

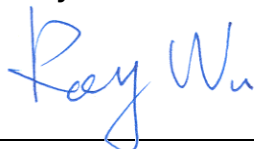
FCC RF Test Report

APPLICANT : Motorola Mobility, Inc.
EQUIPMENT : Mobile Phone
BRAND NAME : MOTOROLA
MODEL NAME : XT316
GPPD NUMBER : 3039
FCC ID : IHDT56ML1
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Mar. 04, 2011 and completely tested on Mar. 27, 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:



Roy Wu / 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
FR130415B	Rev. 01	Initial issue of report	Mar. 29, 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 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 9.4 dB at 4.77 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 4.62 dB at 2389.99 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Motorola Mobility, Inc.

8F., No. 9, Songgao Rd., Taipei 110, Taiwan, R.O.C.

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	XT316
FCC ID	IHDT56ML1
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Number of Channels	11
Carrier Frequency of Each Channel	$2412+(n-1)*5$ MHz; $n=1\sim11$
Channel Spacing	5 MHz
Maximum Output Power to Antenna	802.11b : 16.94 dBm (0.05 W) 802.11g : 18.81 dBm (0.08 W) 802.11n (BW 20MHz) : 18.39 dBm (0.07 W)
Antenna Type	PIFA Antenna with gain 1.42 dBi
HW Version	V2.0
SW Version	V3.190
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

Remark:

1. For other wireless features of this EUT, test report will be issued separately.
2. This test report recorded only product characteristics and test results of Digital Transmission System (DTS).
3. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL 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 (DoC), 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	Vostro 1510	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 11	2462 MHz	16.94	16.92	16.65	16.76

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 06	2437 MHz	18.81	18.80	18.68	18.72	18.77	18.74	18.70	18.76

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)							
		OFDM Data Rate							
		6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
CH 06	2437 MHz	18.39	18.31	18.22	18.27	18.08	18.36	18.04	8.29

Remark:

1. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports.
2. The data rates of WLAN 802.11b/g/n were set in 1Mbps for 802.11b, 6Mbps for 802.11g, and 6.5Mbps for 802.11n (BW 20MHz) for all the test cases due to the highest RF output power.
3. 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).

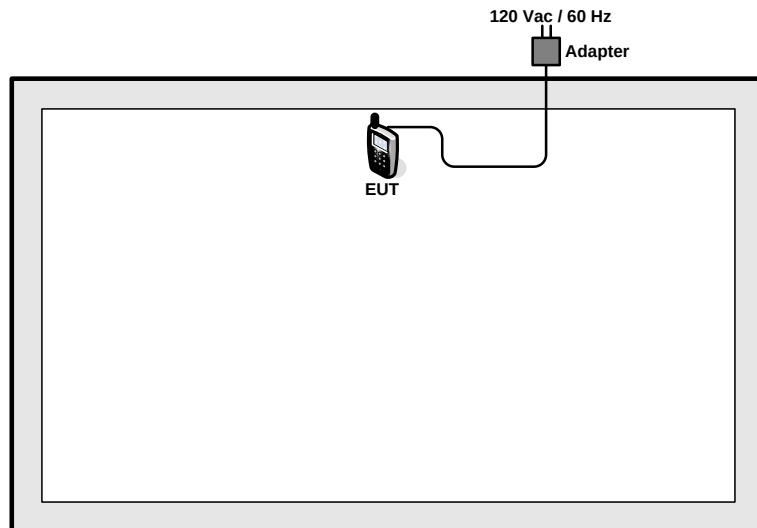
Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

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

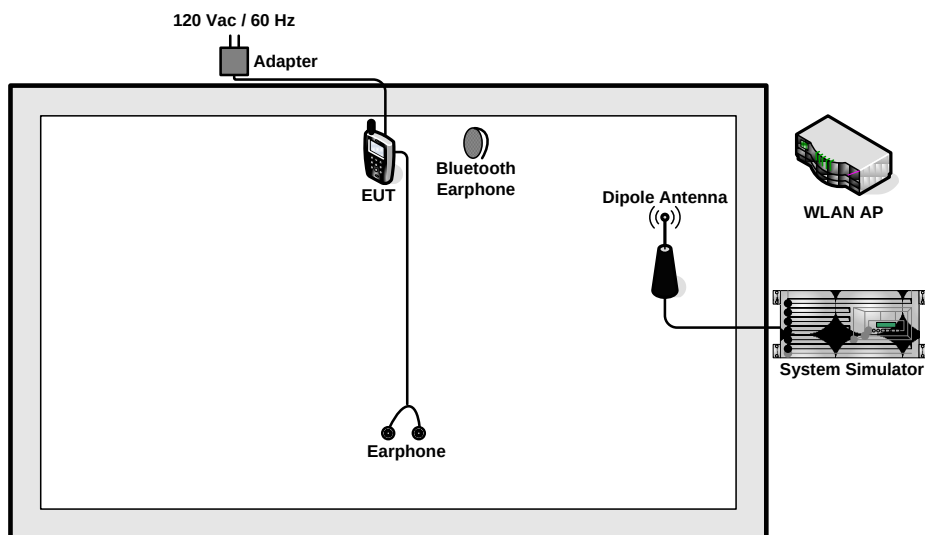
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 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 + TC Mode 2 : 802.11b CH06_2437 MHz + TC Mode 3 : 802.11b CH11_2462 MHz + TC	Mode 4: 802.11g_CH01_2412 MHz + TC Mode 5: 802.11g_CH06_2437 MHz + TC Mode 6: 802.11g_CH11_2462 MHz + TC Mode 7: 802.11n (BW 20M)_CH01_2412 MHz + TC Mode 8: 802.11n (BW 20M)_CH06_2437 MHz + TC Mode 9: 802.11n (BW 20M)_CH11_2462 MHz + TC
AC Conducted Emission	Mode 1 :WCDMA Band VIII Idle + Bluetooth Link + WLAN Link + MPEG4 + Earphone + Adapter	
Remark: TC stands for Test Configuration, and consists of earphone, and Adapter.		

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 RF Utility

The programmed RF utility “* # * # 373 # * # *” is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

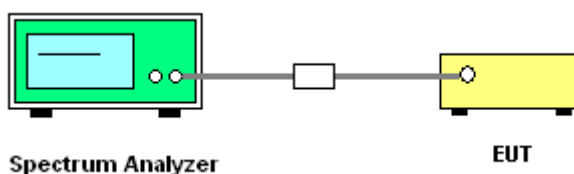
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

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

3.1.4 Test Setup

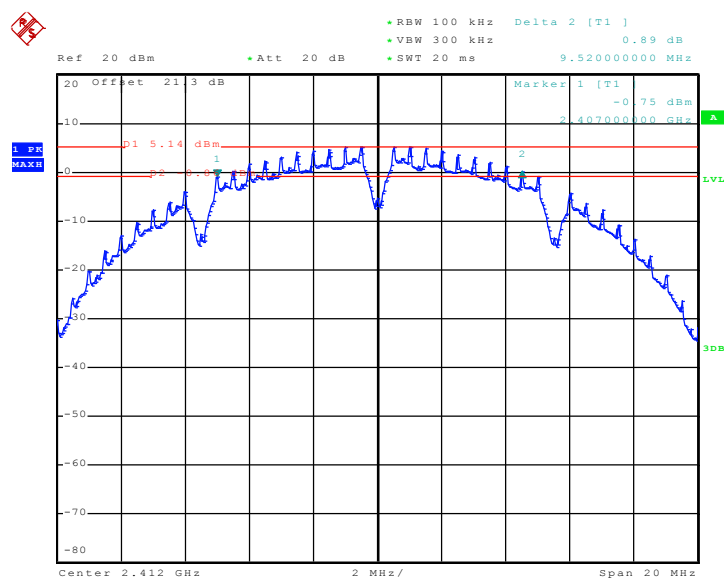


3.1.5 Test Result of 6dB Bandwidth

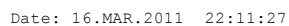
Test Mode :	Mode 1, 2, 3	Temperature :	22~26℃
Test Engineer :	Hank Yu	Relative Humidity :	47~51%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	9.52	0.5	Pass
06	2437	9.52	0.5	Pass
11	2462	10.00	0.5	Pass

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



Date: 16.MAR.2011 21:44:49



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

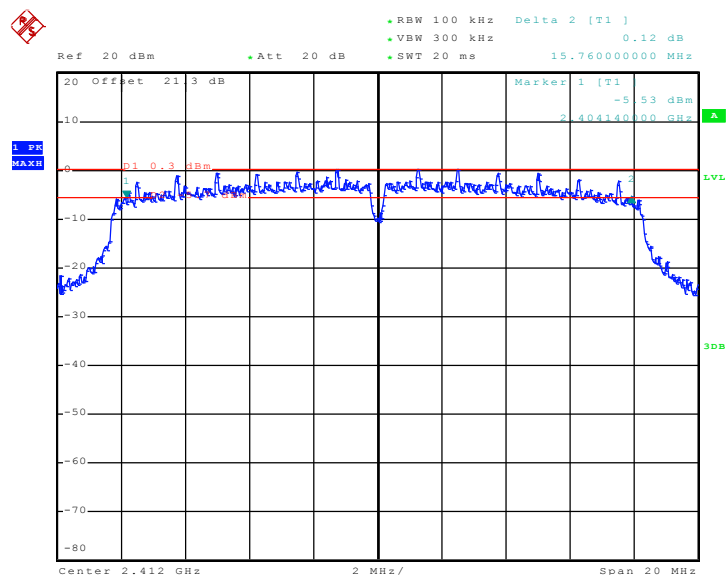




Test Mode :	Mode 4, 5, 6	Temperature :	22~26°C
Test Engineer :	Hank Yu	Relative Humidity :	47~51%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.76	0.5	Pass
06	2437	15.78	0.5	Pass
11	2462	15.76	0.5	Pass

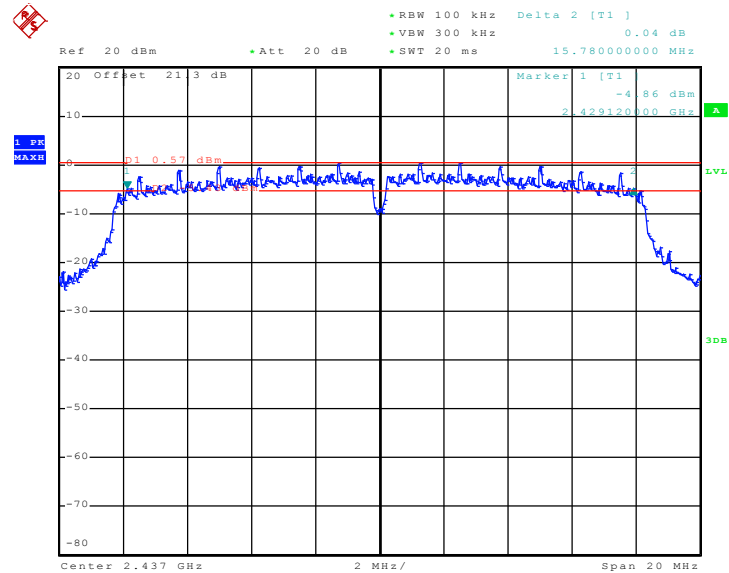
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



Date: 16.MAR.2011 22:46:34

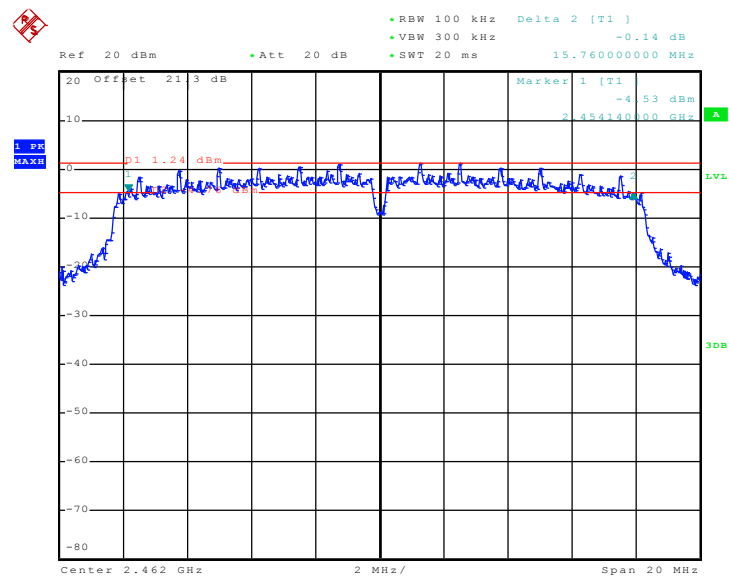


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



Date: 16.MAR.2011 23:56:32

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



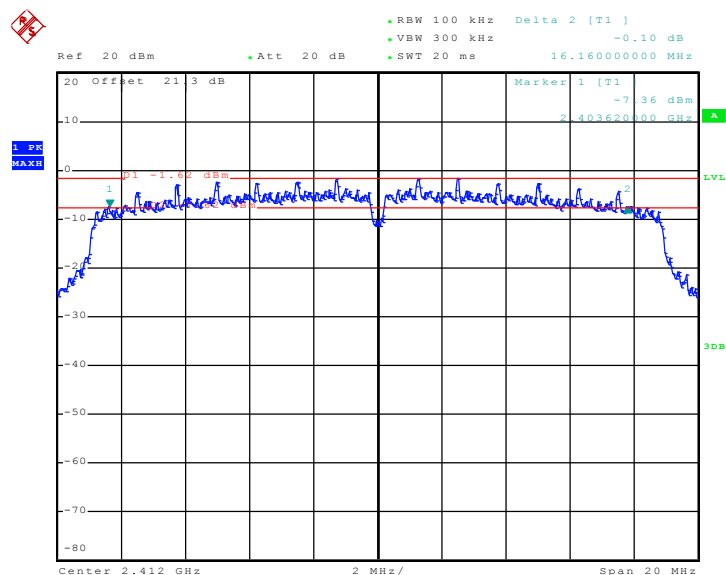
Date: 16.MAR.2011 23:07:29



Test Mode :	Mode 7, 8, 9	Temperature :	22~26°C
Test Engineer :	Hank Yu	Relative Humidity :	47~51%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.16	0.5	Pass
06	2437	15.56	0.5	Pass
11	2462	16.28	0.5	Pass

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



Date: 16.MAR.2011 23:33:29



1. PRG
MAXH

Ref 20 dBm Att 20 dB RBW 100 kHz VBW 300 kHz Delta 2 [T1] 0.12 dB 15.56000000 MHz

20 Offset 21 3 dB

Marker 1 [T1] -6 81 dB 2.42926000 GHz

2

Center 2.437 GHz 2 MHz/ Span 20 MHz

Date: 16.MAR.2011 23:45:11

[illegible]

Date: 16.MAR.2011 23:21:04

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.

