

FCC RF Test Report

APPLICANT : Motorola Mobility, Inc.
EQUIPMENT : Mobile Phone
BRAND NAME : MOTOROLA
MODEL NAME : XT611
GPPD NUMBER : 3195
FCC ID : IHDP56MM1
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Sep. 30, 2011 and completely tested on Nov. 24, 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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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR193004B	Rev. 01	Initial issue of report	Nov. 28, 2011

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 4.30 dB at 1.846 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 8.17 dB at 43.77 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	IHDP56MM1
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 : 17.11 dBm (0.0514 W) 802.11g : 20.49 dBm (0.1119 W) 802.11n (BW 20MHz) : 19.44 dBm (0.0879 W)
Antenna Type	PIFA Antenna with gain -1.30 dBi
HW Version	V2.1
SW Version	4 410 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	03CH06-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	16.93	16.90	16.73	16.79
CH 06	2437 MHz	17.11	17.10	16.81	16.93
CH 11	2462 MHz	17.02	16.99	16.86	16.92

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	20.48	20.40	20.32	20.24	20.36	20.37	20.38	20.34
CH 06	2437 MHz	20.49	20.46	20.31	20.42	20.41	20.45	20.46	20.47
CH 11	2462 MHz	20.24	20.22	20.21	20.22	20.24	20.36	20.28	20.35

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	19.43	19.32	19.22	19.21	19.41	19.36	19.19	19.42
CH 06	2437 MHz	19.44	19.35	19.33	19.27	19.30	19.20	19.17	19.13
CH 11	2462 MHz	19.40	19.31	19.38	19.19	19.27	19.39	19.16	19.17

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).

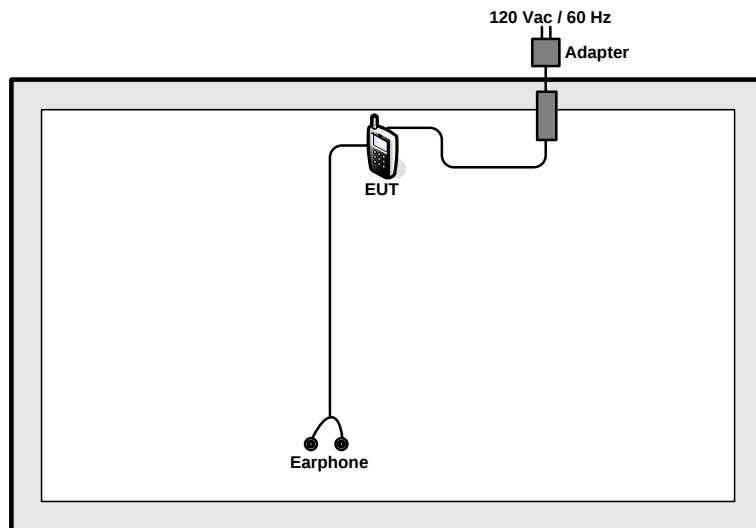
Pre-scanned tests were conducted to determine the final configuration from all possible combinations. Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations, laptop / tablet modes.

The following tables are showing the test modes as the worst cases (E2 plane) and recorded in this report.

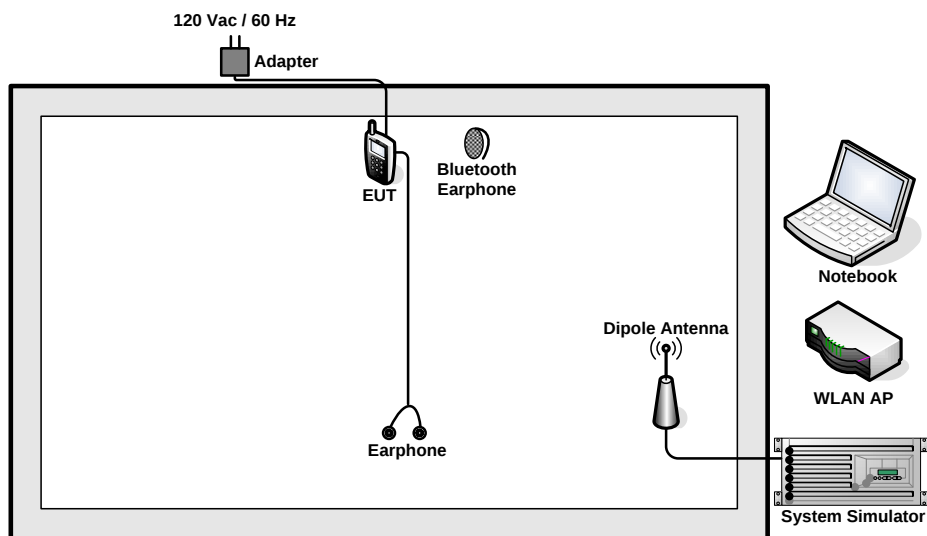
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 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 + Camera + USB Cable (Charging from Adapter) + Battery	
Remark: For radiated TCs, the test was performance with USB cable, adapter, battery, 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.

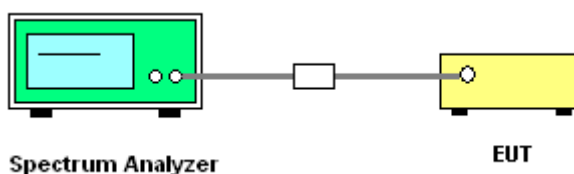
3.1.2 Measuring Instruments

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

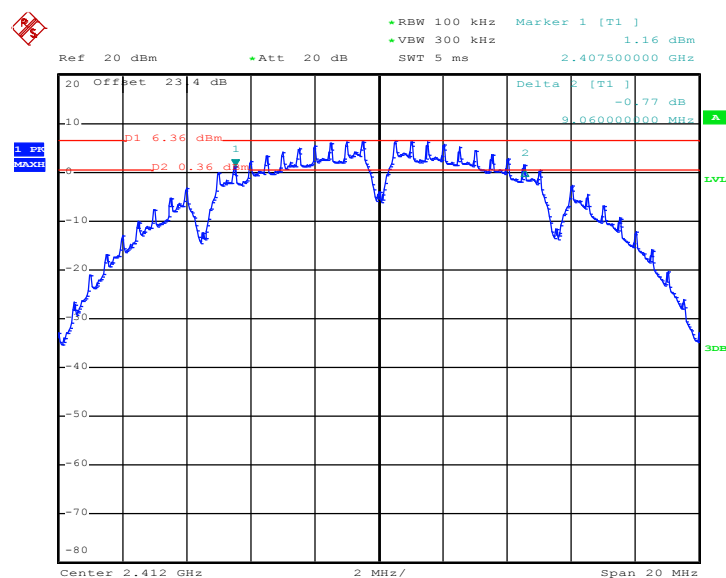


3.1.5 Test Result of 6dB Bandwidth

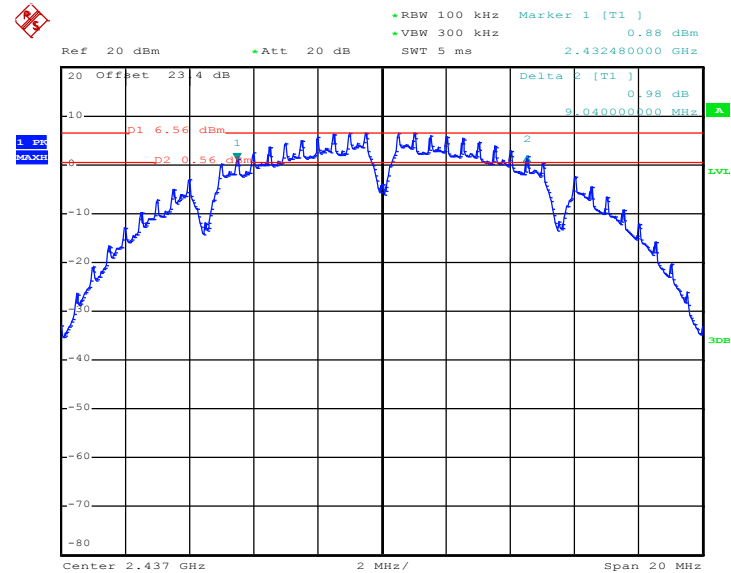
Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Book Lin	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	9.06	0.5	Pass
06	2437	9.04	0.5	Pass
11	2462	9.52	0.5	Pass

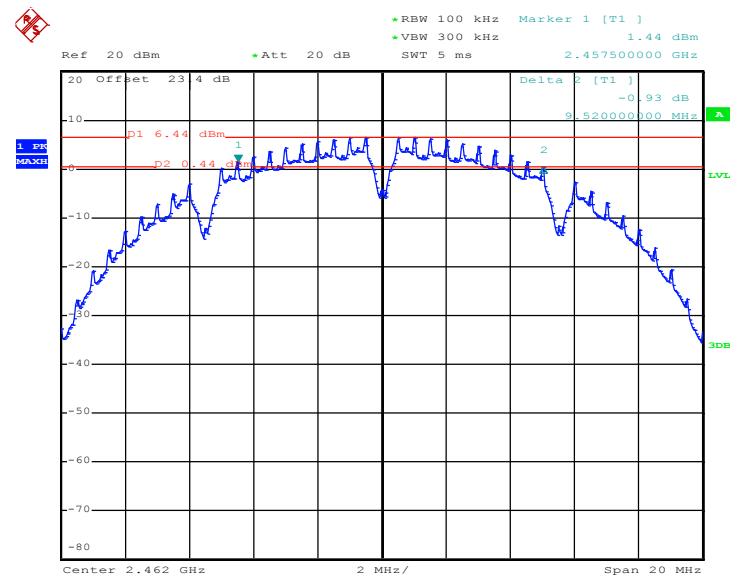
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 12.OCT.2011 23:51:35

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


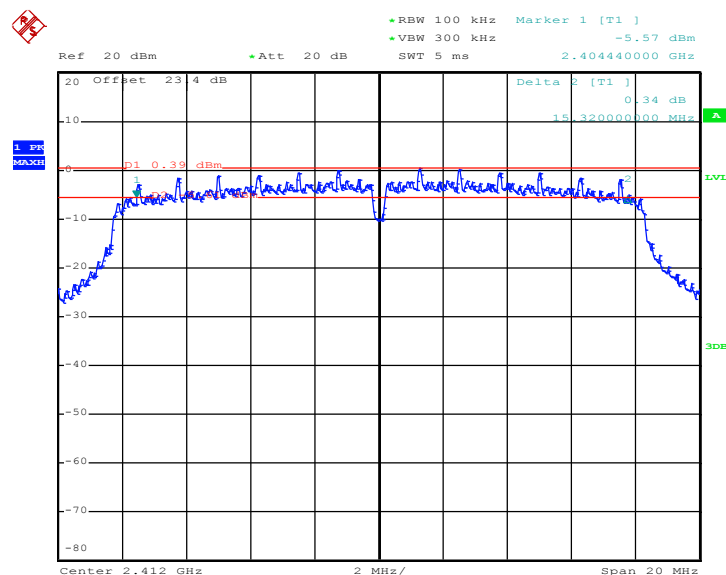
Date: 13.OCT.2011 00:07:23

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


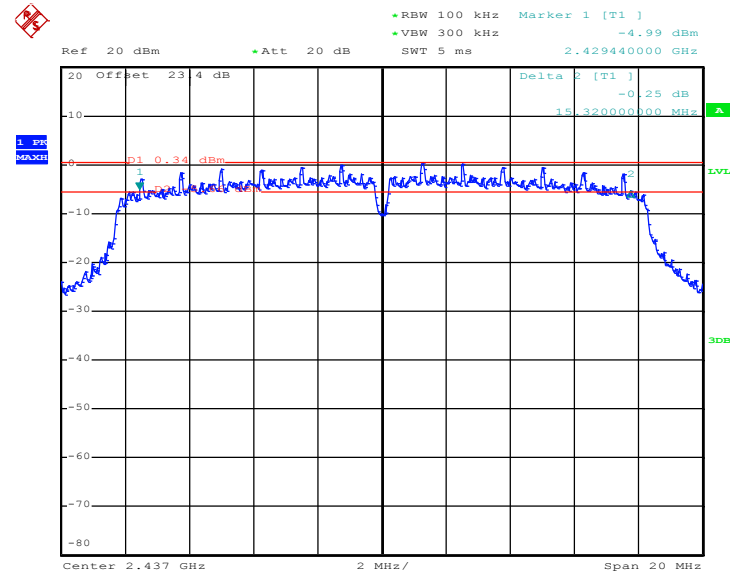
Date: 13.OCT.2011 00:21:42

Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Book Lin	Relative Humidity :	51~54%

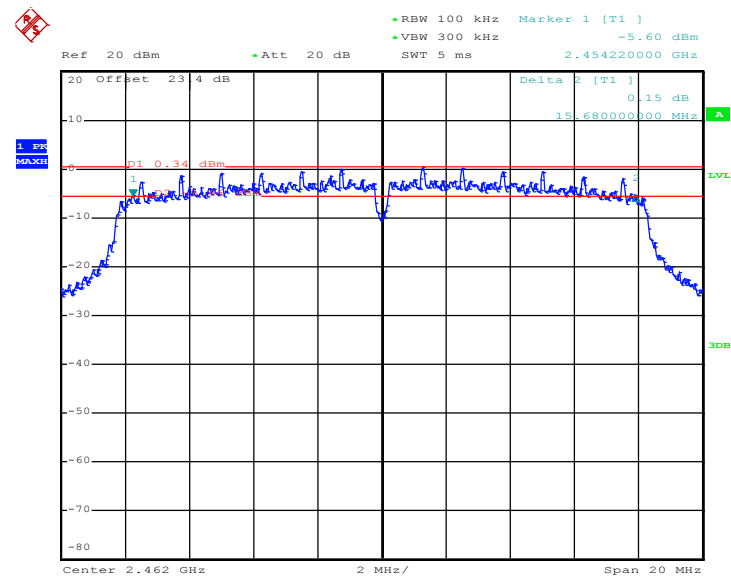
Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.32	0.5	Pass
06	2437	15.32	0.5	Pass
11	2462	15.68	0.5	Pass

