

FCC RF Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : Smart Tab 7
BRAND NAME : ZTE
MODEL NAME : Smart Tab 7
FCC ID : Q78-V71A
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Aug. 18, 2011 and completely tested on Aug. 31, 2011. 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
FR181807	Rev. 01	Initial issue of report	Sep. 16, 2011

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 14.83 dB at 0.25 MHz
3.7	15.247(d)	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 1.1 dB at 2497.15 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	Smart Tab 7
Brand Name	ZTE
Model Name	Smart Tab 7
FCC ID	Q78-V71A
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 : 16.99 dBm (0.050 W) 802.11g : 23.92 dBm (0.247 W) 802.11n (BW 20MHz) : 24.09 dBm (0.256 W)
Antenna Type	Fixed Internal Antenna with gain 0 dBi
HW Version	N/A
SW Version	N/A
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.		
	TH01-KS	CO01-KS	03CH01-KS

1.5 Applied Standards

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

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ANSI C63.4-2003

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (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.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
4.	Router	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
5.	Notebook	DELL	P08S	QDS-BRCM1030	N/A	AC I/P: Unshielded, 1.2 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	16.99	16.91	16.83	16.97
CH 06	2437 MHz	16.6	16.57	16.61	16.72
CH 11	2462 MHz	16.38	16.35	16.36	16.75

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	23.92	23.39	23.51	23.47	23.26	23.25	23.35	23.54
CH 06	2437 MHz	23.45	23.36	23.26	23.15	23.21	23.13	23.09	23.19
CH 11	2462 MHz	23.12	22.83	22.86	23.1	22.98	23.05	22.96	22.91

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	24.09	24.02	24.01	23.97	23.91	23.9	23.98	23.85
CH 06	2437 MHz	23.87	23.82	23.78	23.89	23.89	23.77	23.89	23.84
CH 11	2462 MHz	23.61	23.71	23.59	23.59	23.71	23.54	23.67	23.87

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).

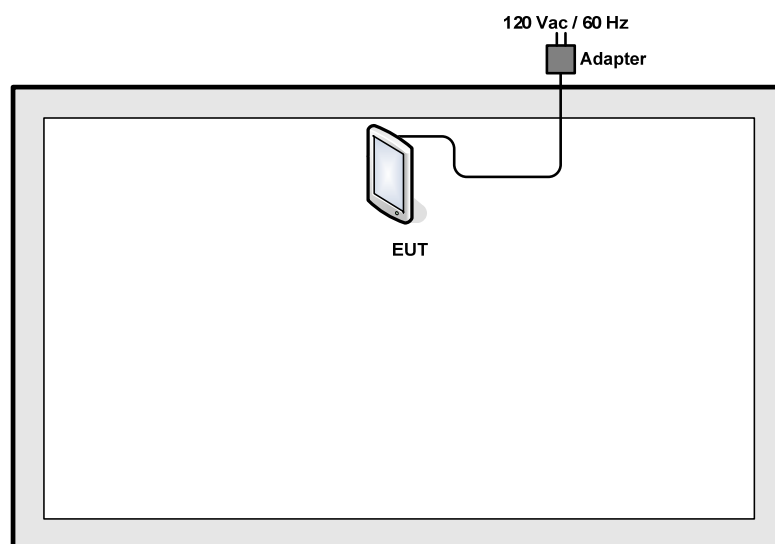
Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations, laptop / tablet modes.

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

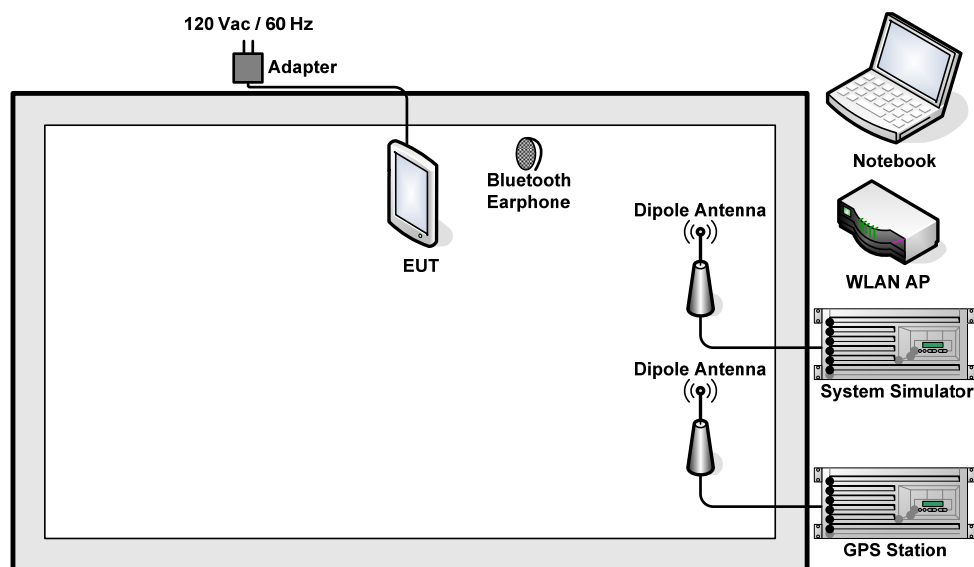
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 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 + Camera + GPS Rx	

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 RF Utility

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

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

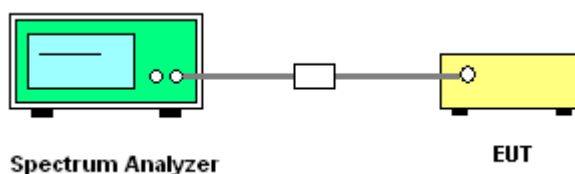
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz.
In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.
4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

3.1.4 Test Setup

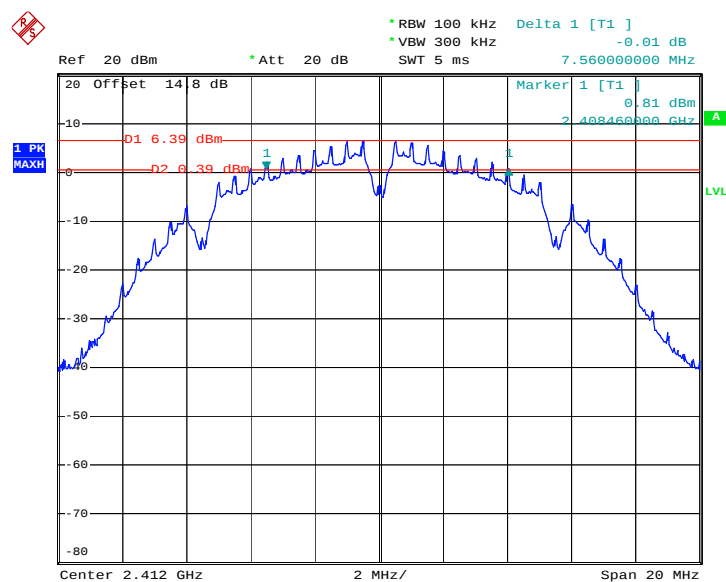


3.1.5 Test Result of 6dB Bandwidth

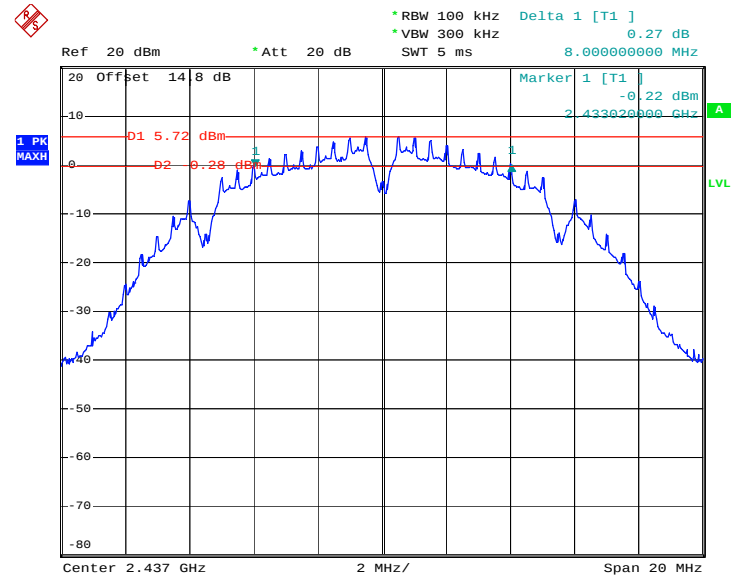
Test Mode :	Mode 1, 2, 3	Temperature :	23~24℃
Test Engineer :	Jun Liu	Relative Humidity :	45~47%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	7.56	0.5	Pass
06	2437	8.00	0.5	Pass
11	2462	7.56	0.5	Pass

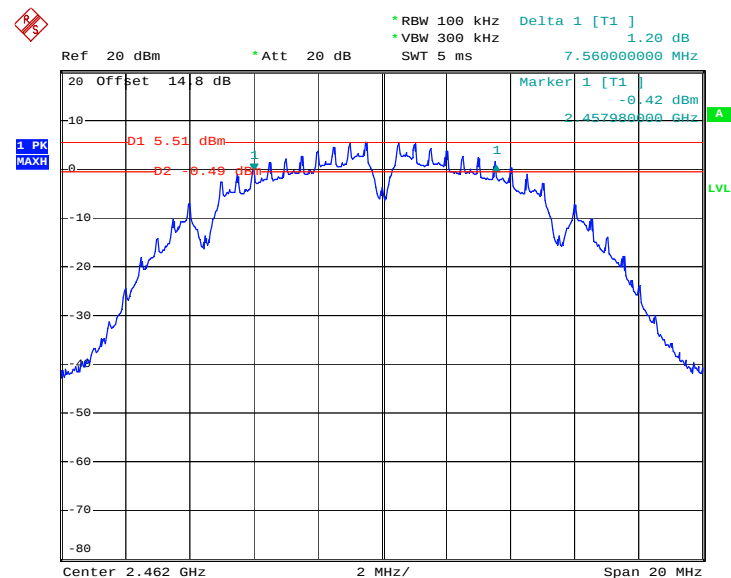
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 29.AUG.2011 20:18:56

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


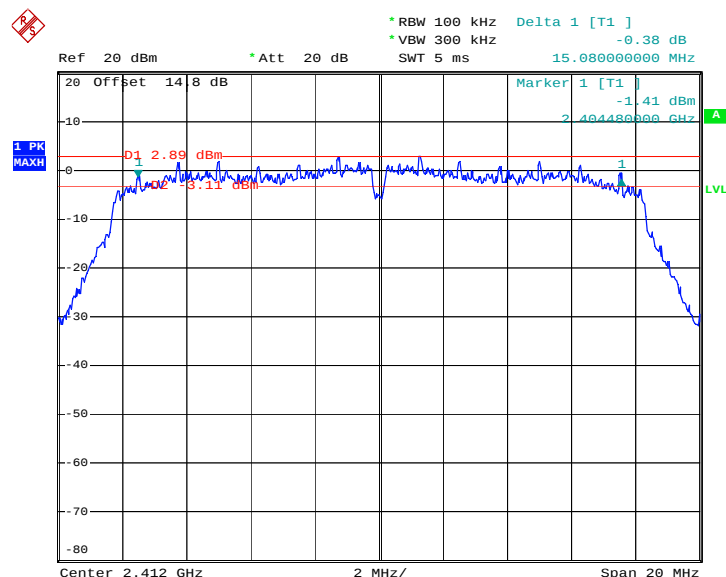
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Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11


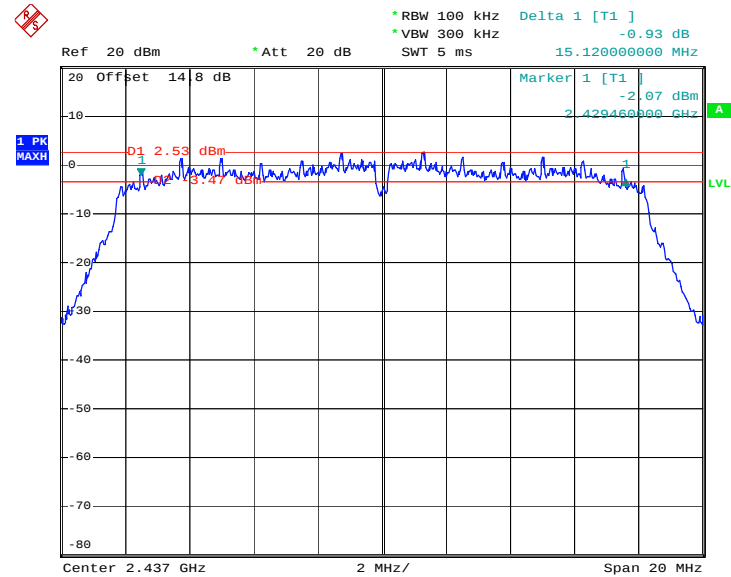
Date: 29.AUG.2011 20:41:32

Test Mode :	Mode 4, 5, 6	Temperature :	23~24°C
Test Engineer :	Jun Liu	Relative Humidity :	45~47%

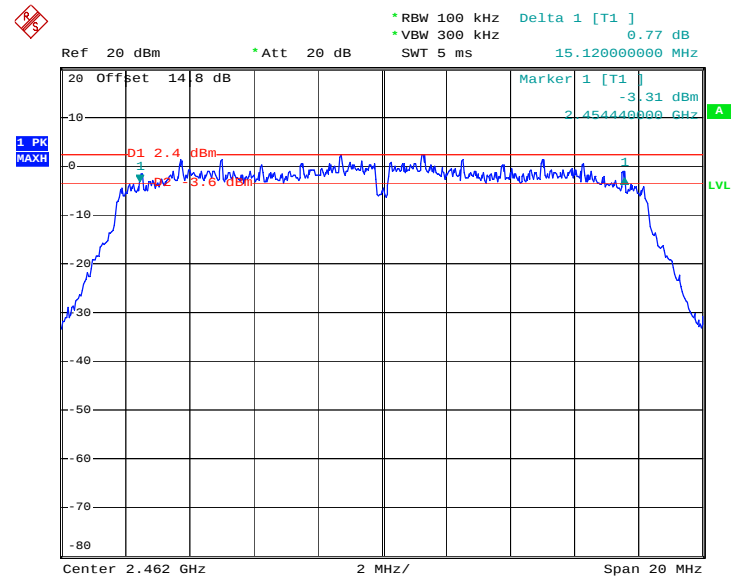
Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.08	0.5	Pass
06	2437	15.12	0.5	Pass
11	2462	15.12	0.5	Pass