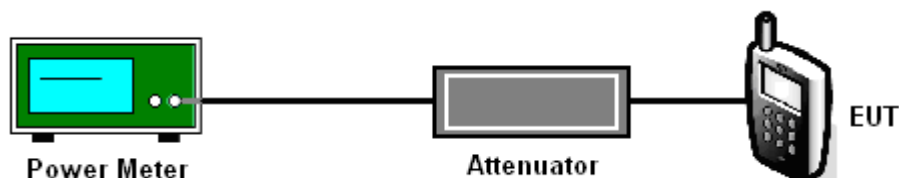
3.2.2 Measuring Instruments

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 :	22~26℃
Test Engineer :	Hank Yu	Relative Humidity :	47~51%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	16.13	30	Pass
06	2437	16.46	30	Pass
11	2462	16.94	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	22~26℃
Test Engineer :	Hank Yu	Relative Humidity :	47~51%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	18.46	30	Pass
06	2437	18.81	30	Pass
11	2462	18.64	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	22~26℃
Test Engineer :	Hank Yu	Relative Humidity :	47~51%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	17.82	30	Pass
06	2437	18.39	30	Pass
11	2462	18.16	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

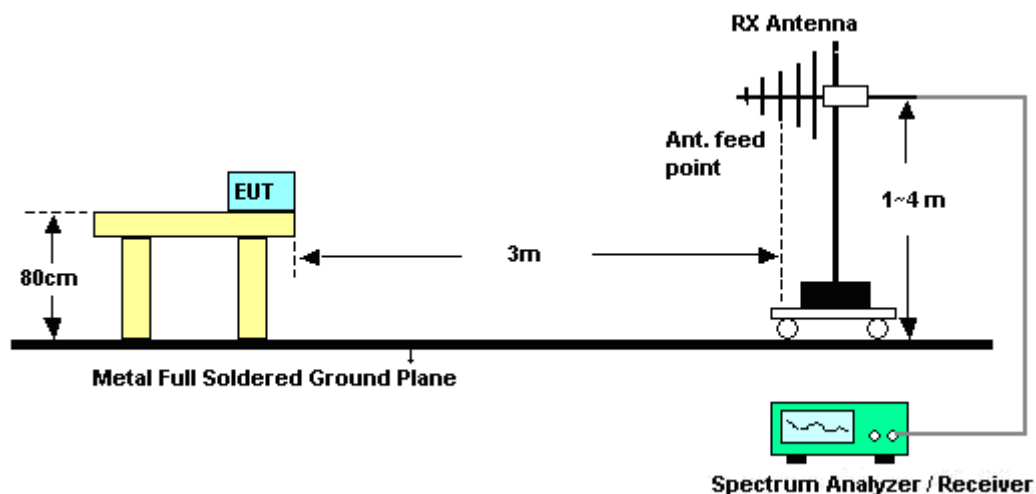
See list of measuring instruments of this test report.

3.3.3 Test Procedures

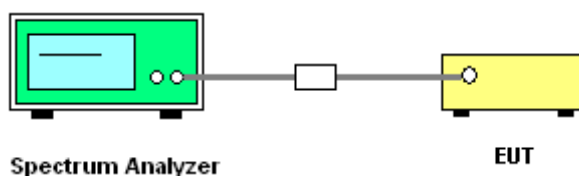
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) $\geq$ RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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 :	18~19℃
Test Band :	802.11b	Relative Humidity :	48~49%
Test Channel :	01	Test Engineer :	Kay Wu

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
2385.81	54.17	-19.83	74	51.26	31.9	5.4	34.39	104	21	Peak
2385.81	45.02	-8.98	54	42.11	31.9	5.4	34.39	104	21	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
2385.81	42.23	-11.77	54	39.32	31.9	5.4	34.39	102	309	Average
2385.81	52.58	-21.42	74	49.67	31.9	5.4	34.39	102	309	Peak

Test Mode :	Mode 3	Temperature :	18~19℃
Test Band :	802.11b	Relative Humidity :	48~49%
Test Channel :	11	Test Engineer :	Kay Wu

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
2486.89	54.35	-19.65	74	51.22	31.98	5.52	34.37	102	12	Peak
2486.89	42.22	-11.78	54	39.09	31.98	5.52	34.37	102	12	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.85	54.15	-19.85	74	51.02	31.98	5.52	34.37	100	312	Peak
2483.85	40.73	-13.27	54	37.6	31.98	5.52	34.37	100	312	Average



Test Mode :	Mode 4	Temperature :	18~19℃
Test Band :	802.11g	Relative Humidity :	48~49%
Test Channel :	01	Test Engineer :	Kay Wu

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	68.72	-5.28	74	65.81	31.9	5.4	34.39	106	18	Peak
2389.99	46.21	-7.79	54	43.3	31.9	5.4	34.39	106	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	67.08	-6.92	74	64.17	31.9	5.4	34.39	100	314	Peak
2389.99	44.09	-9.91	54	41.18	31.9	5.4	34.39	100	314	Average

Test Mode :	Mode 6	Temperature :	18~19℃
Test Band :	802.11g	Relative Humidity :	48~49%
Test Channel :	11	Test Engineer :	Kay Wu

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
2483.66	44.16	-9.84	54	41.03	31.98	5.52	34.37	129	11	Average
2483.66	65.66	-8.34	74	62.53	31.98	5.52	34.37	129	11	Peak

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	59.41	-14.59	74	56.28	31.98	5.52	34.37	100	320	Peak
2483.85	40.55	-13.45	54	37.42	31.98	5.52	34.37	100	320	Average



Test Mode :	Mode 7	Temperature :	18~19℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	48~49%
Test Channel :	01	Test Engineer :	Kay Wu

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	69.38	-4.62	74	66.47	31.9	5.4	34.39	104	20	Peak
2389.99	46.07	-7.93	54	43.16	31.9	5.4	34.39	104	20	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	64.08	-9.92	74	61.17	31.9	5.4	34.39	100	314	Peak
2389.61	41.47	-12.53	54	38.56	31.9	5.4	34.39	100	314	Average

Test Mode :	Mode 9	Temperature :	18~19℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	48~49%
Test Channel :	11	Test Engineer :	Kay Wu

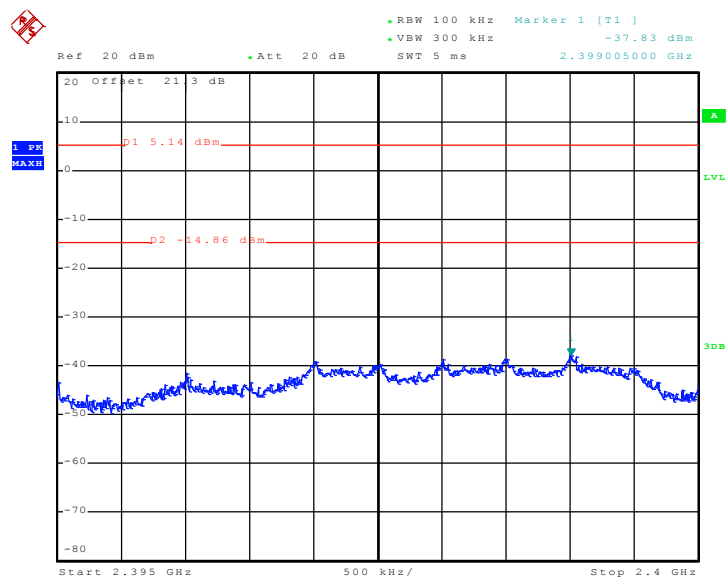
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	64.46	-9.54	74	61.33	31.98	5.52	34.37	130	5	Peak
2483.5	43.55	-10.45	54	40.42	31.98	5.52	34.37	130	5	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.85	62.15	-11.85	74	59.02	31.98	5.52	34.37	100	310	Peak
2483.85	40.71	-13.29	54	37.58	31.98	5.52	34.37	100	310	Average

3.3.6 Test Plots of Conducted Band Edges

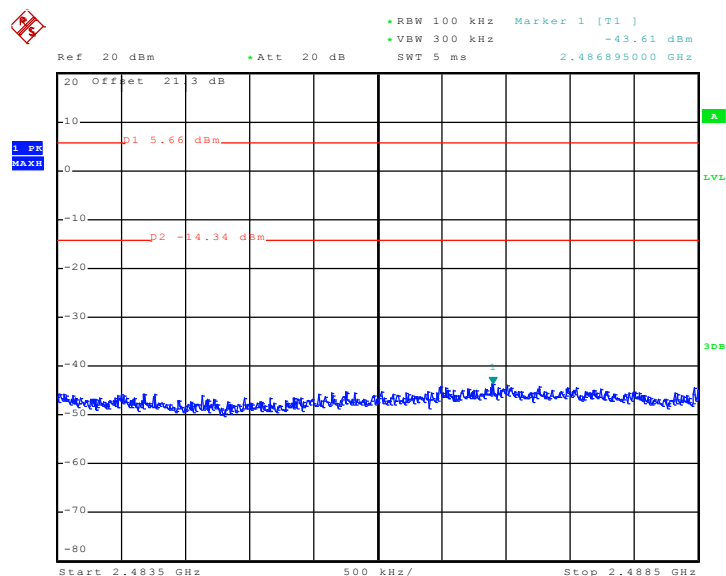
Test Mode :	Mode 1 and 3	Temperature :	22~26°C
Test Band :	802.11b	Relative Humidity :	47~51%
Test Channel :	01 and 11	Test Engineer :	Hank Yu

Low Band Edge Plot on 802.11b Channel 01



Date: 16.MAR.2011 21:45:57

High Band Edge Plot on 802.11b Channel 11

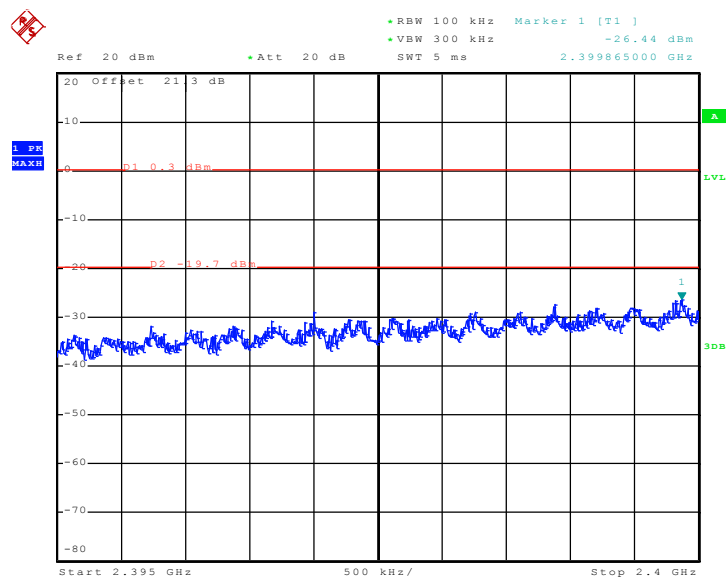


Date: 16.MAR.2011 21:57:23



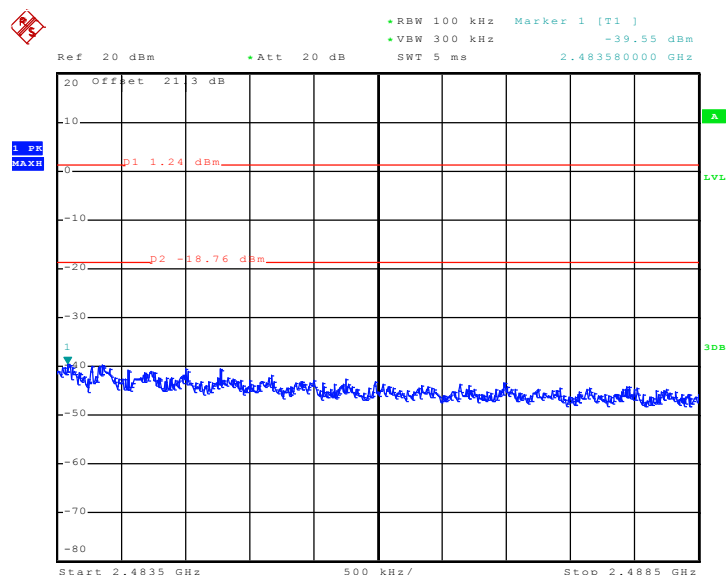
Test Mode :	Mode 4 and 6	Temperature :	22~26°C
Test Band :	802.11g	Relative Humidity :	47~51%
Test Channel :	01 and 11	Test Engineer :	Hank Yu

