

FCC RF Test Report

APPLICANT : Motorola Mobility, Inc.
EQUIPMENT : Mobile Phone
BRAND NAME : MOTOROLA
MODEL NAME : XT611
GPPD NUMBER : 3150
FCC ID : IHDP56MM3
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Dec. 23, 2011 and completely tested on Jan. 04, 2012. 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.

SPORTON INTERNATIONAL INC.

TEL : 886-3-327-3456

FAX : 886-3-328-4978

FCC ID : IHDP56MM3

Page Number : 1 of 74

Report Issued Date : Feb. 17, 2012

Report Version : Rev. 02



TABLE OF CONTENTS

REVISION HISTORY.....3

SUMMARY OF TEST RESULT4

1 GENERAL DESCRIPTION5

 1.1 Applicant5

 1.2 Manufacturer.....5

 1.3 Feature of Equipment Under Test5

 1.4 Testing Site.....6

 1.5 Applied Standards6

 1.6 Ancillary Equipment List6

2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST7

 2.1 RF Power.....7

 2.2 Test Mode.....8

 2.3 Connection Diagram of Test System.....9

 2.4 RF Utility9

3 TEST RESULT.....10

 3.1 6dB Bandwidth Measurement10

 3.2 Output Power Measurement.....17

 3.3 Band Edges Measurement19

 3.4 Spurious Emission Measurement.....27

 3.5 Power Spectral Density Measurement37

 3.6 AC Conducted Emission Measurement.....44

 3.7 Radiated Emission Measurement.....50

 3.8 Antenna Requirements71

4 LIST OF MEASURING EQUIPMENT72

5 UNCERTAINTY OF EVALUATION.....73



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 5.20 dB at 1.838 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 7.60 dB at 31.620 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Motorola Mobility, Inc.
600 N. US Highway 45 Libertyville, IL 60048-1286 U.S.A.

1.2 Manufacturer

Chi Mei Communication Systems, Inc.
No. 4, Mingsheng Street, Tucheng District, New Taipei City, 23678, Taiwan

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Mobile Phone
Brand Name	MOTOROLA
Model Name	XT611
FCC ID	IHDP56MM3
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 : 17.19 dBm (0.052 W) 802.11g : 20.22 dBm (0.105 W) 802.11n (BW 20MHz) : 19.32 dBm (0.086 W)
Antenna Type	PIFA Antenna with gain -1.30 dBi
HW Version	V3.2
SW Version	4_510_9000
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

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

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH07-HY	722060/4086B-1

1.5 Applied Standards

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

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ♦ ANSI C63.4-2003
- ♦ 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-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	P20G	FCC DoC	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	16.90	17.09	16.66	16.63
CH 06	2437 MHz	17.19	17.14	16.98	16.97
CH 11	2462 MHz	17.05	17.16	16.82	16.85

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	19.89	19.80	19.85	19.92	19.94	19.98	19.88	19.90
CH 06	2437 MHz	20.00	19.89	19.57	19.78	19.93	19.92	19.72	19.91
CH 11	2462 MHz	20.22	19.74	19.79	19.74	19.95	19.94	19.86	19.83

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	18.40	18.40	18.51	18.99	18.36	19.14	17.96	17.75
CH 06	2437 MHz	19.32	19.22	18.78	19.04	19.16	19.18	19.03	18.86
CH 11	2462 MHz	18.14	19.04	18.72	18.58	18.56	19.06	18.86	18.36

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).

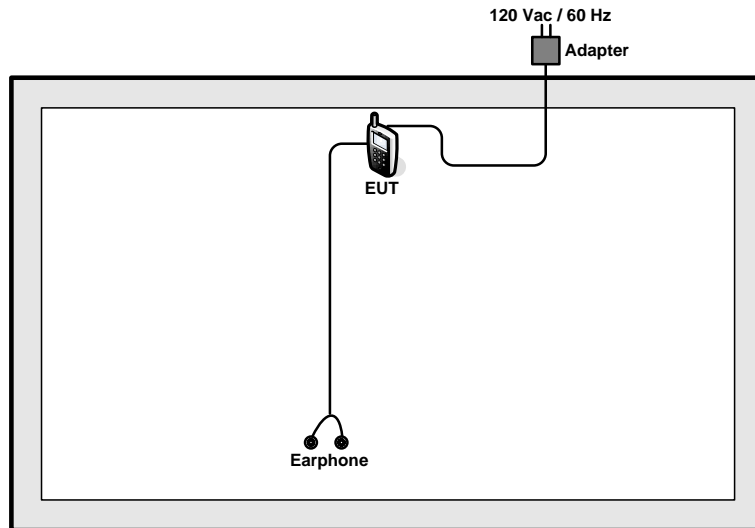
Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations, laptop / tablet modes.

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

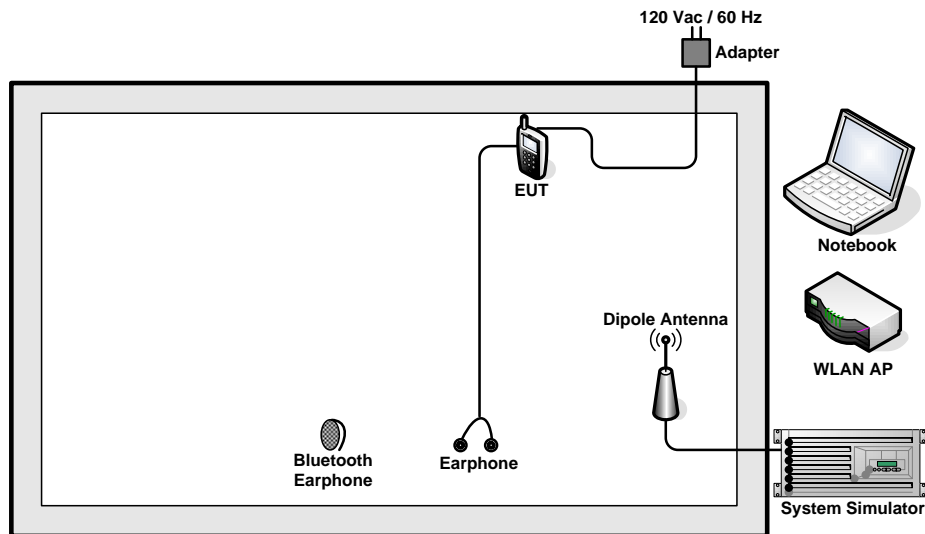
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 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 : GSM1900 Idle + Bluetooth Link + WLAN Link + Earphone + Battery + Camera + USB Cable (Charging from Adapter)	
Remark: For radiated TCs, all tests were performance with USB Cable, Adapter and Earphone.		

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.

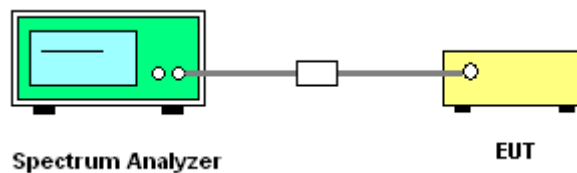
3.1.2 Measuring Instruments

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



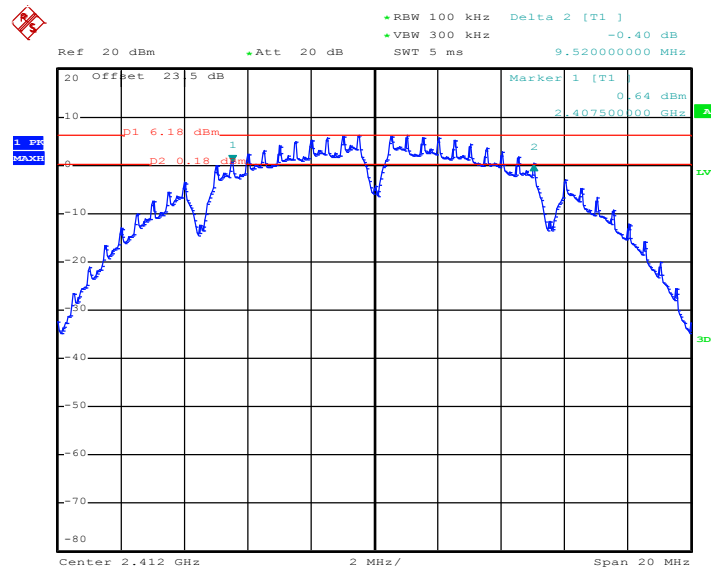


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	9.52	0.5	Pass
06	2437	9.04	0.5	Pass
11	2462	9.04	0.5	Pass

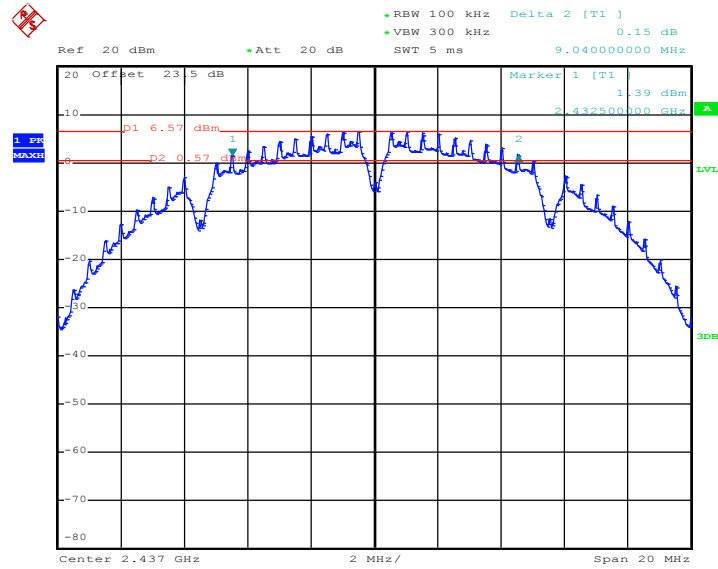
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 2.JAN.2012 13:36:32

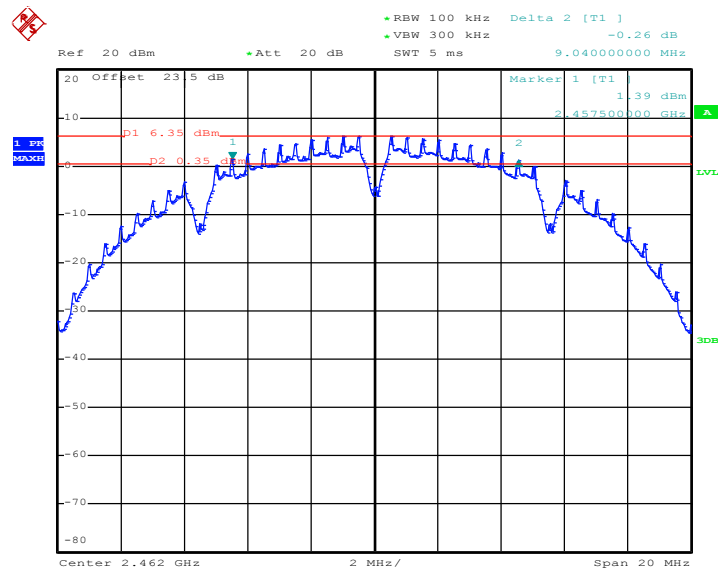


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 2.JAN.2012 13:49:32

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



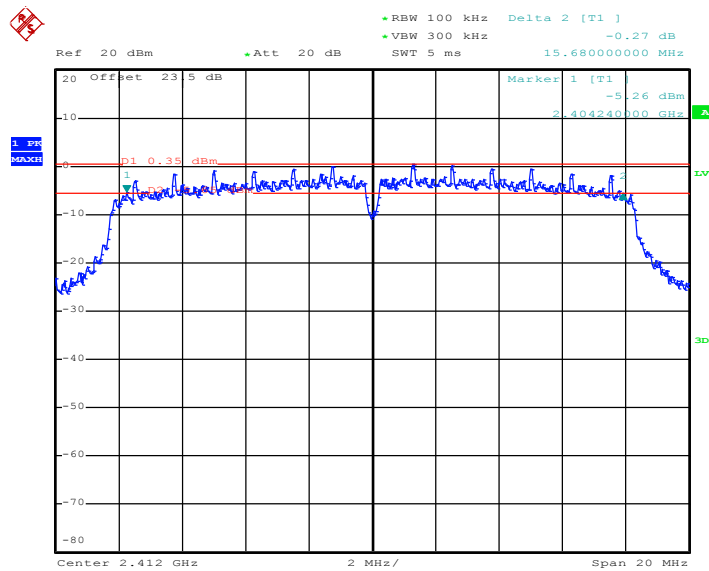
Date: 2.JAN.2012 14:01:52



Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.68	0.5	Pass
06	2437	15.76	0.5	Pass
11	2462	15.48	0.5	Pass

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



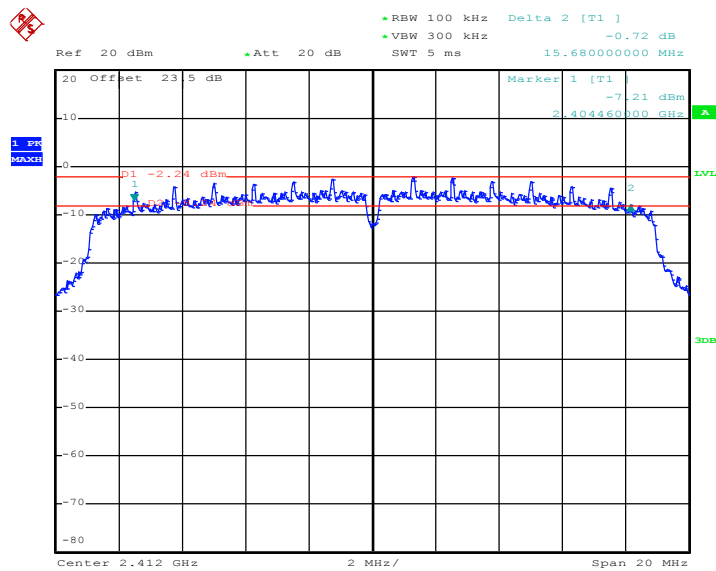
Date: 2.JAN.2012 14:26:56



Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.68	0.5	Pass
06	2437	15.72	0.5	Pass
11	2462	15.68	0.5	Pass

