

FCC RF Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : CDMA/LTE Tablet
BRAND NAME : ZTE
MODEL NAME : V68
FCC ID : Q78-V68
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Sep. 08, 2011 and completely tested on Jan. 29, 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.

TABLE OF CONTENTS

REVISION HISTORY.....	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Applicant.....	5
1.2 Manufacturer.....	5
1.3 Feature of Equipment Under Test	5
1.4 Testing Site.....	6
1.5 Applied Standards	6
1.6 Ancillary Equipment List	6
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	7
2.1 RF Power	7
2.2 Test Mode.....	8
2.3 Connection Diagram of Test System.....	9
2.4 RF Utility	10
3 TEST RESULT.....	11
3.1 6dB Bandwidth Measurement	11
3.2 Output Power Measurement.....	18
3.3 Band Edges Measurement.....	20
3.4 Spurious Emission Measurement.....	28
3.5 Power Spectral Density Measurement	38
3.6 AC Conducted Emission Measurement.....	45
3.7 Radiated Emission Measurement.....	49
3.8 Antenna Requirements.....	70
4 LIST OF MEASURING EQUIPMENT	71
5 UNCERTAINTY OF EVALUATION.....	72
APPENDIX A. PHOTOGRAPHS OF EUT	
APPENDIX B. SETUP PHOTOGRAPHS	

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR190807B	Rev. 01	Initial issue of report	Mar. 09, 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 20.55 dB at 2.93 MHz
3.7	15.247(d)	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 4.22 dB at 575.8 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, 518057, P.R.China

1.2 Manufacturer

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	CDMA/LTE Tablet
Brand Name	ZTE
Model Name	V68
FCC ID	Q78-V68
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 : 16.67 dBm (0.046 W) 802.11g : 23.11 dBm (0.205 W) 802.11n (BW 20MHz) : 24.04 dBm (0.254 W)
Antenna Type	PIFA Antenna with gain 2.00 dBi
HW Version	V2.1
SW Version	V68_V1.12
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

Remark:

1. For other wireless features of this EUT, test report will be issued separately.
2. This test report recorded only product characteristics and test results of Digital Transmission System (DTS).
3. 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 (KUNSHAN) INC.			
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958			
Test Site No.	Sporton Site No.			FCC/IC Registration No.
	TH01-KS	CO01-KS	03CH01-KS	149928/4086E-1

1.5 Applied Standards

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

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 (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 (Certification), 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.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
3.	Router	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	P08S	QDS-BRCM1030	N/A	AC I/P: Unshielded, 0.9 m DC O/P: Shielded, 1.8 m

2 Test Configuration of Equipment Under Test

2.1 RF Power

Preliminary tests were performed in different data rate and recorded the RF power output in the following table:

Channel	Frequency	2.4GHz 802.11b RF Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	16.67	16.64	16.57	16.63
CH 06	2437 MHz	16.64	16.59	16.55	16.51
CH 11	2462 MHz	16.49	16.44	16.46	16.43

Channel	Frequency	2.4GHz 802.11g RF Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	23.11	23.01	22.92	22.86	22.78	22.64	22.59	22.57
CH 06	2437 MHz	23.04	22.97	22.89	22.77	22.69	22.64	22.62	22.68
CH 11	2462 MHz	22.97	22.84	22.78	22.69	22.61	22.53	22.54	22.57

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)							
		OFDM Data Rate							
		MCS=0	MCS=1	MCS=2	MCS=3	MCS=4	MCS=5	MCS=6	MCS=7
		6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
CH 01	2412 MHz	24.04	23.91	23.84	23.78	23.71	23.67	23.56	23.51
CH 06	2437 MHz	23.95	23.86	23.79	23.65	23.59	23.51	23.46	23.39
CH 11	2462 MHz	23.89	23.73	23.65	23.59	23.52	23.47	23.39	23.33

Remark:

1. The data rates of WLAN 802.11b/g/n were set in 1Mbps for 802.11b, 6Mbps for 802.11g, and 6.5Mbps for 802.11n (BW 20MHz) for all the test cases due to the highest RF output power.
2. The EUT is programmed to transmit signals continuously for all testing.

2.2 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, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations, laptop / tablet modes.

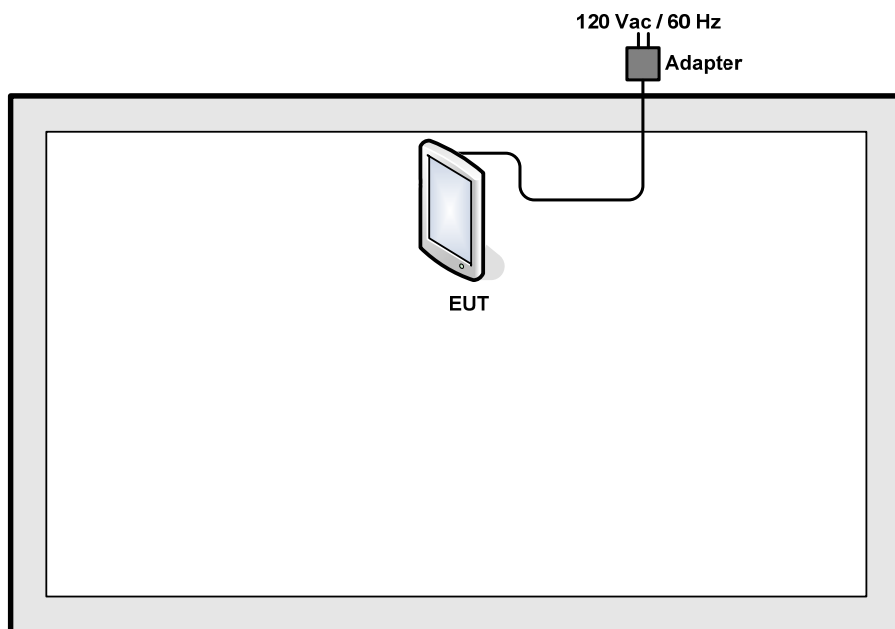
The following tables are showing the test modes as the worst cases (E1 plane) and recorded in this report.

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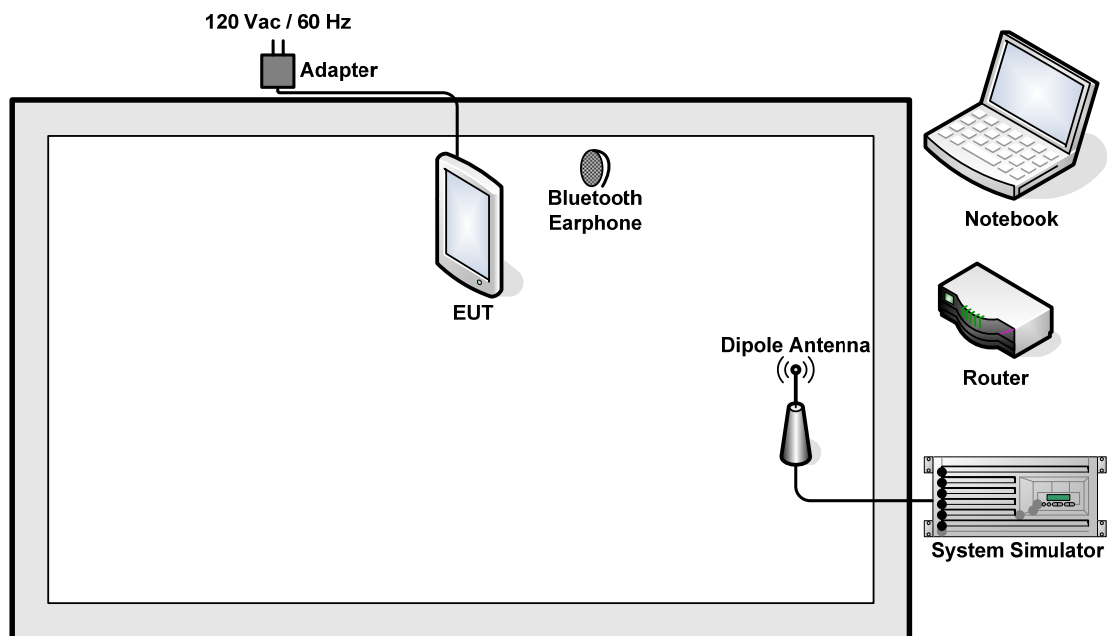
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412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

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>





2.4 RF Utility

Connect PC to CMD debug mode 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.

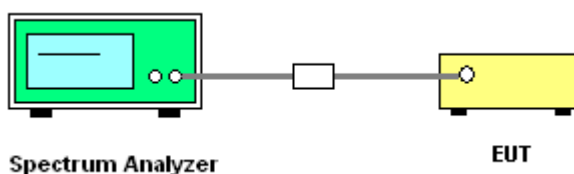
3.1.2 Measuring Instruments

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

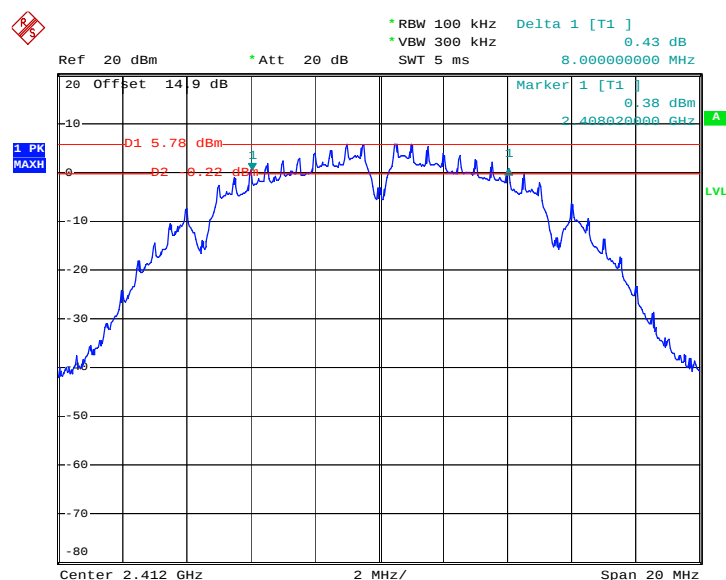


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~25℃
Test Engineer :	Fly Chen	Relative Humidity :	45~46%

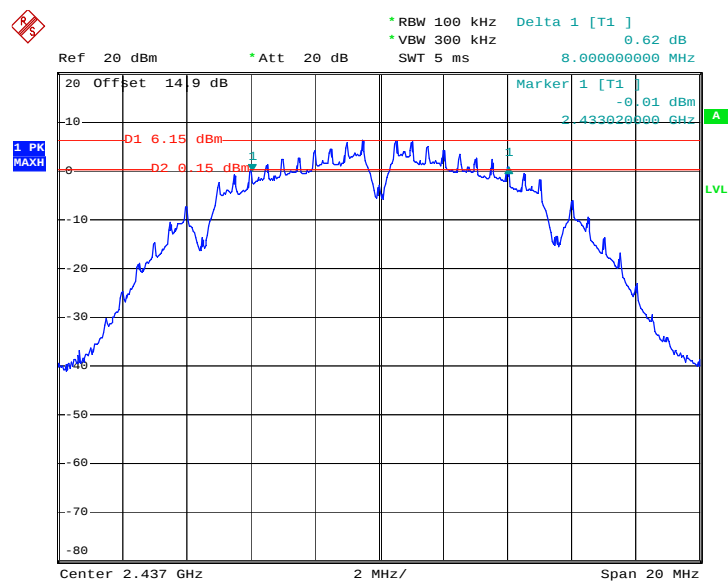
Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	8.00	0.5	Pass
06	2437	8.00	0.5	Pass
11	2462	8.04	0.5	Pass

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



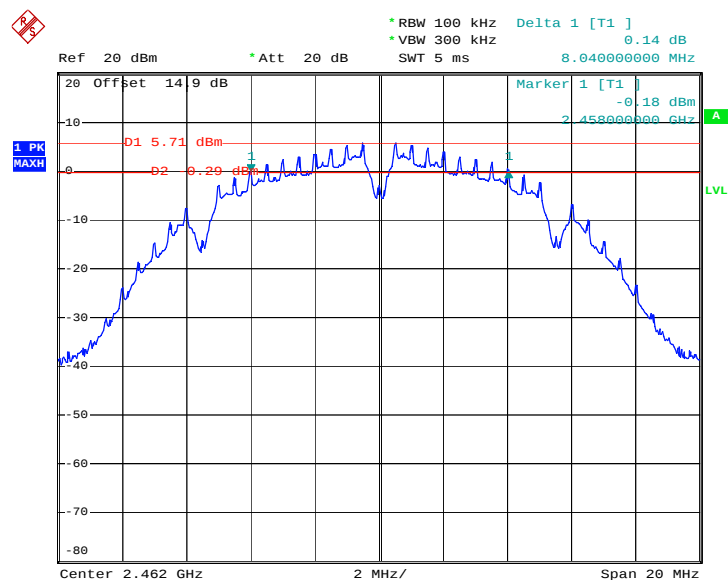
Date: 13.JAN.2012 10:56:27

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



Date: 13.JAN.2012 11:10:18

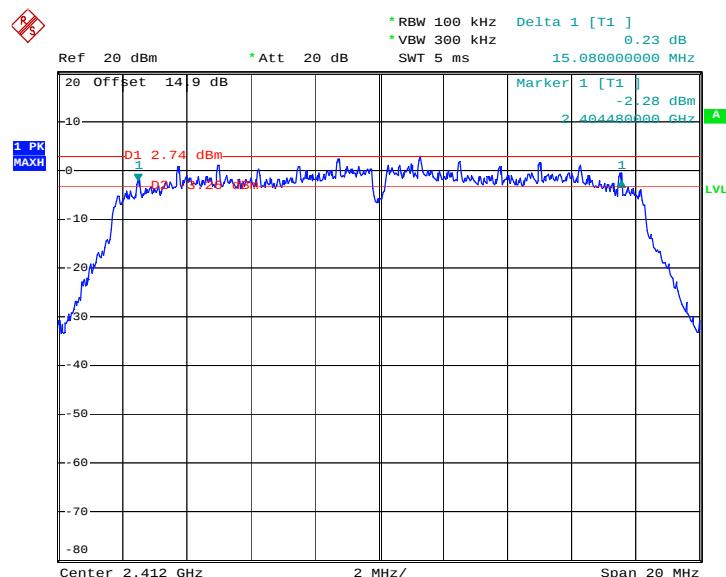
Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11