Low Band Edge Plot on 802.11g Channel 01



Date: 16.MAR.2011 22:47:59

High Band Edge Plot on 802.11g Channel 11

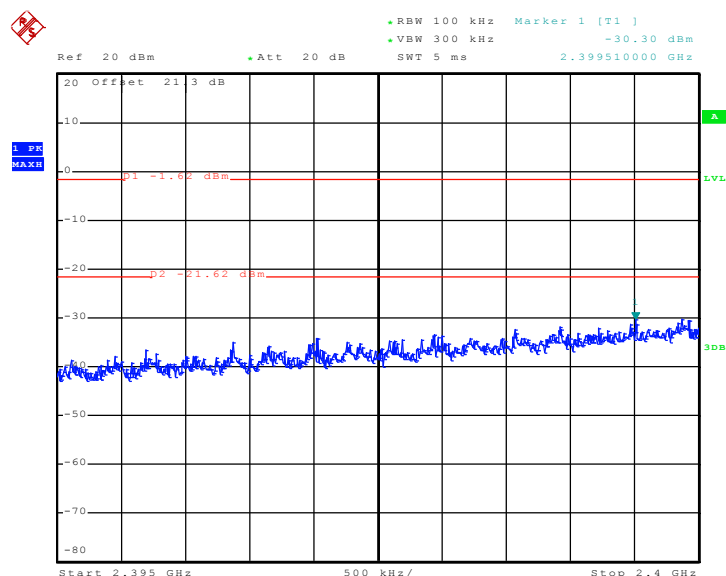


Date: 16.MAR.2011 23:08:15



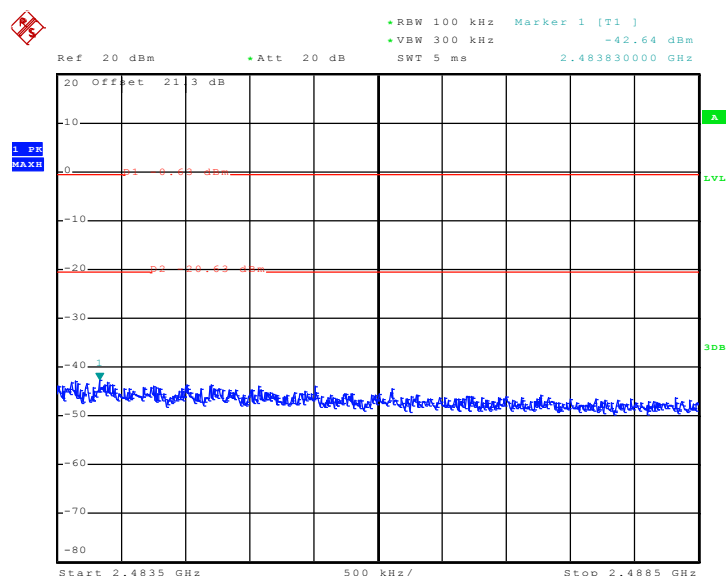
Test Mode :	Mode 7 and 9	Temperature :	22~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~51%
Test Channel :	01 and 11	Test Engineer :	Hank Yu

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



Date: 16.MAR.2011 23:34:38

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



Date: 16.MAR.2011 23:21:51

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.

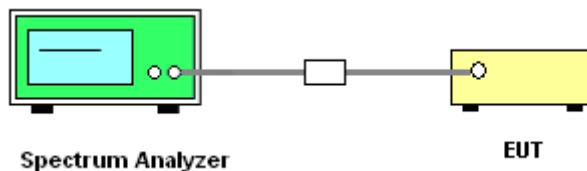
3.4.2 Measuring Instruments

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.

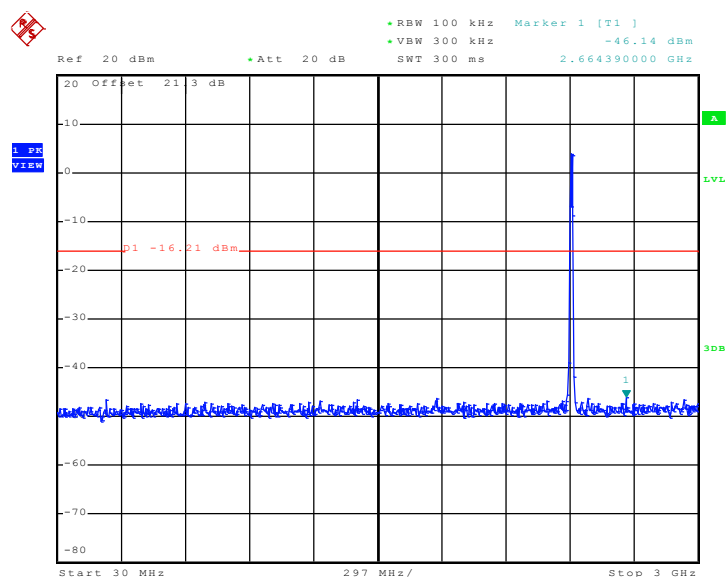
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

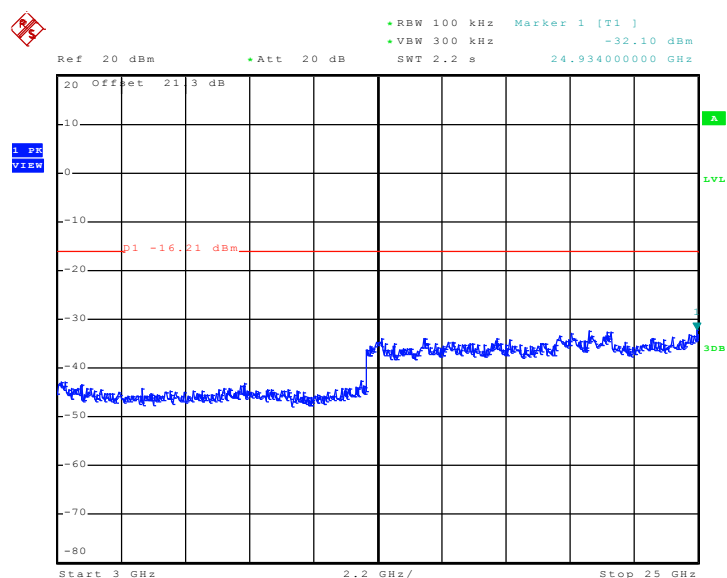
Test Mode :	Mode 1	Temperature :	22~26°C
Test Band :	802.11b	Relative Humidity :	47~51%
Test Channel :	01	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 16.MAR.2011 21:55:17

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

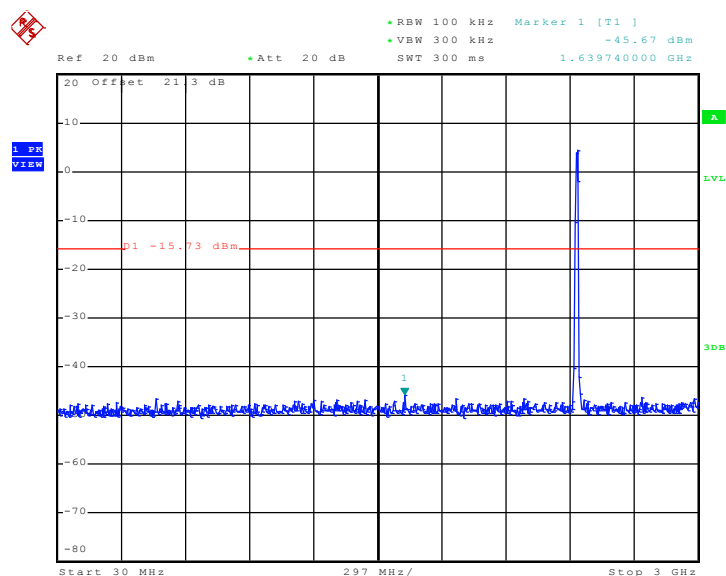


Date: 16.MAR.2011 21:55:34



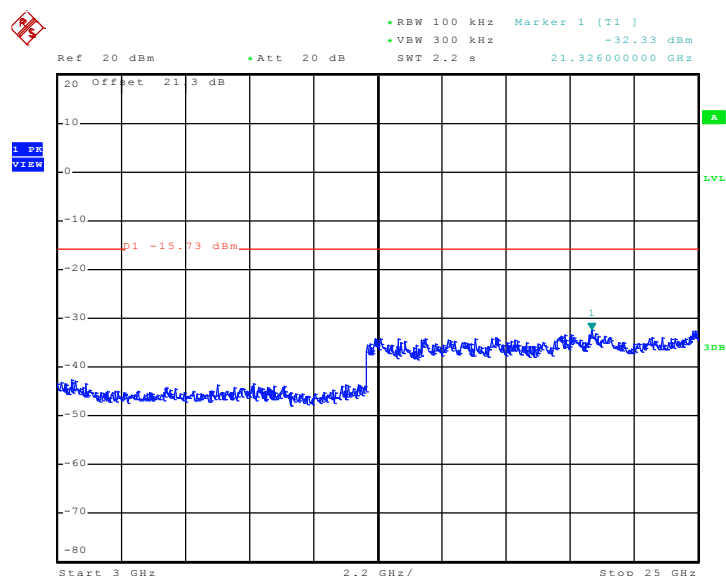
Test Mode :	Mode 2	Temperature :	22~26°C
Test Band :	802.11b	Relative Humidity :	47~51%
Test Channel :	06	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 16.MAR.2011 22:21:51

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

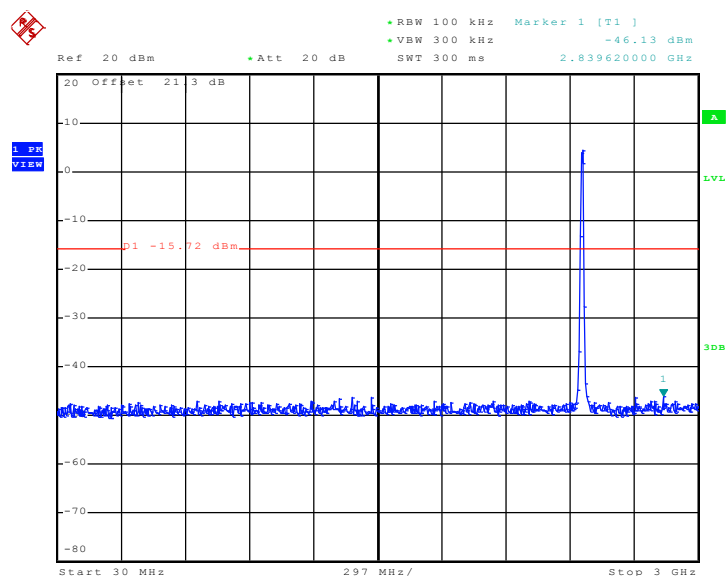


Date: 16.MAR.2011 22:22:08



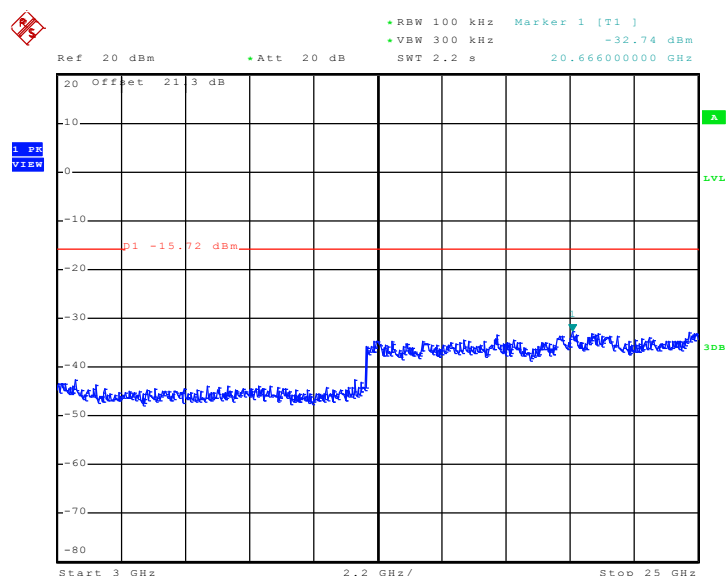
Test Mode :	Mode 3	Temperature :	22~26°C
Test Band :	802.11b	Relative Humidity :	47~51%
Test Channel :	11	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 16.MAR.2011 22:07:04