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


Date: 29.AUG.2011 20:56:59

Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06


Date: 29.AUG.2011 21:13:54

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


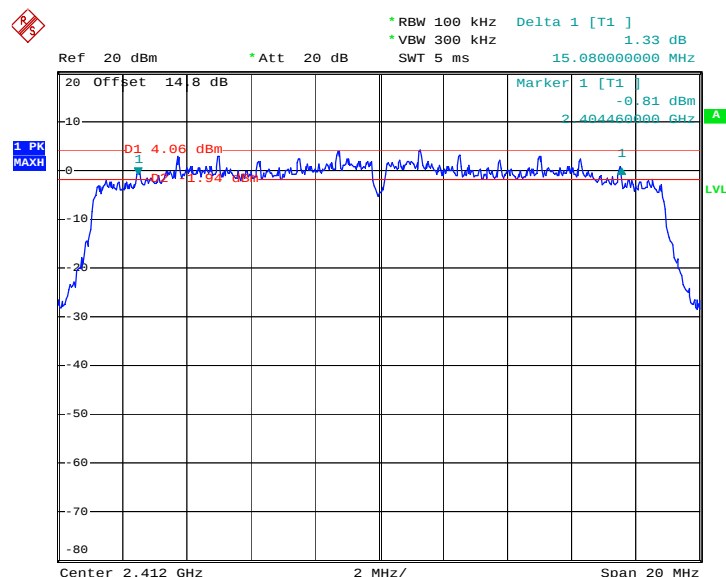
Date: 29.AUG.2011 21:27:25



Test Mode :	Mode 7, 8, 9	Temperature :	23~24°C
Test Engineer :	Jun Liu	Relative Humidity :	45~47%

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

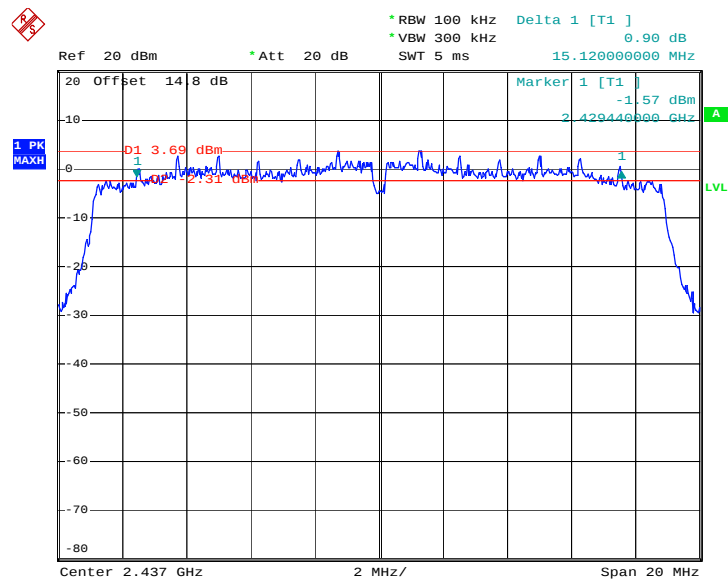
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 29.AUG.2011 21:42:47

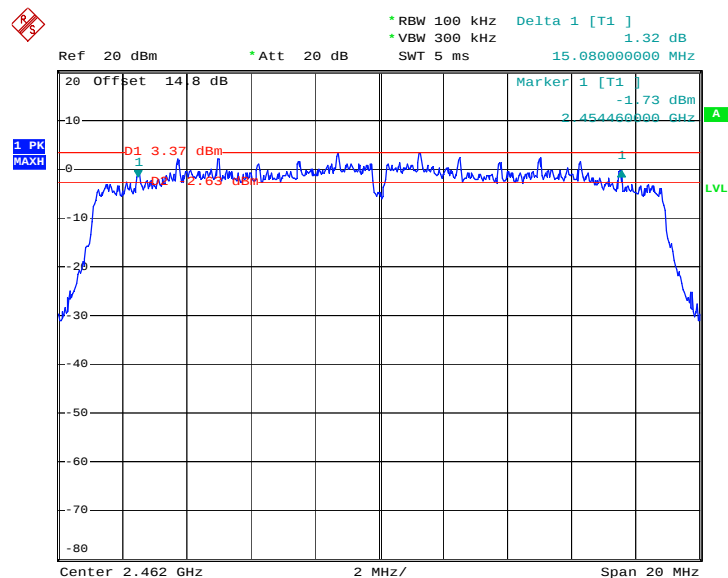


Mode 8 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 29.AUG.2011 21:56:05

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



Date: 29.AUG.2011 22:17:13

3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

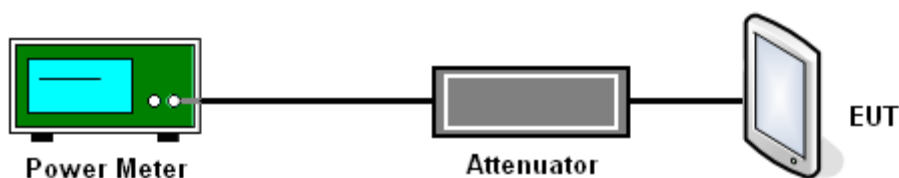
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the power meter by a low loss cable.
3. Measure the power by power meter.

3.2.4 Test Setup



3.2.5 Test Result of Output Power

Test Mode :	Mode 1, 2, 3	Temperature :	23~24℃
Test Engineer :	Jun Liu	Relative Humidity :	45~47%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	16.99	30	Pass
06	2437	16.60	30	Pass
11	2462	16.38	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	23~24℃
Test Engineer :	Jun Liu	Relative Humidity :	45~47%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	23.92	30	Pass
06	2437	23.45	30	Pass
11	2462	23.12	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	23~24℃
Test Engineer :	Jun Liu	Relative Humidity :	45~47%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	24.09	30	Pass
06	2437	23.87	30	Pass
11	2462	23.61	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

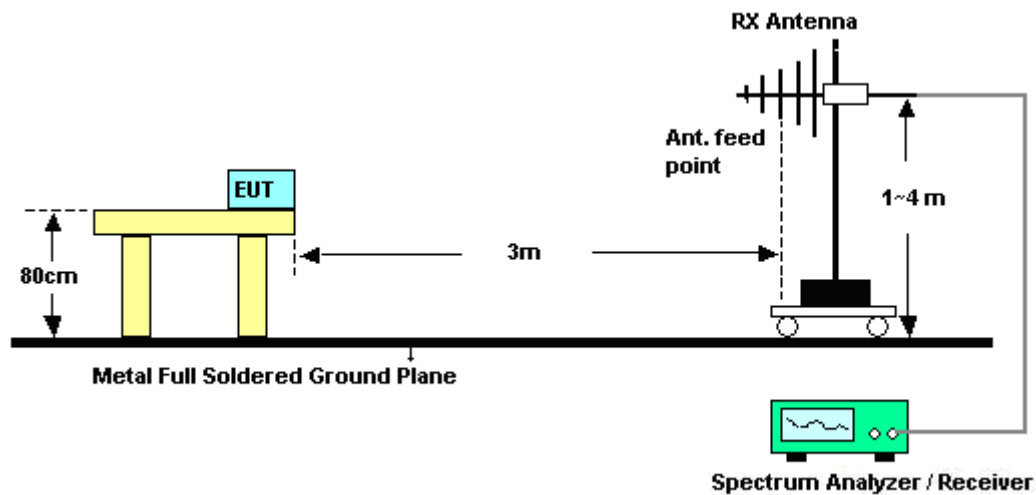
See list of measuring instruments of this test report.

3.3.3 Test Procedures

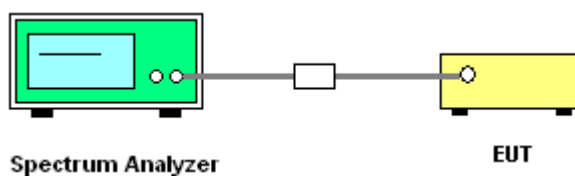
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) $\geq$ RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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 :	23~24℃
Test Band :	802.11b	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Chenmy Cheng

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
2329.95	57.34	-16.66	74	55.21	32.76	3.27	33.9	100	0	Peak
2329.95	47.23	-6.77	54	45.1	32.76	3.27	33.9	100	0	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
2317.03	53.16	-20.84	74	51.07	32.73	3.22	33.86	100	360	Peak
2317.03	43.69	-10.31	54	41.6	32.73	3.22	33.86	100	360	Average

Test Mode :	Mode 3	Temperature :	23~24℃
Test Band :	802.11b	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Chenmy Cheng

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
2492.78	56.99	-17.01	74	54.45	33.05	3.72	34.23	100	0	Peak
2492.78	45.84	-8.16	54	43.3	33.05	3.72	34.23	100	0	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	51.79	-22.21	74	49.3	33.01	3.68	34.2	200	0	Peak
2483.5	42.61	-11.39	54	40.12	33.01	3.68	34.2	200	0	Average



Test Mode :	Mode 4	Temperature :	23~24℃
Test Band :	802.11g	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Chenmy Cheng

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
2332.04	59.58	-14.42	74	57.45	32.76	3.27	33.9	100	0	Peak
2332.04	46.25	-7.75	54	44.12	32.76	3.27	33.9	100	0	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
2326.15	54.12	-19.88	74	51.99	32.76	3.27	33.9	200	60	Peak
2326.15	40.36	-13.64	54	38.23	32.76	3.27	33.9	200	60	Average

Test Mode :	Mode 6	Temperature :	23~24℃
Test Band :	802.11g	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Chenmy Cheng

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
2484.42	64.55	-9.45	74	62.06	33.01	3.68	34.2	100	118	Peak
2484.42	50.05	-3.95	54	47.56	33.01	3.68	34.2	100	118	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	60.85	-13.15	74	58.36	33.01	3.68	34.2	200	36	Peak
2483.5	47.11	-6.89	54	44.62	33.01	3.68	34.2	200	36	Average



Test Mode :	Mode 7	Temperature :	23~24℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Chenmy Cheng

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
2332.61	59.68	-14.32	74	57.55	32.76	3.27	33.9	100	12	Peak
2332.61	46.49	-7.51	54	44.36	32.76	3.27	33.9	100	12	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
2336.79	55.51	-18.49	74	53.34	32.78	3.33	33.94	200	26	Peak
2336.79	41.86	-12.14	54	39.69	32.78	3.33	33.94	200	26	Average

Test Mode :	Mode 9	Temperature :	23~24℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Chenmy Cheng

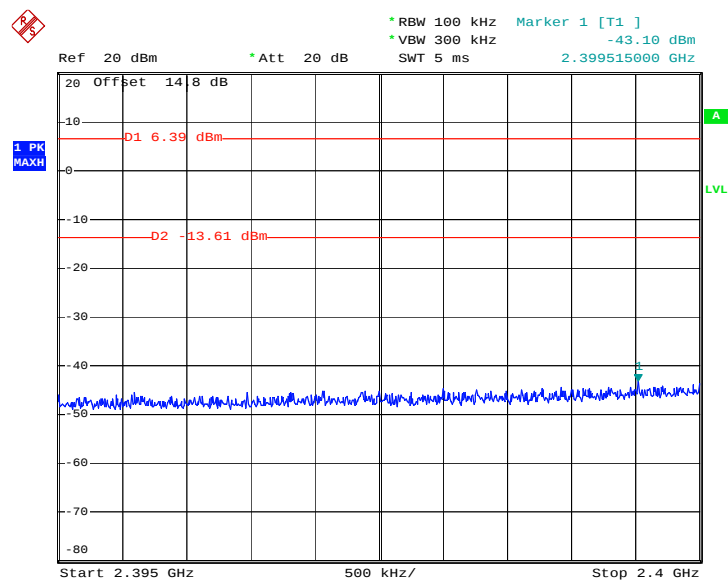
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.85	70.41	-3.59	74	67.92	33.01	3.68	34.2	100	0	Peak
2483.85	52.49	-1.51	54	50	33.01	3.68	34.2	100	0	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	61.36	-12.64	74	58.87	33.01	3.68	34.2	200	0	Peak
2483.5	48.31	-5.69	54	45.82	33.01	3.68	34.2	200	0	Average

3.3.6 Test Plots of Conducted Band Edges

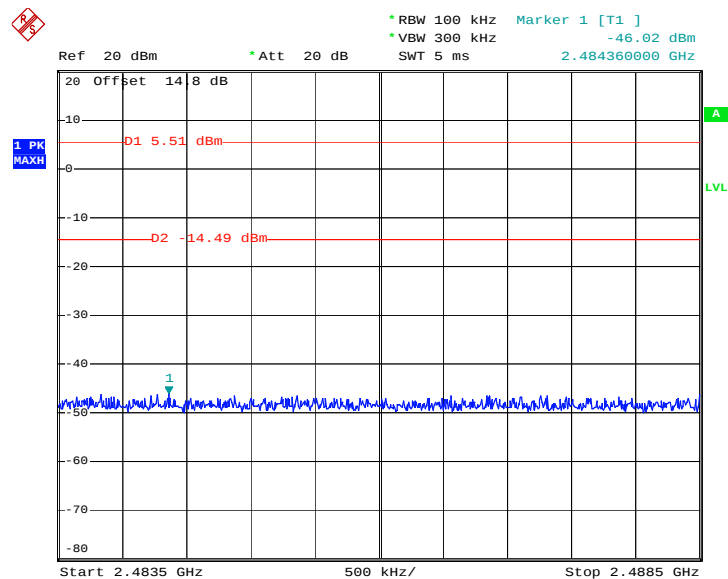
Test Mode :	Mode 1 and 3	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	45~47%
Test Channel :	01 and 11	Test Engineer :	Jun Liu