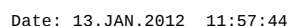
Date: 13.JAN.2012 11:24:52

Test Mode :	Mode 4, 5, 6	Temperature :	24~25°C
Test Engineer :	Fly Chen	Relative Humidity :	45~46%

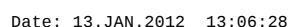
Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.08	0.5	Pass
06	2437	15.32	0.5	Pass
11	2462	15.06	0.5	Pass

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


Date: 13.JAN.2012 11:40:52



Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11

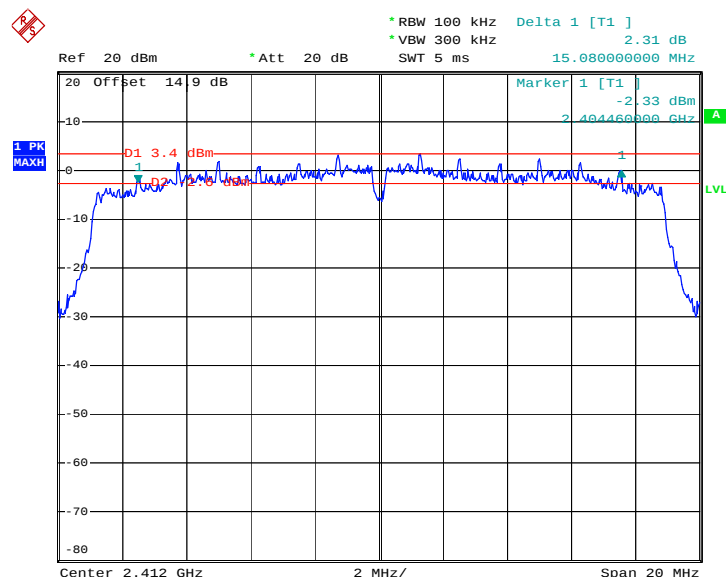




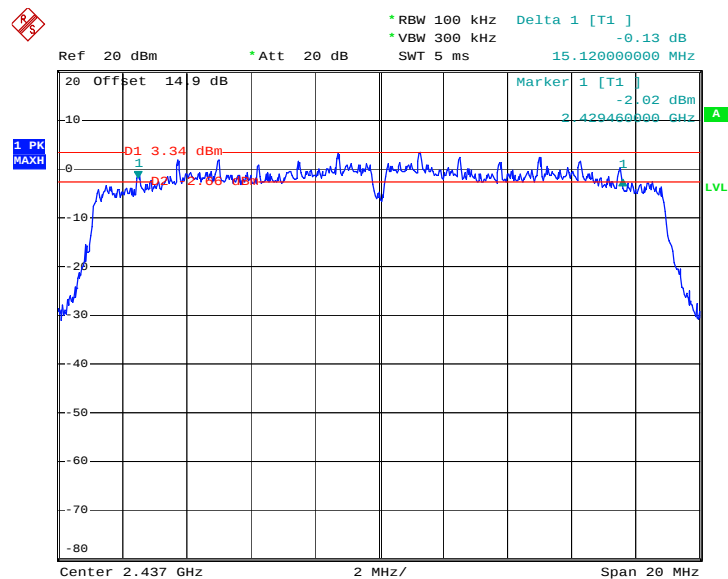
Test Mode :	Mode 7, 8, 9	Temperature :	24~25°C
Test Engineer :	Fly Chen	Relative Humidity :	45~46%

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	15.12	0.5	Pass
11	2462	15.08	0.5	Pass

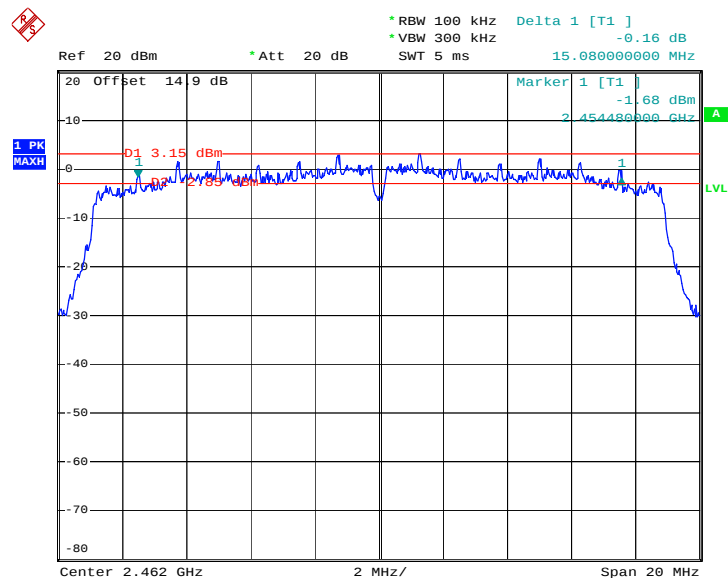
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 13.JAN.2012 13:25:18

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


Date: 13.JAN.2012 13:44:46

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


Date: 13.JAN.2012 13:57:53

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.

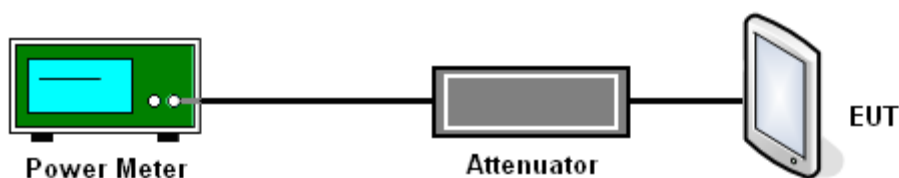
3.2.2 Measuring Instruments

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 :	24~25℃
Test Engineer :	Fly Chen	Relative Humidity :	45~46%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	16.67	30	Pass
06	2437	16.64	30	Pass
11	2462	16.49	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~25℃
Test Engineer :	Fly Chen	Relative Humidity :	45~46%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	23.11	30	Pass
06	2437	23.04	30	Pass
11	2462	22.97	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~25℃
Test Engineer :	Fly Chen	Relative Humidity :	45~46%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	24.04	30	Pass
06	2437	23.95	30	Pass
11	2462	23.89	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

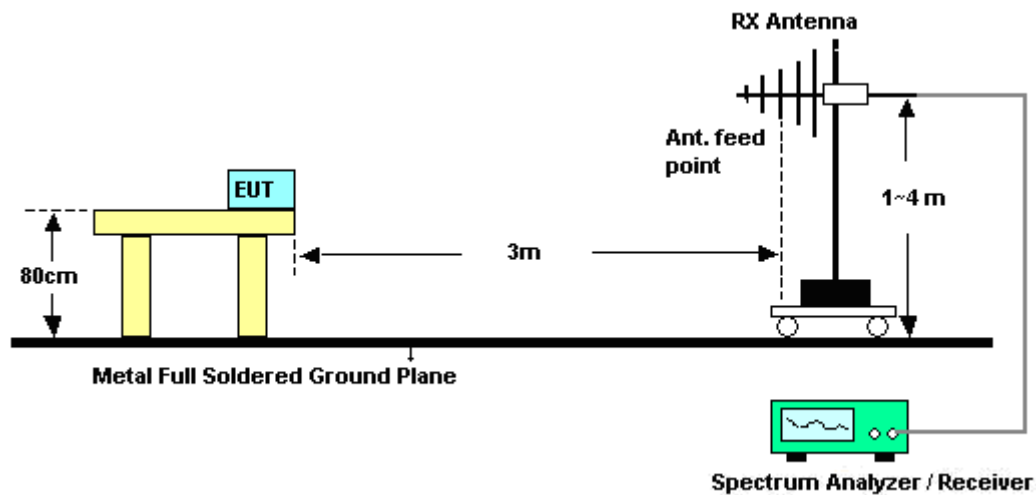
See list of measuring instruments of this test report.

3.3.3 Test Procedures

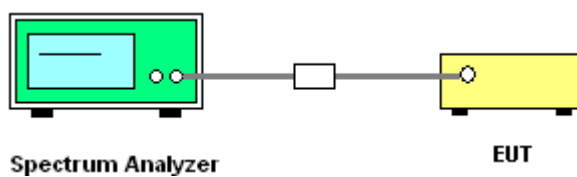
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) $\geq$ RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the device complies with the use of power option 2 the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Apply to band edge emissions that fall in 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 measurements above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation as in FCC Section 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 :	Jack Jia

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2359.97	49.2	-24.8	74	46.99	32.81	3.38	33.98	200	16	Peak
2359.97	36.54	-17.46	54	34.33	32.81	3.38	33.98	200	16	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.8	52.53	-21.47	74	50.25	32.86	3.47	34.05	100	282	Peak
2389.8	40.24	-13.76	54	37.96	32.86	3.47	34.05	100	282	Average

Test Mode :	Mode 3	Temperature :	21~22℃
Test Band :	802.11b	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Jack Jia

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2490.5	50.24	-23.76	74	47.7	33.05	3.72	34.23	200	61	Peak
2490.5	39.16	-14.84	54	36.62	33.05	3.72	34.23	200	61	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2491.07	54.01	-19.99	74	51.47	33.05	3.72	34.23	100	276	Peak
2491.07	42.35	-11.65	54	39.81	33.05	3.72	34.23	100	276	Average



Test Mode :	Mode 4	Temperature :	21~22℃
Test Band :	802.11g	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Jack Jia

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2356.36	49.54	-24.46	74	47.33	32.81	3.38	33.98	200	58	Peak
2356.36	36.83	-17.17	54	34.62	32.81	3.38	33.98	200	58	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	51.99	-22.01	74	49.71	32.86	3.47	34.05	100	281	Peak
2390	40.58	-13.42	54	38.3	32.86	3.47	34.05	100	281	Average

Test Mode :	Mode 6	Temperature :	21~22℃
Test Band :	802.11g	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Jack Jia

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2485.18	50.08	-23.92	74	47.59	33.01	3.68	34.2	200	126	Peak
2485.18	36.86	-17.14	54	34.37	33.01	3.68	34.2	200	126	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2489.93	54.27	-19.73	74	51.73	33.05	3.72	34.23	100	306	Peak
2489.93	40.89	-13.11	54	38.35	33.05	3.72	34.23	100	306	Average



Test Mode :	Mode 7	Temperature :	21~22℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Jack Jia

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	56.04	-17.96	74	53.76	32.86	3.47	34.05	200	281	Peak
2390	45.13	-8.87	54	42.85	32.86	3.47	34.05	200	281	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	59.75	-14.25	74	57.47	32.86	3.47	34.05	100	275	Peak
2390	48.98	-5.02	54	46.7	32.86	3.47	34.05	100	275	Average

Test Mode :	Mode 9	Temperature :	21~22℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Jack Jia

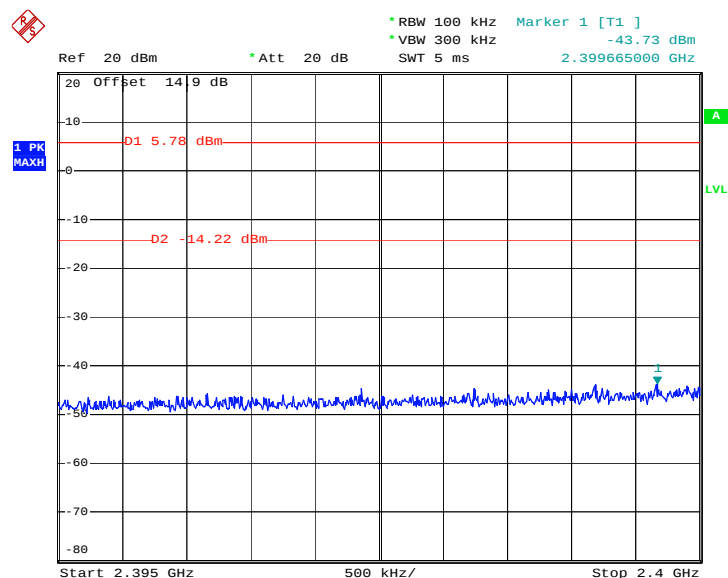
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.85	54.3	-19.7	74	51.81	33.01	3.68	34.2	200	106	Peak
2483.85	42.28	-11.72	54	39.79	33.01	3.68	34.2	200	106	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	62.32	-11.68	74	59.83	33.01	3.68	34.2	200	276	Peak
2483.5	49.64	-4.36	54	47.15	33.01	3.68	34.2	200	276	Average

3.3.6 Test Plots of Conducted Band Edges

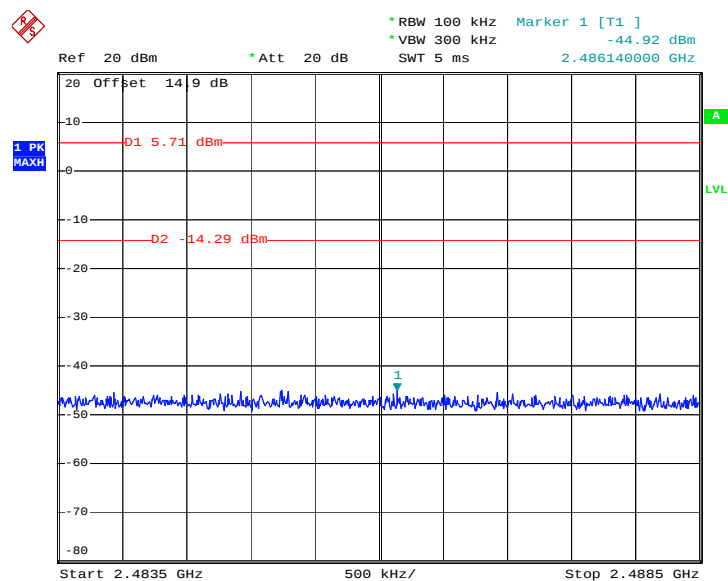
Test Mode :	Mode 1 and 3	Temperature :	24~25°C
Test Band :	802.11b	Relative Humidity :	45~46%
Test Channel :	01 and 11	Test Engineer :	Fly Chen

