:16



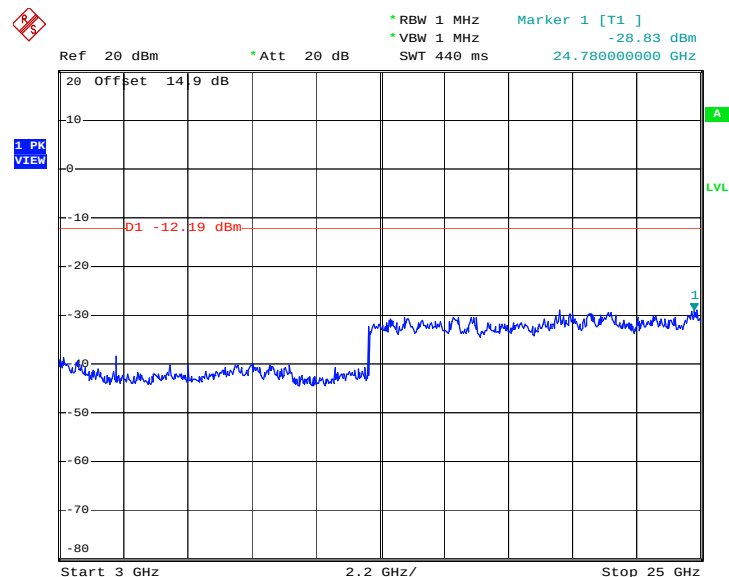
Test Mode :	Mode 4	Temperature :	23~24℃
Test Band :	802.11g	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



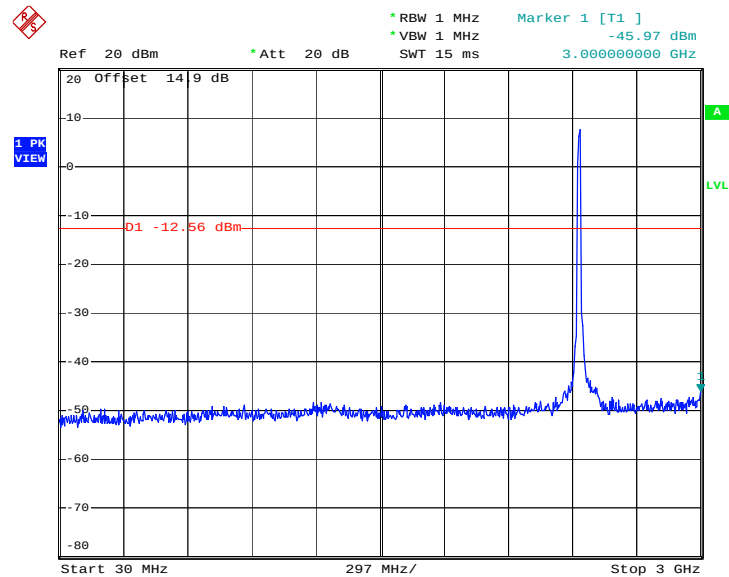
Date: 27.APR.2012 15:17:54

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

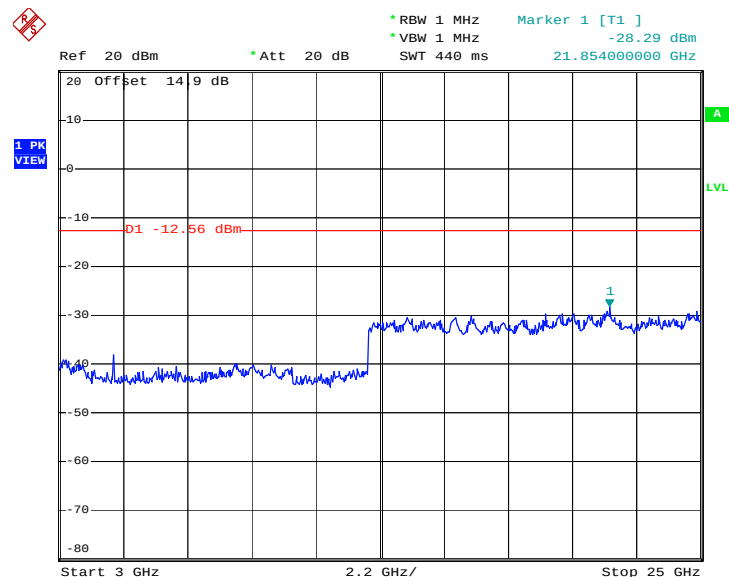


Date: 27.APR.2012 15:18:12

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

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 27.APR.2012 15:18:56

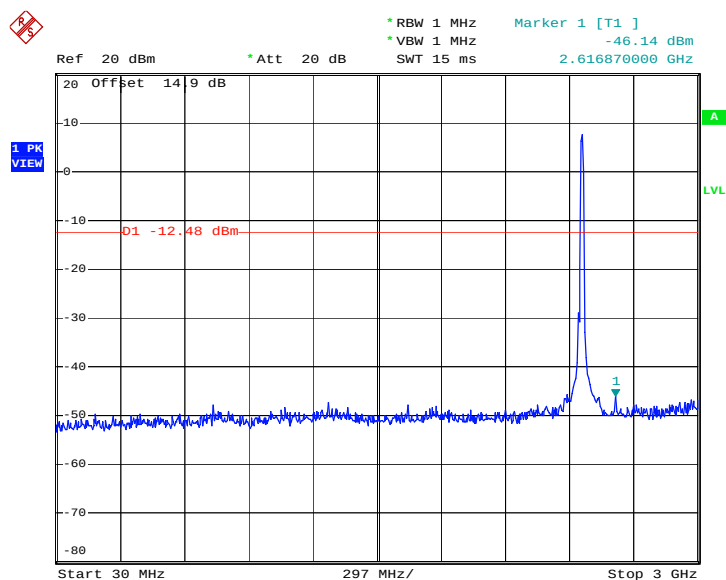
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 27.APR.2012 15:19:14



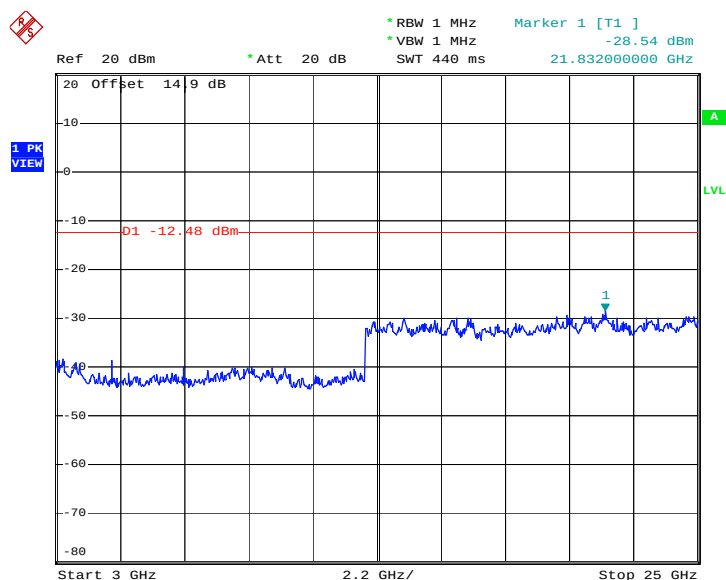
Test Mode :	Mode 6	Temperature :	23~24℃
Test Band :	802.11g	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 27.APR.2012 15:19:46

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

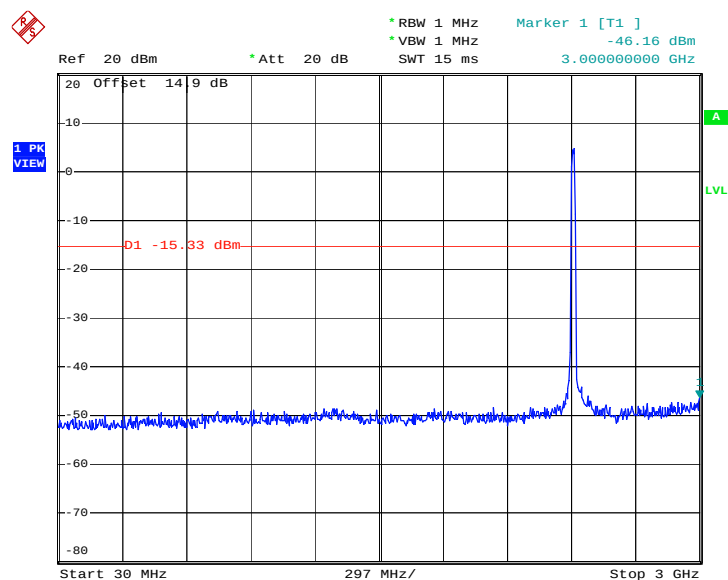


Date: 27.APR.2012 15:20:04



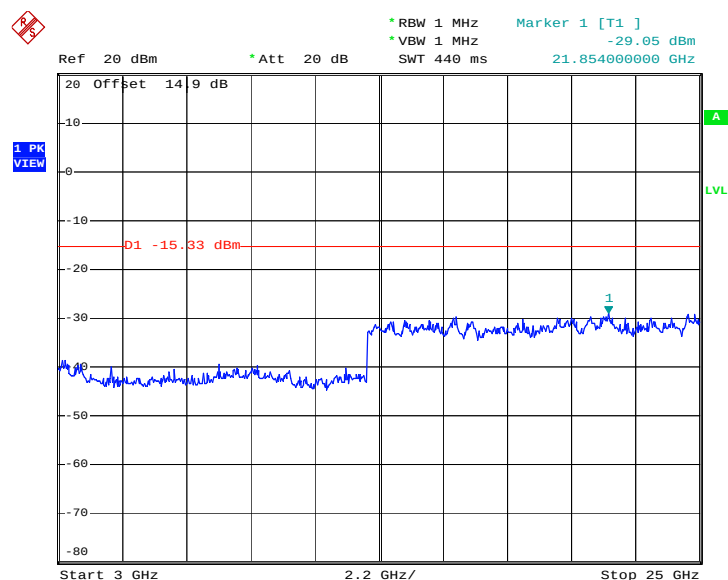
Test Mode :	Mode 7	Temperature :	23~24℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 27.APR.2012 15:21:24