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


Date: 13.OCT.2011 00:37:24

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


Date: 13.OCT.2011 00:54:55

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


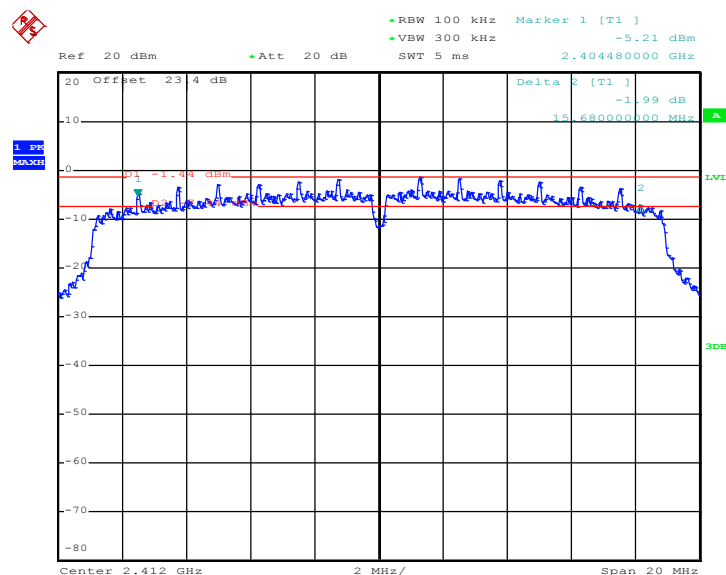
Date: 13.OCT.2011 01:12:46



Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Book Lin	Relative Humidity :	51~54%

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	15.42	0.5	Pass
11	2462	15.72	0.5	Pass

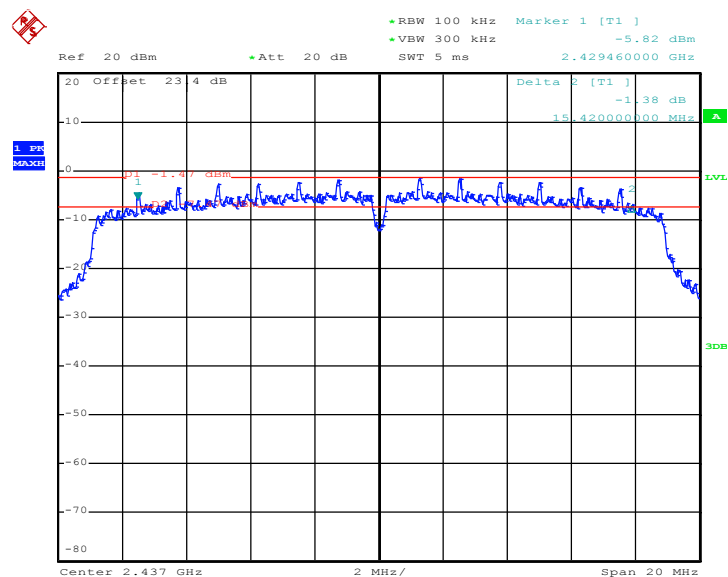
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 13.OCT.2011 01:31:20

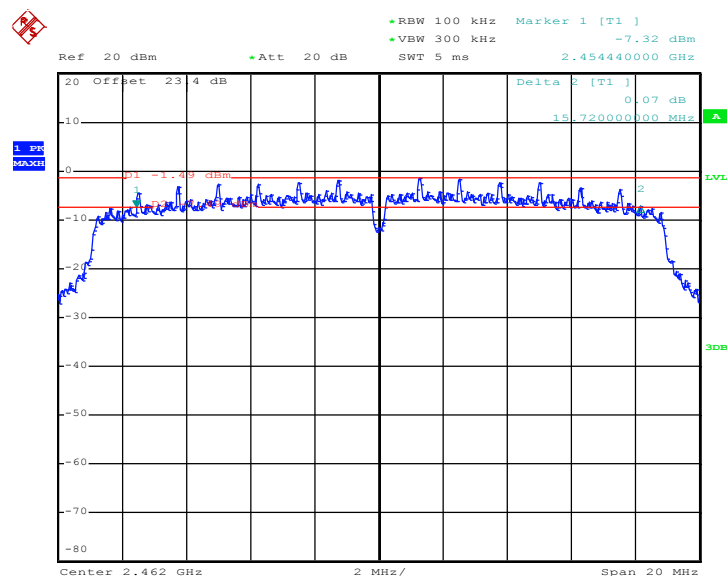


Mode 8 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 13.OCT.2011 01:46:22

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



Date: 13.OCT.2011 01:59:30

3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

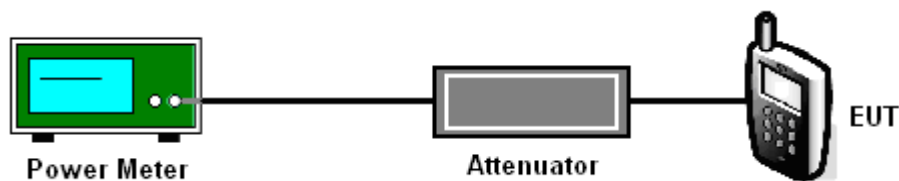
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

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

3.2.4 Test Setup



3.2.5 Test Result of Output Power

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Book Lin	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	16.93	30	Pass
06	2437	17.11	30	Pass
11	2462	17.02	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26℃
Test Engineer :	Book Lin	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.48	30	Pass
06	2437	20.49	30	Pass
11	2462	20.24	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~26℃
Test Engineer :	Book Lin	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	19.43	30	Pass
06	2437	19.44	30	Pass
11	2462	19.40	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

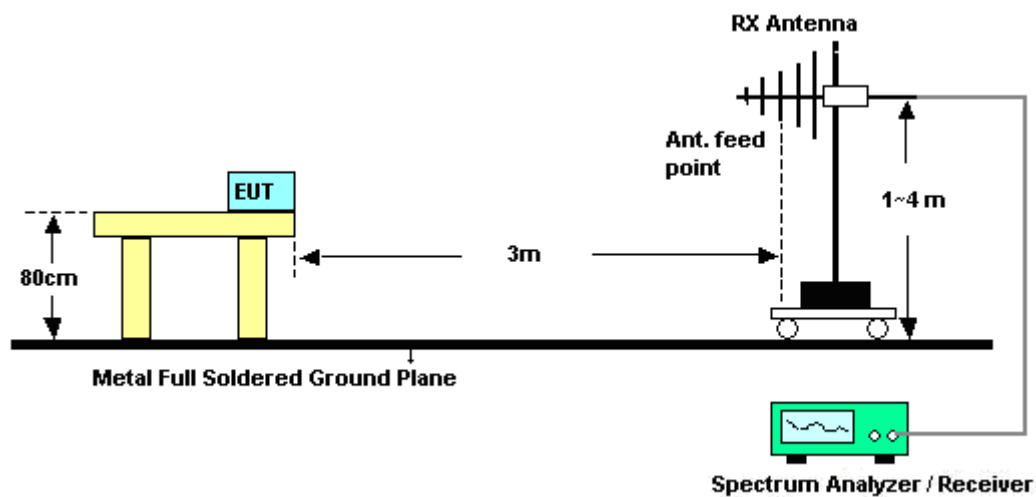
See list of measuring instruments of this test report.

3.3.3 Test Procedures

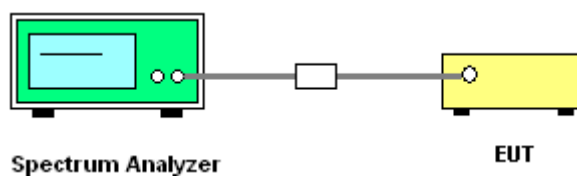
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) $\geq$ RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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 :	22~23℃
Test Band :	802.11b	Relative Humidity :	49~51%
Test Channel :	01	Test Engineer :	Eric Shih

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
2333.37	48.63	-25.37	74	45.87	31.83	5.34	34.41	109	13	Peak
2333.37	36.2	-17.8	54	33.44	31.83	5.34	34.41	109	13	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
2388.66	47.53	-26.47	74	44.62	31.9	5.4	34.39	107	318	Peak
2388.66	35.54	-18.46	54	32.63	31.9	5.4	34.39	107	318	Average

Test Mode :	Mode 3	Temperature :	22~23℃
Test Band :	802.11b	Relative Humidity :	49~51%
Test Channel :	11	Test Engineer :	Eric Shih

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
2499.81	52.53	-21.47	74	49.38	32	5.52	34.37	104	10	Peak
2499.81	38.77	-15.23	54	35.62	32	5.52	34.37	104	10	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
2499.05	48.15	-25.85	74	45	32	5.52	34.37	100	321	Peak
2499.05	35.68	-18.32	54	32.53	32	5.52	34.37	100	321	Average



Test Mode :	Mode 4	Temperature :	22~23°C
Test Band :	802.11g	Relative Humidity :	49~51%
Test Channel :	01	Test Engineer :	Eric Shih

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	62.01	-11.99	74	59.1	31.9	5.4	34.39	109	18	Peak
2389.99	41.08	-12.92	54	38.17	31.9	5.4	34.39	109	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
2389.99	57.62	-16.38	74	54.71	31.9	5.4	34.39	103	308	Peak
2389.99	37.01	-16.99	54	34.1	31.9	5.4	34.39	103	308	Average

Test Mode :	Mode 6	Temperature :	22~23°C
Test Band :	802.11g	Relative Humidity :	49~51%
Test Channel :	11	Test Engineer :	Eric Shih

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	59.19	-14.81	74	56.06	31.98	5.52	34.37	106	13	Peak
2483.5	39.97	-14.03	54	36.84	31.98	5.52	34.37	106	13	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	53.86	-20.14	74	50.73	31.98	5.52	34.37	100	309	Peak
2483.5	36.78	-17.22	54	33.65	31.98	5.52	34.37	100	309	Average



Test Mode :	Mode 7	Temperature :	22~23°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~51%
Test Channel :	01	Test Engineer :	Eric Shih

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
2389.61	55.88	-18.12	74	52.97	31.9	5.4	34.39	106	15	Peak
2389.61	38.51	-15.49	54	35.6	31.9	5.4	34.39	106	15	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
2389.61	51.33	-22.67	74	48.42	31.9	5.4	34.39	102	309	Peak
2389.61	35.66	-18.34	54	32.75	31.9	5.4	34.39	102	309	Average

Test Mode :	Mode 9	Temperature :	22~23°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~51%
Test Channel :	11	Test Engineer :	Eric Shih

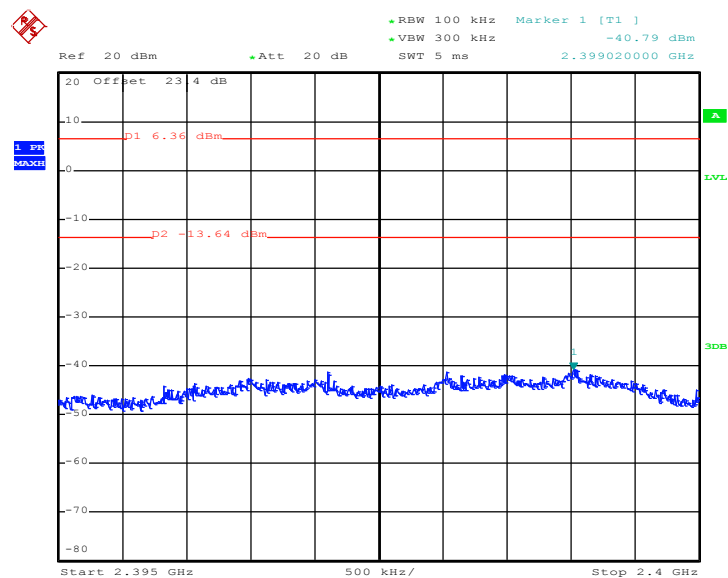
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	53.87	-20.13	74	50.74	31.98	5.52	34.37	105	19	Peak
2483.5	38.65	-15.35	54	35.52	31.98	5.52	34.37	105	19	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	49.14	-24.86	74	46.01	31.98	5.52	34.37	105	307	Peak
2483.85	35.15	-18.85	54	32.02	31.98	5.52	34.37	105	307	Average