Low Band Edge Plot on 802.11b Channel 01



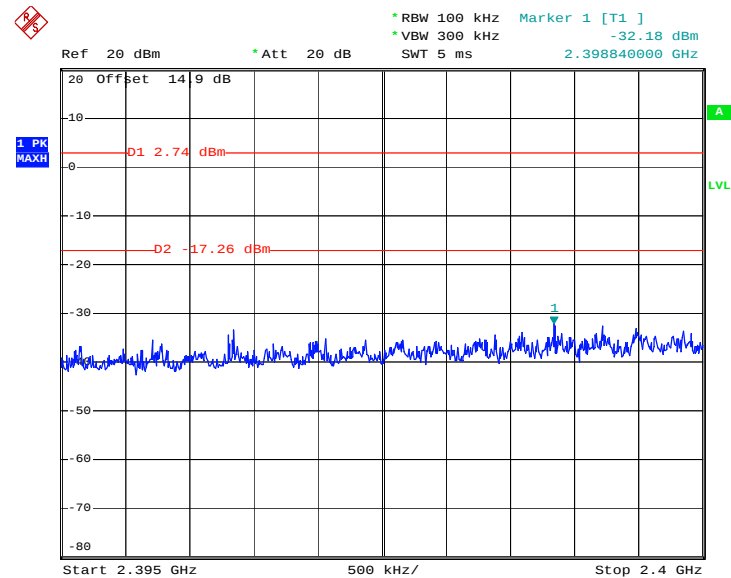
Date: 13.JAN.2012 10:57:44

High Band Edge Plot on 802.11b Channel 11

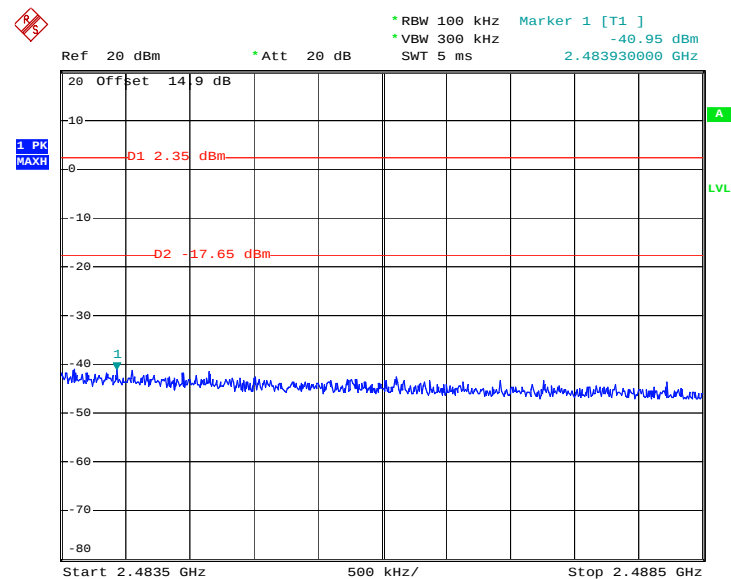


Date: 13.JAN.2012 11:25:44

Test Mode :	Mode 4 and 6	Temperature :	24~25°C
Test Band :	802.11g	Relative Humidity :	45~46%
Test Channel :	01 and 11	Test Engineer :	Fly Chen

Low Band Edge Plot on 802.11g Channel 01


Date: 13.JAN.2012 11:42:08

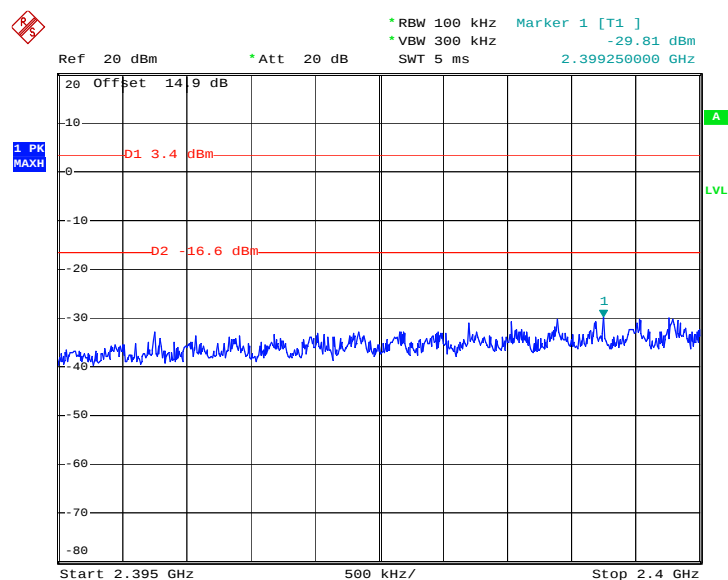
High Band Edge Plot on 802.11g Channel 11


Date: 13.JAN.2012 13:07:21



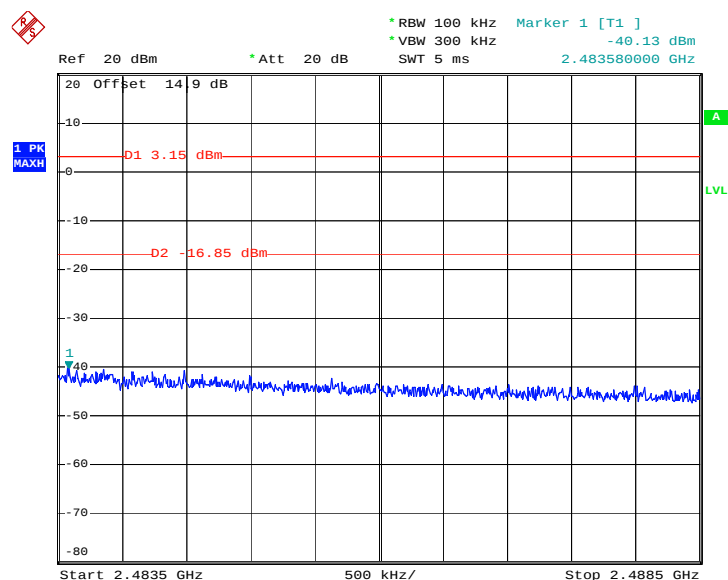
Test Mode :	Mode 7 and 9	Temperature :	24~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~46%
Test Channel :	01 and 11	Test Engineer :	Fly Chen

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



Date: 13.JAN.2012 13:26:32

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



Date: 13.JAN.2012 13:58:48

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.

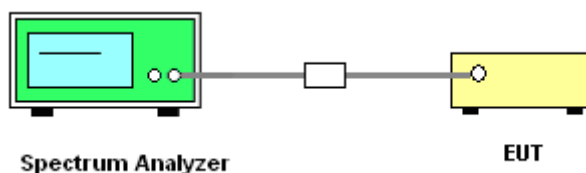
3.4.2 Measuring Instruments

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.

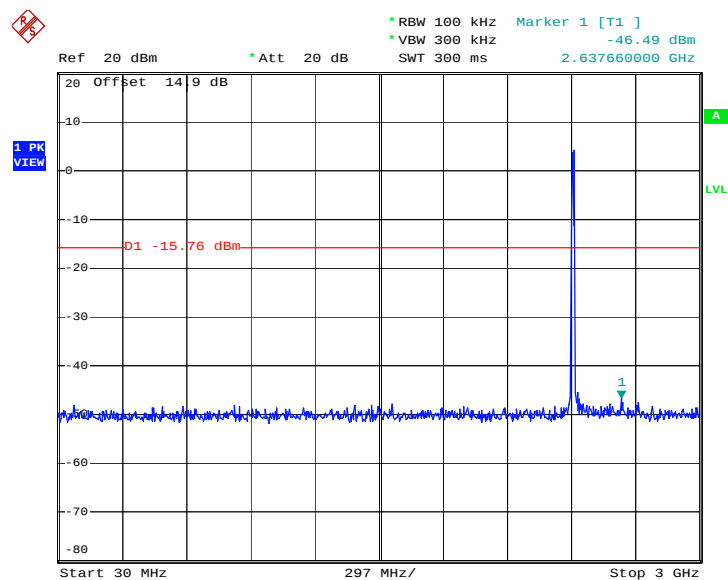
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

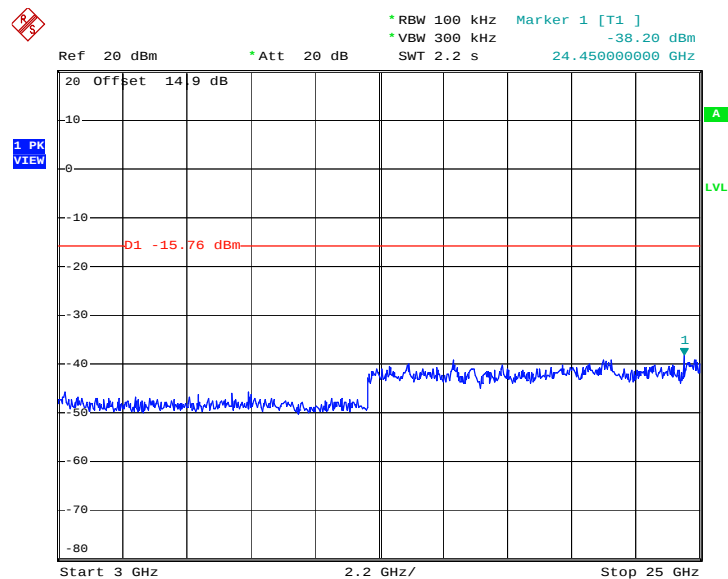
Test Mode :	Mode 1	Temperature :	24~25°C
Test Band :	802.11b	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 13.JAN.2012 10:58:45

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

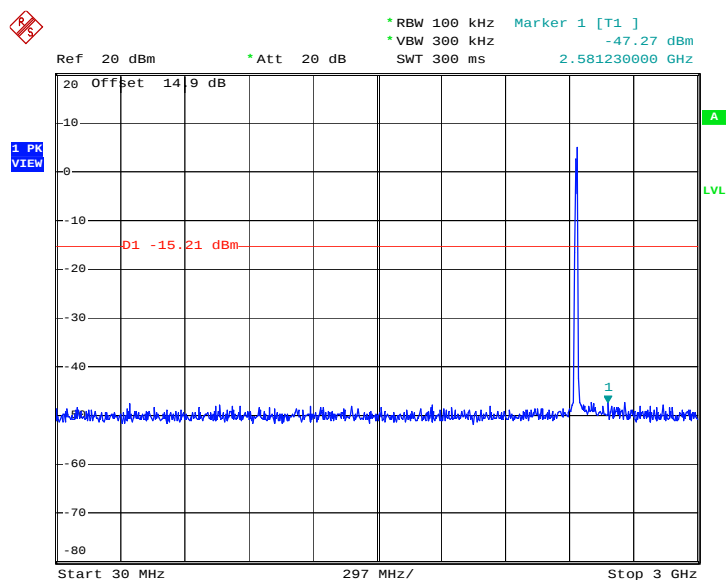


Date: 13.JAN.2012 10:59:02



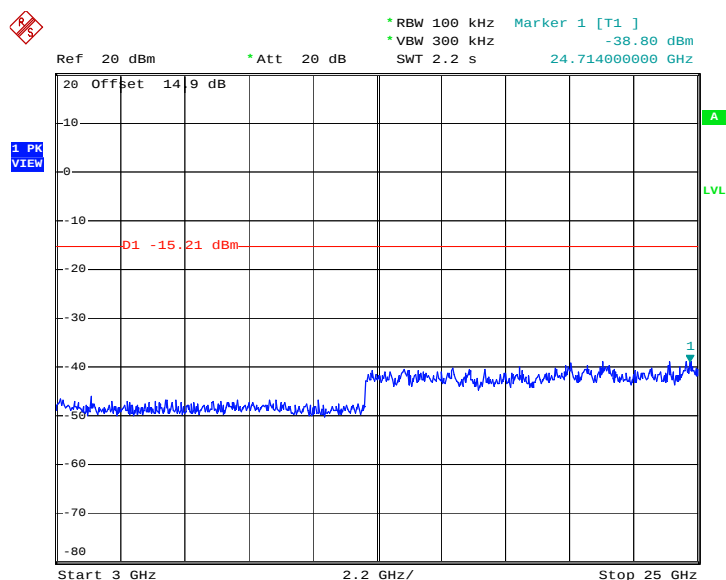
Test Mode :	Mode 2	Temperature :	24~25℃
Test Band :	802.11b	Relative Humidity :	45~46%
Test Channel :	06	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



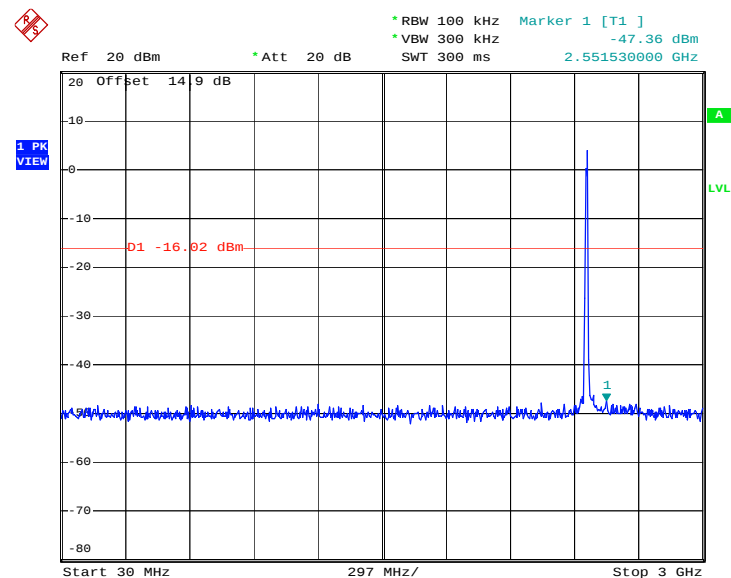
Date: 13.JAN.2012 11:11:11

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

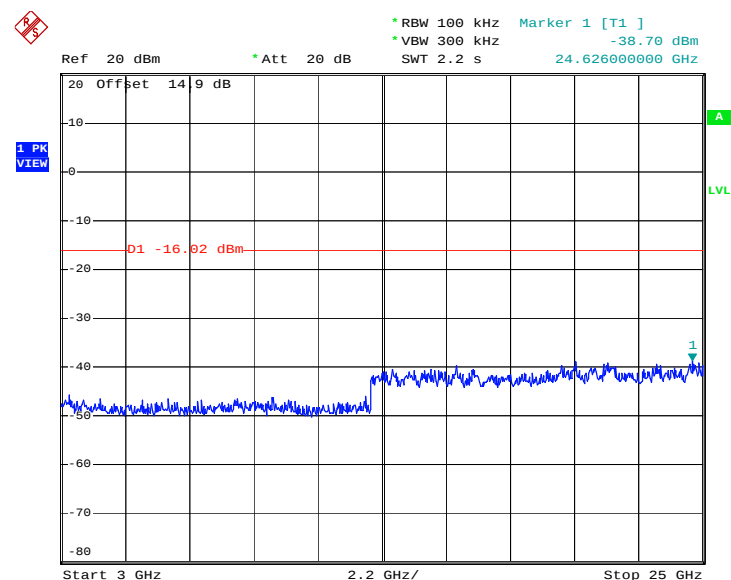


Date: 13.JAN.2012 11:11:27

Test Mode :	Mode 3	Temperature :	24~25°C
Test Band :	802.11b	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 13.JAN.2012 11:28:12