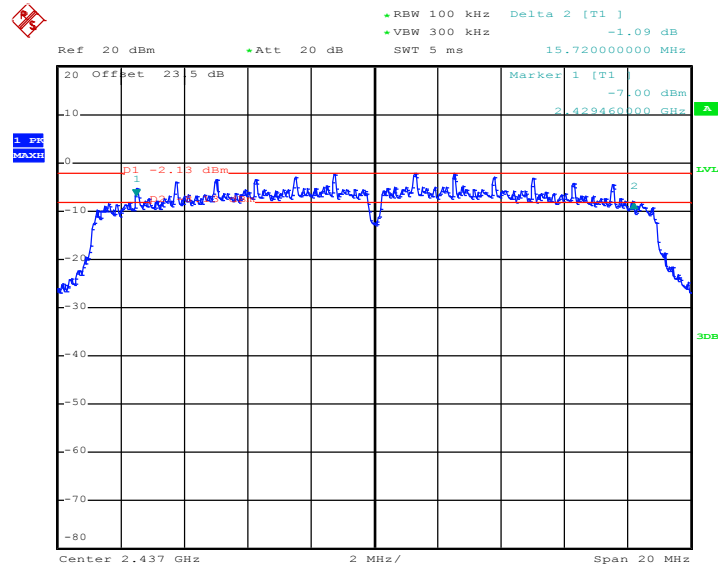
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 2.JAN.2012 15:37:56

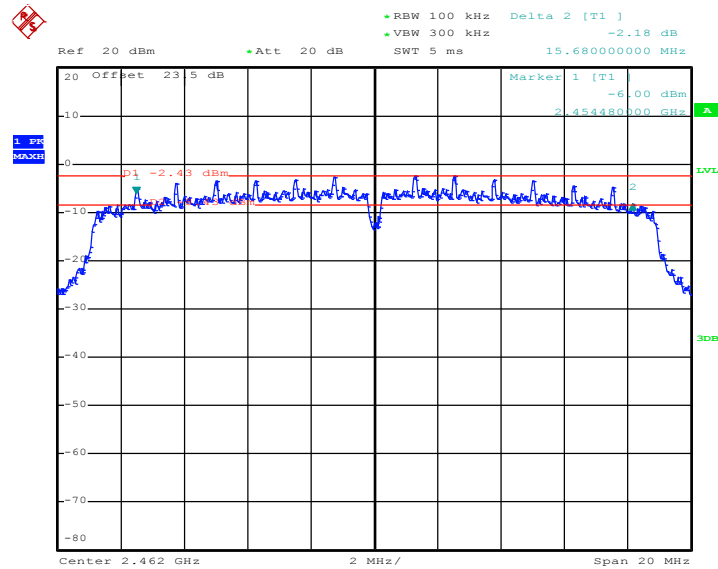


Mode 8 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 2.JAN.2012 16:05:34

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



Date: 2.JAN.2012 15:52:06

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.

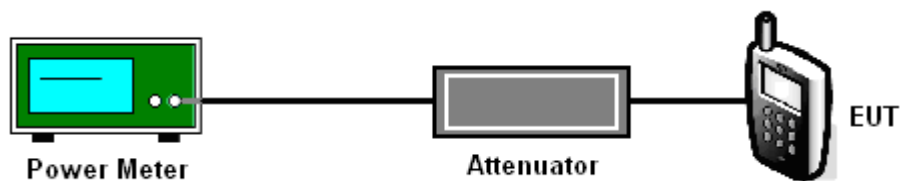
3.2.2 Measuring Instruments

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 :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	16.90	30	Pass
06	2437	17.19	30	Pass
11	2462	17.05	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	19.89	30	Pass
06	2437	20.00	30	Pass
11	2462	20.22	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	18.40	30	Pass
06	2437	19.32	30	Pass
11	2462	18.14	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

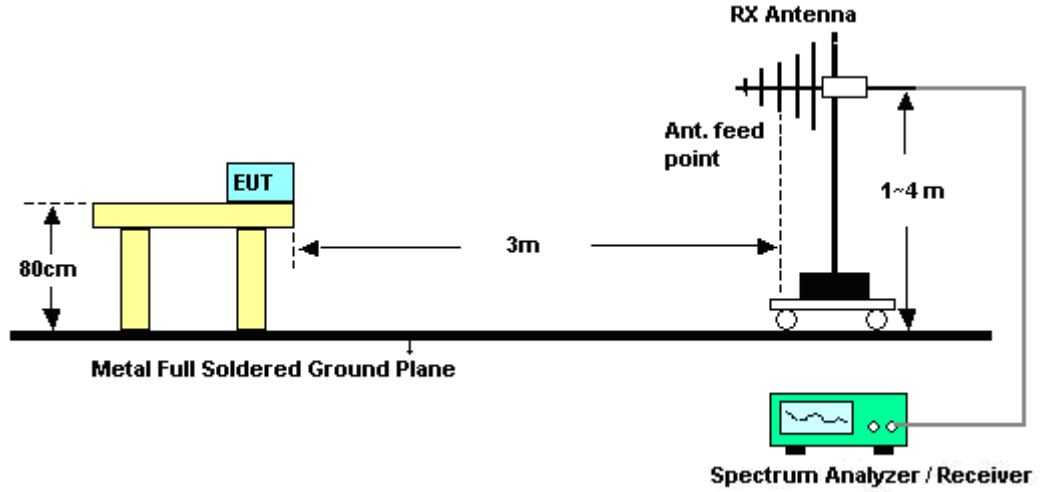
See list of measuring instruments of this test report.

3.3.3 Test Procedures

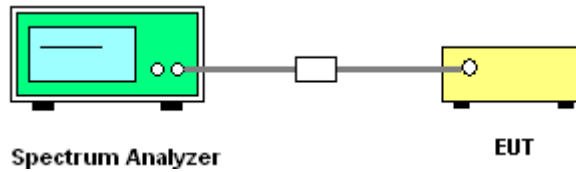
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 KHz, Video bandwidth (VBW) \geq RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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 :	20~22°C
Test Band :	802.11b	Relative Humidity :	56~58%
Test Channel :	01	Test Engineer :	Kyle Jhuang

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
2387.33	51.33	-22.67	74	47.2	32.06	6.03	33.96	136	352	Peak
2387.33	38.86	-15.14	54	34.73	32.06	6.03	33.96	136	352	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
2334.13	49.46	-24.54	74	45.49	31.96	5.95	33.94	169	343	Peak
2334.13	37.19	-16.81	54	33.22	31.96	5.95	33.94	169	343	Average

Test Mode :	Mode 3	Temperature :	20~22°C
Test Band :	802.11b	Relative Humidity :	56~58%
Test Channel :	11	Test Engineer :	Kyle Jhuang

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
2498.29	54.85	-19.15	74	50.47	32.2	6.18	34	106	3	Peak
2498.29	41.97	-12.03	54	37.59	32.2	6.18	34	106	3	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
2483.66	51.51	-22.49	74	47.15	32.18	6.18	34	127	347	Peak
2483.66	39.93	-14.07	54	35.57	32.18	6.18	34	127	347	Average



Test Mode :	Mode 4	Temperature :	20~22°C
Test Band :	802.11g	Relative Humidity :	56~58%
Test Channel :	01	Test Engineer :	Kyle Jhuang

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
2389.99	58.56	-15.44	74	54.43	32.06	6.03	33.96	137	354	Peak
2389.99	38.83	-15.17	54	34.7	32.06	6.03	33.96	137	354	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	56.18	-17.82	74	52.05	32.06	6.03	33.96	168	345	Peak
2389.99	36.65	-17.35	54	32.52	32.06	6.03	33.96	168	345	Average

Test Mode :	Mode 6	Temperature :	20~22°C
Test Band :	802.11g	Relative Humidity :	56~58%
Test Channel :	11	Test Engineer :	Kyle Jhuang

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	62.21	-11.79	74	57.85	32.18	6.18	34	106	3	Peak
2483.5	40.79	-13.21	54	36.43	32.18	6.18	34	106	3	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	56.22	-17.78	74	51.86	32.18	6.18	34	199	354	Peak
2483.5	38.44	-15.56	54	34.08	32.18	6.18	34	199	354	Average



Test Mode :	Mode 7	Temperature :	20~22°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	56~58%
Test Channel :	01	Test Engineer :	Kyle Jhuang

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
2388.85	52.24	-21.76	74	48.11	32.06	6.03	33.96	137	352	Peak
2388.85	36.42	-17.58	54	32.29	32.06	6.03	33.96	137	352	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	47.64	-26.36	74	43.51	32.06	6.03	33.96	169	343	Peak
2389.99	34.4	-19.6	54	30.27	32.06	6.03	33.96	169	343	Average

Test Mode :	Mode 9	Temperature :	20~22°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	56~58%
Test Channel :	11	Test Engineer :	Kyle Jhuang

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	56.33	-17.67	74	51.97	32.18	6.18	34	106	3	Peak
2483.5	39.55	-14.45	54	35.19	32.18	6.18	34	106	3	Average

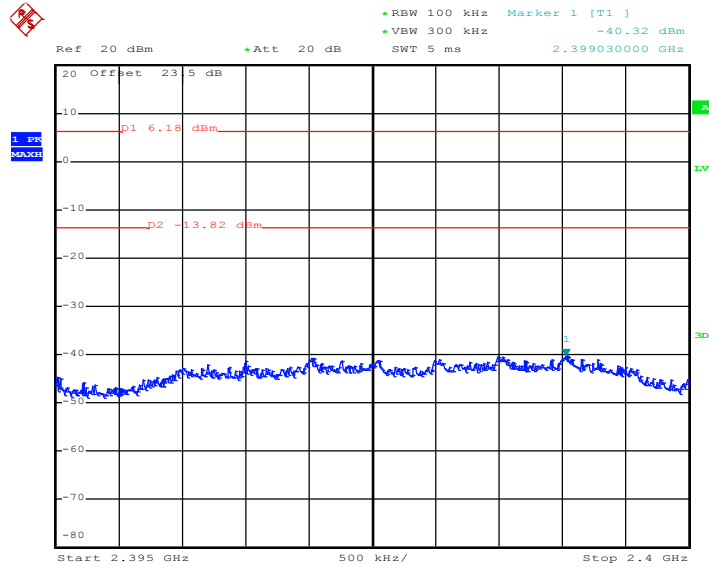
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	53.19	-20.81	74	48.83	32.18	6.18	34	162	351	Peak
2483.5	37.69	-16.31	54	33.33	32.18	6.18	34	162	351	Average



3.3.6 Test Plots of Conducted Band Edges

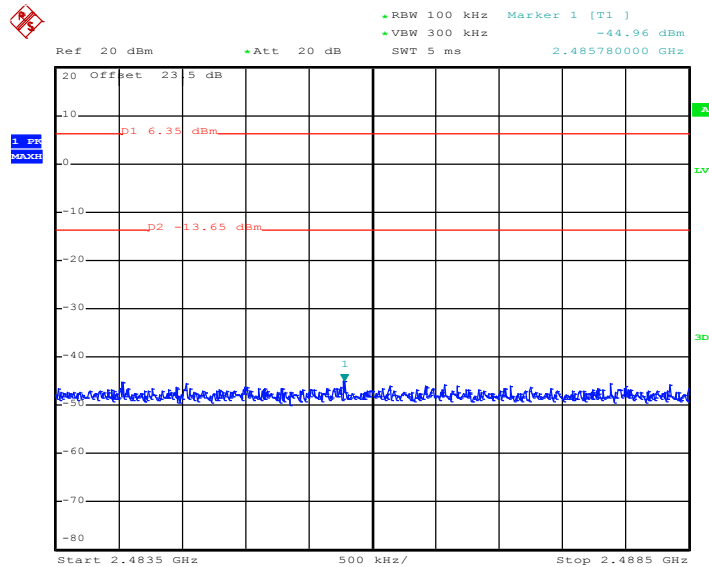
Test Mode :	Mode 1 and 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

Low Band Edge Plot on 802.11b Channel 01



Date: 2.JAN.2012 13:37:40

High Band Edge Plot on 802.11b Channel 11

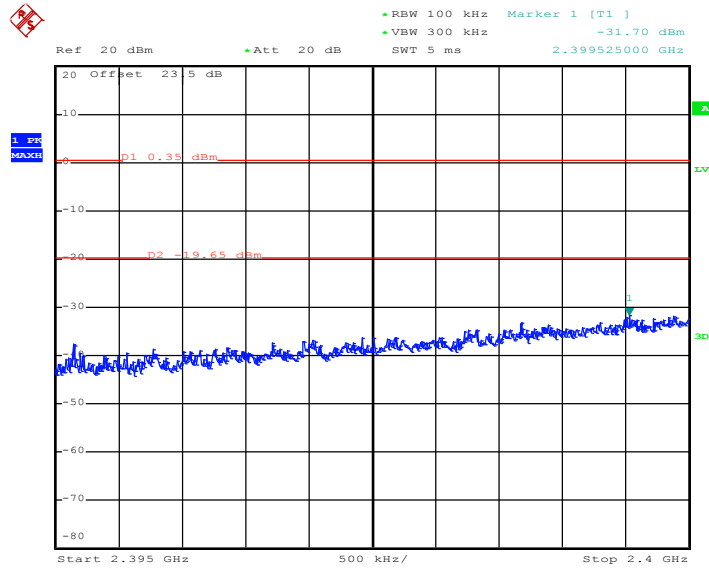


Date: 2.JAN.2012 14:02:38



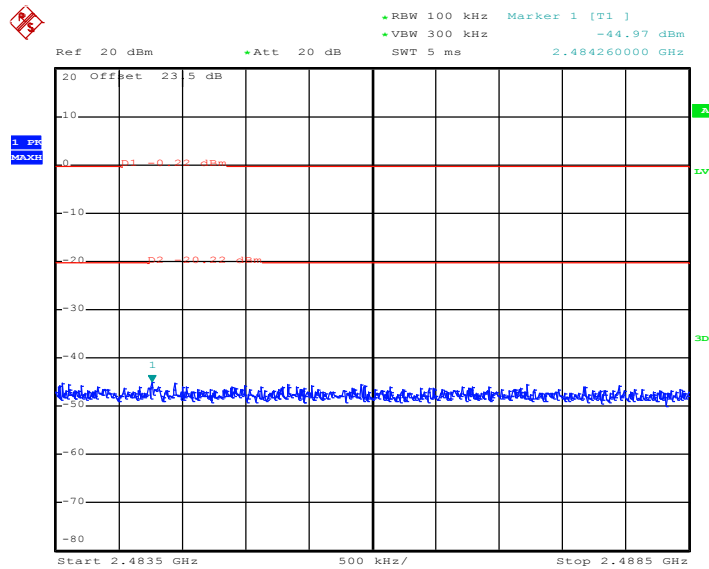
Test Mode :	Mode 4 and 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