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

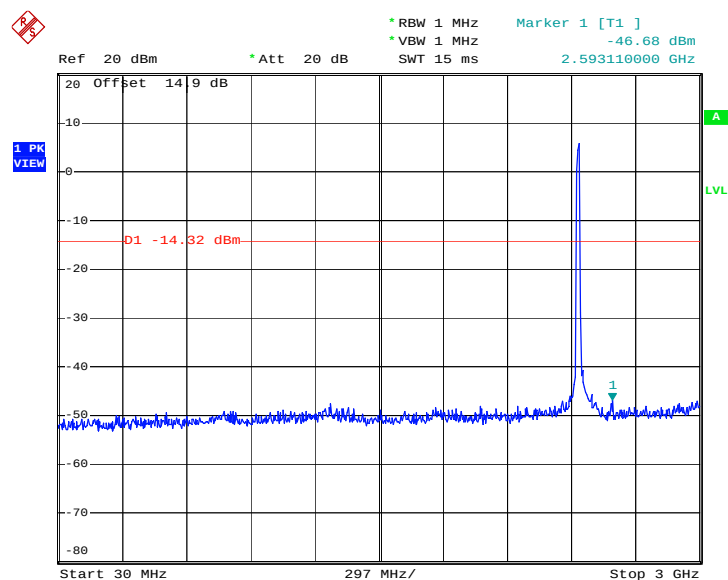


Date: 27.APR.2012 15:21:43



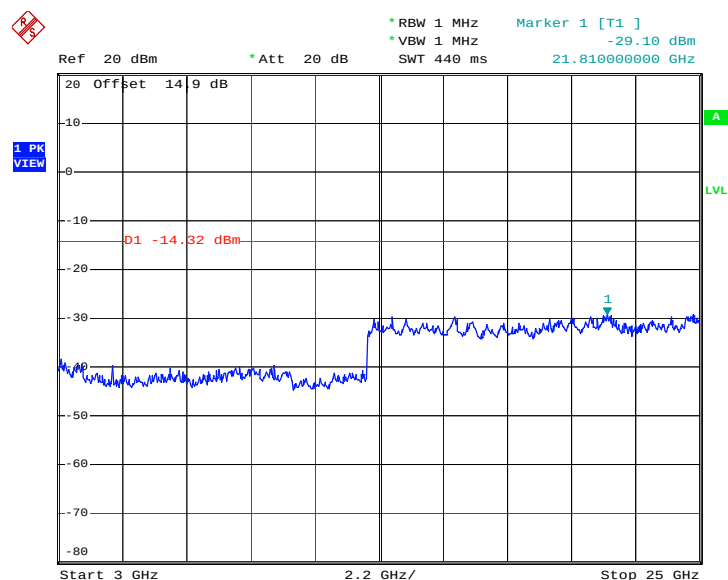
Test Mode :	Mode 8	Temperature :	23~24℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~48%
Test Channel :	06	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 27.APR.2012 15:22:19

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

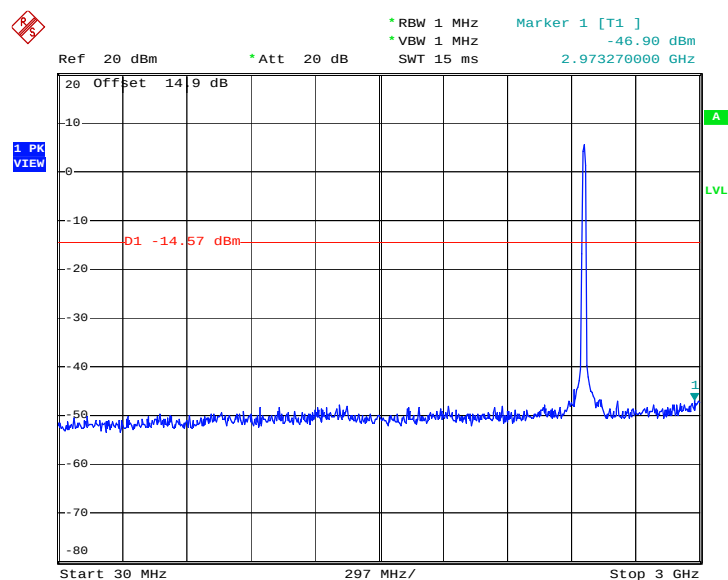


Date: 27.APR.2012 15:22:37



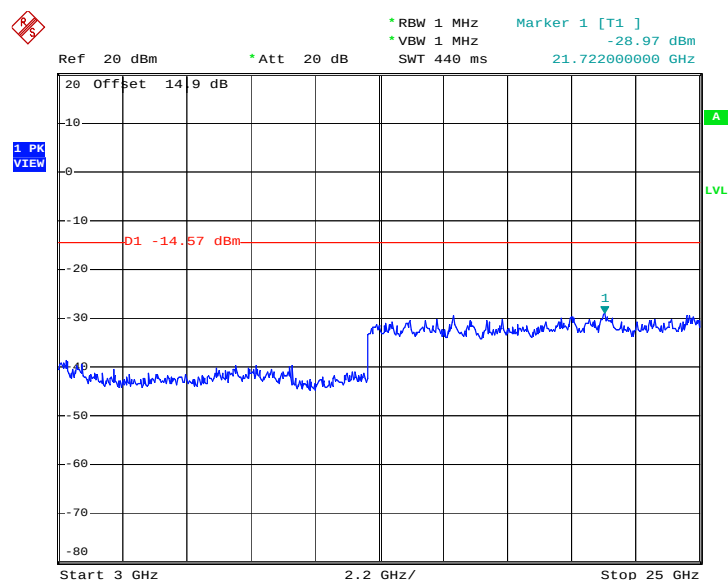
Test Mode :	Mode 9	Temperature :	23~24℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 27.APR.2012 15:23:15

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 27.APR.2012 15:23:34

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.

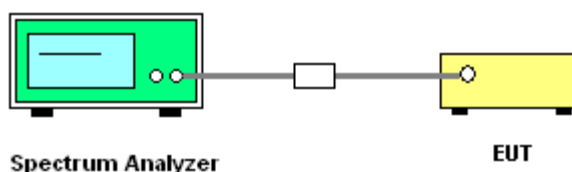
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The testing follows Measurement Procedure PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
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) $\geq$ 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 $BWCF = 10\log(3\text{ kHz}/100\text{ kHz}) = -15.2\text{ dB}$.