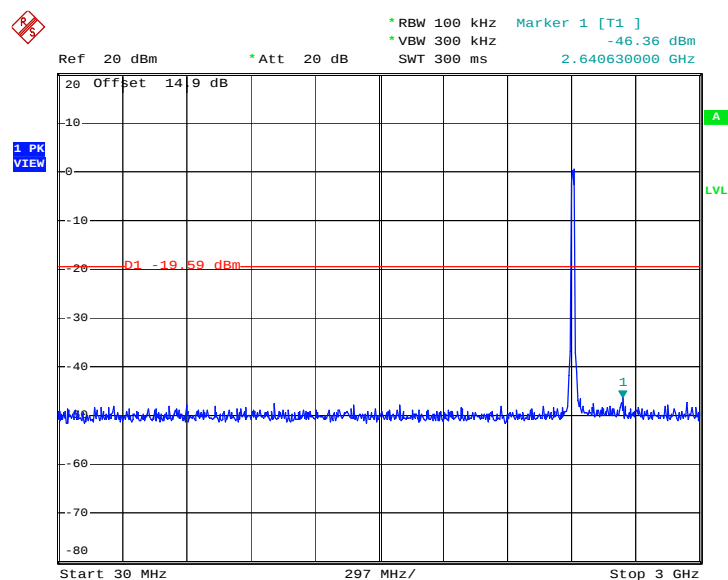
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 13.JAN.2012 11:28:29



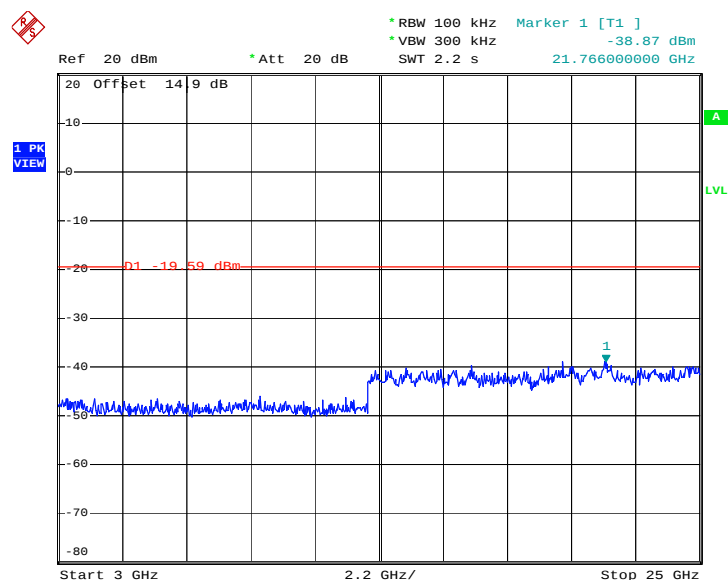
Test Mode :	Mode 4	Temperature :	24~25℃
Test Band :	802.11g	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 13.JAN.2012 11:42:58

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

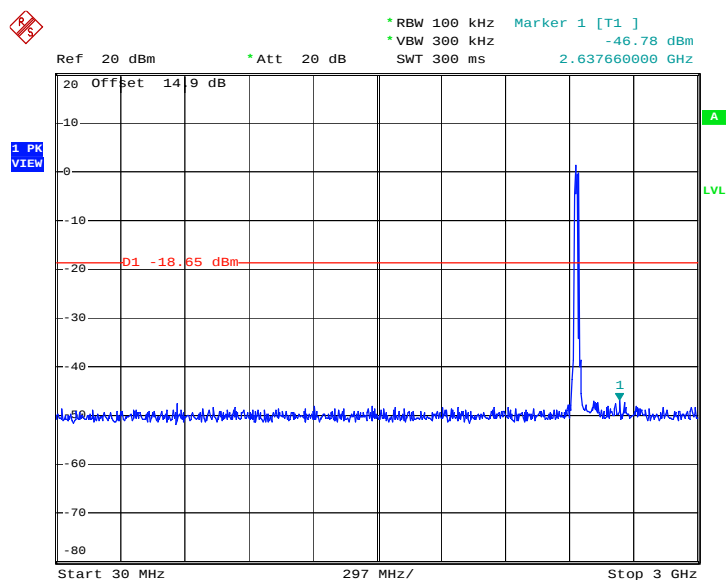


Date: 13.JAN.2012 11:43:15



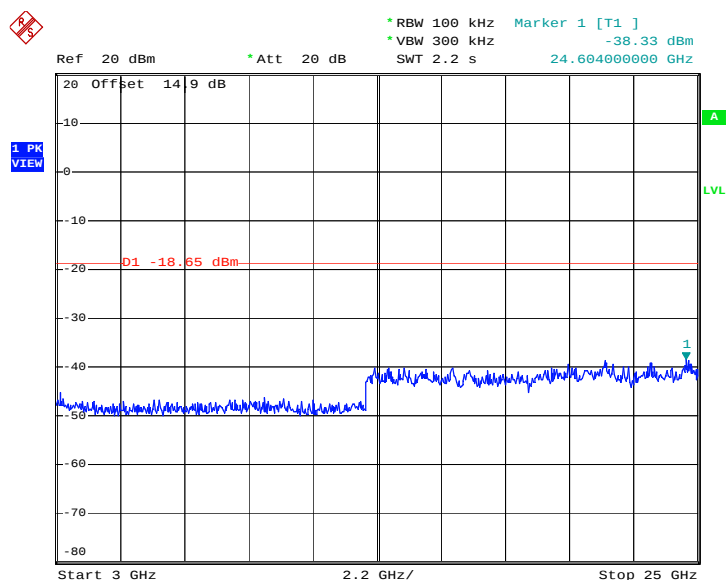
Test Mode :	Mode 5	Temperature :	24~25℃
Test Band :	802.11g	Relative Humidity :	45~46%
Test Channel :	06	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 13.JAN.2012 11:58:53

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

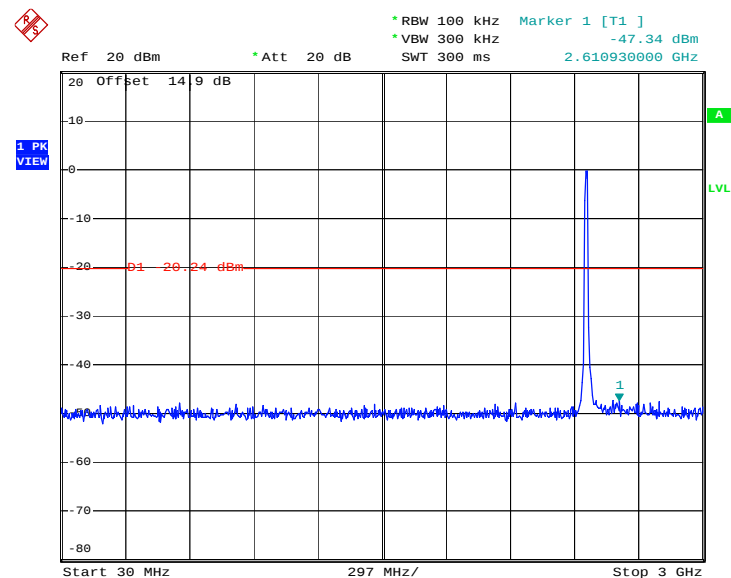


Date: 13.JAN.2012 11:59:10



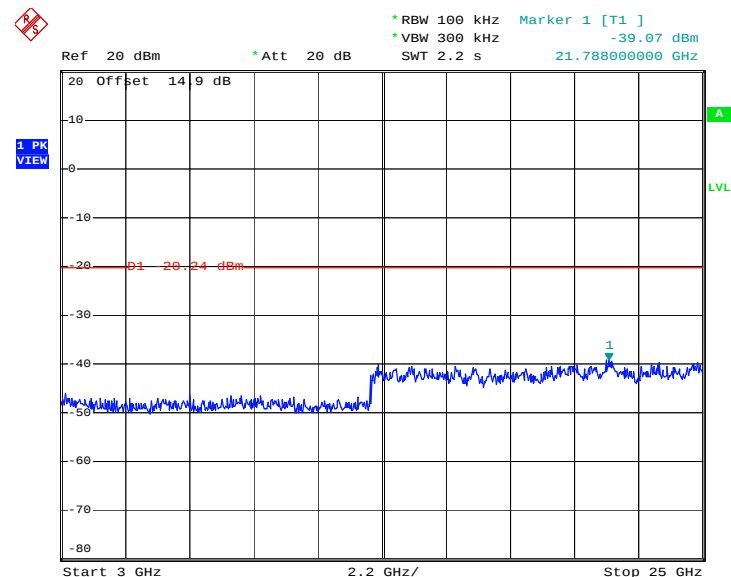
Test Mode :	Mode 6	Temperature :	24~25°C
Test Band :	802.11g	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



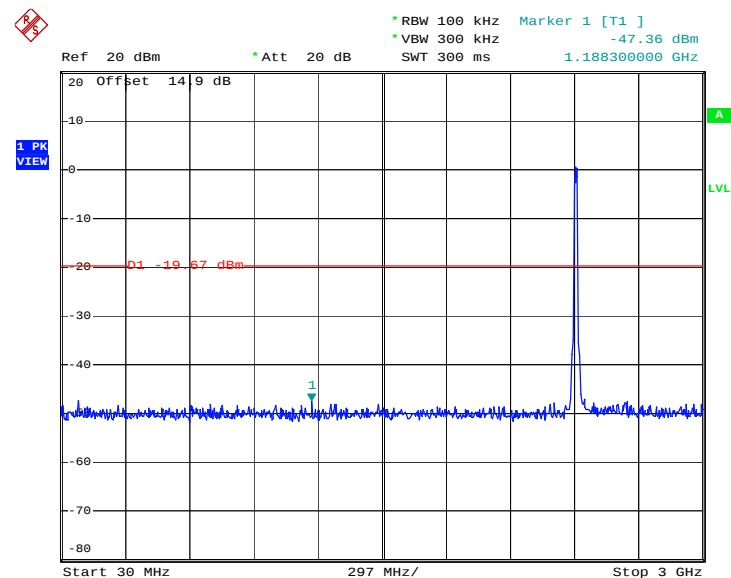
Date: 13.JAN.2012 13:08:57

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

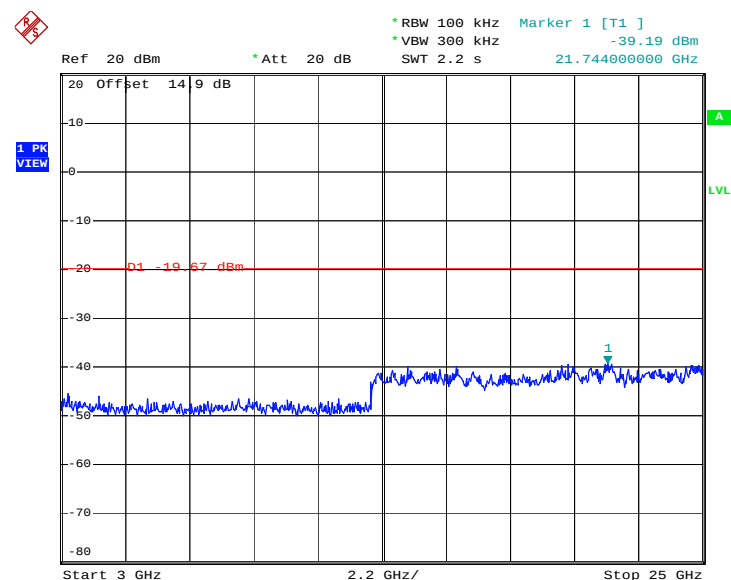


Date: 13.JAN.2012 13:09:14

Test Mode :	Mode 7	Temperature :	24~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 13.JAN.2012 13:27:23

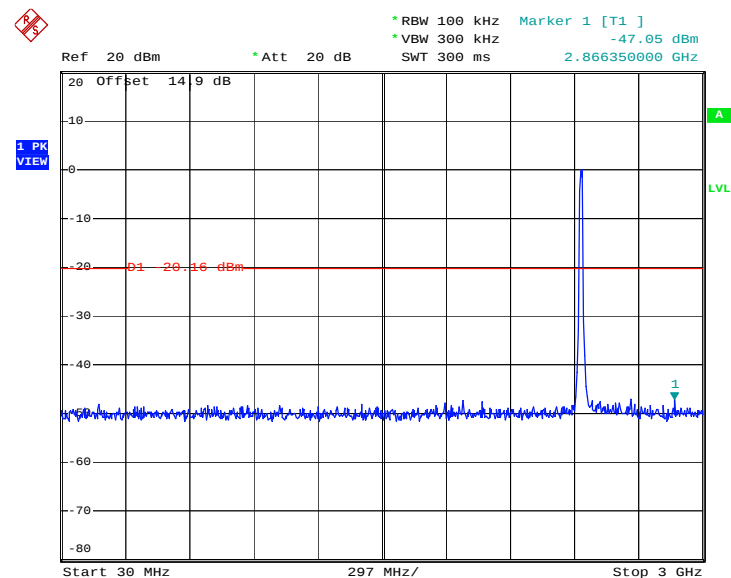
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 13.JAN.2012 13:27:40



