

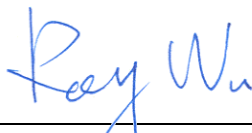
FCC RF Test Report

APPLICANT : Acer Incorporated
EQUIPMENT : Tablet Computer
BRAND NAME : Acer
MODEL NAME : A501
FCC ID : HLZTMDMA501A
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Jan. 29, 2011 and completely tested on Mar. 31, 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
FR132604B	Rev. 01	Initial issue of report	Apr. 26, 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	-
3.1	-	Gen 4.4.1	99% Bandwidth	-	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	-
0	15.247(d)	A8.5	Spurious Emission	$< 20\text{ dBc}$	Pass	-
0	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 6.6 dB at 0.18 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.36 dB at 2390 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Acer Incorporated

8F., No. 88, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 22181, Taiwan (R.O.C)

1.2 Manufacturer

1. Compal Electronics, Inc.

No. 581, Ruiguang Rd., Neihu District, Taipei City 11492, Taiwan

2. Compal Electronics Technology (Kunshan) Co., Ltd.

No. 25, Third Avenue, A Zone, Kunshan Comprehensive Free Trade Zone, Kunshan, Jiangsu, China

3. Compal Information (Kunshan) Co., Ltd.

No. 15, Third Avenue, A Zone, Kunshan Comprehensive Free Trade Zone, Kunshan, Jiangsu, China

4. Compal Information Technology (Kunshan) Co., Ltd.

No. 58, First Avenue, A Zone, Kunshan Comprehensive Free Trade Zone, Kunshan, Jiangsu, China

5. Compalead Eletrônica Do Brasil Indústria E Comércio Ltda

Rua Kanebo 175, Galpões C1, C2, C3, C4, C5 C6 E C12, Bairro Distrito Industrial Jundiaí Business Park, Cep 13213-090, Jundiaí - São Paulo, Brasil

6. Compal (Vietnam) Co., Ltd.

Ba Thien Industrial Zone, Ba Hien Commune, Binh Xuyen County, Vinh Phuc Province, Vietnam

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Tablet Computer
Brand Name	Acer
Model Name	A501
Integrated Module	Brand Name : Ericsson Model Name : F5521gw
FCC ID	HLZTMDMA501A
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 : 17.89 dBm (0.06 W) 802.11g : 22.73 dBm (0.19 W) 802.11n (BW 20MHz) : 22.12 dBm (0.16 W)
Antenna Type	PIFA Antenna
Antenna Gain	1.75 dBi
HW Version	LA-6872P Rev. 2
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	03CH07-HY	722060/4086B-1

1.5 Applied Standards

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

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ANSI C63.4-2003
- IC RSS-210 Issue 8

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (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.	Bluetooth Base Station	R&S	CBT32	N/A	N/A	Unshielded, 1.8 m
3.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
4.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
5.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	LCD Monitor	Dell	U2410	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
7.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
8.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
9.	iPod Earphone	N/A	N/A	FCC DoC	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	17.75	-	-	-
CH 06	2437 MHz	17.15	-	-	-
CH 11	2462 MHz	17.89	17.85	17.83	17.82

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	22.72	-	-	-	-	-	-	-
CH 06	2437 MHz	22.73	22.64	22.39	22.57	22.46	22.45	22.53	22.65
CH 11	2462 MHz	21.18	-	-	-	-	-	-	-

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	22.03	-	-	-	-	-	-	-
CH 06	2437 MHz	22.12	21.75	21.72	21.64	21.57	21.52	21.48	21.96
CH 11	2462 MHz	18.15	-	-	-	-	-	-	-

Remark:

1. The data rates of WLAN 802.11b/g/n were set in 1Mbps for 802.11b, 6Mbps for 802.11g, and MCS0 for 802.11n (BW 20MHz) for all the test cases due to the highest RF output power.
2. The EUT is programmed to transmit signals continuously for all testing.

2.2 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

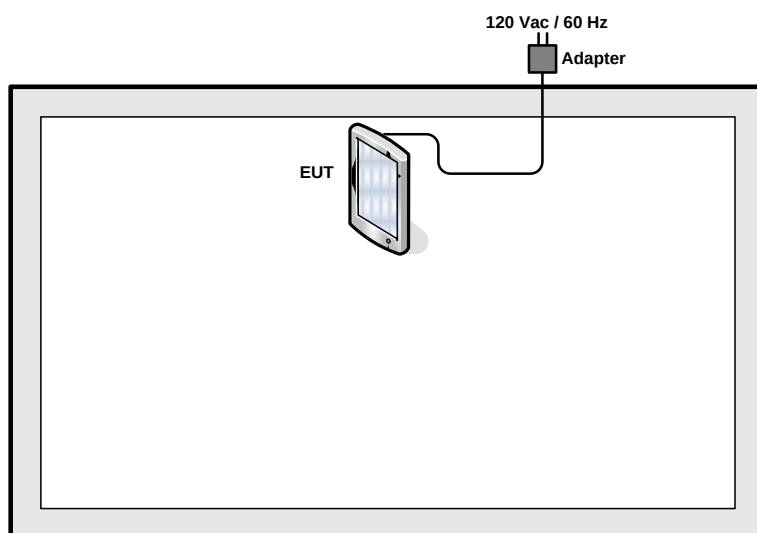
Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

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

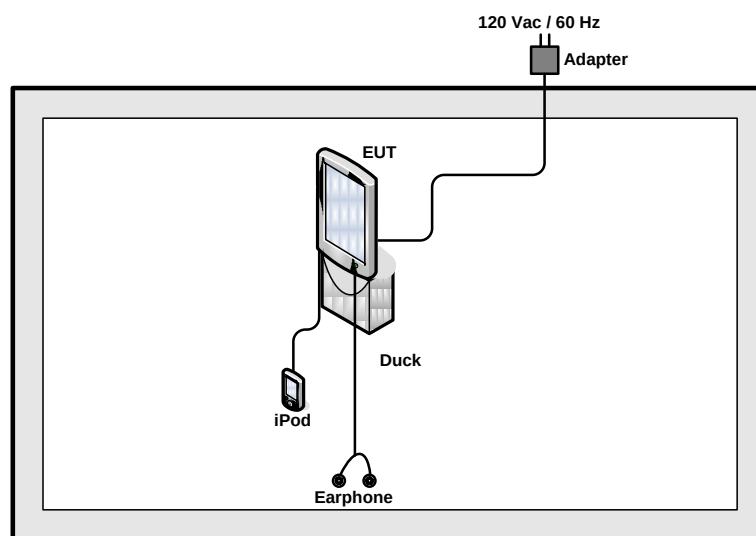
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 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 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 Mode 10: 802.11n (BW 20MHz)_CH01_2412 MHz + Dock
AC Conducted Emission	Mode 1 : GSM850 (GPRS 8) Idle + WLAN Idle + Bluetooth Idle + TC 1 + Adapter Mode 2 : WCDMA Band II Idle + WLAN Idle + Bluetooth Idle + GPS Rx + USB Cable (Link with Notebook) + TC 2 + Adapter Mode 3 : GSM1900 (GPRS 8) Idle + WLAN Idle + Bluetooth Idle + TC 1 + Adapter Mode 4 : WCDMA Band V Idle + WLAN Idle + Bluetooth Idle + GPS Rx + USB Cable (Link with Notebook) + TC 2 + Adapter	
Remark: - TC 1 stands for Test Configuration, and consists of iPod, HDMI cable, USB cable, docking, monitor, and earphone. - TC 2 stands for Test Configuration, and consists of iPod, HDMI cable, docking, monitor, and earphone. - Mode 7 ~ 9 of radiation test only performed Band Edges. - For radiated TCs, E1 plane was the worst case; only the E1 plane of these modes was reported.		

2.3 Connection Diagram of Test System

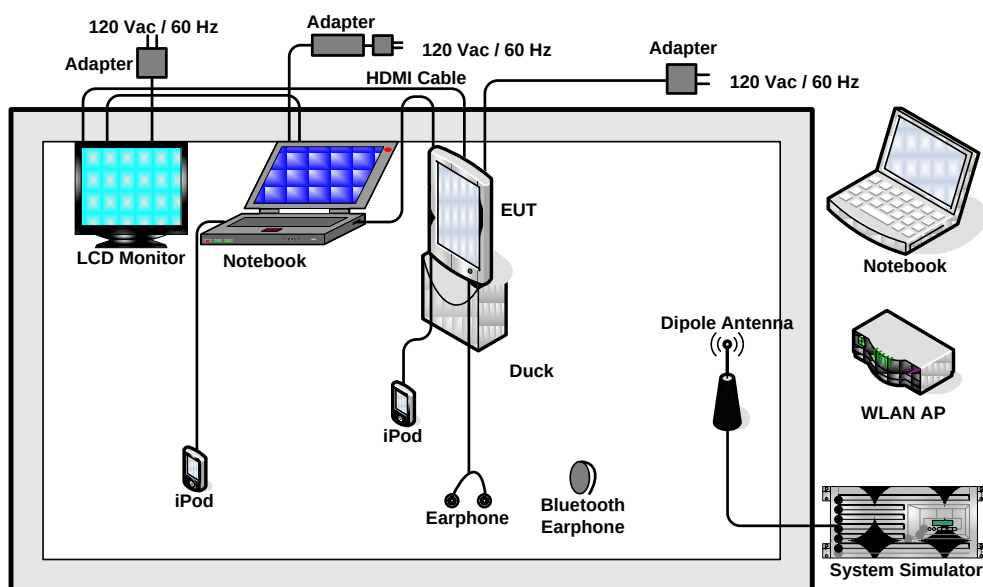
<WLAN Tx Mode>



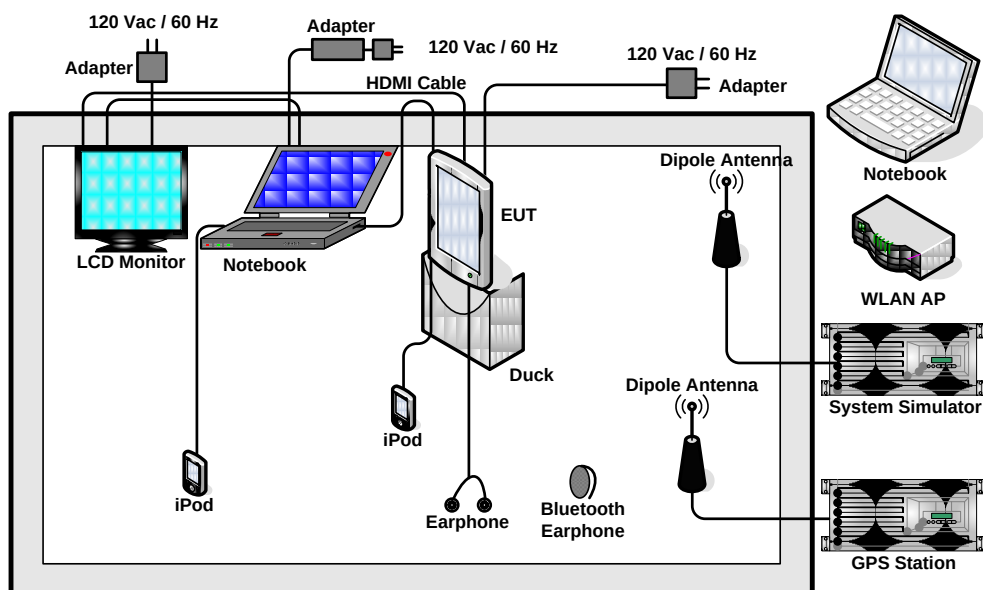
<WLAN Tx with Dock Mode>



< EUT with USB Cable (Link with Notebook) Mode>



<EUT with USB Cable (Link with Notebook) in GPS Mode>



2.4 RF Utility

Execute command 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 and 99% Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