Low Band Edge Plot on 802.11b Channel 01



Date: 29.AUG.2011 20:20:18

High Band Edge Plot on 802.11b Channel 11

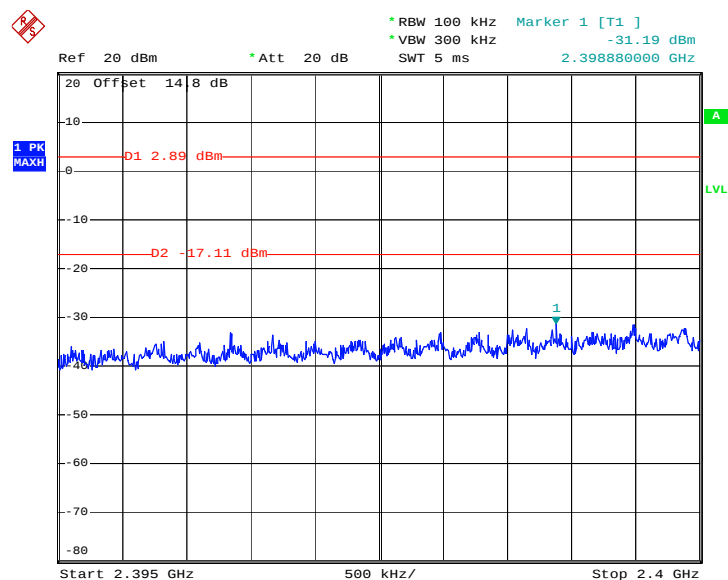


Date: 29.AUG.2011 20:42:28



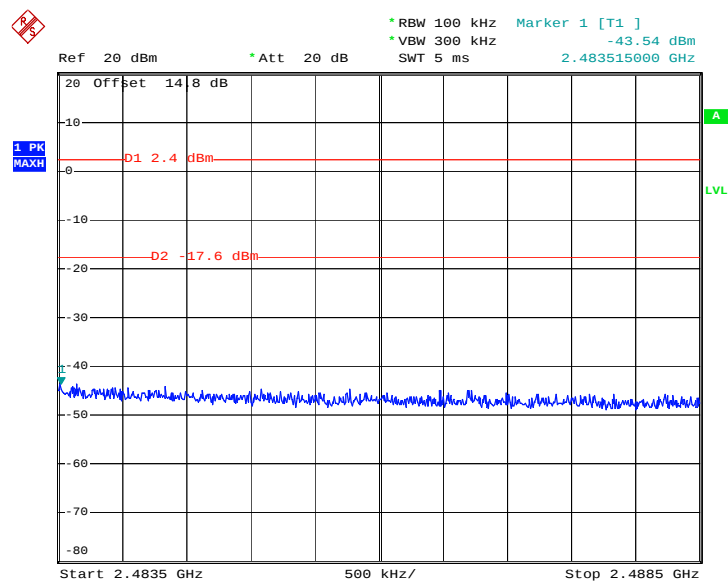
Test Mode :	Mode 4 and 6	Temperature :	23~24℃
Test Band :	802.11g	Relative Humidity :	45~47%
Test Channel :	01 and 11	Test Engineer :	Jun Liu

Low Band Edge Plot on 802.11g Channel 01



Date: 29.AUG.2011 20:58:18

High Band Edge Plot on 802.11g Channel 11

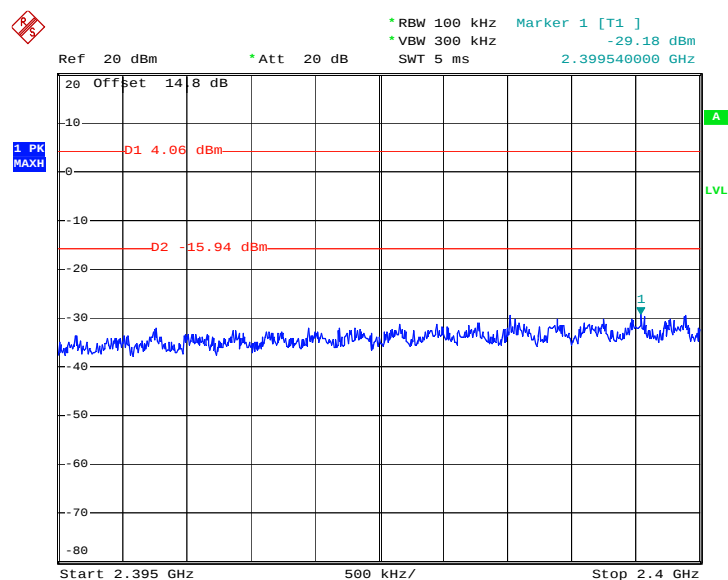


Date: 29.AUG.2011 21:28:26



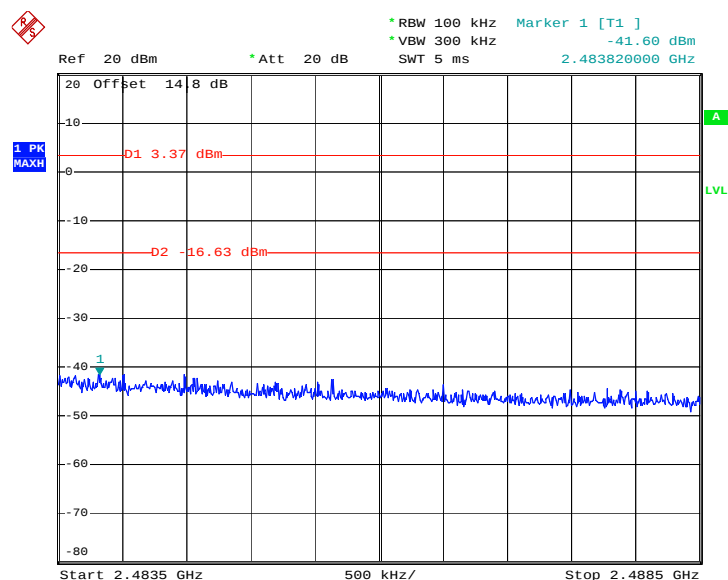
Test Mode :	Mode 7 and 9	Temperature :	23~24℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~47%
Test Channel :	01 and 11	Test Engineer :	Jun Liu

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



Date: 29.AUG.2011 21:44:08

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



Date: 29.AUG.2011 22:17:59

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

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

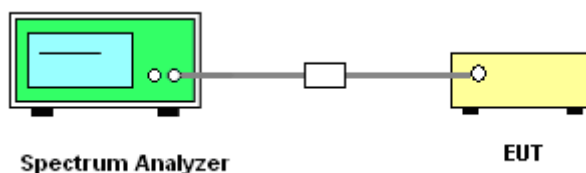
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

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

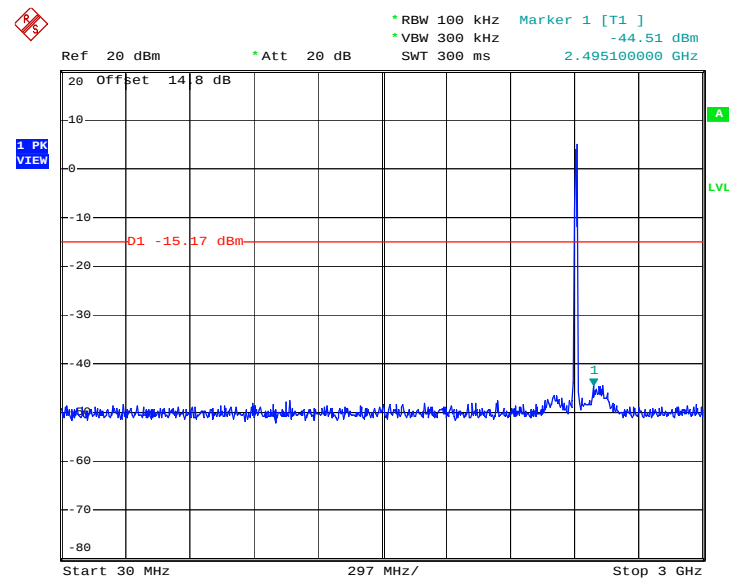
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

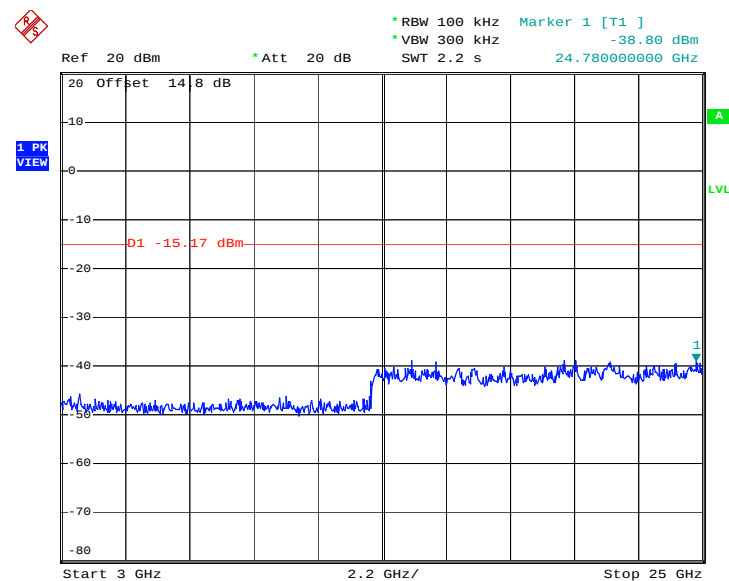
Test Mode :	Mode 1	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	45~47%
Test Channel :	01	Test Engineer :	Jun Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 29.AUG.2011 20:22:01

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

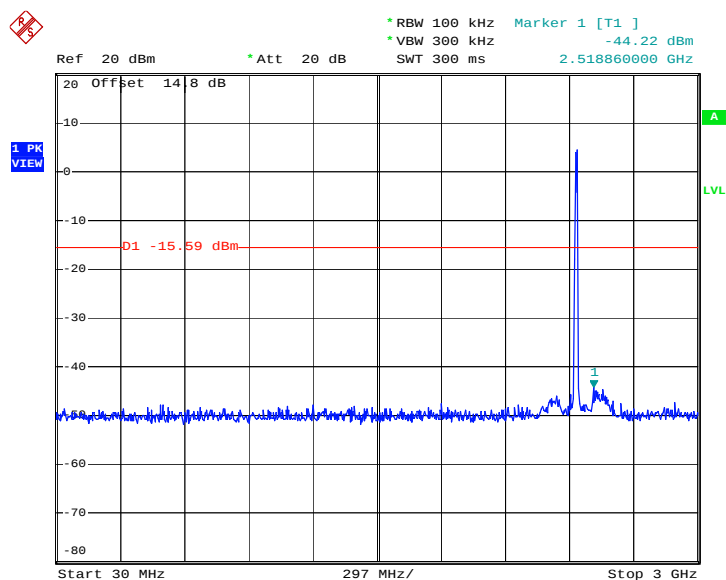


Date: 29.AUG.2011 20:22:18



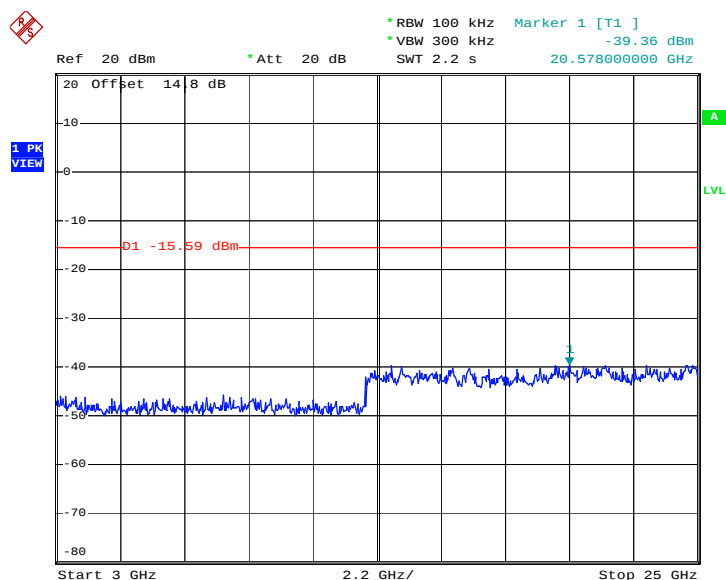
Test Mode :	Mode 2	Temperature :	23~24℃
Test Band :	802.11b	Relative Humidity :	45~47%
Test Channel :	06	Test Engineer :	Jun Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 29.AUG.2011 20:29:45

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

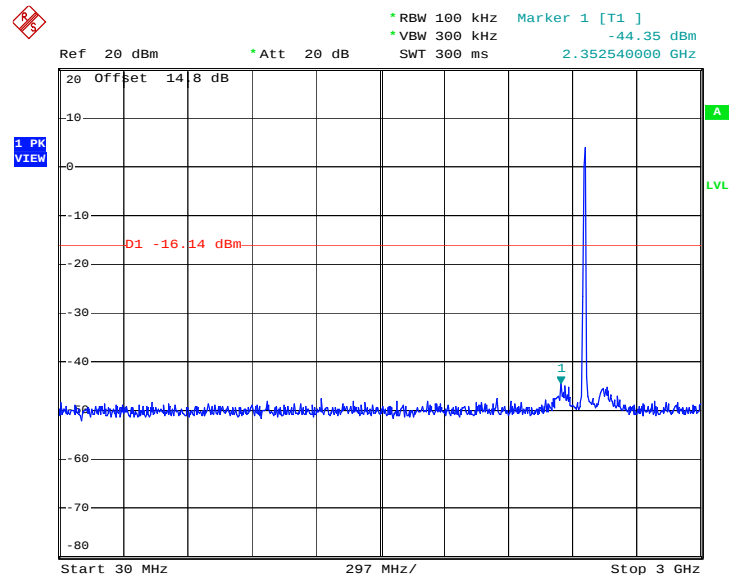


Date: 29.AUG.2011 20:30:02



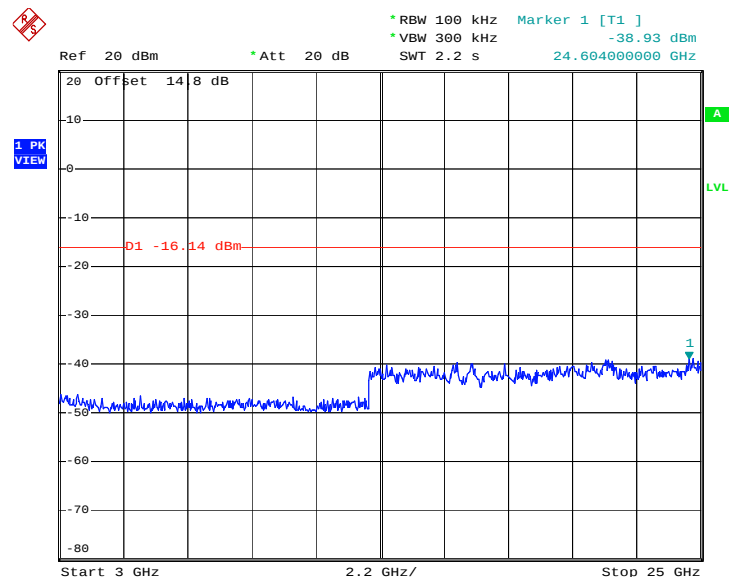
Test Mode :	Mode 3	Temperature :	23~24℃
Test Band :	802.11b	Relative Humidity :	45~47%
Test Channel :	11	Test Engineer :	Jun Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 29.AUG.2011 20:43:57