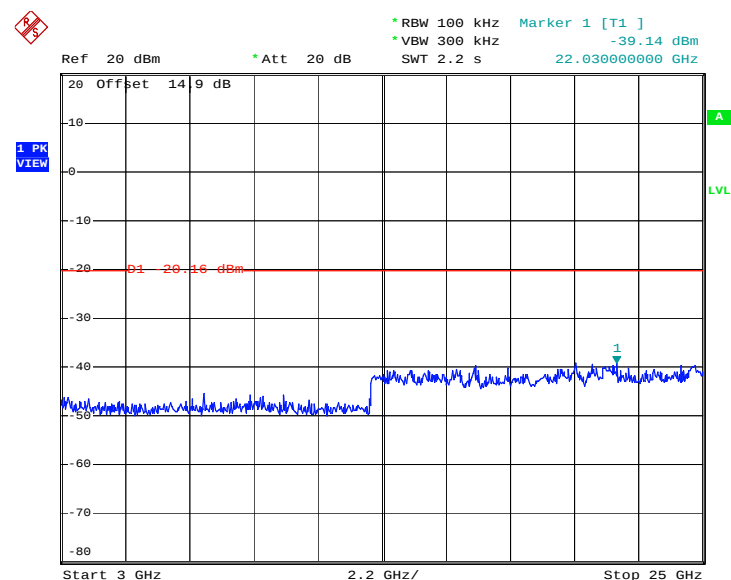
Test Mode :	Mode 8	Temperature :	24~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~46%
Test Channel :	06	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 13.JAN.2012 13:46:01

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

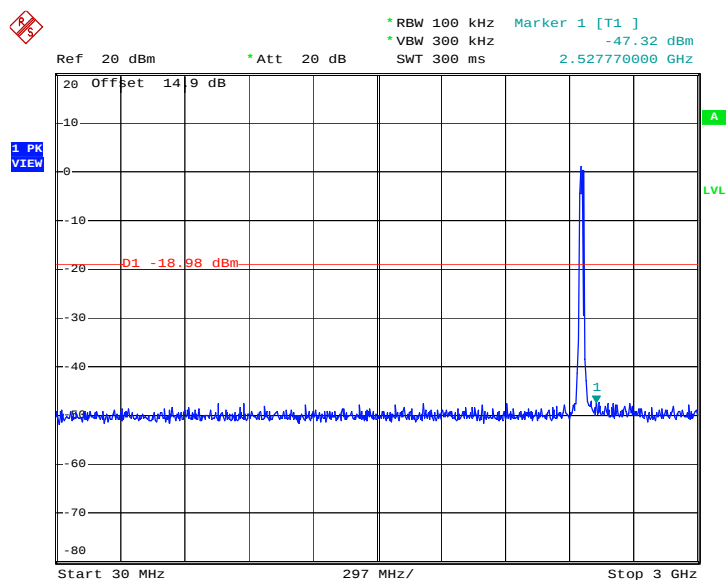


Date: 13.JAN.2012 13:46:18



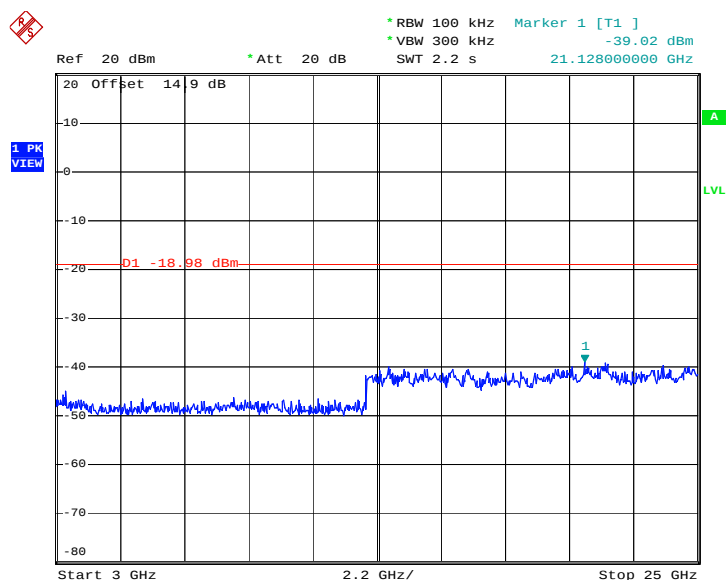
Test Mode :	Mode 9	Temperature :	24~25℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 13.JAN.2012 14:00:52

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 13.JAN.2012 14:01:09

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.

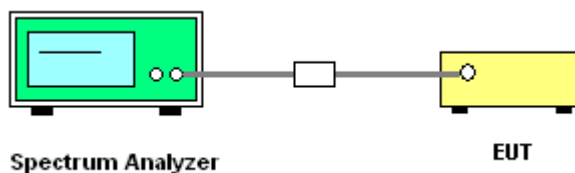
3.5.2 Measuring Instruments

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

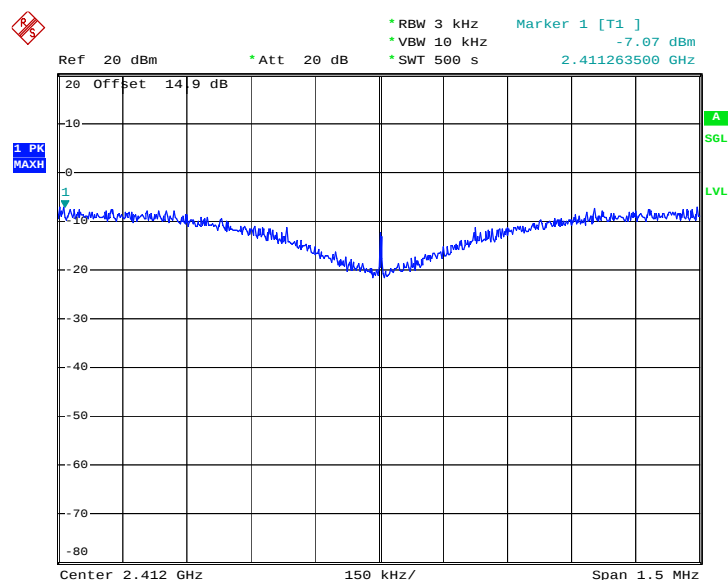


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	24~25℃
Test Engineer :	Fly Chen	Relative Humidity :	45~46%

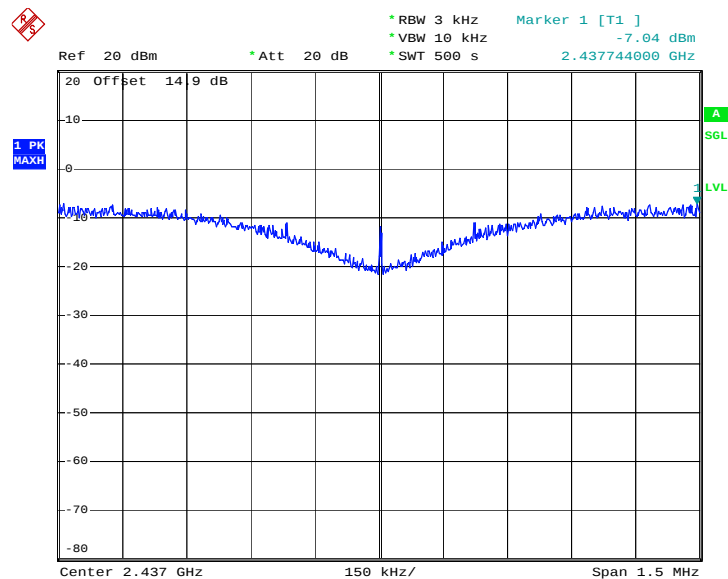
Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-7.07	8	Pass
06	2437	-7.04	8	Pass
11	2462	-7.43	8	Pass

Mode 1 : PSD Plot on 802.11b Channel 01



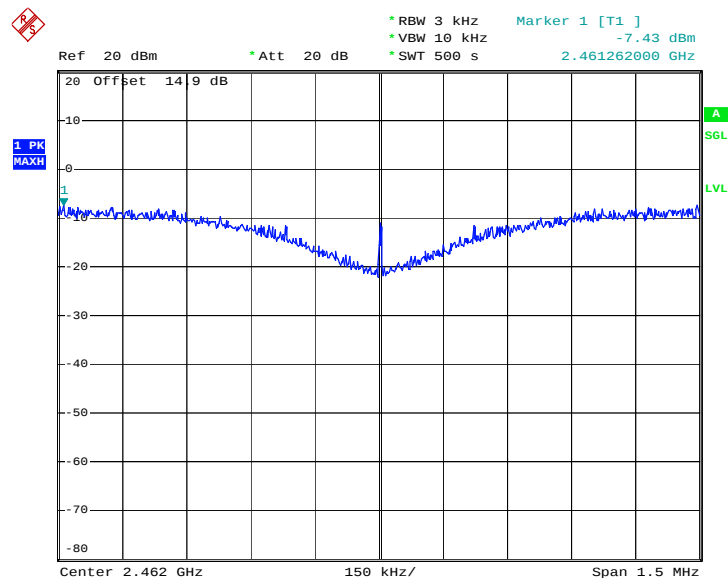
Date: 13.JAN.2012 11:08:10

Mode 2 : PSD Plot on 802.11b Channel 06



Date: 13.JAN.2012 11:21:30

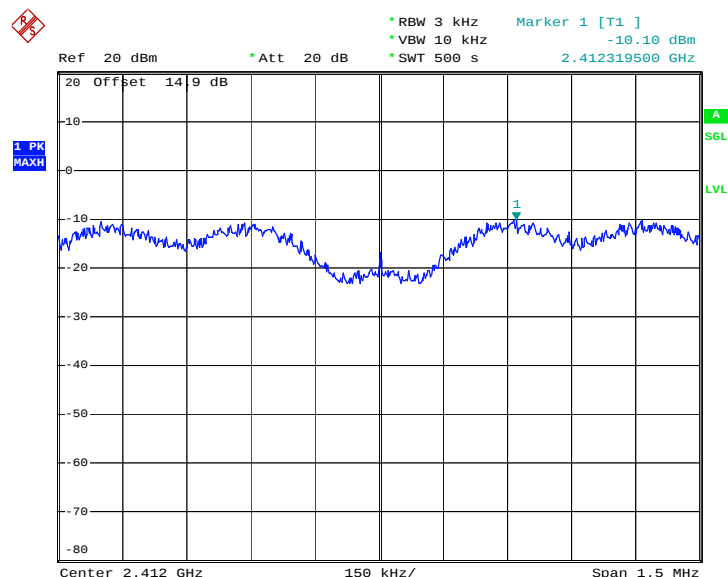
Mode 3 : PSD Plot on 802.11b Channel 11



Date: 13.JAN.2012 11:38:13

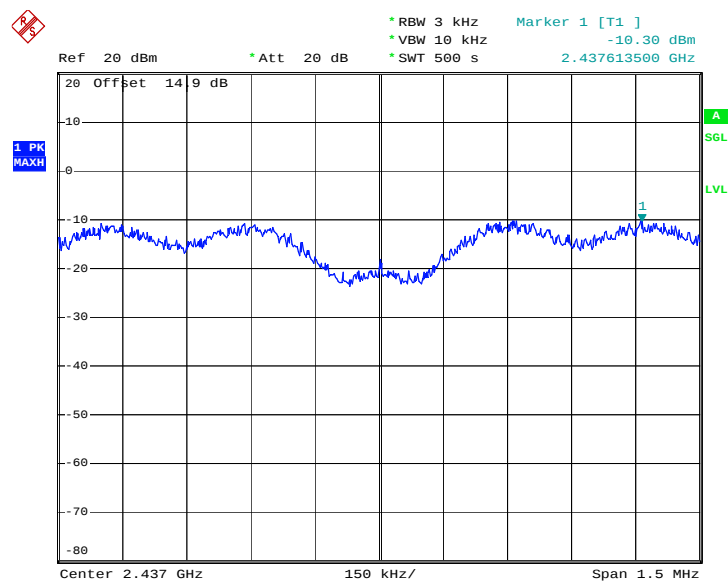
Test Mode :	Mode 4, 5, 6	Temperature :	24~25℃
Test Engineer :	Fly Chen	Relative Humidity :	45~46%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.10	8	Pass
06	2437	-10.30	8	Pass
11	2462	-10.53	8	Pass