Low Band Edge Plot on 802.11g Channel 01



Date: 2.JAN.2012 14:28:04

High Band Edge Plot on 802.11g Channel 11

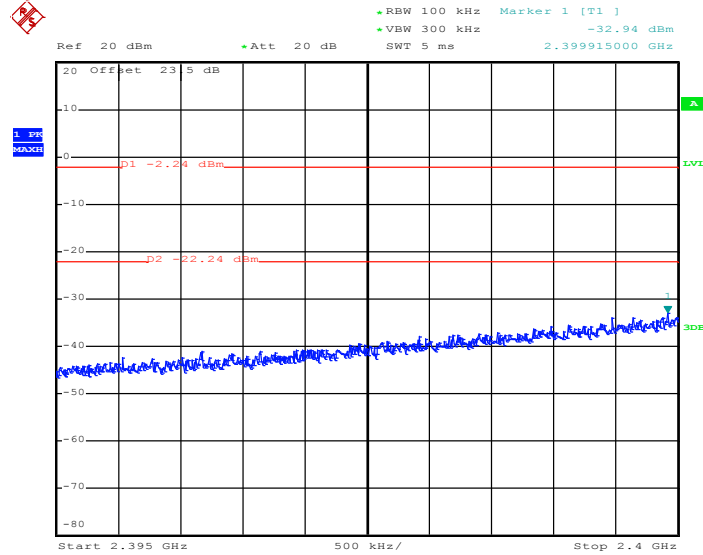


Date: 2.JAN.2012 14:14:51



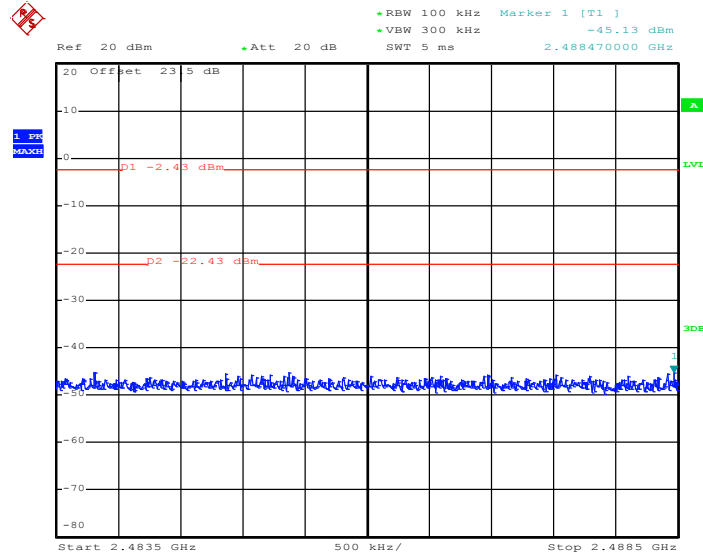
Test Mode :	Mode 7 and 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

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



Date: 2.JAN.2012 15:39:04

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



Date: 2.JAN.2012 15:52:52

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

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

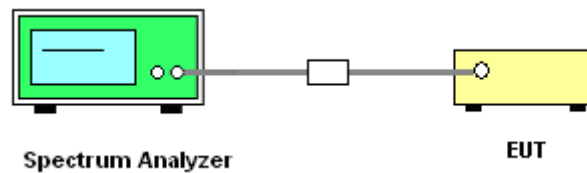
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

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

3.4.4 Test Setup

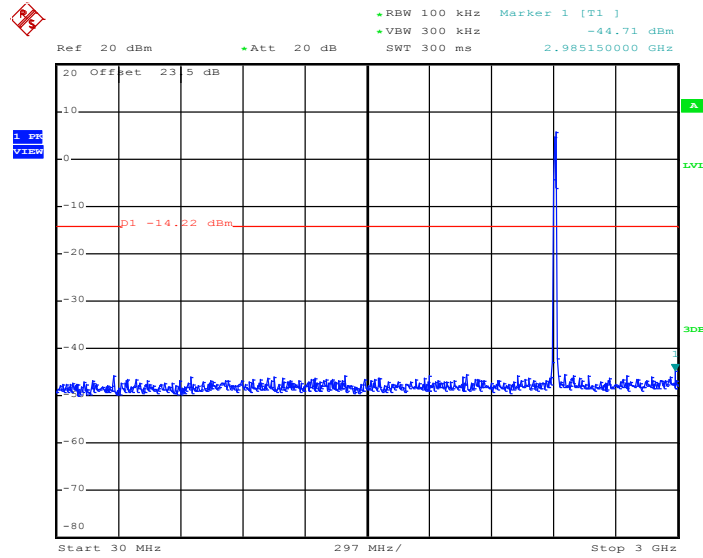




3.4.5 Test Plots of Spurious Emission

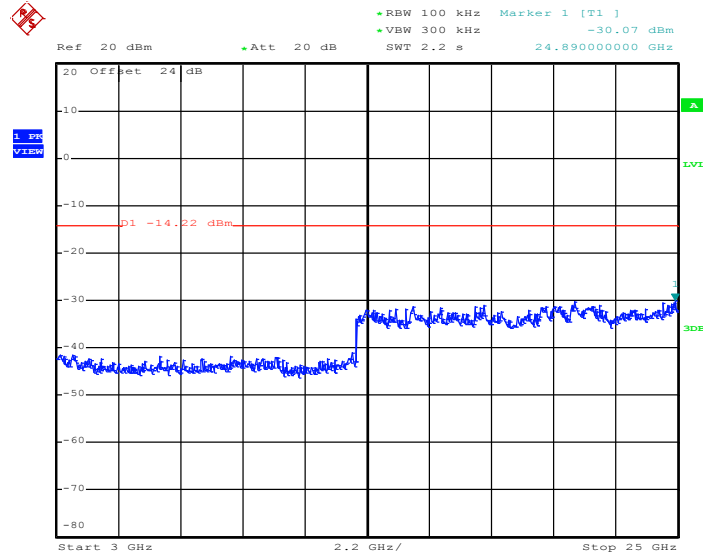
Test Mode :	Mode 1	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 2.JAN.2012 13:47:21

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

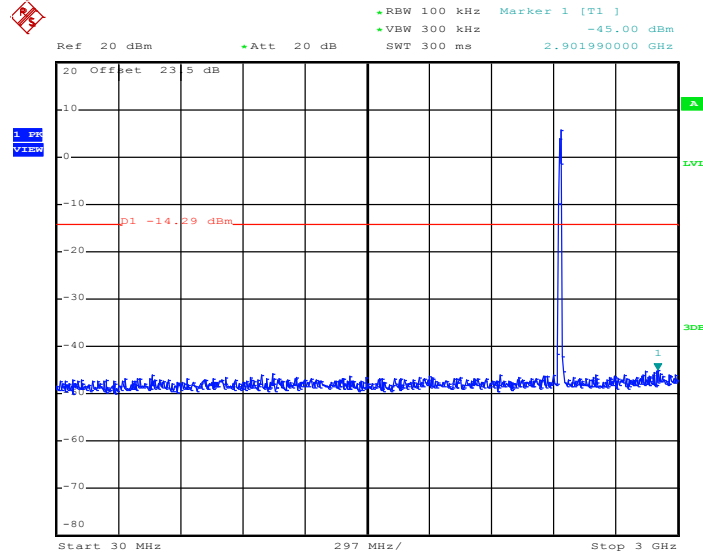


Date: 2.JAN.2012 13:47:38



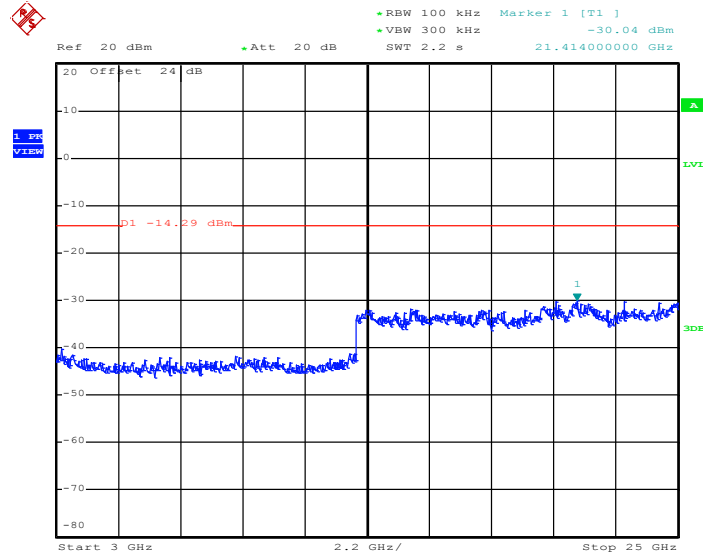
Test Mode :	Mode 2	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 2.JAN.2012 13:59:48

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

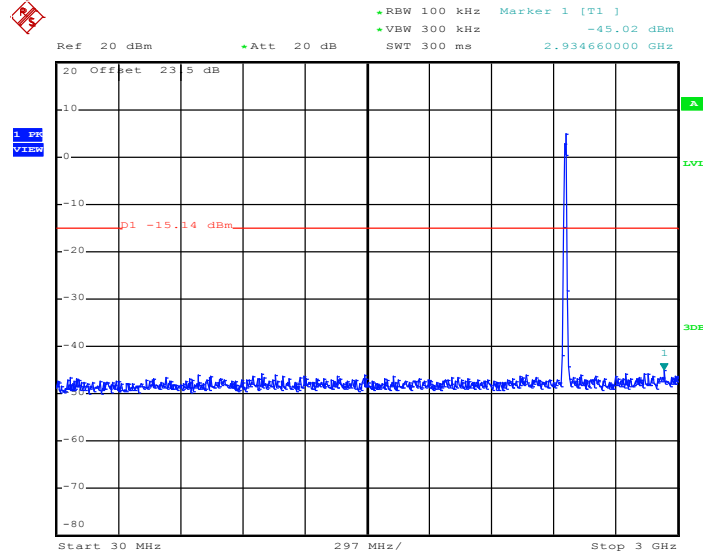


Date: 2.JAN.2012 14:00:05



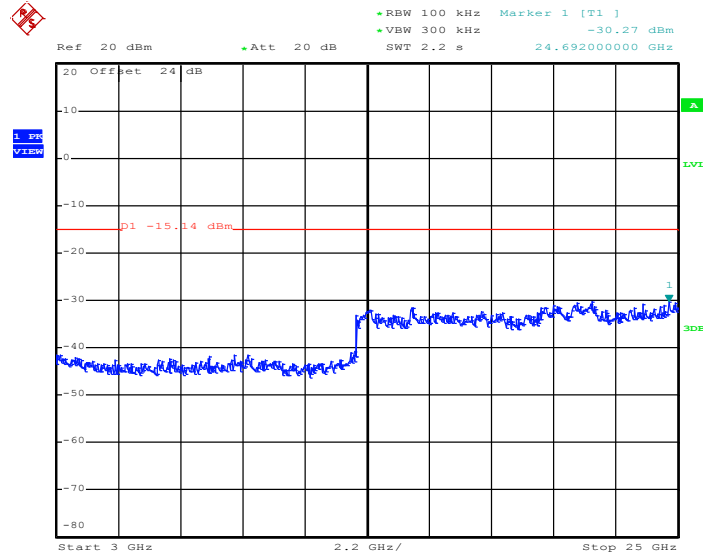
Test Mode :	Mode 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 2.JAN.2012 14:11:57

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

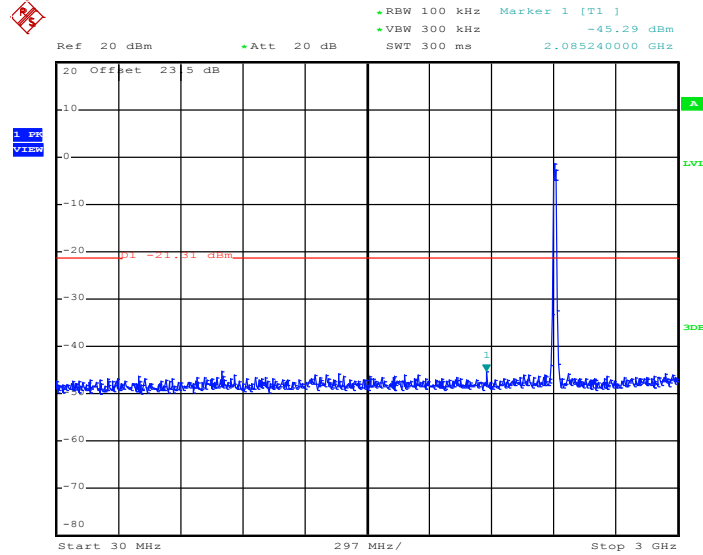


Date: 2.JAN.2012 14:12:14



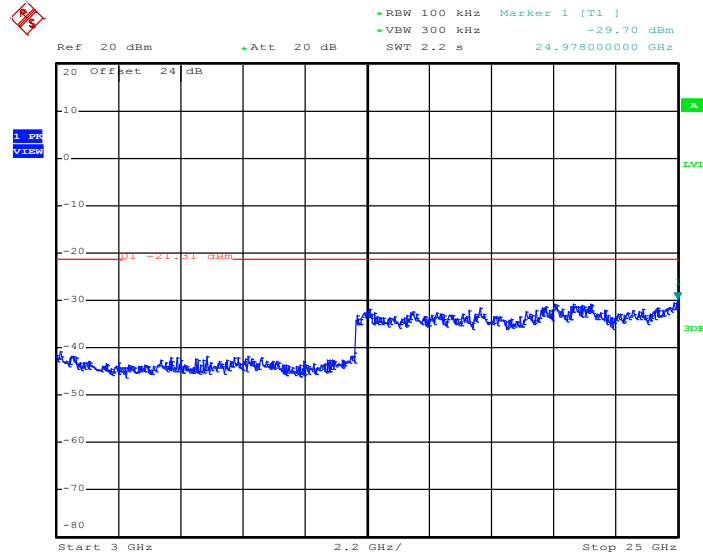
Test Mode :	Mode 4	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 2.JAN.2012 14:39:18