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

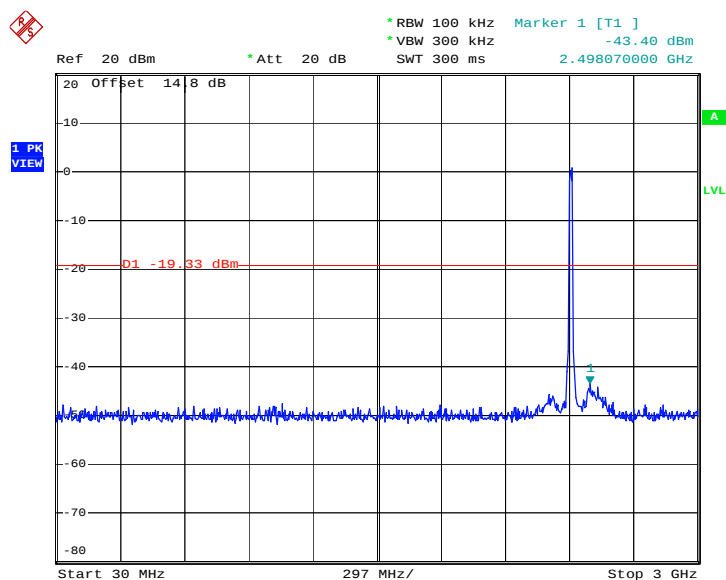


Date: 29.AUG.2011 20:44:13



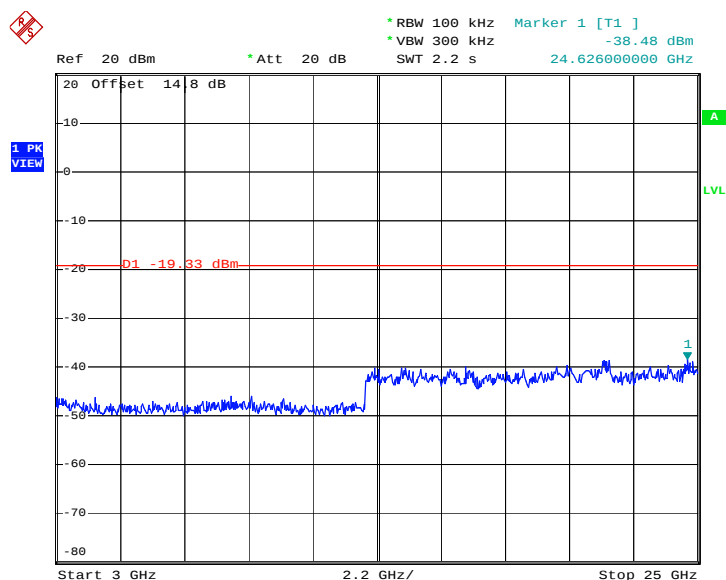
Test Mode :	Mode 4	Temperature :	23~24℃
Test Band :	802.11g	Relative Humidity :	45~47%
Test Channel :	01	Test Engineer :	Jun Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



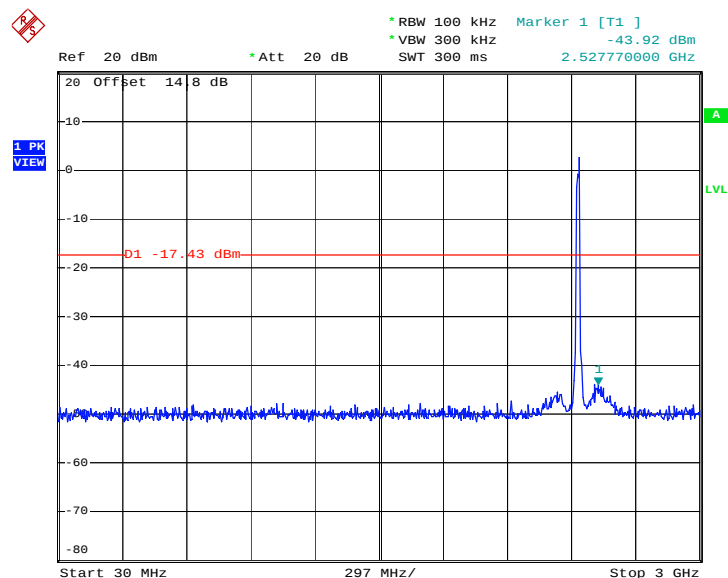
Date: 29.AUG.2011 20:59:28

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

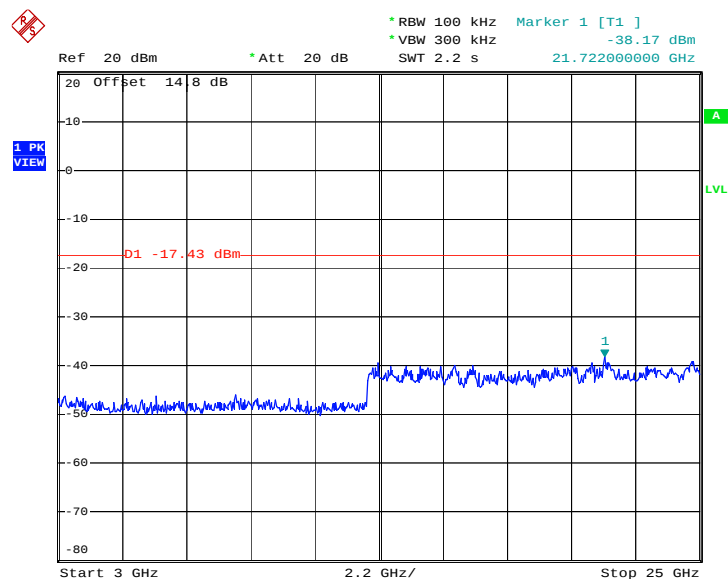


Date: 29.AUG.2011 20:59:45

Test Mode :	Mode 5	Temperature :	23~24℃
Test Band :	802.11g	Relative Humidity :	45~47%
Test Channel :	06	Test Engineer :	Jun Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 29.AUG.2011 21:14:58

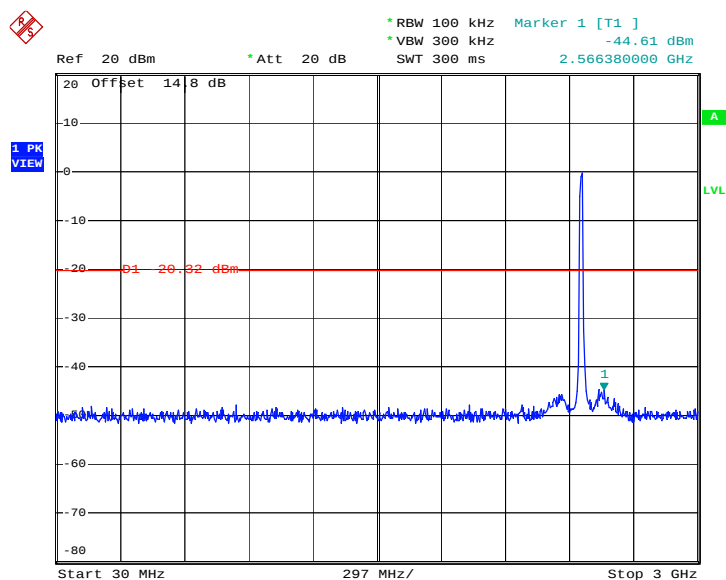
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 29.AUG.2011 21:15:15



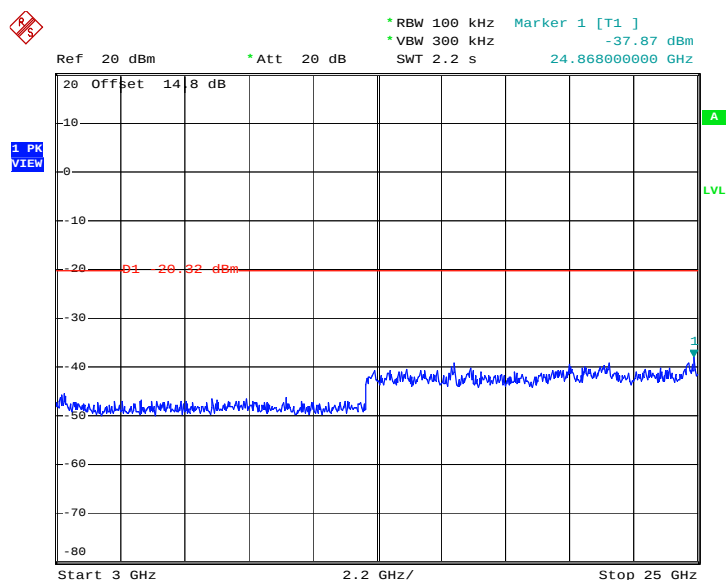
Test Mode :	Mode 6	Temperature :	23~24℃
Test Band :	802.11g	Relative Humidity :	45~47%
Test Channel :	11	Test Engineer :	Jun Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 29.AUG.2011 21:29:36

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

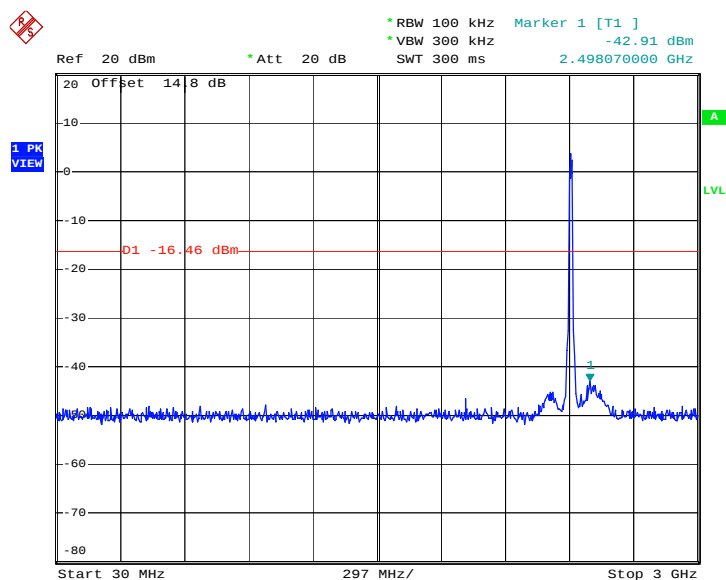


Date: 29.AUG.2011 21:29:53



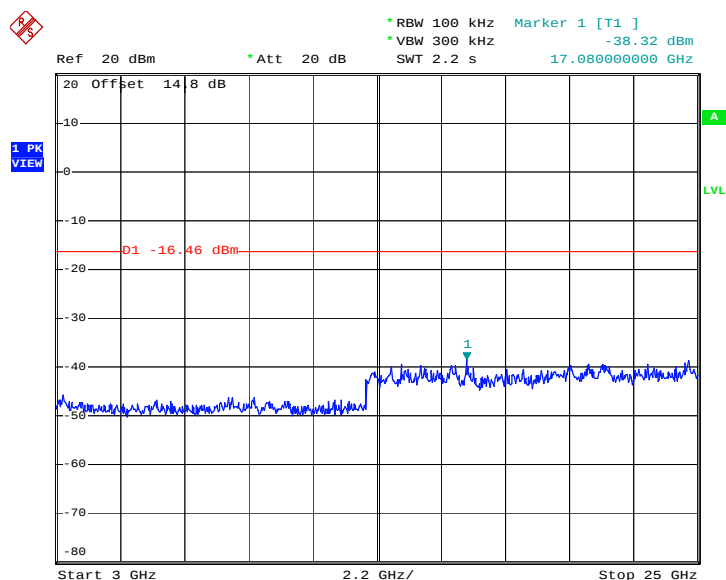
Test Mode :	Mode 7	Temperature :	23~24℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~47%
Test Channel :	01	Test Engineer :	Jun Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 29.AUG.2011 21:45:01