3.3.6 Test Plots of Conducted Band Edges

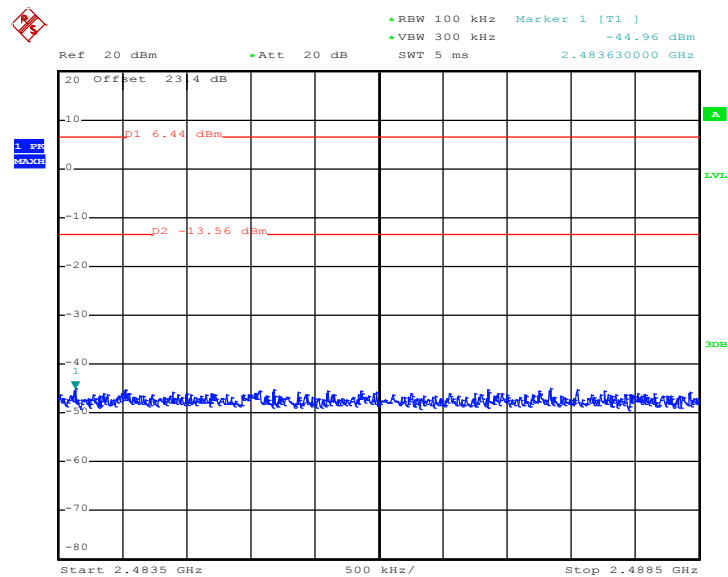
Test Mode :	Mode 1 and 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	51~54%
Test Channel :	01 and 11	Test Engineer :	Book Lin

Low Band Edge Plot on 802.11b Channel 01



Date: 12.OCT.2011 23:52:46

High Band Edge Plot on 802.11b Channel 11



Date: 13.OCT.2011 00:22:31



Low Band Edge Plot on 802.11g Channel 01

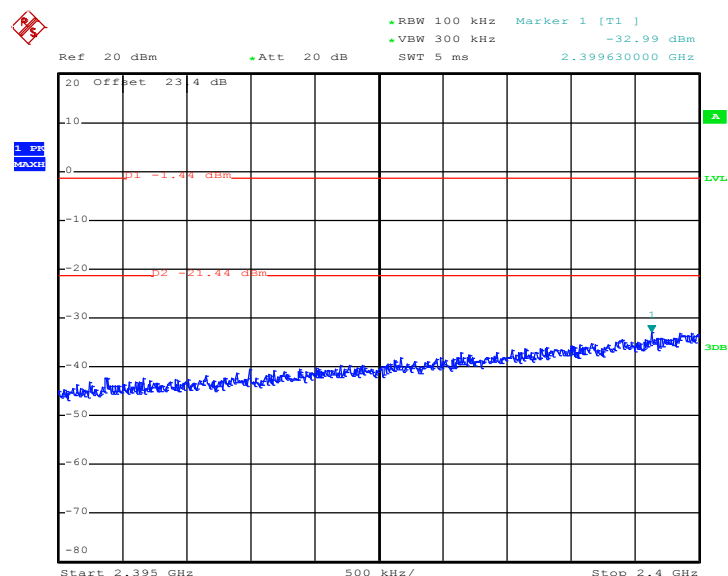


High Band Edge Plot on 802.11g Channel 11



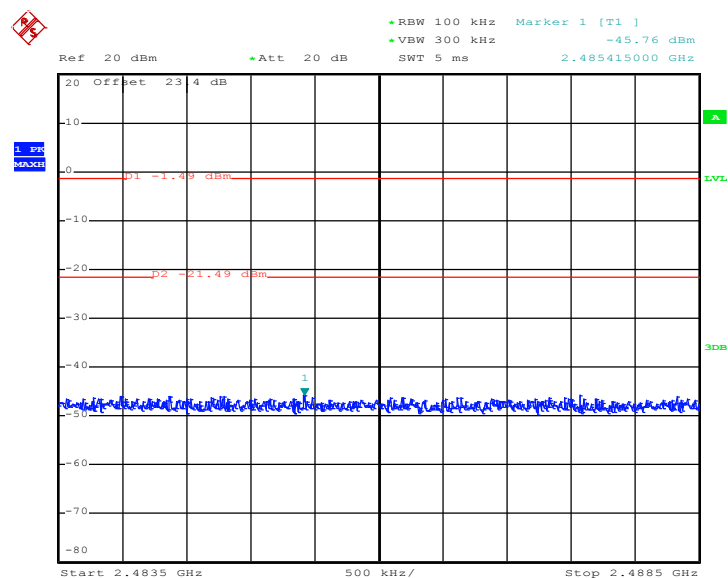
Test Mode :	Mode 7 and 9	Temperature :	24~26℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	51~54%
Test Channel :	01 and 11	Test Engineer :	Book Lin

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



Date: 13.OCT.2011 01:32:30

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



Date: 13.OCT.2011 02:00:17

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.

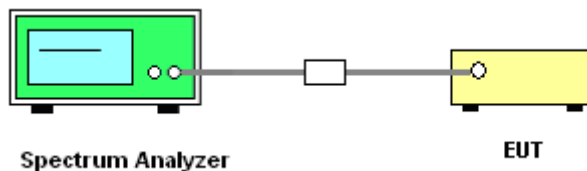
3.4.2 Measuring Instruments

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.

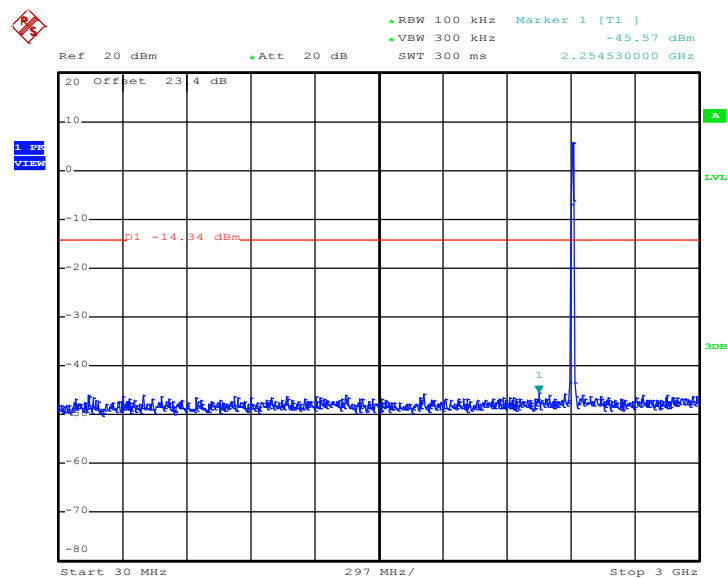
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

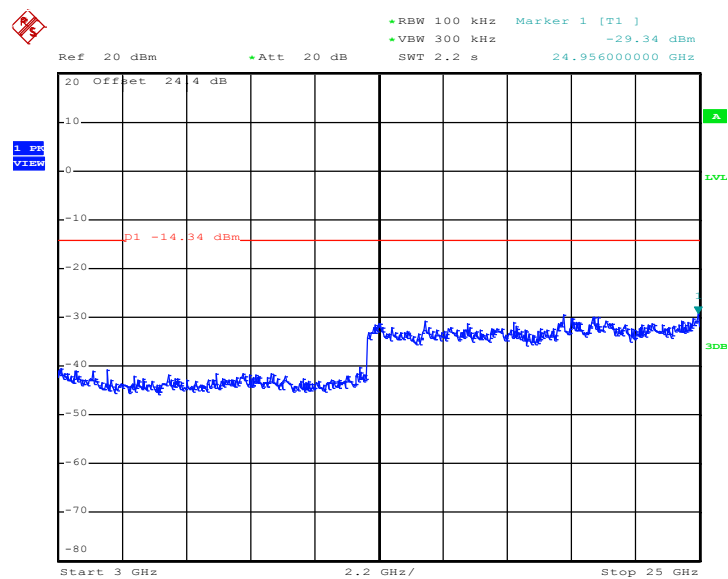
Test Mode :	Mode 1	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



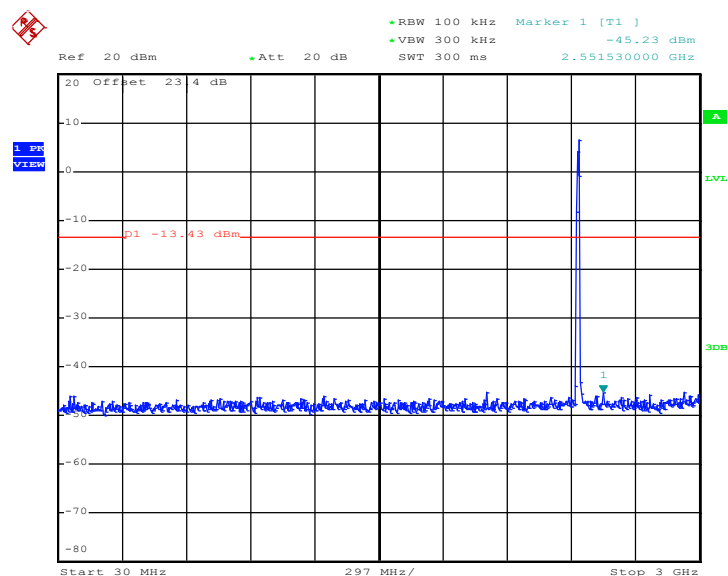
Date: 13.OCT.2011 00:02:15

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

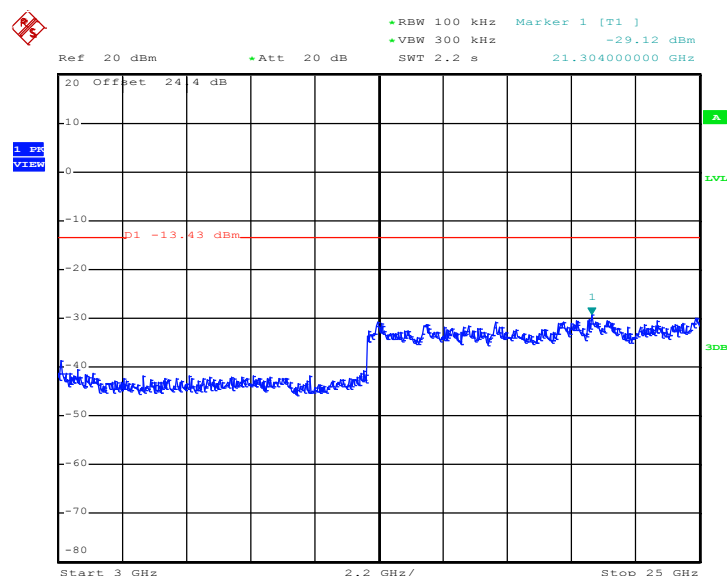


Date: 13.OCT.2011 00:02:33

Test Mode :	Mode 2	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Book Lin

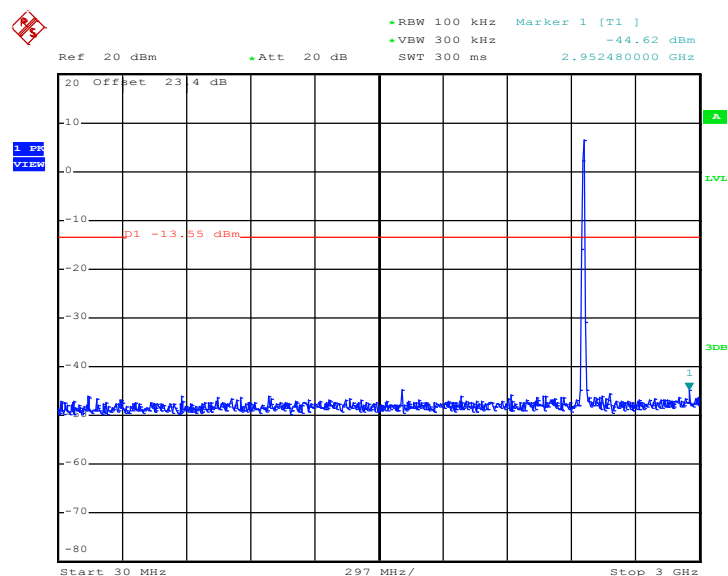
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 13.OCT.2011 00:17:19

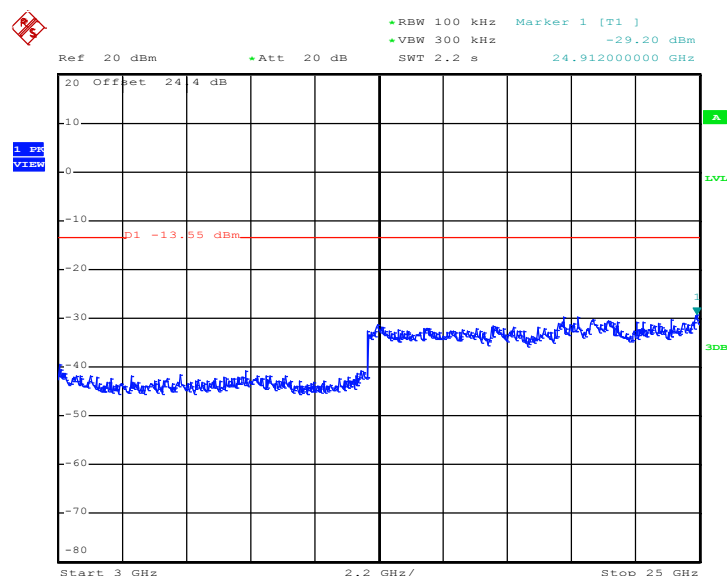
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 13.OCT.2011 00:17:37