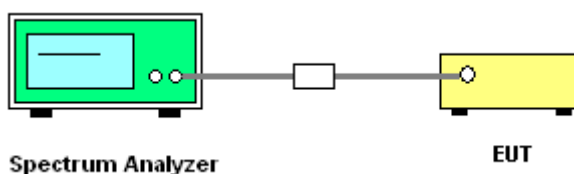
3.1.2 Measuring Instruments

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

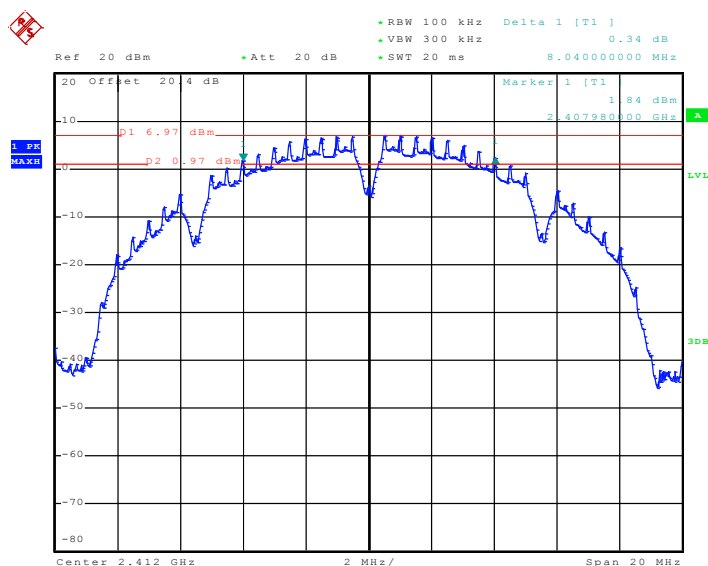


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Phoenix Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	8.04	0.5	Pass
06	2437	8.52	0.5	Pass
11	2462	8.02	0.5	Pass

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



Date: 2.FEB.2011 08:33:16



• RBW 100 kHz Delta 1 [T1]
 • VBW 300 kHz -0.65 dB
 • SWT 20 ms 8.520000000 MHz

Ref 20 dBm • Att 20 dB

20 Offset 20 4 dB

Marker 1 [T1]
 0.85 dBm
 2.432880000 GHz

1. PM
 MAXH

D1 6.19 dBm
 D2 0.19 dBm

1

1V1
 3DB

Center 2.437 GHz 2 MHz/ Span 20 MHz

Date: 2.FEB.2011 08:51:46

• RBW 100 kHz Delta 1 [T1]
 • VBW 300 kHz 0.34 dB
 • SWT 20 ms 8.020000000 MHz

Ref 20 dBm
 • Att 20 dB

20 Off et 20 4 dB
 1.62 dBm
 2.457980000 GHz

1. PR
 MAXH

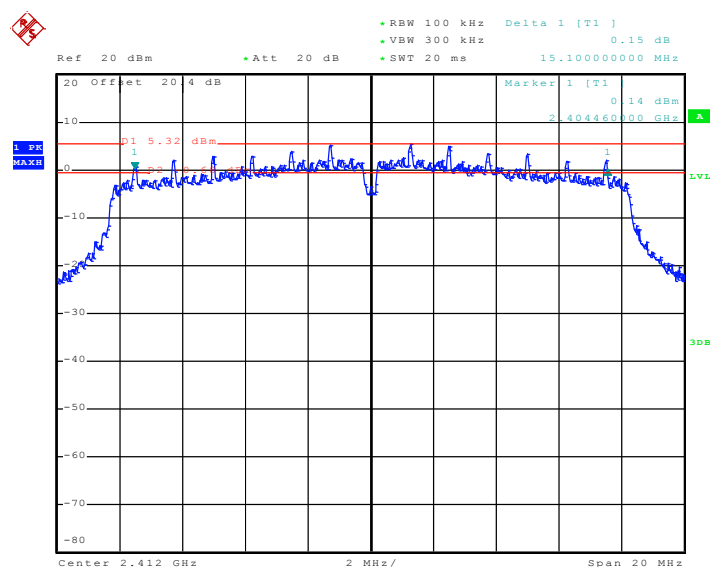
P1 6.64 dBm
 P2 0.64 dBm

Center 2.462 GHz
 2 MHz/
 Span 20 MHz

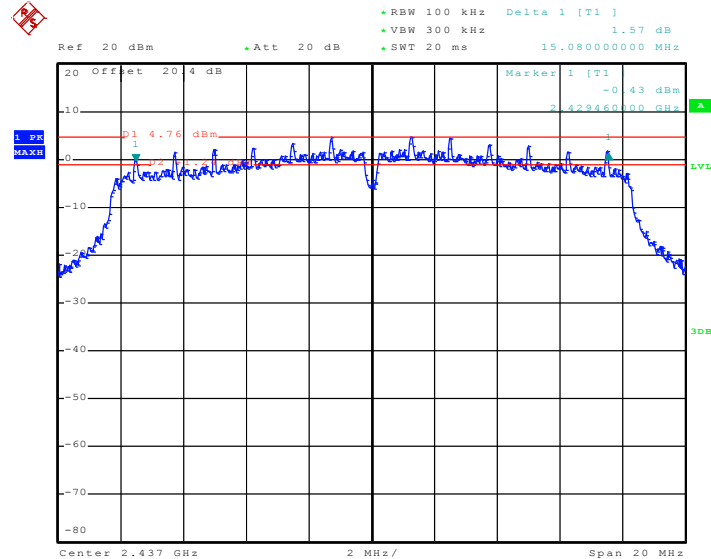
Date: 2.FEB.2011 09:04:32

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

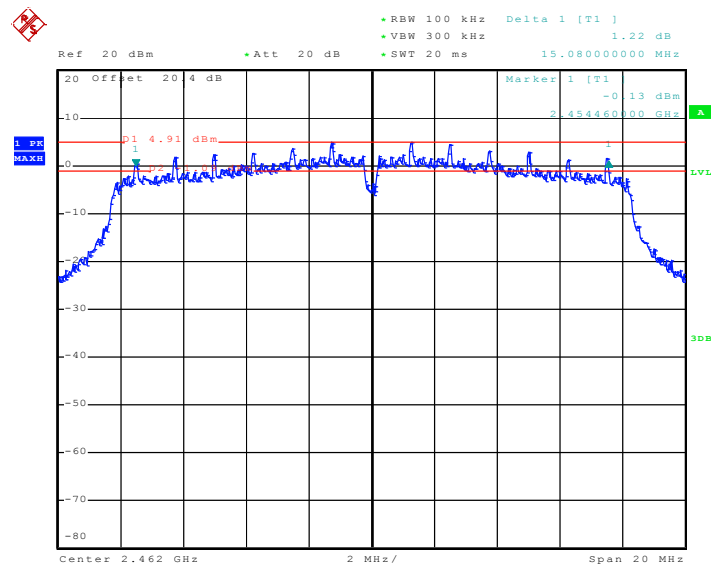
Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.10	0.5	Pass
06	2437	15.08	0.5	Pass
11	2462	15.08	0.5	Pass

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


Date: 2.FEB.2011 09:19:48

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


Date: 2.FEB.2011 09:59:23

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


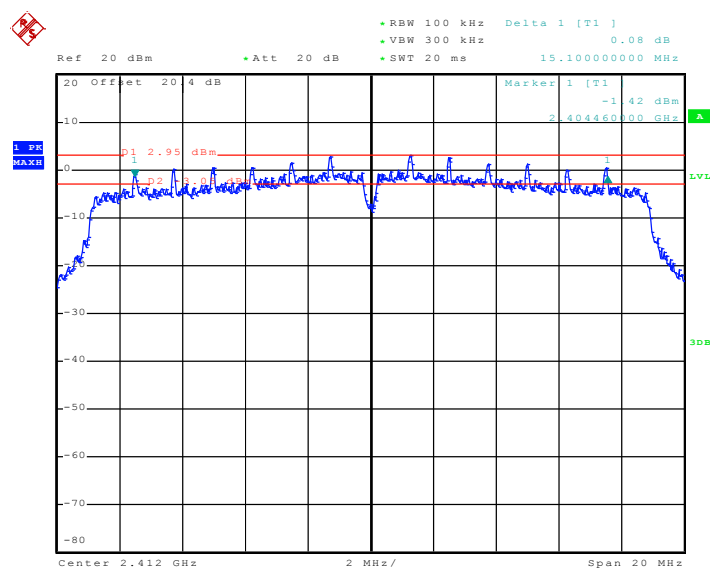
Date: 2.FEB.2011 10:13:41



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

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.10	0.5	Pass
06	2437	15.12	0.5	Pass
11	2462	15.12	0.5	Pass