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

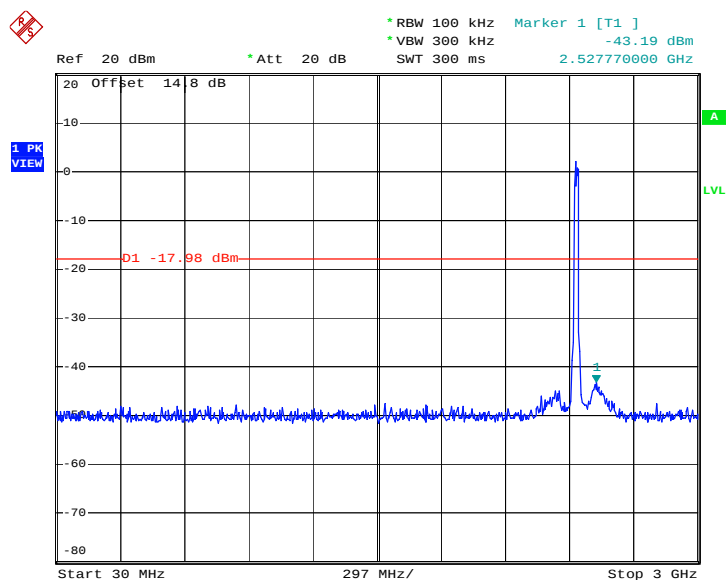


Date: 29.AUG.2011 21:45:18



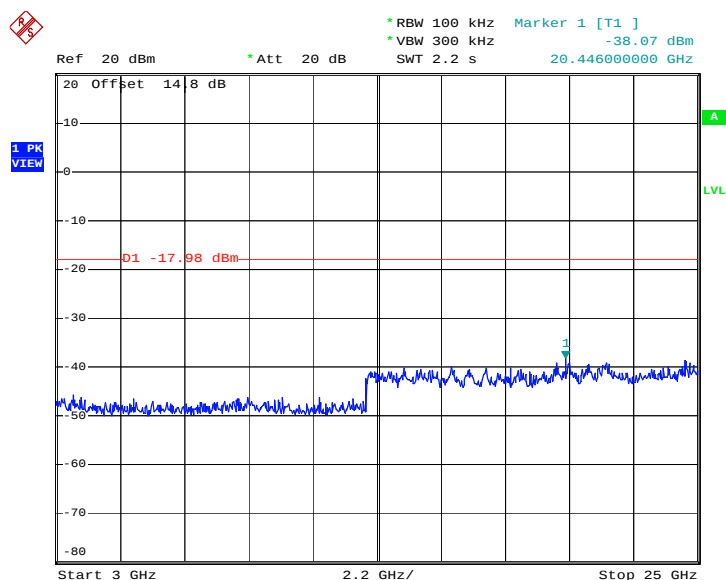
Test Mode :	Mode 8	Temperature :	23~24℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~47%
Test Channel :	06	Test Engineer :	Jun Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 29.AUG.2011 21:57:08

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

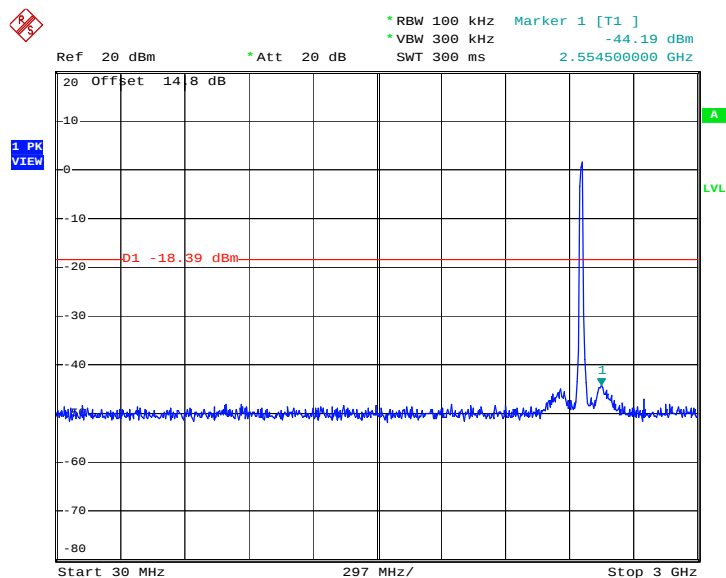


Date: 29.AUG.2011 21:57:25



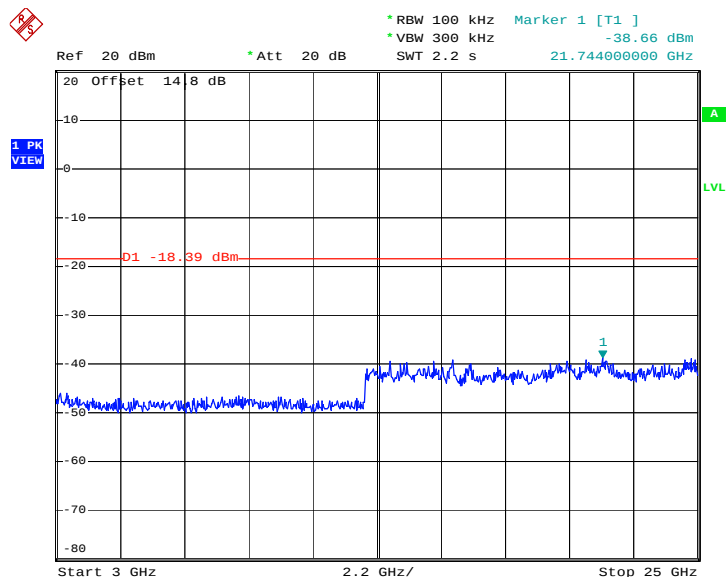
Test Mode :	Mode 9	Temperature :	23~24℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~47%
Test Channel :	11	Test Engineer :	Jun Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 29.AUG.2011 22:18:48

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 29.AUG.2011 22:19:05

3.5 Power Spectral Density Measurement

3.5.1 Limit of Power Spectral Density

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

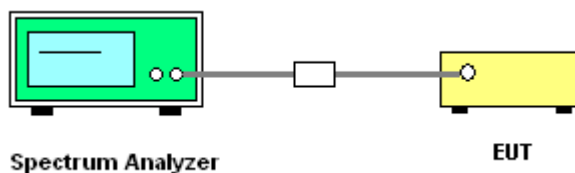
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

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

3.5.4 Test Setup

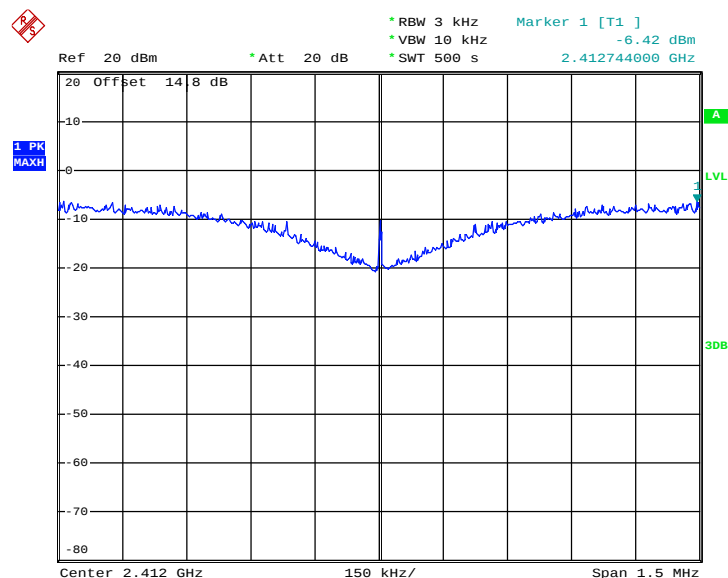


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	23~24℃
Test Engineer :	Jun Liu	Relative Humidity :	45~47%

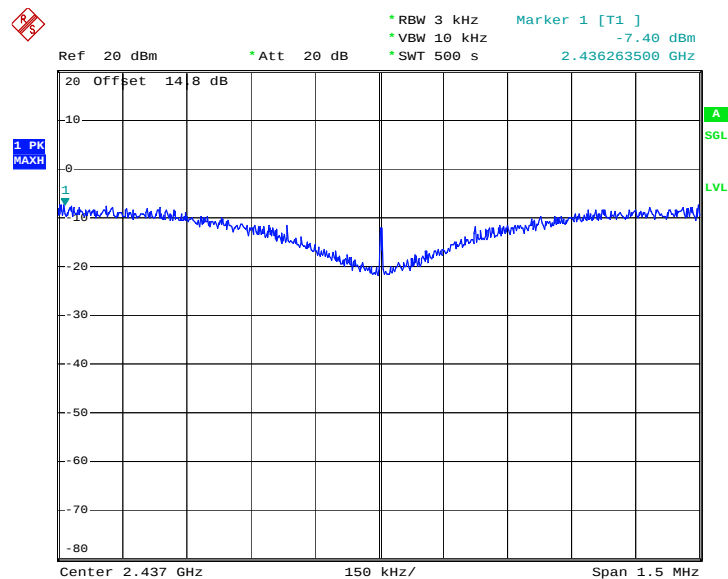
Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-6.42	8	Pass
06	2437	-7.40	8	Pass
11	2462	-7.55	8	Pass

Mode 1 : PSD Plot on 802.11b Channel 01



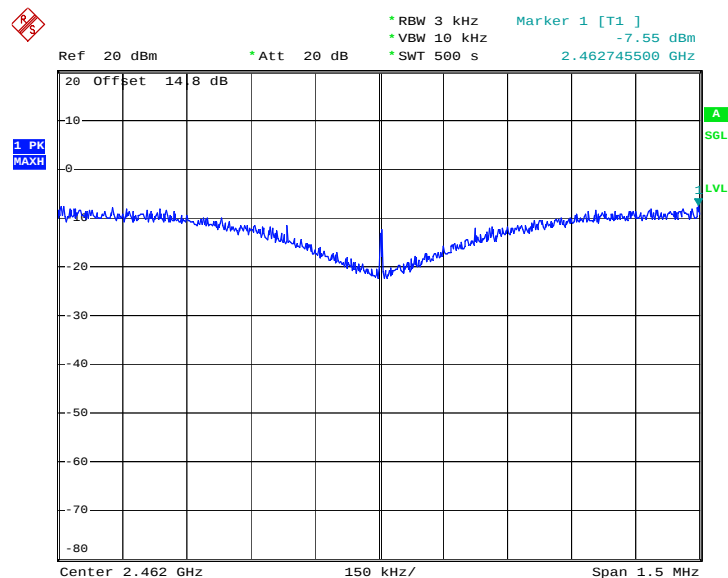
Date: 29.AUG.2011 14:24:59

Mode 2 : PSD Plot on 802.11b Channel 06



Date: 29.AUG.2011 20:38:43

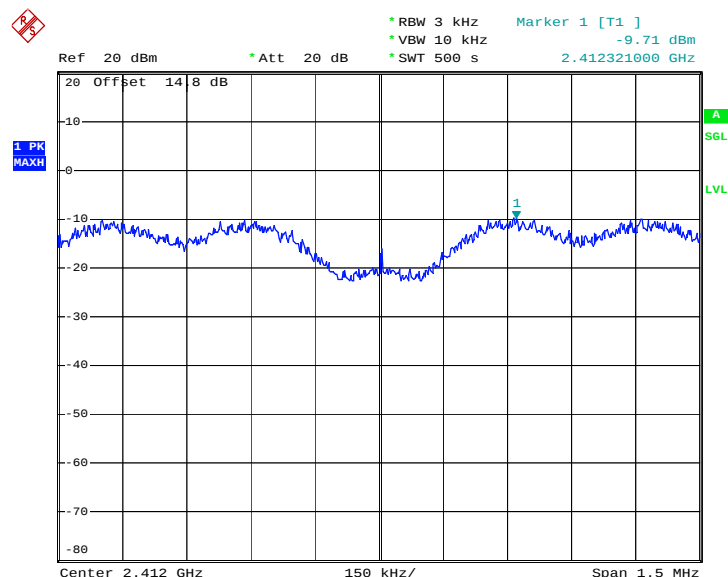
Mode 3 : PSD Plot on 802.11b Channel 11



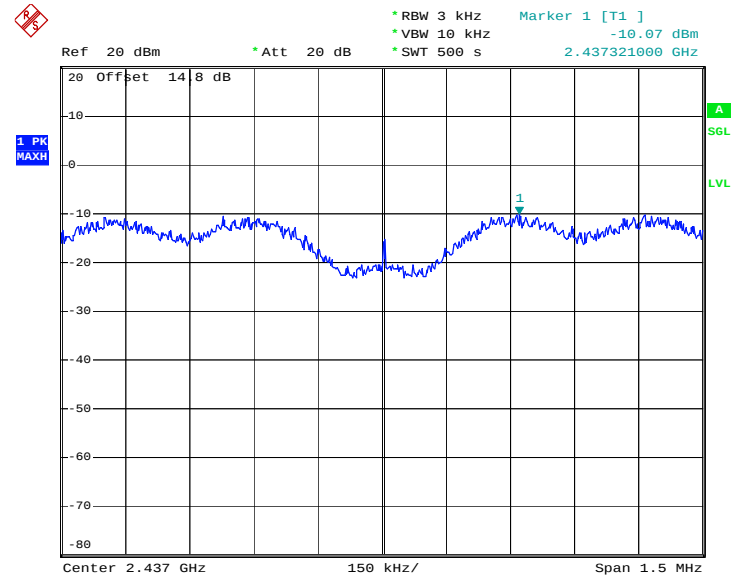
Date: 29.AUG.2011 20:52:58

Test Mode :	Mode 4, 5, 6	Temperature :	23~24℃
Test Engineer :	Jun Liu	Relative Humidity :	45~47%

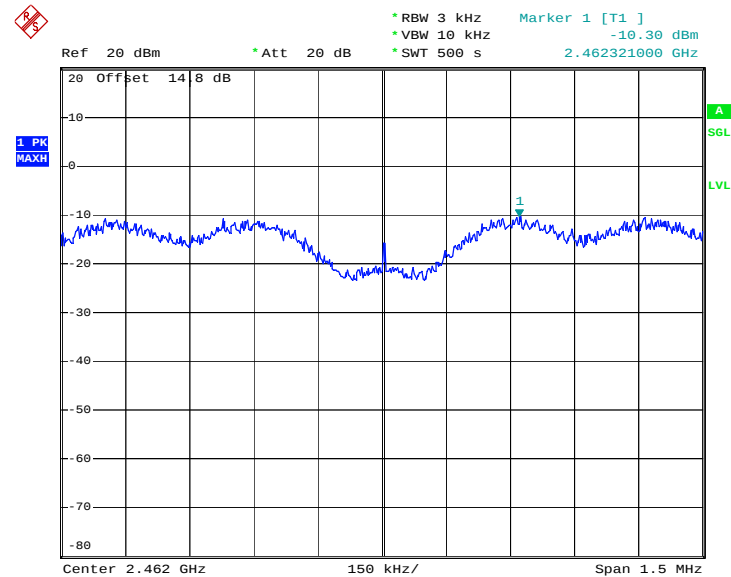
Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-9.71	8	Pass
06	2437	-10.07	8	Pass
11	2462	-10.30	8	Pass