3.5.4 Test Setup



3.5.5 Test Result of Power Spectral Density

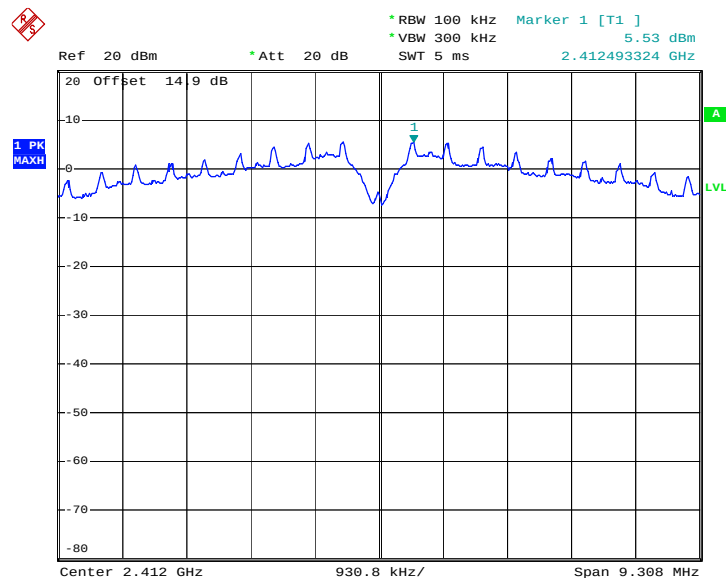
Test Mode :	Mode 1, 2, 3	Temperature :	23~24℃
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11b Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	5.53	-9.67	8	Pass
06	2437	6.27	-8.93	8	Pass
11	2462	6.49	-8.71	8	Pass

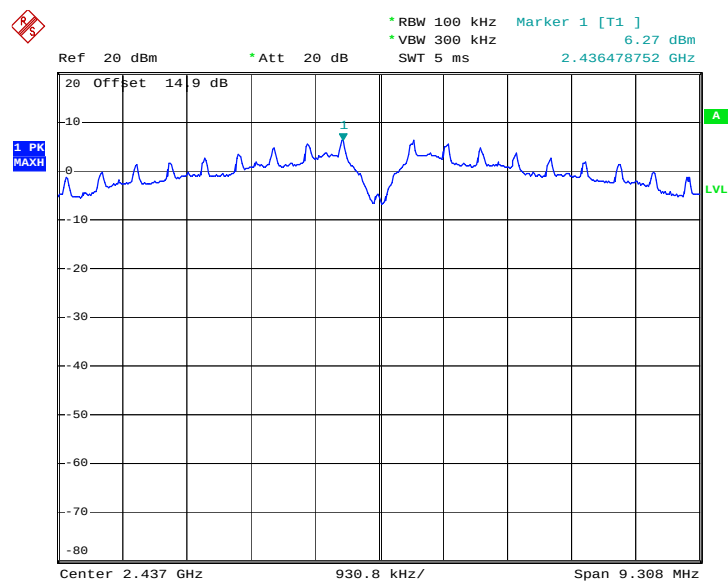
Note:

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

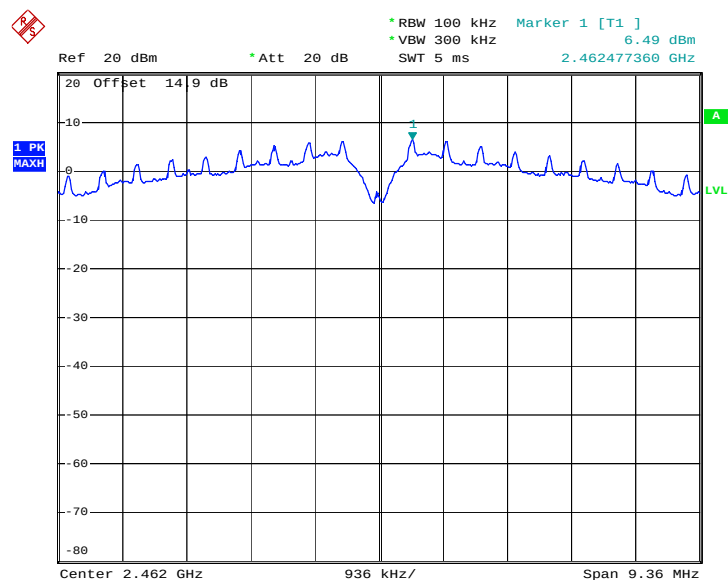
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 24.APR.2012 11:59:33

Mode 2 : PSD Plot on 802.11b Channel 06


Date: 24.APR.2012 12:04:14

Mode 3 : PSD Plot on 802.11b Channel 11


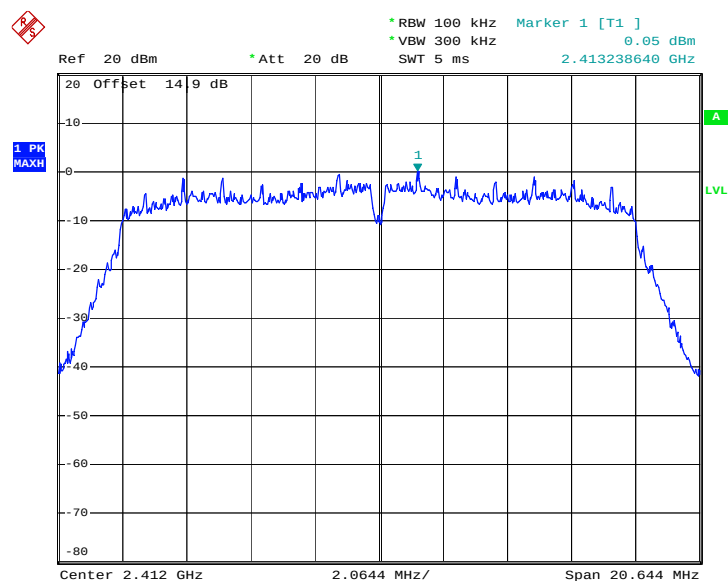
Date: 24.APR.2012 12:06:58

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

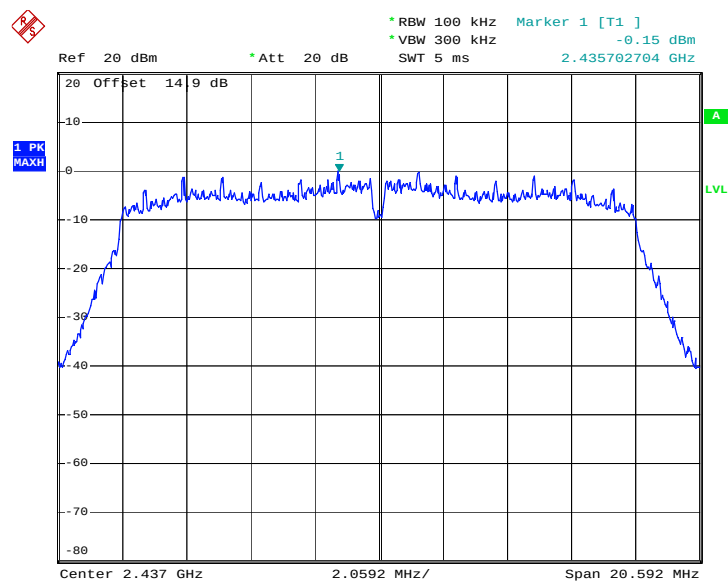
Channel	Frequency (MHz)	802.11g Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	0.05	-15.15	8	Pass
06	2437	-0.15	-15.35	8	Pass
11	2462	0.52	-14.68	8	Pass

Note:

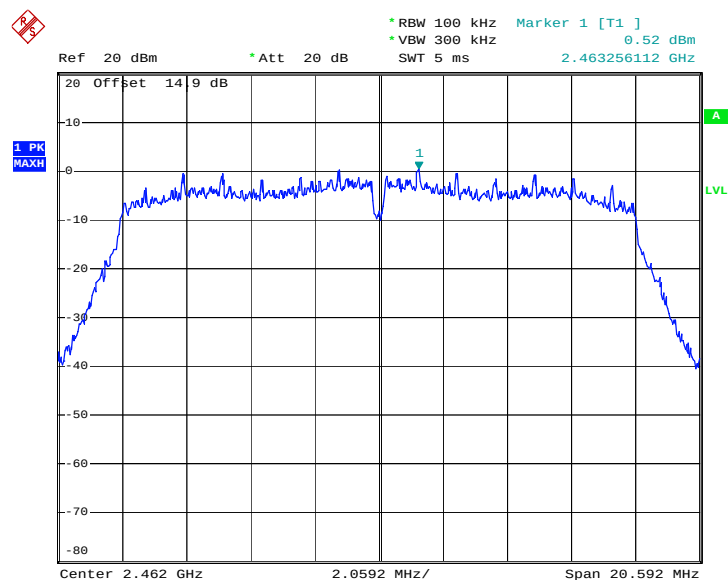
1. Measured power density (dBm) has offset with cable loss.
2. $BWCF (dB) = 10 \log (3k/100k) = -15.2 \text{ dB}$
3. $\text{Power Density/ 3KHz (dBm)} = \text{Measured power density/ 100KHz (dBm)} + BWCF (dB)$

