



FCC RF Test Report

APPLICANT : Motorola Mobility Inc.
EQUIPMENT : Quad-Band GSM/GPRS/EDGE and Dual-Band WCDMA Mobile Phone with BT/Wifi
BRAND NAME : Motorola
MODEL NAME / MARKETING NAME : XT535
TYPE NAME : M0C86
GPPD NUMBER : 3206
FCC ID : IHDP56MR1
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Dec. 08, 2011 and completely tested on Dec. 28, 2011. We, SPORTON INTERNATIONAL 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 INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.



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SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.2	15.247(b)	A8.4	Power Output	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 4.00 dB at 1.640 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 4.27 dB at 2488.030 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Motorola Mobility Inc.

No. 1, Wang Jing East Road, Chao Yang District Beijing, China 100102

1.2 Manufacturer

Foxconn (TianJin) Precision Industry Co., Ltd.

No. 207, Nanhai Road, TEDA, Tianjin, P.R. China, 300457

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Quad-Band GSM/GPRS/EDGE and Dual-Band WCDMA Mobile Phone with BT/Wifi
Brand Name	Motorola
Model Name	XT535
Type Name	M0C86
FCC ID	IHDP56MR1
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 : 19.41 dBm (0.0873 W) 802.11g : 23.85 dBm (0.2427 W) 802.11n (BW 20MHz) : 23.86 dBm (0.2432 W)
Antenna Type	Mono-pole Antenna with gain -1 dBi
HW Version	PR2.5
SW Version	1_400_9000
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

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

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958
Test Site No.	Sporton Site No. : TH01-KS ; 03CH01-KS ; CO01-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
- ♦ IC RSS-210 Issue 8

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
3.	Notebook	Acer	Travel mate 2413Lei	QDS-BRCM1016	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A

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	19.41	19.33	19.34	19.36
CH 06	2437 MHz	19.36	19.31	19.35	19.38
CH 11	2462 MHz	19.21	19.28	19.13	19.32

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	23.07	22.97	22.91	22.87	22.81	22.69	22.67	22.71
CH 06	2437 MHz	23.71	23.65	23.54	23.45	23.42	23.27	23.34	23.35
CH 11	2462 MHz	23.85	23.77	23.73	23.68	23.62	23.57	23.46	23.41

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412 MHz	23.05	22.91	22.81	22.76	22.66	22.61	22.57	22.51
CH 06	2437 MHz	23.71	23.66	23.53	23.44	23.48	23.38	23.21	23.12
CH 11	2462 MHz	23.86	23.76	23.65	23.57	23.51	23.46	23.37	23.29

Remark: 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).

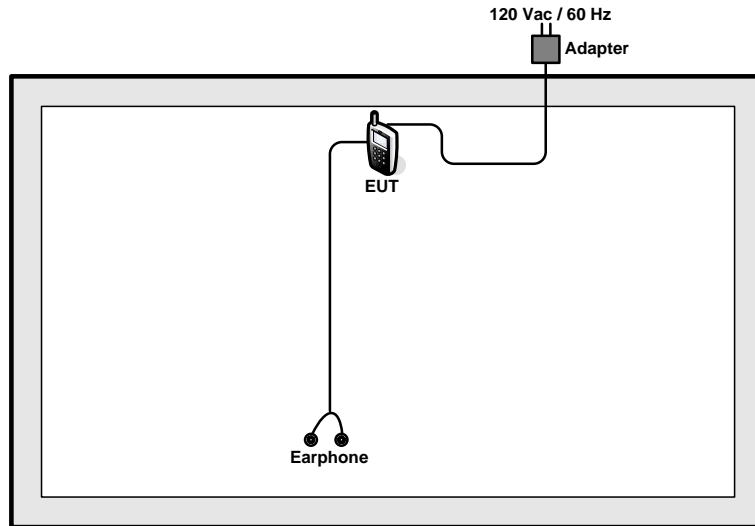
Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations, laptop / tablet modes.

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

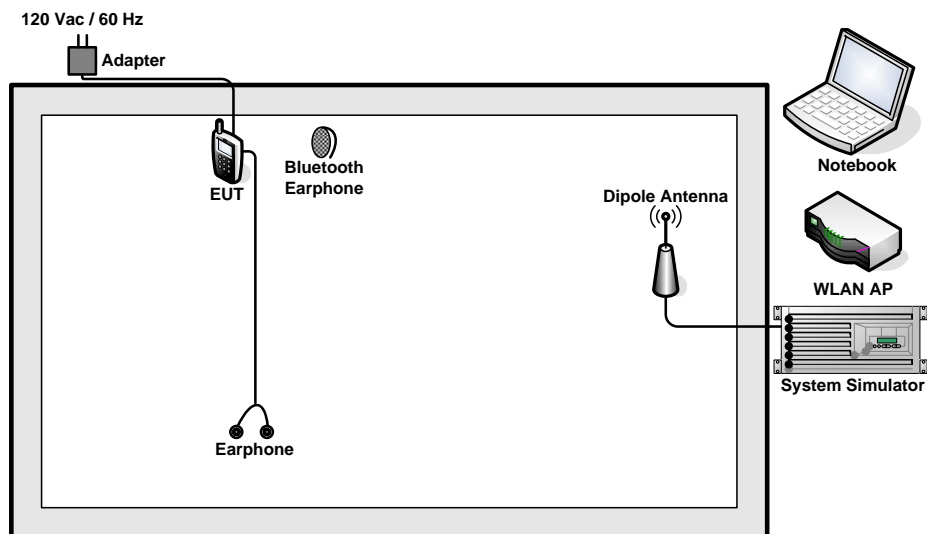
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 MHz Mode 8: 802.11n (BW 20M)_CH06_2437 MHz Mode 9: 802.11n (BW 20M)_CH11_2462 MHz
Radiated TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 MHz Mode 8: 802.11n (BW 20M)_CH06_2437 MHz Mode 9: 802.11n (BW 20M)_CH11_2462 MHz
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN Link + Earphone + Adapter + Camera Mode 2 : GSM1900 Idle + Bluetooth Link + WLAN Link + Earphone + Adapter + MPEG4	
Remark: The worst case of AC is mode 1; only the test data of this mode was reported.		

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 RF Utility

For WLAN function, key in “* # * # 373 # * # *” on the EUT directly. Then, the EUT provides functions like channel selection and power level for continuous transmitting and receiving signals.

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

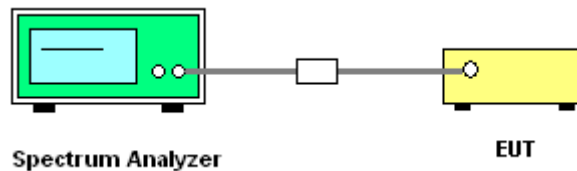
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (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



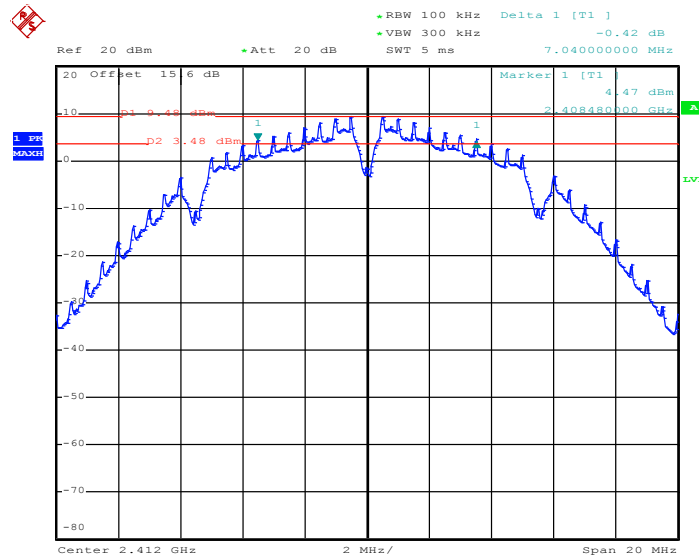


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	48~49%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	7.04	0.5	Pass
06	2437	7.52	0.5	Pass
11	2462	7.54	0.5	Pass

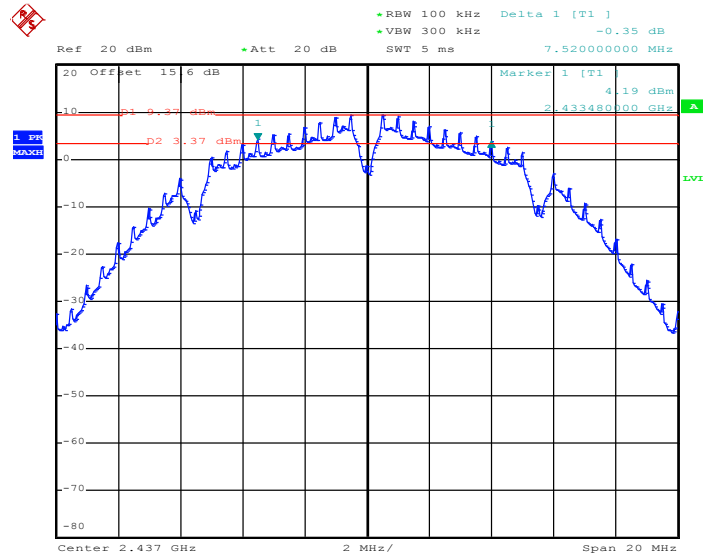
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 19.DEC.2011 10:04:55

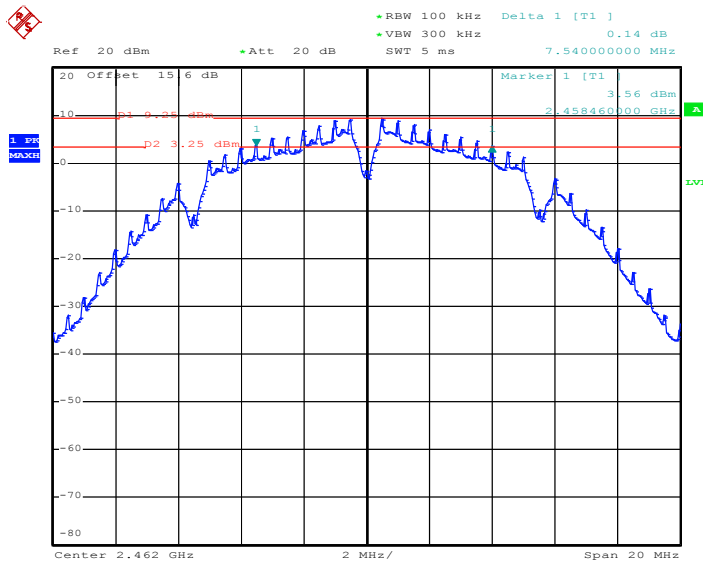


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 19.DEC.2011 10:21:31

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



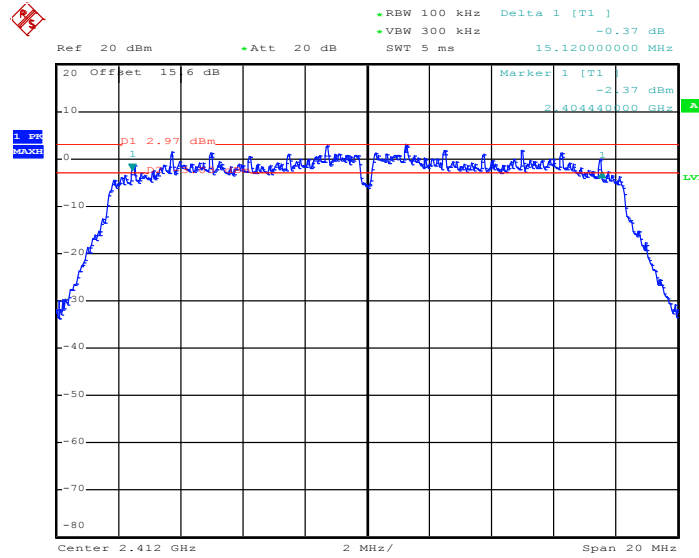
Date: 19.DEC.2011 10:38:32



Test Mode :	Mode 4, 5, 6	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	48~49%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.12	0.5	Pass
06	2437	15.08	0.5	Pass
11	2462	15.28	0.5	Pass

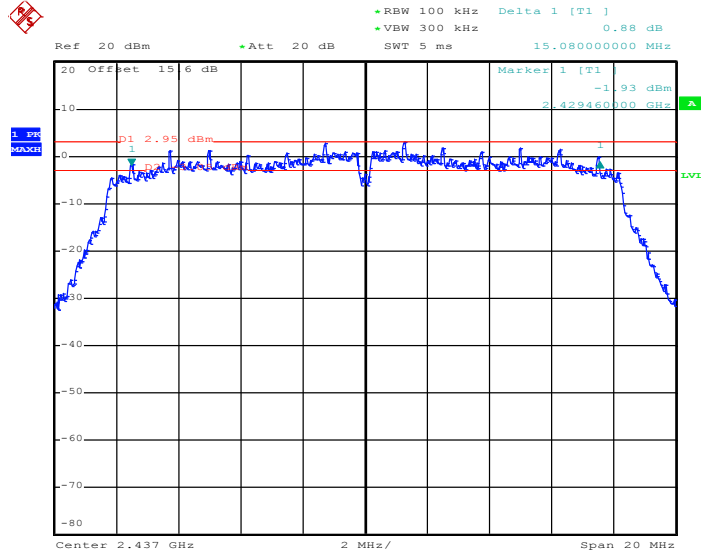
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