Test Mode :	Mode 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Book Lin

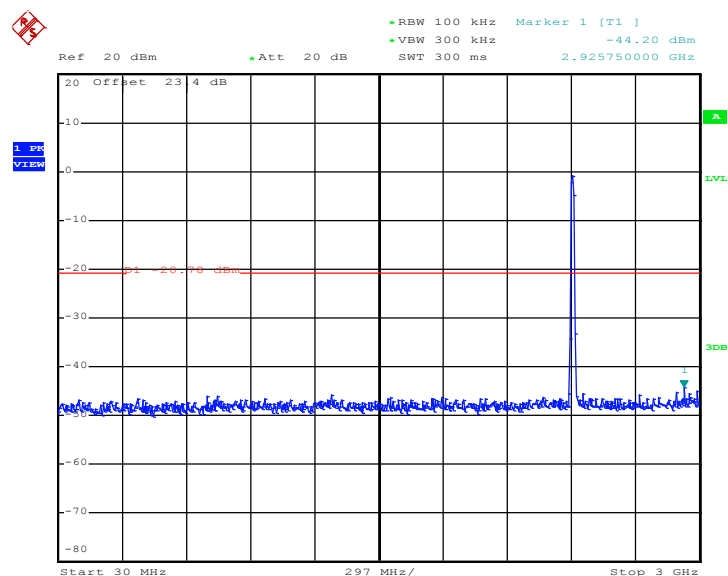
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 13.OCT.2011 00:33:04

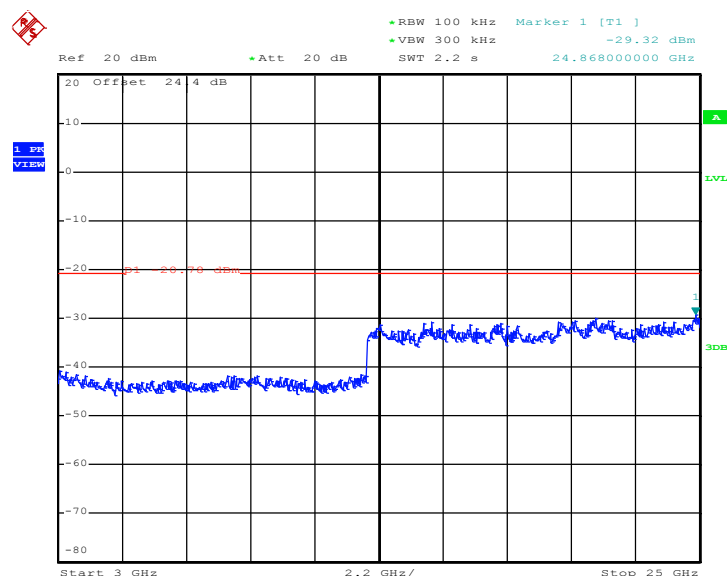
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 13.OCT.2011 00:33:22

Test Mode :	Mode 4	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Book Lin

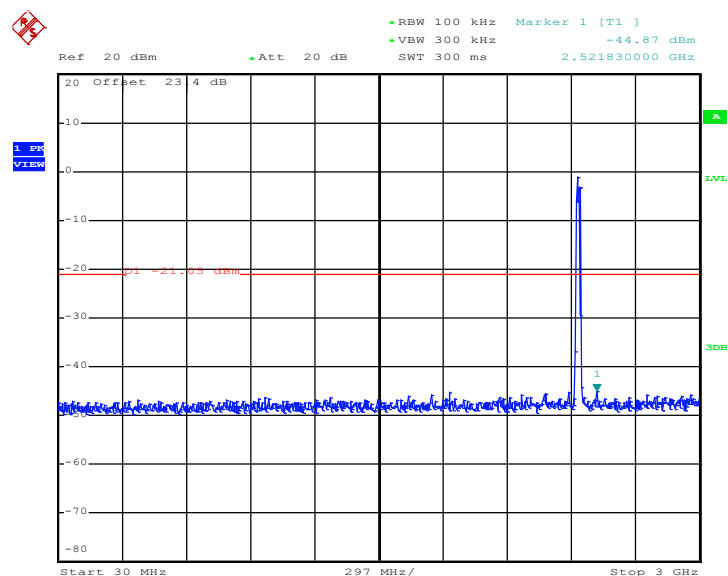
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 13.OCT.2011 00:50:12

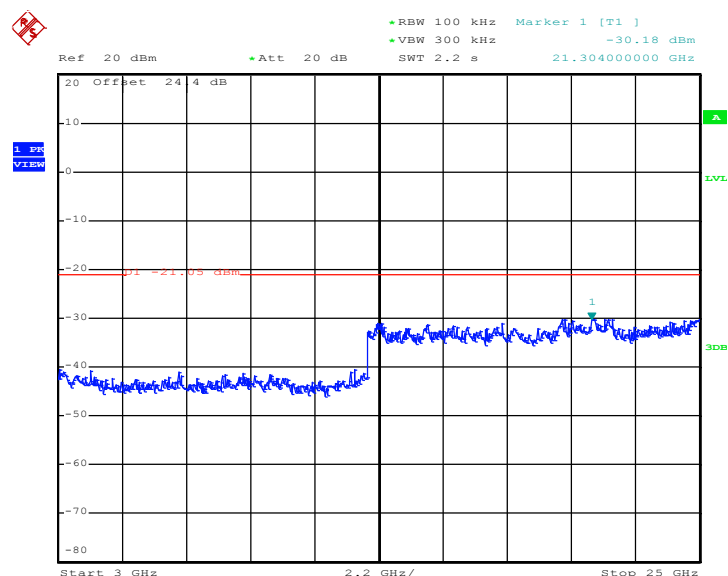
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 13.OCT.2011 00:50:29

Test Mode :	Mode 5	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Book Lin

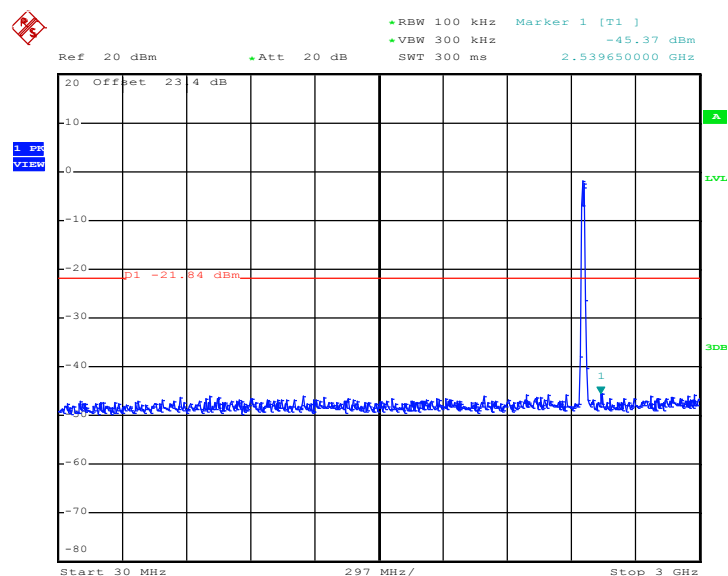
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 13.OCT.2011 01:05:43

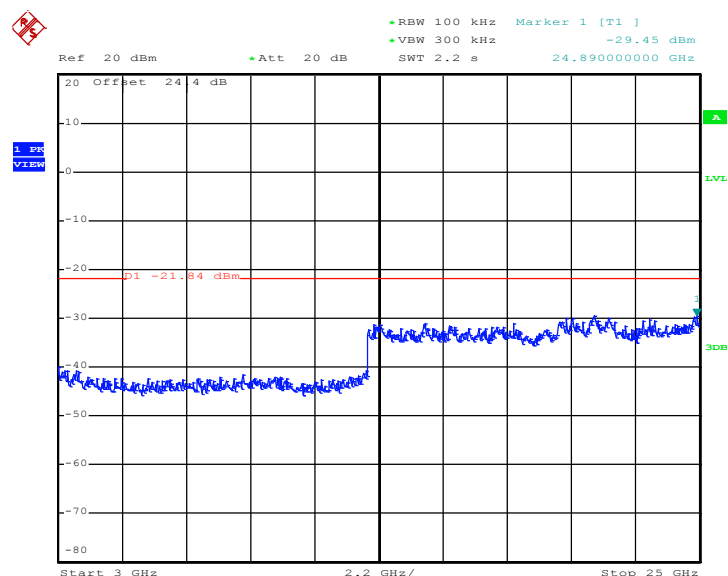
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 13.OCT.2011 01:06:02

Test Mode :	Mode 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 13.OCT.2011 01:23:13

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 13.OCT.2011 01:23:30



Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



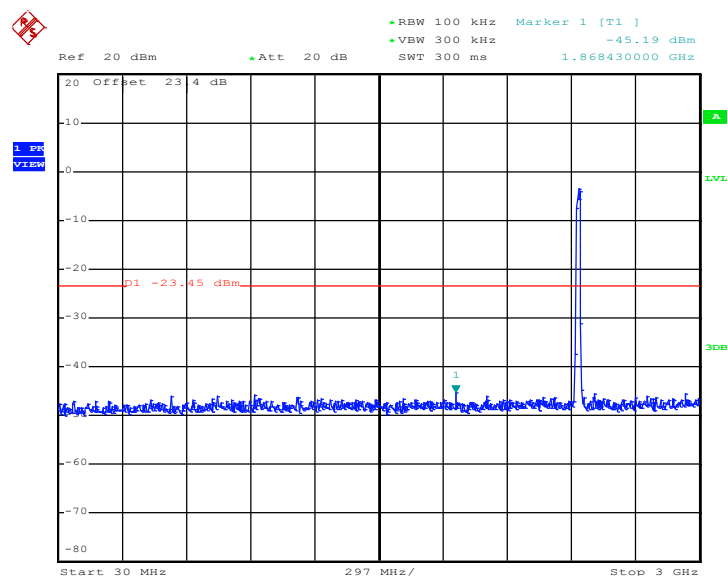
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz





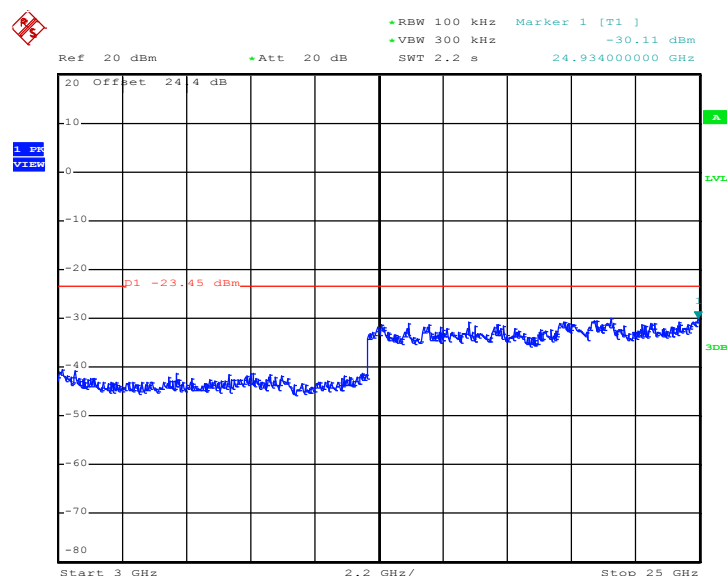
Test Mode :	Mode 8	Temperature :	24~26℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 13.OCT.2011 01:57:00

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 13.OCT.2011 01:57:18



Test Mode :	Mode 9	Temperature :	24~26℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Book Lin

• RBW 100 kHz Marker 1 [T1] -44.96 dBm
 • VBW 300 kHz
 • Att 20 dB SWT 300 ms 2.925750000 GHz

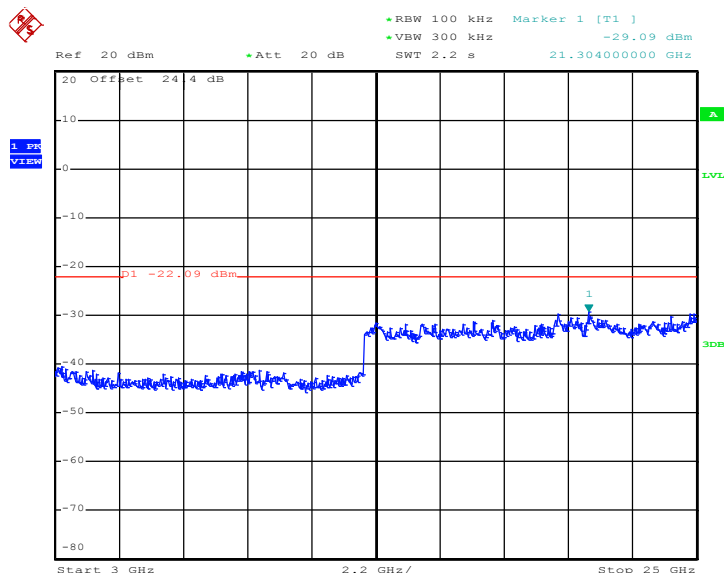
Ref 20 dBm Off 23.4 dB

1.7%
 VIEW

20 dB
 10 dB
 0 dB
 -10 dB
 -20 dB
 -30 dB
 -40 dB
 -50 dB
 -60 dB
 -70 dB
 -80 dB

20 MHz 23.4 MHz 297 MHz/ Stop 3 GHz

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 13.OCT.2011 02:10:05

3.5 Power Spectral Density Measurement

3.5.1 Limit of Power Spectral Density

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

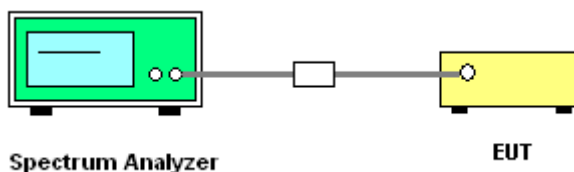
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