Mode 4 : PSD Plot on 802.11g Channel 01


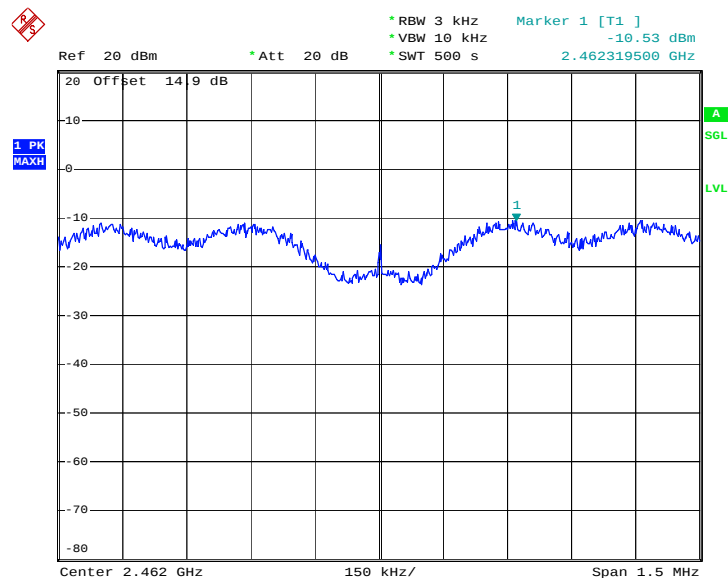
Date: 13.JAN.2012 11:51:53

Mode 5 : PSD Plot on 802.11g Channel 06



Date: 13.JAN.2012 12:29:42

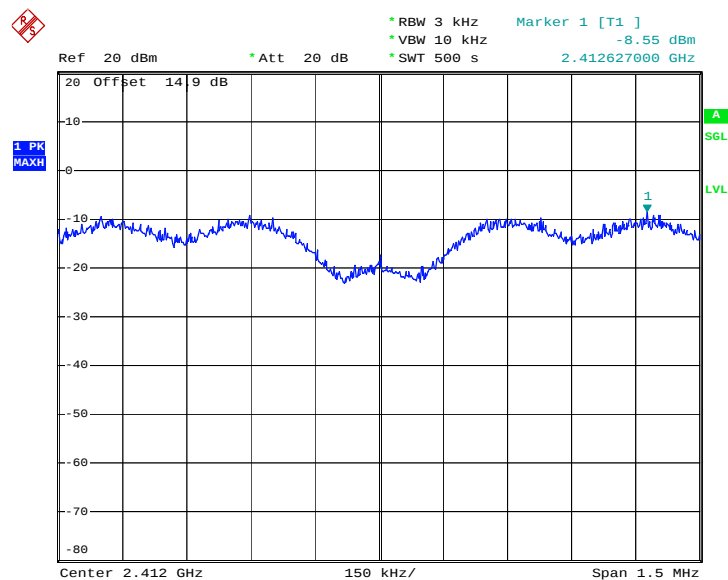
Mode 6 : PSD Plot on 802.11g Channel 11



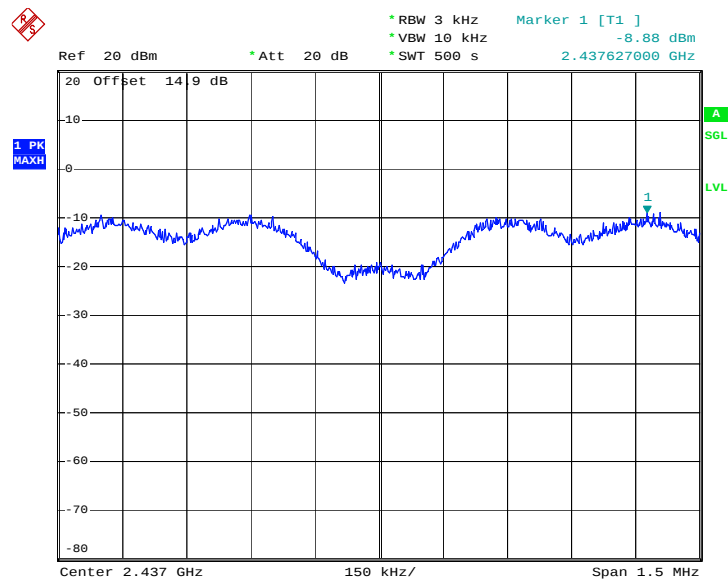
Date: 13.JAN.2012 13:04:56

Test Mode :	Mode 7, 8, 9	Temperature :	24~25℃
Test Engineer :	Fly Chen	Relative Humidity :	45~46%

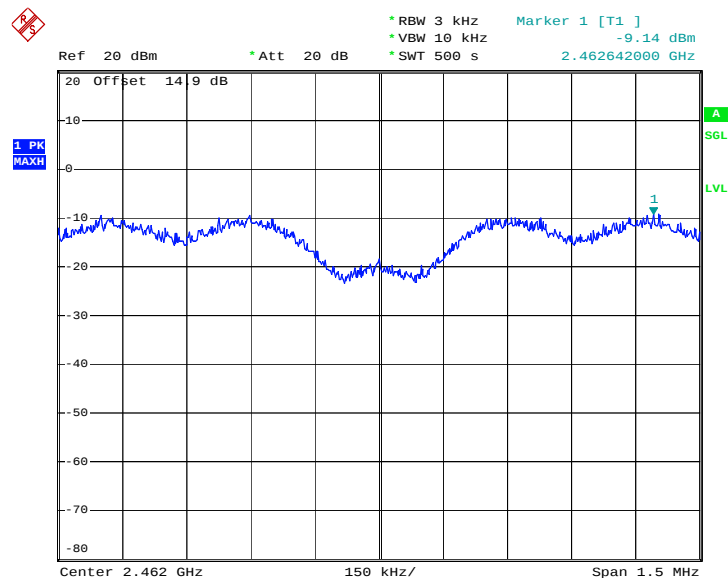
Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-8.55	8	Pass
06	2437	-8.88	8	Pass
11	2462	-9.14	8	Pass

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


Date: 13.JAN.2012 13:37:02

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


Date: 13.JAN.2012 13:54:56

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


Date: 13.JAN.2012 14:10:51

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.

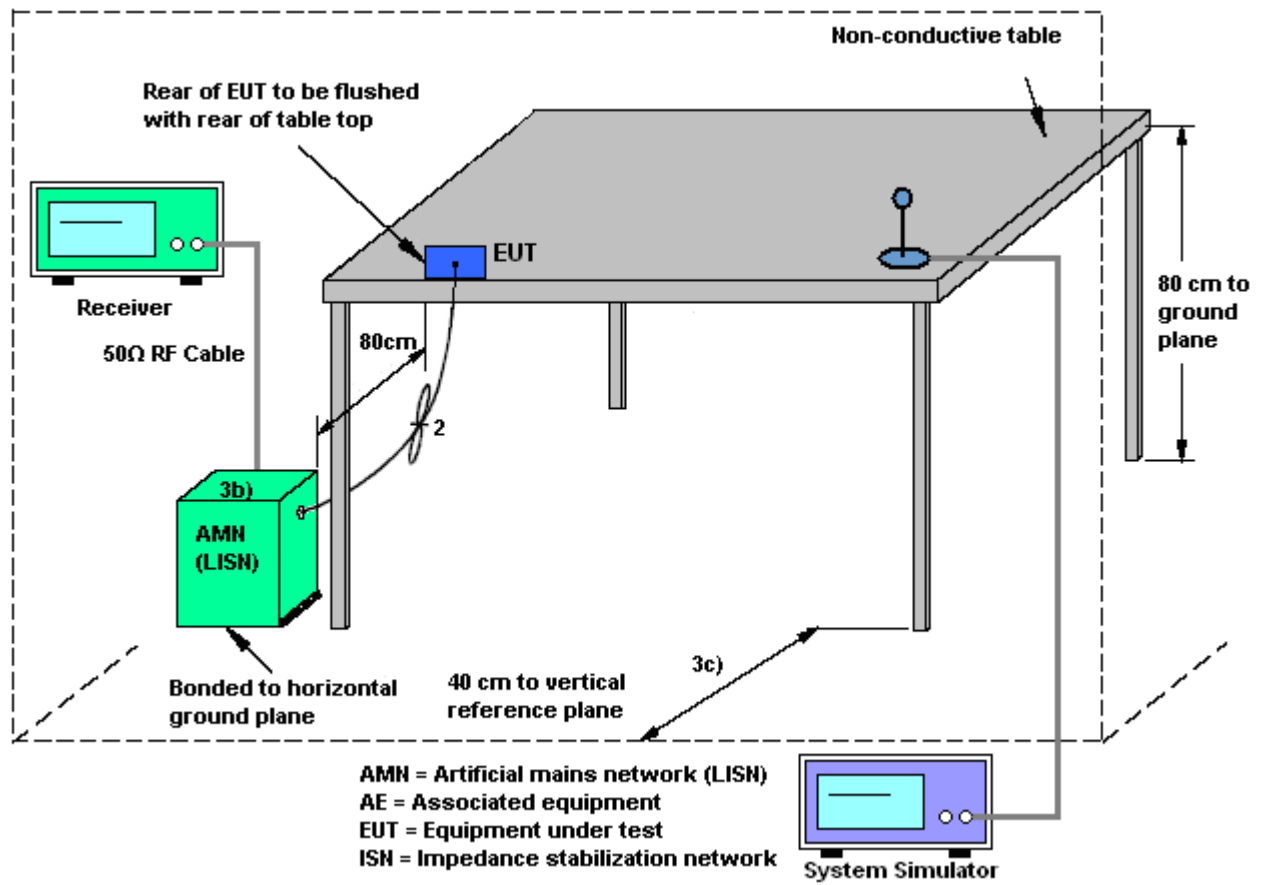
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

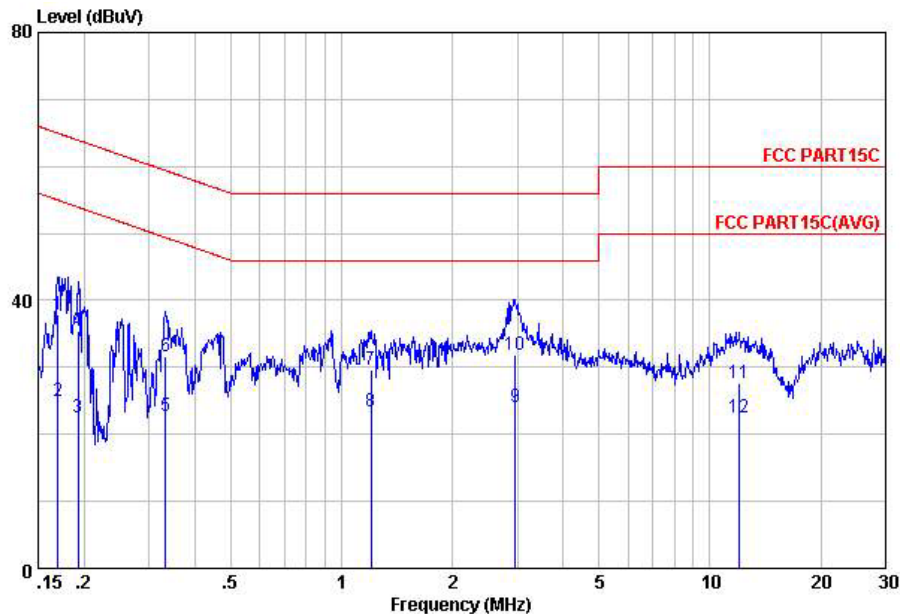
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network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

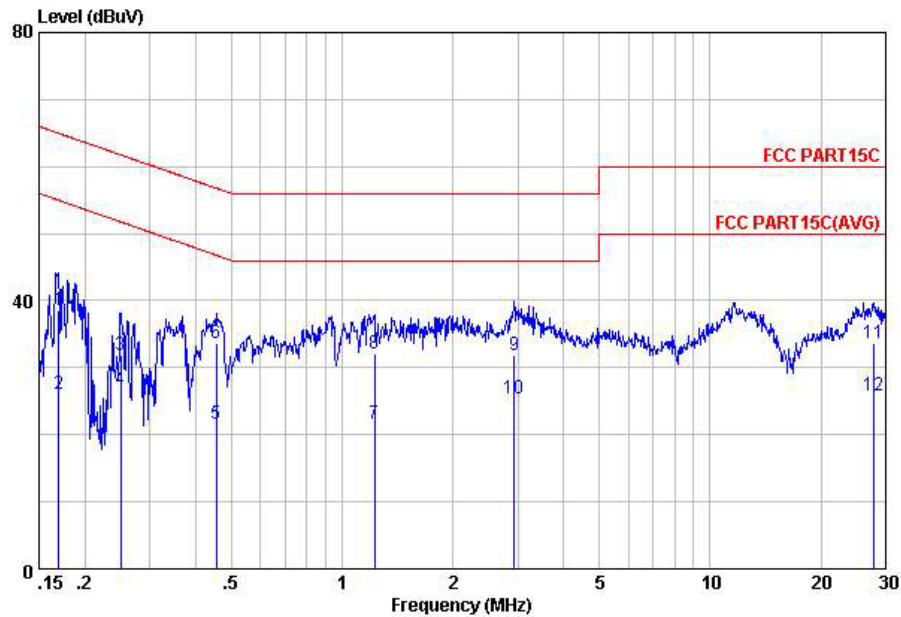
Test Mode :	Mode 1	Temperature :	20~21°C
Test Engineer :	Jack Jia	Relative Humidity :	41~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM 850 Idle + Bluetooth Link + WLAN Link + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
 Condition: FCC PART15C LISN-100807 LINE
 Project : (FR) 190807
 mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.17	37.87	-27.12	64.99	27.80	-0.07	10.14	QP
2	0.17	24.87	-30.12	54.99	14.80	-0.07	10.14	Average
3	0.19	22.48	-31.45	53.93	12.40	-0.07	10.15	Average
4	0.19	35.48	-28.45	63.93	25.40	-0.07	10.15	QP
5	0.33	22.80	-26.60	49.40	12.70	-0.08	10.18	Average
6	0.33	31.70	-27.70	59.40	21.60	-0.08	10.18	QP
7	1.20	29.58	-26.42	56.00	19.40	-0.10	10.28	QP
8	1.20	23.48	-22.52	46.00	13.30	-0.10	10.28	Average
9	2.96	24.05	-21.95	46.00	13.80	-0.12	10.37	Average
10	2.96	31.95	-24.05	56.00	21.70	-0.12	10.37	QP
11	12.06	27.68	-32.32	60.00	17.30	-0.10	10.48	QP
12	12.06	22.58	-27.42	50.00	12.20	-0.10	10.48	Average

Test Mode :	Mode 1	Temperature :	20~21℃
Test Engineer :	Jack Jia	Relative Humidity :	41~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM 850 Idle + Bluetooth Link + WLAN Link + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
 Condition: FCC PART15C LISN-100807 NEUTRAL
 Project : (FR) 190807
 mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.17	38.46	-26.53	64.99	28.40	-0.08	10.14	QP
2	0.17	25.96	-29.03	54.99	15.90	-0.08	10.14	Average
3	0.25	31.79	-29.94	61.73	21.70	-0.07	10.16	QP
4	0.25	26.79	-24.94	51.73	16.70	-0.07	10.16	Average
5	0.45	21.72	-25.08	46.80	11.60	-0.08	10.20	Average
6	0.45	33.62	-23.18	56.80	23.50	-0.08	10.20	QP
7	1.22	21.69	-24.31	46.00	11.50	-0.09	10.28	Average
8	1.22	32.09	-23.91	56.00	21.90	-0.09	10.28	QP
9	2.93	31.95	-24.05	56.00	21.70	-0.12	10.37	QP
10	2.93	25.45	-20.55	46.00	15.20	-0.12	10.37	Average
11	27.86	33.57	-26.43	60.00	22.71	0.18	10.68	QP
12	27.86	25.77	-24.23	50.00	14.91	0.18	10.68	Average

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

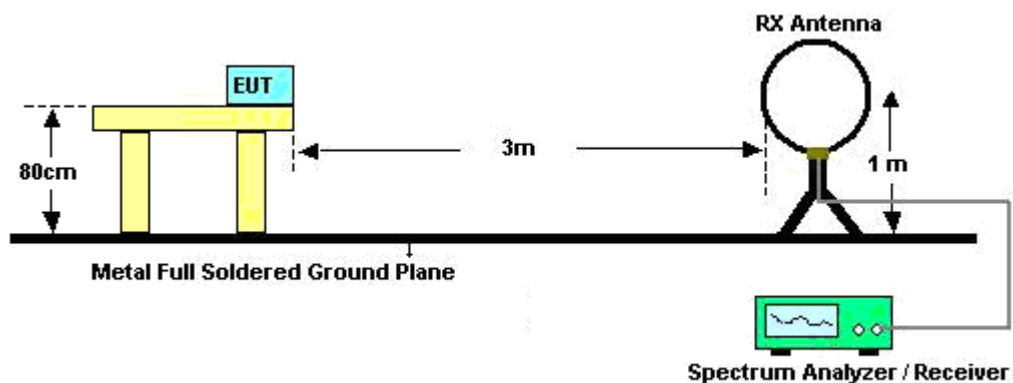
See list of measuring instruments of this test report.