Date: 19.DEC.2011 10:55:54

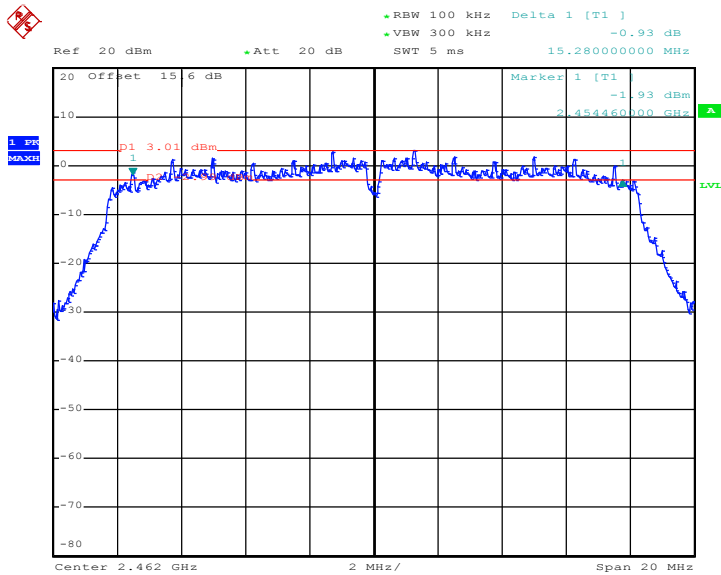


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



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



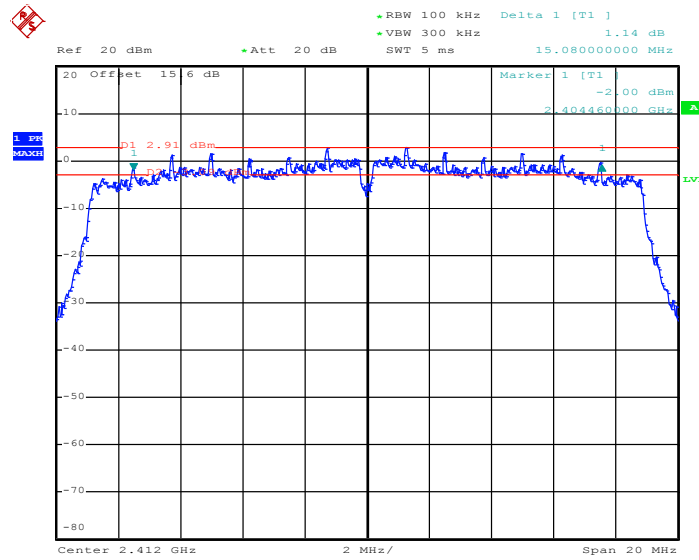
Date: 28.DEC.2011 18:18:48



Test Mode :	Mode 7, 8, 9	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	48~49%

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	16.08	0.5	Pass
11	2462	15.28	0.5	Pass

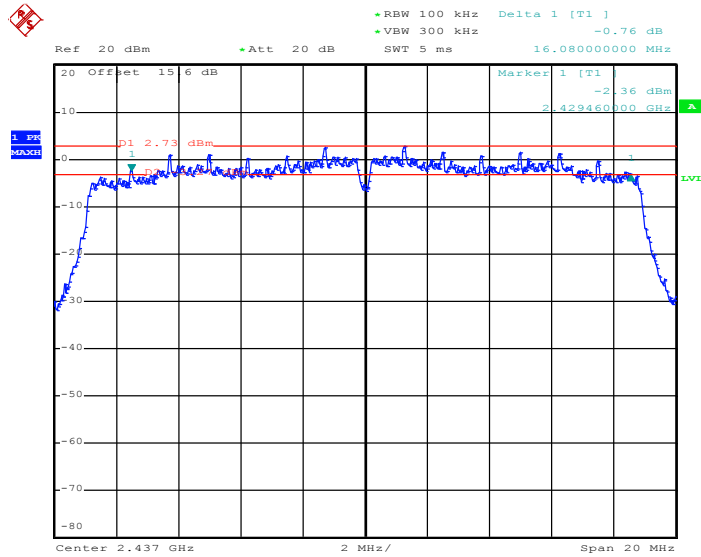
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 19.DEC.2011 13:13:28

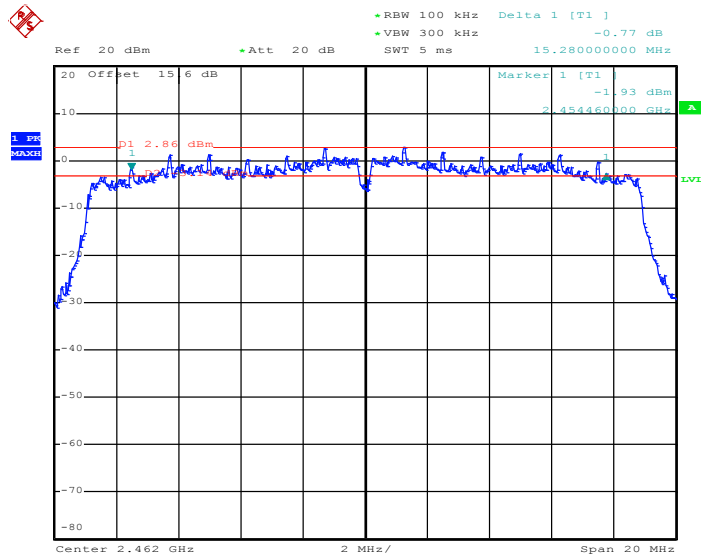


Mode 8 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 19.DEC.2011 13:32:52

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



Date: 19.DEC.2011 13:49:02

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.

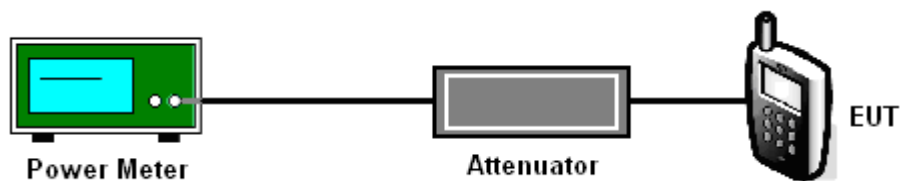
3.2.2 Measuring Instruments

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. Measured and recorded the peak 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°C
Test Engineer :	Zhi Lu	Relative Humidity :	48~49%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	19.41	30	Pass
06	2437	19.36	30	Pass
11	2462	19.21	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	48~49%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	23.07	30	Pass
06	2437	23.71	30	Pass
11	2462	23.85	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	48~49%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	23.05	30	Pass
06	2437	23.71	30	Pass
11	2462	23.86	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

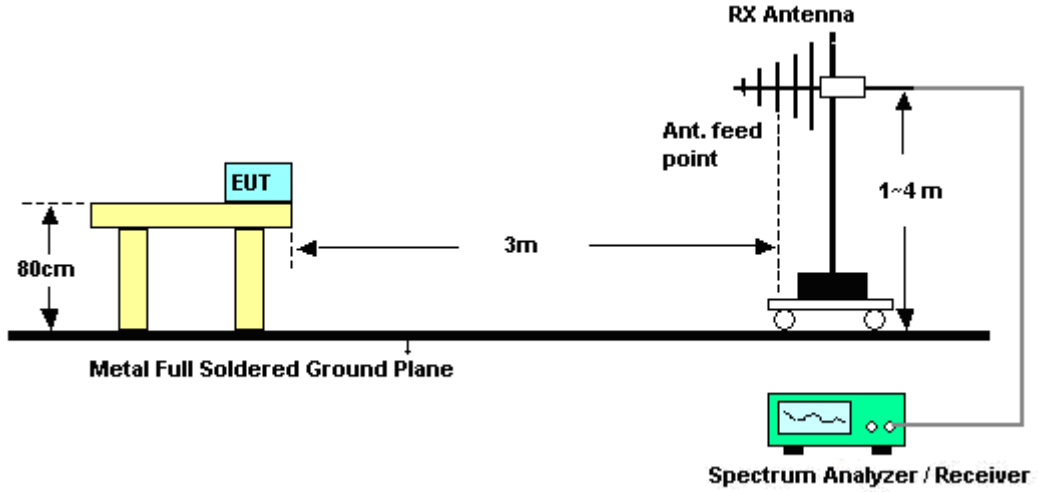
See list of measuring instruments of this test report.

3.3.3 Test Procedures

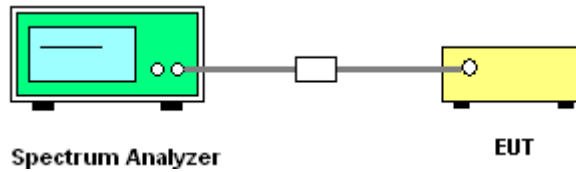
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 KHz, Video bandwidth (VBW) \geq RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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 :	20~21°C
Test Band :	802.11b	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Jack Li

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
2384.67	53.85	-20.15	74	51.61	32.83	3.42	34.01	118	5	Peak
2384.67	48.84	-5.16	54	46.6	32.83	3.42	34.01	118	5	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
2384.29	56.33	-17.67	74	54.09	32.83	3.42	34.01	146	12	Peak
2384.29	49.53	-4.47	54	47.29	32.83	3.42	34.01	146	12	Average

Test Mode :	Mode 3	Temperature :	20~21°C
Test Band :	802.11b	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Jack Li

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
2488.03	58.46	-15.54	74	55.92	33.05	3.72	34.23	104	347	Peak
2488.03	49.73	-4.27	54	47.19	33.05	3.72	34.23	104	347	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
2488.03	51.16	-22.84	74	48.62	33.05	3.72	34.23	103	303	Peak
2488.03	38.03	-15.97	54	35.49	33.05	3.72	34.23	103	303	Average



Test Mode :	Mode 4	Temperature :	20~21°C
Test Band :	802.11g	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Jack Li

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	58.44	-15.56	74	56.16	32.86	3.47	34.05	200	328	Peak
2390	44.94	-9.06	54	42.66	32.86	3.47	34.05	200	328	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
2389.04	59.47	-14.53	74	57.19	32.86	3.47	34.05	100	93	Peak
2389.04	46.04	-7.96	54	43.76	32.86	3.47	34.05	100	93	Average

Test Mode :	Mode 6	Temperature :	20~21°C
Test Band :	802.11g	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Jack Li

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
2483.5	63.17	-10.83	74	60.68	33.01	3.68	34.2	108	18	Peak
2483.5	49.5	-4.5	54	47.01	33.01	3.68	34.2	108	18	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	62.2	-11.8	74	59.71	33.01	3.68	34.2	121	360	Peak
2483.5	46.59	-7.41	54	44.1	33.01	3.68	34.2	121	360	Average



Test Mode :	Mode 7	Temperature :	20~21°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Jack Li

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
2389.8	62.67	-11.33	74	60.39	32.86	3.47	34.05	106	331	Peak
2389.8	47.95	-6.05	54	45.67	32.86	3.47	34.05	106	331	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
2389.99	65.36	-8.64	74	63.08	32.86	3.47	34.05	119	310	Peak
2389.99	47.21	-6.79	54	44.93	32.86	3.47	34.05	119	310	Average

Test Mode :	Mode 9	Temperature :	20~21°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Jack Li

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
2484.04	68.43	-5.57	74	65.94	33.01	3.68	34.2	100	16	Peak
2484.04	49.19	-4.81	54	46.7	33.01	3.68	34.2	100	16	Average

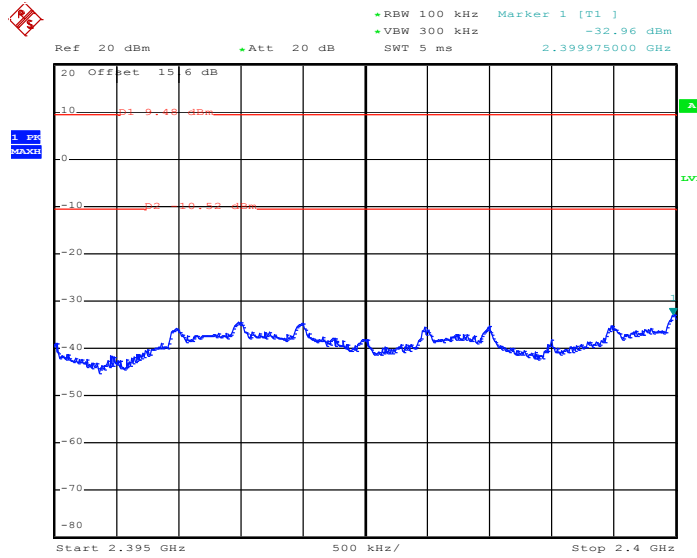
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.85	68.54	-5.46	74	66.05	33.01	3.68	34.2	100	31	Peak
2483.85	48.14	-5.86	54	45.65	33.01	3.68	34.2	100	31	Average



3.3.6 Test Plots of Conducted Band Edges

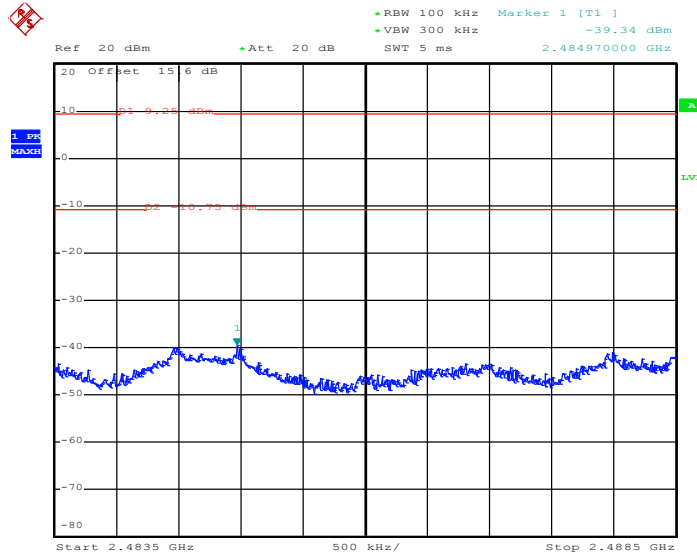
Test Mode :	Mode 1 and 3	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	48~49%
Test Channel :	01 and 11	Test Engineer :	Zhi Lu