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



Date: 2.FEB.2011 11:27:55



• RBW 100 kHz Delta 1 [T1] -1.04 dB
 • VBW 300 kHz
 • SWT 20 ms 15.120000000 MHz

Ref 20 dBm • Att 20 dB

20 Offset 20 4 dB

Marker 1 [T1] -2.14 dBm
 2.42946000 GHz

P1 2.43 dBm
 P2 -1.34 dBm

10 dB

Center 2.437 GHz 2 MHz/ Span 20 MHz

Date: 2.FEB.2011 11:14:48

1 RBW 100 kHz Delta 1 [T1]
 VBW 300 kHz -0.88 dB
 SWT 20 ms 15.12000000 MHz

Ref 20 dBm Att 20 dB

20 Offset 20 4 dB

Marker 1 [T1]
 -1.87 dBm
 2.45446200 GHz

D1 2.72 dBm
 D2 1.25 dBm

1 dB MAX

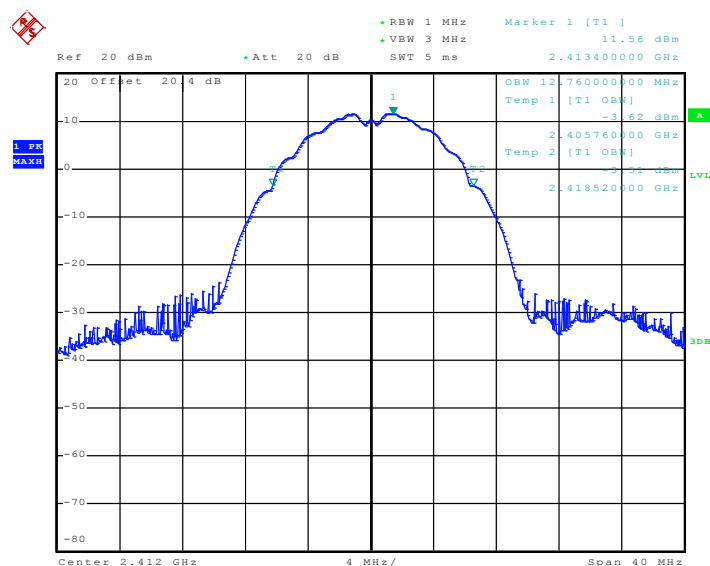
Center 2.462 GHz Span 20 MHz

Date: 2.FEB.2011 10:58:32

3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Phoenix Chen	Relative Humidity :	50~53%

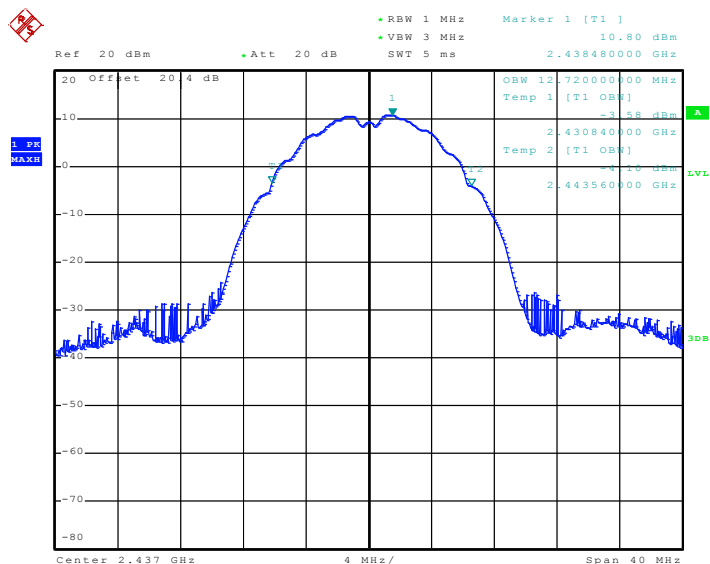
Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	12.76	Pass
06	2437	12.72	Pass
11	2462	12.76	Pass

Mode 1 : 99% Occupied Bandwidth Plot on 802.11b Channel 01


Date: 2.FEB.2011 08:34:54

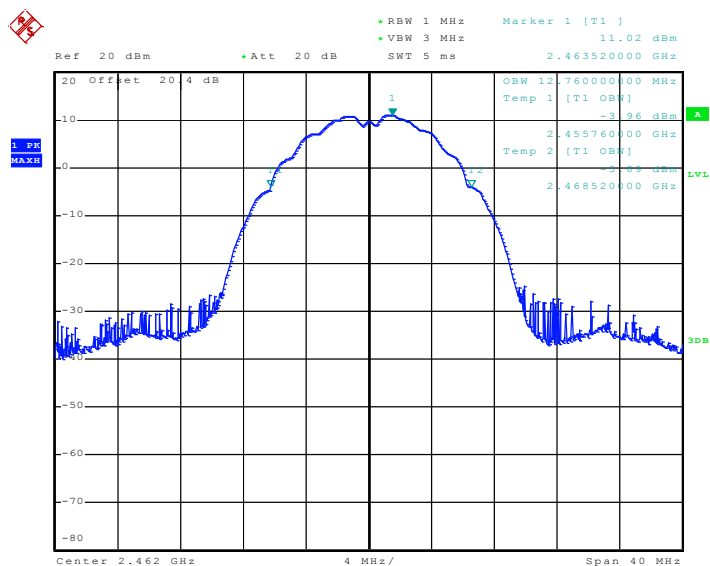


Mode 2 : 99% Occupied Bandwidth Plot on 802.11b Channel 06



Date: 2.FEB.2011 08:52:18

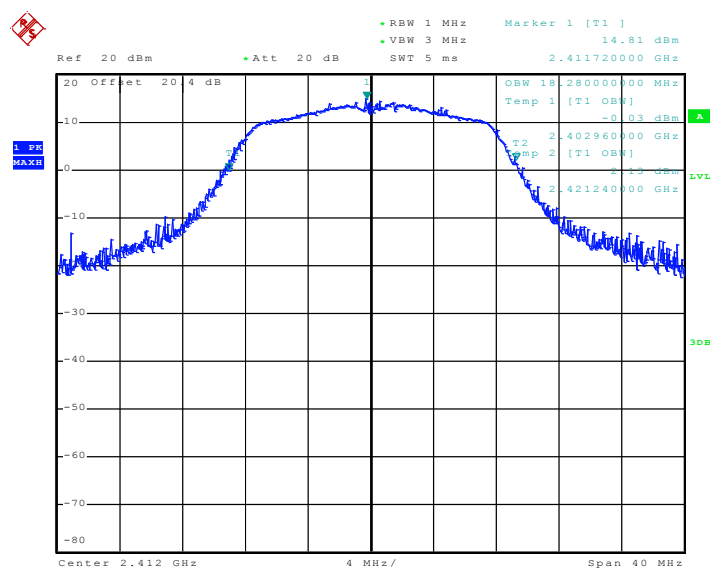
Mode 3 : 99% Occupied Bandwidth Plot on 802.11b Channel 11



Date: 2.FEB.2011 09:05:46

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

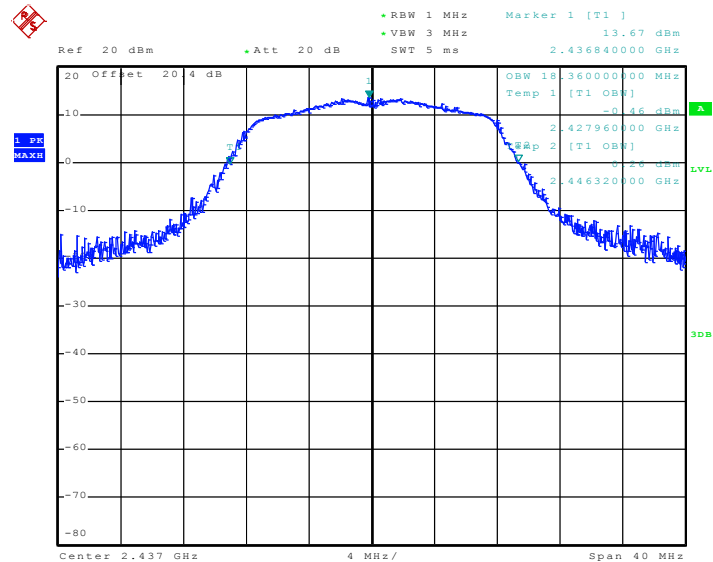
Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	18.28	Pass
06	2437	18.36	Pass
11	2462	18.28	Pass

Mode 4 : 99% Occupied Bandwidth Plot on 802.11g Channel 01


Date: 2.FEB.2011 09:21:28

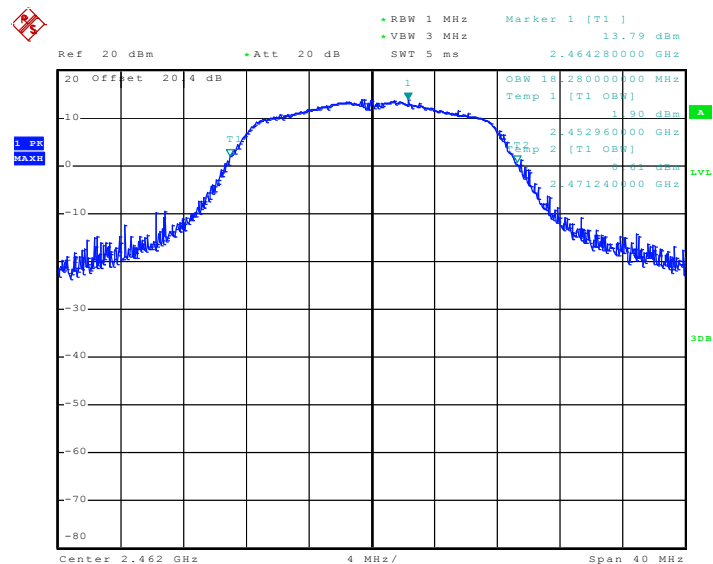


Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06



Date: 2.FEB.2011 09:59:55

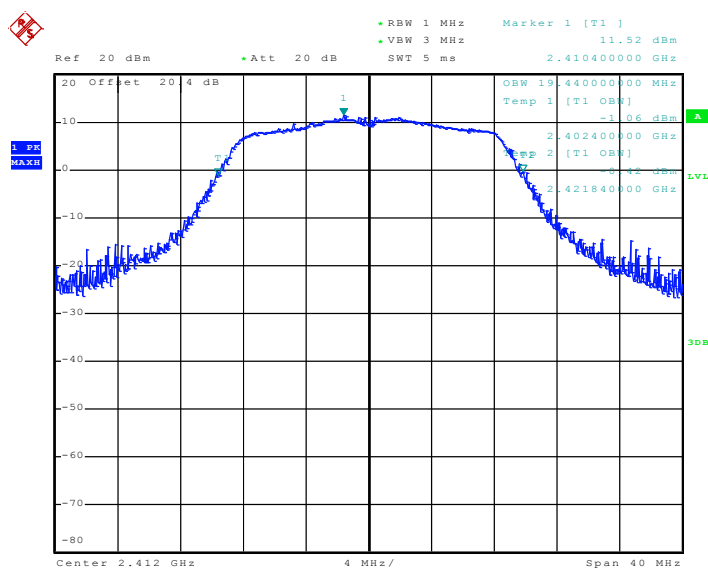
Mode 6 : 99% Occupied Bandwidth Plot on 802.11g Channel 11