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

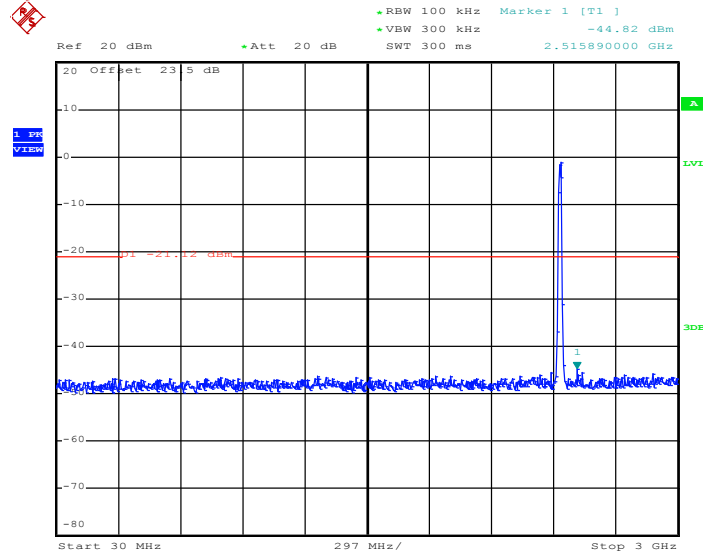


Date: 2.JAN.2012 14:39:35



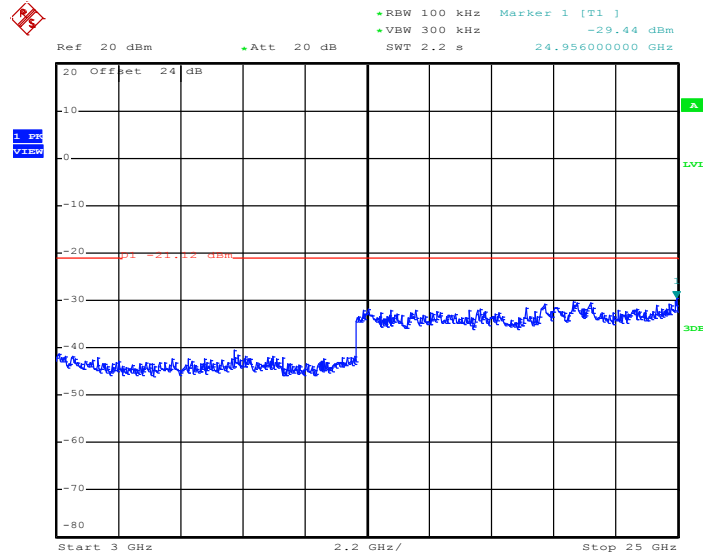
Test Mode :	Mode 5	Temperature :	24~26
Test Band :	802.11g	Relative Humidity :	50~53
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 2.JAN.2012 14:55:13

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

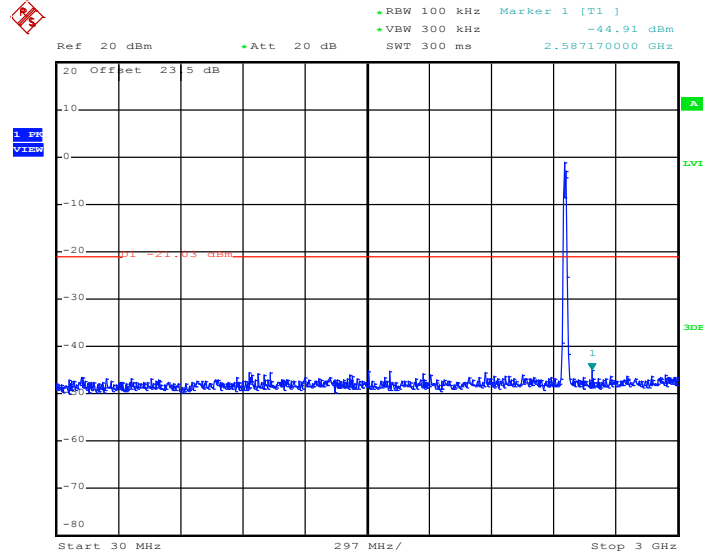


Date: 2.JAN.2012 14:55:30



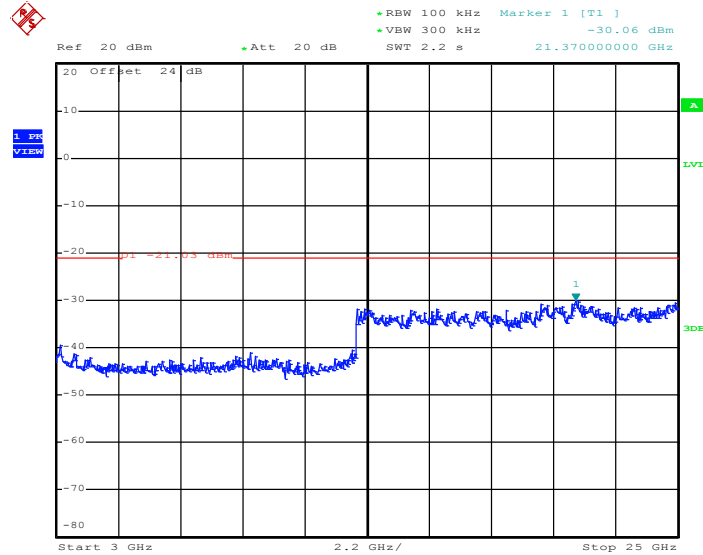
Test Mode :	Mode 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 2.JAN.2012 14:24:12

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

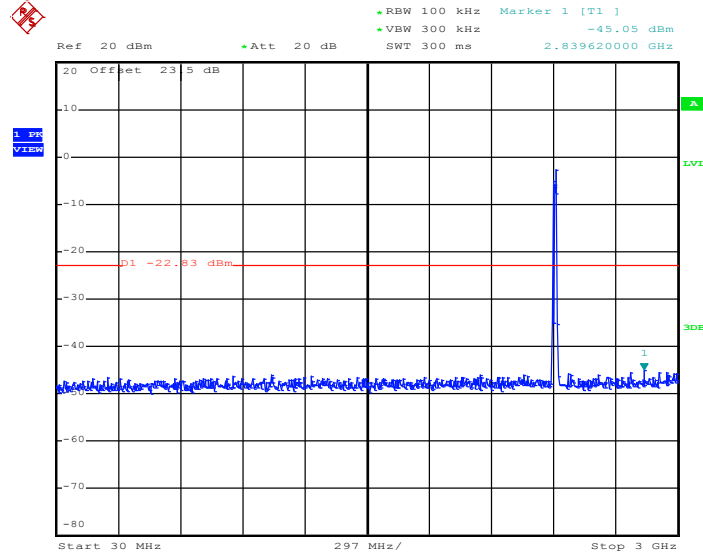


Date: 2.JAN.2012 14:24:29



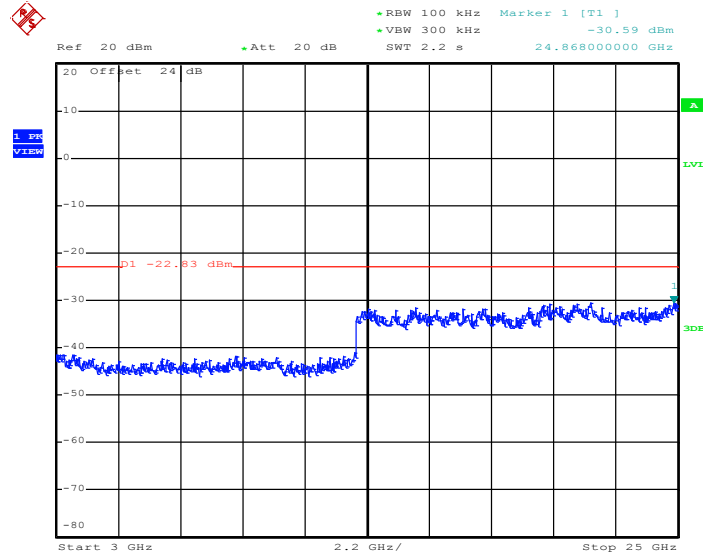
Test Mode :	Mode 7	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 2.JAN.2012 15:49:13

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

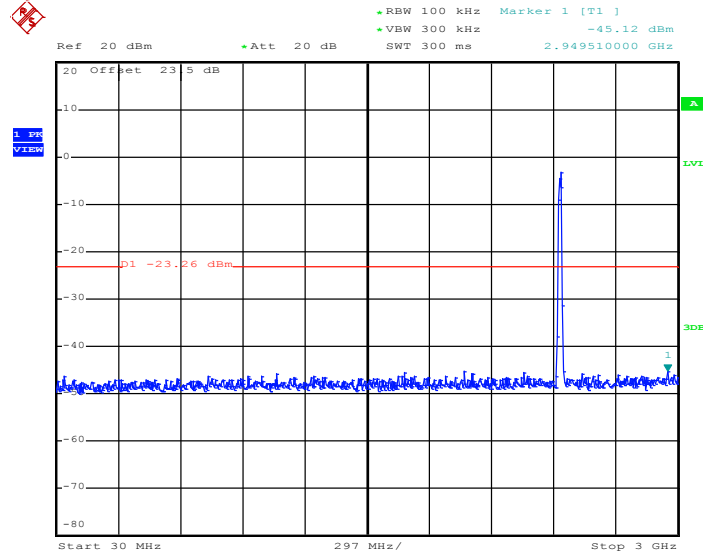


Date: 2.JAN.2012 15:49:30



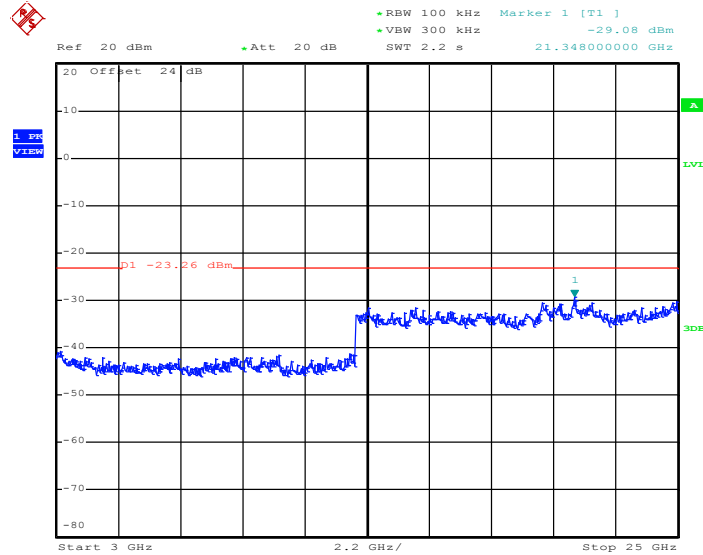
Test Mode :	Mode 8	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 2.JAN.2012 16:15:01

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

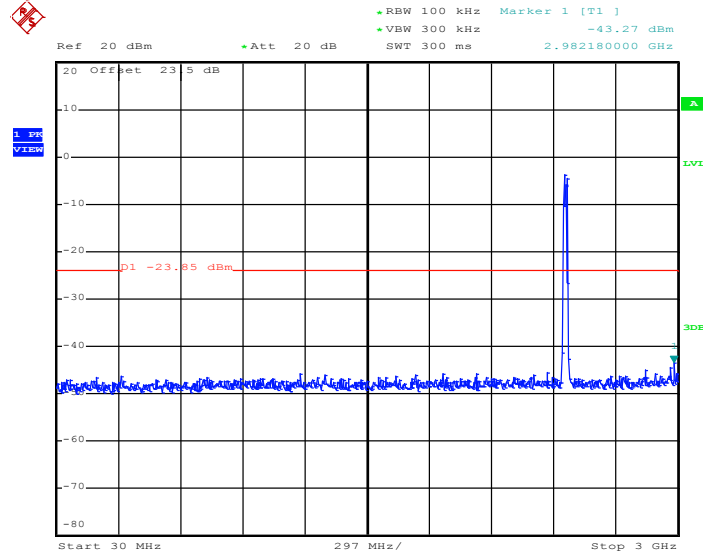


Date: 2.JAN.2012 16:15:18



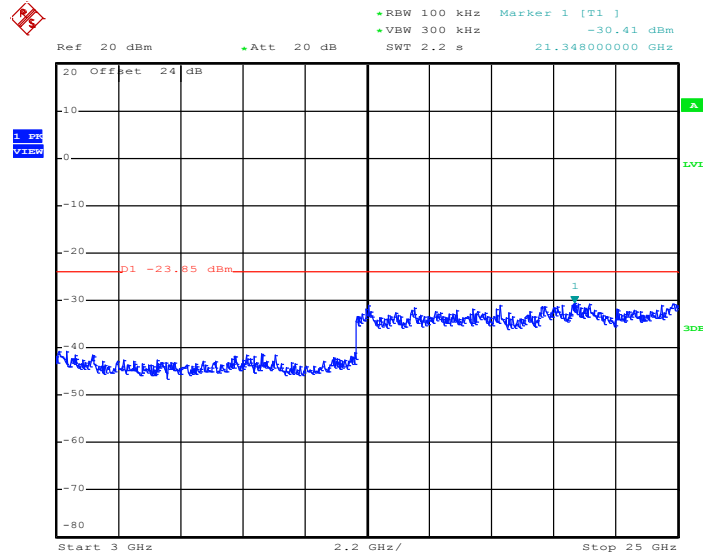
Test Mode :	Mode 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 2.JAN.2012 16:02:47