Mode 4 : PSD Plot on 802.11g Channel 01


Date: 29.AUG.2011 21:09:33

Mode 5 : PSD Plot on 802.11g Channel 06


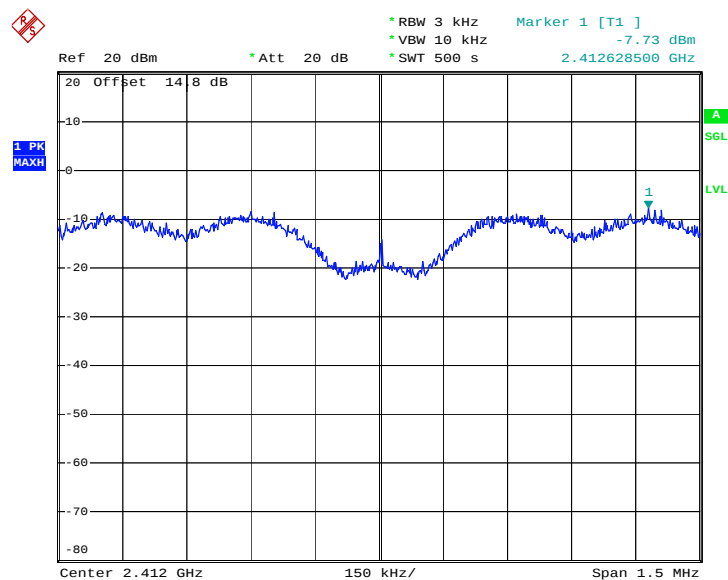
Date: 29.AUG.2011 21:23:59

Mode 6 : PSD Plot on 802.11g Channel 11


Date: 29.AUG.2011 21:38:44

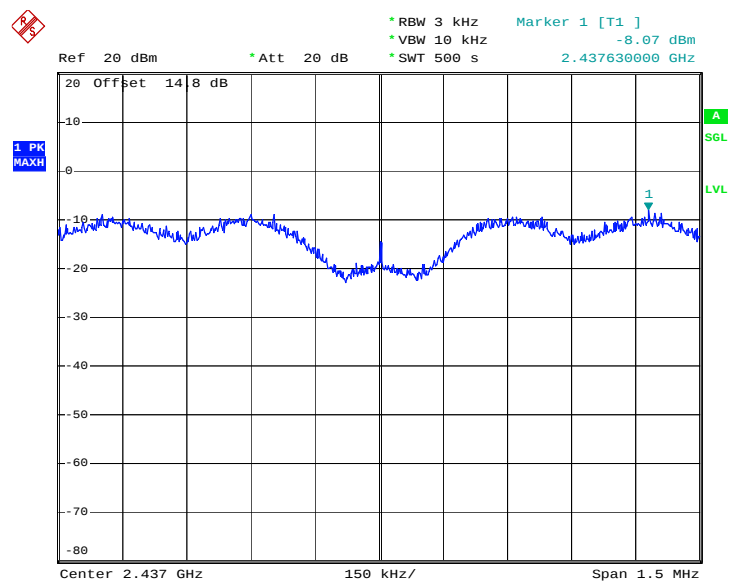
Test Mode :	Mode 7, 8, 9	Temperature :	23~24℃
Test Engineer :	Jun Liu	Relative Humidity :	45~47%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-7.73	8	Pass
06	2437	-8.07	8	Pass
11	2462	-8.24	8	Pass

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


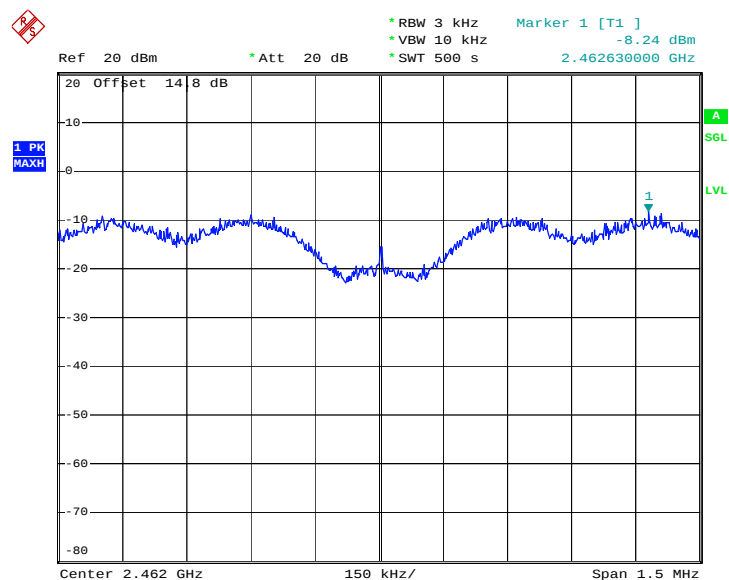
Date: 29.AUG.2011 21:53:58

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



Date: 29.AUG.2011 22:06:02

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



Date: 29.AUG.2011 22:28:31

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.

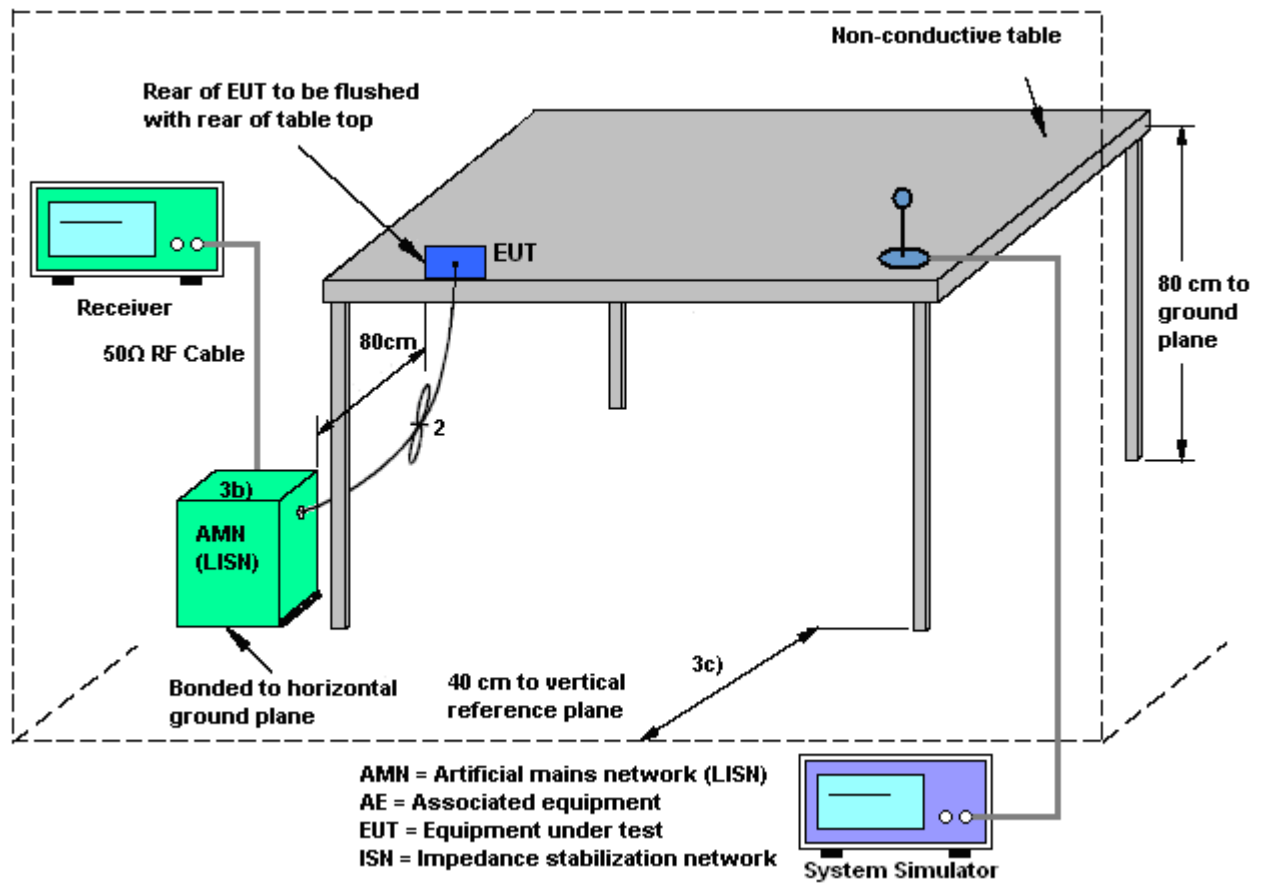
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

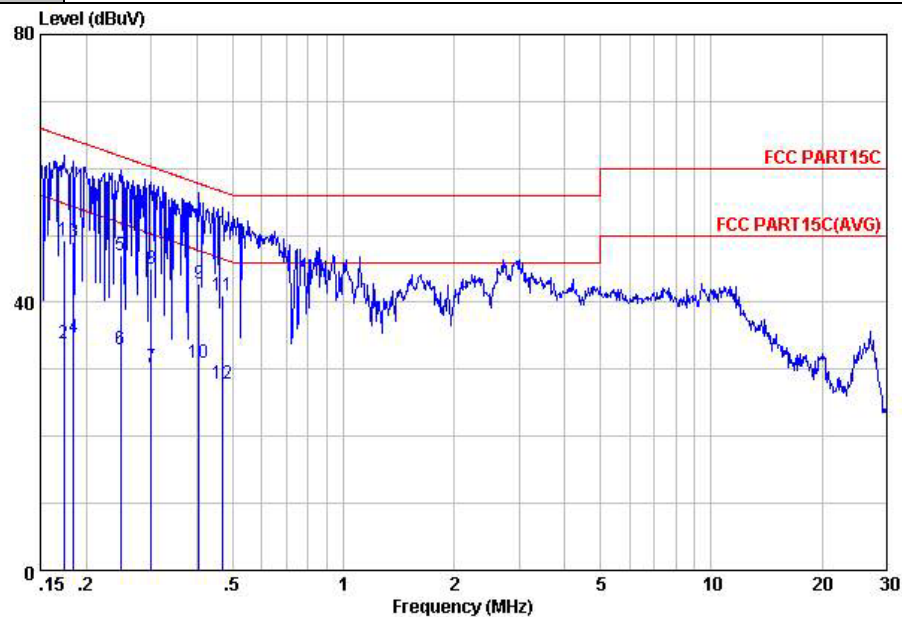
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network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

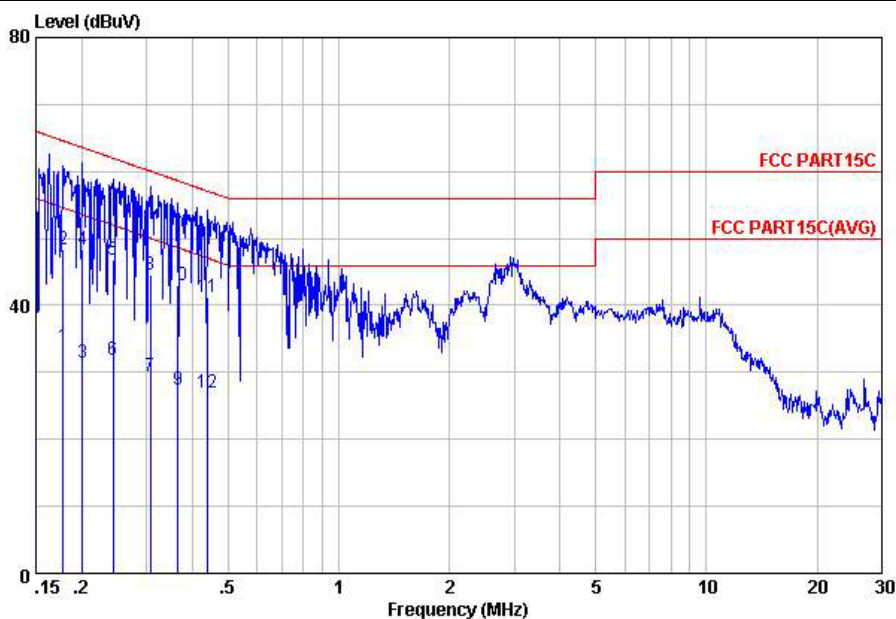
Test Mode :	Mode 1	Temperature :	21~22°C
Test Engineer :	Infi Li	Relative Humidity :	42~43%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM 850 Idle + Bluetooth Link + WLAN Link + Adapter + Camera + GPS Rx		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
Condition: FCC PART15C LISN-100807 LINE
Project : (FR) 181807
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	49.17	-15.60	64.77	39.10	-0.07	10.14	QP
2	0.17	33.77	-21.00	54.77	23.70	-0.07	10.14	Average
3	0.18	48.98	-15.30	64.28	38.90	-0.07	10.15	QP
4	0.18	34.78	-19.50	54.28	24.70	-0.07	10.15	Average
5	0.25	46.99	-14.83	61.82	36.90	-0.07	10.16	QP
6	0.25	33.09	-18.73	51.82	23.00	-0.07	10.16	Average
7	0.30	30.30	-19.94	50.24	20.20	-0.07	10.17	Average
8	0.30	45.10	-15.14	60.24	35.00	-0.07	10.17	QP
9	0.40	42.71	-15.06	57.77	32.60	-0.08	10.19	QP
10	0.40	31.01	-16.76	47.77	20.90	-0.08	10.19	Average
11	0.47	40.92	-15.57	56.49	30.80	-0.08	10.20	QP
12	0.47	27.92	-18.57	46.49	17.80	-0.08	10.20	Average

Test Mode :	Mode 1	Temperature :	21~22°C
Test Engineer :	Infi Li	Relative Humidity :	42~43%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM 850 Idle + Bluetooth Link + WLAN Link + Adapter + Camera + GPS Rx		
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) 181807
 mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
1	0.18	33.97	-20.62	54.59	23.90	-0.08	10.15	Average
2	0.18	48.27	-16.32	64.59	38.20	-0.08	10.15	QP
3	0.20	31.38	-22.20	53.58	21.30	-0.07	10.15	Average
4	0.20	48.38	-15.20	63.58	38.30	-0.07	10.15	QP
5	0.24	46.79	-15.21	62.00	36.70	-0.07	10.16	QP
6	0.24	31.79	-20.21	52.00	21.70	-0.07	10.16	Average
7	0.31	29.50	-20.56	50.06	19.40	-0.07	10.17	Average
8	0.31	44.60	-15.46	60.06	34.50	-0.07	10.17	QP
9	0.37	27.31	-21.30	48.61	17.21	-0.08	10.18	Average
10	0.37	43.11	-15.50	58.61	33.01	-0.08	10.18	QP
11	0.44	41.32	-15.79	57.11	31.20	-0.08	10.20	QP
12	0.44	27.02	-20.09	47.11	16.90	-0.08	10.20	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

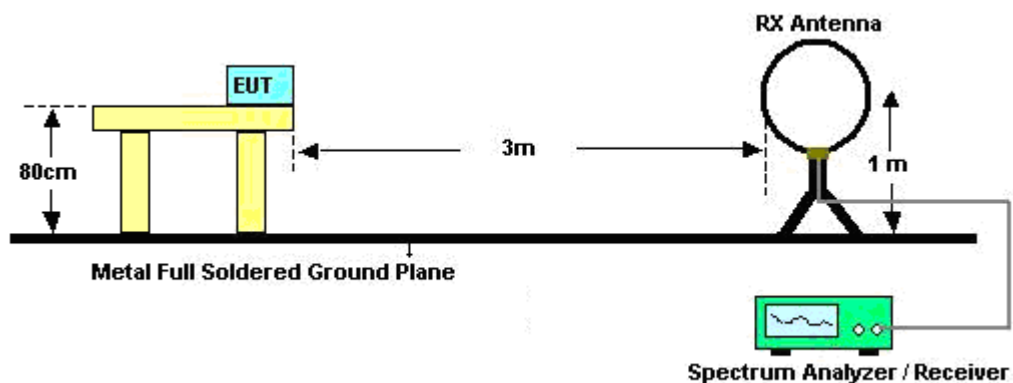
See list of measuring instruments of this test report.