Low Band Edge Plot on 802.11b Channel 01



Date: 19.DEC.2011 10:06:06

High Band Edge Plot on 802.11b Channel 11

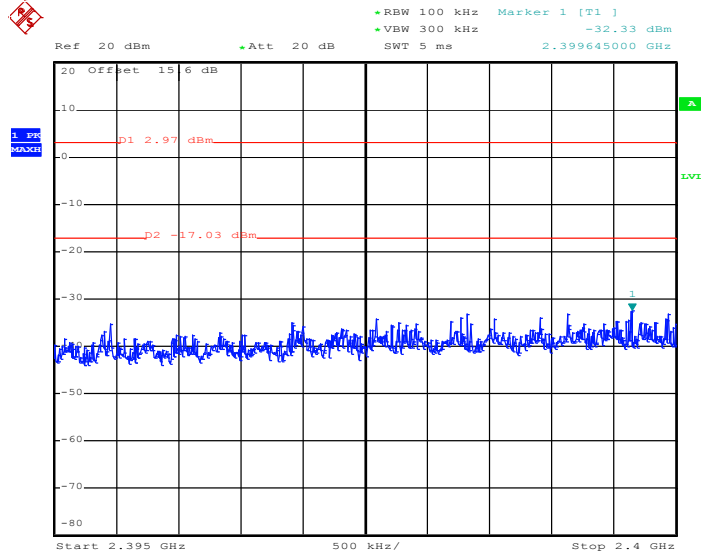


Date: 19.DEC.2011 10:39:21



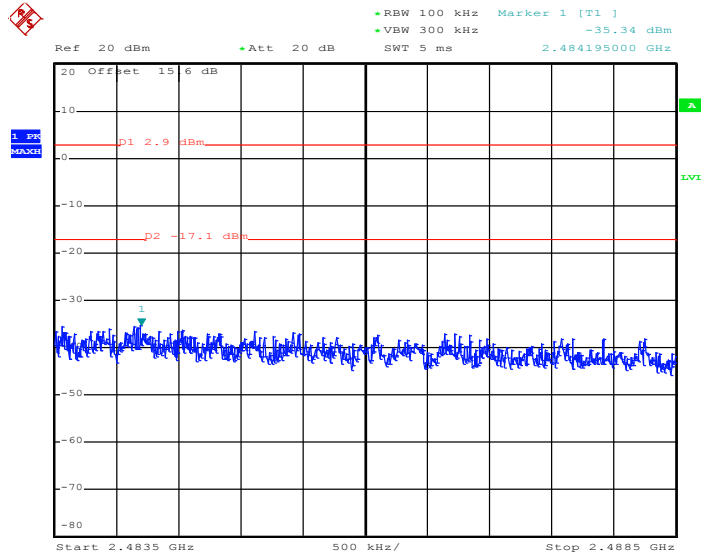
Test Mode :	Mode 4 and 6	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	48~49%
Test Channel :	01 and 11	Test Engineer :	Zhi Lu

Low Band Edge Plot on 802.11g Channel 01



Date: 19.DEC.2011 10:57:11

High Band Edge Plot on 802.11g Channel 11

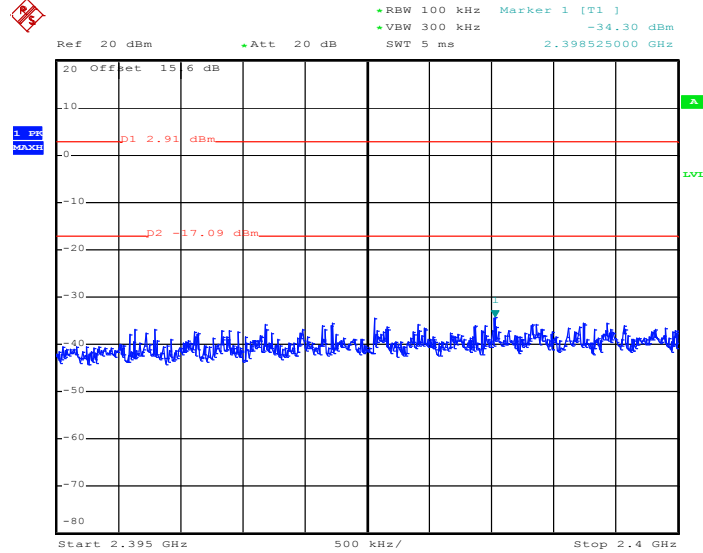


Date: 19.DEC.2011 11:56:37



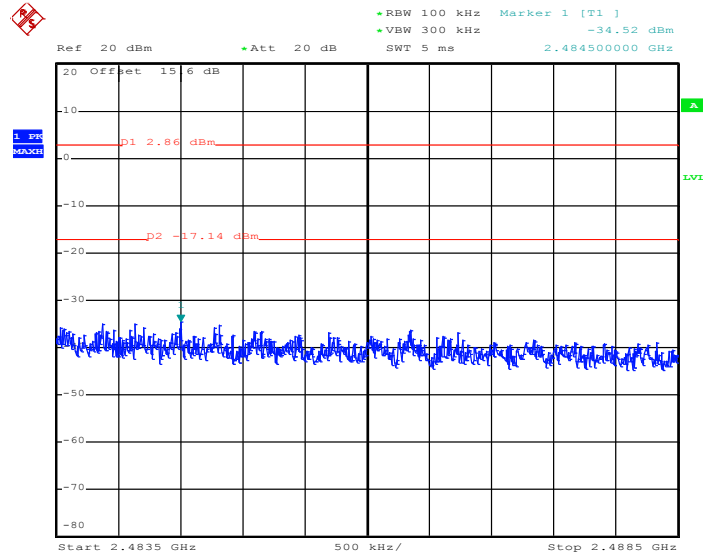
Test Mode :	Mode 7 and 9	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	48~49%
Test Channel :	01 and 11	Test Engineer :	Zhi Lu

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



Date: 19.DEC.2011 13:19:48

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



Date: 19.DEC.2011 13:49:59

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.

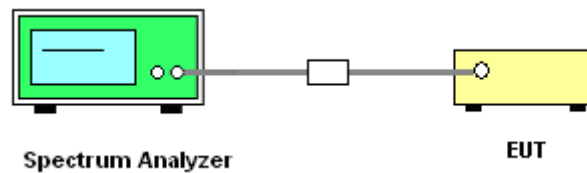
3.4.2 Measuring Instruments

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

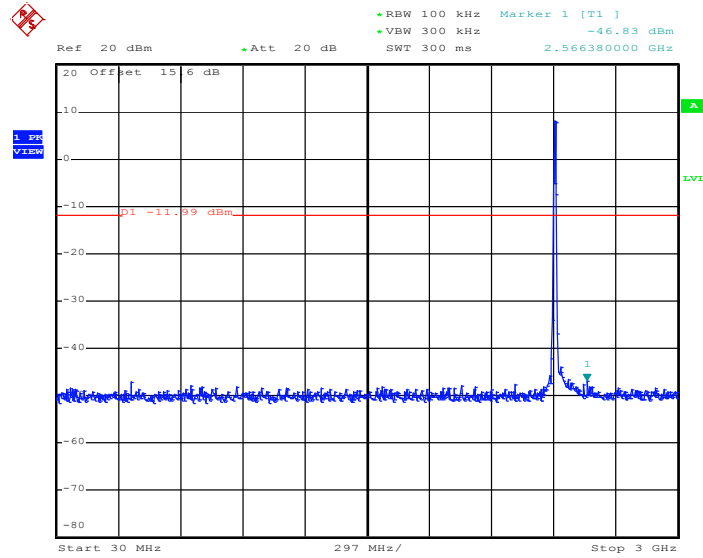




3.4.5 Test Plots of Spurious Emission

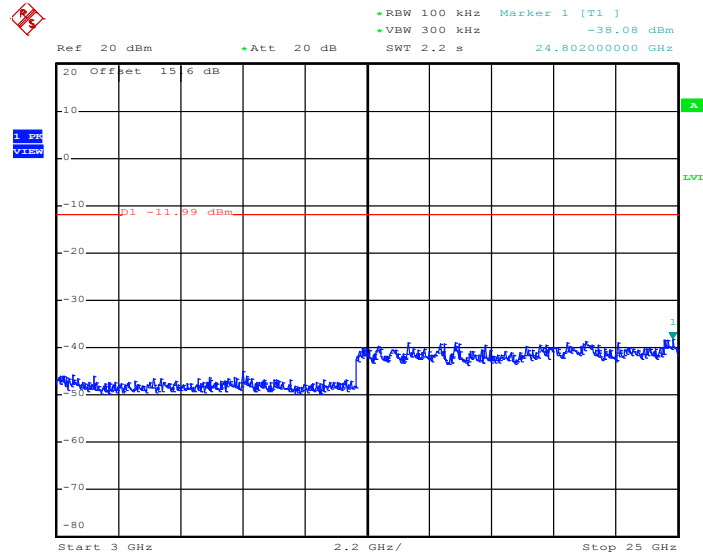
Test Mode :	Mode 1	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	48~49%
Test Channel :	01	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 19.DEC.2011 10:07:26

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

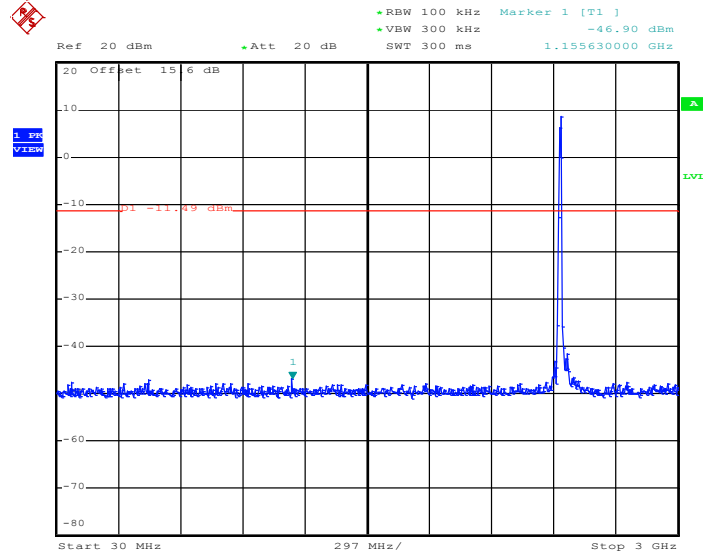


Date: 19.DEC.2011 10:07:43



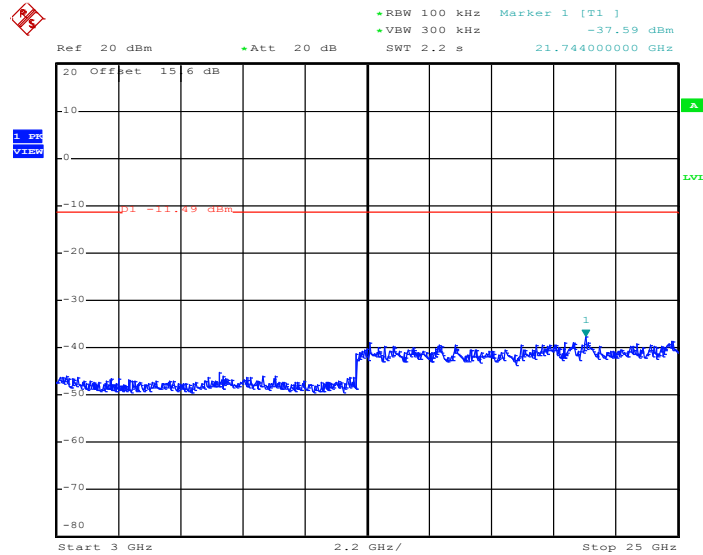
Test Mode :	Mode 2	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	48~49%
Test Channel :	06	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 19.DEC.2011 14:09:42

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

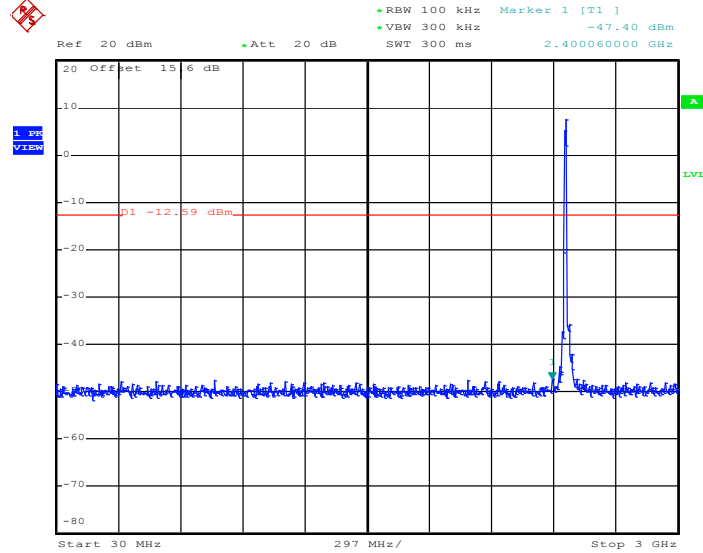


Date: 19.DEC.2011 14:10:20



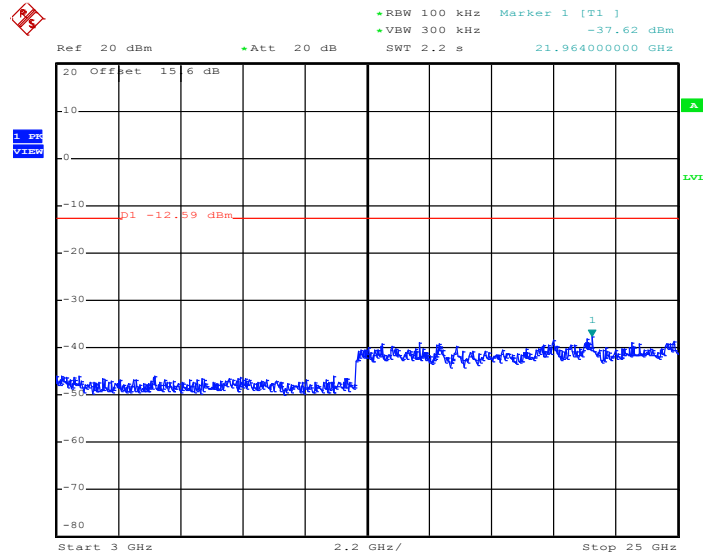
Test Mode :	Mode 3	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	48~49%
Test Channel :	11	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 19.DEC.2011 14:11:43