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

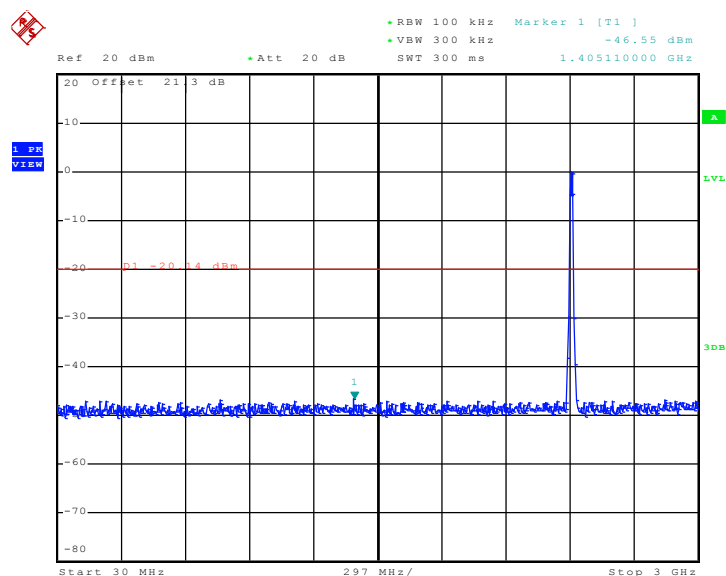


Date: 16.MAR.2011 22:07:21



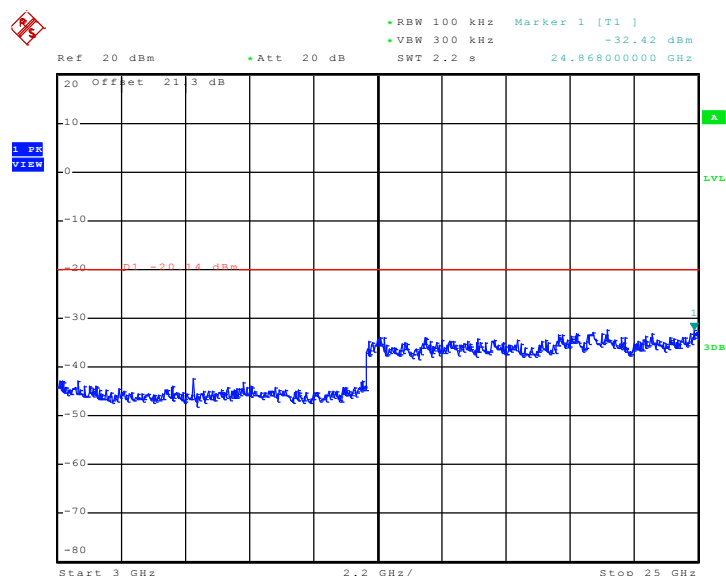
Test Mode :	Mode 4	Temperature :	22~26°C
Test Band :	802.11g	Relative Humidity :	47~51%
Test Channel :	01	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 16.MAR.2011 22:58:15

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

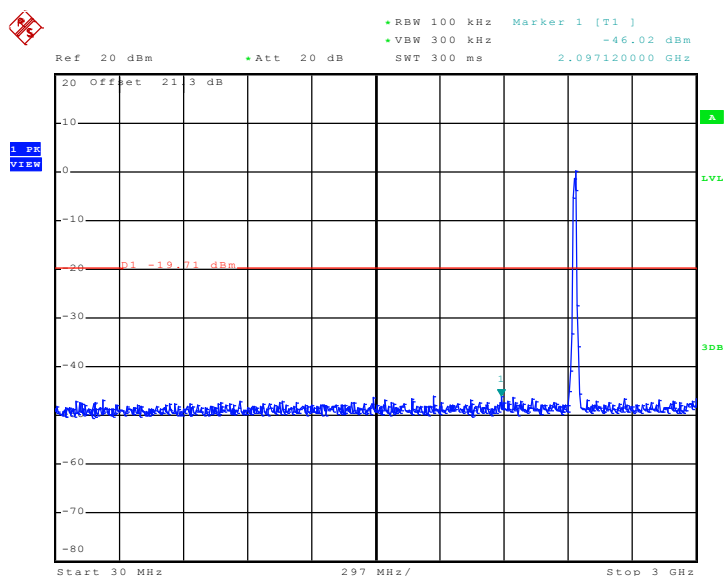


Date: 16.MAR.2011 22:58:31



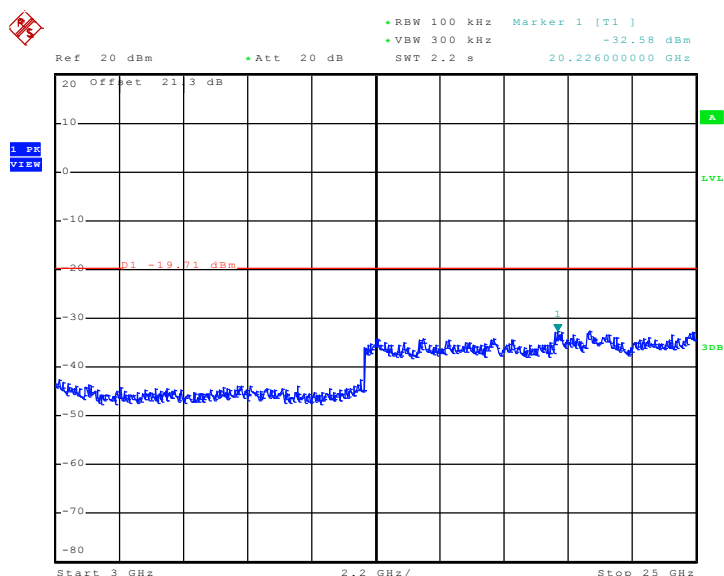
Test Mode :	Mode 5	Temperature :	22~26
Test Band :	802.11g	Relative Humidity :	47~51
Test Channel :	06	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 16.MAR.2011 23:57:19

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

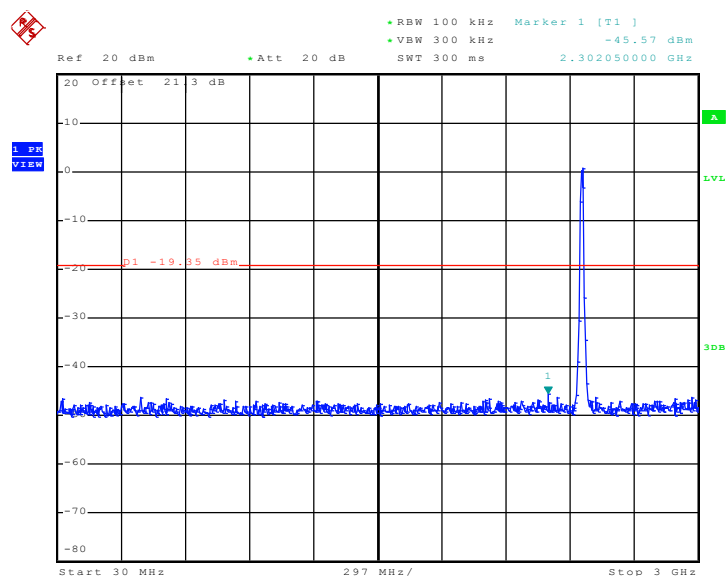


Date: 16.MAR.2011 23:57:36



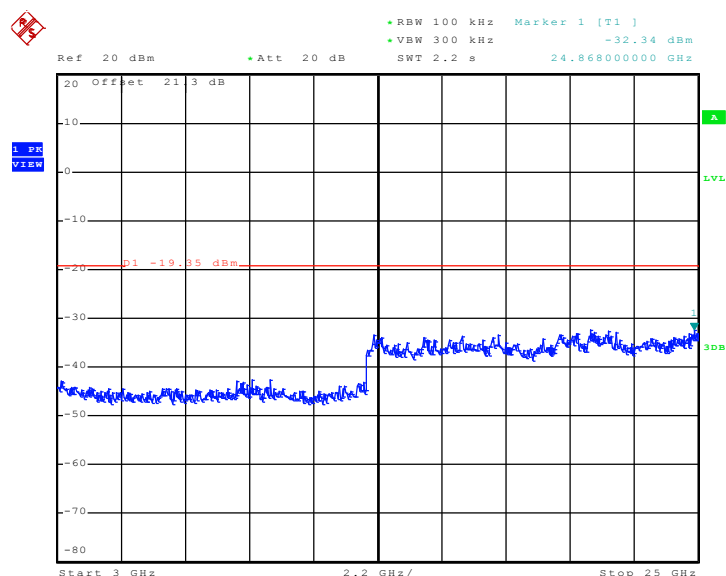
Test Mode :	Mode 6	Temperature :	22~26°C
Test Band :	802.11g	Relative Humidity :	47~51%
Test Channel :	11	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 17.MAR.2011 00:08:29

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

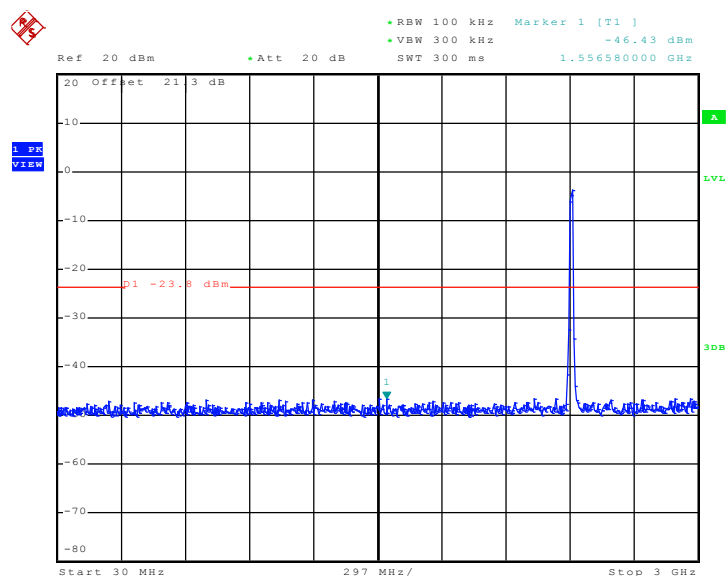


Date: 17.MAR.2011 00:08:46



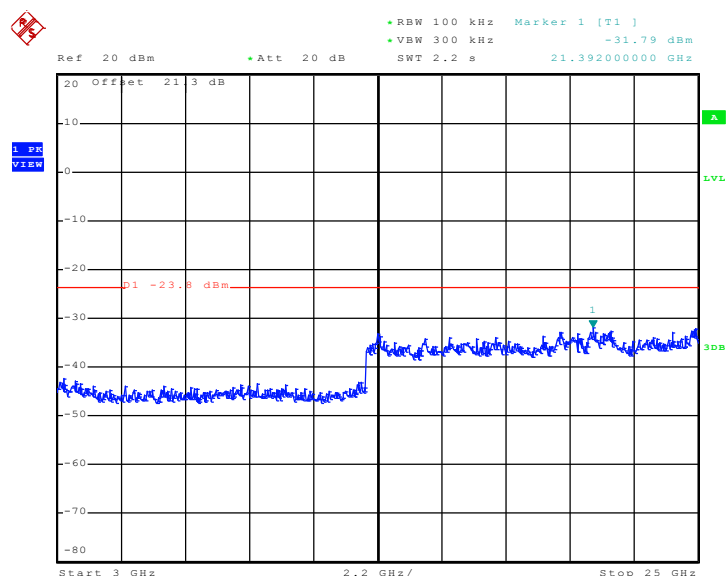
Test Mode :	Mode 7	Temperature :	22~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~51%
Test Channel :	01	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 16.MAR.2011 23:44:02

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

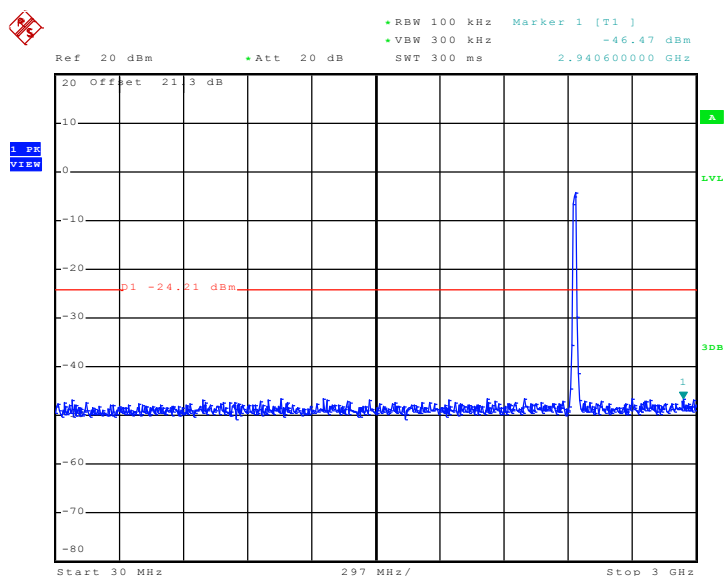


Date: 16.MAR.2011 23:44:19



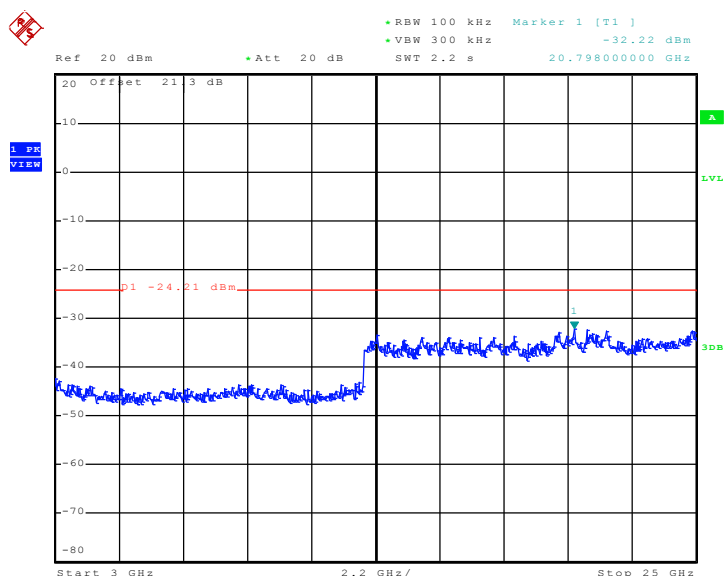
Test Mode :	Mode 8	Temperature :	22~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~51%
Test Channel :	06	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 16.MAR.2011 23:54:47