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

3.5.4 Test Setup

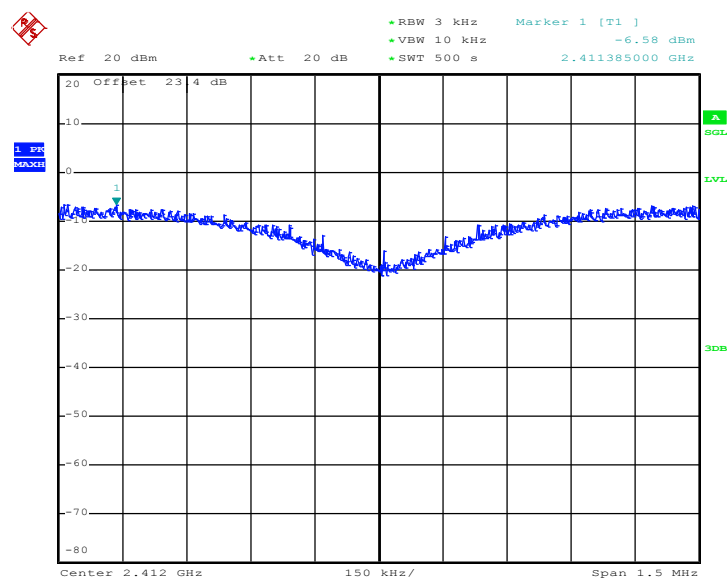


3.5.5 Test Result of Power Spectral Density

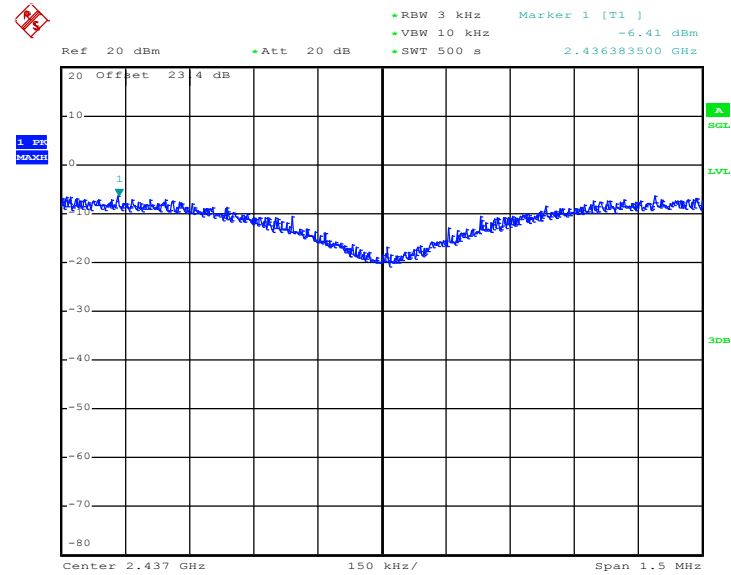
Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Book Lin	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-6.58	8	Pass
06	2437	-6.41	8	Pass
11	2462	-6.46	8	Pass

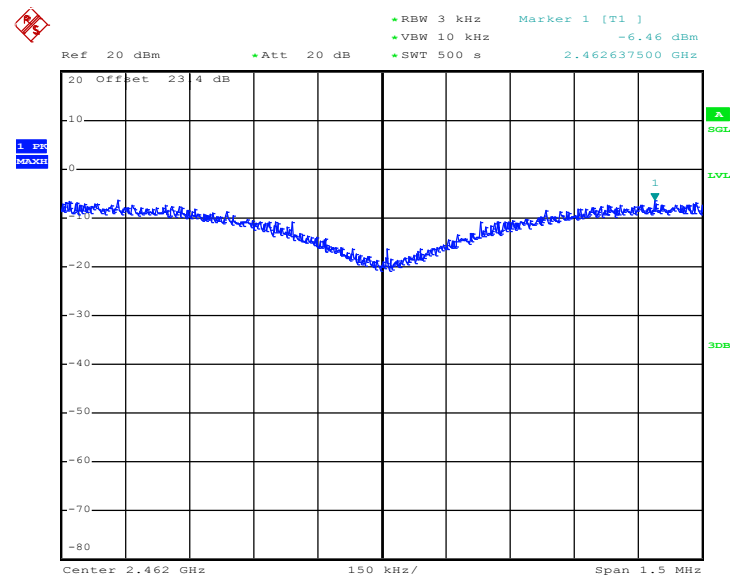
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 13.OCT.2011 00:01:53

Mode 2 : PSD Plot on 802.11b Channel 06


Date: 13.OCT.2011 00:16:57

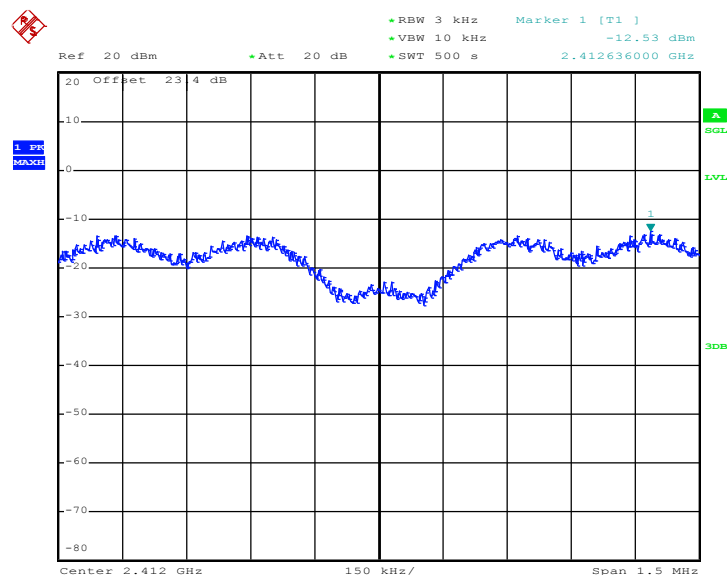
Mode 3 : PSD Plot on 802.11b Channel 11


Date: 13.OCT.2011 00:32:42

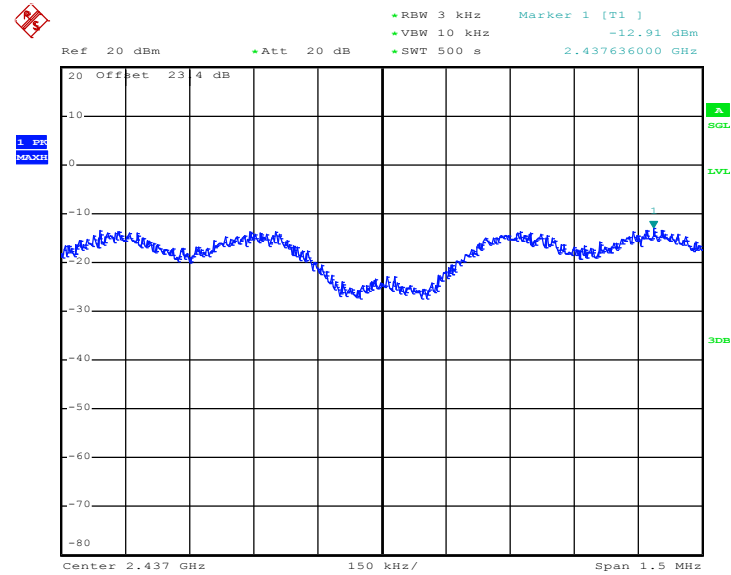


Test Mode :	Mode 4, 5, 6	Temperature :	24~26℃
Test Engineer :	Book Lin	Relative Humidity :	51~54%

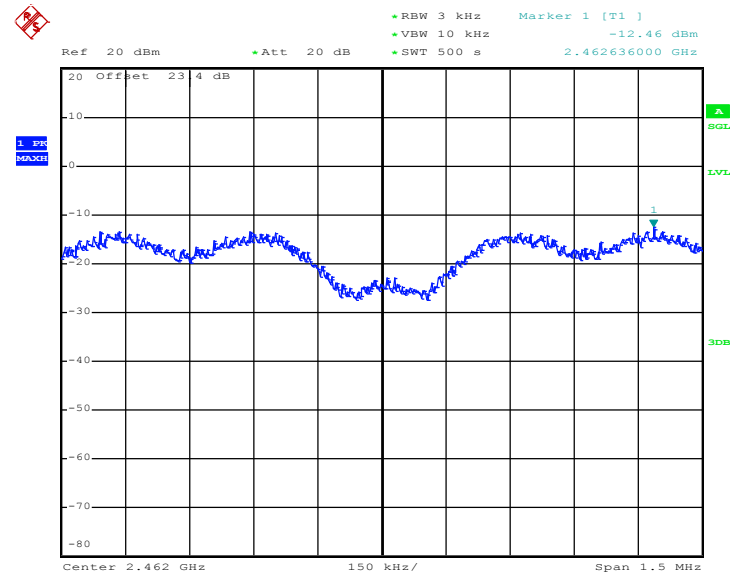
Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-12.53	8	Pass
06	2437	-12.91	8	Pass
11	2462	-12.46	8	Pass

Mode 4 : PSD Plot on 802.11g Channel 01

Date: 13.OCT.2011 00:49:50

Mode 5 : PSD Plot on 802.11g Channel 06


Date: 13.OCT.2011 01:05:23

Mode 6 : PSD Plot on 802.11g Channel 11


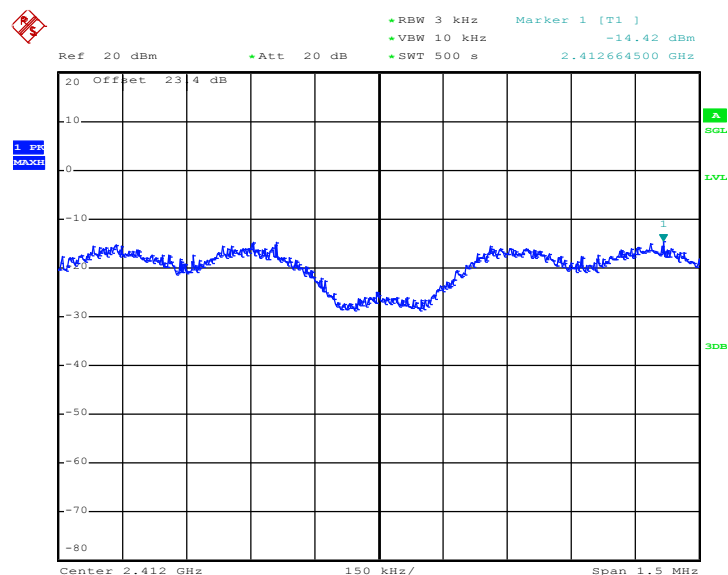
Date: 13.OCT.2011 01:22:51



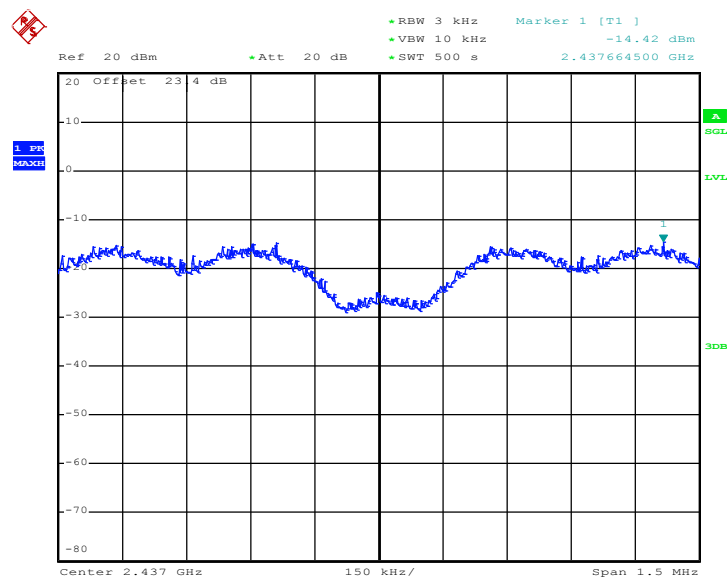
Test Mode :	Mode 7, 8, 9	Temperature :	24~26℃
Test Engineer :	Book Lin	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-14.42	8	Pass
06	2437	-14.42	8	Pass
11	2462	-14.40	8	Pass

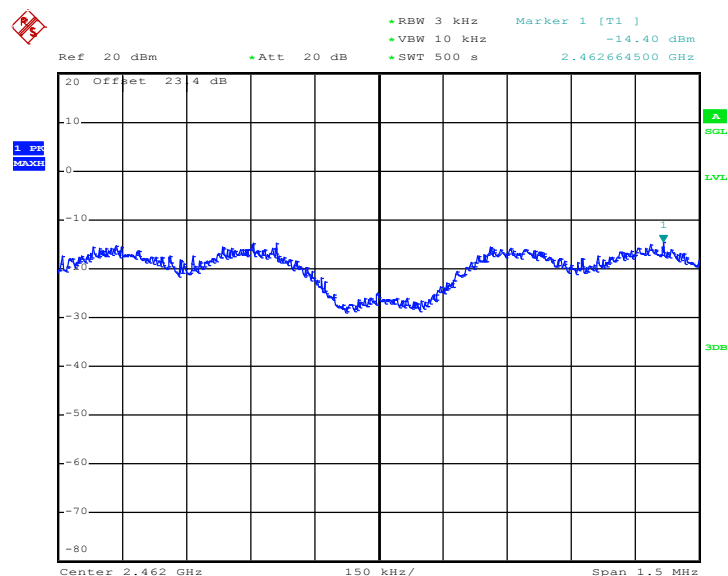
Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01



Date: 13.OCT.2011 01:42:04

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


Date: 13.OCT.2011 01:56:39

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


Date: 13.OCT.2011 02:09:26

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.