Mode 4 : PSD Plot on 802.11g Channel 01


Date: 24.APR.2012 12:09:50

Mode 5 : PSD Plot on 802.11g Channel 06


Date: 24.APR.2012 12:13:29

Mode 6 : PSD Plot on 802.11g Channel 11


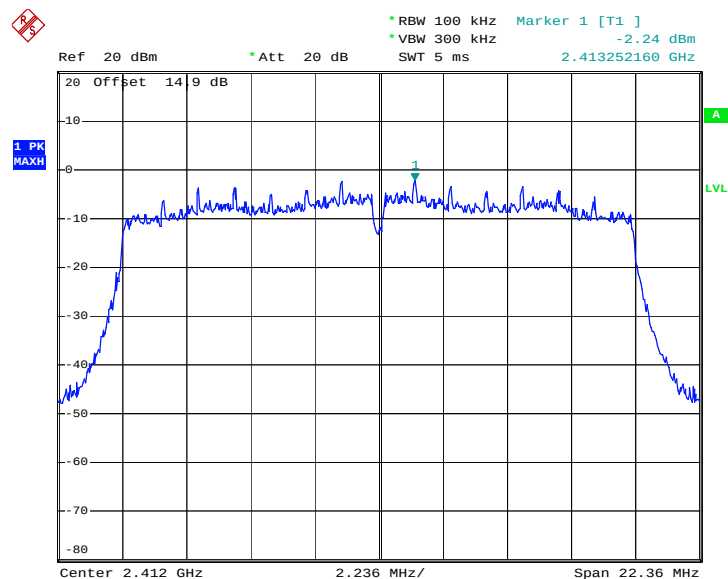
Date: 24.APR.2012 12:16:33

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

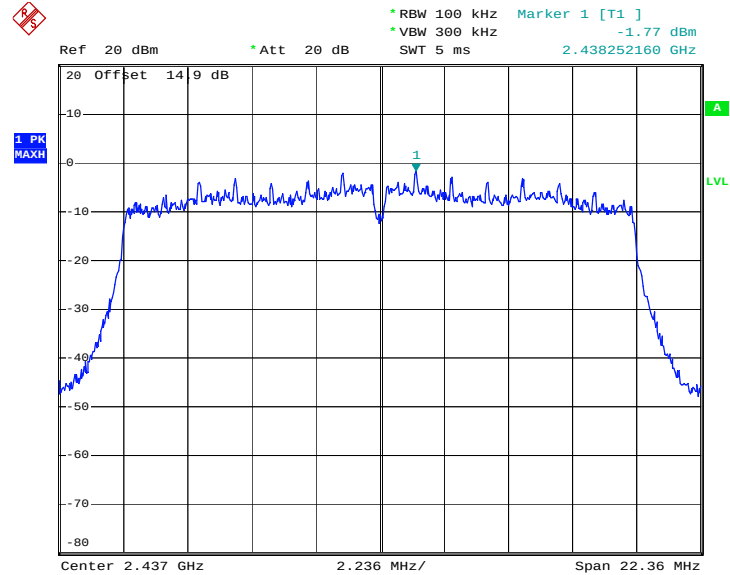
Channel	Frequency (MHz)	802.11n (BW 20MHz) Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	-2.24	-17.44	8	Pass
06	2437	-1.77	-16.97	8	Pass
11	2462	-2.06	-17.26	8	Pass

Note:

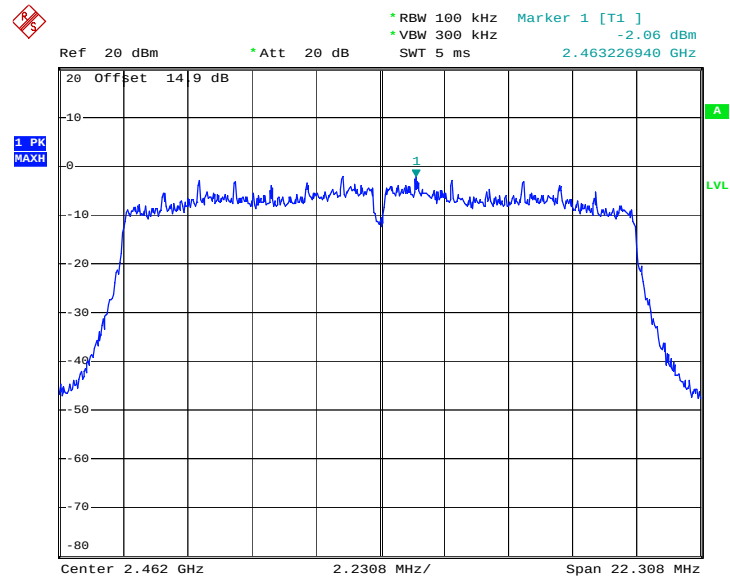
1. Measured power density (dBm) has offset with cable loss.
2. $BWCF (dB) = 10 \log (3k/100k) = -15.2 \text{ dB}$
3. $\text{Power Density/ 3KHz (dBm)} = \text{Measured power density/ 100KHz (dBm)} + BWCF (dB)$

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


Date: 24.APR.2012 12:20:52

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


Date: 24.APR.2012 12:27:50

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


Date: 24.APR.2012 12:31:26

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.

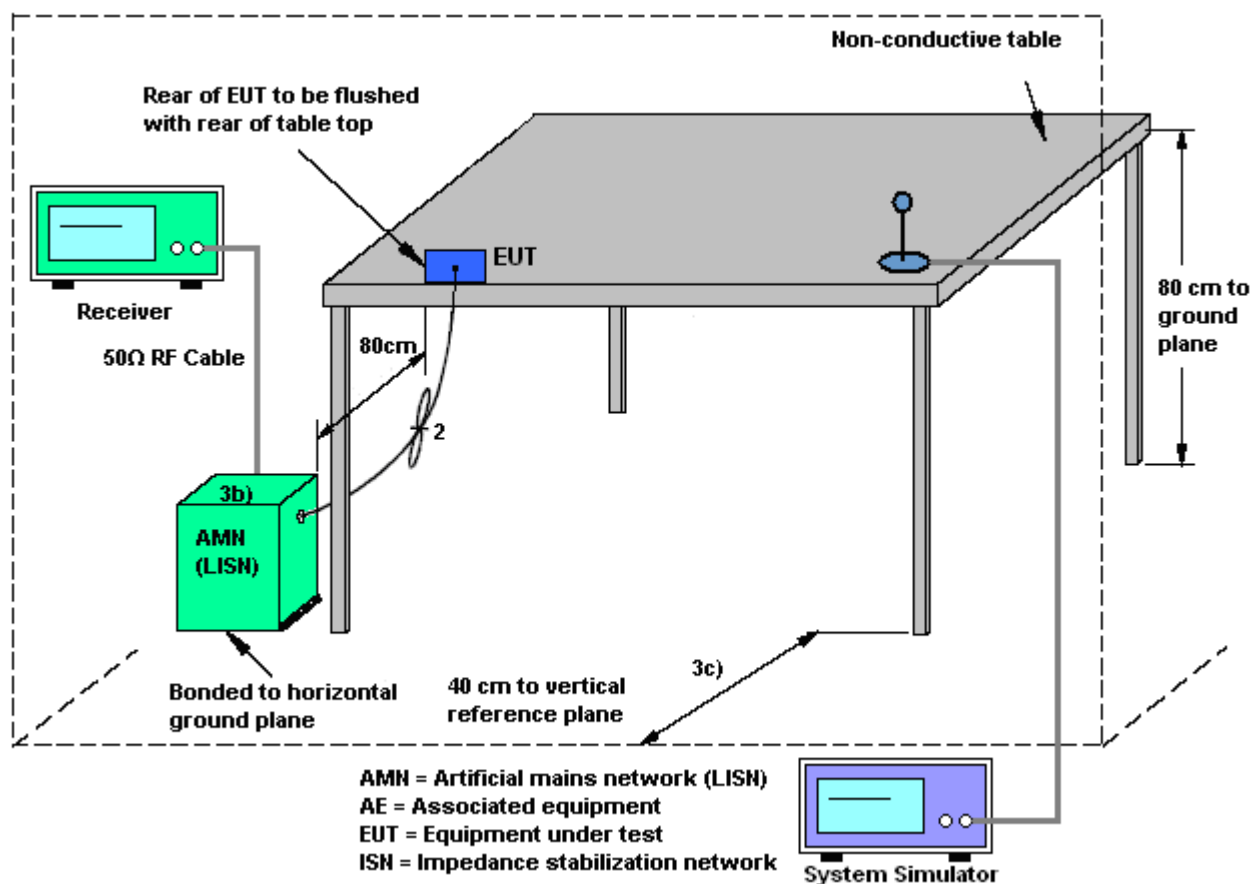
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

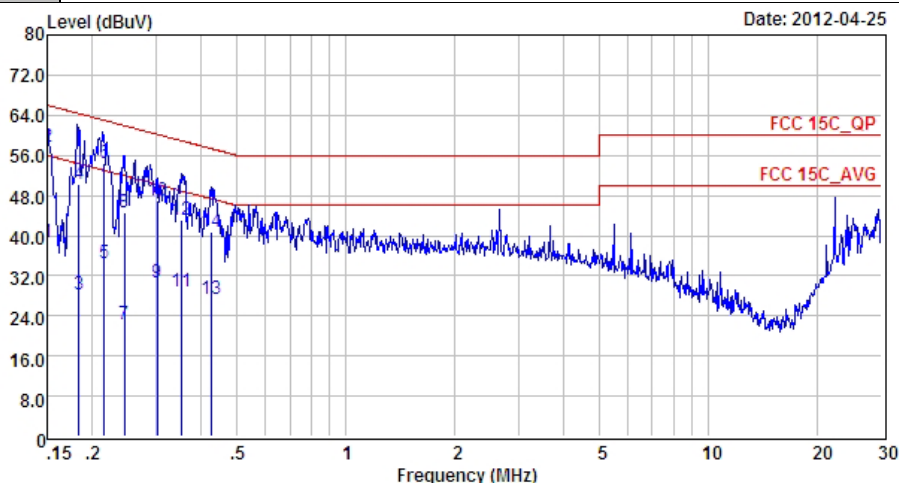
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network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