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

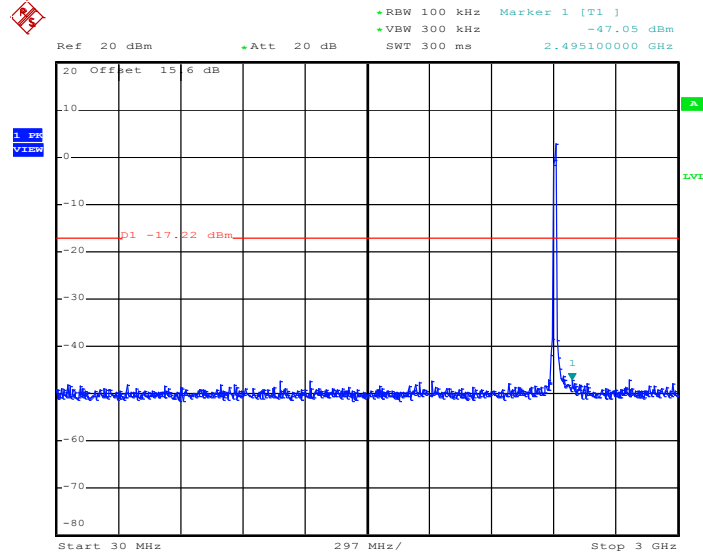


Date: 19.DEC.2011 14:12:00



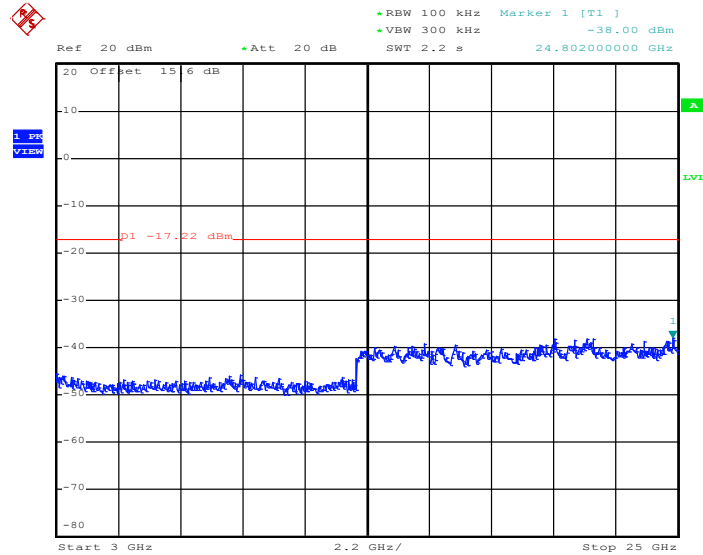
Test Mode :	Mode 4	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	48~49%
Test Channel :	01	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 19.DEC.2011 11:01:22

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

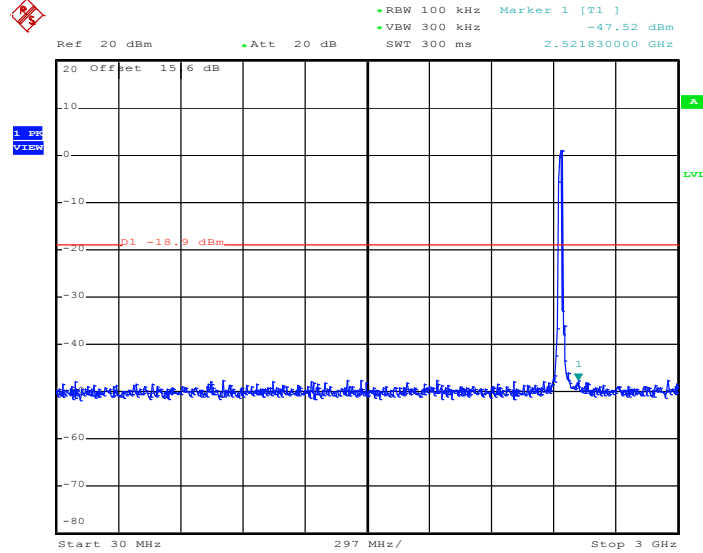


Date: 19.DEC.2011 11:01:39



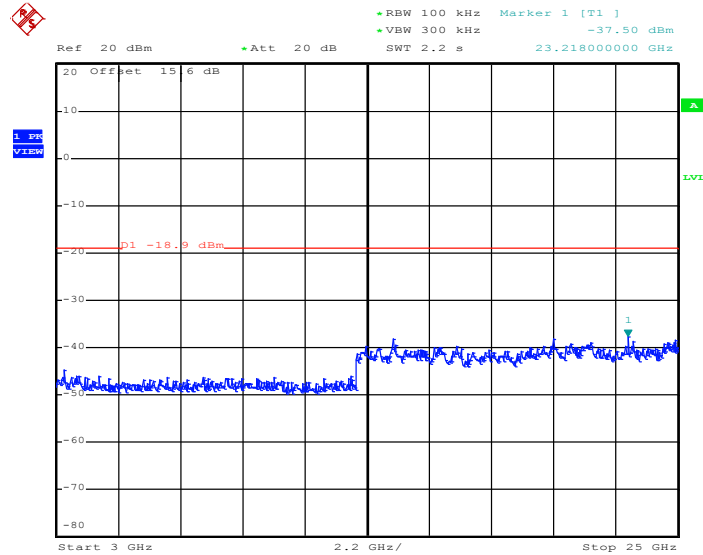
Test Mode :	Mode 5	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	48~49%
Test Channel :	06	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 19.DEC.2011 13:08:21

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

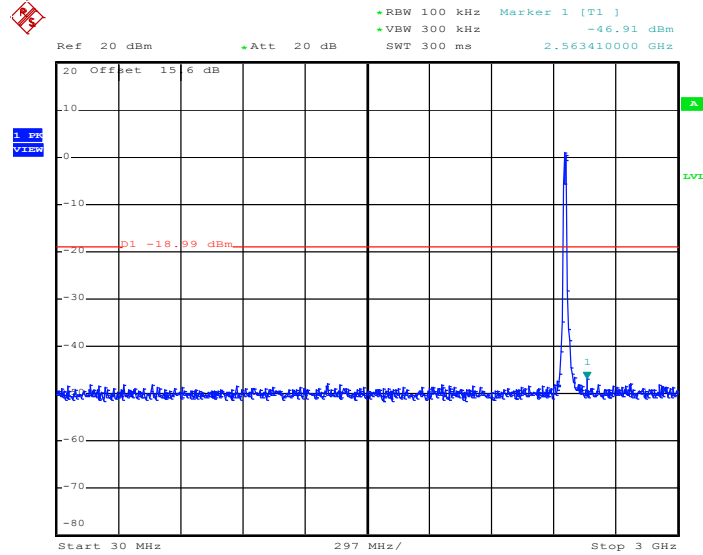


Date: 19.DEC.2011 13:08:38



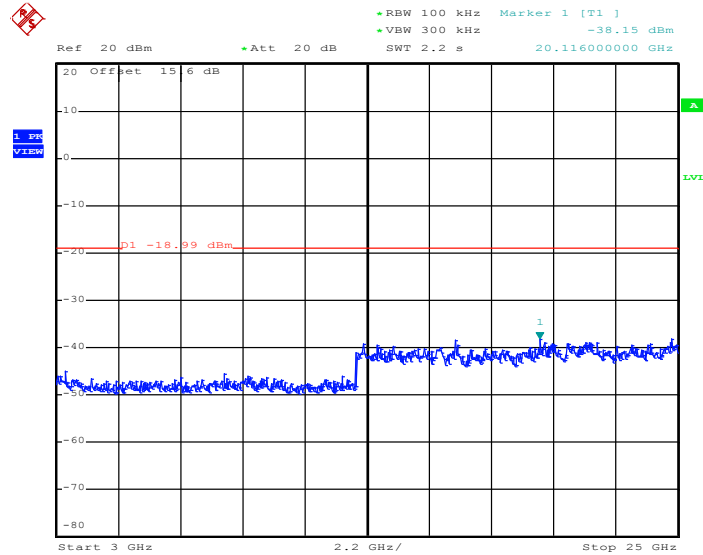
Test Mode :	Mode 6	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	48~49%
Test Channel :	11	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 19.DEC.2011 12:00:18

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

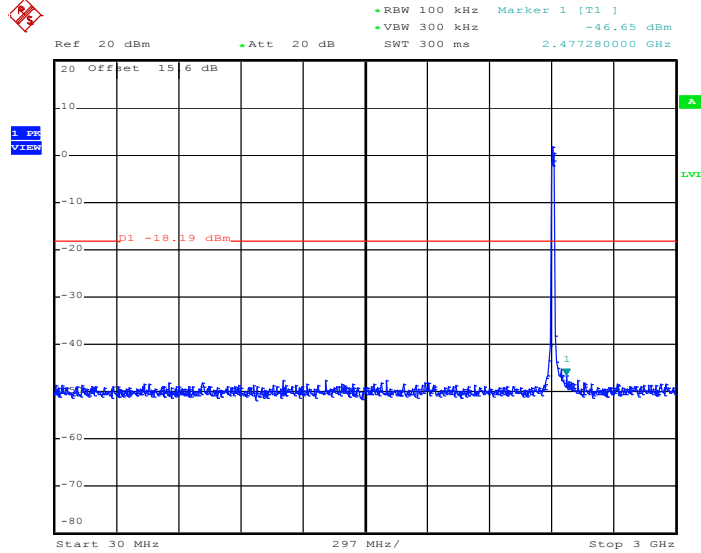


Date: 19.DEC.2011 12:00:35



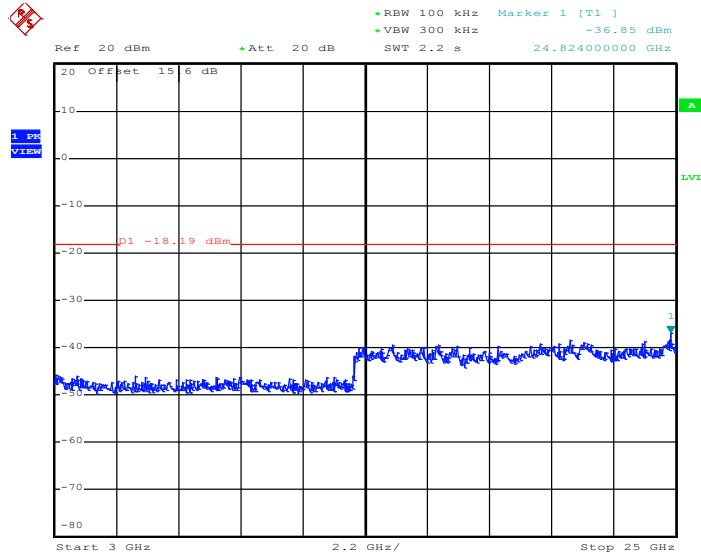
Test Mode :	Mode 7	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	48~49%
Test Channel :	01	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 19.DEC.2011 13:20:09

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

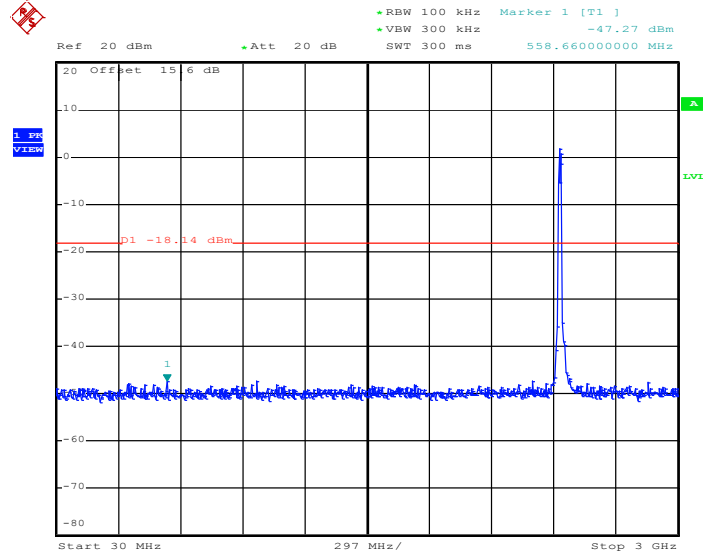


Date: 19.DEC.2011 13:20:26



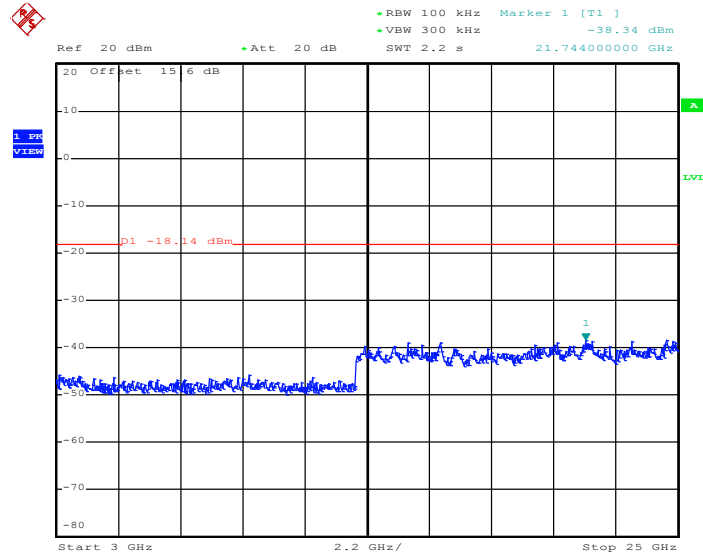
Test Mode :	Mode 8	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	48~49%
Test Channel :	06	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 19.DEC.2011 13:34:03