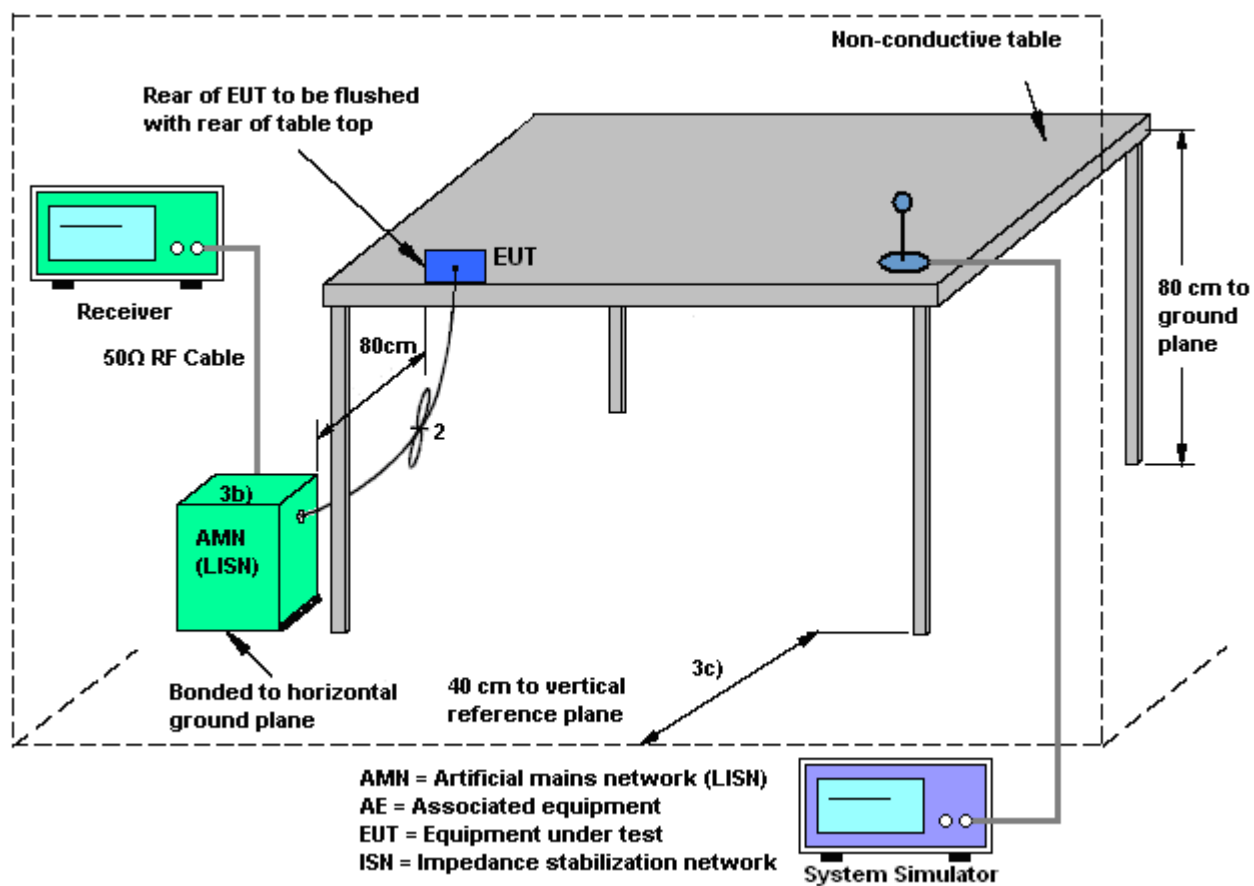
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

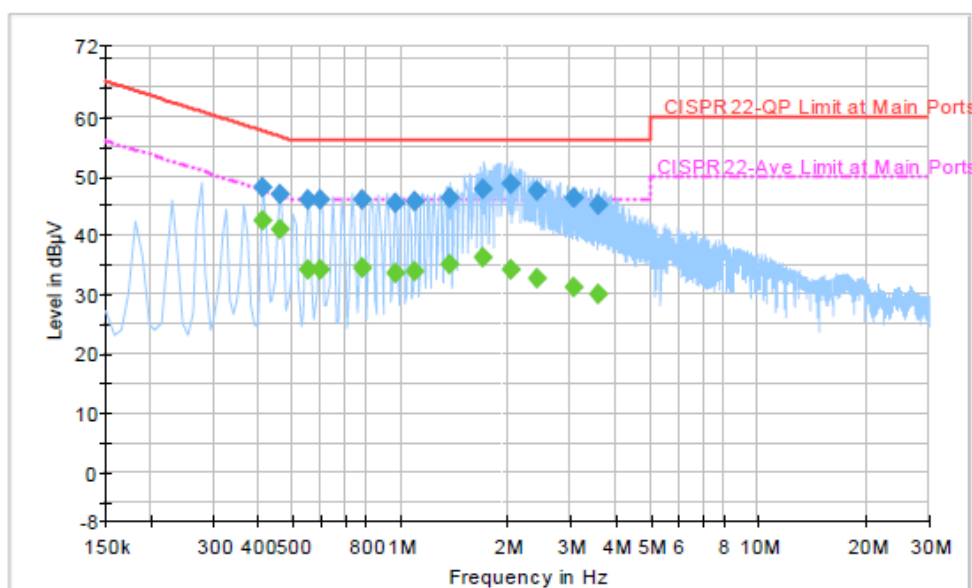
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 :	20~22°C
Test Engineer :	Aslen Chiu	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM1900 Idle + Bluetooth Link + WLAN Link + Earphone + Camera + USB Cable (Charging from Adapter) + Battery		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



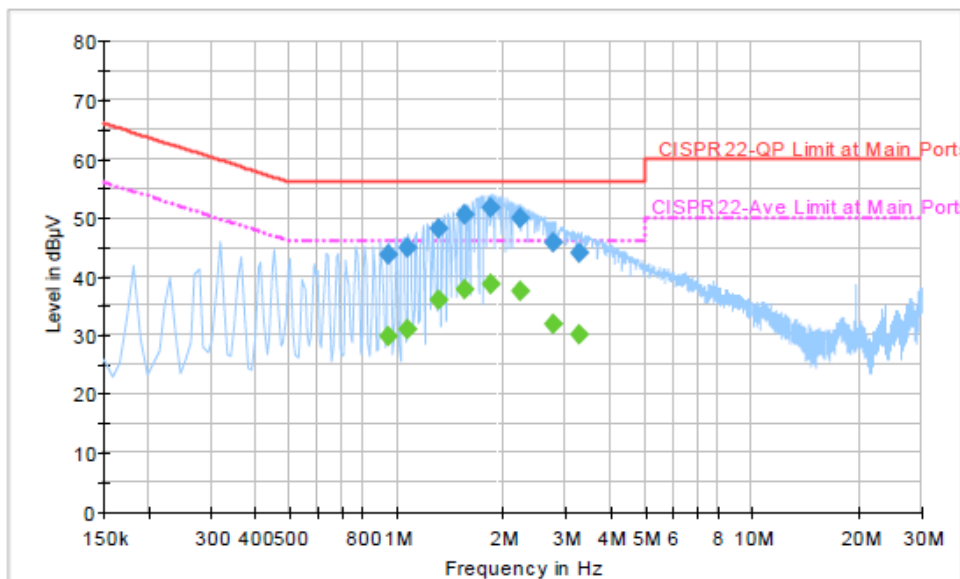
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.414000	48.1	Off	L1	19.5	9.5	57.6
0.462000	46.9	Off	L1	19.5	9.8	56.7
0.550000	46.1	Off	L1	19.4	9.9	56.0
0.598000	45.9	Off	L1	19.4	10.1	56.0
0.782000	46.0	Off	L1	19.4	10.0	56.0
0.966000	45.5	Off	L1	19.4	10.5	56.0
1.102000	45.7	Off	L1	19.4	10.3	56.0
1.374000	46.4	Off	L1	19.4	9.6	56.0
1.710000	47.7	Off	L1	19.4	8.3	56.0
2.038000	48.7	Off	L1	19.4	7.3	56.0
2.406000	47.6	Off	L1	19.5	8.4	56.0
3.054000	46.2	Off	L1	19.4	9.8	56.0
3.566000	45.1	Off	L1	19.5	10.9	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.414000	42.6	Off	L1	19.5	5.0	47.6
0.462000	41.1	Off	L1	19.5	5.6	46.7
0.550000	34.2	Off	L1	19.4	11.8	46.0
0.598000	34.2	Off	L1	19.4	11.8	46.0
0.782000	34.4	Off	L1	19.4	11.6	46.0
0.966000	33.7	Off	L1	19.4	12.3	46.0
1.102000	34.0	Off	L1	19.4	12.0	46.0
1.374000	35.2	Off	L1	19.4	10.8	46.0
1.710000	36.3	Off	L1	19.4	9.7	46.0
2.038000	34.1	Off	L1	19.4	11.9	46.0
2.406000	32.6	Off	L1	19.5	13.4	46.0
1.374000	31.2	Off	L1	19.4	14.8	46.0
3.566000	30.1	Off	L1	19.5	15.9	46.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Aslen Chiu	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM1900 Idle + Bluetooth Link + WLAN Link + Earphone + Camera + USB Cable (Charging from Adapter) + Battery		
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)
0.950000	43.8	Off	N	19.5	12.2	56.0
1.078000	45.0	Off	N	19.5	11.0	56.0
1.310000	48.1	Off	N	19.5	7.9	56.0
1.550000	50.4	Off	N	19.5	5.6	56.0
1.846000	51.7	Off	N	19.5	4.3	56.0
2.230000	50.0	Off	N	19.5	6.0	56.0
2.774000	45.8	Off	N	19.5	10.2	56.0
3.278000	44.1	Off	N	19.5	11.9	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.950000	29.8	Off	N	19.5	16.2	46.0
1.078000	30.9	Off	N	19.5	15.1	46.0
1.310000	36.1	Off	N	19.5	9.9	46.0
1.550000	37.9	Off	N	19.5	8.1	46.0
1.846000	38.8	Off	N	19.5	7.2	46.0
2.230000	37.6	Off	N	19.5	8.4	46.0
2.774000	31.8	Off	N	19.5	14.2	46.0
3.278000	30.1	Off	N	19.5	15.9	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

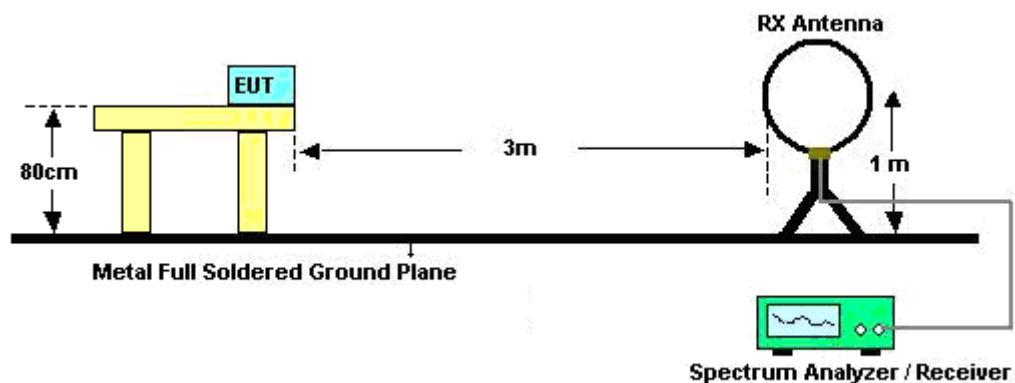
See list of measuring instruments of this test report.