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

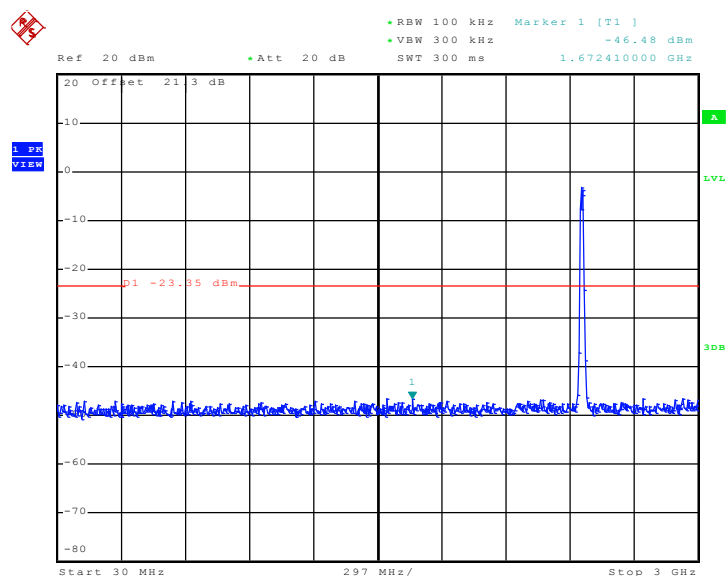


Date: 16.MAR.2011 23:55:04



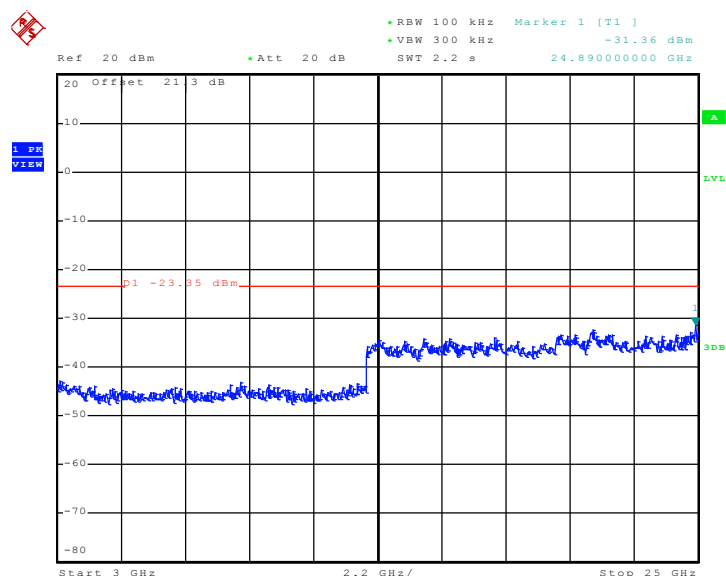
Test Mode :	Mode 9	Temperature :	22~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~51%
Test Channel :	11	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 16.MAR.2011 23:31:51

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



Date: 16.MAR.2011 23:32:08

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.

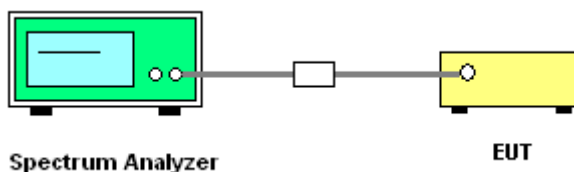
3.5.2 Measuring Instruments

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

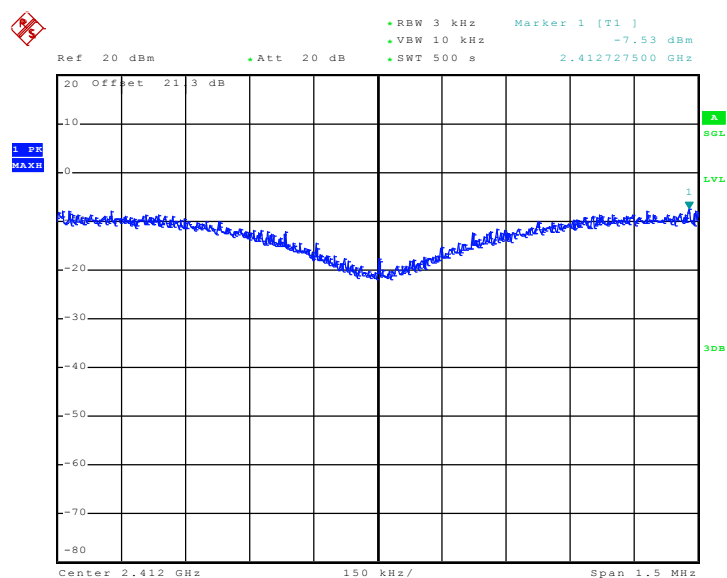


3.5.5 Test Result of Power Spectral Density

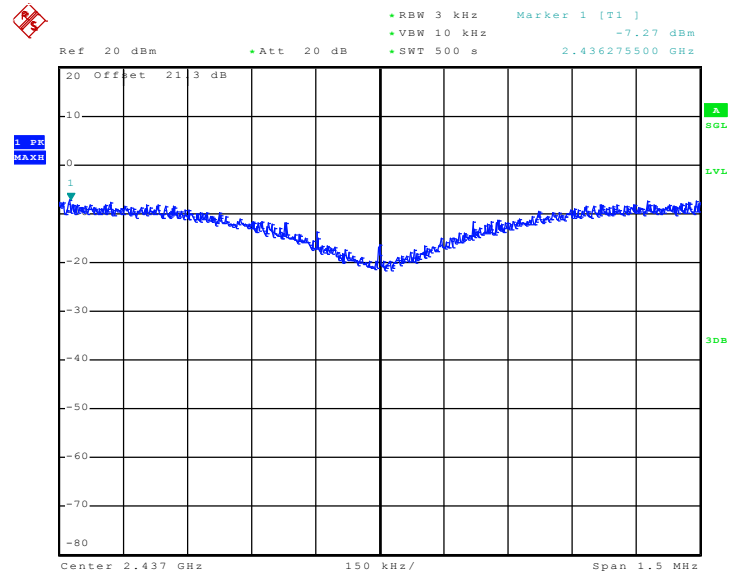
Test Mode :	Mode 1, 2, 3	Temperature :	22~26℃
Test Engineer :	Hank Yu	Relative Humidity :	47~51%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-7.53	8	Pass
06	2437	-7.27	8	Pass
11	2462	-6.59	8	Pass

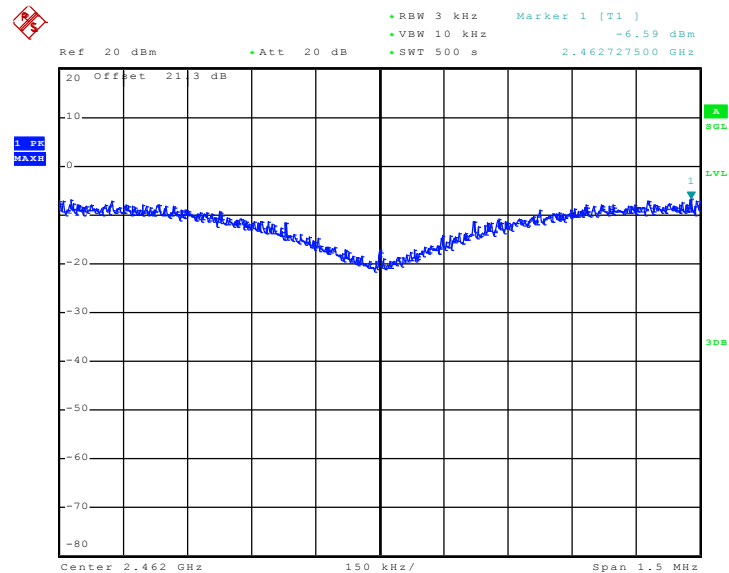
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 16.MAR.2011 21:54:56

Mode 2 : PSD Plot on 802.11b Channel 06


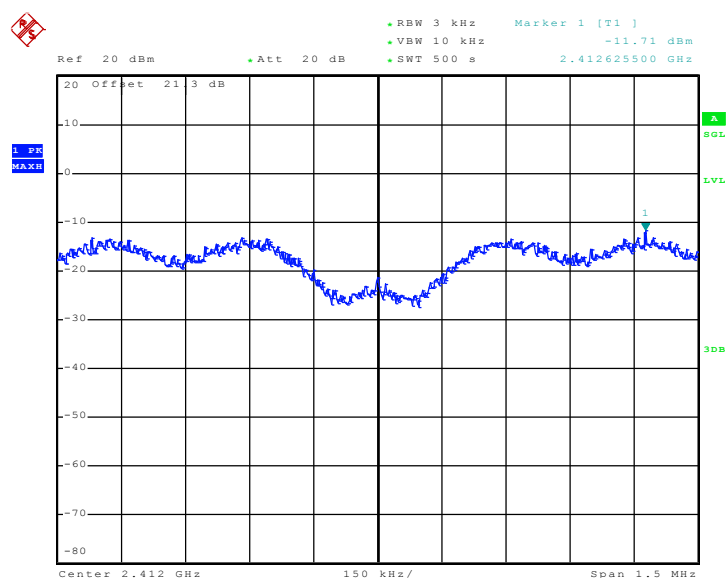
Date: 16.MAR.2011 22:21:30

Mode 3 : PSD Plot on 802.11b Channel 11


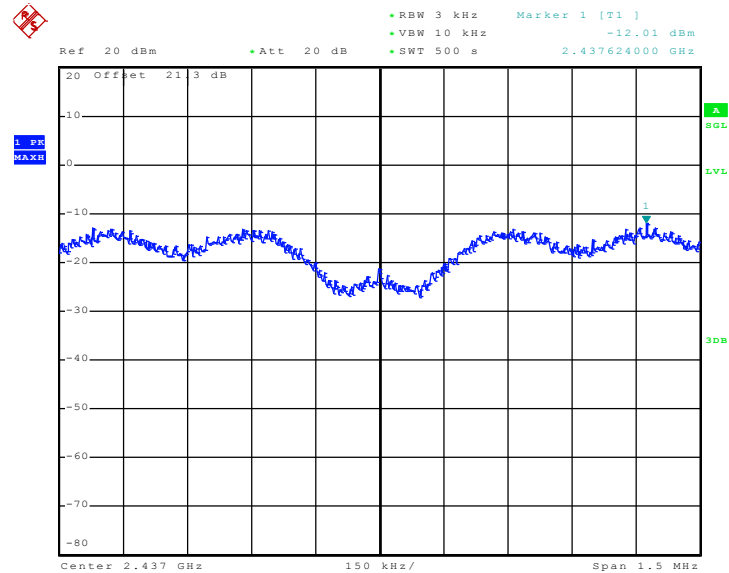
Date: 16.MAR.2011 22:06:38

Test Mode :	Mode 4, 5, 6	Temperature :	22~26°C
Test Engineer :	Hank Yu	Relative Humidity :	47~51%

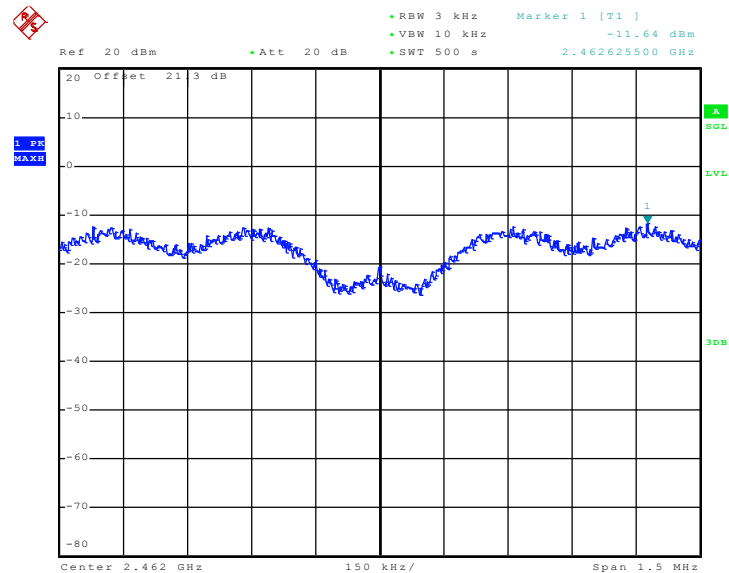
Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-11.71	8	Pass
06	2437	-12.01	8	Pass
11	2462	-11.64	8	Pass

Mode 4 : PSD Plot on 802.11g Channel 01


Date: 16.MAR.2011 22:57:54

Mode 5 : PSD Plot on 802.11g Channel 06


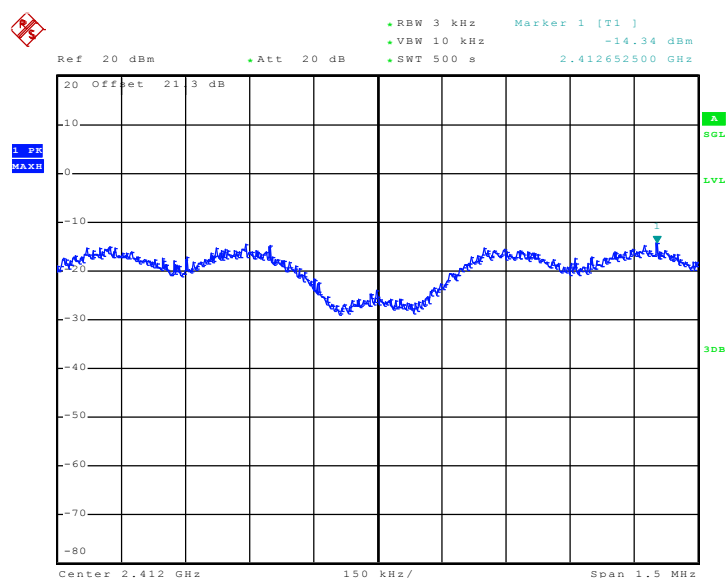
Date: 17.MAR.2011 00:07:55

Mode 6 : PSD Plot on 802.11g Channel 11


Date: 16.MAR.2011 23:17:31

Test Mode :	Mode 7, 8, 9	Temperature :	22~26°C
Test Engineer :	Hank Yu	Relative Humidity :	47~51%