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 2.JAN.2012 16:03:04

3.5 Power Spectral Density Measurement

3.5.1 Limit of Power Spectral Density

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

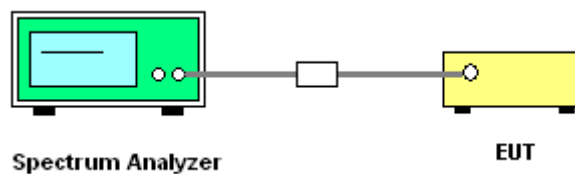
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

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

3.5.4 Test Setup



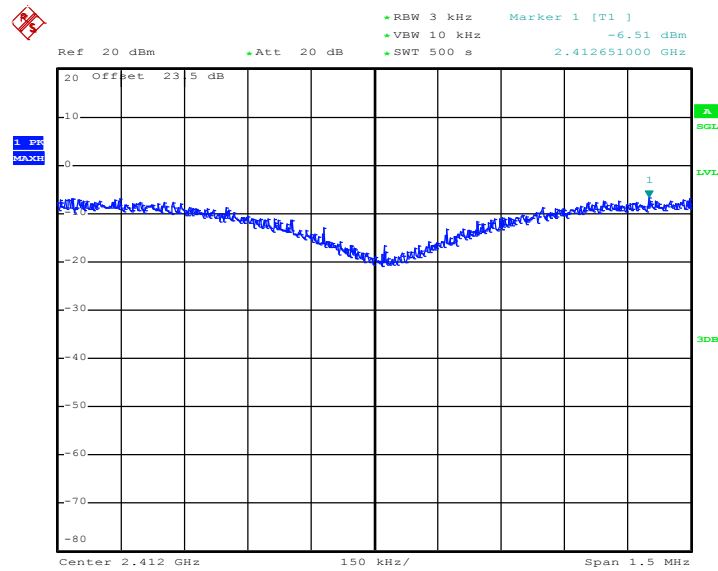


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-6.51	8	Pass
06	2437	-6.36	8	Pass
11	2462	-6.62	8	Pass

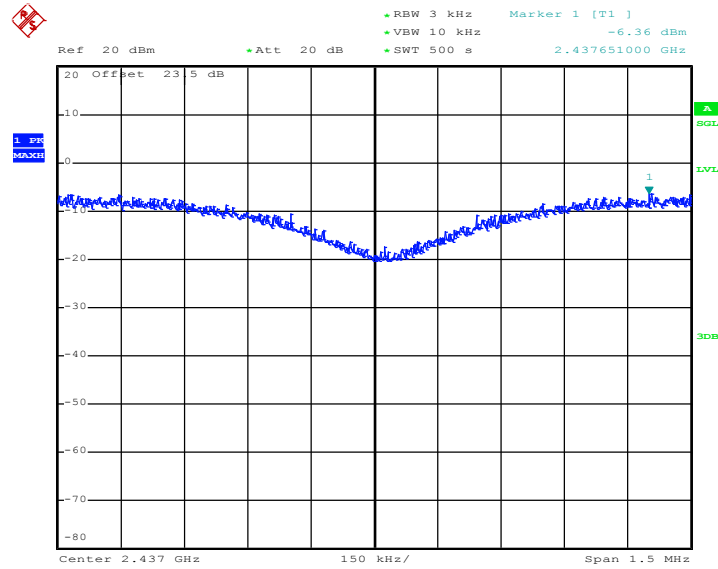
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 2.JAN.2012 13:47:00

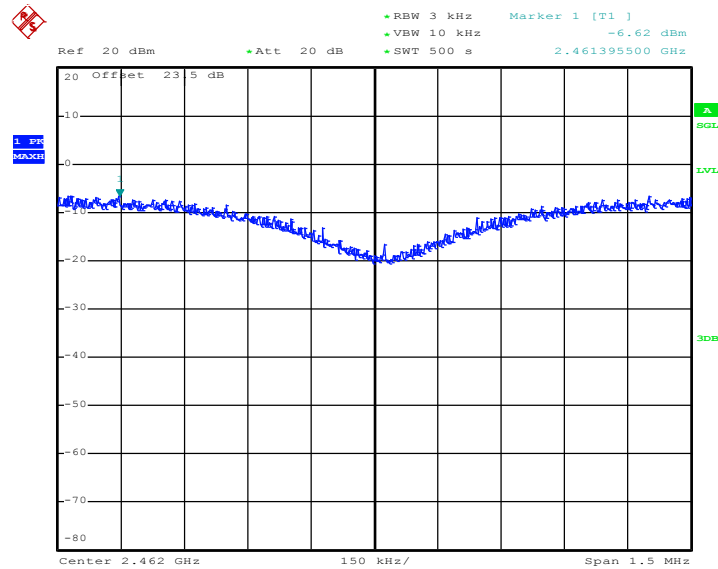


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 2.JAN.2012 13:59:28

Mode 3 : PSD Plot on 802.11b Channel 11



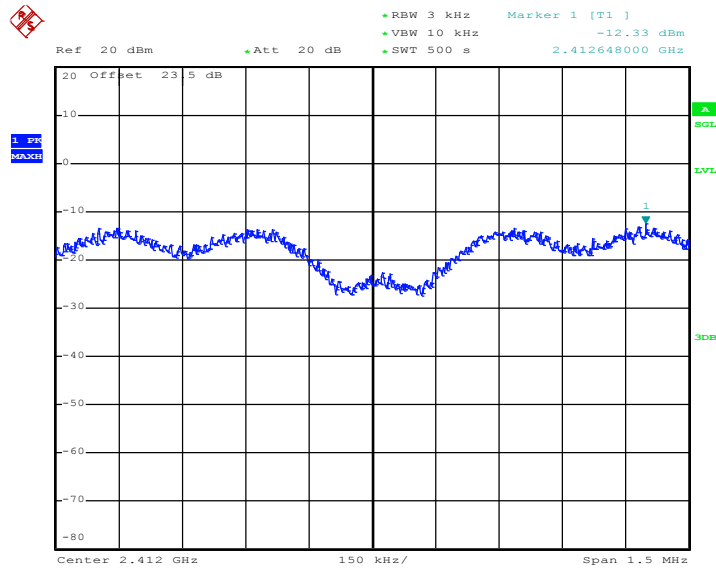
Date: 2.JAN.2012 14:11:37



Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-12.33	8	Pass
06	2437	-12.74	8	Pass
11	2462	-13.27	8	Pass

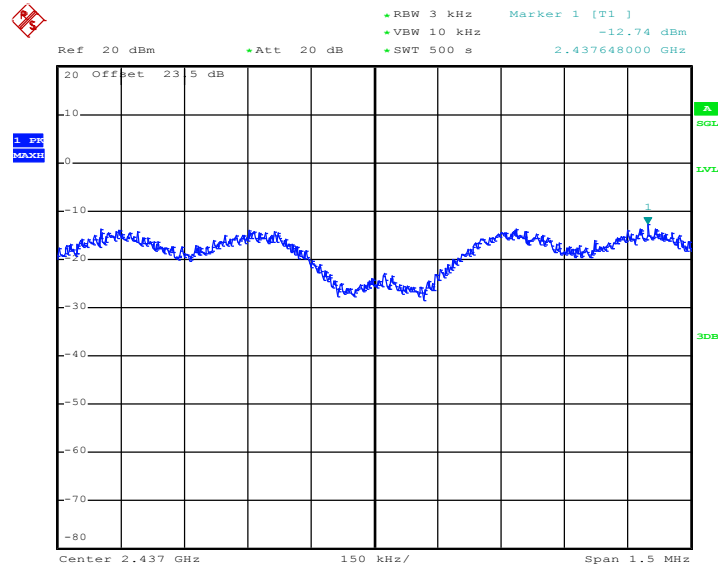
Mode 4 : PSD Plot on 802.11g Channel 01



Date: 2.JAN.2012 14:38:58

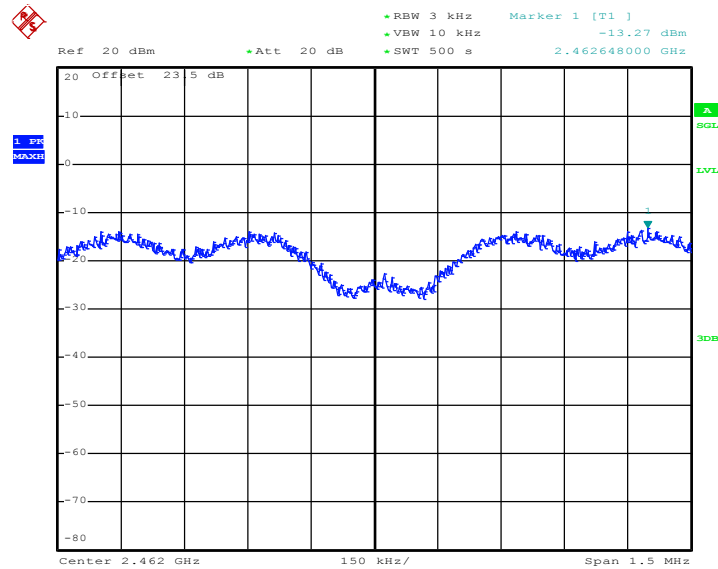


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 2.JAN.2012 14:53:57

Mode 6 : PSD Plot on 802.11g Channel 11



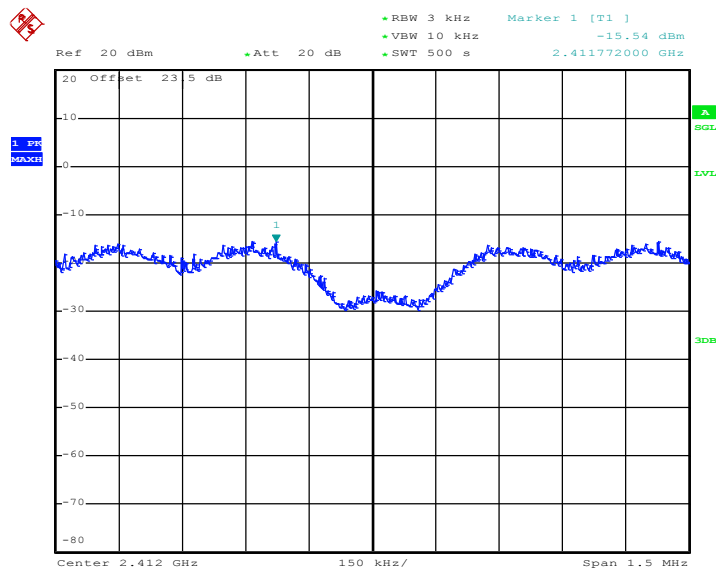
Date: 2.JAN.2012 14:23:51



Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-15.54	8	Pass
06	2437	-15.34	8	Pass
11	2462	-15.58	8	Pass

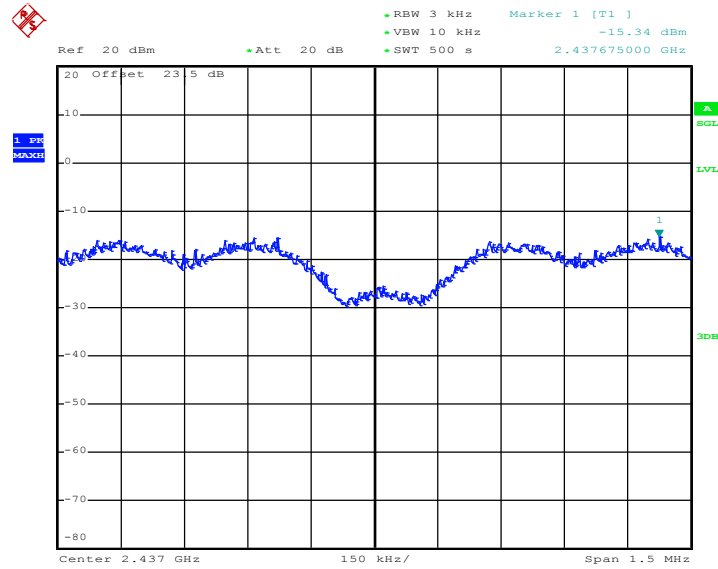
Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01



Date: 2.JAN.2012 15:48:52

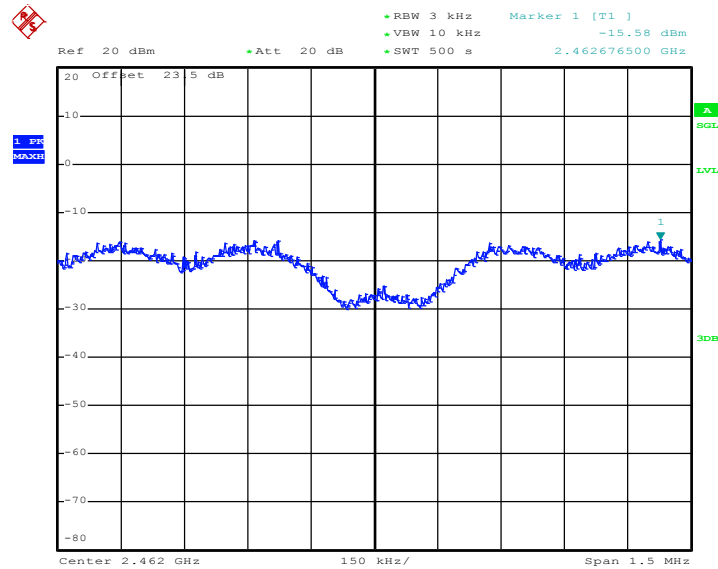


Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06



Date: 2.JAN.2012 16:14:40

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



Date: 2.JAN.2012 16:02:26

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 KHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