3.7.3 Test Procedures

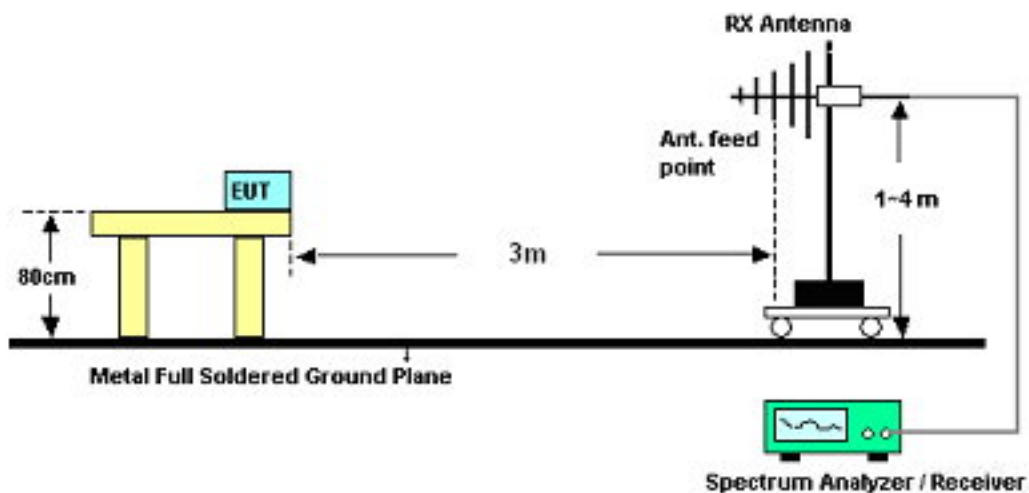
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep =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

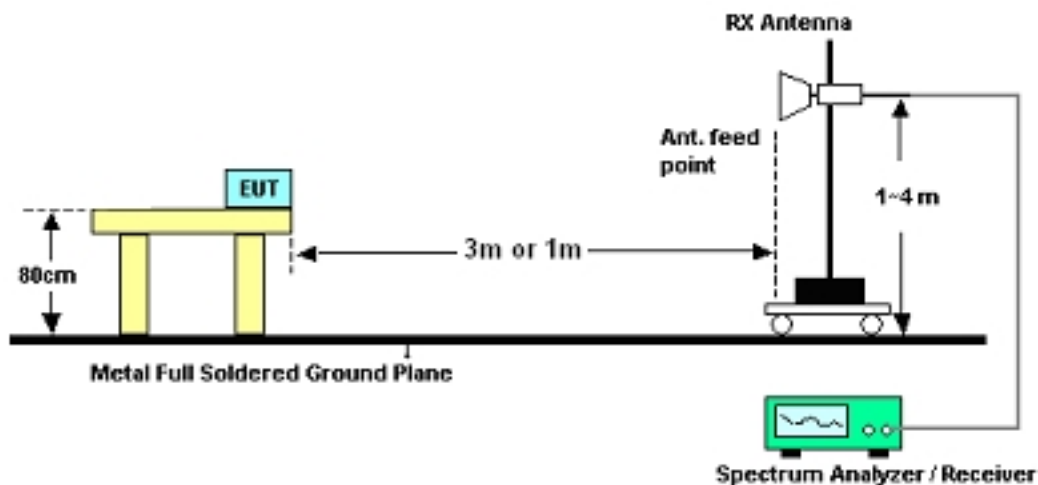
For radiated emissions below 30MHz



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 :	Chenmy Cheng	Temperature :	23~24℃	
		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 :	23~24℃
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals 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
37.56	25.01	-14.99	40	41.13	13.7	0.24	30.06	100	114	Peak
62.94	22.3	-17.7	40	46.85	5.25	0.32	30.12	-	-	Peak
254.37	29.47	-16.53	46	46.59	12.06	0.67	29.85	-	-	Peak
461	24.82	-21.18	46	37.24	16.45	0.91	29.78	-	-	Peak
575.8	30.14	-15.86	46	40.2	18.55	1.04	29.65	-	-	Peak
946.1	31.17	-22.83	54	38.67	20.71	1.33	29.54	-	-	Peak
2329.95	57.34	-16.66	74	55.21	32.76	3.27	33.9	100	0	Peak
2329.95	47.23	-6.77	54	45.1	32.76	3.27	33.9	100	0	Average
2412	109.83	-	-	107.5	32.89	3.52	34.08	100	0	Peak
2412	106.12	-	-	103.79	32.89	3.52	34.08	100	0	Average
2491.26	61.82	-12.18	74	59.28	33.05	3.72	34.23	100	38	Peak
2491.26	51.61	-2.39	54	49.07	33.05	3.72	34.23	100	38	Average

Test Mode :	Mode 1	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2412 MHz is Fundamental Signals 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	36.02	-3.98	40	60.61	5.2	0.32	30.11	100	23	Peak
130.17	23.05	-20.45	43.5	40.87	11.7	0.47	29.99	-	-	Peak
254.37	20.35	-25.65	46	37.47	12.06	0.67	29.85	-	-	Peak
575.8	34.22	-11.78	46	44.28	18.55	1.04	29.65	-	-	Peak
806.8	31.18	-14.82	46	39.61	19.92	1.25	29.6	-	-	Peak
921.6	31.39	-14.61	46	39.01	20.57	1.31	29.5	-	-	Peak
2317.03	53.16	-20.84	74	51.07	32.73	3.22	33.86	100	360	Peak
2317.03	43.69	-10.31	54	41.6	32.73	3.22	33.86	100	360	Average
2412	99.58	-	-	97.25	32.89	3.52	34.08	100	360	Average
2412	102.19	-	-	99.86	32.89	3.52	34.08	100	360	Peak
2490.88	48.35	-5.65	54	45.81	33.05	3.72	34.23	114	63	Average
2490.88	55.39	-18.61	74	52.85	33.05	3.72	34.23	114	63	Peak

Test Mode :	Mode 2	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals 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
37.56	24.01	-15.99	40	40.13	13.7	0.24	30.06	-	-	Peak
62.94	23.3	-16.7	40	47.85	5.25	0.32	30.12	-	-	Peak
254.37	28.47	-17.53	46	45.59	12.06	0.67	29.85	-	-	Peak
461	25.82	-20.18	46	38.24	16.45	0.91	29.78	-	-	Peak
575.8	31.14	-14.86	46	41.2	18.55	1.04	29.65	100	253	Peak
946.1	32.17	-21.83	54	39.67	20.71	1.33	29.54	-	-	Peak
2358.07	58.38	-15.62	74	56.17	32.81	3.38	33.98	151	182	Peak
2358.07	47.53	-6.47	54	45.32	32.81	3.38	33.98	151	182	Average
2437	107.86	-	-	105.46	32.95	3.6	34.15	177	134	Peak
2437	104.31	-	-	101.91	32.95	3.6	34.15	177	134	Average
2483.5	54.97	-19.03	74	52.48	33.01	3.68	34.2	200	360	Peak
2483.5	45.89	-8.11	54	43.4	33.01	3.68	34.2	200	360	Average

Test Mode :	Mode 2	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2437 MHz is Fundamental Signals 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	35.08	-4.92	40	59.67	5.2	0.32	30.11	100	28	Peak
130.17	23.05	-20.45	43.5	40.87	11.7	0.47	29.99	-	-	Peak
254.37	20.35	-25.65	46	37.47	12.06	0.67	29.85	-	-	Peak
575.8	32.22	-13.78	46	42.28	18.55	1.04	29.65	-	-	Peak
806.8	32.18	-13.82	46	40.61	19.92	1.25	29.6	-	-	Peak
921.6	30.39	-15.61	46	38.01	20.57	1.31	29.5	-	-	Peak
2358.64	53.36	-20.64	74	51.15	32.81	3.38	33.98	200	92	Peak
2358.64	44.29	-9.71	54	42.08	32.81	3.38	33.98	200	92	Average
2437	102.23	-	-	99.83	32.95	3.6	34.15	100	0	Peak
2437	98.12	-	-	95.72	32.95	3.6	34.15	100	0	Average
2483.5	42.64	-11.36	54	40.15	33.01	3.68	34.2	100	0	Average
2483.5	50.69	-23.31	74	48.2	33.01	3.68	34.2	100	0	Peak

Test Mode :	Mode 3	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2462 MHz is Fundamental Signals 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
37.56	26.01	-13.99	40	42.13	13.7	0.24	30.06	100	113	Peak
62.94	21.3	-18.7	40	45.85	5.25	0.32	30.12	-	-	Peak
254.37	27.47	-18.53	46	44.59	12.06	0.67	29.85	-	-	Peak
575.8	30.14	-15.86	46	40.2	18.55	1.04	29.65	-	-	Peak
921.6	29.87	-16.13	46	37.49	20.57	1.31	29.5	-	-	Peak
960.1	29.55	-24.45	54	36.96	20.79	1.34	29.54	-	-	Peak
2384	59.07	-14.93	74	56.83	32.83	3.42	34.01	100	44	Peak
2384	51.03	-2.97	54	48.79	32.83	3.42	34.01	100	44	Average
2462	108.06	-	-	105.61	32.98	3.64	34.17	100	37	Peak
2462	104.76	-	-	102.31	32.98	3.64	34.17	100	37	Average
2492.78	56.99	-17.01	74	54.45	33.05	3.72	34.23	100	0	Peak
2492.78	45.84	-8.16	54	43.3	33.05	3.72	34.23	100	0	Average



Test Mode :	Mode 3	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2462 MHz is Fundamental Signals 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
54.03	29.7	-10.3	40	53.05	6.49	0.29	30.13	-	-	Peak
57.54	28.32	-11.68	40	52.41	5.75	0.3	30.14	-	-	Peak
64.83	35.02	-4.98	40	59.61	5.2	0.32	30.11	100	28	Peak
461	27.56	-18.44	46	39.98	16.45	0.91	29.78	-	-	Peak
575.8	34.22	-11.78	46	44.28	18.55	1.04	29.65	-	-	Peak
946.1	30.66	-23.34	54	38.16	20.71	1.33	29.54	-	-	Peak
2375.74	55.12	-18.88	74	52.88	32.83	3.42	34.01	200	273	Peak
2375.74	46.23	-7.77	54	43.99	32.83	3.42	34.01	200	273	Average
2462	100.06	-	-	97.61	32.98	3.64	34.17	200	258	Average
2462	104.07	-	-	101.62	32.98	3.64	34.17	200	258	Peak
2483.5	51.79	-22.21	74	49.3	33.01	3.68	34.2	200	0	Peak
2483.5	42.61	-11.39	54	40.12	33.01	3.68	34.2	200	0	Average

Test Mode :	Mode 4	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals 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
32.43	21.72	-18.28	40	35.53	16.04	0.24	30.09	100	226	Peak
134.49	17.66	-25.84	43.5	35.87	11.3	0.48	29.99	-	-	Peak
254.37	19.39	-26.61	46	36.51	12.06	0.67	29.85	-	-	Peak
737.5	22.17	-23.83	46	30.8	19.78	1.17	29.58	-	-	Peak
872.6	23.05	-22.95	46	30.86	20.48	1.29	29.58	-	-	Peak
944.7	26.92	-27.08	54	34.42	20.71	1.33	29.54	-	-	Peak
2332.04	59.58	-14.42	74	57.45	32.76	3.27	33.9	100	0	Peak
2332.04	46.25	-7.75	54	44.12	32.76	3.27	33.9	100	0	Average
2412	112.51	-	-	110.18	32.89	3.52	34.08	100	0	Peak
2412	99.58	-	-	97.25	32.89	3.52	34.08	100	0	Average
2491.26	63.69	-10.31	74	61.15	33.05	3.72	34.23	100	0	Peak
2491.26	49.4	-4.6	54	46.86	33.05	3.72	34.23	100	0	Average