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

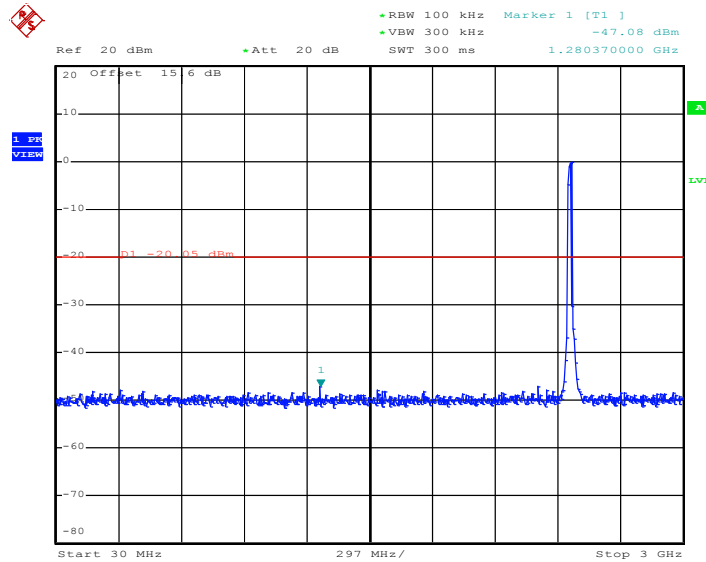


Date: 19.DEC.2011 13:34:20



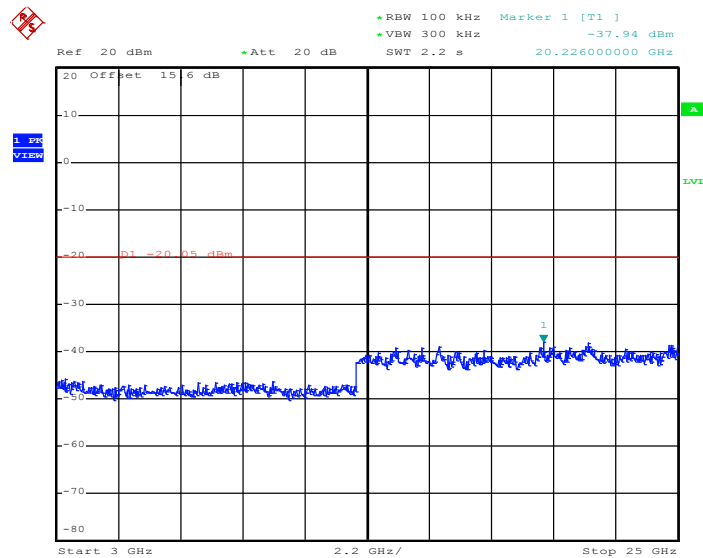
Test Mode :	Mode 9	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	48~49%
Test Channel :	11	Test Engineer :	Zhi Lu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 19.DEC.2011 13:51:40

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 19.DEC.2011 13:51:57

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.

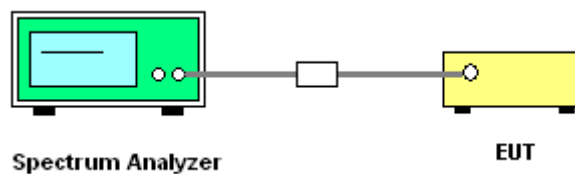
3.5.2 Measuring Instruments

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



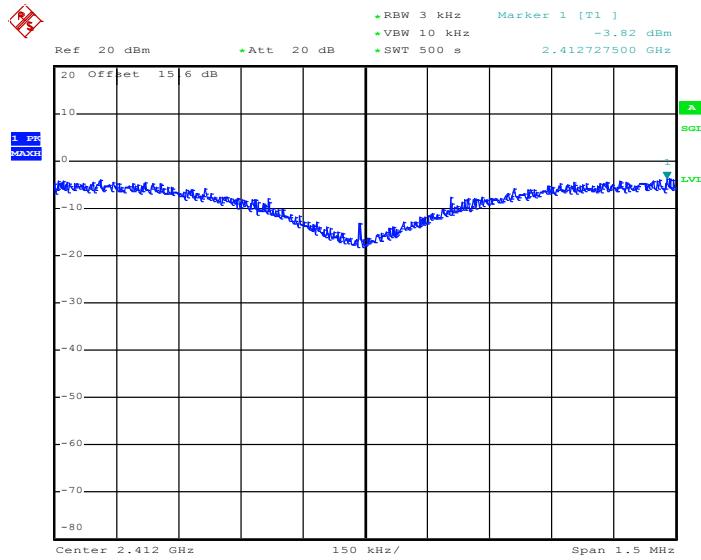


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	48~49%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-3.82	8	Pass
06	2437	-3.74	8	Pass
11	2462	-3.87	8	Pass

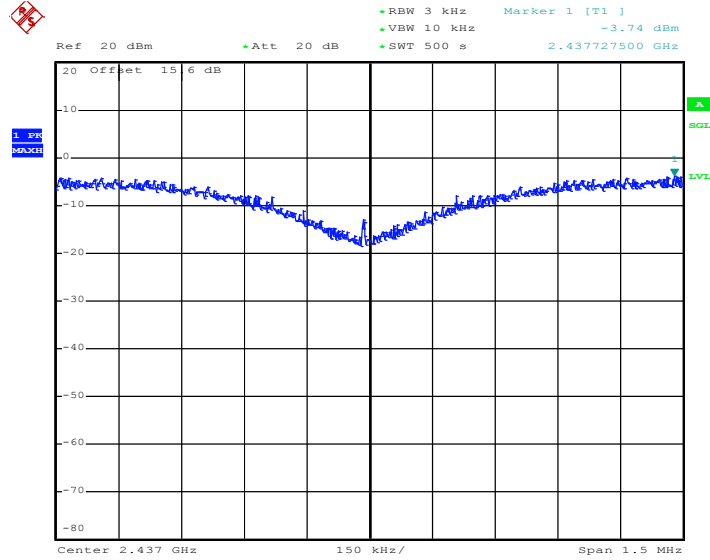
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 19.DEC.2011 10:18:07

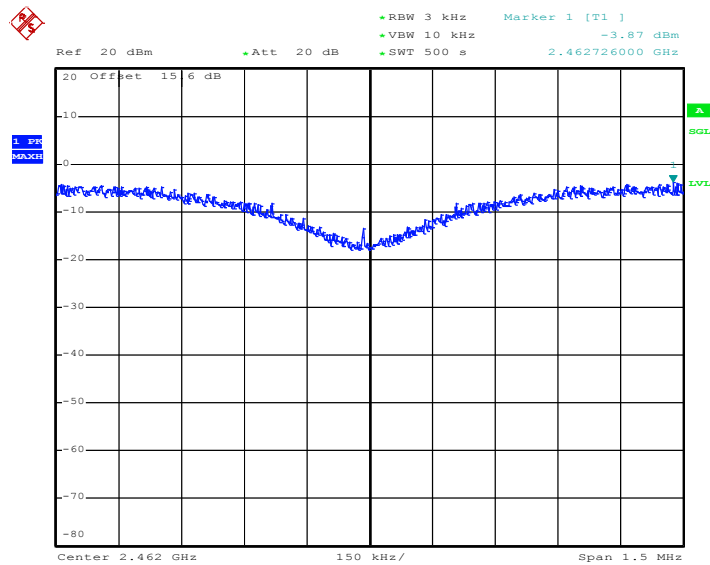


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 19.DEC.2011 10:34:40

Mode 3 : PSD Plot on 802.11b Channel 11



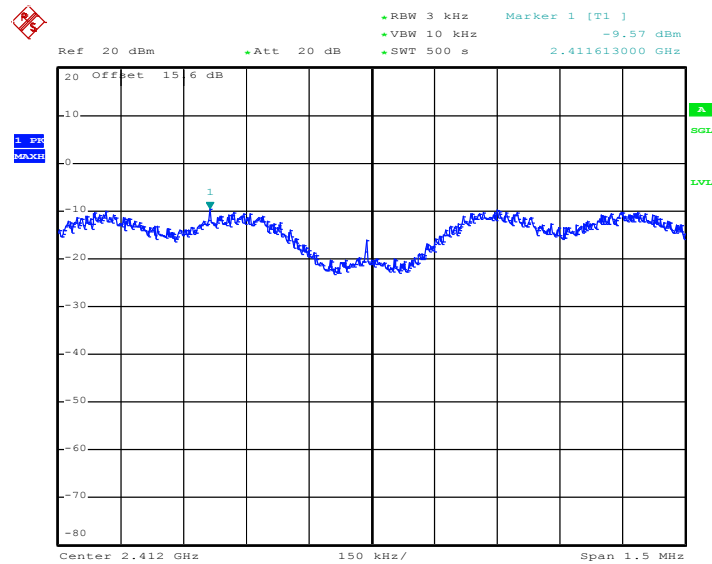
Date: 19.DEC.2011 10:52:07



Test Mode :	Mode 4, 5, 6	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	48~49%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-9.57	8	Pass
06	2437	-9.58	8	Pass
11	2462	-9.58	8	Pass

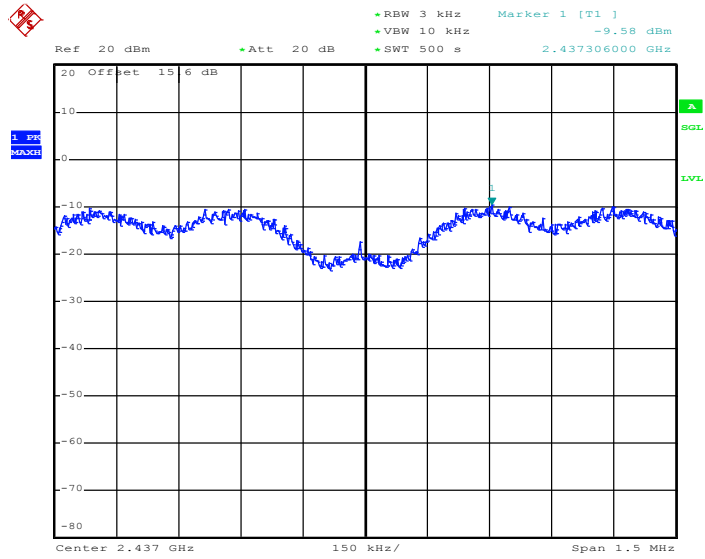
Mode 4 : PSD Plot on 802.11g Channel 01



Date: 19.DEC.2011 11:15:55

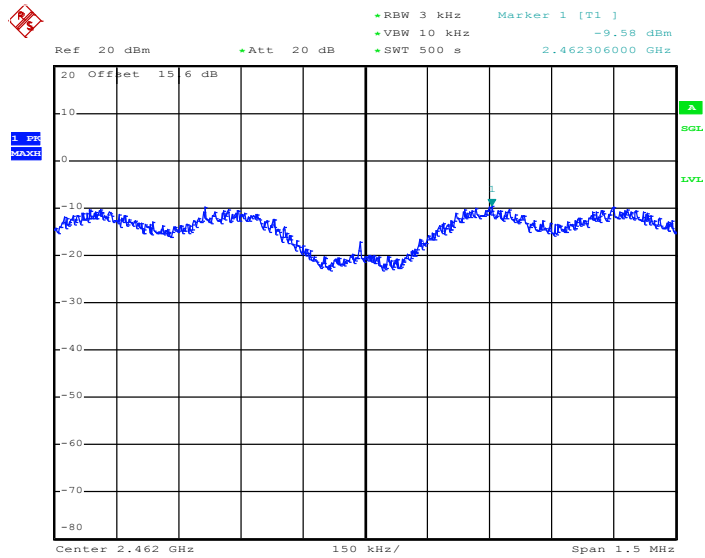


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 19.DEC.2011 11:50:12

Mode 6 : PSD Plot on 802.11g Channel 11



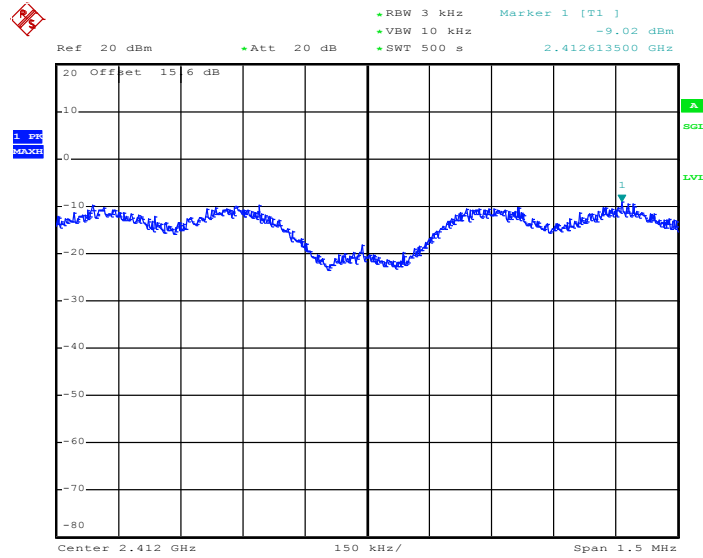
Date: 19.DEC.2011 12:30:38



Test Mode :	Mode 7, 8, 9	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	48~49%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-9.02	8	Pass
06	2437	-9.08	8	Pass
11	2462	-8.94	8	Pass

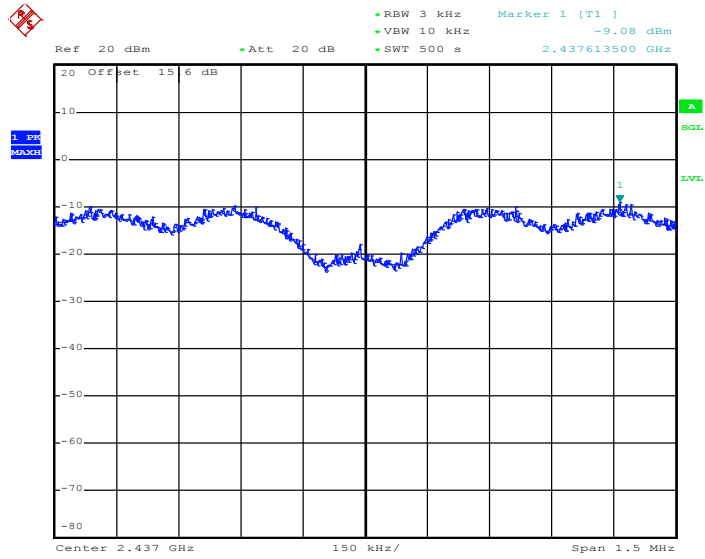
Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01



Date: 19.DEC.2011 13:30:08

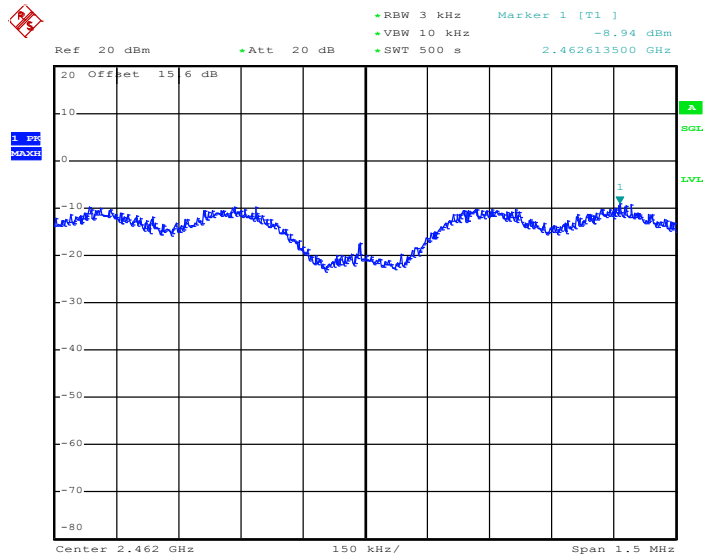


Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06



Date: 19.DEC.2011 13:46:03

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



Date: 19.DEC.2011 14:02:11

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.