Date: 2.FEB.2011 10:14:56

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

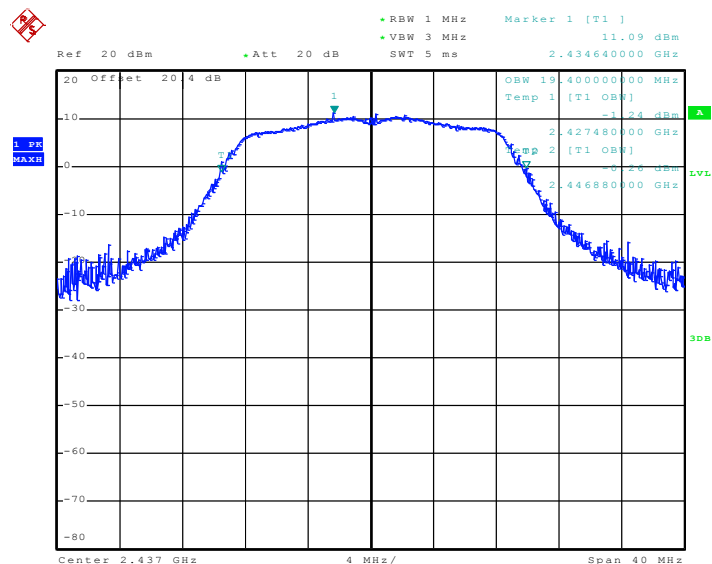
Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	19.44	Pass
06	2437	19.40	Pass
11	2462	19.28	Pass

Mode 7 : 99% Occupied Bandwidth Plot on 802.11n (BW 20MHz) Channel 01


Date: 2.FEB.2011 11:29:34

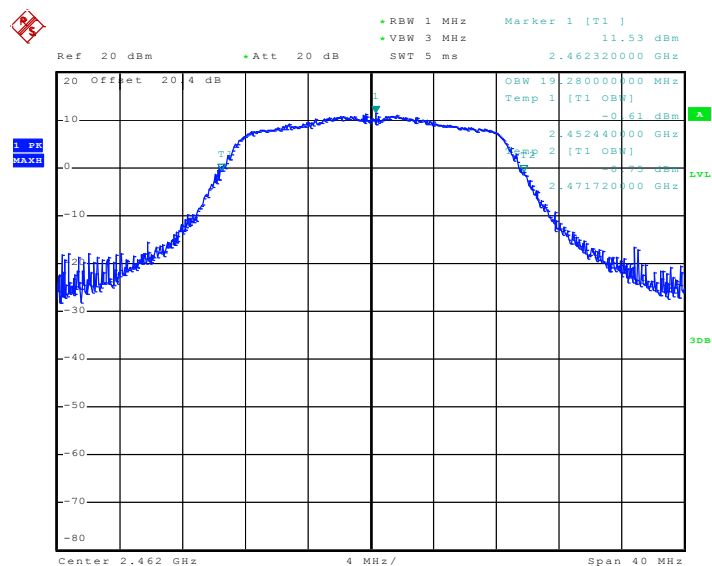


Mode 8 : 99% Occupied Bandwidth Plot on 802.11n (BW 20MHz) Channel 06



Date: 2.FEB.2011 11:15:20

Mode 9 : 99% Occupied Bandwidth Plot on 802.11n (BW 20MHz) Channel 11



Date: 2.FEB.2011 10:59:47

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.

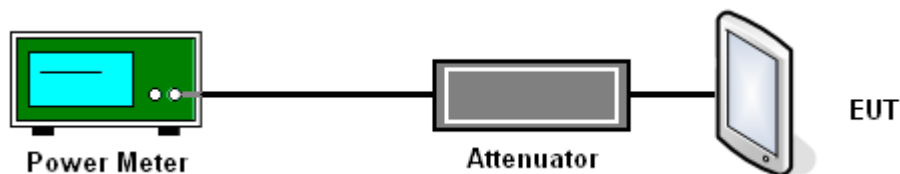
3.2.2 Measuring Instruments

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 :	Phoenix Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	17.75	30	Pass
06	2437	17.15	30	Pass
11	2462	17.89	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26℃
Test Engineer :	Phoenix Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.72	30	Pass
06	2437	22.73	30	Pass
11	2462	21.18	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~26℃
Test Engineer :	Phoenix Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.03	30	Pass
06	2437	22.12	30	Pass
11	2462	18.15	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

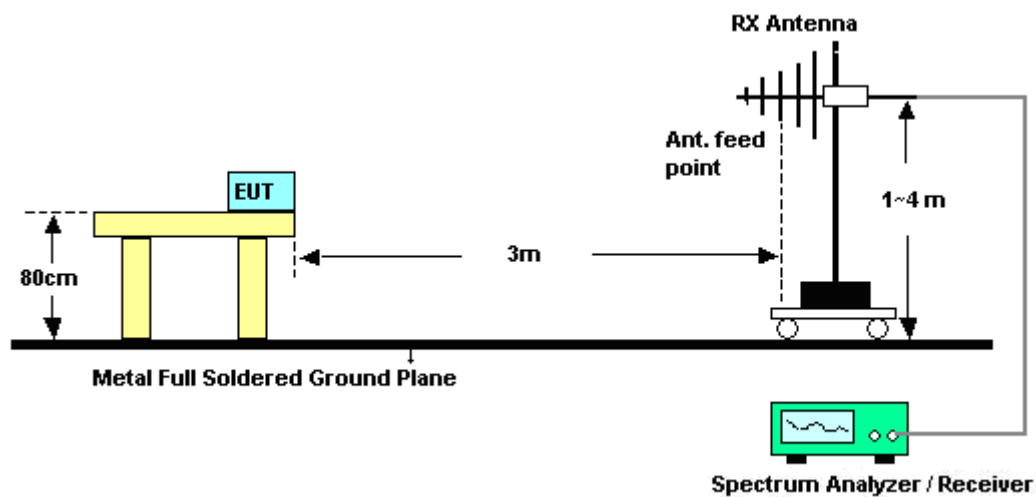
See list of measuring instruments of this test report.

3.3.3 Test Procedures

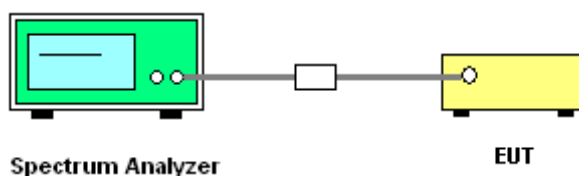
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) $\geq$ RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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 = 1MHz, Sweep = Auto for Peak detector, RBW = 1MHz, VBW = 10 Hz, Sweep=Auto for Average detector. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation as in FCC Section 15.35(b) and (c).

3.3.4 Test Setup

<Radiated Band Edges>



<Conducted Band Edges>



3.3.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	49~50%
Test Channel :	01	Test Engineer :	Ivan Chiang

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
2376.69	55.04	-18.96	74	50.73	32.16	5.99	33.84	100	256	Peak
2376.69	35.26	-18.74	54	30.95	32.16	5.99	33.84	100	256	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
2390	56.46	-17.54	74	52.1	32.18	6.03	33.85	104	276	Peak
2390	41.2	-12.8	54	36.84	32.18	6.03	33.85	104	276	Average

Test Mode :	Mode 3	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	49~50%
Test Channel :	11	Test Engineer :	Ivan Chiang

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	66.52	-7.48	74	61.96	32.28	6.18	33.9	126	238	Peak
2483.66	50.16	-3.84	54	45.6	32.28	6.18	33.9	126	238	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	63.26	-10.74	74	58.7	32.28	6.18	33.9	100	276	Peak
2483.66	46.8	-7.2	54	42.24	32.28	6.18	33.9	100	276	Average



Test Mode :	Mode 4	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	49~50%
Test Channel :	01	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	70.38	-3.62	74	66.02	32.18	6.03	33.85	100	256	Peak
2390	47.74	-6.26	54	43.38	32.18	6.03	33.85	100	256	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
2390	69.56	-4.44	74	65.2	32.18	6.03	33.85	102	278	Peak
2390	46.37	-7.63	54	42.01	32.18	6.03	33.85	102	278	Average

Test Mode :	Mode 6	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	49~50%
Test Channel :	11	Test Engineer :	Ivan Chiang

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	69.69	-4.31	74	65.13	32.28	6.18	33.9	128	235	Peak
2483.5	50.62	-3.38	54	46.06	32.28	6.18	33.9	128	235	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	68.26	-5.74	74	63.7	32.28	6.18	33.9	100	276	Peak
2483.5	48.25	-5.75	54	43.69	32.28	6.18	33.9	100	276	Average



Test Mode :	Mode 7	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~50%
Test Channel :	01	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	70.64	-3.36	74	66.28	32.18	6.03	33.85	131	241	Peak
2390	49.91	-4.09	54	45.55	32.18	6.03	33.85	131	241	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
2390	67.04	-6.96	74	62.68	32.18	6.03	33.85	103	277	Peak
2390	45.81	-8.19	54	41.45	32.18	6.03	33.85	103	277	Average

Test Mode :	Mode 9	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~50%
Test Channel :	11	Test Engineer :	Ivan Chiang

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	69.37	-4.63	74	64.81	32.28	6.18	33.9	128	240	Peak
2483.5	48.96	-5.04	54	44.4	32.28	6.18	33.9	128	240	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	66.13	-7.87	74	61.57	32.28	6.18	33.9	100	276	Peak
2483.85	46.42	-7.58	54	41.86	32.28	6.18	33.9	100	276	Average



Test Mode :	Mode 10	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~50%
Test Channel :	01	Test Engineer :	Ivan Chiang

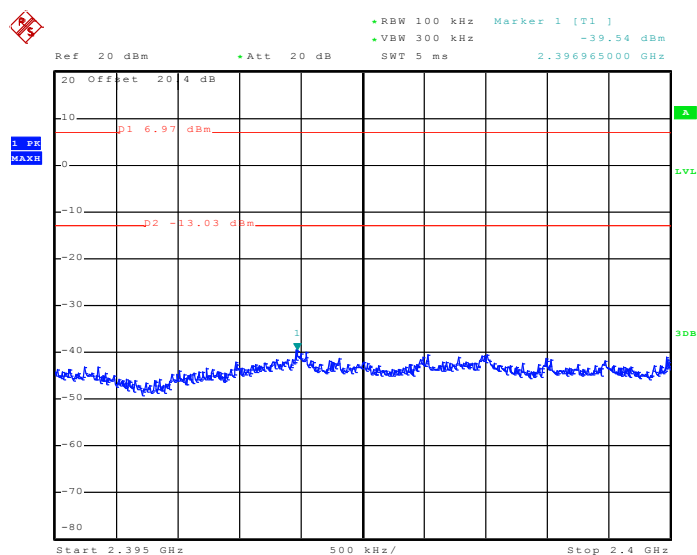
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	69.26	-4.74	74	64.9	32.18	6.03	33.85	100	119	Peak
2389.99	46.35	-7.65	54	41.99	32.18	6.03	33.85	100	119	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	66.05	-7.95	74	61.69	32.18	6.03	33.85	200	202	Peak
2389.99	45.51	-8.49	54	41.15	32.18	6.03	33.85	200	202	Average