Test Mode :	Mode 4	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2412 MHz is Fundamental Signals 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
40.8	25.59	-14.41	40	43.75	11.64	0.25	30.05	100	323	Peak
135.57	21.11	-22.39	43.5	39.41	11.21	0.48	29.99	-	-	Peak
285.96	22.29	-23.71	46	38.75	12.78	0.71	29.95	-	-	Peak
444.9	23.18	-22.82	46	35.79	16.28	0.9	29.79	-	-	Peak
871.2	23.61	-22.39	46	31.42	20.49	1.29	29.59	-	-	Peak
944.7	28.11	-25.89	54	35.61	20.71	1.33	29.54	-	-	Peak
2326.15	54.12	-19.88	74	51.99	32.76	3.27	33.9	200	60	Peak
2326.15	40.36	-13.64	54	38.23	32.76	3.27	33.9	200	60	Average
2412	103.54	-	-	101.21	32.89	3.52	34.08	200	69	Peak
2412	89.68	-	-	87.35	32.89	3.52	34.08	200	69	Average
2491.45	58.72	-15.28	74	56.18	33.05	3.72	34.23	200	60	Peak
2491.45	44.91	-9.09	54	42.37	33.05	3.72	34.23	200	60	Average



Test Mode :	Mode 5	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals 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
108.03	19.92	-23.58	43.5	37.89	11.56	0.43	29.96	-	-	Peak
135.3	17.44	-26.06	43.5	35.74	11.21	0.48	29.99	-	-	Peak
254.37	23.16	-22.84	46	40.28	12.06	0.67	29.85	-	-	Peak
540.1	22.29	-23.71	46	32.68	18.31	0.99	29.69	-	-	Peak
743.8	22.48	-23.52	46	31.01	19.85	1.18	29.56	-	-	Peak
937.7	27.38	-18.62	46	34.91	20.68	1.32	29.53	200	152	Peak
2355.6	60.3	-13.7	74	58.09	32.81	3.38	33.98	100	0	Peak
2355.6	47.89	-6.11	54	45.68	32.81	3.38	33.98	100	0	Average
2437	110.17	-	-	107.77	32.95	3.6	34.15	100	0	Peak
2437	96.74	-	-	94.34	32.95	3.6	34.15	100	0	Average
2496.2	57.84	-16.16	74	55.3	33.05	3.72	34.23	100	0	Peak
2496.2	44.77	-9.23	54	42.23	33.05	3.72	34.23	100	0	Average

Test Mode :	Mode 5	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2437 MHz is Fundamental Signals 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	26.77	-13.23	40	44.93	11.64	0.25	30.05	200	229	Peak
135.84	23.94	-19.56	43.5	42.24	11.21	0.48	29.99	-	-	Peak
286.23	23.39	-22.61	46	39.85	12.78	0.71	29.95	-	-	Peak
444.9	25.24	-20.76	46	37.85	16.28	0.9	29.79	-	-	Peak
540.1	23.05	-22.95	46	33.44	18.31	0.99	29.69	-	-	Peak
946.1	27.1	-26.9	54	34.6	20.71	1.33	29.54	-	-	Peak
2354.84	55.11	-18.89	74	52.9	32.81	3.38	33.98	200	260	Peak
2354.84	42.68	-11.32	54	40.47	32.81	3.38	33.98	200	260	Average
2437	93.01	-	-	90.61	32.95	3.6	34.15	200	262	Average
2437	104.78	-	-	102.38	32.95	3.6	34.15	200	262	Peak
2488.41	52.77	-21.23	74	50.23	33.05	3.72	34.23	200	220	Peak
2488.41	42.22	-11.78	54	39.68	33.05	3.72	34.23	200	220	Average

Test Mode :	Mode 6	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2462 MHz is Fundamental Signals 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
32.43	21.38	-18.62	40	35.19	16.04	0.24	30.09			Peak
134.49	16.25	-27.25	43.5	34.46	11.3	0.48	29.99			Peak
254.37	23.94	-22.06	46	41.06	12.06	0.67	29.85			Peak
476.4	21.06	-24.94	46	33.11	16.78	0.93	29.76			Peak
872.6	23.34	-22.66	46	31.15	20.48	1.29	29.58			Peak
937.7	27.74	-18.26	46	35.27	20.68	1.32	29.53	123	200	Peak
2364.15	60.34	-13.66	74	58.13	32.81	3.38	33.98	100	28	Peak
2364.15	45.47	-8.53	54	43.26	32.81	3.38	33.98	100	28	Average
2462	110.06	-	-	107.61	32.98	3.64	34.17	172	0	Peak
2462	98.03	-	-	95.58	32.98	3.64	34.17	172	0	Average
2484.42	64.55	-9.45	74	62.06	33.01	3.68	34.2	100	118	Peak
2484.42	50.05	-3.95	54	47.56	33.01	3.68	34.2	100	118	Average

Test Mode :	Mode 6	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2462 MHz is Fundamental Signals 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
54.03	29.21	-10.79	40	52.56	6.49	0.29	30.13	100	122	Peak
134.22	24.13	-19.37	43.5	42.25	11.39	0.48	29.99	-	-	Peak
254.37	25.46	-20.54	46	42.58	12.06	0.67	29.85	-	-	Peak
540.1	22.91	-23.09	46	33.3	18.31	0.99	29.69	-	-	Peak
867	23.29	-22.71	46	31.12	20.49	1.29	29.61	-	-	Peak
937.7	27.01	-18.99	46	34.54	20.68	1.32	29.53	-	-	Peak
2375.55	55.08	-18.92	74	52.84	32.83	3.42	34.01	200	33	Peak
2375.55	43.07	-10.93	54	40.83	32.83	3.42	34.01	200	33	Average
2462	104.93	-	-	102.48	32.98	3.64	34.17	200	36	Peak
2462	92.51	-	-	90.06	32.98	3.64	34.17	200	36	Average
2483.5	60.85	-13.15	74	58.36	33.01	3.68	34.2	200	36	Peak
2483.5	47.11	-6.89	54	44.62	33.01	3.68	34.2	200	36	Average

Test Mode :	Mode 7	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals 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
32.43	21.74	-18.26	40	35.55	16.04	0.24	30.09	-	-	Peak
108.03	16.63	-26.87	43.5	34.6	11.56	0.43	29.96	-	-	Peak
254.37	19	-27	46	36.12	12.06	0.67	29.85	-	-	Peak
540.1	22.29	-23.71	46	32.68	18.31	0.99	29.69	-	-	Peak
871.2	23.73	-22.27	46	31.54	20.49	1.29	29.59	-	-	Peak
937.7	28.09	-17.91	46	35.62	20.68	1.32	29.53	100	263	Peak
2332.61	59.68	-14.32	74	57.55	32.76	3.27	33.9	100	12	Peak
2332.61	46.49	-7.51	54	44.36	32.76	3.27	33.9	100	12	Average
2412	112.21	-	-	109.88	32.89	3.52	34.08	100	0	Peak
2412	98.6	-	-	96.27	32.89	3.52	34.08	100	0	Average
2497.15	64.82	-9.18	74	62.28	33.05	3.72	34.23	100	0	Peak
2497.15	52.9	-1.1	54	50.36	33.05	3.72	34.23	100	0	Average

Test Mode :	Mode 7	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2412 MHz is Fundamental Signals 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
40.26	23.32	-16.68	40	41.48	11.64	0.25	30.05	100	118	Peak
254.37	21.91	-24.09	46	39.03	12.06	0.67	29.85	-	-	Peak
286.23	22.36	-23.64	46	38.82	12.78	0.71	29.95	-	-	Peak
540.1	22.11	-23.89	46	32.5	18.31	0.99	29.69	-	-	Peak
745.9	22.97	-23.03	46	31.47	19.87	1.18	29.55	-	-	Peak
937.7	28.52	-17.48	46	36.05	20.68	1.32	29.53	-	-	Peak
2336.79	55.51	-18.49	74	53.34	32.78	3.33	33.94	200	26	Peak
2336.79	41.86	-12.14	54	39.69	32.78	3.33	33.94	200	26	Average
2412	102.32	-	-	99.99	32.89	3.52	34.08	200	54	Peak
2412	88.95	-	-	86.62	32.89	3.52	34.08	200	54	Average
2492.21	60.59	-13.41	74	58.05	33.05	3.72	34.23	200	50	Peak
2492.21	45.8	-8.2	54	43.26	33.05	3.72	34.23	200	50	Average

Test Mode :	Mode 8	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals 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
32.43	20.66	-19.34	40	34.47	16.04	0.24	30.09	100	63	Peak
108.03	19.04	-24.46	43.5	37.01	11.56	0.43	29.96	-	-	Peak
254.1	22.98	-23.02	46	40.1	12.06	0.67	29.85	-	-	Peak
824.3	23.69	-22.31	46	31.89	20.16	1.26	29.62	-	-	Peak
872.6	24.36	-21.64	46	32.17	20.48	1.29	29.58	-	-	Peak
946.1	27.79	-26.21	54	35.29	20.71	1.33	29.54	-	-	Peak
2354.84	60.14	-13.86	74	57.93	32.81	3.38	33.98	200	0	Peak
2354.84	46.77	-7.23	54	44.56	32.81	3.38	33.98	200	0	Average
2437	110.23	-	-	107.83	32.95	3.6	34.15	100	0	Peak
2437	96.28	-	-	93.88	32.95	3.6	34.15	100	0	Average
2496.77	58.14	-15.86	74	55.6	33.05	3.72	34.23	100	0	Peak
2496.77	45.62	-8.38	54	43.08	33.05	3.72	34.23	100	0	Average

Test Mode :	Mode 8	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2437 MHz is Fundamental Signals 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	25.43	-14.57	40	43.59	11.64	0.25	30.05	100	16	Peak
135.84	21.28	-22.22	43.5	39.58	11.21	0.48	29.99	-	-	Peak
285.96	24.07	-21.93	46	40.53	12.78	0.71	29.95	-	-	Peak
444.9	24.36	-21.64	46	36.97	16.28	0.9	29.79	-	-	Peak
872.6	23.16	-22.84	46	30.97	20.48	1.29	29.58	-	-	Peak
937.7	28.11	-17.89	46	35.64	20.68	1.32	29.53	-	-	Peak
2356.74	55.78	-18.22	74	53.57	32.81	3.38	33.98	200	100	Peak
2356.74	41.18	-12.82	54	38.97	32.81	3.38	33.98	200	100	Average
2437	106.26	-	-	103.86	32.95	3.6	34.15	200	104	Peak
2437	93.62	-	-	91.22	32.95	3.6	34.15	200	104	Average
2483.85	53.74	-20.26	74	51.25	33.01	3.68	34.2	200	100	Peak
2483.85	40.12	-13.88	54	37.63	33.01	3.68	34.2	200	100	Average

Test Mode :	Mode 9	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2462 MHz is Fundamental Signals 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	21.3	-18.7	40	34.6	16.55	0.24	30.09	-	-	Peak
254.37	24.98	-21.02	46	42.1	12.06	0.67	29.85	-	-	Peak
286.23	18.96	-27.04	46	35.42	12.78	0.71	29.95	-	-	Peak
540.1	22.01	-23.99	46	32.4	18.31	0.99	29.69	-	-	Peak
937.7	28.76	-17.24	46	36.29	20.68	1.32	29.53	100	10	Peak
960.1	24.36	-29.64	54	31.77	20.79	1.34	29.54	-	-	Peak
2379.92	61.22	-12.78	74	58.98	32.83	3.42	34.01	100	0	Peak
2379.92	45.93	-8.07	54	43.69	32.83	3.42	34.01	100	0	Average
2462	94.78	-	-	92.33	32.98	3.64	34.17	100	0	Average
2462	109.12	-	-	106.67	32.98	3.64	34.17	100	0	Peak
2483.85	70.41	-3.59	74	67.92	33.01	3.68	34.2	100	0	Peak
2483.85	52.49	-1.51	54	50	33.01	3.68	34.2	100	0	Average

Test Mode :	Mode 9	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2462 MHz is Fundamental Signals 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	24.9	-15.1	40	43.06	11.64	0.25	30.05	-	-	Peak
54.03	27.57	-12.43	40	50.92	6.49	0.29	30.13	100	23	Peak
254.37	25.19	-20.81	46	42.31	12.06	0.67	29.85	-	-	Peak
540.1	24.81	-21.19	46	35.2	18.31	0.99	29.69	-	-	Peak
758.5	22.88	-23.12	46	31.35	19.89	1.19	29.55	-	-	Peak
937.7	26.68	-19.32	46	34.21	20.68	1.32	29.53	-	-	Peak
2382.96	57.32	-16.68	74	55.08	32.83	3.42	34.01	200	0	Peak
2382.96	44.87	-9.13	54	42.63	32.83	3.42	34.01	200	0	Average
2462	103.53	-	-	101.08	32.98	3.64	34.17	200	286	Peak
2462	92.66	-	-	90.21	32.98	3.64	34.17	200	286	Average
2483.5	61.36	-12.64	74	58.87	33.01	3.68	34.2	200	0	Peak
2483.5	48.31	-5.69	54	45.82	33.01	3.68	34.2	200	0	Average

3.8 Antenna Requirements

3.8.1 Standard Applicable

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

3.8.2 Antenna Connected Construction

The antennas type used in this product is Fixed Internal 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	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Jan. 07, 2011	Jan. 06, 2012	Conducted (TH01-KS)
Power Meter	Agilent	E4416A	MY45101555	N/A	Aug. 23, 2011	Aug. 22, 2012	Conducted (TH01-KS)
Power Sensor	Agilent	E9327A	MY44421198	N/A	Aug. 23, 2011	Aug. 22, 2012	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESC17	100768	9kHz~7GHz	Jun. 02, 2011	Jun. 01, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60103	9kHz~30MHz	Jan. 07, 2011	Jan. 06, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60105	9kHz~30MHz	Jan. 07, 2011	Jan. 06, 2012	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 10, 2010	Nov. 09, 2011	Conduction (CO01-KS)
System Simulator	R&S	CMU200	837587/066	Full-Band	Jan. 07, 2011	Jan. 06, 2012	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 16, 2010	Nov. 15, 2011	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Jan. 07, 2011	Jan. 06, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 07, 2010	Dec. 06, 2011	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 07, 2011	Jan. 06, 2012	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060004	30MHz~2GHz	Dec. 09, 2010	Dec. 08, 2011	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Jan. 07, 2011	Jan. 06, 2012	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701023	1G-18GHz	Nov. 09, 2010	Nov. 08, 2011	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Oct. 15, 2010	Oct. 14, 2011	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 EP181807 as below.