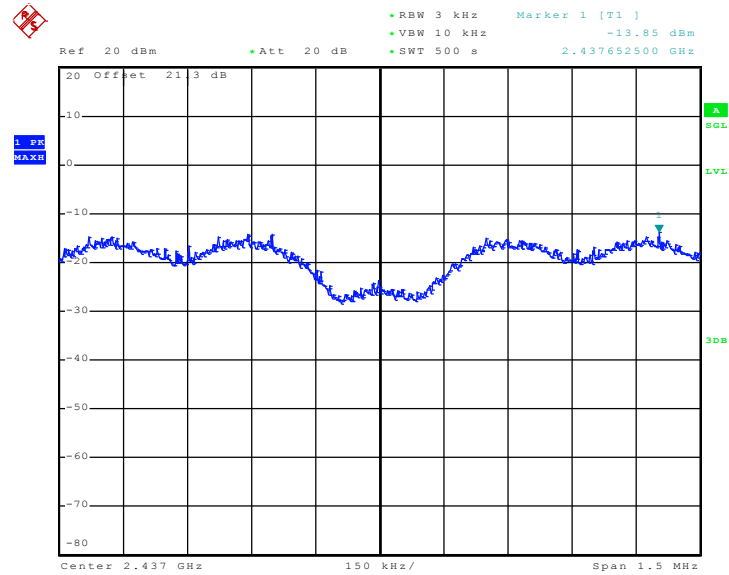
Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-14.34	8	Pass
06	2437	-13.85	8	Pass
11	2462	-13.54	8	Pass

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


Date: 16.MAR.2011 23:43:41

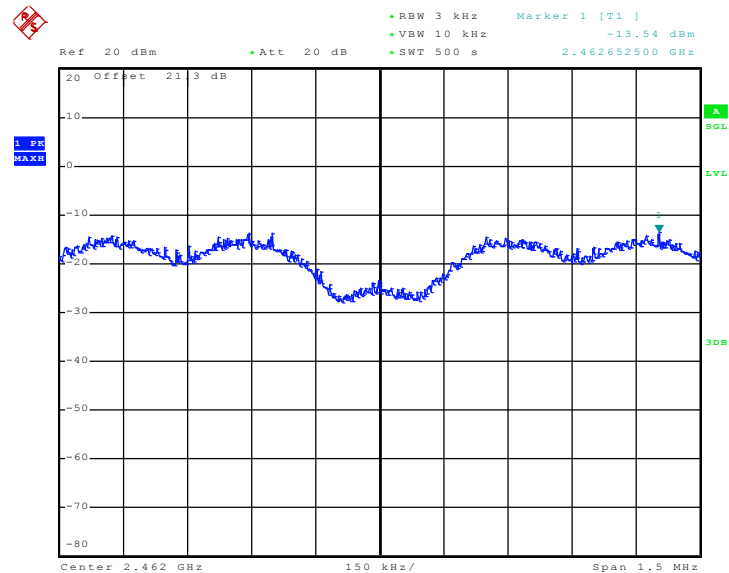


Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06



Date: 16.MAR.2011 23:54:26

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



Date: 16.MAR.2011 23:31:30

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.

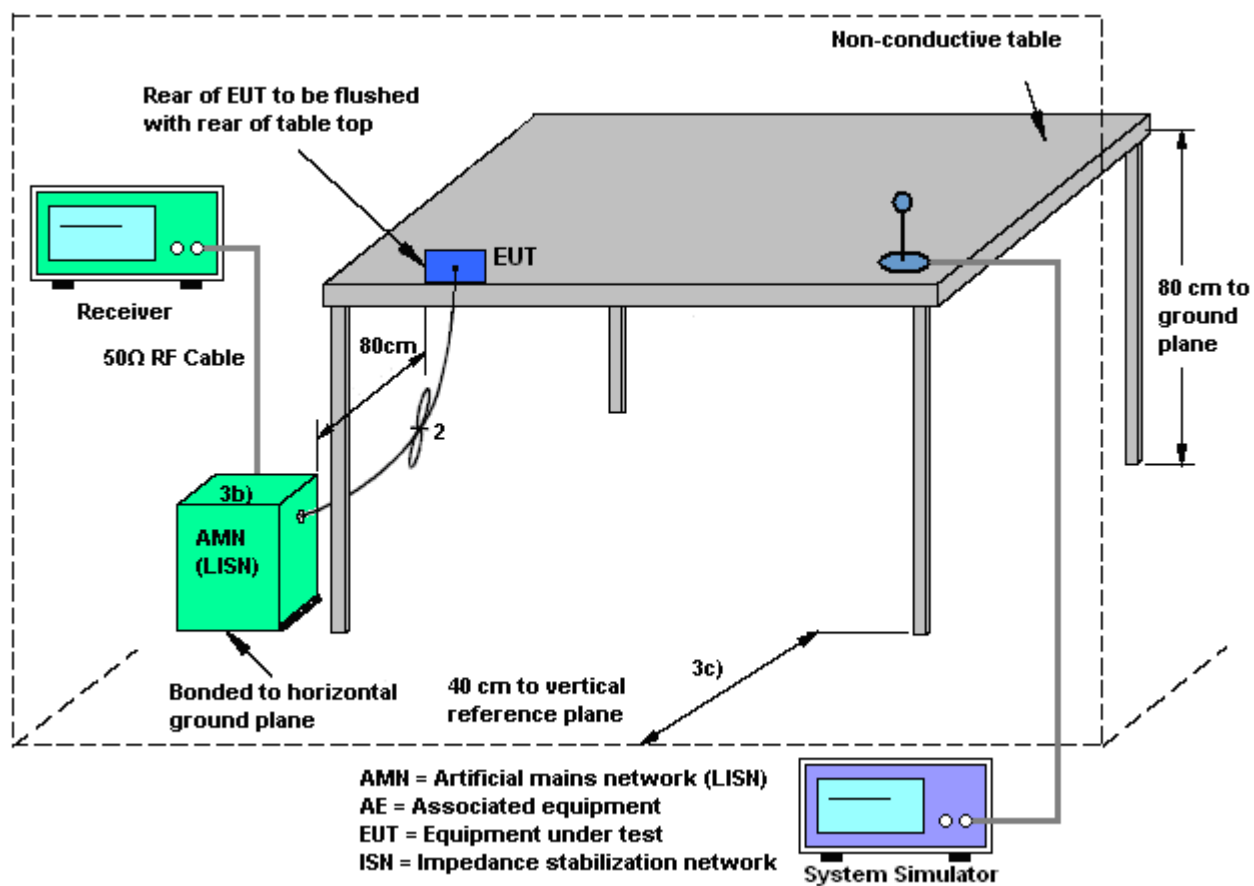
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

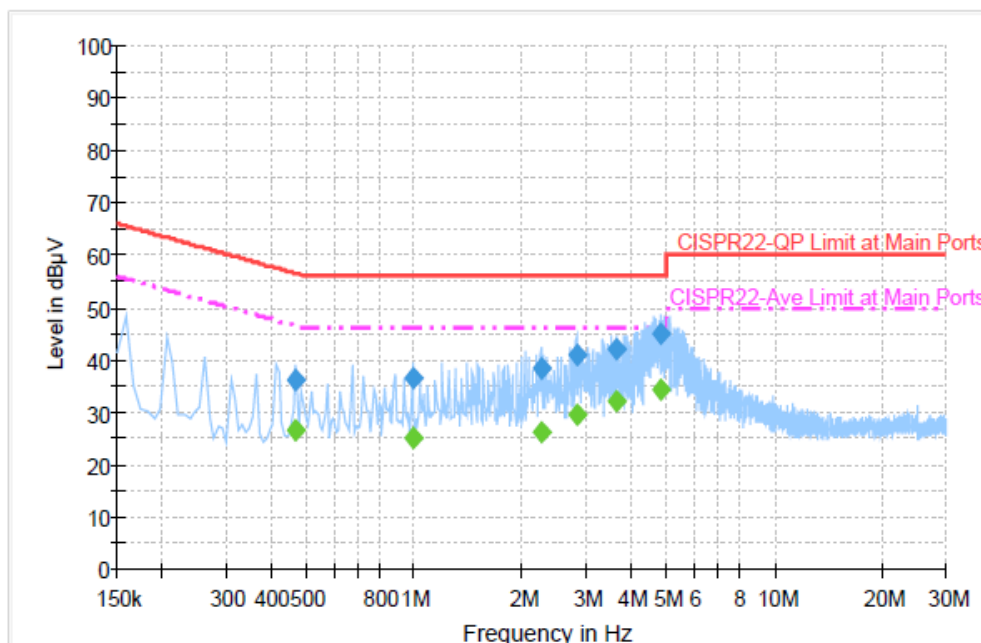
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 :	Novic Chiang	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band VIII Idle + Bluetooth Link + WLAN Link + MPEG4 + Earphone + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



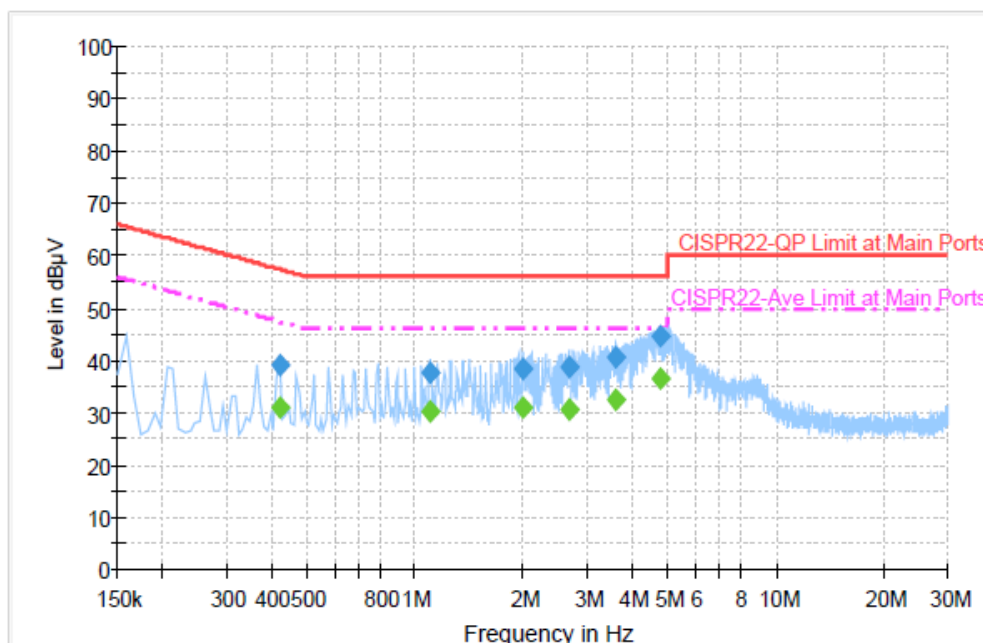
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.470000	36.2	Off	L1	19.4	20.3	56.5
0.990000	36.5	Off	L1	19.4	19.5	56.0
2.246000	38.2	Off	L1	19.5	17.8	56.0
2.822000	40.8	Off	L1	19.5	15.2	56.0
3.646000	41.9	Off	L1	19.5	14.1	56.0
4.846000	45.2	Off	L1	19.5	10.8	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.470000	26.5	Off	L1	19.4	20.0	46.5
0.990000	25.1	Off	L1	19.4	20.9	46.0
2.246000	26.1	Off	L1	19.5	19.9	46.0
2.822000	29.5	Off	L1	19.5	16.5	46.0
3.646000	32.1	Off	L1	19.5	13.9	46.0
4.846000	34.2	Off	L1	19.5	11.8	46.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Novic Chiang	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band VIII Idle + Bluetooth Link + WLAN Link + MPEG4 + Earphone + 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)
0.422000	39.0	Off	N	19.4	18.4	57.4
1.102000	37.7	Off	N	19.4	18.3	56.0
1.998000	38.5	Off	N	19.5	17.5	56.0
2.670000	38.9	Off	N	19.5	17.1	56.0
3.622000	40.5	Off	N	19.5	15.5	56.0
4.774000	44.8	Off	N	19.5	11.2	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.422000	31.0	Off	N	19.4	16.4	47.4
1.102000	30.1	Off	N	19.4	15.9	46.0
1.998000	31.0	Off	N	19.5	15.0	46.0
2.670000	30.8	Off	N	19.5	15.2	46.0
3.622000	32.6	Off	N	19.5	13.4	46.0
4.774000	36.6	Off	N	19.5	9.4	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.