3.3.6 Test Plots of Conducted Band Edges

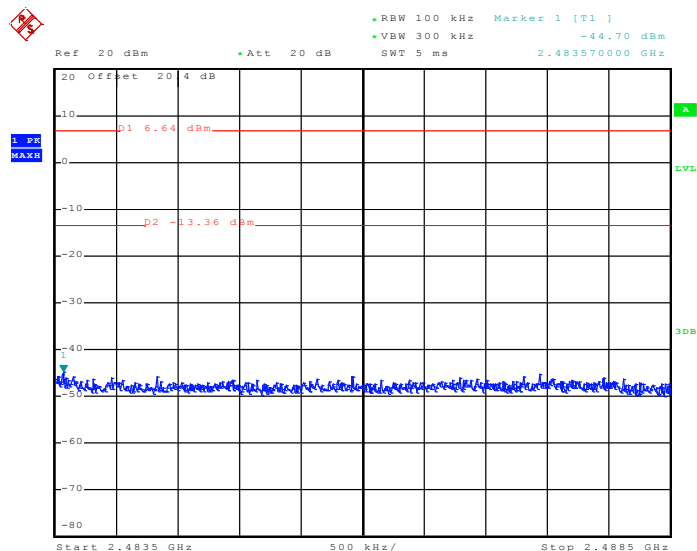
Test Mode :	Mode 1 and 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Phoenix Chen

Low Band Edge Plot on 802.11b Channel 01



Date: 2.FEB.2011 08:34:27

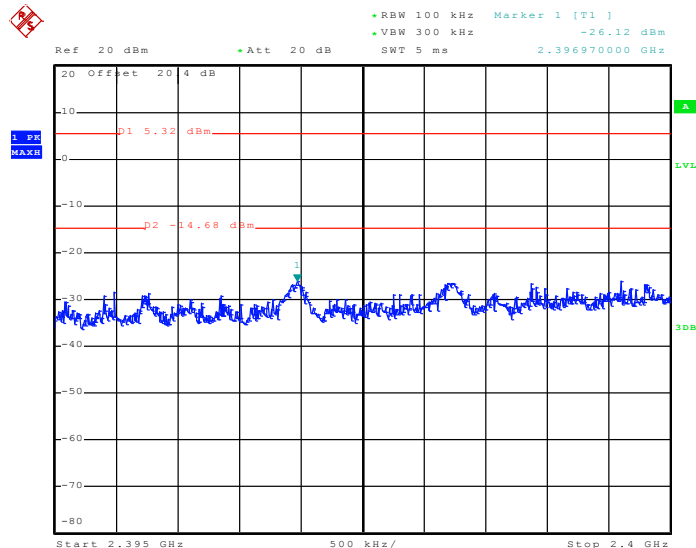
High Band Edge Plot on 802.11b Channel 11



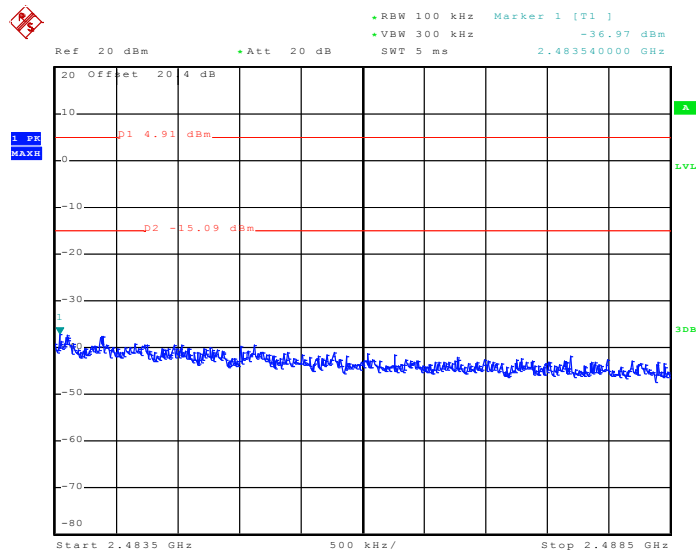
Date: 2.FEB.2011 09:05:19



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

Low Band Edge Plot on 802.11g Channel 01

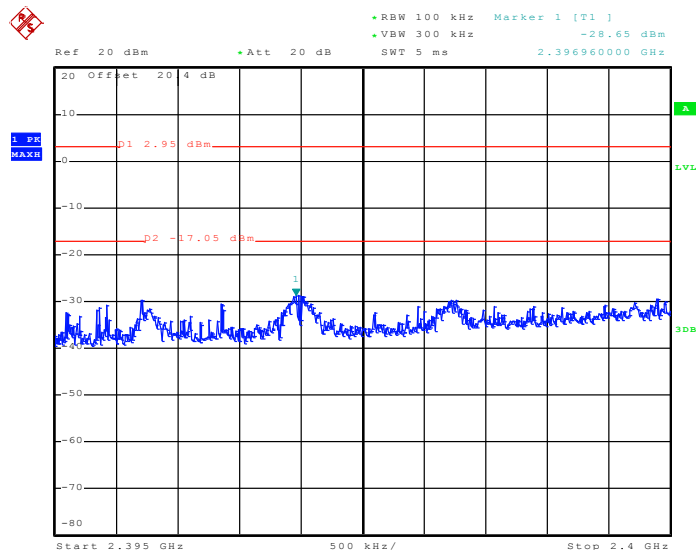
Date: 2.FEB.2011 09:21:00

High Band Edge Plot on 802.11g Channel 11

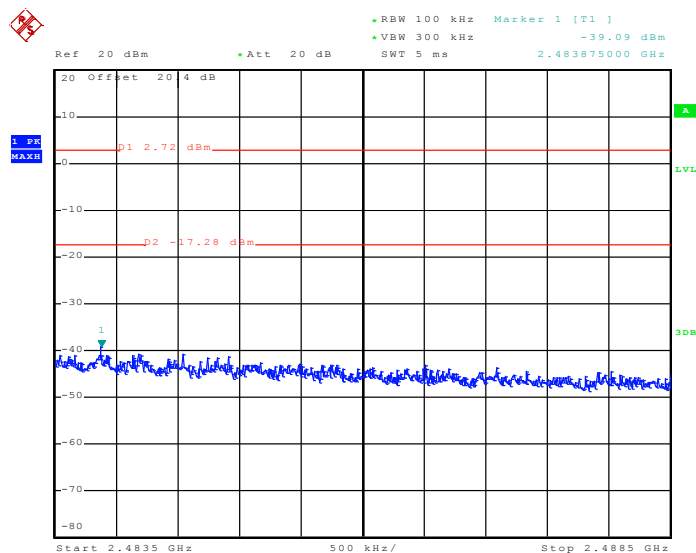
Date: 2.FEB.2011 10:14:29



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

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

Date: 2.FEB.2011 11:29:07

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

Date: 2.FEB.2011 10:59:20

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

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

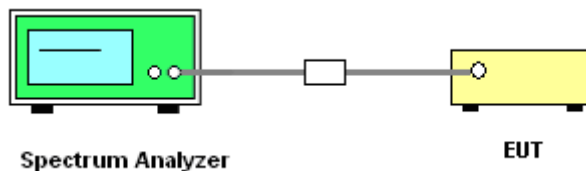
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

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

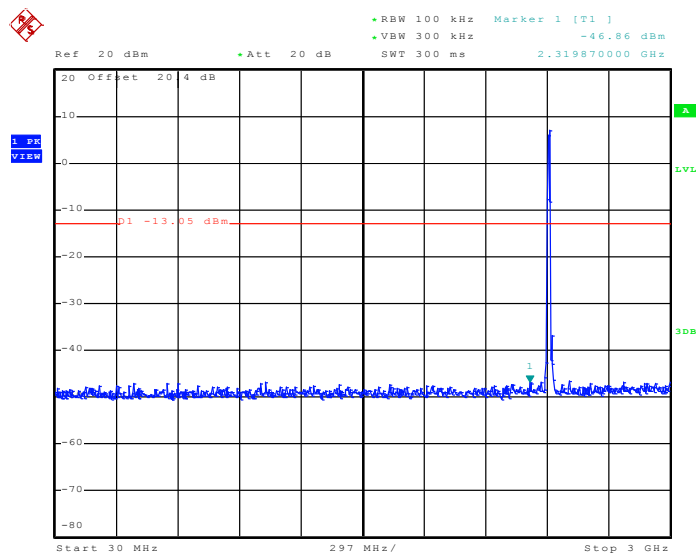
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

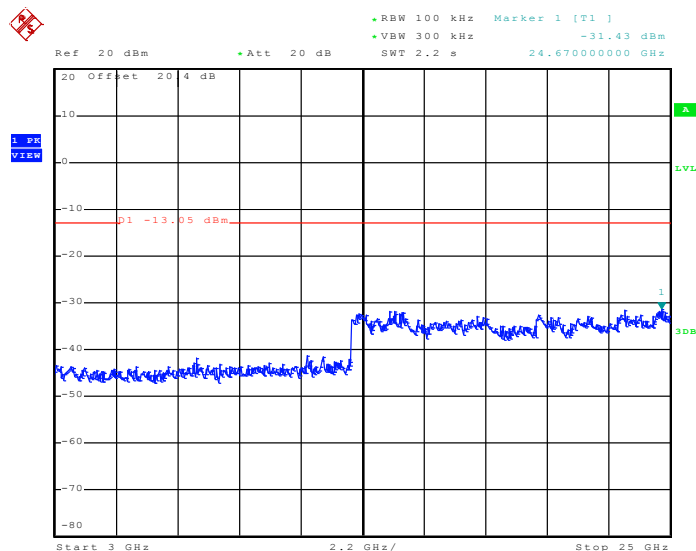
Test Mode :	Mode 1	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Phoenix Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 2.FEB.2011 08:49:18