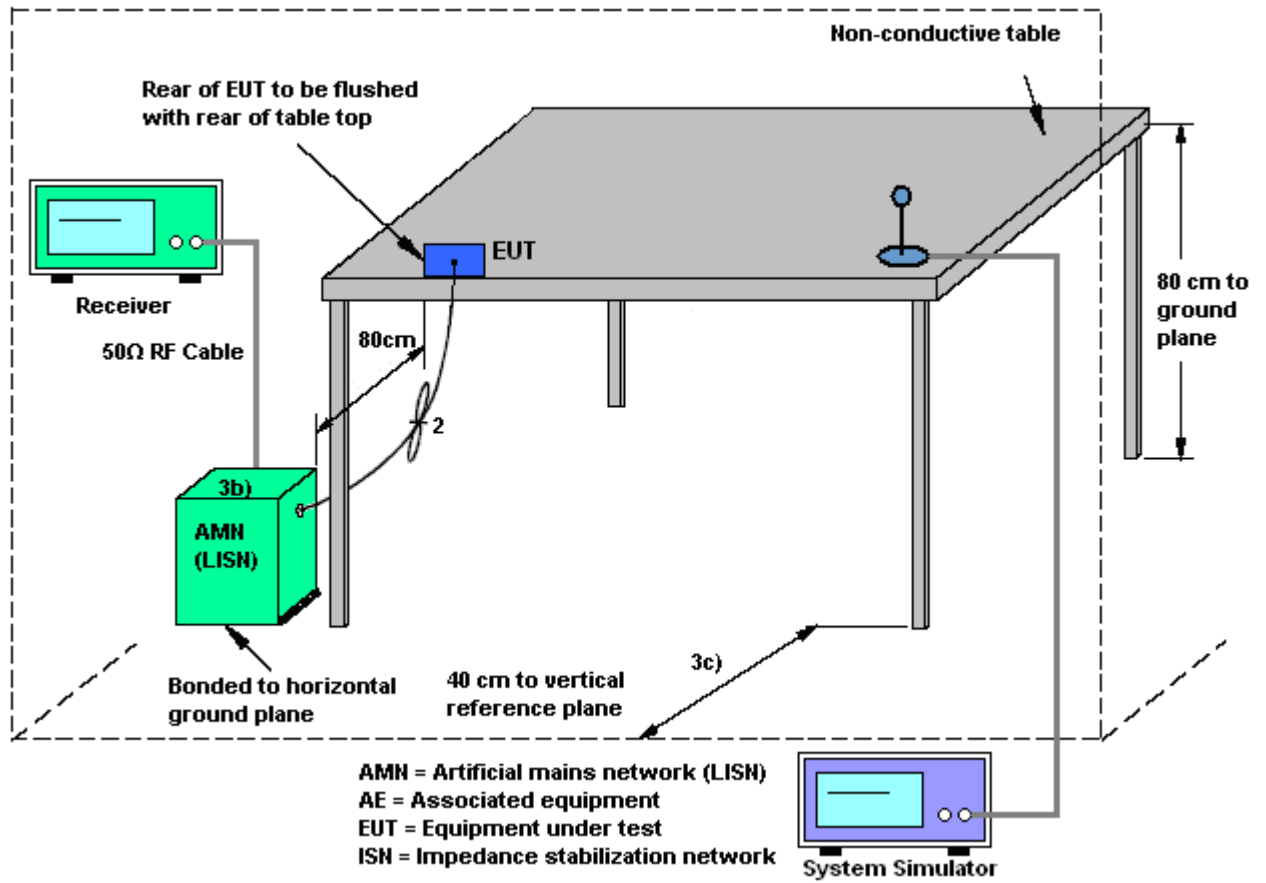
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

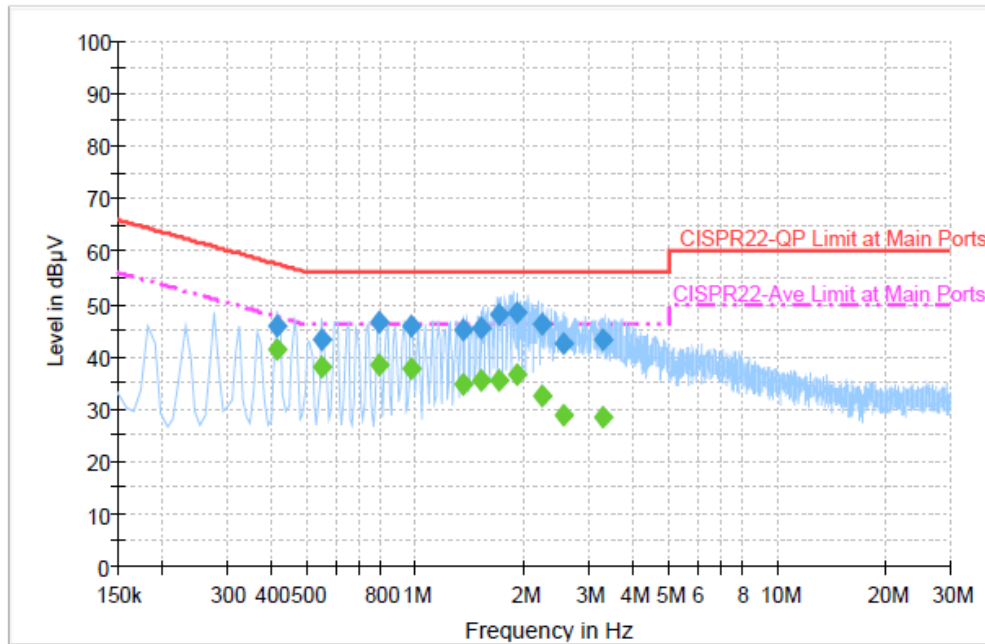
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 KHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	21~23°C
Test Engineer :	Aslen Chiu	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM1900 Idle + Bluetooth Link + WLAN Link + Earphone + Battery + Camera + USB Cable (Charging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

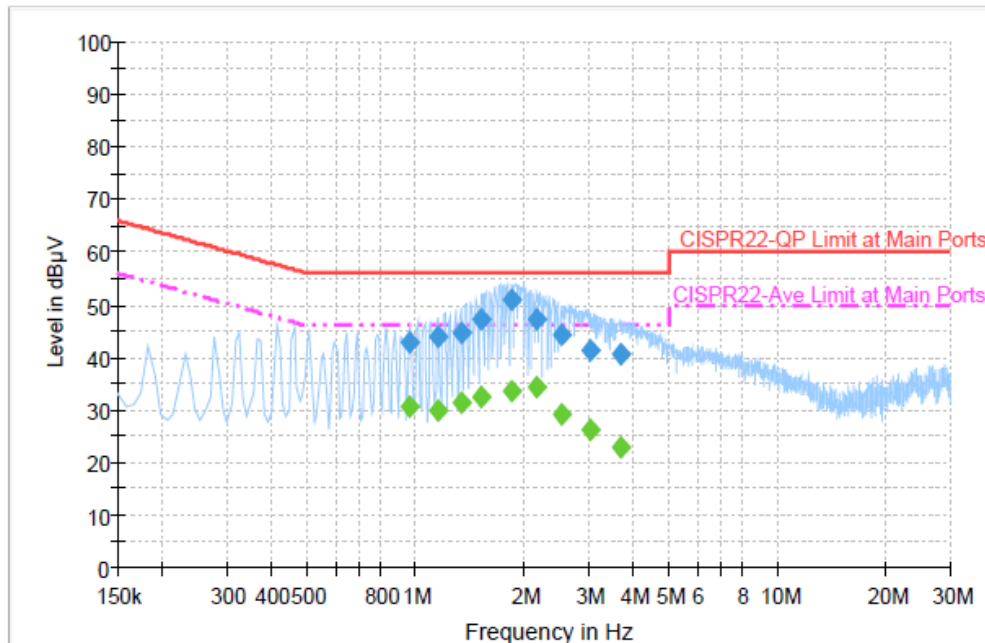
Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.414000	45.8	Off	L1	19.4	11.8	57.6
0.550000	43.3	Off	L1	19.3	12.7	56.0
0.790000	46.5	Off	L1	19.4	9.5	56.0
0.974000	45.7	Off	L1	19.4	10.3	56.0
1.350000	45.0	Off	L1	19.4	11.0	56.0
1.518000	45.5	Off	L1	19.4	10.5	56.0
1.702000	48.0	Off	L1	19.4	8.0	56.0
1.910000	48.4	Off	L1	19.5	7.6	56.0
2.238000	46.2	Off	L1	19.5	9.8	56.0
2.550000	42.6	Off	L1	19.4	13.4	56.0
3.294000	43.0	Off	L1	19.5	13.0	56.0



Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.414000	41.4	Off	L1	19.4	6.2	47.6
0.550000	38.0	Off	L1	19.3	8.0	46.0
0.790000	38.3	Off	L1	19.4	7.7	46.0
0.974000	37.5	Off	L1	19.4	8.5	46.0
1.350000	34.8	Off	L1	19.4	11.2	46.0
1.518000	35.4	Off	L1	19.4	10.6	46.0
1.702000	35.4	Off	L1	19.4	10.6	46.0
1.910000	36.4	Off	L1	19.5	9.6	46.0
2.238000	32.3	Off	L1	19.5	13.7	46.0
2.550000	28.9	Off	L1	19.4	17.1	46.0
3.294000	28.4	Off	L1	19.5	17.6	46.0

Test Mode :	Mode 1	Temperature :	21~23°C
Test Engineer :	Aslen Chiu	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM1900 Idle + Bluetooth Link + WLAN Link + Earphone + Battery + Camera + USB Cable (Charging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.966000	42.9	Off	N	19.4	13.1	56.0
1.150000	44.0	Off	N	19.5	12.0	56.0
1.334000	44.6	Off	N	19.4	11.4	56.0
1.518000	47.1	Off	N	19.4	8.9	56.0
1.838000	50.8	Off	N	19.5	5.2	56.0
2.150000	47.2	Off	N	19.5	8.8	56.0
2.534000	44.3	Off	N	19.5	11.7	56.0
3.046000	41.4	Off	N	19.5	14.6	56.0
3.702000	40.6	Off	N	19.6	15.4	56.0



Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.966000	30.6	Off	N	19.4	15.4	46.0
1.150000	29.8	Off	N	19.5	16.2	46.0
1.334000	31.2	Off	N	19.4	14.8	46.0
1.518000	32.5	Off	N	19.4	13.5	46.0
1.838000	33.8	Off	N	19.5	12.2	46.0
2.150000	34.4	Off	N	19.5	11.6	46.0
2.534000	29.3	Off	N	19.5	16.7	46.0
3.046000	26.1	Off	N	19.5	19.9	46.0
3.702000	23.0	Off	N	19.6	23.0	46.0

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

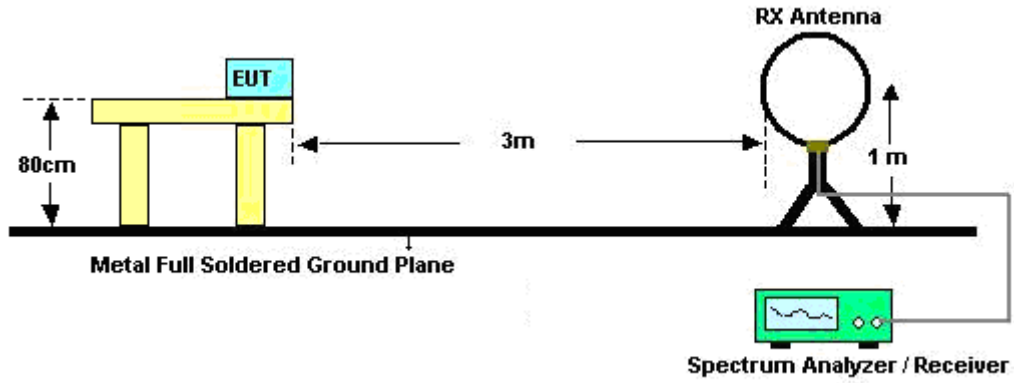
See list of measuring instruments of this test report.