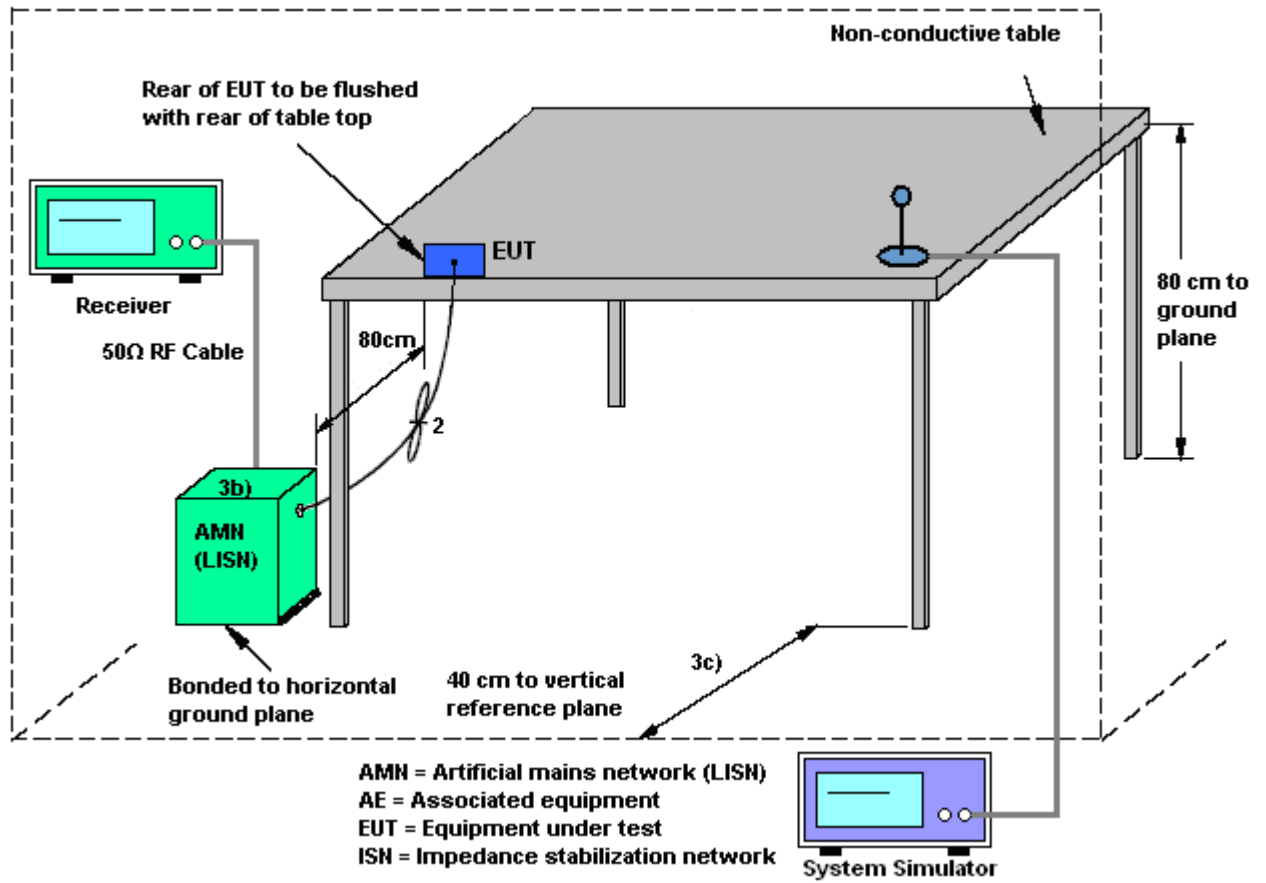
3.6.2 Measuring Instruments

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.

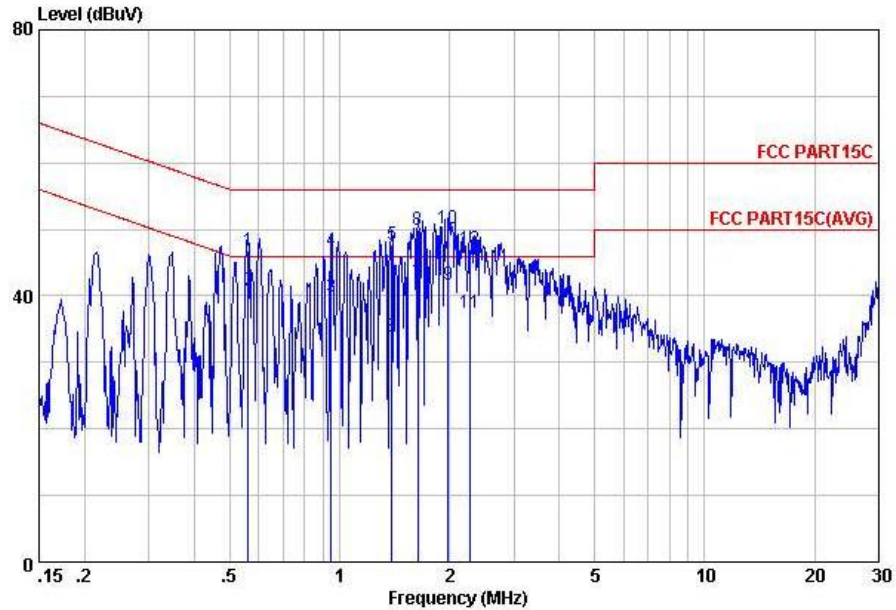
3.6.4 Test Setup





3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	21~23°C
Test Engineer :	Alva Guo	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link + Earphone + Adapter + Camera		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



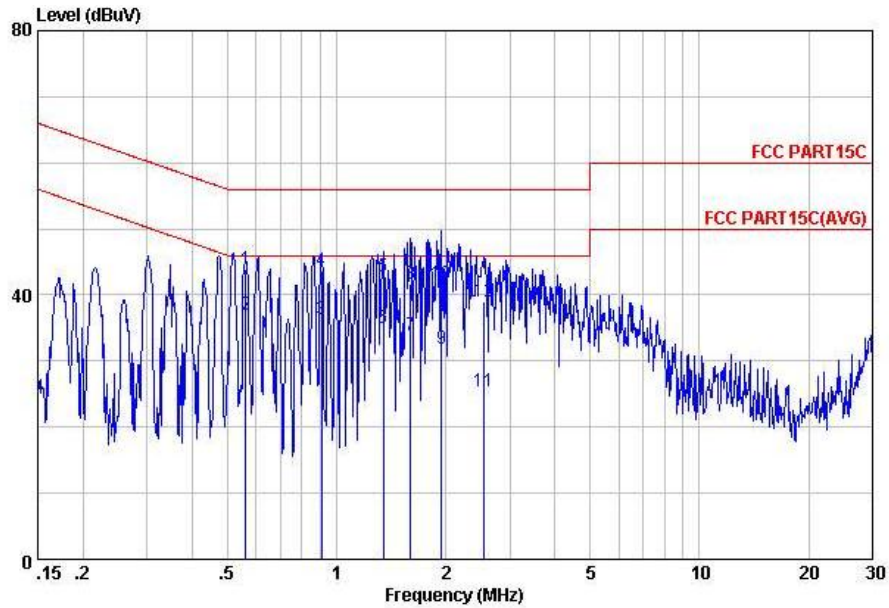
Site : C001-KS
 Condition: FCC PART15C LISN-100807 LINE

mode : Mode 1
 IMEI : 358980040010093

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.56	46.83	-9.17	56.00	36.69	-0.08	10.22	QP
2	0.56	40.83	-5.17	46.00	30.69	-0.08	10.22	Average
3	0.95	39.96	-6.04	46.00	29.80	-0.10	10.26	Average
4	0.95	46.76	-9.24	56.00	36.60	-0.10	10.26	QP
5	1.39	47.69	-8.31	56.00	37.50	-0.10	10.29	QP
6	1.39	33.79	-12.21	46.00	23.60	-0.10	10.29	Average
7	1.64	42.00	-4.00	46.00	31.80	-0.11	10.31	Average
8	1.64	49.90	-6.10	56.00	39.70	-0.11	10.31	QP
9	1.98	41.62	-4.38	46.00	31.40	-0.11	10.33	Average
10	1.98	50.12	-5.88	56.00	39.90	-0.11	10.33	QP
11	2.27	37.53	-8.47	46.00	27.30	-0.11	10.34	Average
12	2.27	46.93	-9.07	56.00	36.70	-0.11	10.34	QP



Test Mode :	Mode 1	Temperature :	21~23°C
Test Engineer :	Alva Guo	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link + Earphone + Adapter + Camera		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
 Condition: FCC PART15C LISN-100807 NEUTRAL

mode : Mode 1
 IMEI : 358980040010093

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.56	43.94	-12.06	56.00	33.80	-0.08	10.22	QP
2	0.56	37.04	-8.96	46.00	26.90	-0.08	10.22	Average
3	0.91	36.27	-9.73	46.00	26.10	-0.09	10.26	Average
4	0.91	43.77	-12.23	56.00	33.60	-0.09	10.26	QP
5	1.34	42.89	-13.11	56.00	32.70	-0.10	10.29	QP
6	1.34	34.99	-11.01	46.00	24.80	-0.10	10.29	Average
7	1.60	33.90	-12.10	46.00	23.69	-0.10	10.31	Average
8	1.60	41.60	-14.40	56.00	31.39	-0.10	10.31	QP
9	1.95	31.82	-14.18	46.00	21.60	-0.11	10.33	Average
10	1.95	41.72	-14.28	56.00	31.50	-0.11	10.33	QP
11	2.55	25.44	-20.56	46.00	15.20	-0.11	10.35	Average
12	2.55	39.04	-16.96	56.00	28.80	-0.11	10.35	QP

3.7 Radiated Emission Measurement

3.7.1 Limit of Radiated Emission

In any 100 KHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(KHz)	300
0.490 – 1.705	24000/F(KHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.7.2 Measuring Instruments

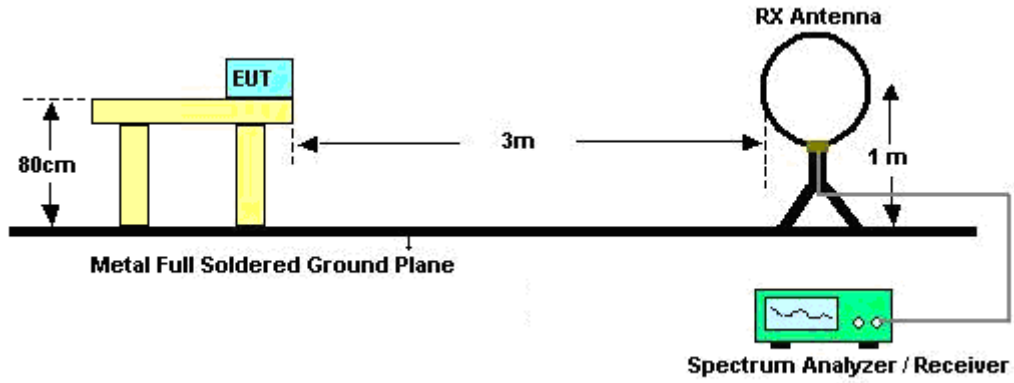
See list of measuring instruments of this test report.