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	24~25°C
Test Engineer :	Chengmin Wang	Relative Humidity :	44~45%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link + Adapter 2 + Earphone 2 + Camera + Battery 2		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

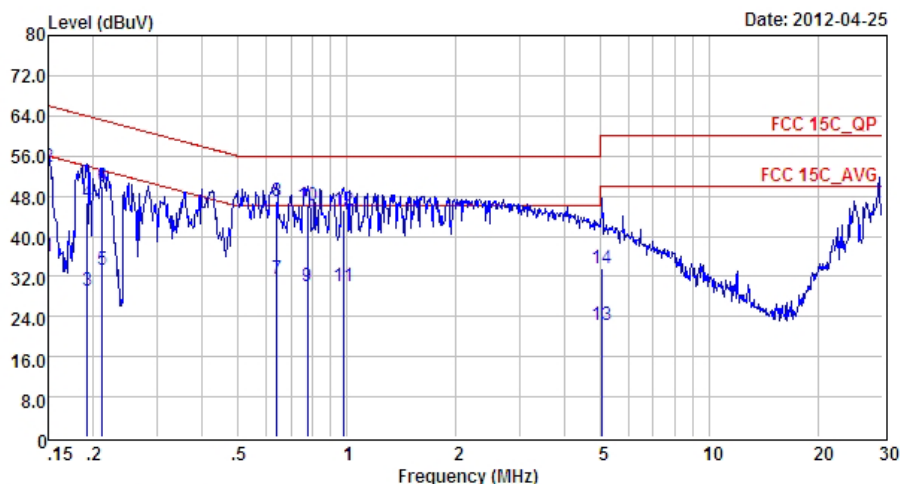


Site : CO01-SZ
Condition: FCC 15C QP LISN_L_2000601 LINE
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	38.78	-27.22	66.00	28.70	0.03	10.05	Average
2	0.15	57.68	-8.32	66.00	47.60	0.03	10.05	QP
3	0.18	28.28	-36.05	64.33	18.20	0.03	10.05	Average
4	0.18	50.38	-13.95	64.33	40.30	0.03	10.05	QP
5	0.22	34.38	-28.63	63.01	24.30	0.02	10.06	Average
6	0.22	54.38	-8.63	63.01	44.30	0.02	10.06	QP
7	0.25	22.38	-39.53	61.91	12.30	0.02	10.06	Average
8	0.25	44.48	-17.43	61.91	34.40	0.02	10.06	QP
9	0.30	30.69	-29.50	60.19	20.61	0.02	10.06	Average
10	0.30	47.09	-13.10	60.19	37.01	0.02	10.06	QP
11	0.35	28.99	-29.92	58.91	18.90	0.02	10.07	Average
12	0.35	43.19	-15.72	58.91	33.10	0.02	10.07	QP
13	0.43	27.30	-30.03	57.33	17.20	0.02	10.08	Average
14	0.43	40.80	-16.53	57.33	30.70	0.02	10.08	QP



Test Mode :	Mode 1	Temperature :	24~25°C
Test Engineer :	Chengmin Wang	Relative Humidity :	44~45%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link + Adapter 2 + Earphone 2 + Camera + Battery 2		
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
Mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	35.87	-30.13	66.00	25.80	0.02	10.05	Average
2	0.15	53.87	-12.13	66.00	43.80	0.02	10.05	QP
3	0.19	29.07	-34.86	63.93	19.00	0.02	10.05	Average
4	0.19	46.77	-17.16	63.93	36.70	0.02	10.05	QP
5	0.21	33.17	-29.97	63.14	23.09	0.02	10.06	Average
6	0.21	49.87	-13.27	63.14	39.79	0.02	10.06	QP
7	0.64	31.51	-24.49	56.00	21.39	0.02	10.10	Average
8	0.64	47.11	-8.89	56.00	36.99	0.02	10.10	QP
9	0.78	30.02	-25.98	56.00	19.90	0.02	10.10	Average
10	0.78	46.22	-9.78	56.00	36.10	0.02	10.10	QP
11	0.98	30.13	-25.87	56.00	20.00	0.02	10.11	Average
12	0.98	45.13	-10.87	56.00	35.00	0.02	10.11	QP
13	5.06	22.26	-37.74	60.00	12.00	0.08	10.18	Average
14	5.06	33.66	-26.34	60.00	23.40	0.08	10.18	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

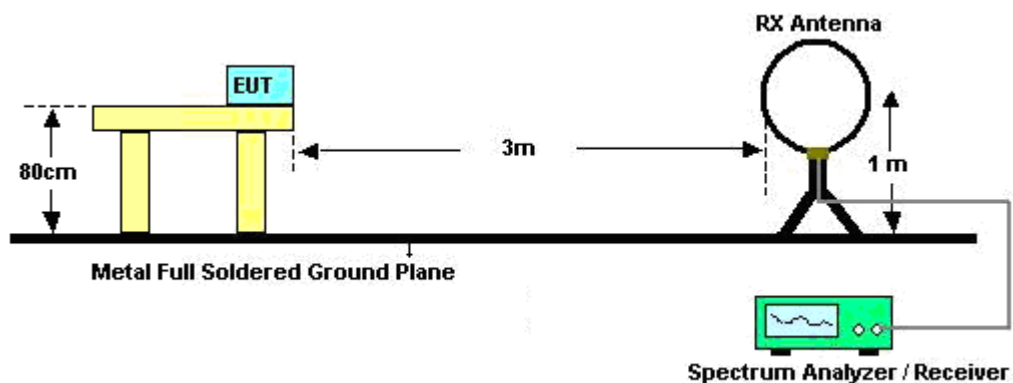
See list of measuring instruments of this test report.

3.7.3 Test Procedures

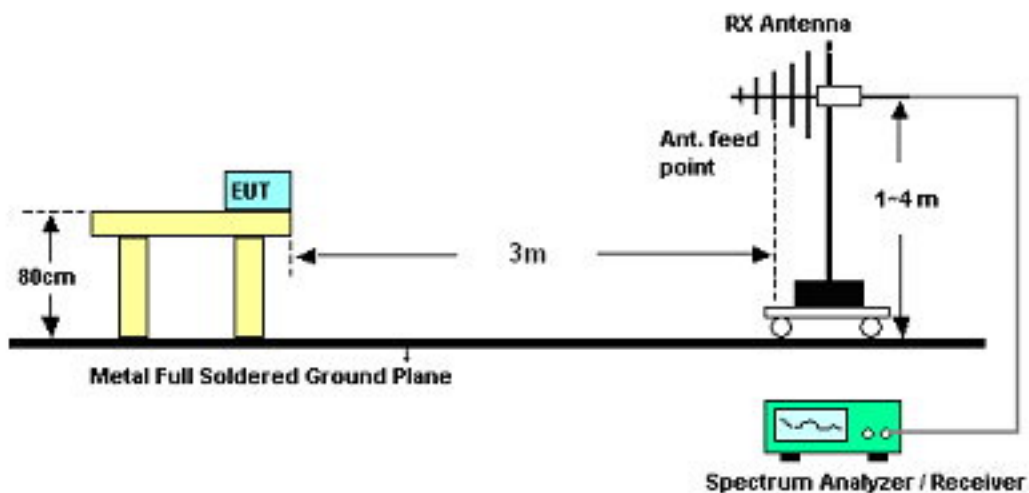
- Use the following spectrum analyzer settings:
 - Span shall wide enough to fully capture the emission being measured;
 - Set RBW = 1 MHz for $f \geq 1$ GHz, 100 KHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - Measurement above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB per decade from 3m to 1m.
Distance extrapolation factor = $20 \log (\text{specific distance [3m]} / \text{test distance [1m]})$ (dB)
- Maximize the emission by rotating the EUT for three orthogonal planes, and adjusting the measurement antenna height and polarization. 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 in ANSI C63.4-2003.