3.7.3 Test Procedures

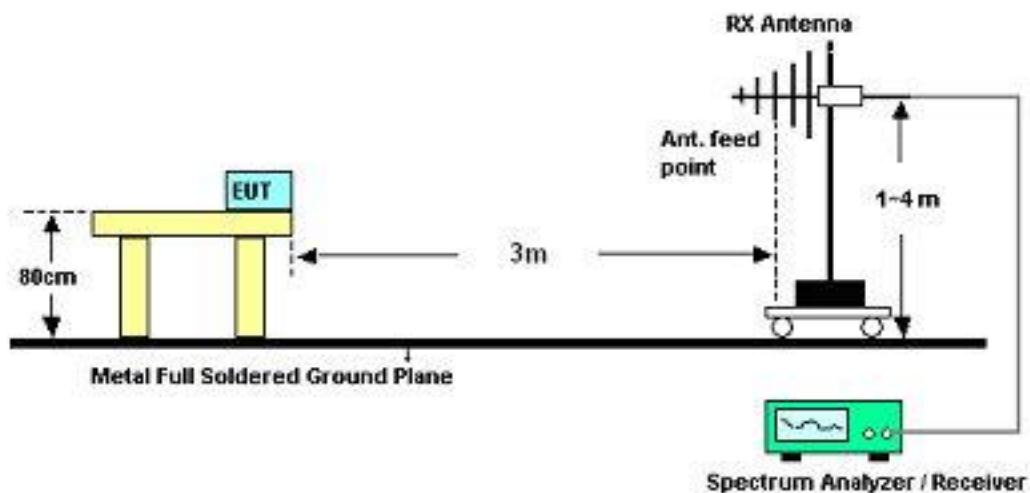
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep =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

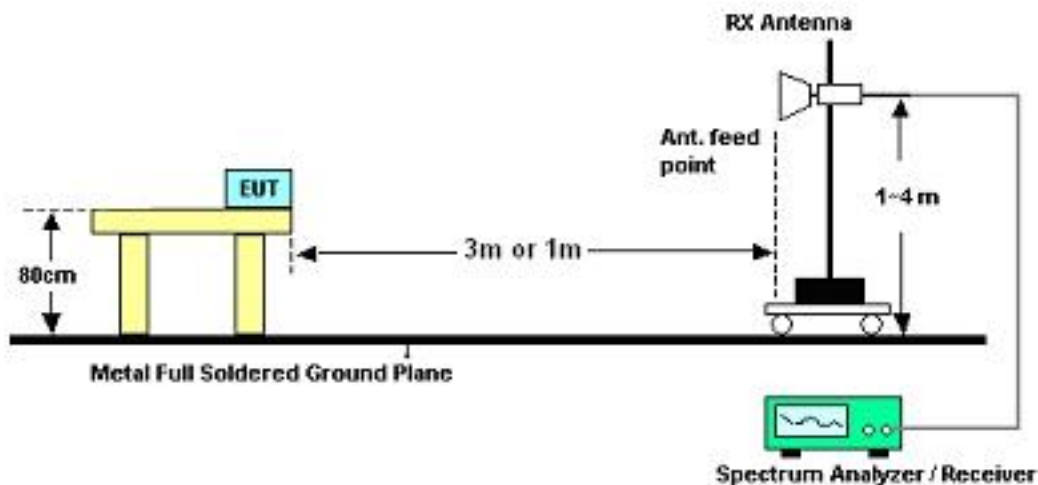
For radiated emissions below 30MHz



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 :	Eric Shih	Temperature :	22~23℃
		Relative Humidity :	49~51%

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)
26	3	9.83	19.70	40	30	-30.17	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*log(30m/3m)=-30 (dBuV/m)
For example 2:
Field Strength at 10m=10 (dBuV/m)
Field Strength at 30m=10- 40*log(30m/10m)=-9.08 (dBuV/m)

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

Test Mode :	Mode 1	Temperature :	22~23℃
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 2532 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 106.78 dBuV/m - 20dB = 86.78 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
42.69	26.49	-13.51	40	46.13	11.25	0.81	31.7	100	49	Peak
123.42	18.2	-25.3	43.5	36.49	12.07	1.35	31.71	-	-	Peak
129.09	19.21	-24.29	43.5	37.72	11.81	1.38	31.7	-	-	Peak
763.4	28.77	-17.23	46	37.23	20.26	3.35	32.07	-	-	Peak
780.2	24.82	-21.18	46	32.99	20.49	3.36	32.02	-	-	Peak
864.9	28.53	-17.47	46	35.41	21.33	3.61	31.82	-	-	Peak
2333.37	36.2	-17.8	54	33.44	31.83	5.34	34.41	109	13	Average
2333.37	48.63	-25.37	74	45.87	31.83	5.34	34.41	109	13	Peak
2412	102.82	-	-	99.87	31.91	5.43	34.39	109	13	Average
2412	106.78	-	-	103.83	31.91	5.43	34.39	109	13	Peak
2494	57.84	-16.16	74	54.69	32	5.52	34.37	109	13	Peak
2494	38.16	-15.84	54	35.01	32	5.52	34.37	109	13	Average
2532	57.04	-29.74	86.78	53.77	32.03	5.57	34.33	109	13	Peak



Test Mode :	Mode 1	Temperature :	22~23℃
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
42.69	30.27	-9.73	40	49.91	11.25	0.81	31.7	100	27	Peak
92.37	20.07	-23.43	43.5	41.23	9.4	1.15	31.71	-	-	Peak
120.18	22.03	-21.47	43.5	40.18	12.23	1.33	31.71	-	-	Peak
763.4	26.13	-19.87	46	34.59	20.26	3.35	32.07	-	-	Peak
864.2	27.17	-18.83	46	34.07	21.32	3.6	31.82	-	-	Peak
932.1	24.57	-21.43	46	30.31	21.78	3.78	31.3	-	-	Peak
2388.66	35.54	-18.46	54	32.63	31.9	5.4	34.39	107	318	Average
2388.66	47.53	-26.47	74	44.62	31.9	5.4	34.39	107	318	Peak
2412	98.27	-	-	95.32	31.91	5.43	34.39	107	318	Average
2412	102.27	-	-	99.32	31.91	5.43	34.39	107	318	Peak
2492	54.86	-19.14	74	51.71	32	5.52	34.37	107	318	Peak
2492	35.34	-18.66	54	32.19	32	5.52	34.37	107	318	Average

Test Mode :	Mode 2	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
42.42	26.19	-13.81	40	45.83	11.25	0.81	31.7	100	26	Peak
122.61	18.87	-24.63	43.5	37.12	12.12	1.34	31.71	-	-	Peak
129.09	18.09	-25.41	43.5	36.6	11.81	1.38	31.7	-	-	Peak
763.4	28.76	-17.24	46	37.22	20.26	3.35	32.07	-	-	Peak
864.2	28.9	-17.1	46	35.8	21.32	3.6	31.82	-	-	Peak
898.5	25.45	-20.55	46	31.7	21.61	3.75	31.61	-	-	Peak
2388	48.18	-25.82	74	45.27	31.9	5.4	34.39	104	25	Peak
2388	34.96	-19.04	54	32.05	31.9	5.4	34.39	104	25	Average
2437	105.29	-	-	102.26	31.95	5.46	34.38	104	25	Peak
2437	101.31	-	-	98.28	31.95	5.46	34.38	104	25	Average
2484	48.27	-25.73	74	45.14	31.98	5.52	34.37	104	25	Peak
2484	35.09	-18.91	54	31.96	31.98	5.52	34.37	104	25	Average



Test Mode :	Mode 2	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
42.42	30.21	-9.79	40	49.85	11.25	0.81	31.7	100	20	Peak
92.37	20.36	-23.14	43.5	41.52	9.4	1.15	31.71	-	-	Peak
119.37	21.1	-22.4	43.5	39.32	12.16	1.33	31.71	-	-	Peak
763.4	27.03	-18.97	46	35.49	20.26	3.35	32.07	-	-	Peak
864.9	27.11	-18.89	46	33.99	21.33	3.61	31.82	-	-	Peak
932.1	24.1	-21.9	46	29.84	21.78	3.78	31.3	-	-	Peak
2390	45.97	-28.03	74	43.06	31.9	5.4	34.39	104	311	Peak
2390	33.98	-20.02	54	31.07	31.9	5.4	34.39	104	311	Average
2437	101.83	-	-	98.82	31.93	5.46	34.38	104	311	Peak
2437	97.95	-	-	94.92	31.95	5.46	34.38	104	311	Average
2486	47.03	-26.97	74	43.9	31.98	5.52	34.37	104	311	Peak
2486	33.97	-20.03	54	30.84	31.98	5.52	34.37	104	311	Average



Test Mode :	Mode 3	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
42.42	26.54	-13.46	40	46.18	11.25	0.81	31.7	100	54	Peak
122.61	18.11	-25.39	43.5	36.36	12.12	1.34	31.71	-	-	Peak
126.66	18.47	-25.03	43.5	36.91	11.89	1.37	31.7	-	-	Peak
763.4	29.58	-16.42	46	38.04	20.26	3.35	32.07	-	-	Peak
864.2	28.46	-17.54	46	35.36	21.32	3.6	31.82	-	-	Peak
898.5	25.05	-20.95	46	31.3	21.61	3.75	31.61	-	-	Peak
2388	47.52	-26.48	74	44.61	31.9	5.4	34.39	104	10	Peak
2388	36	-18	54	33.09	31.9	5.4	34.39	104	10	Average
2462	106.33	-	-	103.25	31.97	5.49	34.38	104	10	Peak
2462	102.24	-	-	99.16	31.97	5.49	34.38	104	10	Average
2499.81	52.53	-21.47	74	49.38	32	5.52	34.37	104	10	Peak
2499.81	38.77	-15.23	54	35.62	32	5.52	34.37	104	10	Average



Test Mode :	Mode 3	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
43.5	31.27	-8.73	40	51.45	10.71	0.81	31.7	100	31	Peak
100.74	20.52	-22.98	43.5	40.21	10.76	1.23	31.68	-	-	Peak
120.18	22.01	-21.49	43.5	40.16	12.23	1.33	31.71	-	-	Peak
763.4	27.23	-18.77	46	35.69	20.26	3.35	32.07	-	-	Peak
864.2	26.82	-19.18	46	33.72	21.32	3.6	31.82	-	-	Peak
932.1	24.77	-21.23	46	30.51	21.78	3.78	31.3	-	-	Peak
2380	47.41	-26.59	74	44.52	31.88	5.4	34.39	100	321	Peak
2380	34.65	-19.35	54	31.76	31.88	5.4	34.39	100	321	Average
2462	102.08	-	-	99	31.97	5.49	34.38	100	321	Peak
2462	98.05	-	-	94.97	31.97	5.49	34.38	100	321	Average
2499.05	48.15	-25.85	74	45	32	5.52	34.37	100	321	Peak
2499.05	35.68	-18.32	54	32.53	32	5.52	34.37	100	321	Average

Test Mode :	Mode 4	Temperature :	22~23℃
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 2540 MHz and 2574 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level.		

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
42.96	26.29	-13.71	40	45.93	11.25	0.81	31.7	100	29	Peak
122.61	18.45	-25.05	43.5	36.7	12.12	1.34	31.71	-	-	Peak
129.09	18.81	-24.69	43.5	37.32	11.81	1.38	31.7	-	-	Peak
763.4	28.64	-17.36	46	37.1	20.26	3.35	32.07	-	-	Peak
864.2	29.24	-16.76	46	36.14	21.32	3.6	31.82	-	-	Peak
932.1	24.14	-21.86	46	29.88	21.78	3.78	31.3	-	-	Peak
2389.99	41.08	-12.92	54	38.17	31.9	5.4	34.39	109	18	Average
2389.99	62.01	-11.99	74	59.1	31.9	5.4	34.39	109	18	Peak
2412	106.27	-	-	103.32	31.91	5.43	34.39	109	18	Peak
2412	95.85	-	-	92.9	31.91	5.43	34.39	109	18	Average
2494	36.22	-17.78	54	33.07	32	5.52	34.37	109	18	Average
2494	56.57	-17.43	74	53.42	32	5.52	34.37	109	18	Peak
2540	52.75	-33.52	86.27	49.46	32.05	5.57	34.33	109	18	Peak
2574	54.3	-31.97	86.27	50.88	32.08	5.63	34.29	109	18	Peak

Test Mode :	Mode 4	Temperature :	22~23℃
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 2534 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

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
42.69	30.34	-9.66	40	49.98	11.25	0.81	31.7	100	34	Peak
92.37	20.46	-23.04	43.5	41.62	9.4	1.15	31.71	-	-	Peak
121.26	22.26	-21.24	43.5	40.45	12.18	1.34	31.71	-	-	Peak
763.4	27.11	-18.89	46	35.57	20.26	3.35	32.07	-	-	Peak
780.2	24.47	-21.53	46	32.64	20.49	3.36	32.02	-	-	Peak
864.2	26.93	-19.07	46	33.83	21.32	3.6	31.82	-	-	Peak
2389.99	37.01	-16.99	54	34.1	31.9	5.4	34.39	103	308	Average
2389.99	57.62	-16.38	74	54.71	31.9	5.4	34.39	103	308	Peak
2412	102.04	-	-	99.09	31.91	5.43	34.39	103	308	Peak
2412	91.54	-	-	88.59	31.91	5.43	34.39	103	308	Average
2492	33.95	-20.05	54	30.8	32	5.52	34.37	103	308	Average
2492	49.7	-24.3	74	46.55	32	5.52	34.37	103	308	Peak
2534	53.26	-28.78	82.04	49.99	32.03	5.57	34.33	103	308	Peak

Test Mode :	Mode 5	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 2516 MHz, 2550 MHz, and 2604 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level.		

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
42.69	26.05	-13.95	40	45.69	11.25	0.81	31.7	100	31	Peak
123.69	19.01	-24.49	43.5	37.36	12.01	1.35	31.71	-	-	Peak
129.9	19.09	-24.41	43.5	37.63	11.77	1.39	31.7	-	-	Peak
763.4	28.65	-17.35	46	37.11	20.26	3.35	32.07	-	-	Peak
780.2	24.41	-21.59	46	32.58	20.49	3.36	32.02	-	-	Peak
864.2	28.87	-17.13	46	35.77	21.32	3.6	31.82	-	-	Peak
2390	48.68	-25.32	74	45.77	31.9	5.4	34.39	105	6	Peak
2390	35.18	-18.82	54	32.27	31.9	5.4	34.39	105	6	Average
2437	106.89	-	-	103.88	31.93	5.46	34.38	105	6	Peak
2437	91.27	-	-	88.19	31.97	5.49	34.38	105	6	Average
2484	48.69	-25.31	74	45.56	31.98	5.52	34.37	105	6	Peak
2484	35.42	-18.58	54	32.29	31.98	5.52	34.37	105	6	Average
2516	57.98	-28.91	86.89	54.76	32.02	5.55	34.35	105	6	Peak
2550	57.33	-29.56	86.89	53.99	32.05	5.6	34.31	105	6	Peak
2604	56.22	-30.67	86.89	52.74	32.1	5.65	34.27	105	6	Peak

Test Mode :	Mode 5	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 2516 and 2558 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level.		