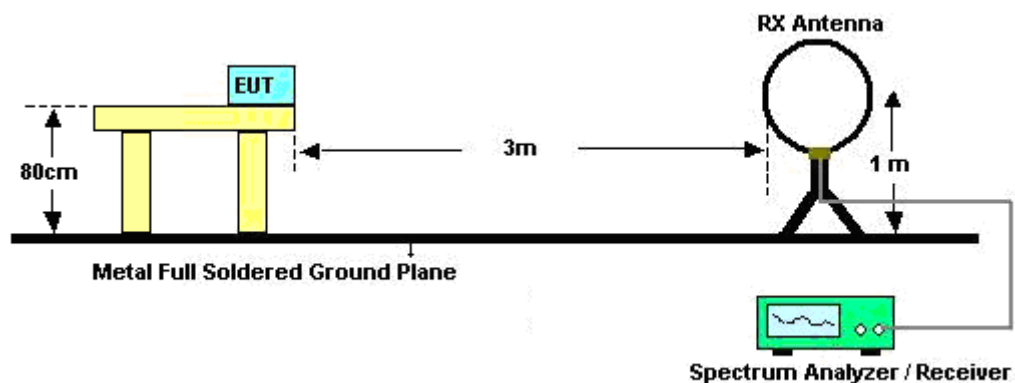
3.7.3

3.7.4 Test Procedures

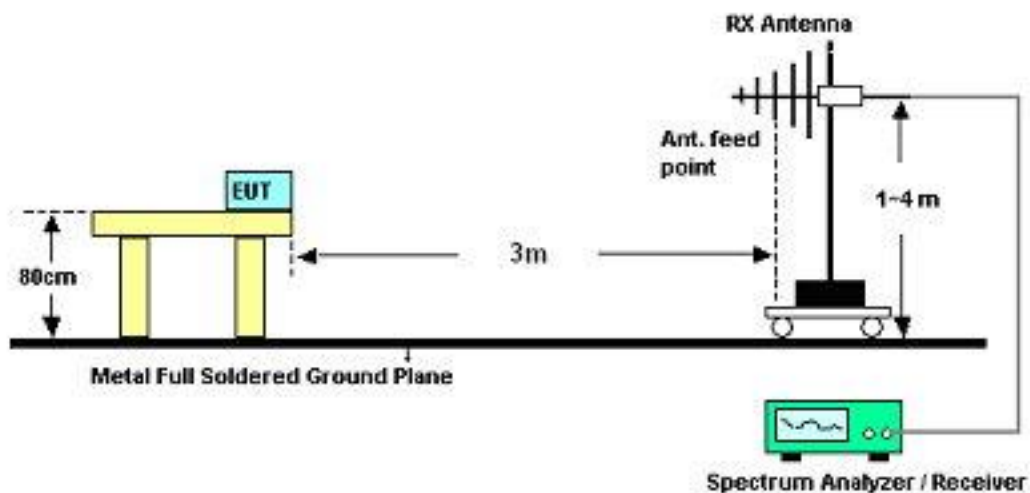
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep =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

3.7.5 Test Setup

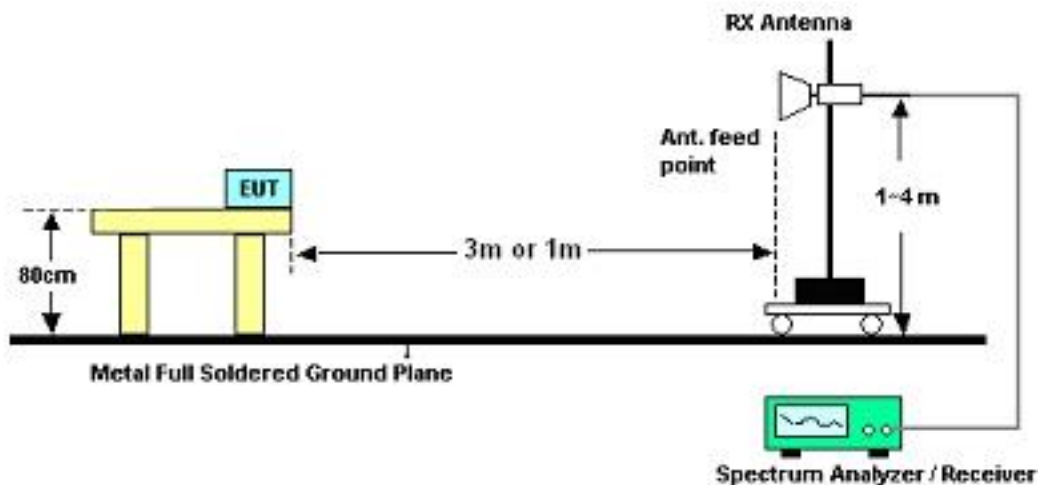
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

Test Engineer :	Kay Wu	Temperature :	18~19℃	
		Relative Humidity :	48~49%	

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

Note:

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

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

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

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

Test Mode :	Mode 1	Temperature :	18~19℃
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
39.18	24.9	-15.1	40	42.53	13.27	0.8	31.7	-	-	Peak
100.74	30.41	-13.09	43.5	50.1	10.76	1.23	31.68	100	186	Peak
187.14	20.52	-22.98	43.5	41.19	9.41	1.59	31.67	-	-	Peak
656.3	23.59	-22.41	46	33.19	19.29	3.08	31.97	-	-	Peak
768.3	29.12	-16.88	46	37.5	20.33	3.35	32.06	-	-	Peak
974.8	26.61	-27.39	54	31.8	21.97	3.81	30.97	-	-	Peak
2385.81	54.17	-19.83	74	51.26	31.9	5.4	34.39	104	21	Peak
2385.81	45.02	-8.98	54	42.11	31.9	5.4	34.39	104	21	Average
2412	110.65	-	-	107.7	31.91	5.43	34.39	104	21	Peak
2412	106.61	-	-	103.66	31.91	5.43	34.39	104	21	Average
2500	34.64	-19.36	54	31.49	32	5.52	34.37	104	21	Average
2500	46.87	-27.13	74	43.72	32	5.52	34.37	104	21	Peak



Test Mode :	Mode 1	Temperature :	18~19℃
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	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
43.77	26.74	-13.26	40	46.92	10.71	0.81	31.7	123	208	Peak
100.74	27.56	-15.94	43.5	47.25	10.76	1.23	31.68	-	-	Peak
174.99	23	-20.5	43.5	43.54	9.57	1.57	31.68	-	-	Peak
558.3	29.33	-16.67	46	39.78	18.61	2.86	31.92	-	-	Peak
656.3	29.29	-16.71	46	38.89	19.29	3.08	31.97	-	-	Peak
701.8	28.46	-17.54	46	37.78	19.42	3.27	32.01	-	-	Peak
2385.81	42.23	-11.77	54	39.32	31.9	5.4	34.39	102	309	Average
2385.81	52.58	-21.42	74	49.67	31.9	5.4	34.39	102	309	Peak
2412	109.06	-	-	106.11	31.91	5.43	34.39	102	309	Peak
2412	104.76	-	-	101.81	31.91	5.43	34.39	102	309	Average
2494	46.88	-27.12	74	43.73	32	5.52	34.37	102	309	Peak
2494	34.21	-19.79	54	31.06	32	5.52	34.37	102	309	Average

Test Mode :	Mode 2	Temperature :	18~19℃
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.24	22.71	-17.29	40	37.57	16.12	0.73	31.71	-	-	Peak
100.74	28.76	-14.74	43.5	48.45	10.76	1.23	31.68	100	211	Peak
187.14	21.58	-21.92	43.5	42.25	9.41	1.59	31.67	-	-	Peak
546.4	23.94	-22.06	46	34.53	18.44	2.84	31.87	-	-	Peak
768.3	28.89	-17.11	46	37.27	20.33	3.35	32.06	-	-	Peak
866.3	26.96	-19.04	46	33.82	21.34	3.61	31.81	-	-	Peak
2390	50.36	-23.64	74	47.45	31.9	5.4	34.39	106	22	Peak
2390	37.47	-16.53	54	34.56	31.9	5.4	34.39	106	22	Average
2437	111.27	-	-	108.26	31.93	5.46	34.38	106	22	Peak
2437	107.4	-	-	104.37	31.95	5.46	34.38	106	22	Average
2484	47.11	-26.89	74	43.98	31.98	5.52	34.37	106	22	Peak
2484	35.2	-18.8	54	32.07	31.98	5.52	34.37	106	22	Average



Test Mode :	Mode 2	Temperature :	18~19℃
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
92.64	28.67	-14.83	43.5	49.66	9.56	1.16	31.71	122	113	Peak
101.28	25.91	-17.59	43.5	45.6	10.76	1.23	31.68	-	-	Peak
174.99	25.34	-18.16	43.5	45.88	9.57	1.57	31.68	-	-	Peak
614.3	22.77	-23.23	46	32.7	19.2	2.96	32.09	-	-	Peak
701.8	26.68	-19.32	46	36	19.42	3.27	32.01	-	-	Peak
768.3	24.46	-21.54	46	32.84	20.33	3.35	32.06	-	-	Peak
2390	47.42	-26.58	74	44.51	31.9	5.4	34.39	100	294	Peak
2390	35.79	-18.21	54	32.88	31.9	5.4	34.39	100	294	Average
2437	108.53	-	-	105.52	31.93	5.46	34.38	100	294	Peak
2437	104.52	-	-	101.49	31.95	5.46	34.38	100	294	Average
2494	46.57	-27.43	74	43.42	32	5.52	34.37	100	294	Peak
2494	34.5	-19.5	54	31.35	32	5.52	34.37	100	294	Average



Test Mode :	Mode 3	Temperature :	18~19℃
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.24	23.11	-16.89	40	37.97	16.12	0.73	31.71	100	204	Peak
100.74	24.27	-19.23	43.5	43.96	10.76	1.23	31.68	-	-	Peak
174.99	21.71	-21.79	43.5	42.25	9.57	1.57	31.68	-	-	Peak
644.4	24.69	-21.31	46	34.38	19.27	3.03	31.99	-	-	Peak
742.4	25.62	-20.38	46	34.4	19.97	3.34	32.09	-	-	Peak
768.3	29	-17	46	37.38	20.33	3.35	32.06	-	-	Peak
2390	49.57	-24.43	74	46.66	31.9	5.4	34.39	102	12	Peak
2390	37.67	-16.33	54	34.76	31.9	5.4	34.39	102	12	Average
2462	105.81	-	-	102.73	31.97	5.49	34.38	102	12	Average
2462	109.91	-	-	106.83	31.97	5.49	34.38	102	12	Peak
2486.89	54.35	-19.65	74	51.22	31.98	5.52	34.37	102	12	Peak
2486.89	42.22	-11.78	54	39.09	31.98	5.52	34.37	102	12	Average



Test Mode :	Mode 3	Temperature :	18~19℃
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.24	25.19	-14.81	40	40.05	16.12	0.73	31.71	122	221	Peak
92.64	21.77	-21.73	43.5	42.76	9.56	1.16	31.71	-	-	Peak
100.74	25.3	-18.2	43.5	44.99	10.76	1.23	31.68	-	-	Peak
558.3	29.78	-16.22	46	40.23	18.61	2.86	31.92	-	-	Peak
656.3	29.25	-16.75	46	38.85	19.29	3.08	31.97	-	-	Peak
668.9	29.32	-16.68	46	38.85	19.32	3.13	31.98	-	-	Peak
2390	47.34	-26.66	74	44.43	31.9	5.4	34.39	100	312	Peak
2390	35.34	-18.66	54	32.43	31.9	5.4	34.39	100	312	Average
2462	102.39	-	-	99.31	31.97	5.49	34.38	100	312	Average
2462	106.92	-	-	103.84	31.97	5.49	34.38	100	312	Peak
2483.85	54.15	-19.85	74	51.02	31.98	5.52	34.37	100	312	Peak
2483.85	40.73	-13.27	54	37.6	31.98	5.52	34.37	100	312	Average



Test Mode :	Mode 4	Temperature :	18~19℃
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.24	22.6	-17.4	40	37.46	16.12	0.73	31.71	-	-	Peak
90.48	18.27	-25.23	43.5	39.78	9.08	1.14	31.73	-	-	Peak
233.58	20.34	-25.66	46	38.59	11.58	1.79	31.62	-	-	Peak
756.4	27.25	-18.75	46	35.82	20.17	3.35	32.09	-	-	Peak
768.3	28.02	-17.98	46	36.4	20.33	3.35	32.06	-	-	Peak
913.9	30.45	-15.55	46	36.45	21.69	3.77	31.46	133	110	Peak
2389.99	68.72	-5.28	74	65.81	31.9	5.4	34.39	106	18	Peak
2389.99	46.21	-7.79	54	43.3	31.9	5.4	34.39	106	18	Average
2412	97.52	-	-	94.57	31.91	5.43	34.39	106	18	Average
2412	108.57	-	-	105.62	31.91	5.43	34.39	106	18	Peak
2494	38.01	-15.99	54	34.86	32	5.52	34.37	106	18	Average
2494	51.42	-22.58	74	48.27	32	5.52	34.37	106	18	Peak



Test Mode :	Mode 4	Temperature :	18~19°C
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	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
92.64	29.23	-14.27	43.5	50.22	9.56	1.16	31.71	131	234	Peak
101.28	26.29	-17.21	43.5	45.98	10.76	1.23	31.68	-	-	Peak
245.73	26.5	-19.5	46	43.97	12.35	1.83	31.65	-	-	Peak
558.3	29.54	-16.46	46	39.99	18.61	2.86	31.92	-	-	Peak
570.9	29.01	-16.99	46	39.34	18.78	2.88	31.99	-	-	Peak
656.3	29.33	-16.67	46	38.93	19.29	3.08	31.97	-	-	Peak
2389.99	67.08	-6.92	74	64.17	31.9	5.4	34.39	100	314	Peak
2389.99	44.09	-9.91	54	41.18	31.9	5.4	34.39	100	314	Average
2412	107.66	-	-	104.71	31.91	5.43	34.39	100	314	Peak
2412	96.86	-	-	93.91	31.91	5.43	34.39	100	314	Average
2486	34.2	-19.8	54	31.07	31.98	5.52	34.37	100	314	Average
2486	52.42	-21.58	74	49.29	31.98	5.52	34.37	100	314	Peak