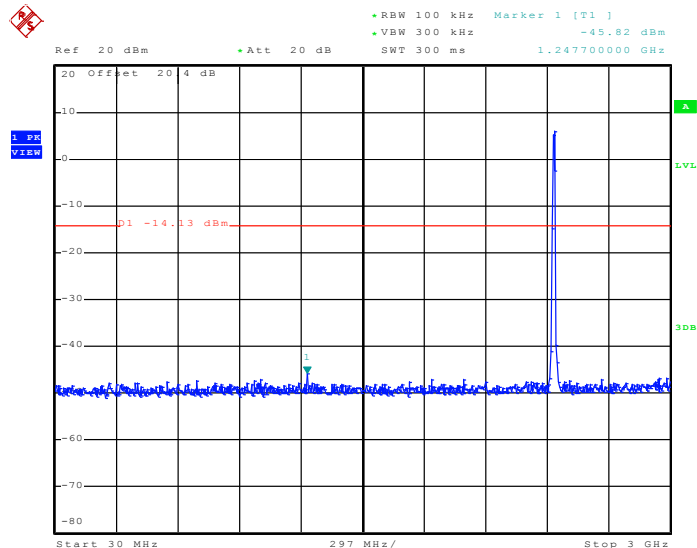
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



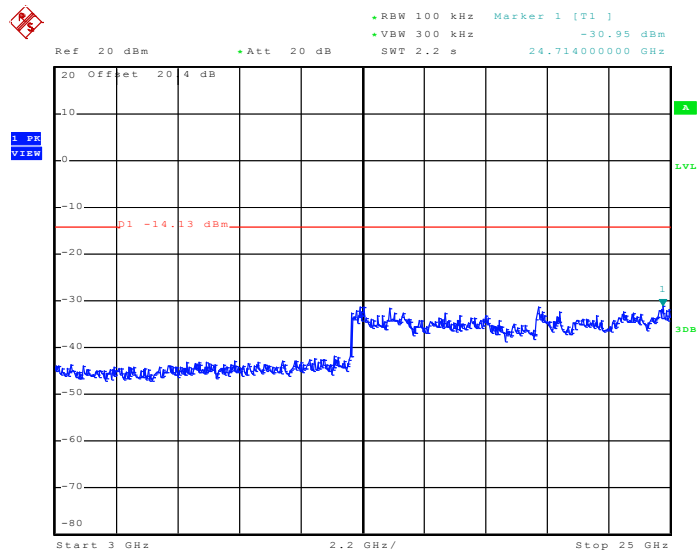
Date: 2.FEB.2011 08:49:52



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

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

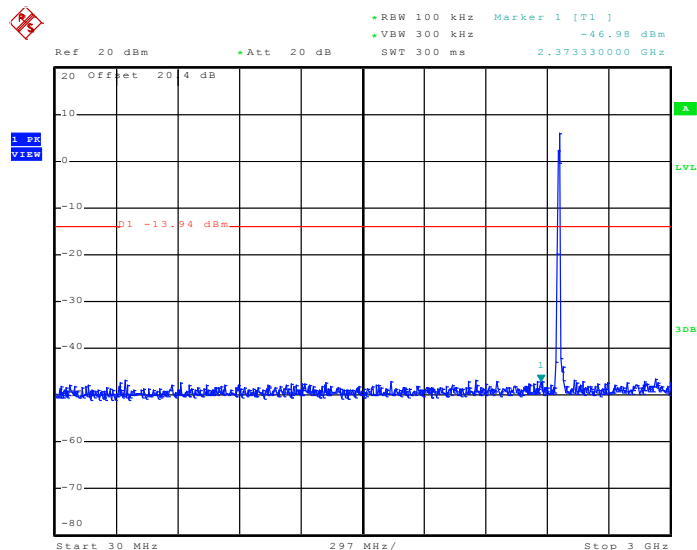
Date: 2.FEB.2011 09:01:27

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

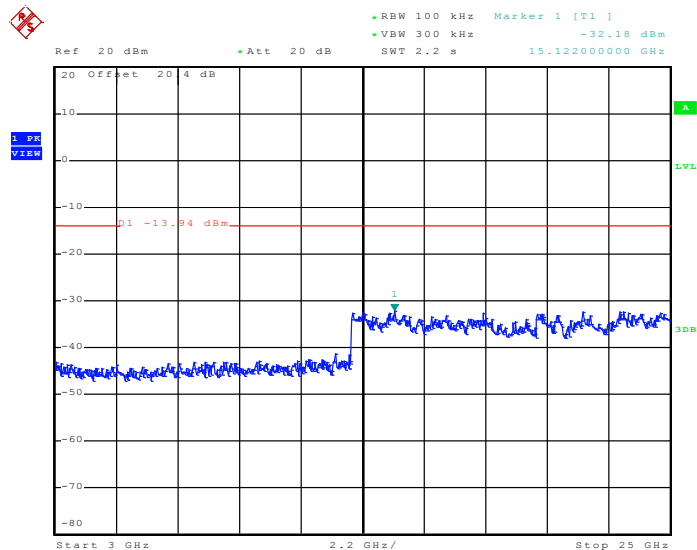
Date: 2.FEB.2011 09:01:45



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

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

Date: 2.FEB.2011 09:16:18

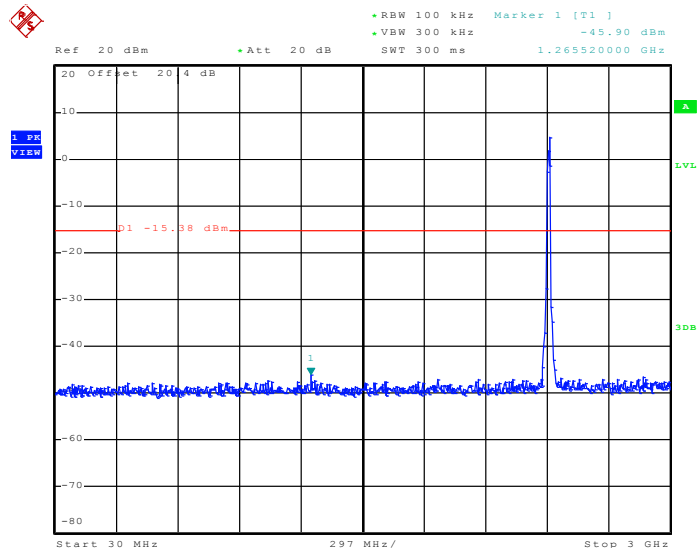
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

Date: 2.FEB.2011 09:16:46



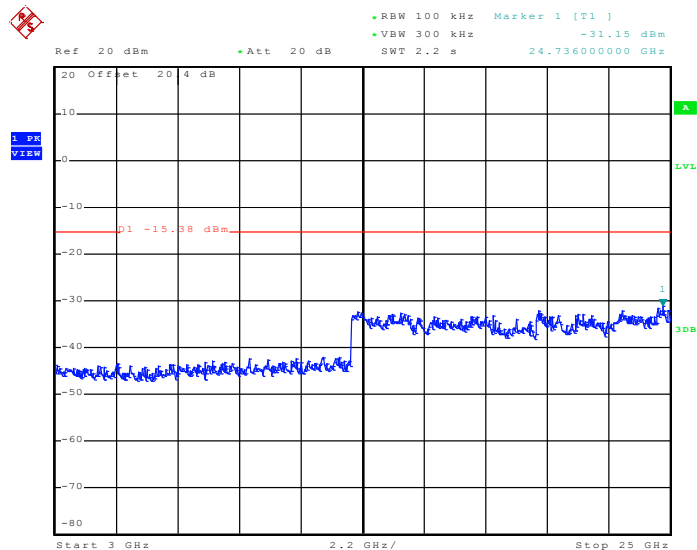
Test Mode :	Mode 4	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Phoenix Chen

Conducted Spurious Emission Plot between 30 MHz ~ 3 GHz



Date: 2.FEB.2011 09:56:21

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

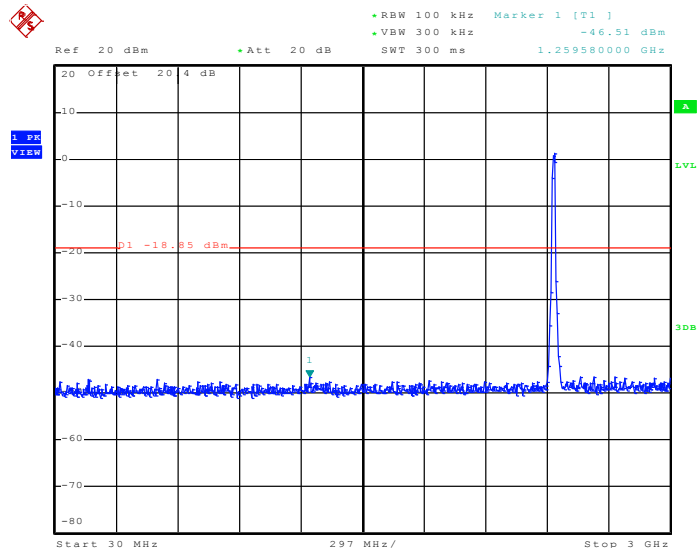


Date: 2.FEB.2011 09:56:39



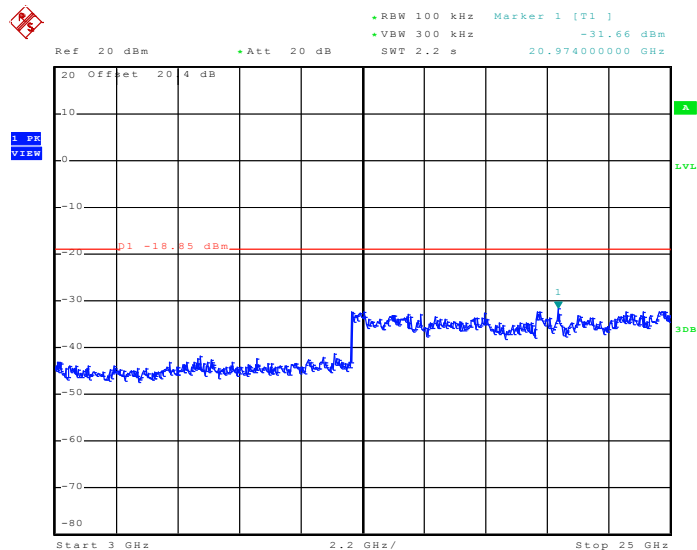
Test Mode :	Mode 5	Temperature :	24~26
Test Band :	802.11g	Relative Humidity :	50~53
Test Channel :	06	Test Engineer :	Phoenix Chen