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
42.69	30.62	-9.38	40	50.26	11.25	0.81	31.7	100	32	Peak
92.37	20.53	-22.97	43.5	41.69	9.4	1.15	31.71	-	-	Peak
121.53	22.04	-21.46	43.5	40.23	12.18	1.34	31.71	-	-	Peak
763.4	27.9	-18.1	46	36.36	20.26	3.35	32.07	-	-	Peak
864.2	28	-18	46	34.9	21.32	3.6	31.82	-	-	Peak
932.1	24.38	-21.62	46	30.12	21.78	3.78	31.3	-	-	Peak
2380	46.52	-27.48	74	43.63	31.88	5.4	34.39	102	313	Peak
2380	33.7	-20.3	54	30.81	31.88	5.4	34.39	102	313	Average
2437	101.6	-	-	98.59	31.93	5.46	34.38	102	313	Peak
2437	86.68	-	-	83.65	31.95	5.46	34.38	102	313	Average
2494	46.18	-27.82	74	43.03	32	5.52	34.37	102	313	Peak
2494	33.34	-20.66	54	30.19	32	5.52	34.37	102	313	Average
2516	52.65	-28.95	81.6	49.43	32.02	5.55	34.35	102	313	Peak
2558	51.45	-30.15	81.6	48.09	32.07	5.6	34.31	102	313	Peak

Test Mode :	Mode 6	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 2540 MHz and 2582 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level.		

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
42.69	26.22	-13.78	40	45.86	11.25	0.81	31.7	100	22	Peak
122.61	18.24	-25.26	43.5	36.49	12.12	1.34	31.71	-	-	Peak
128.82	18.8	-24.7	43.5	37.31	11.81	1.38	31.7	-	-	Peak
763.4	29.27	-16.73	46	37.73	20.26	3.35	32.07	-	-	Peak
864.2	28.85	-17.15	46	35.75	21.32	3.6	31.82	-	-	Peak
898.5	25.57	-20.43	46	31.82	21.61	3.75	31.61	-	-	Peak
2390	48.98	-25.02	74	46.07	31.9	5.4	34.39	106	13	Peak
2390	36.25	-17.75	54	33.34	31.9	5.4	34.39	106	13	Average
2462	106.3	-	-	103.22	31.97	5.49	34.38	106	13	Peak
2462	95.81	-	-	92.73	31.97	5.49	34.38	106	13	Average
2483.5	39.97	-14.03	54	36.84	31.98	5.52	34.37	106	13	Average
2483.5	59.19	-14.81	74	56.06	31.98	5.52	34.37	106	13	Peak
2540	56.37	-29.93	86.3	53.08	32.05	5.57	34.33	106	13	Peak
2582	54.17	-32.13	86.3	50.75	32.08	5.63	34.29	106	13	Peak

Test Mode :	Mode 6	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 2540 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

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
42.69	30.15	-9.85	40	49.79	11.25	0.81	31.7	100	15	Peak
101.01	19.5	-24	43.5	39.19	10.76	1.23	31.68	-	-	Peak
122.34	21.89	-21.61	43.5	40.14	12.12	1.34	31.71	-	-	Peak
763.4	26.99	-19.01	46	35.45	20.26	3.35	32.07	-	-	Peak
780.2	23.81	-22.19	46	31.98	20.49	3.36	32.02	-	-	Peak
864.9	27.22	-18.78	46	34.1	21.33	3.61	31.82	-	-	Peak
2388	46.76	-27.24	74	43.85	31.9	5.4	34.39	100	309	Peak
2388	34.57	-19.43	54	31.66	31.9	5.4	34.39	100	309	Average
2462	102.42	-	-	99.34	31.97	5.49	34.38	100	309	Peak
2462	90.42	-	-	87.34	31.97	5.49	34.38	100	309	Average
2483.5	36.78	-17.22	54	33.65	31.98	5.52	34.37	100	309	Average
2483.5	53.86	-20.14	74	50.73	31.98	5.52	34.37	100	309	Peak
2540	52.35	-30.07	82.42	49.06	32.05	5.57	34.33	100	309	Peak

Test Mode :	Mode 7	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 2526 MHz and 2580 are not within a restricted band, and its limit line is 20dB below the highest emission level.		

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
42.96	24.96	-15.04	40	44.6	11.25	0.81	31.7	100	95	Peak
120.45	18.74	-24.76	43.5	36.89	12.23	1.33	31.71	-	-	Peak
128.82	19.2	-24.3	43.5	37.71	11.81	1.38	31.7	-	-	Peak
763.4	29.19	-16.81	46	37.65	20.26	3.35	32.07	-	-	Peak
864.2	28.7	-17.3	46	35.6	21.32	3.6	31.82	-	-	Peak
932.1	24.62	-21.38	46	30.36	21.78	3.78	31.3	-	-	Peak
2389.61	38.51	-15.49	54	35.6	31.9	5.4	34.39	106	15	Average
2389.61	55.88	-18.12	74	52.97	31.9	5.4	34.39	106	15	Peak
2412	103.05	-	-	100.1	31.91	5.43	34.39	106	15	Peak
2412	92.21	-	-	89.26	31.91	5.43	34.39	106	15	Average
2486	55.12	-18.88	74	51.99	31.98	5.52	34.37	106	15	Peak
2486	35.62	-18.38	54	32.49	31.98	5.52	34.37	106	15	Average
2526	54.02	-29.03	83.05	50.75	32.03	5.57	34.33	106	15	Peak
2580	55.74	-27.31	83.05	52.32	32.08	5.63	34.29	106	15	Peak



Test Mode :	Mode 7	Temperature :	22~23℃
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
42.69	30.44	-9.56	40	50.08	11.25	0.81	31.7	100	30	Peak
91.02	19	-24.5	43.5	40.33	9.24	1.15	31.72	-	-	Peak
123.42	22.29	-21.21	43.5	40.58	12.07	1.35	31.71	-	-	Peak
763.4	28.11	-17.89	46	36.57	20.26	3.35	32.07	-	-	Peak
780.2	22.62	-23.38	46	30.79	20.49	3.36	32.02	-	-	Peak
864.2	26.53	-19.47	46	33.43	21.32	3.6	31.82	-	-	Peak
2389.61	35.66	-18.34	54	32.75	31.9	5.4	34.39	102	309	Average
2389.61	51.33	-22.67	74	48.42	31.9	5.4	34.39	102	309	Peak
2412	88.82	-	-	85.87	31.91	5.43	34.39	102	309	Average
2412	99.47	-	-	96.52	31.91	5.43	34.39	102	309	Peak
2500	49.38	-24.62	74	46.23	32	5.52	34.37	102	309	Peak
2500	33.4	-20.6	54	30.25	32	5.52	34.37	102	309	Average

Test Mode :	Mode 8	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 2518 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

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
41.61	26.94	-13.06	40	46.05	11.78	0.81	31.7	100	93	Peak
122.61	21.21	-22.29	43.5	39.46	12.12	1.34	31.71	-	-	Peak
125.85	20.38	-23.12	43.5	38.79	11.92	1.37	31.7	-	-	Peak
763.4	28.37	-17.63	46	36.83	20.26	3.35	32.07	-	-	Peak
780.2	24.96	-21.04	46	33.13	20.49	3.36	32.02	-	-	Peak
864.2	29.22	-16.78	46	36.12	21.32	3.6	31.82	-	-	Peak
2390	47.73	-26.27	74	44.82	31.9	5.4	34.39	108	28	Peak
2390	35.15	-18.85	54	32.24	31.9	5.4	34.39	108	28	Average
2437	102.67	-	-	99.66	31.93	5.46	34.38	108	28	Peak
2437	91.92	-	-	88.89	31.95	5.46	34.38	108	28	Average
2484	47.7	-26.3	74	44.57	31.98	5.52	34.37	108	28	Peak
2484	35.05	-18.95	54	31.92	31.98	5.52	34.37	108	28	Average
2518	53.77	-28.9	82.67	50.55	32.02	5.55	34.35	108	28	Peak



Test Mode :	Mode 8	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
43.5	31.66	-8.34	40	51.84	10.71	0.81	31.7	100	66	Peak
101.01	21.37	-22.13	43.5	41.06	10.76	1.23	31.68	-	-	Peak
121.26	23.56	-19.94	43.5	41.75	12.18	1.34	31.71	-	-	Peak
763.4	26.38	-19.62	46	34.84	20.26	3.35	32.07	-	-	Peak
864.2	27.76	-18.24	46	34.66	21.32	3.6	31.82	-	-	Peak
932.1	24.46	-21.54	46	30.2	21.78	3.78	31.3	-	-	Peak
2358	33.41	-20.59	54	30.58	31.86	5.37	34.4	131	309	Average
2358	46.21	-27.79	74	43.38	31.86	5.37	34.4	131	309	Peak
2437	99.34	-	-	96.33	31.93	5.46	34.38	131	309	Peak
2437	88.59	-	-	85.56	31.95	5.46	34.38	131	309	Average
2484	46.65	-27.35	74	43.52	31.98	5.52	34.37	131	309	Peak
2484	33.65	-20.35	54	30.52	31.98	5.52	34.37	131	309	Average

Test Mode :	Mode 9	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 2542 MHz and 2588 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level.		

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
43.5	27.35	-12.65	40	47.53	10.71	0.81	31.7	100	34	Peak
123.42	20.29	-23.21	43.5	38.58	12.07	1.35	31.71	-	-	Peak
128.82	21	-22.5	43.5	39.51	11.81	1.38	31.7	-	-	Peak
763.4	28.39	-17.61	46	36.85	20.26	3.35	32.07	-	-	Peak
780.2	25.01	-20.99	46	33.18	20.49	3.36	32.02	-	-	Peak
864.2	29.29	-16.71	46	36.19	21.32	3.6	31.82	-	-	Peak
2380	47.05	-26.95	74	44.16	31.88	5.4	34.39	105	19	Peak
2380	34.81	-19.19	54	31.92	31.88	5.4	34.39	105	19	Average
2462	103.22	-	-	100.14	31.97	5.49	34.38	105	19	Peak
2462	92.57	-	-	89.49	31.97	5.49	34.38	105	19	Average
2483.5	53.87	-20.13	74	50.74	31.98	5.52	34.37	105	19	Peak
2483.5	38.65	-15.35	54	35.52	31.98	5.52	34.37	105	19	Average
2542	53	-30.22	83.22	49.71	32.05	5.57	34.33	105	19	Peak
2588	50.8	-32.42	83.22	47.38	32.08	5.63	34.29	105	19	Peak



Test Mode :	Mode 9	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
43.77	31.83	-8.17	40	52.01	10.71	0.81	31.7	100	83	Peak
101.01	22.31	-21.19	43.5	42	10.76	1.23	31.68	-	-	Peak
122.61	23.37	-20.13	43.5	41.62	12.12	1.34	31.71	-	-	Peak
763.4	27.63	-18.37	46	36.09	20.26	3.35	32.07	-	-	Peak
864.2	27.25	-18.75	46	34.15	21.32	3.6	31.82	-	-	Peak
932.1	25.1	-20.9	46	30.84	21.78	3.78	31.3	-	-	Peak
2342	33.95	-20.05	54	31.18	31.84	5.34	34.41	105	307	Average
2342	46.4	-27.6	74	43.63	31.84	5.34	34.41	105	307	Peak
2462	97.62	-	-	94.54	31.97	5.49	34.38	105	307	Peak
2462	86.61	-	-	83.53	31.97	5.49	34.38	105	307	Average
2483.85	49.14	-24.86	74	46.01	31.98	5.52	34.37	105	307	Peak
2483.85	35.15	-18.85	54	32.02	31.98	5.52	34.37	105	307	Average

3.8 Antenna Requirements

3.8.1 Standard Applicable

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

3.8.2 Antenna Connected Construction

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

3.8.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 13, 2011	Oct. 11, 2011 ~ Oct. 13, 2011	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Oct. 11, 2011 ~ Oct. 13, 2011	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Oct. 11, 2011 ~ Oct. 13, 2011	Sep. 17, 2012	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 18, 2011	Oct. 11, 2011 ~ Oct. 13, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 18, 2011	Oct. 11, 2011 ~ Oct. 13, 2011	Feb. 17, 2012	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Nov. 24, 2011	Aug. 21, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz – 30MHz	Dec. 03, 2010	Nov. 24, 2011	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz – 30MHz	Dec. 01, 2010	Nov. 24, 2011	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000 W	N/A	N/A	N/A	Nov. 24, 2011	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	112403	N/A	Feb. 22, 2011	Nov. 24, 2011	Feb. 21, 2012	Conduction (CO05-HY)
Spectrum Analyzer	R&S	FSP40	100057	9KHz-40GHz	Oct. 27, 2011	Nov. 07, 2011 ~ Nov. 09, 2011	Oct. 26, 2012	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/003	20MHz-1000MHz	May 10, 2011	Nov. 07, 2011 ~ Nov. 09, 2011	May 09, 2012	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Oct. 22, 2011	Nov. 07, 2011 ~ Nov. 09, 2011	Oct. 21, 2012	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz~18GHz	Aug. 01, 2011	Nov. 07, 2011 ~ Nov. 09, 2011	Jul. 31, 2012	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 21, 2011	Nov. 07, 2011 ~ Nov. 09, 2011	Oct. 20, 2012	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz- 26.5GHz	Apr. 14, 2011	Nov. 07, 2011 ~ Nov. 09, 2011	Apr. 13, 2012	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9KHz~1GHz	Apr. 14, 2011	Nov. 07, 2011 ~ Nov. 09, 2011	Apr. 13, 2012	Radiation (03CH06-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9KHz~30MHz	Jul. 29, 2010	Nov. 07, 2011 ~ Nov. 09, 2011	Jul. 28, 2012	Radiation (03CH06-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				