3.7.4 Test Setup

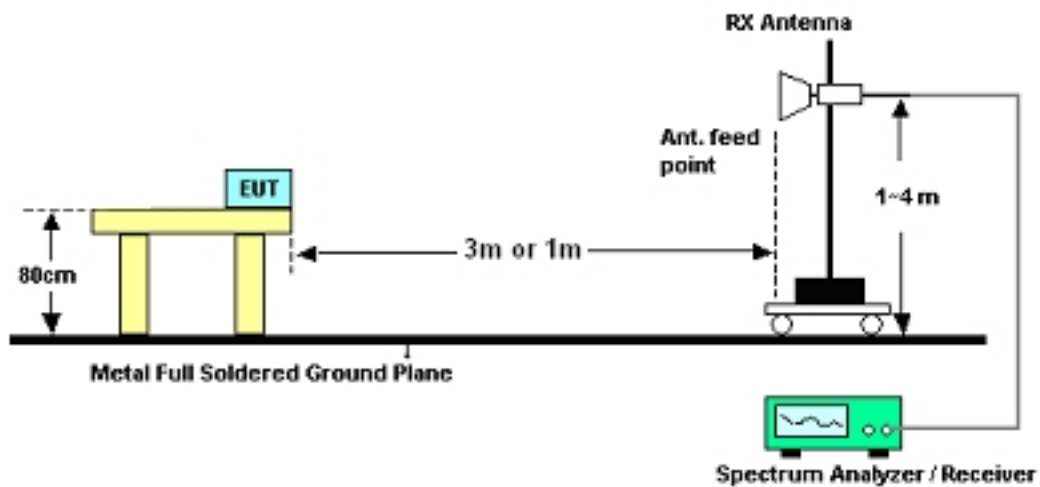
For radiated emissions below 30MHz



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 :	20~21℃
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
83.35	19.89	-20.11	40	42.22	7.34	0.36	30.03	-	-	Peak
368.53	28.35	-17.65	46	42.44	14.98	0.83	29.9	-	-	Peak
400.54	30.5	-15.5	46	43.49	16	0.84	29.83	-	-	Peak
435.46	32.91	-13.09	46	45.59	16.23	0.89	29.8	142	238	Peak
876.81	25.36	-20.64	46	33.15	20.48	1.29	29.56	-	-	Peak
944.71	35.04	-18.96	54	42.54	20.71	1.33	29.54	-	-	Peak
2389.8	51.91	-22.09	74	49.63	32.86	3.47	34.05	195	317	Peak
2389.8	39.77	-14.23	54	37.49	32.86	3.47	34.05	195	317	Average
2412	100.2	-	-	97.87	32.89	3.52	34.08	186	343	Peak
2412	96.85	-	-	94.52	32.89	3.52	34.08	186	343	Average
2490.88	51.66	-22.34	74	49.12	33.05	3.72	34.23	200	0	Peak
2490.88	40.91	-13.09	54	38.37	33.05	3.72	34.23	200	0	Average
4824	52.69	-21.31	74	44.82	35.17	4.97	32.27	100	0	Peak
4824	50.76	-3.24	54	42.89	35.17	4.97	32.27	100	0	Average

Test Mode :	Mode 1	Temperature :	20~21℃
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
31.94	36.32	-3.68	40	49.62	16.55	0.24	30.09	200	0	Peak
80.44	26.62	-13.38	40	49.71	6.6	0.35	30.04	-	-	Peak
103.72	30.39	-13.11	43.5	48.92	11.01	0.42	29.96	-	-	Peak
432.55	26.43	-19.57	46	39.14	16.21	0.88	29.8	-	-	Peak
876.81	29.25	-16.75	46	37.04	20.48	1.29	29.56	-	-	Peak
951.5	40.32	-13.68	54	47.79	20.74	1.33	29.54	-	-	Peak
2338.69	49.82	-24.18	74	47.65	32.78	3.33	33.94	102	12	Peak
2338.69	41.65	-12.35	54	39.48	32.78	3.33	33.94	102	12	Average
2412	96.05	-	-	93.72	32.89	3.52	34.08	157	360	Peak
2412	91.83	-	-	89.5	32.89	3.52	34.08	157	360	Average
2499.43	50.55	-23.45	74	48.01	33.05	3.72	34.23	122	301	Peak
2499.43	40.22	-13.78	54	37.68	33.05	3.72	34.23	122	301	Average
4824	53.63	-20.37	74	45.76	35.17	4.97	32.27	100	34	Peak
4824	50.01	-3.99	54	42.14	35.17	4.97	32.27	100	34	Average

Test Mode :	Mode 2	Temperature :	20~21℃
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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	21.04	-18.96	40	32.86	18	0.26	30.08	-	-	Peak
368.53	29.9	-16.1	46	43.99	14.98	0.83	29.9	-	-	Peak
400.54	30.04	-15.96	46	43.03	16	0.84	29.83	-	-	Peak
438.37	32.1	-13.9	46	44.76	16.25	0.89	29.8	189	314	Peak
525.67	23.93	-22.07	46	34.76	17.89	0.98	29.7	-	-	Peak
951.5	33.97	-20.03	54	41.44	20.74	1.33	29.54	-	-	Peak
2375.93	49.91	-24.09	74	47.67	32.83	3.42	34.01	122	217	Peak
2375.93	36.39	-17.61	54	34.15	32.83	3.42	34.01	122	217	Average
2437	101.08	-	-	98.68	32.95	3.6	34.15	132	314	Peak
2437	98.36	-	-	95.96	32.95	3.6	34.15	132	314	Average
2489.93	51.21	-22.79	74	48.67	33.05	3.72	34.23	130	334	Peak
2489.93	42.01	-11.99	54	39.47	33.05	3.72	34.23	130	334	Average
4874	52.95	-21.05	74	45.06	35.18	4.98	32.27	102	317	Peak
4874	48.4	-5.6	54	40.51	35.18	4.98	32.27	102	317	Average

Test Mode :	Mode 2	Temperature :	20~21℃
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
83.35	26.59	-13.41	40	48.92	7.34	0.36	30.03	122	146	Peak
400.54	24.65	-21.35	46	37.64	16	0.84	29.83	-	-	Peak
432.55	26.33	-19.67	46	39.04	16.21	0.88	29.8	-	-	Peak
578.05	24.22	-21.78	46	34.26	18.56	1.04	29.64	-	-	Peak
754.59	24.76	-21.24	46	33.22	19.9	1.18	29.54	-	-	Peak
951.5	32.71	-21.29	54	40.18	20.74	1.33	29.54	-	-	Peak
2351.99	50.64	-23.36	74	48.43	32.81	3.38	33.98	142	34	Peak
2351.99	37.39	-16.61	54	35.18	32.81	3.38	33.98	142	34	Average
2437	98.99	-	-	96.59	32.95	3.6	34.15	160	0	Peak
2437	95.2	-	-	92.8	32.95	3.6	34.15	160	0	Average
2491.45	51.14	-22.86	74	48.6	33.05	3.72	34.23	200	247	Peak
2491.45	39.02	-14.98	54	36.48	33.05	3.72	34.23	200	247	Average
4874	52.26	-21.74	74	44.37	35.18	4.98	32.27	100	336	Peak
4874	47.73	-6.27	54	39.84	35.18	4.98	32.27	100	336	Average

Test Mode :	Mode 3	Temperature :	20~21℃
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
103.72	29.38	-14.12	43.5	47.91	11.01	0.42	29.96	200	154	Peak
368.53	27.98	-18.02	46	42.07	14.98	0.83	29.9	-	-	Peak
400.54	30.16	-15.84	46	43.15	16	0.84	29.83	-	-	Peak
437.4	31.85	-14.15	46	44.52	16.24	0.89	29.8	-	-	Peak
871.96	24.77	-21.23	46	32.58	20.49	1.29	29.59	-	-	Peak
951.5	35.11	-18.89	54	42.58	20.74	1.33	29.54	-	-	Peak
2387.52	49.95	-24.05	74	47.67	32.86	3.47	34.05	164	143	Peak
2387.52	36.55	-17.45	54	34.27	32.86	3.47	34.05	164	143	Average
2462	101.89	-	-	99.44	32.98	3.64	34.17	176	349	Peak
2462	98.3	-	-	95.85	32.98	3.64	34.17	176	349	Average
2488.41	54.74	-19.26	74	52.2	33.05	3.72	34.23	102	354	Peak
2488.41	47.92	-6.08	54	45.38	33.05	3.72	34.23	102	354	Average
4924	52.24	-21.76	74	44.32	35.19	4.99	32.26	200	15	Peak
4924	47.51	-6.49	54	39.59	35.19	4.99	32.26	200	15	Average

Test Mode :	Mode 3	Temperature :	20~21℃
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
30.97	31.12	-8.88	40	43.66	17.29	0.25	30.08	164	360	Peak
66.86	24.17	-15.83	40	48.69	5.25	0.33	30.1	-	-	Peak
434.49	26.1	-19.9	46	38.8	16.22	0.88	29.8	-	-	Peak
754.59	25.26	-20.74	46	33.72	19.9	1.18	29.54	-	-	Peak
935.98	34.59	-11.41	46	42.13	20.67	1.32	29.53	-	-	Peak
951.5	34.55	-19.45	54	42.02	20.74	1.33	29.54	-	-	Peak
2366.43	49.67	-24.33	74	47.46	32.81	3.38	33.98	179	348	Peak
2366.43	36.47	-17.53	54	34.26	32.81	3.38	33.98	179	348	Average
2462	98.91	-	-	96.46	32.98	3.64	34.17	199	57	Peak
2462	93.8	-	-	91.35	32.98	3.64	34.17	199	57	Average
2488.98	53.35	-20.65	74	50.81	33.05	3.72	34.23	102	347	Peak
2488.98	45	-9	54	42.46	33.05	3.72	34.23	102	347	Average
4924	52.85	-21.15	74	44.93	35.19	4.99	32.26	100	100	Peak
4924	46.6	-7.4	54	38.68	35.19	4.99	32.26	100	100	Average