3.7.3 Test Procedures

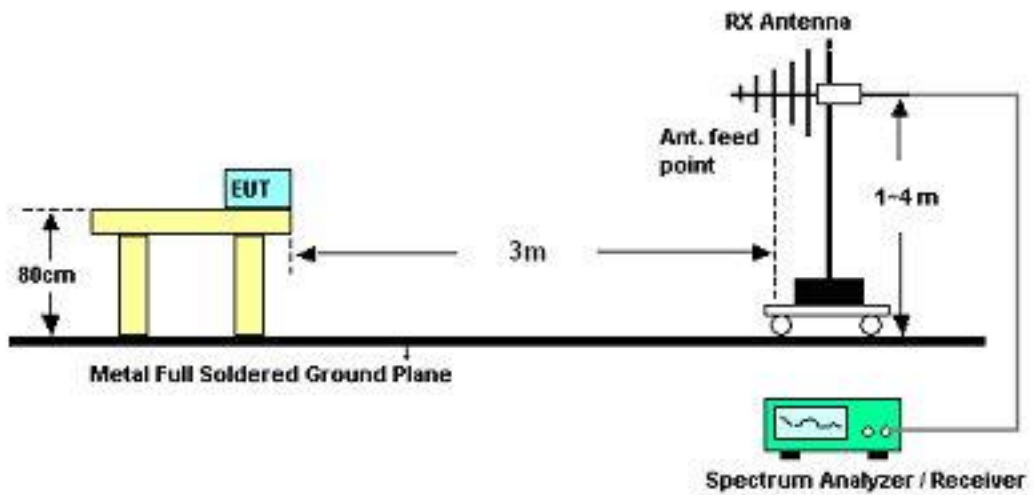
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 KHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto;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

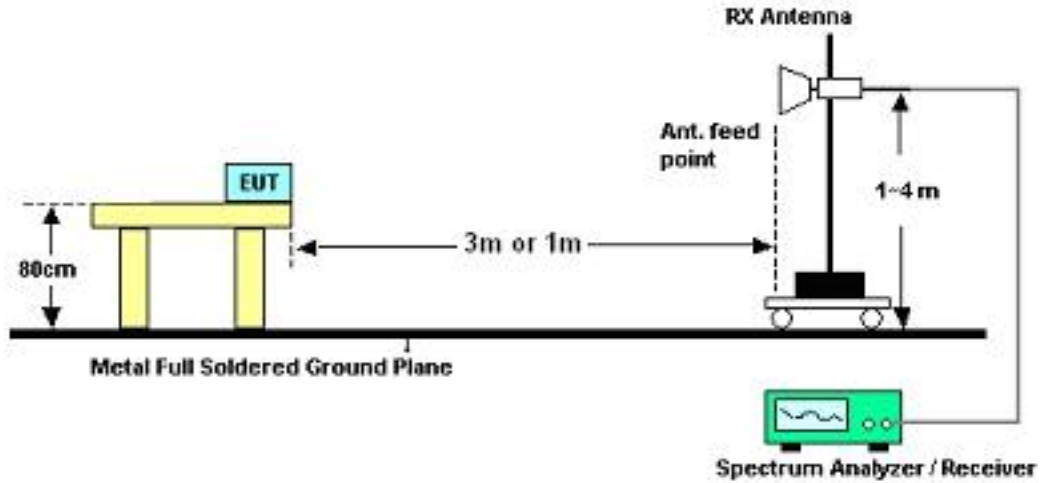
For radiated emissions below 30MHz



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 :	Gavin Wu	Temperature :	20~22°C
		Relative Humidity :	43~46%

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)
19.20	3	11.05	19.7	40	30	-28.95	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 :	20~22°C
Test Channel :	01	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signals which can be ignored. 2. 2532 MHz and 2574 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 108.08 dBuV/m - 20dB = 88.08 dBuV/m.		

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
64.02	20.65	-19.35	40	45.22	6.18	0.79	31.54	-	-	Peak
152.58	20.13	-23.37	43.5	39.41	11.06	1.21	31.55	-	-	Peak
245.73	30.14	-15.86	46	47.76	12.26	1.53	31.41	-	-	Peak
337.8	30.22	-15.78	46	45.32	14.32	1.88	31.3	-	-	Peak
797	30.74	-15.26	46	36.22	22.06	3.14	30.68	100	21	Peak
965.7	31.66	-22.34	54	34.66	24.09	3.48	30.57	-	-	Peak
2387.33	51.33	-22.67	74	47.2	32.06	6.03	33.96	136	352	Peak
2387.33	38.86	-15.14	54	34.73	32.06	6.03	33.96	136	352	Average
2412	108.08	-	-	103.9	32.08	6.07	33.97	136	352	Peak
2412	104.12	-	-	99.94	32.08	6.07	33.97	136	352	Average
2494	40.9	-13.1	54	36.52	32.2	6.18	34	136	352	Average
2494	60.09	-13.91	74	55.71	32.2	6.18	34	136	352	Peak
2532	57.75	-30.33	88.08	53.28	32.23	6.23	33.99	100	0	Peak
2574	56.69	-31.39	88.08	52.11	32.28	6.28	33.98	100	0	Peak



Test Mode :	Mode 1	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signals which can be ignored. 2. 2526 MHz and 2572 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	32.09	-7.91	40	43.73	19.28	0.54	31.46	100	39	Peak
92.37	26.54	-16.96	43.5	48.26	8.84	0.96	31.52	-	-	Peak
245.73	31.19	-14.81	46	48.81	12.26	1.53	31.41	-	-	Peak
337.8	25.59	-20.41	46	40.69	14.32	1.88	31.3	-	-	Peak
710.9	29.6	-16.4	46	36.66	20.76	2.97	30.79	-	-	Peak
830.6	30.5	-15.5	46	35.59	22.4	3.22	30.71	-	-	Peak
2334.13	49.46	-24.54	74	45.49	31.96	5.95	33.94	169	343	Peak
2334.13	37.19	-16.81	54	33.22	31.96	5.95	33.94	169	343	Average
2412	106.09	-	-	101.91	32.08	6.07	33.97	169	343	Peak
2412	102.16	-	-	97.98	32.08	6.07	33.97	169	343	Average
2494	37.01	-16.99	54	32.63	32.2	6.18	34	169	343	Average
2494	56.89	-17.11	74	52.51	32.2	6.18	34	169	343	Peak
2526	53.32	-32.77	86.09	48.85	32.23	6.23	33.99	100	0	Peak
2572	54.18	-31.91	86.09	49.61	32.27	6.28	33.98	100	0	Peak



Test Mode :	Mode 2	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signals which can be ignored 2. 2516 MHz is not within a restricted band.		

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
45.93	27.76	-12.24	40	48.51	10.1	0.66	31.51	100	74	Peak
152.58	20.21	-23.29	43.5	39.49	11.06	1.21	31.55	-	-	Peak
245.73	31.44	-14.56	46	49.06	12.26	1.53	31.41	-	-	Peak
337.8	30.67	-15.33	46	45.77	14.32	1.88	31.3	-	-	Peak
542.2	29.46	-16.54	46	39.11	18.81	2.53	30.99	-	-	Peak
999.3	33.62	-20.38	54	36.1	24.59	3.51	30.58	-	-	Peak
2390	48.58	-25.42	74	44.45	32.06	6.03	33.96	136	356	Peak
2390	37.37	-16.63	54	33.24	32.06	6.03	33.96	136	356	Average
2437	108.45	-	-	104.19	32.13	6.11	33.98	136	356	Peak
2437	104.63	-	-	100.37	32.13	6.11	33.98	136	356	Average
2484	51.17	-22.83	74	46.81	32.18	6.18	34	136	356	Peak
2484	39.35	-14.65	54	34.99	32.18	6.18	34	136	356	Average
2516	59.49	-28.96	88.45	55.06	32.22	6.21	34	100	0	Peak



Test Mode :	Mode 2	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signals which can be ignored. 2. 2524 MHz and 2556 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	32.05	-7.95	40	43.69	19.28	0.54	31.46	100	28	Peak
196.86	26.03	-17.47	43.5	47.14	9.07	1.31	31.49	-	-	Peak
245.73	29.85	-16.15	46	47.47	12.26	1.53	31.41	-	-	Peak
337.8	25.46	-20.54	46	40.56	14.32	1.88	31.3	-	-	Peak
763.4	29.24	-16.76	46	35.3	21.55	3.08	30.69	-	-	Peak
797	30.52	-15.48	46	36	22.06	3.14	30.68	-	-	Peak
2364	49.28	-24.72	74	45.23	32.01	5.99	33.95	135	341	Peak
2364	36.77	-17.23	54	32.72	32.01	5.99	33.95	135	341	Average
2437	106.73	-	-	102.47	32.13	6.11	33.98	135	341	Peak
2437	102.92	-	-	98.66	32.13	6.11	33.98	135	341	Average
2494	49.38	-24.62	74	45	32.2	6.18	34	135	341	Peak
2494	38.11	-15.89	54	33.73	32.2	6.18	34	135	341	Average
2524	54.74	-31.99	86.73	50.27	32.23	6.23	33.99	100	0	Peak
2556	53.7	-33.03	86.73	49.16	32.27	6.26	33.99	100	0	Peak



Test Mode :	Mode 3	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signals which can be ignored. 2. 2540 MHz is not within a restricted band.		

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
46.74	27.71	-12.29	40	48.86	9.7	0.67	31.52	100	92	Peak
152.58	20.28	-23.22	43.5	39.56	11.06	1.21	31.55	-	-	Peak
245.73	26.93	-19.07	46	44.55	12.26	1.53	31.41	-	-	Peak
337.8	30.11	-15.89	46	45.21	14.32	1.88	31.3	-	-	Peak
542.2	29	-17	46	38.65	18.81	2.53	30.99	-	-	Peak
965.7	31.56	-22.44	54	34.56	24.09	3.48	30.57	-	-	Peak
2388	49.92	-24.08	74	45.79	32.06	6.03	33.96	106	3	Peak
2388	38.91	-15.09	54	34.78	32.06	6.03	33.96	106	3	Average
2462	104.28	-	-	99.98	32.15	6.14	33.99	106	3	Average
2462	108.25	-	-	103.95	32.15	6.14	33.99	106	3	Peak
2498.29	54.85	-19.15	74	50.47	32.2	6.18	34	106	3	Peak
2498.29	41.97	-12.03	54	37.59	32.2	6.18	34	106	3	Average
2540	58.9	-29.35	88.25	54.41	32.25	6.23	33.99	100	0	Peak



Test Mode :	Mode 3	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signals which can be ignored. 2. 2582 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	31.52	-8.48	40	43.16	19.28	0.54	31.46	100	114	Peak
125.85	26.84	-16.66	43.5	45.6	11.68	1.13	31.57	-	-	Peak
259.5	27.97	-18.03	46	45.06	12.74	1.59	31.42	-	-	Peak
312.6	25	-21	46	40.89	13.64	1.79	31.32	-	-	Peak
710.9	28.8	-17.2	46	35.86	20.76	2.97	30.79	-	-	Peak
763.4	30.61	-15.39	46	36.67	21.55	3.08	30.69	-	-	Peak
2388	47.62	-26.38	74	43.49	32.06	6.03	33.96	127	347	Peak
2388	36.81	-17.19	54	32.68	32.06	6.03	33.96	127	347	Average
2462	102.82	-	-	98.52	32.15	6.14	33.99	127	347	Average
2462	106.59	-	-	102.29	32.15	6.14	33.99	127	347	Peak
2483.66	51.51	-22.49	74	47.15	32.18	6.18	34	127	347	Peak
2483.66	39.93	-14.07	54	35.57	32.18	6.18	34	127	347	Average
2582	56.08	-30.51	86.59	51.5	32.28	6.28	33.98	100	0	Peak



Test Mode :	Mode 4	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signals which can be ignored. 2. 2540 MHz is not within a restricted band.		

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
46.2	27	-13	40	48.14	9.7	0.67	31.51	100	123	Peak
152.58	19.77	-23.73	43.5	39.05	11.06	1.21	31.55	-	-	Peak
245.73	30.71	-15.29	46	48.33	12.26	1.53	31.41	-	-	Peak
337.8	29.16	-16.84	46	44.26	14.32	1.88	31.3	-	-	Peak
439.3	28.54	-17.46	46	40.55	16.83	2.28	31.12	-	-	Peak
932.1	31.15	-14.85	46	34.77	23.58	3.42	30.62	-	-	Peak
2389.99	58.56	-15.44	74	54.43	32.06	6.03	33.96	137	354	Peak
2389.99	38.83	-15.17	54	34.7	32.06	6.03	33.96	137	354	Average
2412	106.56	-	-	102.38	32.08	6.07	33.97	137	354	Peak
2412	95.16	-	-	90.98	32.08	6.07	33.97	137	354	Average
2494	36.8	-17.2	54	32.42	32.2	6.18	34	137	354	Average
2494	57.74	-16.26	74	53.36	32.2	6.18	34	137	354	Peak
2540	55.18	-31.38	86.56	50.69	32.25	6.23	33.99	100	0	Peak



Test Mode :	Mode 4	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signals which can be ignored. 2. 2526 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.62	31.92	-8.08	40	44.27	18.56	0.55	31.46	100	73	Peak
92.37	25.45	-18.05	43.5	47.17	8.84	0.96	31.52	-	-	Peak
245.73	29.32	-16.68	46	46.94	12.26	1.53	31.41	-	-	Peak
337.8	25.47	-20.53	46	40.57	14.32	1.88	31.3	-	-	Peak
542.2	27.61	-18.39	46	37.26	18.81	2.53	30.99	-	-	Peak
797	30.03	-15.97	46	35.51	22.06	3.14	30.68	-	-	Peak
2389.99	56.18	-17.82	74	52.05	32.06	6.03	33.96	168	345	Peak
2389.99	36.65	-17.35	54	32.52	32.06	6.03	33.96	168	345	Average
2412	103.93	-	-	99.75	32.08	6.07	33.97	168	345	Peak
2412	92.88	-	-	88.7	32.08	6.07	33.97	168	345	Average
2494	35.25	-18.75	54	30.87	32.2	6.18	34	168	345	Average
2494	54.96	-19.04	74	50.58	32.2	6.18	34	168	345	Peak
2526	52.34	-31.59	83.93	47.87	32.23	6.23	33.99	100	0	Peak



Test Mode :	Mode 5	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signals which can be ignored. 2. 2518 MHz, 2556 MHz, and 2604 MHz are not within a restricted band.		