3.7.3 Test Procedures

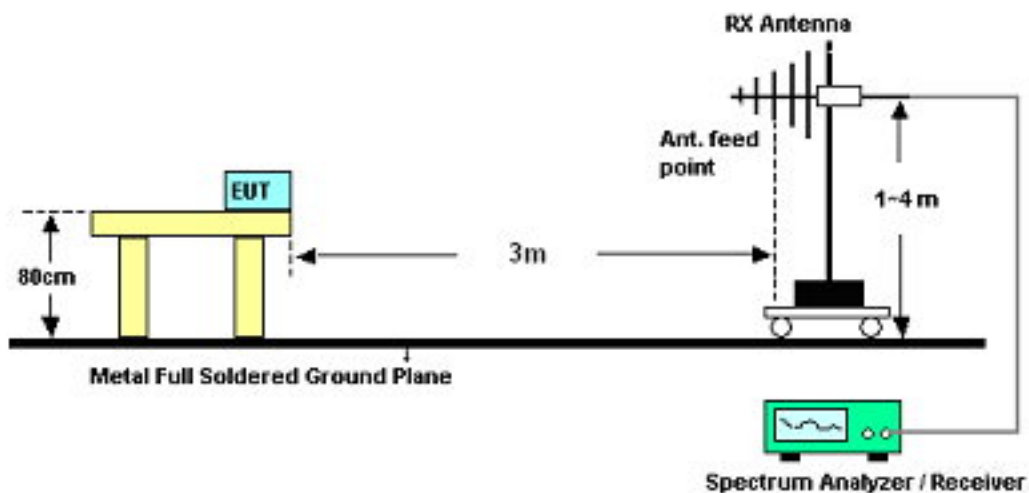
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = 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

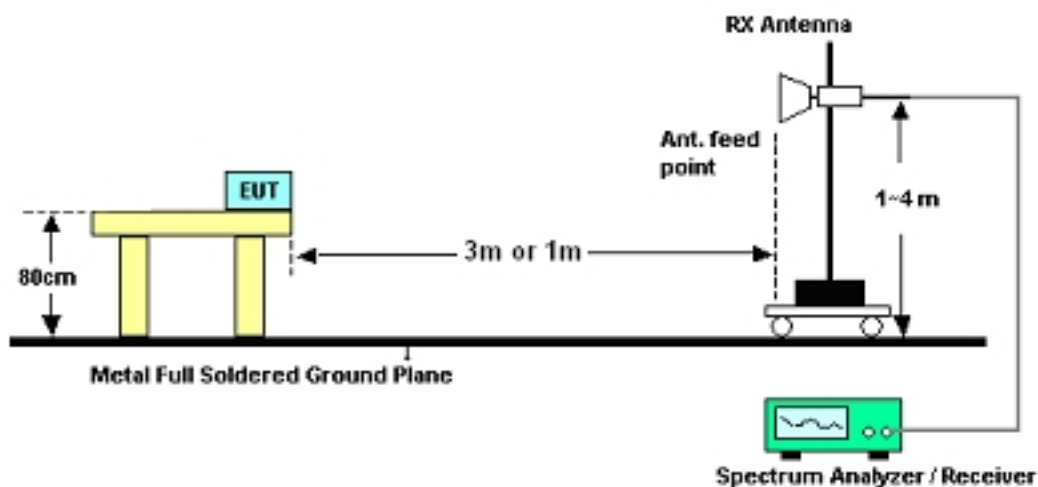
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

Test Engineer :	Jack Jia	Temperature :	21~22℃	
		Relative Humidity :	41~42%	

Frequency (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

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 :	Jack Jia	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	19.58	-20.42	40	31.4	18	0.26	30.08	-	-	Peak
132.33	21.64	-21.86	43.5	39.61	11.55	0.47	29.99	-	-	Peak
215.76	27.69	-15.81	43.5	47.24	9.83	0.61	29.99	-	-	Peak
317.5	26.69	-19.31	46	42.44	13.45	0.75	29.95	-	-	Peak
537.3	27.66	-18.34	46	38.12	18.24	0.99	29.69	-	-	Peak
806.8	30.97	-15.03	46	39.4	19.92	1.25	29.6	100	0	Peak
2359.97	49.2	-24.8	74	46.99	32.81	3.38	33.98	200	16	Peak
2359.97	36.54	-17.46	54	34.33	32.81	3.38	33.98	200	16	Average
2412	98.84	-	-	96.51	32.89	3.52	34.08	200	56	Peak
2412	93.95	-	-	91.62	32.89	3.52	34.08	200	56	Average
2491.26	49.84	-24.16	74	47.3	33.05	3.72	34.23	200	31	Peak
2491.26	36.81	-17.19	54	34.27	33.05	3.72	34.23	200	31	Average

Test Mode :	Mode 1	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Jack Jia	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
62.67	26.49	-13.51	40	51.04	5.25	0.32	30.12	-	-	Peak
99.93	27.8	-15.7	43.5	46.85	10.5	0.41	29.96	-	-	Peak
132.06	28.98	-14.52	43.5	46.95	11.55	0.47	29.99	-	-	Peak
575.8	40.82	-5.18	46	50.88	18.55	1.04	29.65	100	0	Peak
834.1	30.63	-15.37	46	38.67	20.33	1.27	29.64	-	-	Peak
911.8	35.15	-10.85	46	42.83	20.5	1.31	29.49	-	-	Peak
2389.8	52.53	-21.47	74	50.25	32.86	3.47	34.05	100	282	Peak
2389.8	40.24	-13.76	54	37.96	32.86	3.47	34.05	100	282	Average
2412	104.74	-	-	102.41	32.89	3.52	34.08	100	277	Peak
2412	100.47	-	-	98.14	32.89	3.52	34.08	100	277	Average
2491.07	52.98	-21.02	74	50.44	33.05	3.72	34.23	100	26	Peak
2491.07	42.8	-11.2	54	40.26	33.05	3.72	34.23	100	26	Average

Test Mode :	Mode 2	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jack Jia	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	19.57	-20.43	40	31.39	18	0.26	30.08	-	-	Peak
136.38	20.31	-23.19	43.5	38.7	11.13	0.48	30	-	-	Peak
211.44	26.08	-17.42	43.5	45.93	9.54	0.6	29.99	-	-	Peak
537.3	27.46	-18.54	46	37.92	18.24	0.99	29.69	-	-	Peak
806.8	30.77	-15.23	46	39.2	19.92	1.25	29.6	-	-	Peak
911.8	38.13	-7.87	46	45.81	20.5	1.31	29.49	100	0	Peak
2371.37	49.77	-24.23	74	47.53	32.83	3.42	34.01	200	122	Peak
2371.37	36.85	-17.15	54	34.61	32.83	3.42	34.01	200	122	Average
2437	99.24	-	-	96.84	32.95	3.6	34.15	200	316	Peak
2437	95.08	-	-	92.68	32.95	3.6	34.15	200	316	Average
2492.59	49.74	-24.26	74	47.2	33.05	3.72	34.23	200	69	Peak
2492.59	36.89	-17.11	54	34.35	33.05	3.72	34.23	200	69	Average

Test Mode :	Mode 2	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jack Jia	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
107.76	26.89	-16.61	43.5	44.86	11.56	0.43	29.96	-	-	Peak
173.64	23.32	-20.18	43.5	43.72	8.95	0.55	29.9	-	-	Peak
221.97	22.93	-23.07	46	42.03	10.25	0.62	29.97	-	-	Peak
459.6	30.84	-15.16	46	43.28	16.43	0.91	29.78	-	-	Peak
575.8	40.61	-5.39	46	50.67	18.55	1.04	29.65	100	0	Peak
806.8	29.61	-16.39	46	38.04	19.92	1.25	29.6	-	-	Peak
2357.31	37.07	-16.93	54	34.86	32.81	3.38	33.98	100	188	Average
2357.31	49.87	-24.13	74	47.66	32.81	3.38	33.98	100	188	Peak
2437	105.13	-	-	102.73	32.95	3.6	34.15	100	258	Peak
2437	100.75	-	-	98.35	32.95	3.6	34.15	100	258	Average
2491.64	52.76	-21.24	74	50.22	33.05	3.72	34.23	100	61	Peak
2491.64	37.1	-16.9	54	34.56	33.05	3.72	34.23	100	61	Average

Test Mode :	Mode 3	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jack Jia	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	21.37	-18.63	40	33.91	17.29	0.25	30.08	-	-	Peak
133.41	20.09	-23.41	43.5	38.21	11.39	0.48	29.99	-	-	Peak
211.98	25.98	-17.52	43.5	45.76	9.6	0.61	29.99	-	-	Peak
304.2	27.09	-18.91	46	43.21	13.1	0.73	29.95	-	-	Peak
461	25.34	-20.66	46	37.76	16.45	0.91	29.78	-	-	Peak
806.8	28.62	-17.38	46	37.05	19.92	1.25	29.6	100	0	Peak
2362.44	48.95	-25.05	74	46.74	32.81	3.38	33.98	200	102	Peak
2362.44	37.74	-16.26	54	35.53	32.81	3.38	33.98	200	102	Average
2462	98.72	-	-	96.27	32.98	3.64	34.17	200	58	Peak
2462	94.76	-	-	92.31	32.98	3.64	34.17	200	58	Average
2490.5	50.24	-23.76	74	47.7	33.05	3.72	34.23	200	61	Peak
2490.5	39.16	-14.84	54	36.62	33.05	3.72	34.23	200	61	Average

Test Mode :	Mode 3	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jack Jia	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
65.37	25.33	-14.67	40	49.92	5.2	0.32	30.11	-	-	Peak
108.03	27.6	-15.9	43.5	45.57	11.56	0.43	29.96	-	-	Peak
132.06	26.68	-16.82	43.5	44.65	11.55	0.47	29.99	-	-	Peak
575.8	40.34	-5.66	46	50.4	18.55	1.04	29.65	100	0	Peak
691.3	29.87	-16.13	46	39.22	19.25	1.12	29.72	-	-	Peak
806.8	28.42	-17.58	46	36.85	19.92	1.25	29.6	-	-	Peak
2382.58	50.1	-23.9	74	47.86	32.83	3.42	34.01	100	280	Peak
2382.58	38.75	-15.25	54	36.51	32.83	3.42	34.01	100	280	Average
2462	105.32	-	-	102.87	32.98	3.64	34.17	100	278	Peak
2462	100.71	-	-	98.26	32.98	3.64	34.17	100	278	Average
2491.07	54.01	-19.99	74	51.47	33.05	3.72	34.23	100	276	Peak
2491.07	42.35	-11.65	54	39.81	33.05	3.72	34.23	100	276	Average

Test Mode :	Mode 4	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Jack Jia	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
132.06	20.62	-22.88	43.5	38.59	11.55	0.47	29.99	-	-	Peak
221.97	25.98	-20.02	46	45.08	10.25	0.62	29.97	-	-	Peak
285.42	25.52	-20.48	46	42	12.76	0.71	29.95	-	-	Peak
461	25.63	-20.37	46	38.05	16.45	0.91	29.78	-	-	Peak
575.8	27.79	-18.21	46	37.85	18.55	1.04	29.65	-	-	Peak
806.8	30.83	-15.17	46	39.26	19.92	1.25	29.6	100	0	Peak
2356.36	49.54	-24.46	74	47.33	32.81	3.38	33.98	200	58	Peak
2356.36	36.83	-17.17	54	34.62	32.81	3.38	33.98	200	58	Average
2412	96.6	-	-	94.27	32.89	3.52	34.08	200	188	Peak
2412	92.04	-	-	89.71	32.89	3.52	34.08	200	188	Average
2489.55	50.47	-23.53	74	47.93	33.05	3.72	34.23	200	97	Peak
2489.55	37.32	-16.68	54	34.78	33.05	3.72	34.23	200	97	Average

Test Mode :	Mode 4	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Jack Jia	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
65.64	25.09	-14.91	40	49.64	5.22	0.33	30.1	-	-	Peak
107.22	26.05	-17.45	43.5	44.02	11.56	0.43	29.96	-	-	Peak
130.17	25.27	-18.23	43.5	43.09	11.7	0.47	29.99	-	-	Peak
575.8	31.48	-14.52	46	41.54	18.55	1.04	29.65	100	0	Peak
691.3	24.64	-21.36	46	33.99	19.25	1.12	29.72	-	-	Peak
921.6	24.75	-21.25	46	32.37	20.57	1.31	29.5	-	-	Peak
2390	51.99	-22.01	74	49.71	32.86	3.47	34.05	100	281	Peak
2390	40.58	-13.42	54	38.3	32.86	3.47	34.05	100	281	Average
2412	103.6	-	-	101.27	32.89	3.52	34.08	100	276	Peak
2412	99.2	-	-	96.87	32.89	3.52	34.08	100	276	Average
2491.26	52.2	-21.8	74	49.66	33.05	3.72	34.23	100	220	Peak
2491.26	41.52	-12.48	54	38.98	33.05	3.72	34.23	100	220	Average