Test Mode :	Mode 4	Temperature :	20~21℃
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
85.29	24.23	-15.77	40	46.17	7.7	0.37	30.01	200	360	Peak
400.54	30.15	-15.85	46	43.14	16	0.84	29.83	-	-	Peak
750.71	23.08	-22.92	46	31.54	19.9	1.18	29.54	-	-	Peak
826.37	23.94	-22.06	46	32.1	20.2	1.27	29.63	-	-	Peak
876.81	24.85	-21.15	46	32.64	20.48	1.29	29.56	-	-	Peak
951.5	37.1	-16.9	54	44.57	20.74	1.33	29.54	-	-	Peak
2388.85	55.99	-18.01	74	53.71	32.86	3.47	34.05	112	314	Peak
2388.85	44.63	-9.37	54	42.35	32.86	3.47	34.05	112	314	Average
2412	103.63	-	-	101.3	32.89	3.52	34.08	101	271	Peak
2412	91.04	-	-	88.71	32.89	3.52	34.08	101	271	Average
2493.35	52.21	-21.79	74	49.67	33.05	3.72	34.23	200	42	Peak
2493.35	38.81	-15.19	54	36.27	33.05	3.72	34.23	200	42	Average

Test Mode :	Mode 4	Temperature :	20~21℃
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
88.2	30.85	-12.65	43.5	52.17	8.3	0.38	30	120	10	Peak
400.54	23.91	-22.09	46	36.9	16	0.84	29.83	-	-	Peak
582.9	21.44	-24.56	46	31.46	18.57	1.05	29.64	-	-	Peak
749.74	22.95	-23.05	46	31.41	19.9	1.18	29.54	-	-	Peak
876.81	26.21	-19.79	46	34	20.48	1.29	29.56	-	-	Peak
951.5	34.64	-19.36	54	42.11	20.74	1.33	29.54	-	-	Peak
2389.99	54.91	-19.09	74	52.63	32.86	3.47	34.05	102	188	Peak
2389.99	43.56	-10.44	54	41.28	32.86	3.47	34.05	102	188	Average
2412	101.78	-	-	99.45	32.89	3.52	34.08	100	179	Peak
2412	90.14	-	-	87.81	32.89	3.52	34.08	100	179	Average
2491.26	51.12	-22.88	74	48.58	33.05	3.72	34.23	124	217	Peak
2491.26	37.73	-16.27	54	35.19	33.05	3.72	34.23	124	217	Average

Test Mode :	Mode 5	Temperature :	20~21℃
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
85.29	23.77	-16.23	40	45.71	7.7	0.37	30.01	-	-	Peak
368.53	23.88	-22.12	46	37.97	14.98	0.83	29.9	-	-	Peak
400.54	31.53	-14.47	46	44.52	16	0.84	29.83	-	-	Peak
827.34	38.53	-7.47	46	46.67	20.22	1.27	29.63	100	0	Peak
870.99	25.8	-20.2	46	33.61	20.49	1.29	29.59	-	-	Peak
951.5	37.69	-16.31	54	45.16	20.74	1.33	29.54	-	-	Peak
2384.67	51.33	-22.67	74	49.09	32.83	3.42	34.01	105	275	Peak
2384.67	37.72	-16.28	54	35.48	32.83	3.42	34.01	105	275	Average
2437	103.9	-	-	101.5	32.95	3.6	34.15	101	266	Peak
2437	91.25	-	-	88.85	32.95	3.6	34.15	101	266	Average
2494.11	53.36	-20.64	74	50.82	33.05	3.72	34.23	176	320	Peak
2494.11	39.33	-14.67	54	36.79	33.05	3.72	34.23	176	320	Average

Test Mode :	Mode 5	Temperature :	20~21℃
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
88.2	29.63	-13.87	43.5	50.95	8.3	0.38	30	194	341	Peak
109.54	21.68	-21.82	43.5	39.42	11.8	0.43	29.97	-	-	Peak
400.54	23.11	-22.89	46	36.1	16	0.84	29.83	-	-	Peak
711.91	23.77	-22.23	46	32.91	19.41	1.14	29.69	-	-	Peak
876.81	26.47	-19.53	46	34.26	20.48	1.29	29.56	-	-	Peak
951.5	37.18	-16.82	54	44.65	20.74	1.33	29.54	-	-	Peak
2374.03	50.14	-23.86	74	47.9	32.83	3.42	34.01	115	19	Peak
2374.03	37.4	-16.6	54	35.16	32.83	3.42	34.01	115	19	Average
2437	99.19	-	-	96.79	32.95	3.6	34.15	121	55	Peak
2437	86.33	-	-	83.93	32.95	3.6	34.15	121	55	Average
2499.62	50.93	-23.07	74	48.39	33.05	3.72	34.23	175	360	Peak
2499.62	37.91	-16.09	54	35.37	33.05	3.72	34.23	175	360	Average

Test Mode :	Mode 6	Temperature :	20~21℃
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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	20.41	-19.59	40	32.23	18	0.26	30.08	-	-	Peak
85.29	23.56	-16.44	40	45.5	7.7	0.37	30.01	197	349	Peak
400.54	27.8	-18.2	46	40.79	16	0.84	29.83	-	-	Peak
448.07	26.41	-19.59	46	39.01	16.29	0.9	29.79	-	-	Peak
876.81	28.34	-17.66	46	36.13	20.48	1.29	29.56	-	-	Peak
951.5	35.03	-18.97	54	42.5	20.74	1.33	29.54	-	-	Peak
2387.14	50.08	-23.92	74	47.8	32.86	3.47	34.05	122	311	Peak
2387.14	37.46	-16.54	54	35.18	32.86	3.47	34.05	122	311	Average
2462	105.08	-	-	102.63	32.98	3.64	34.17	101	265	Peak
2462	92.22	-	-	89.77	32.98	3.64	34.17	101	265	Average
2487.27	66	-8	74	63.51	33.01	3.68	34.2	100	283	Peak
2487.27	45.51	-8.49	54	43.02	33.01	3.68	34.2	100	283	Average

Test Mode :	Mode 6	Temperature :	20~21℃
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
30.97	22.64	-17.36	40	35.18	17.29	0.25	30.08	-	-	Peak
83.35	28.93	-11.07	40	51.26	7.34	0.36	30.03	200	0	Peak
112.45	22.07	-21.43	43.5	39.8	11.8	0.44	29.97	-	-	Peak
400.54	22.8	-23.2	46	35.79	16	0.84	29.83	-	-	Peak
757.5	22.96	-23.04	46	31.43	19.89	1.19	29.55	-	-	Peak
951.5	36.04	-17.96	54	43.51	20.74	1.33	29.54	-	-	Peak
2322.16	49.84	-24.16	74	47.71	32.76	3.27	33.9	142	205	Peak
2322.16	37.31	-16.69	54	35.18	32.76	3.27	33.9	142	205	Average
2462	99.39	-	-	96.94	32.98	3.64	34.17	102	143	Peak
2462	88.27	-	-	85.82	32.98	3.64	34.17	102	143	Average
2485.37	61.01	-12.99	74	58.52	33.01	3.68	34.2	100	132	Peak
2485.37	42.09	-11.91	54	39.6	33.01	3.68	34.2	100	132	Average

Test Mode :	Mode 7	Temperature :	20~21℃
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
88.2	22.99	-20.51	43.5	44.31	8.3	0.38	30	-	-	Peak
400.54	29.68	-16.32	46	42.67	16	0.84	29.83	-	-	Peak
447.1	24.52	-21.48	46	37.12	16.29	0.9	29.79	-	-	Peak
826.37	32.03	-13.97	46	40.19	20.2	1.27	29.63	134	206	Peak
876.81	26.87	-19.13	46	34.66	20.48	1.29	29.56	-	-	Peak
951.5	35.19	-18.81	54	42.66	20.74	1.33	29.54	-	-	Peak
2389.23	60.4	-13.6	74	58.12	32.86	3.47	34.05	102	271	Peak
2389.23	44.38	-9.62	54	42.1	32.86	3.47	34.05	102	271	Average
2412	104.05	-	-	101.72	32.89	3.52	34.08	100	266	Peak
2412	91.61	-	-	89.28	32.89	3.52	34.08	100	266	Average
2485.56	53.86	-20.14	74	51.37	33.01	3.68	34.2	155	267	Peak
2485.56	43.87	-10.13	54	41.38	33.01	3.68	34.2	155	267	Average