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
45.93	27.42	-12.58	40	48.17	10.1	0.66	31.51	100	52	Peak
152.58	19.81	-23.69	43.5	39.09	11.06	1.21	31.55	-	-	Peak
245.73	28.61	-17.39	46	46.23	12.26	1.53	31.41	-	-	Peak
337.8	29.86	-16.14	46	44.96	14.32	1.88	31.3	-	-	Peak
542.2	28.99	-17.01	46	38.64	18.81	2.53	30.99	-	-	Peak
965.7	31.58	-22.42	54	34.58	24.09	3.48	30.57	-	-	Peak
2356	46.57	-27.43	74	42.55	32.01	5.95	33.94	134	356	Peak
2356	33.93	-20.07	54	29.91	32.01	5.95	33.94	134	356	Average
2437	106.31	-	-	102.08	32.1	6.11	33.98	134	356	Peak
2437	95.1	-	-	90.84	32.13	6.11	33.98	134	356	Average
2484	48.44	-25.56	74	44.08	32.18	6.18	34	134	356	Peak
2484	35.83	-18.17	54	31.47	32.18	6.18	34	134	356	Average
2518	56.47	-29.84	86.31	52.04	32.22	6.21	34	100	0	Peak
2556	54.82	-31.49	86.31	50.28	32.27	6.26	33.99	100	0	Peak
2604	50.36	-35.95	86.31	45.73	32.3	6.31	33.98	100	0	Peak



Test Mode :	Mode 5	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signals which can be ignored. 2. 2524 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.62	31.65	-8.35	40	44	18.56	0.55	31.46	100	85	Peak
217.38	26.48	-19.52	46	46.23	10.31	1.4	31.46	-	-	Peak
245.73	28.45	-17.55	46	46.07	12.26	1.53	31.41	-	-	Peak
337.8	25.56	-20.44	46	40.66	14.32	1.88	31.3	-	-	Peak
710.9	29.31	-16.69	46	36.37	20.76	2.97	30.79	-	-	Peak
797	30.57	-15.43	46	36.05	22.06	3.14	30.68	-	-	Peak
2364	46.66	-27.34	74	42.61	32.01	5.99	33.95	135	341	Peak
2364	34.32	-19.68	54	30.27	32.01	5.99	33.95	135	341	Average
2437	104.25	-	-	99.99	32.13	6.11	33.98	135	341	Peak
2437	93.38	-	-	89.12	32.13	6.11	33.98	135	341	Average
2486	47.26	-26.74	74	42.9	32.18	6.18	34	135	341	Peak
2486	34.74	-19.26	54	30.38	32.18	6.18	34	135	341	Average
2524	51.7	-32.55	84.25	47.23	32.23	6.23	33.99	100	0	Peak



Test Mode :	Mode 6	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signals which can be ignored. 2. 2542 MHz, 2588 MHz, and 2628 MHz are not within a restricted band.		

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
45.93	27.71	-12.29	40	48.46	10.1	0.66	31.51	100	91	Peak
152.58	19.72	-23.78	43.5	39	11.06	1.21	31.55	-	-	Peak
245.73	28.06	-17.94	46	45.68	12.26	1.53	31.41	-	-	Peak
337.8	30.33	-15.67	46	45.43	14.32	1.88	31.3	-	-	Peak
542.2	30.04	-15.96	46	39.69	18.81	2.53	30.99	-	-	Peak
965.7	32.32	-21.68	54	35.32	24.09	3.48	30.57	-	-	Peak
2380	48.04	-25.96	74	43.94	32.03	6.03	33.96	106	3	Peak
2380	35.4	-18.6	54	31.3	32.03	6.03	33.96	106	3	Average
2462	95.51	-	-	91.21	32.15	6.14	33.99	106	3	Average
2462	106.77	-	-	102.47	32.15	6.14	33.99	106	3	Peak
2483.5	62.21	-11.79	74	57.85	32.18	6.18	34	106	3	Peak
2483.5	40.79	-13.21	54	36.43	32.18	6.18	34	106	3	Average
2542	57.13	-29.64	86.77	52.64	32.25	6.23	33.99	100	0	Peak
2588	55.35	-31.42	86.77	50.77	32.28	6.28	33.98	100	0	Peak
2628	53.24	-33.53	86.77	48.55	32.33	6.33	33.97	100	0	Peak



Test Mode :	Mode 6	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signals which can be ignored. 2. 2542 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.62	32.4	-7.6	40	44.75	18.56	0.55	31.46	100	74	Peak
80.22	26.31	-13.69	40	49.26	7.7	0.88	31.53	-	-	Peak
245.73	29.66	-16.34	46	47.28	12.26	1.53	31.41	-	-	Peak
337.8	25.79	-20.21	46	40.89	14.32	1.88	31.3	-	-	Peak
710.9	29.55	-16.45	46	36.61	20.76	2.97	30.79	-	-	Peak
797	31.13	-14.87	46	36.61	22.06	3.14	30.68	-	-	Peak
2380	46.48	-27.52	74	42.38	32.03	6.03	33.96	199	354	Peak
2380	33.78	-20.22	54	29.68	32.03	6.03	33.96	199	354	Average
2462	103.57	-	-	99.27	32.15	6.14	33.99	199	354	Peak
2462	92.58	-	-	88.28	32.15	6.14	33.99	199	354	Average
2483.5	38.44	-15.56	54	34.08	32.18	6.18	34	199	354	Average
2483.5	56.22	-17.78	74	51.86	32.18	6.18	34	199	354	Peak
2542	53.13	-30.44	83.57	48.64	32.25	6.23	33.99	100	0	Peak



Test Mode :	Mode 7	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signals which can be ignored. 2. 2532 MHz is not within a restricted band.		

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
45.93	27.94	-12.06	40	48.69	10.1	0.66	31.51	100	45	Peak
152.58	19.86	-23.64	43.5	39.14	11.06	1.21	31.55	-	-	Peak
245.73	29.35	-16.65	46	46.97	12.26	1.53	31.41	-	-	Peak
337.8	26.9	-19.1	46	42	14.32	1.88	31.3	-	-	Peak
584.2	18.36	-27.64	46	27.14	19.52	2.64	30.94	-	-	Peak
965.7	31.72	-22.28	54	34.72	24.09	3.48	30.57	-	-	Peak
2388.85	52.24	-21.76	74	48.11	32.06	6.03	33.96	137	352	Peak
2388.85	36.42	-17.58	54	32.29	32.06	6.03	33.96	137	352	Average
2412	103.95	-	-	99.77	32.08	6.07	33.97	137	352	Peak
2412	93.19	-	-	89.01	32.08	6.07	33.97	137	352	Average
2492	35.04	-18.96	54	30.66	32.2	6.18	34	137	352	Average
2492	54.01	-19.99	74	49.63	32.2	6.18	34	137	352	Peak
2532	52.57	-31.38	83.95	48.1	32.23	6.23	33.99	100	0	Peak



Test Mode :	Mode 7	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	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
31.62	31.67	-8.33	40	44.02	18.56	0.55	31.46	100	87	Peak
80.49	26.83	-13.17	40	49.78	7.7	0.88	31.53	-	-	Peak
245.73	32.27	-13.73	46	49.89	12.26	1.53	31.41	-	-	Peak
337.8	25.71	-20.29	46	40.81	14.32	1.88	31.3	-	-	Peak
746.6	29.94	-16.06	46	36.3	21.3	3.05	30.71	-	-	Peak
830.6	31.22	-14.78	46	36.31	22.4	3.22	30.71	-	-	Peak
2389.99	47.64	-26.36	74	43.51	32.06	6.03	33.96	169	343	Peak
2389.99	34.4	-19.6	54	30.27	32.06	6.03	33.96	169	343	Average
2412	100.95	-	-	96.77	32.08	6.07	33.97	169	343	Peak
2412	90.14	-	-	85.96	32.08	6.07	33.97	169	343	Average
2494	33.67	-20.33	54	29.29	32.2	6.18	34	169	343	Average
2494	50.38	-23.62	74	46	32.2	6.18	34	169	343	Peak



Test Mode :	Mode 8	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signals which can be ignored. 2. 2518 MHz is not within a restricted band.		

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
45.93	28.05	-11.95	40	48.8	10.1	0.66	31.51	100	84	Peak
152.58	20.13	-23.37	43.5	39.41	11.06	1.21	31.55	-	-	Peak
245.73	29.45	-16.55	46	47.07	12.26	1.53	31.41	-	-	Peak
337.8	30.51	-15.49	46	45.61	14.32	1.88	31.3	-	-	Peak
542.2	30.15	-15.85	46	39.8	18.81	2.53	30.99	-	-	Peak
965.7	32.81	-21.19	54	35.81	24.09	3.48	30.57	-	-	Peak
2390	45.99	-28.01	74	41.86	32.06	6.03	33.96	135	354	Peak
2390	33.94	-20.06	54	29.81	32.06	6.03	33.96	135	354	Average
2437	104.66	-	-	100.4	32.13	6.11	33.98	135	354	Peak
2437	93.07	-	-	88.81	32.13	6.11	33.98	135	354	Average
2486	48.15	-25.85	74	43.79	32.18	6.18	34	135	354	Peak
2486	35.14	-18.86	54	30.78	32.18	6.18	34	135	354	Average
2518	54.03	-30.63	84.66	49.6	32.22	6.21	34	100	0	Peak



Test Mode :	Mode 8	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signals which can be ignored. 2. 2516 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.62	32.04	-7.96	40	44.39	18.56	0.55	31.46	100	84	Peak
92.37	26.99	-16.51	43.5	48.71	8.84	0.96	31.52	-	-	Peak
245.73	27.9	-18.1	46	45.52	12.26	1.53	31.41	-	-	Peak
337.8	26.44	-19.56	46	41.54	14.32	1.88	31.3	-	-	Peak
710.9	30.91	-15.09	46	37.97	20.76	2.97	30.79	-	-	Peak
710.9	30.91	-15.09	46	37.97	20.76	2.97	30.79	-	-	Peak
2390	45.57	-28.43	74	41.44	32.06	6.03	33.96	135	342	Peak
2390	33.9	-20.1	54	29.77	32.06	6.03	33.96	135	342	Average
2437	101.42	-	-	97.16	32.13	6.11	33.98	135	342	Peak
2437	91.09	-	-	86.83	32.13	6.11	33.98	135	342	Average
2484	47.4	-26.6	74	43.04	32.18	6.18	34	135	342	Peak
2484	34.43	-19.57	54	30.07	32.18	6.18	34	135	342	Average
2516	51.59	-29.83	81.42	47.16	32.22	6.21	34	100	0	Peak



Test Mode :	Mode 9	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signals which can be ignored. 2. 2542 MHz, 2582 MHz, and 2628 MHz are not within a restricted band.		

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
46.74	28.29	-11.71	40	49.44	9.7	0.67	31.52	100	64	Peak
149.61	19.86	-23.64	43.5	38.99	11.22	1.21	31.56	-	-	Peak
245.73	28.87	-17.13	46	46.49	12.26	1.53	31.41	-	-	Peak
337.8	30.25	-15.75	46	45.35	14.32	1.88	31.3	-	-	Peak
542.2	29.68	-16.32	46	39.33	18.81	2.53	30.99	-	-	Peak
965.7	33.32	-20.68	54	36.32	24.09	3.48	30.57	-	-	Peak
2380	47.32	-26.68	74	43.22	32.03	6.03	33.96	106	3	Peak
2380	34.78	-19.22	54	30.68	32.03	6.03	33.96	106	3	Average
2462	93.63	-	-	89.33	32.15	6.14	33.99	106	3	Average
2462	104.83	-	-	100.53	32.15	6.14	33.99	106	3	Peak
2483.5	56.33	-17.67	74	51.97	32.18	6.18	34	106	3	Peak
2483.5	39.55	-14.45	54	35.19	32.18	6.18	34	106	3	Average
2542	54.75	-30.08	84.83	50.26	32.25	6.23	33.99	100	0	Peak
2582	54.21	-30.62	84.83	49.63	32.28	6.28	33.98	100	0	Peak
2628	52.03	-32.8	84.83	47.34	32.33	6.33	33.97	100	0	Peak



Test Mode :	Mode 9	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	56~58%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signals which can be ignored. 2. 2540 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.35	31.95	-8.05	40	43.59	19.28	0.54	31.46	100	57	Peak
201.45	26.62	-16.88	43.5	47.54	9.23	1.33	31.48	-	-	Peak
245.73	32.88	-13.12	46	50.5	12.26	1.53	31.41	-	-	Peak
337.8	26.71	-19.29	46	41.81	14.32	1.88	31.3	-	-	Peak
797	31.61	-14.39	46	37.09	22.06	3.14	30.68	-	-	Peak
797	31.61	-14.39	46	37.09	22.06	3.14	30.68	-	-	Peak
2382	45.8	-28.2	74	41.7	32.03	6.03	33.96	162	351	Peak
2382	33.79	-20.21	54	29.69	32.03	6.03	33.96	162	351	Average
2462	90.86	-	-	86.56	32.15	6.14	33.99	162	351	Average
2462	101.83	-	-	97.53	32.15	6.14	33.99	162	351	Peak
2483.5	53.19	-20.81	74	48.83	32.18	6.18	34	162	351	Peak
2483.5	37.69	-16.31	54	33.33	32.18	6.18	34	162	351	Average
2540	53.81	-28.02	81.83	49.32	32.25	6.23	33.99	100	0	Peak



3.8 Antenna Requirements

3.8.1 Standard Applicable

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

3.8.2 Antenna Connected Construction

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

3.8.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 13, 2011	Dec. 29, 2011~ Jan. 02, 2012	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Dec. 29, 2011~ Jan. 02, 2012	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Dec. 29, 2011~ Jan. 02, 2012	Sep. 17, 2012	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 18, 2011	Dec. 29, 2011~ Jan. 02, 2012	Feb. 17, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 18, 2011	Dec. 29, 2011~ Jan. 02, 2012	Feb. 17, 2012	Conducted (TH02-HY)
EMI Test Receiver	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Jan. 04, 2012	Aug. 21, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz~30MHz	Dec. 09, 2011	Jan. 04, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz~30MHz	Dec. 06, 2011	Jan. 04, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000 W	N/A	N/A	N/A	Jan. 04, 2012	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	112403	N/A	Feb. 22, 2011	Jan. 04, 2012	Feb. 21, 2012	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 22, 2011	Dec. 30, 2011	Oct. 21, 2012	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 06, 2011	Dec. 30, 2011	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	Dec. 30, 2011	Aug. 09, 2012	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 05, 2011	Dec. 30, 2011	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 29, 2011	Dec. 30, 2011	Mar. 28, 2012	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Dec. 30, 2011	Aug. 21, 2012	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-00 101800-30- 10P	159088	1GHz ~ 18GHz	Feb. 21, 2011	Dec. 30, 2011	Feb. 20, 2012	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Dec. 30, 2011	Jul. 28, 2012	Radiation (03CH07-HY)

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				