Test Mode :	Mode 5	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jack Jia	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	21.16	-18.84	40	33.7	17.29	0.25	30.08	-	-	Peak
133.41	17.91	-25.59	43.5	36.03	11.39	0.48	29.99	-	-	Peak
214.14	22.38	-21.12	43.5	42.05	9.71	0.61	29.99	-	-	Peak
575.8	28.91	-17.09	46	38.97	18.55	1.04	29.65	-	-	Peak
691.3	26.93	-19.07	46	36.28	19.25	1.12	29.72	-	-	Peak
806.8	32.11	-13.89	46	40.54	19.92	1.25	29.6	100	0	Peak
2385.62	49.04	-24.96	74	46.76	32.86	3.47	34.05	200	88	Peak
2385.62	36.79	-17.21	54	34.51	32.86	3.47	34.05	200	88	Average
2437	99.06	-	-	96.66	32.95	3.6	34.15	200	281	Peak
2437	93.98	-	-	91.58	32.95	3.6	34.15	200	281	Average
2487.65	49.29	-24.71	74	46.75	33.05	3.72	34.23	200	203	Peak
2487.65	36.85	-17.15	54	34.31	33.05	3.72	34.23	200	203	Average



Test Mode :	Mode 5	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jack Jia	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
64.29	22.94	-17.06	40	47.52	5.22	0.32	30.12	-	-	Peak
107.49	19.55	-23.95	43.5	37.52	11.56	0.43	29.96	-	-	Peak
221.97	18.05	-27.95	46	37.15	10.25	0.62	29.97	-	-	Peak
575.8	40.09	-5.91	46	50.15	18.55	1.04	29.65	100	0	Peak
691.3	29.5	-16.5	46	38.85	19.25	1.12	29.72	-	-	Peak
806.8	29.17	-16.83	46	37.6	19.92	1.25	29.6	-	-	Peak
2386.57	49.74	-24.26	74	47.46	32.86	3.47	34.05	100	27	Peak
2386.57	36.64	-17.36	54	34.36	32.86	3.47	34.05	100	27	Average
2437	103.95	-	-	101.55	32.95	3.6	34.15	100	183	Peak
2437	99.21	-	-	96.81	32.95	3.6	34.15	100	183	Average
2494.49	51.67	-22.33	74	49.13	33.05	3.72	34.23	100	51	Peak
2494.49	37.19	-16.81	54	34.65	33.05	3.72	34.23	100	51	Average

Test Mode :	Mode 6	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jack Jia	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.35	18.23	-21.77	40	30.77	17.29	0.25	30.08	-	-	Peak
132.6	16.12	-27.38	43.5	34.16	11.47	0.48	29.99	-	-	Peak
222.24	20.67	-25.33	46	39.77	10.25	0.62	29.97	-	-	Peak
575.8	29.93	-16.07	46	39.99	18.55	1.04	29.65	-	-	Peak
691.3	27.4	-18.6	46	36.75	19.25	1.12	29.72	-	-	Peak
806.8	31.96	-14.04	46	40.39	19.92	1.25	29.6	100	0	Peak
2382.77	48.89	-25.11	74	46.65	32.83	3.42	34.01	200	61	Peak
2382.77	36.8	-17.2	54	34.56	32.83	3.42	34.01	200	61	Average
2462	98.37	-	-	95.92	32.98	3.64	34.17	200	36	Peak
2462	93.3	-	-	90.85	32.98	3.64	34.17	200	36	Average
2485.18	50.08	-23.92	74	47.59	33.01	3.68	34.2	200	126	Peak
2485.18	36.86	-17.14	54	34.37	33.01	3.68	34.2	200	126	Average

Test Mode :	Mode 6	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jack Jia	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
65.91	23.65	-16.35	40	48.2	5.22	0.33	30.1	-	-	Peak
126.93	21.77	-21.73	43.5	39.56	11.73	0.46	29.98	-	-	Peak
222.24	19.79	-26.21	46	38.89	10.25	0.62	29.97	-	-	Peak
575.8	41.78	-4.22	46	51.84	18.55	1.04	29.65	100	0	Peak
691.3	31.12	-14.88	46	40.47	19.25	1.12	29.72	-	-	Peak
806.8	31.8	-14.2	46	40.23	19.92	1.25	29.6	-	-	Peak
2386.95	49.95	-24.05	74	47.67	32.86	3.47	34.05	100	81	Peak
2386.95	37.41	-16.59	54	35.13	32.86	3.47	34.05	100	81	Average
2462	103.89	-	-	101.44	32.98	3.64	34.17	100	178	Peak
2462	98.62	-	-	96.17	32.98	3.64	34.17	100	178	Average
2489.93	54.27	-19.73	74	51.73	33.05	3.72	34.23	100	306	Peak
2489.93	40.89	-13.11	54	38.35	33.05	3.72	34.23	100	306	Average

Test Mode :	Mode 7	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Jack Jia	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	19.36	-20.64	40	31.18	18	0.26	30.08	-	-	Peak
134.76	16.81	-26.69	43.5	35.02	11.3	0.48	29.99	-	-	Peak
222.24	20.84	-25.16	46	39.94	10.25	0.62	29.97	-	-	Peak
575.8	29.03	-16.97	46	39.09	18.55	1.04	29.65	-	-	Peak
691.3	26.09	-19.91	46	35.44	19.25	1.12	29.72	-	-	Peak
806.8	32.38	-13.62	46	40.81	19.92	1.25	29.6	100	0	Peak
2390	56.04	-17.96	74	53.76	32.86	3.47	34.05	200	281	Peak
2390	45.13	-8.87	54	42.85	32.86	3.47	34.05	200	281	Average
2412	99.19	-	-	96.86	32.89	3.52	34.08	200	166	Peak
2412	88.08	-	-	85.75	32.89	3.52	34.08	200	166	Average
2487.46	50.24	-23.76	74	47.75	33.01	3.68	34.2	200	26	Peak
2487.46	36.85	-17.15	54	34.36	33.01	3.68	34.2	200	26	Average

Test Mode :	Mode 7	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Jack Jia	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
66.18	23.43	-16.57	40	47.98	5.22	0.33	30.1	-	-	Peak
135.03	25.25	-18.25	43.5	43.46	11.3	0.48	29.99	-	-	Peak
221.97	19.78	-26.22	46	38.88	10.25	0.62	29.97	-	-	Peak
575.8	41.54	-4.46	46	51.6	18.55	1.04	29.65	100	0	Peak
691.3	30.52	-15.48	46	39.87	19.25	1.12	29.72	-	-	Peak
806.8	31.75	-14.25	46	40.18	19.92	1.25	29.6	-	-	Peak
2390	59.75	-14.25	74	57.47	32.86	3.47	34.05	100	275	Peak
2390	48.98	-5.02	54	46.7	32.86	3.47	34.05	100	275	Average
2412	105.34	-	-	103.01	32.89	3.52	34.08	100	275	Peak
2412	93.52	-	-	91.19	32.89	3.52	34.08	100	275	Average
2493.35	53.18	-20.82	74	50.64	33.05	3.72	34.23	100	276	Peak
2493.35	42.19	-11.81	54	39.65	33.05	3.72	34.23	100	276	Average

Test Mode :	Mode 8	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jack Jia	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.16	18.61	-21.39	40	31.91	16.55	0.24	30.09	-	-	Peak
213.6	18.8	-24.7	43.5	38.53	9.65	0.61	29.99	-	-	Peak
222.24	19.6	-26.4	46	38.7	10.25	0.62	29.97	-	-	Peak
575.8	27	-19	46	37.06	18.55	1.04	29.65	-	-	Peak
691.3	25.78	-20.22	46	35.13	19.25	1.12	29.72	-	-	Peak
806.8	29.32	-16.68	46	37.75	19.92	1.25	29.6	100	0	Peak
2359.4	49.18	-24.82	74	46.97	32.81	3.38	33.98	200	16	Peak
2359.4	36.52	-17.48	54	34.31	32.81	3.38	33.98	200	16	Average
2437	101.09	-	-	98.69	32.95	3.6	34.15	200	183	Peak
2437	90.05	-	-	87.65	32.95	3.6	34.15	200	183	Average
2486.89	49.69	-24.31	74	47.2	33.01	3.68	34.2	200	61	Peak
2486.89	37.01	-16.99	54	34.52	33.01	3.68	34.2	200	61	Average

Test Mode :	Mode 8	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jack Jia	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
40.53	21.42	-18.58	40	39.58	11.64	0.25	30.05	-	-	Peak
66.99	22.36	-17.64	40	46.88	5.25	0.33	30.1	-	-	Peak
108.03	19.41	-24.09	43.5	37.38	11.56	0.43	29.96	-	-	Peak
575.8	36.73	-9.27	46	46.79	18.55	1.04	29.65	100	0	Peak
691.3	26.83	-19.17	46	36.18	19.25	1.12	29.72	-	-	Peak
806.8	27.14	-18.86	46	35.57	19.92	1.25	29.6	-	-	Peak
2357.5	49.77	-24.23	74	47.56	32.81	3.38	33.98	100	182	Peak
2357.5	37.6	-16.4	54	35.39	32.81	3.38	33.98	100	182	Average
2437	107.14	-	-	104.74	32.95	3.6	34.15	100	166	Peak
2437	96.26	-	-	93.86	32.95	3.6	34.15	100	166	Average
2483.5	50.62	-23.38	74	48.13	33.01	3.68	34.2	100	200	Peak
2483.5	39	-15	54	36.51	33.01	3.68	34.2	100	200	Average

Test Mode :	Mode 9	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jack Jia	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.16	19.59	-20.41	40	32.89	16.55	0.24	30.09	-	-	Peak
214.14	19.31	-24.19	43.5	38.98	9.71	0.61	29.99	-	-	Peak
222.24	20.78	-25.22	46	39.88	10.25	0.62	29.97	-	-	Peak
461	24.61	-21.39	46	37.03	16.45	0.91	29.78	-	-	Peak
575.8	26.23	-19.77	46	36.29	18.55	1.04	29.65	-	-	Peak
806.8	27.29	-18.71	46	35.72	19.92	1.25	29.6	100	0	Peak
2378.4	48.57	-25.43	74	46.33	32.83	3.42	34.01	200	226	Peak
2378.4	36.75	-17.25	54	34.51	32.83	3.42	34.01	200	226	Average
2462	100.26	-	-	97.81	32.98	3.64	34.17	200	122	Peak
2462	89.12	-	-	86.67	32.98	3.64	34.17	200	122	Average
2483.85	54.3	-19.7	74	51.81	33.01	3.68	34.2	200	106	Peak
2483.85	42.28	-11.72	54	39.79	33.01	3.68	34.2	200	106	Average

Test Mode :	Mode 9	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jack Jia	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
64.83	22.98	-17.02	40	47.57	5.2	0.32	30.11	-	-	Peak
136.38	21.28	-22.22	43.5	39.67	11.13	0.48	30	-	-	Peak
222.24	19.78	-26.22	46	38.88	10.25	0.62	29.97	-	-	Peak
575.8	41.14	-4.86	46	51.2	18.55	1.04	29.65	100	0	Peak
691.3	30.25	-15.75	46	39.6	19.25	1.12	29.72	-	-	Peak
806.8	28.9	-17.1	46	37.33	19.92	1.25	29.6	-	-	Peak
2381.44	51.02	-22.98	74	48.78	32.83	3.42	34.01	100	280	Peak
2381.44	39.43	-14.57	54	37.19	32.83	3.42	34.01	100	280	Average
2462	107.35	-	-	104.9	32.98	3.64	34.17	100	278	Peak
2462	96.11	-	-	93.66	32.98	3.64	34.17	200	278	Average
2483.5	62.32	-11.68	74	59.83	33.01	3.68	34.2	200	276	Peak
2483.5	49.64	-4.36	54	47.15	33.01	3.68	34.2	200	276	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	Jan. 13, 2012	Dec. 29, 2012	Conducted (TH01-KS)
Power Meter	Agilent	E4416A	MY451015 55	N/A	Aug. 23, 2011	Jan. 13, 2012	Aug. 22, 2012	Conducted (TH01-KS)
Power Sensor	Agilent	E9327A	MY444211 98	N/A	Aug. 23, 2011	Jan. 13, 2012	Aug. 22, 2012	Conducted (TH01-KS)
DC Power Supply	TOPWARD	GPS-3030D	E1884515	N/A	Aug. 23, 2011	Jan. 13, 2012	Aug. 22, 2012	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-9605 02	N/A	Dec. 30, 2011	Jan. 13, 2012	Dec. 29, 2012	Conducted (TH01-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	Jun. 02, 2011	Jan. 29, 2012	Jun. 01, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60103	9kHz~30MHz	Dec. 30, 2011	Jan. 29, 2012	Dec. 29, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60105	9kHz~30MHz	Dec. 30, 2011	Jan. 29, 2012	Dec. 29, 2012	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP00000 0811	N/A	Nov. 16, 2011	Jan. 29, 2012	Nov. 15, 2012	Conduction (CO01-KS)
System Simulator	R&S	CMU200	837587/06 6	2G Full-Band	Dec. 30, 2011	Jan. 29, 2012	Dec. 29, 2012	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 09, 2011	Jan. 29, 2012	Nov. 08, 2012	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Jan. 29, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 08, 2011	Jan. 29, 2012	Dec. 07, 2012	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	860004/00	9 kHz~30 MHz	Jul. 28, 2011	Jan. 29, 2012	Jul. 27, 2012	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 07, 2011	Jan. 29, 2012	Jan. 06, 2012	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060004	30MHz~2GHz	Dec. 30, 2011	Jan. 29, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A023 70	1GHz~26.5GHz	Dec. 30, 2011	Jan. 29, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701023	1GHz~18GHz	Nov. 07, 2011	Jan. 29, 2012	Nov. 06, 2012	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA1702 49	15GHz~40GHz	Oct. 11, 2011	Jan. 29, 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 EP190807 as below.