3.7.3 Test Procedures

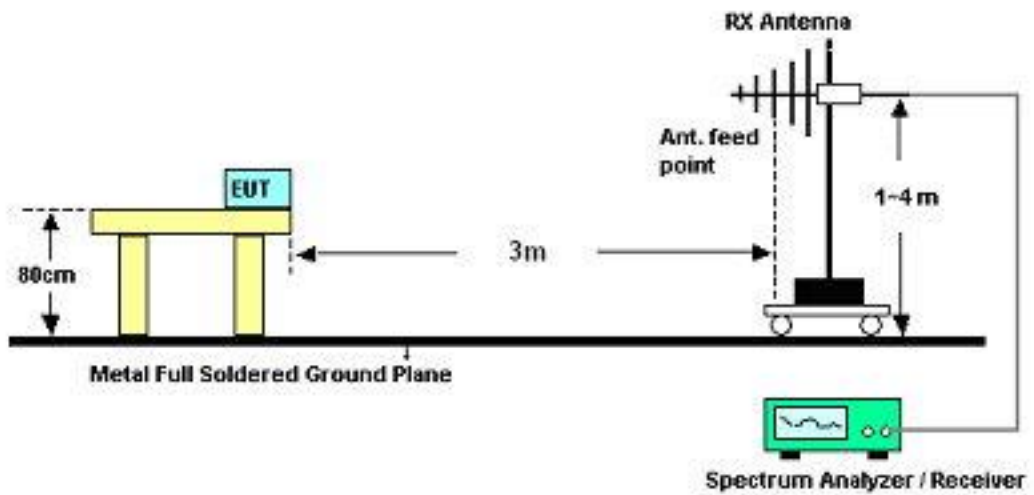
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
 - (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 KHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold.
 - (2) 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)
3. 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

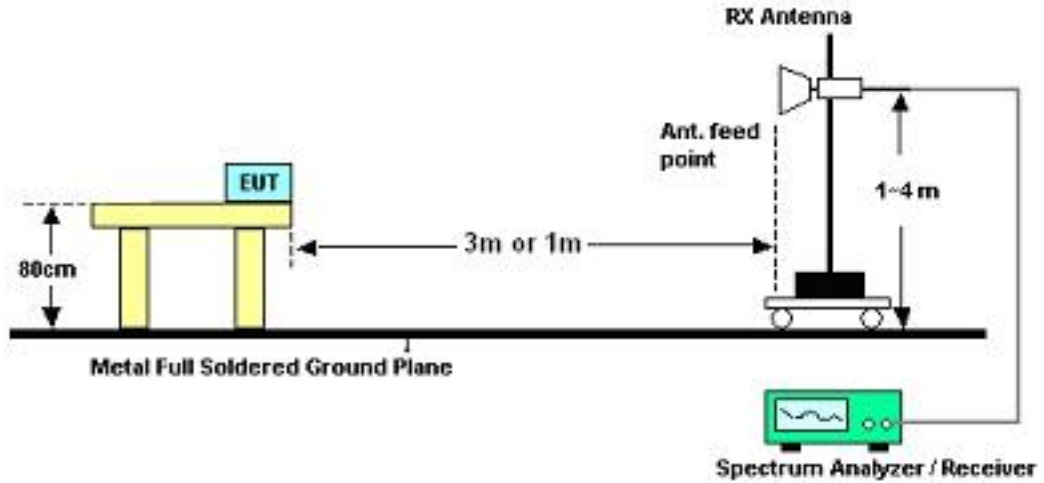
For radiated emissions below 30MHz



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 :	Gavin Wu	Temperature :	20~22°C
		Relative Humidity :	50~53%

Frequency	Measurement Distance	Field Strength	Antenna Factor	Distance Factor	Limit Distance	Field Strength at Limit Distance (30m)	Limit (30m)
(MHz)	(m)	(dBuV/m)	(dB/m)	(dB/decade)	(m)	(dBuV/m)	(dBuV/m)
0.03277	3	-4.67	19.7	40	30	-44.67	29.54
19.20	3	9.05	19.7	40	30	-30.95	29.54

Note:

- In accordance with 15.33 (a): For each frequency at which a measurement is made at only one distance, the square of an inverse linear distance extrapolation factor (40 dB/decade) is applied.
 Distance extrapolation factor = $40 \log(\text{specific distance} / \text{test distance})$ (dB);
 Limit line = specific limits (dBuV) + distance extrapolation factor.
- The field strength measured is direct conversion of all parameters (antenna factor and distance extrapolation factor) and loaded into the spectrum.
- For example 1:
 Field Strength at 3m=10 (dBuV/m)
 Field Strength at 30m= $10 - 40 \cdot \log(30\text{m}/3\text{m}) = -30$ (dBuV/m)
 For example 2:
 Field Strength at 10m=10 (dBuV/m)
 Field Strength at 30m= $10 - 40 \cdot \log(30\text{m}/10\text{m}) = -9.08$ (dBuV/m)



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

Test Mode :	Mode 1	Temperature :	20~21°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
65.37	24.86	-15.14	40	49.45	5.2	0.32	30.11	-	-	Peak
97.77	28.43	-15.07	43.5	47.84	10.15	0.41	29.97	143	319	Peak
223.32	24.36	-21.64	46	43.36	10.33	0.63	29.96	-	-	Peak
523.3	25.99	-20.01	46	36.91	17.81	0.98	29.71	-	-	Peak
811	26.14	-19.86	46	34.53	19.96	1.25	29.6	-	-	Peak
960.1	26.97	-27.03	54	34.38	20.79	1.34	29.54	-	-	Peak
2384.67	53.85	-20.15	74	51.61	32.83	3.42	34.01	118	5	Peak
2384.67	48.84	-5.16	54	46.6	32.83	3.42	34.01	118	5	Average
2412	100.5	-	-	98.17	32.89	3.52	34.08	112	347	Average
2412	105.16	-	-	102.83	32.89	3.52	34.08	112	347	Peak
2483.5	54.19	-19.81	74	51.7	33.01	3.68	34.2	100	360	Peak
2483.5	45.59	-8.41	54	43.1	33.01	3.68	34.2	100	360	Average



Test Mode :	Mode 1	Temperature :	20~21°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
37.83	31.83	-8.17	40	47.95	13.7	0.24	30.06	200	0	Peak
70.77	31	-9	40	55.36	5.38	0.34	30.08	-	-	Peak
97.77	26.49	-17.01	43.5	45.9	10.15	0.41	29.97	-	-	Peak
573	26.95	-19.05	46	37.03	18.54	1.03	29.65	-	-	Peak
941.9	26.26	-27.74	54	33.76	20.7	1.33	29.53	-	-	Peak
960.1	26.73	-27.27	54	34.14	20.79	1.34	29.54	-	-	Peak
2384.29	56.33	-17.67	74	54.09	32.83	3.42	34.01	146	12	Peak
2384.29	49.53	-4.47	54	47.29	32.83	3.42	34.01	146	12	Average
2412	100	-	-	97.67	32.89	3.52	34.08	139	360	Average
2412	106.89	-	-	104.56	32.89	3.52	34.08	139	360	Peak
2483.5	50.31	-23.69	74	47.82	33.01	3.68	34.2	100	360	Peak
2483.5	40.99	-13.01	54	38.5	33.01	3.68	34.2	100	360	Average



Test Mode :	Mode 2	Temperature :	20~21°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
65.1	24.9	-15.1	40	49.49	5.2	0.32	30.11	-	-	Peak
97.77	28.44	-15.06	43.5	47.85	10.15	0.41	29.97	100	0	Peak
135.3	20.57	-22.93	43.5	38.87	11.21	0.48	29.99	-	-	Peak
554.1	24.44	-21.56	46	34.61	18.51	1	29.68	-	-	Peak
872.6	26.5	-19.5	46	34.31	20.48	1.29	29.58	-	-	Peak
960.1	27.58	-26.42	54	34.99	20.79	1.34	29.54	-	-	Peak
2381.06	49.31	-24.69	74	47.07	32.83	3.42	34.01	100	320	Peak
2381.06	36.81	-17.19	54	34.57	32.83	3.42	34.01	100	320	Average
2437	102.74	-	-	100.34	32.95	3.6	34.15	101	316	Peak
2437	98.87	-	-	96.47	32.95	3.6	34.15	101	316	Average
2495.82	50.38	-23.62	74	47.84	33.05	3.72	34.23	104	303	Peak
2495.82	36.83	-17.17	54	34.29	33.05	3.72	34.23	104	303	Average



Test Mode :	Mode 2	Temperature :	20~21°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
38.1	31.37	-8.63	40	47.49	13.7	0.24	30.06	183	34	Peak
70.77	30.9	-9.1	40	55.26	5.38	0.34	30.08	-	-	Peak
175.26	25.02	-18.48	43.5	45.56	8.8	0.55	29.89	-	-	Peak
570.2	28.05	-17.95	46	38.14	18.54	1.03	29.66	-	-	Peak
872.6	25.53	-20.47	46	33.34	20.48	1.29	29.58	-	-	Peak
960.1	26.45	-27.55	54	33.86	20.79	1.34	29.54	-	-	Peak
2384.29	49.57	-24.43	74	47.33	32.83	3.42	34.01	105	360	Peak
2384.29	36.4	-17.6	54	34.16	32.83	3.42	34.01	105	360	Average
2437	102.48	-	-	100.08	32.95	3.6	34.15	101	317	Peak
2437	97.21	-	-	94.81	32.95	3.6	34.15	101	317	Average
2483.66	50.21	-23.79	74	47.72	33.01	3.68	34.2	132	328	Peak
2483.66	36.67	-17.33	54	34.18	33.01	3.68	34.2	132	328	Average



Test Mode :	Mode 3	Temperature :	20~21°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
65.37	24.86	-15.14	40	49.45	5.2	0.32	30.11	-	-	Peak
98.04	28.72	-14.78	43.5	48.13	10.15	0.41	29.97	197	346	Peak
135.03	21.27	-22.23	43.5	39.48	11.3	0.48	29.99	-	-	Peak
556.9	24.6	-21.4	46	34.75	18.51	1.01	29.67	-	-	Peak
873.3	27.23	-18.77	46	35.04	20.48	1.29	29.58	-	-	Peak
960.1	27.17	-26.83	54	34.58	20.79	1.34	29.54	-	-	Peak
2384.1	49.54	-24.46	74	47.3	32.83	3.42	34.01	100	360	Peak
2384.1	37.03	-16.97	54	34.79	32.83	3.42	34.01	100	360	Average
2462	107.31	-	-	104.86	32.98	3.64	34.17	105	348	Peak
2462	103.05	-	-	100.6	32.98	3.64	34.17	105	348	Average
2488.03	58.46	-15.54	74	55.92	33.05	3.72	34.23	104	347	Peak
2488.03	49.73	-4.27	54	47.19	33.05	3.72	34.23	104	347	Average



Test Mode :	Mode 3	Temperature :	20~21°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
38.37	31.42	-8.58	40	48.23	12.98	0.25	30.04	102	21	Peak
71.04	31.09	-8.91	40	55.45	5.38	0.34	30.08	-	-	Peak
98.04	26.16	-17.34	43.5	45.57	10.15	0.41	29.97	-	-	Peak
573	27.27	-18.73	46	37.35	18.54	1.03	29.65	-	-	Peak
627.6	26.04	-19.96	46	35.83	18.77	1.08	29.64	-	-	Peak
960.1	26.94	-27.06	54	34.35	20.79	1.34	29.54	-	-	Peak
2385.05	48.95	-25.05	74	46.71	32.83	3.42	34.01	179	360	Peak
2385.05	36.81	-17.19	54	34.57	32.83	3.42	34.01	179	360	Average
2462	99.85	-	-	97.4	32.98	3.64	34.17	100	299	Peak
2462	94.22	-	-	91.77	32.98	3.64	34.17	100	299	Average
2488.03	51.16	-22.84	74	48.62	33.05	3.72	34.23	103	303	Peak
2488.03	38.03	-15.97	54	35.49	33.05	3.72	34.23	103	303	Average



Test Mode :	Mode 4	Temperature :	20~21°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
65.1	24.76	-15.24	40	49.35	5.2	0.32	30.11	-	-	Peak
98.04	28.74	-14.76	43.5	48.15	10.15	0.41	29.97	100	23	Peak
147.45	20.5	-23	43.5	39.77	10.21	0.5	29.98	-	-	Peak
535.9	25.96	-20.04	46	36.44	18.22	0.99	29.69	-	-	Peak
856.5	28.55	-17.45	46	36.41	20.5	1.28	29.64	-	-	Peak
898.5	28.14	-17.86	46	35.87	20.45	1.3	29.48	-	-	Peak
2390	58.44	-15.56	74	56.16	32.86	3.47	34.05	200	328	Peak
2390	44.94	-9.06	54	42.66	32.86	3.47	34.05	200	328	Average
2412	105.64	-	-	103.31	32.89	3.52	34.08	200	331	Peak
2412	85.71	-	-	83.38	32.89	3.52	34.08	200	331	Average
2497.91	51.96	-22.04	74	49.42	33.05	3.72	34.23	200	15	Peak
2497.91	38.75	-15.25	54	36.21	33.05	3.72	34.23	200	15	Average



Test Mode :	Mode 4	Temperature :	20~21°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
38.37	31.61	-8.39	40	48.42	12.98	0.25	30.04	100	6	Peak
70.77	30.98	-9.02	40	55.34	5.38	0.34	30.08	-	-	Peak
121.8	29.91	-13.59	43.5	47.65	11.78	0.45	29.97	-	-	Peak
573	28.54	-17.46	46	38.62	18.54	1.03	29.65	-	-	Peak
946.8	26.09	-27.91	54	33.58	20.72	1.33	29.54	-	-	Peak
960.1	27.49	-26.51	54	34.9	20.79	1.34	29.54	-	-	Peak
2389.04	59.47	-14.53	74	57.19	32.86	3.47	34.05	100	93	Peak
2389.04	46.04	-7.96	54	43.76	32.86	3.47	34.05	100	93	Average
2412	106.99	-	-	104.66	32.89	3.52	34.08	100	100	Peak
2412	86.71	-	-	84.38	32.89	3.52	34.08	100	100	Average
2493.73	53.38	-20.62	74	50.84	33.05	3.72	34.23	100	115	Peak
2493.73	40.39	-13.61	54	37.85	33.05	3.72	34.23	100	115	Average



Test Mode :	Mode 5	Temperature :	20~21°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
65.1	21.62	-18.38	40	46.21	5.2	0.32	30.11	-	-	Peak
98.04	21.67	-21.83	43.5	41.08	10.15	0.41	29.97	-	-	Peak
215.49	19.52	-23.98	43.5	39.13	9.77	0.61	29.99	-	-	Peak
508.6	25.92	-20.08	46	37.32	17.36	0.96	29.72	-	-	Peak
857.9	29.1	-16.9	46	36.96	20.5	1.28	29.64	100	223	Peak
960.1	28.48	-25.52	54	35.89	20.79	1.34	29.54	-	-	Peak
2389.04	50.38	-23.62	74	48.1	32.86	3.47	34.05	200	97	Peak
2389.04	38.87	-15.13	54	36.59	32.86	3.47	34.05	200	97	Average
2437	104.48	-	-	102.08	32.95	3.6	34.15	200	331	Peak
2437	85.02	-	-	82.62	32.95	3.6	34.15	200	331	Average
2490.12	53.44	-20.56	74	50.9	33.05	3.72	34.23	200	310	Peak
2490.12	41.3	-12.7	54	38.76	33.05	3.72	34.23	200	310	Average