Test Mode :	Mode 7	Temperature :	20~21℃
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
30	21.78	-18.22	40	33.6	18	0.26	30.08	-	-	Peak
84.32	28.75	-11.25	40	50.87	7.53	0.37	30.02	154	270	Peak
533.43	21.4	-24.6	46	31.96	18.14	0.99	29.69	-	-	Peak
751.68	22.73	-23.27	46	31.19	19.9	1.18	29.54	-	-	Peak
879.72	25.97	-20.03	46	33.76	20.47	1.29	29.55	-	-	Peak
951.5	36.81	-17.19	54	44.28	20.74	1.33	29.54	-	-	Peak
2389.99	56.63	-17.37	74	54.35	32.86	3.47	34.05	100	256	Peak
2389.99	42.85	-11.15	54	40.57	32.86	3.47	34.05	100	256	Average
2412	98.48	-	-	96.15	32.89	3.52	34.08	102	213	Peak
2412	86.69	-	-	84.36	32.89	3.52	34.08	102	213	Average
2490.5	50.5	-23.5	74	47.96	33.05	3.72	34.23	173	218	Peak
2490.5	40.7	-13.3	54	38.16	33.05	3.72	34.23	173	218	Average

Test Mode :	Mode 8	Temperature :	20~21℃
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
88.2	23.91	-19.59	43.5	45.23	8.3	0.38	30	-	-	Peak
167.74	20.71	-22.79	43.5	40.82	9.27	0.54	29.92	-	-	Peak
400.54	30.1	-15.9	46	43.09	16	0.84	29.83	154	100	Peak
439.34	27.4	-18.6	46	40.06	16.25	0.89	29.8	-	-	Peak
872.93	26.95	-19.05	46	34.76	20.48	1.29	29.58	-	-	Peak
951.5	37.13	-16.87	54	44.6	20.74	1.33	29.54	-	-	Peak
2389.23	51	-23	74	48.72	32.86	3.47	34.05	142	218	Peak
2389.23	37.77	-16.23	54	35.49	32.86	3.47	34.05	142	218	Average
2437	103.36	-	-	100.96	32.95	3.6	34.15	101	269	Peak
2437	90.66	-	-	88.26	32.95	3.6	34.15	101	269	Average
2484.61	52.88	-21.12	74	50.39	33.01	3.68	34.2	200	34	Peak
2484.61	40.1	-13.9	54	37.61	33.01	3.68	34.2	200	34	Average

Test Mode :	Mode 8	Temperature :	20~21℃
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
84.32	29.33	-10.67	40	51.45	7.53	0.37	30.02	120	360	Peak
400.54	23.26	-22.74	46	36.25	16	0.84	29.83	-	-	Peak
435.46	24.72	-21.28	46	37.4	16.23	0.89	29.8	-	-	Peak
571.26	22.29	-23.71	46	32.38	18.54	1.03	29.66	-	-	Peak
876.81	25.77	-20.23	46	33.56	20.48	1.29	29.56	-	-	Peak
951.5	35.98	-18.02	54	43.45	20.74	1.33	29.54	-	-	Peak
2330.33	50.07	-23.93	74	47.94	32.76	3.27	33.9	112	125	Peak
2330.33	37.6	-16.4	54	35.47	32.76	3.27	33.9	112	125	Average
2437	98.8	-	-	96.4	32.95	3.6	34.15	102	95	Peak
2437	87.21	-	-	84.81	32.95	3.6	34.15	102	95	Average
2488.6	50.97	-23.03	74	48.43	33.05	3.72	34.23	200	15	Peak
2488.6	39.03	-14.97	54	36.49	33.05	3.72	34.23	200	15	Average

Test Mode :	Mode 9	Temperature :	20~21℃
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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	20.76	-19.24	40	32.58	18	0.26	30.08	-	-	Peak
84.32	23.27	-16.73	40	45.39	7.53	0.37	30.02	-	-	Peak
400.54	28.82	-17.18	46	41.81	16	0.84	29.83	-	-	Peak
439.34	28.71	-17.29	46	41.37	16.25	0.89	29.8	-	-	Peak
876.81	26.03	-19.97	46	33.82	20.48	1.29	29.56	-	-	Peak
935.98	35.32	-10.68	46	42.86	20.67	1.32	29.53	102	13	Peak
2341.16	49.91	-24.09	74	47.74	32.78	3.33	33.94	120	0	Peak
2341.16	36.45	-17.55	54	34.28	32.78	3.33	33.94	120	0	Average
2462	100.1	-	-	97.65	32.98	3.64	34.17	101	268	Peak
2462	88.89	-	-	86.44	32.98	3.64	34.17	101	268	Average
2483.5	56.38	-17.62	74	53.89	33.01	3.68	34.2	100	254	Peak
2483.5	44.72	-9.28	54	42.23	33.01	3.68	34.2	100	254	Average

Test Mode :	Mode 9	Temperature :	20~21℃
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
30	22.28	-17.72	40	34.1	18	0.26	30.08	-	-	Peak
88.2	29.73	-13.77	43.5	51.05	8.3	0.38	30	189	354	Peak
109.54	22.44	-21.06	43.5	40.18	11.8	0.43	29.97	-	-	Peak
432.55	23.53	-22.47	46	36.24	16.21	0.88	29.8	-	-	Peak
872.93	26.12	-19.88	46	33.93	20.48	1.29	29.58	-	-	Peak
951.5	35.76	-18.24	54	43.23	20.74	1.33	29.54	-	-	Peak
2345.53	49.92	-24.08	74	47.75	32.78	3.33	33.94	113	157	Peak
2345.53	37.66	-16.34	54	35.49	32.78	3.33	33.94	113	157	Average
2462	96.75	-	-	94.3	32.98	3.64	34.17	102	177	Peak
2462	83.89	-	-	81.44	32.98	3.64	34.17	102	177	Average
2485.75	52.39	-21.61	74	49.9	33.01	3.68	34.2	200	345	Peak
2485.75	39.97	-14.03	54	37.48	33.01	3.68	34.2	200	345	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 IFA 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	Apr. 24, 2012~ Apr. 27, 2012	Dec. 29, 2012	Conducted (TH01-KS)
Power Meter	Agilent	E4416A	MY451015 55	N/A	Aug. 23, 2011	Apr. 24, 2012~ Apr. 27, 2012	Aug. 22, 2012	Conducted (TH01-KS)
Power Sensor	Agilent	E9327A	MY444211 98	N/A	Aug. 23, 2011	Apr. 24, 2012~ Apr. 27, 2012	Aug. 22, 2012	Conducted (TH01-KS)
DC Power Supply	TOPWARD	GPS-30300	E1884515	N/A	Aug. 23, 2011	Apr. 24, 2012~ Apr. 27, 2012	Aug. 22, 2012	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-9605 02	N/A	Dec. 30, 2011	Apr. 24, 2012~ Apr. 27, 2012	Dec. 29, 2012	Conducted (TH01-KS)
AC LISN	ETS-LINDGRE N	3816/2SH	00103912	0.1MHz~108MH z	Feb. 27, 2012	Apr. 25, 2012	Feb. 26, 2013	Conduction (CO01-SZ)
AC LISN	ETS-LINDGRE N	3816/2SH	00103892	0.1MHz~108MH z	Feb. 27, 2012	Apr. 25, 2012	Feb. 26, 2013	Conduction (CO01-SZ)
ESCIO TEST Receiver	R&S	1142.8007.03	100724	9K-3GHz	Mar. 07, 2012	Apr. 25, 2012	Mar. 06, 2013	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000 891N/A	N/A	Oct. 12, 2011	Apr. 25, 2012	Oct. 11, 2012	Conduction (CO01-SZ)
AC LISN	SCHWARZBE CK	NNLK 8121	8121370	10KHz-30MHz	Jun. 13, 2011	Apr. 25, 2012	Jun. 12, 2012	Conduction (CO01-SZ)
System Simulator	Agilent	E5515C	MY502641 68	GSM/WCDMA /CDMA2000	Mar. 13, 2012	Apr. 25, 2012	Mar. 12, 2013	Conduction (CO01-SZ)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 09, 2011	Apr. 20, 2012	Nov. 08, 2012	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Apr. 20, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 08, 2011	Apr. 20, 2012	Dec. 07, 2012	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	860004/00	9 kHz~30 MHz	Jul. 28, 2011	Apr. 20, 2012	Jul. 27, 2012	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2012	Apr. 20, 2012	Jan. 05, 2013	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060004	30MHz~2GHz	Dec. 30, 2011	Apr. 20, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A023 70	1GHz~26.5GHz	Dec. 30, 2011	Apr. 20, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701023	1GHz~18GHz	Nov. 07, 2011	Apr. 20, 2012	Nov. 06, 2012	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA1702 49	15GHz~40GHz	Oct. 11, 2011	Apr. 20, 2012	Oct. 10, 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 EP232401 as below.