Conducted Spurious Emission Plot between 30 MHz ~ 3 GHz



Date: 2.FEB.2011 10:11:27

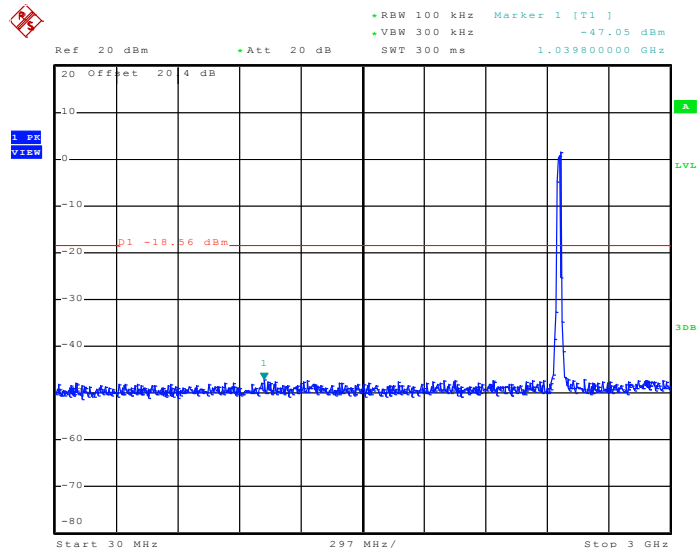
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



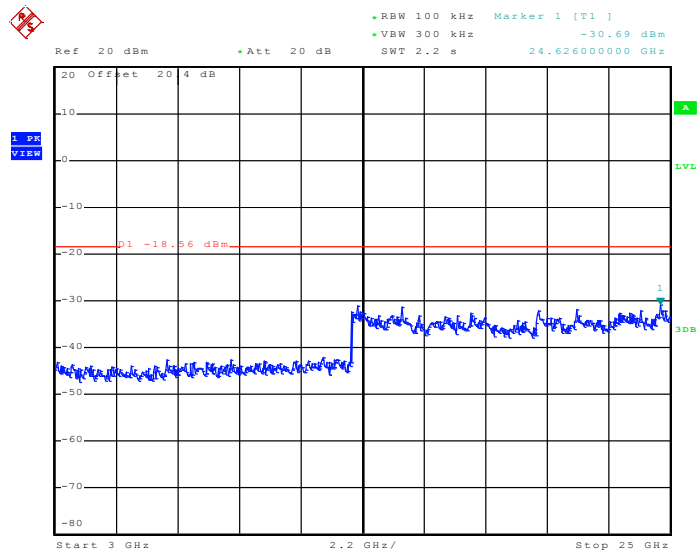
Date: 2.FEB.2011 10:11:45



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

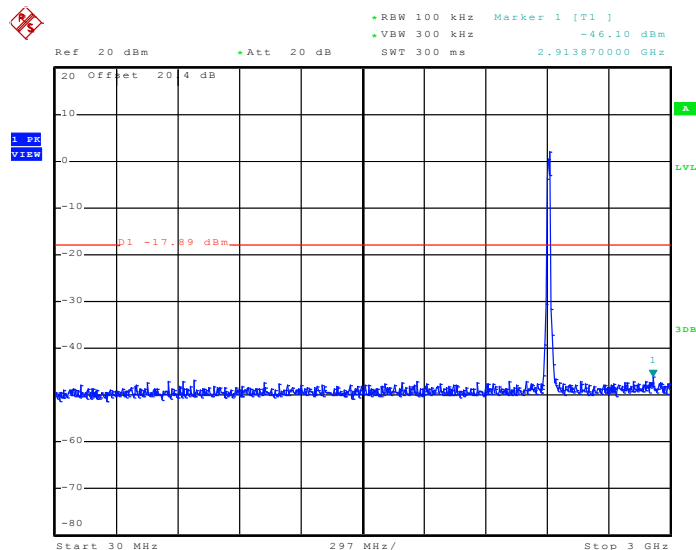
Conducted Spurious Emission Plot between 30 MHz ~ 3 GHz

Date: 2.FEB.2011 10:23:54

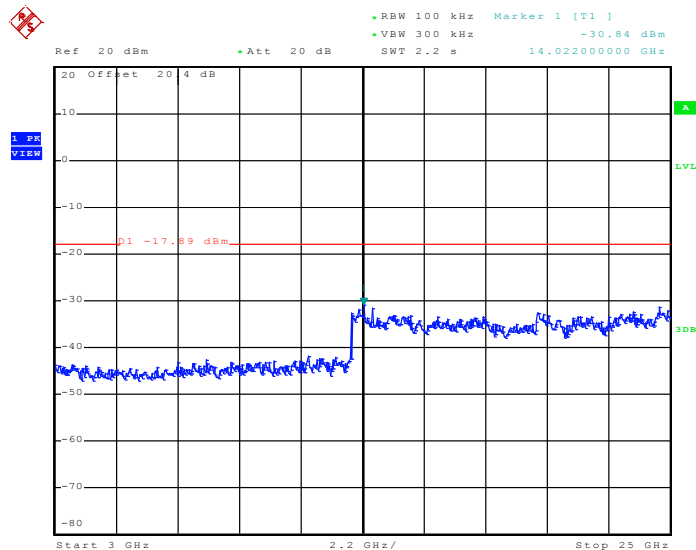
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

Date: 2.FEB.2011 10:24:12

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

Conducted Spurious Emission Plot between 30 MHz ~ 3 GHz


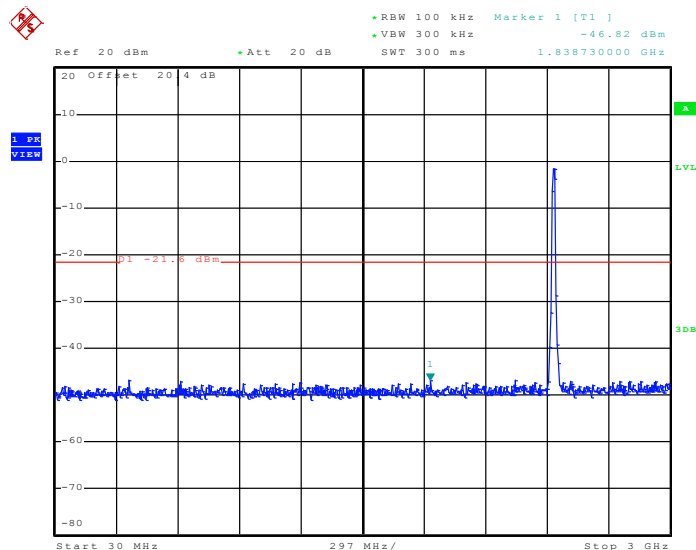
Date: 2.FEB.2011 11:39:36

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 2.FEB.2011 11:39:53

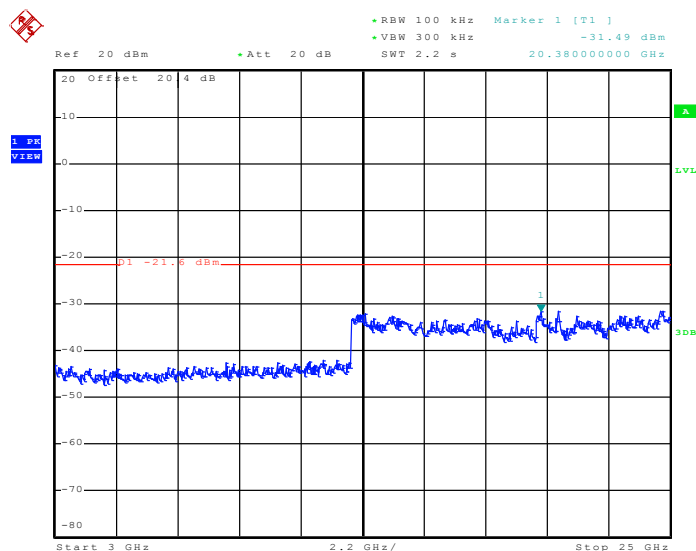
Test Mode :	Mode 8	Temperature :	24~26℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Phoenix Chen

Conducted Spurious Emission Plot between 30 MHz ~ 3 GHz



Date: 2.FEB.2011 11:25:13

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 2.FEB.2011 11:25:31



Conducted Spurious Emission Plot between 30 MHz ~ 3 GHz



Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



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.

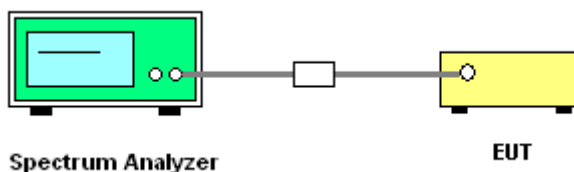
3.5.2 Measuring Instruments

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

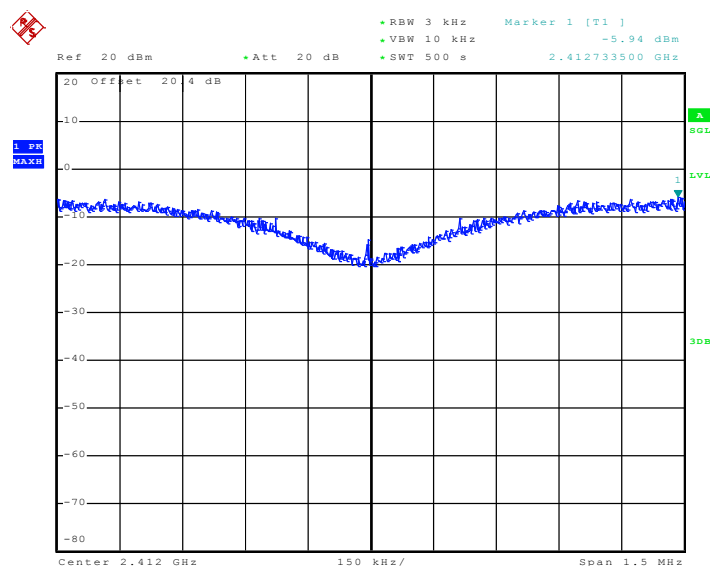


3.5.5 Test Result of Power Spectral Density

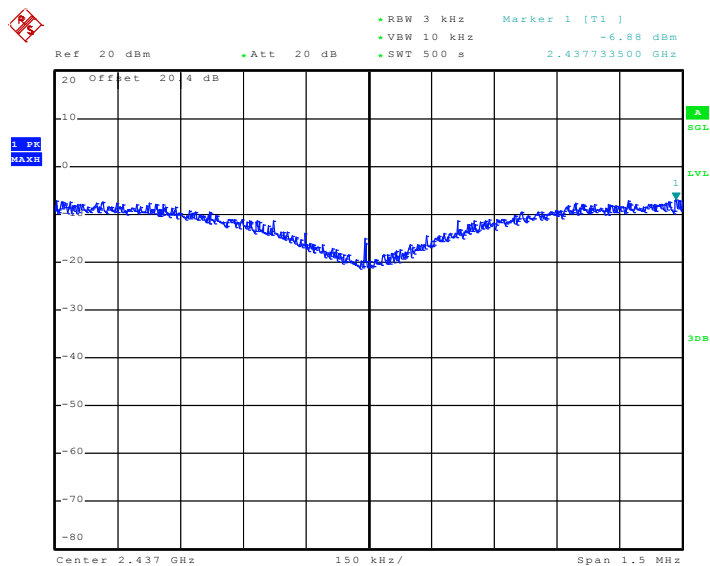
Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Phoenix Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-5.94	8	Pass
06	2437	-6.88	8	Pass
11	2462	-6.59	8	Pass