Test Mode :	Mode 5	Temperature :	20~21°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
38.1	31.81	-8.19	40	47.93	13.7	0.24	30.06	100	331	Peak
71.04	30.99	-9.01	40	55.35	5.38	0.34	30.08	-	-	Peak
98.04	26.63	-16.87	43.5	46.04	10.15	0.41	29.97	-	-	Peak
573	27.56	-18.44	46	37.64	18.54	1.03	29.65	-	-	Peak
871.2	26.82	-19.18	46	34.63	20.49	1.29	29.59	-	-	Peak
960.1	26.42	-27.58	54	33.83	20.79	1.34	29.54	-	-	Peak
2388.28	51.66	-22.34	74	49.38	32.86	3.47	34.05	100	0	Peak
2388.28	37.54	-16.46	54	35.26	32.86	3.47	34.05	100	0	Average
2437	107.62	-	-	105.22	32.95	3.6	34.15	100	98	Peak
2437	88.28	-	-	85.88	32.95	3.6	34.15	100	98	Average
2491.26	55.35	-18.65	74	52.81	33.05	3.72	34.23	100	0	Peak
2491.26	40.06	-13.94	54	37.52	33.05	3.72	34.23	100	0	Average



Test Mode :	Mode 6	Temperature :	20~21°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
65.37	21.61	-18.39	40	46.2	5.2	0.32	30.11	-	-	Peak
97.77	21.15	-22.35	43.5	40.56	10.15	0.41	29.97	-	-	Peak
216.03	19.01	-26.99	46	38.56	9.83	0.61	29.99	-	-	Peak
585.6	25.74	-20.26	46	35.74	18.58	1.05	29.63	-	-	Peak
810.3	28.7	-17.3	46	37.1	19.95	1.25	29.6	-	-	Peak
851.6	28.85	-17.15	46	36.72	20.51	1.28	29.66	100	158	Peak
2390	48.44	-25.56	74	46.16	32.86	3.47	34.05	100	360	Peak
2390	40.13	-13.87	54	37.85	32.86	3.47	34.05	100	360	Average
2462	88.05	-	-	85.6	32.98	3.64	34.17	137	39	Average
2462	106.65	-	-	104.2	32.98	3.64	34.17	137	39	Peak
2483.5	63.17	-10.83	74	60.68	33.01	3.68	34.2	108	18	Peak
2483.5	49.5	-4.5	54	47.01	33.01	3.68	34.2	108	18	Average



Test Mode :	Mode 6	Temperature :	20~21°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
38.1	31.57	-8.43	40	47.69	13.7	0.24	30.06	-	-	Peak
71.04	30.99	-9.01	40	55.35	5.38	0.34	30.08	-	-	Peak
171.48	36.2	-7.3	43.5	56.47	9.08	0.55	29.9	100	228	Peak
570.9	28.38	-17.62	46	38.47	18.54	1.03	29.66	-	-	Peak
873.3	25.83	-20.17	46	33.64	20.48	1.29	29.58	-	-	Peak
941.9	26.4	-27.6	54	33.9	20.7	1.33	29.53	-	-	Peak
2390	47.77	-26.23	74	45.49	32.86	3.47	34.05	100	360	Peak
2390	40.78	-13.22	54	38.5	32.86	3.47	34.05	100	360	Average
2462	87.57	-	-	85.12	32.98	3.64	34.17	100	360	Average
2462	107	-	-	104.55	32.98	3.64	34.17	100	360	Peak
2483.5	62.2	-11.8	74	59.71	33.01	3.68	34.2	121	360	Peak
2483.5	46.59	-7.41	54	44.1	33.01	3.68	34.2	121	360	Average



Test Mode :	Mode 7	Temperature :	20~21°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
65.37	24.86	-15.14	40	49.45	5.2	0.32	30.11	-	-	Peak
97.77	28.43	-15.07	43.5	47.84	10.15	0.41	29.97	136	327	Peak
223.32	24.36	-21.64	46	43.36	10.33	0.63	29.96	-	-	Peak
523.3	25.99	-20.01	46	36.91	17.81	0.98	29.71	-	-	Peak
811	26.14	-19.86	46	34.53	19.96	1.25	29.6	-	-	Peak
960.1	26.97	-27.03	54	34.38	20.79	1.34	29.54	-	-	Peak
2389.8	62.67	-11.33	74	60.39	32.86	3.47	34.05	106	331	Peak
2389.8	47.95	-6.05	54	45.67	32.86	3.47	34.05	106	331	Average
2412	102.11	-	-	99.78	32.89	3.52	34.08	105	324	Peak
2412	85.39	-	-	83.06	32.89	3.52	34.08	105	324	Average
2492.59	55.43	-18.57	74	52.89	33.05	3.72	34.23	100	360	Peak
2492.59	42.02	-11.98	54	39.48	33.05	3.72	34.23	100	360	Average



Test Mode :	Mode 7	Temperature :	20~21°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
38.1	31.37	-8.63	40	47.49	13.7	0.24	30.06	197	142	Peak
70.77	30.9	-9.1	40	55.26	5.38	0.34	30.08	-	-	Peak
175.26	25.02	-18.48	43.5	45.56	8.8	0.55	29.89	-	-	Peak
570.2	28.05	-17.95	46	38.14	18.54	1.03	29.66	-	-	Peak
872.6	25.53	-20.47	46	33.34	20.48	1.29	29.58	-	-	Peak
960.1	26.45	-27.55	54	33.86	20.79	1.34	29.54	-	-	Peak
2389.99	65.36	-8.64	74	63.08	32.86	3.47	34.05	119	310	Peak
2389.99	47.21	-6.79	54	44.93	32.86	3.47	34.05	119	310	Average
2412	102.8	-	-	100.47	32.89	3.52	34.08	101	44	Peak
2412	86.61	-	-	84.28	32.89	3.52	34.08	101	44	Average
2494.49	51.02	-22.98	74	48.48	33.05	3.72	34.23	120	360	Peak
2494.49	38	-16	54	35.46	33.05	3.72	34.23	120	360	Average



Test Mode :	Mode 8	Temperature :	20~21°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
65.37	24.86	-15.14	40	49.45	5.2	0.32	30.11	-	-	Peak
98.04	28.72	-14.78	43.5	48.13	10.15	0.41	29.97	197	346	Peak
135.03	21.27	-22.23	43.5	39.48	11.3	0.48	29.99	-	-	Peak
556.9	24.6	-21.4	46	34.75	18.51	1.01	29.67	-	-	Peak
873.3	27.23	-18.77	46	35.04	20.48	1.29	29.58	-	-	Peak
960.1	27.17	-26.83	54	34.58	20.79	1.34	29.54	-	-	Peak
2386.19	50.65	-23.35	74	48.37	32.86	3.47	34.05	110	360	Peak
2386.19	39.44	-14.56	54	37.16	32.86	3.47	34.05	110	360	Average
2437	103.17	-	-	100.77	32.95	3.6	34.15	134	323	Peak
2437	84.53	-	-	82.13	32.95	3.6	34.15	134	323	Average
2495.82	57.76	-16.24	74	55.22	33.05	3.72	34.23	113	334	Peak
2495.82	42.59	-11.41	54	40.05	33.05	3.72	34.23	113	334	Average



Test Mode :	Mode 8	Temperature :	20~21°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
38.37	31.61	-8.39	40	48.42	12.98	0.25	30.04	100	6	Peak
70.77	30.98	-9.02	40	55.34	5.38	0.34	30.08	-	-	Peak
121.8	29.91	-13.59	43.5	47.65	11.78	0.45	29.97	-	-	Peak
573	28.54	-17.46	46	38.62	18.54	1.03	29.65	-	-	Peak
946.8	26.09	-27.91	54	33.58	20.72	1.33	29.54	-	-	Peak
960.1	27.49	-26.51	54	34.9	20.79	1.34	29.54	-	-	Peak
2385.43	51.51	-22.49	74	49.27	32.83	3.42	34.01	125	294	Peak
2385.43	38.49	-15.51	54	36.25	32.83	3.42	34.01	125	294	Average
2437	101.67	-	-	99.27	32.95	3.6	34.15	101	64	Peak
2437	85.2	-	-	82.8	32.95	3.6	34.15	101	64	Average
2484.23	53.6	-20.4	74	51.11	33.01	3.68	34.2	136	353	Peak
2484.23	40.11	-13.89	54	37.62	33.01	3.68	34.2	136	353	Average



Test Mode :	Mode 9	Temperature :	20~21°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
65.1	21.62	-18.38	40	46.21	5.2	0.32	30.11	-	-	Peak
98.04	21.67	-21.83	43.5	41.08	10.15	0.41	29.97	-	-	Peak
215.49	19.52	-23.98	43.5	39.13	9.77	0.61	29.99	-	-	Peak
508.6	25.92	-20.08	46	37.32	17.36	0.96	29.72	-	-	Peak
857.9	29.1	-16.9	46	36.96	20.5	1.28	29.64	146	328	Peak
960.1	28.48	-25.52	54	35.89	20.79	1.34	29.54	-	-	Peak
2319.88	49.48	-24.52	74	47.35	32.76	3.27	33.9	134	360	Peak
2319.88	36.74	-17.26	54	34.61	32.76	3.27	33.9	134	360	Average
2462	103.34	-	-	100.89	32.98	3.64	34.17	103	320	Peak
2462	86.77	-	-	84.32	32.98	3.64	34.17	103	320	Average
2484.04	68.43	-5.57	74	65.94	33.01	3.68	34.2	100	16	Peak
2484.04	49.19	-4.81	54	46.7	33.01	3.68	34.2	100	16	Average



Test Mode :	Mode 9	Temperature :	20~21°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jack Li	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
38.1	31.57	-8.43	40	47.69	13.7	0.24	30.06	-	-	Peak
71.04	30.99	-9.01	40	55.35	5.38	0.34	30.08	-	-	Peak
171.48	36.2	-7.3	43.5	56.47	9.08	0.55	29.9	123	346	Peak
570.9	28.38	-17.62	46	38.47	18.54	1.03	29.66	-	-	Peak
873.3	25.83	-20.17	46	33.64	20.48	1.29	29.58	-	-	Peak
941.9	26.4	-27.6	54	33.9	20.7	1.33	29.53	-	-	Peak
2387.33	49.59	-24.41	74	47.31	32.86	3.47	34.05	105	57	Peak
2387.33	37.44	-16.56	54	35.16	32.86	3.47	34.05	105	57	Average
2462	105.8	-	-	103.35	32.98	3.64	34.17	102	63	Peak
2462	87.43	-	-	84.98	32.98	3.64	34.17	102	63	Average
2483.85	68.54	-5.46	74	66.05	33.01	3.68	34.2	100	31	Peak
2483.85	48.14	-5.86	54	45.65	33.01	3.68	34.2	100	31	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 Mono-pole 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	Jan. 07, 2011	Dec. 19, 2011~ Dec. 28, 2011	Jan. 06, 2012	Conducted (TH01-KS)
Power Meter	Agilent	E4416A	MY45101555	N/A	Aug. 23, 2011	Dec. 19, 2011~ Dec. 28, 2011	Aug. 22, 2012	Conducted (TH01-KS)
Power Sensor	Agilent	E9327A	MY44421198	N/A	Aug. 23, 2011	Dec. 19, 2011~ Dec. 28, 2011	Aug. 22, 2012	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI7	100768	9kHz~7GHz	Jun. 02, 2011	Dec. 24, 2011	Jun. 01, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60103	9kHz~30MHz	Jan. 07, 2011	Dec. 24, 2011	Jan. 06, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60105	9kHz~30MHz	Jan. 07, 2011	Dec. 24, 2011	Jan. 06, 2012	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 16, 2011	Dec. 24, 2011	Nov. 15, 2012	Conduction (CO01-KS)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 22, 2011	Jan. 02, 2012	Oct. 21, 2012	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 06, 2011	Jan. 02, 2012	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	Jan. 02, 2012	Aug. 09, 2012	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 05, 2011	Jan. 02, 2012	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 29, 2011	Jan. 02, 2012	Mar. 28, 2012	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Jan. 02, 2012	Aug. 21, 2012	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-00 101800-30- 10P	159088	1GHz ~ 18GHz	Feb. 21, 2011	Jan. 02, 2012	Feb. 20, 2012	Radiation (03CH07-HY)
System Simulator	R&S	CMU200	112403	N/A	Feb. 22, 2011	Jan. 02, 2012	Feb. 21, 2012	Radiation (03CH07-HY)



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 09, 2011	Dec. 26, 2011	Nov. 08, 2012	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Jan. 07, 2011	Dec. 26, 2011	Jan. 06, 2012	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP30	101400	9kHz~30GHz	Jun. 02, 2011	Dec. 26, 2011	Jun. 01, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 08, 2011	Dec. 26, 2011	Dec. 07, 2012	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 07, 2011	Dec. 26, 2011	Jan. 06, 2012	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060029	9KHz~2GHz	Jan. 10, 2011	Dec. 26, 2011	Jan. 09, 2012	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Jan. 07, 2011	Dec. 26, 2011	Jan. 06, 2012	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701023	1G-18GHz	Nov. 07, 2011	Dec. 26, 2011	Nov. 06, 2012	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15-40GHz	Oct. 11, 2011	Dec. 26, 2011	Oct. 10, 2012	Radiation (03CH01-KS)
System Simulator	R&S	CMU200	837587/066	Full-Band	Jan. 07, 2011	Dec. 26, 2011	Jan. 06, 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 = $20\text{Log}(1-\Gamma_1*\Gamma_2)$	+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				