Test Mode :	Mode 5	Temperature :	18~19℃
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.24	23.13	-16.87	40	37.99	16.12	0.73	31.71	-	-	Peak
100.74	26.54	-16.96	43.5	46.23	10.76	1.23	31.68	-	-	Peak
245.73	21.9	-24.1	46	39.37	12.35	1.83	31.65	-	-	Peak
754.3	26.42	-19.58	46	35.03	20.14	3.35	32.1	-	-	Peak
768.3	27.44	-18.56	46	35.82	20.33	3.35	32.06	-	-	Peak
897.8	30.79	-15.21	46	37.04	21.61	3.75	31.61	100	87	Peak
2390	49.83	-24.17	74	46.92	31.9	5.4	34.39	104	15	Peak
2390	39.21	-14.79	54	36.3	31.9	5.4	34.39	104	15	Average
2437	110.8	-	-	107.77	31.95	5.46	34.38	104	15	Peak
2437	99.36	-	-	96.33	31.95	5.46	34.38	104	15	Average
2484	48.83	-25.17	74	45.7	31.98	5.52	34.37	104	15	Peak
2484	37.57	-16.43	54	34.44	31.98	5.52	34.37	104	15	Average



Test Mode :	Mode 5	Temperature :	18~19℃
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
34.32	24.68	-15.32	40	40.11	15.53	0.74	31.7	121	222	Peak
92.64	22.99	-20.51	43.5	43.98	9.56	1.16	31.71	-	-	Peak
100.74	25.19	-18.31	43.5	44.88	10.76	1.23	31.68	-	-	Peak
558.3	28.71	-17.29	46	39.16	18.61	2.86	31.92	-	-	Peak
644.4	28.85	-17.15	46	38.54	19.27	3.03	31.99	-	-	Peak
656.3	28.94	-17.06	46	38.54	19.29	3.08	31.97	-	-	Peak
2356	48.66	-25.34	74	45.87	31.86	5.34	34.41	100	312	Peak
2356	34.71	-19.29	54	31.92	31.86	5.34	34.41	100	312	Average
2437	97.76	-	-	94.73	31.95	5.46	34.38	100	312	Average
2437	108.85	-	-	105.82	31.95	5.46	34.38	100	312	Peak
2484	47.91	-26.09	74	44.78	31.98	5.52	34.37	100	312	Peak
2484	34.94	-19.06	54	31.81	31.98	5.52	34.37	100	312	Average



Test Mode :	Mode 6	Temperature :	18~19℃
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.24	23.19	-16.81	40	38.05	16.12	0.73	31.71	100	108	Peak
91.29	22.32	-21.18	43.5	43.65	9.24	1.15	31.72	-	-	Peak
101.28	21.45	-22.05	43.5	41.14	10.76	1.23	31.68	-	-	Peak
668.9	24.25	-21.75	46	33.78	19.32	3.13	31.98	-	-	Peak
754.3	26.29	-19.71	46	34.9	20.14	3.35	32.1	-	-	Peak
768.3	28.9	-17.1	46	37.28	20.33	3.35	32.06	-	-	Peak
2388	50.82	-23.18	74	47.91	31.9	5.4	34.39	129	11	Peak
2388	34.93	-19.07	54	32.02	31.9	5.4	34.39	129	11	Average
2462	94.72	-	-	91.64	31.97	5.49	34.38	129	11	Average
2462	109.2	-	-	106.12	31.97	5.49	34.38	129	11	Peak
2483.66	44.16	-9.84	54	41.03	31.98	5.52	34.37	129	11	Average
2483.66	65.66	-8.34	74	62.53	31.98	5.52	34.37	129	11	Peak



Test Mode :	Mode 6	Temperature :	18~19℃
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
35.13	24.28	-15.72	40	40.31	14.93	0.74	31.7	125	207	Peak
92.64	24.4	-19.1	43.5	45.39	9.56	1.16	31.71	-	-	Peak
100.74	25.88	-17.62	43.5	45.57	10.76	1.23	31.68	-	-	Peak
558.3	29.16	-16.84	46	39.61	18.61	2.86	31.92	-	-	Peak
644.4	28.39	-17.61	46	38.08	19.27	3.03	31.99	-	-	Peak
656.3	29.15	-16.85	46	38.75	19.29	3.08	31.97	-	-	Peak
2380	46.73	-27.27	74	43.84	31.88	5.4	34.39	100	320	Peak
2380	34.07	-19.93	54	31.18	31.88	5.4	34.39	100	320	Average
2462	94.41	-	-	91.33	31.97	5.49	34.38	100	320	Average
2462	104.93	-	-	101.85	31.97	5.49	34.38	100	320	Peak
2483.85	59.41	-14.59	74	56.28	31.98	5.52	34.37	100	320	Peak
2483.85	40.55	-13.45	54	37.42	31.98	5.52	34.37	100	320	Average



Test Mode :	Mode 7	Temperature :	18~19℃
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	29.11	-10.89	40	42.8	17.31	0.72	31.72	100	111	Peak
44.04	20.92	-19.08	40	41.1	10.71	0.81	31.7	-	-	Peak
100.74	24.77	-18.73	43.5	44.46	10.76	1.23	31.68	-	-	Peak
558.3	24.14	-21.86	46	34.59	18.61	2.86	31.92	-	-	Peak
754.3	26.64	-19.36	46	35.25	20.14	3.35	32.1	-	-	Peak
768.3	28.35	-17.65	46	36.73	20.33	3.35	32.06	-	-	Peak
2389.99	69.38	-4.62	74	66.47	31.9	5.4	34.39	104	20	Peak
2389.99	46.07	-7.93	54	43.16	31.9	5.4	34.39	104	20	Average
2412	107.31	-	-	104.36	31.91	5.43	34.39	104	20	Peak
2412	96.58	-	-	93.63	31.91	5.43	34.39	104	20	Average
2500	34.11	-19.89	54	30.96	32	5.52	34.37	104	20	Average
2500	50.26	-23.74	74	47.11	32	5.52	34.37	104	20	Peak



Test Mode :	Mode 7	Temperature :	18~19℃
Test Channel :	01	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	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
30.54	25.48	-14.52	40	39.17	17.31	0.72	31.72	122	203	Peak
92.64	24.79	-18.71	43.5	45.78	9.56	1.16	31.71	-	-	Peak
100.74	25.1	-18.4	43.5	44.79	10.76	1.23	31.68	-	-	Peak
558.3	29.15	-16.85	46	39.6	18.61	2.86	31.92	-	-	Peak
644.4	28.42	-17.58	46	38.11	19.27	3.03	31.99	-	-	Peak
656.3	30.22	-15.78	46	39.82	19.29	3.08	31.97	-	-	Peak
2389.61	64.08	-9.92	74	61.17	31.9	5.4	34.39	100	314	Peak
2389.61	41.47	-12.53	54	38.56	31.9	5.4	34.39	100	314	Average
2412	104.51	-	-	101.56	31.91	5.43	34.39	100	314	Peak
2412	94.38	-	-	91.43	31.91	5.43	34.39	100	314	Average
2486	34.05	-19.95	54	30.92	31.98	5.52	34.37	100	314	Average
2486	46.03	-27.97	74	42.9	31.98	5.52	34.37	100	314	Peak



Test Mode :	Mode 8	Temperature :	18~19℃
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.24	23.48	-16.52	40	38.34	16.12	0.73	31.71	-	-	Peak
91.29	18.85	-24.65	43.5	40.18	9.24	1.15	31.72	-	-	Peak
100.74	28.31	-15.19	43.5	48	10.76	1.23	31.68	100	104	Peak
656.3	24.02	-21.98	46	33.62	19.29	3.08	31.97	-	-	Peak
754.3	26.95	-19.05	46	35.56	20.14	3.35	32.1	-	-	Peak
768.3	28.9	-17.1	46	37.28	20.33	3.35	32.06	-	-	Peak
2390	49	-25	74	46.09	31.9	5.4	34.39	105	13	Peak
2390	36.65	-17.35	54	33.74	31.9	5.4	34.39	105	13	Average
2437	109.16	-	-	106.15	31.93	5.46	34.38	105	13	Peak
2437	97.83	-	-	94.8	31.95	5.46	34.38	105	13	Average
2484	47.32	-26.68	74	44.19	31.98	5.52	34.37	105	13	Peak
2484	35.15	-18.85	54	32.02	31.98	5.52	34.37	105	13	Average



Test Mode :	Mode 8	Temperature :	18~19℃
Test Channel :	06	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
35.94	22.59	-17.41	40	39.02	14.52	0.75	31.7	-	-	Peak
92.64	23.37	-20.13	43.5	44.36	9.56	1.16	31.71	-	-	Peak
100.74	24.45	-19.05	43.5	44.14	10.76	1.23	31.68	-	-	Peak
558.3	29.28	-16.72	46	39.73	18.61	2.86	31.92	-	-	Peak
644.4	29.13	-16.87	46	38.82	19.27	3.03	31.99	-	-	Peak
656.3	29.77	-16.23	46	39.37	19.29	3.08	31.97	100	88	Peak
2356	48.13	-25.87	74	45.34	31.86	5.34	34.41	100	294	Peak
2356	35.81	-18.19	54	33.02	31.86	5.34	34.41	100	294	Average
2437	95.03	-	-	92	31.95	5.46	34.38	100	294	Average
2437	105.98	-	-	102.97	31.93	5.46	34.38	100	294	Peak
2500	46.74	-27.26	74	43.59	32	5.52	34.37	100	294	Peak
2500	34.16	-19.84	54	31.01	32	5.52	34.37	100	294	Average

Test Mode :	Mode 9	Temperature :	18~19℃
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.24	21.31	-18.69	40	36.17	16.12	0.73	31.71	-	-	Peak
100.74	27.51	-15.99	43.5	47.2	10.76	1.23	31.68	100	109	Peak
199.29	19.91	-23.59	43.5	40.55	9.35	1.66	31.65	-	-	Peak
756.4	27.59	-18.41	46	36.16	20.17	3.35	32.09	-	-	Peak
768.3	28.47	-17.53	46	36.85	20.33	3.35	32.06	-	-	Peak
866.3	27.08	-18.92	46	33.94	21.34	3.61	31.81	-	-	Peak
2382	49.17	-24.83	74	46.28	31.88	5.4	34.39	130	5	Peak
2382	35.21	-18.79	54	32.32	31.88	5.4	34.39	130	5	Average
2462	96.64	-	-	93.56	31.97	5.49	34.38	130	5	Average
2462	107.15	-	-	104.07	31.97	5.49	34.38	130	5	Peak
2483.5	64.46	-9.54	74	61.33	31.98	5.52	34.37	130	5	Peak
2483.5	43.55	-10.45	54	40.42	31.98	5.52	34.37	130	5	Average



Test Mode :	Mode 9	Temperature :	18~19℃
Test Channel :	11	Relative Humidity :	48~49%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
35.94	24.57	-15.43	40	41	14.52	0.75	31.7	119	207	Peak
92.64	26.68	-16.82	43.5	47.67	9.56	1.16	31.71	-	-	Peak
100.74	24.5	-19	43.5	44.19	10.76	1.23	31.68	-	-	Peak
558.3	29.82	-16.18	46	40.27	18.61	2.86	31.92	-	-	Peak
570.9	28.68	-17.32	46	39.01	18.78	2.88	31.99	-	-	Peak
656.3	29.53	-16.47	46	39.13	19.29	3.08	31.97	-	-	Peak
2382	49.82	-24.18	74	46.93	31.88	5.4	34.39	100	310	Peak
2382	34.41	-19.59	54	31.52	31.88	5.4	34.39	100	310	Average
2462	93.23	-	-	90.15	31.97	5.49	34.38	100	310	Average
2462	104.33	-	-	101.25	31.97	5.49	34.38	100	310	Peak
2483.85	62.15	-11.85	74	59.02	31.98	5.52	34.37	100	310	Peak
2483.85	40.71	-13.29	54	37.58	31.98	5.52	34.37	100	310	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	Due Date	Remark
System Simulator	R&S	CMU200	117995	N/A	Jun. 08, 2009	Jun. 07, 2011	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 11, 2010	Jun. 10, 2011	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 13, 2010	Sep. 12, 2011	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 14, 2010	Sep. 13, 2011	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D35P	TBN-930701	N/A	Jul. 30, 2010	Jul. 29, 2011	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz – 2.75GHz	Aug. 16, 2010	Aug. 15, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz – 30MHz	Dec. 03, 2010	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz – 30MHz	Dec. 01, 2010	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000 W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	117997	N/A	May 14, 2009	May 13, 2011	Conduction (CO05-HY)
Spectrum Analyzer	R&S	FSP40	100057	9KHz-40GHz	Oct. 25, 2010	Oct. 24, 2011	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/003	20MHz-1000MHz	Apr. 28, 2010	Apr. 27, 2011	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Oct. 31, 2010	Oct. 31, 2011	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz~18GHz	Aug. 02, 2010	Aug. 01, 2011	Radiation (03CH06-HY)
Double Ridge Horn Antenna	Training Research	AH-0801	95119	8GHz~18GHz	Oct. 20, 2010	Oct. 19, 2011	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz- 26.5GHz	Apr. 15, 2010	Apr. 14, 2011	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9KHz~1GHz	Apr. 15, 2010	Apr. 14, 2011	Radiation (03CH06-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	Radiation (03CH06-HY)
Bluetooth Base Station	R&S	CBT32	100519	N/A	May 12, 2009	May 11, 2011	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				