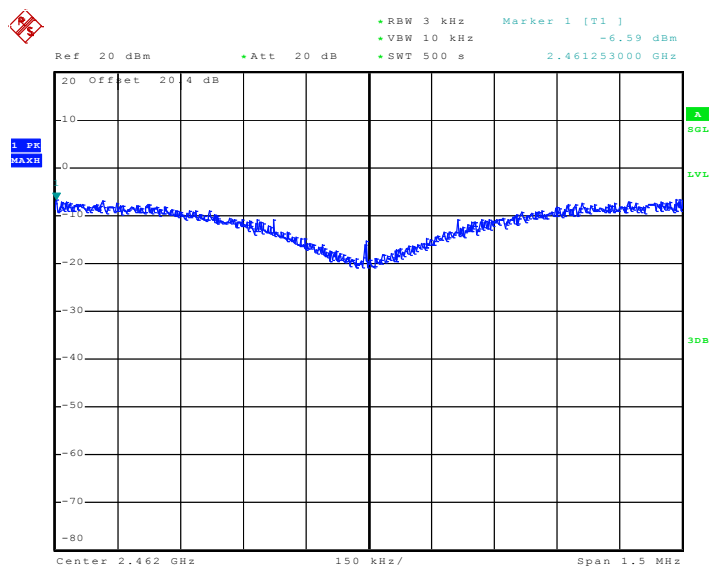
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 2.FEB.2011 08:43:52

Mode 2 : PSD Plot on 802.11b Channel 06


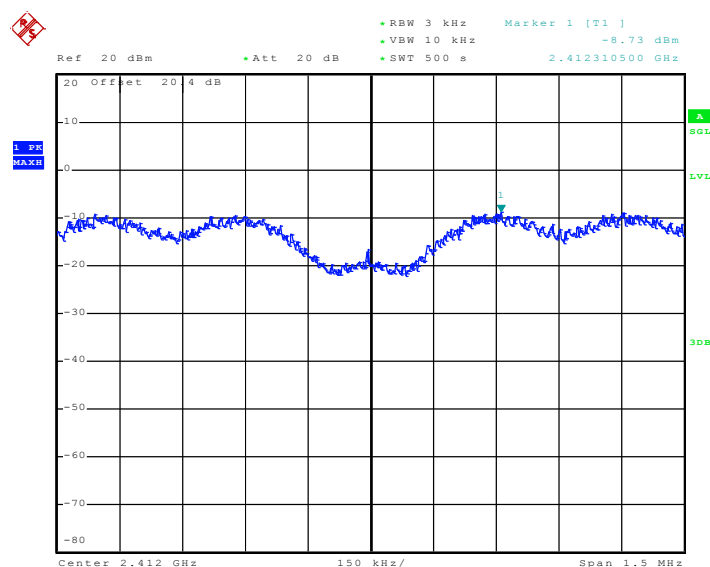
Date: 2.FEB.2011 09:01:05

Mode 3 : PSD Plot on 802.11b Channel 11


Date: 2.FEB.2011 09:14:31

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

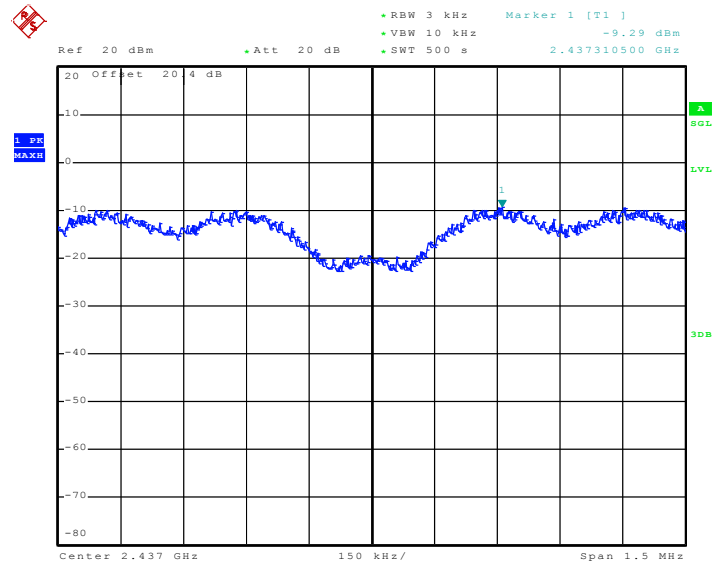
Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-8.73	8	Pass
06	2437	-9.29	8	Pass
11	2462	-9.07	8	Pass

Mode 4 : PSD Plot on 802.11g Channel 01


Date: 2.FEB.2011 09:55:59

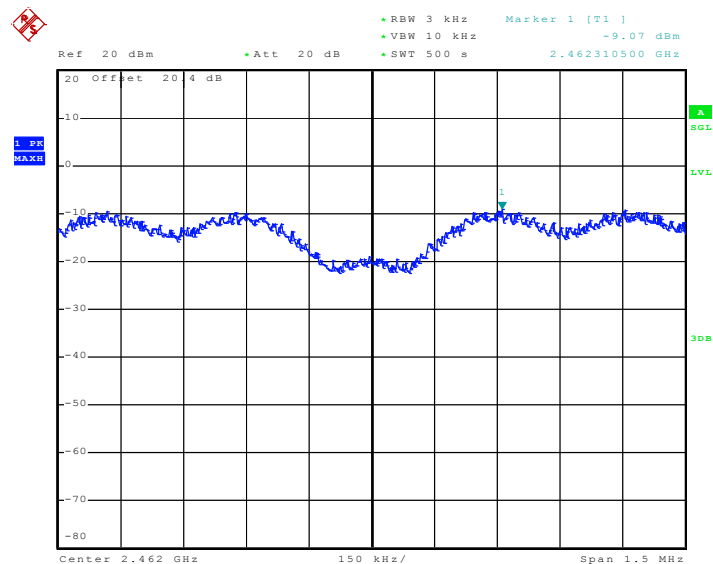


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 2.FEB.2011 10:11:05

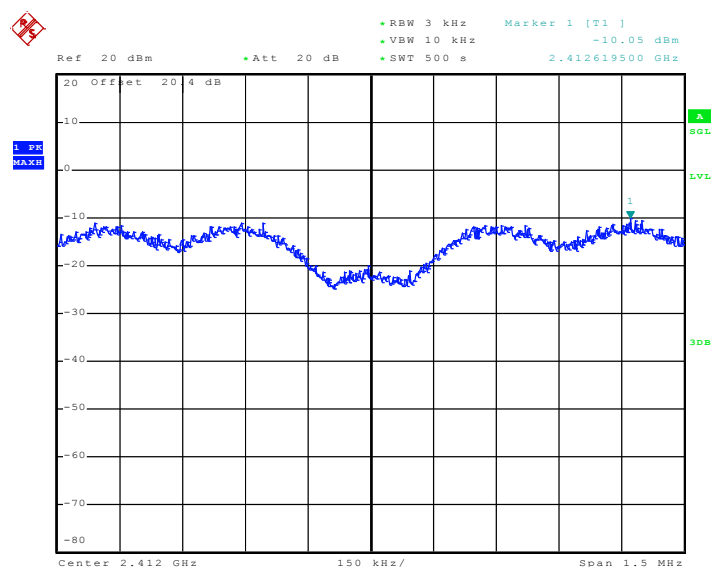
Mode 6 : PSD Plot on 802.11g Channel 11



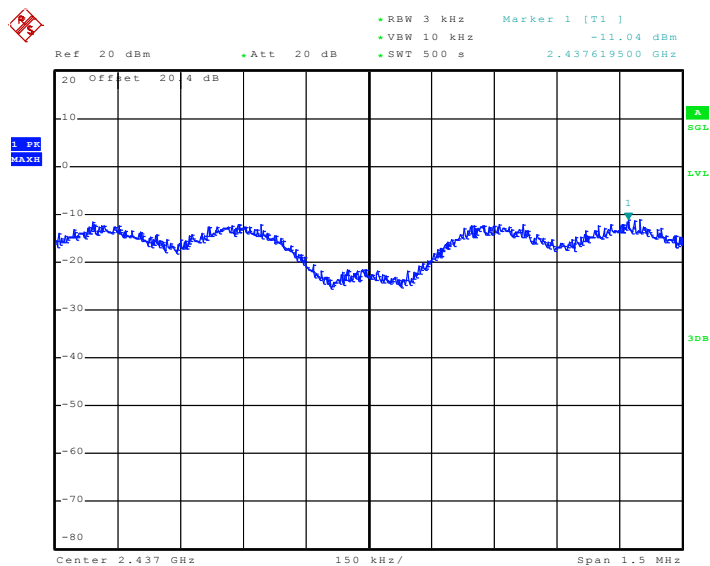
Date: 2.FEB.2011 10:23:32

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

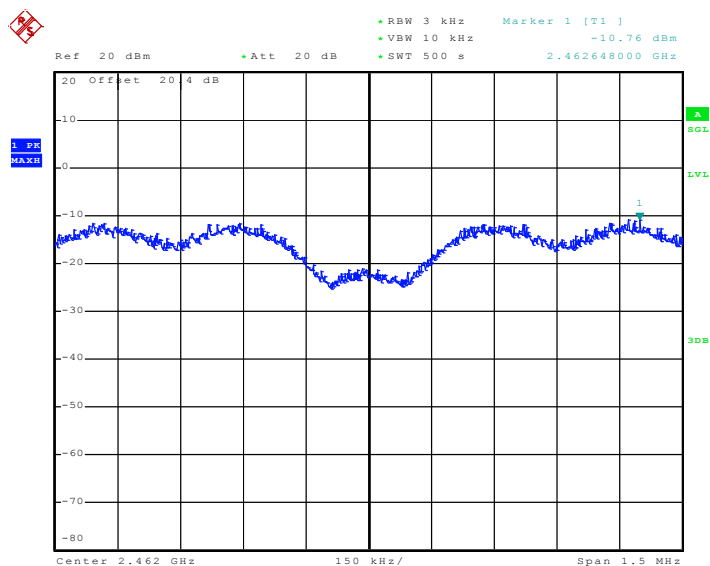
Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.05	8	Pass
06	2437	-11.04	8	Pass
11	2462	-10.76	8	Pass

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


Date: 2.FEB.2011 11:38:27

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


Date: 2.FEB.2011 11:23:59

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


Date: 2.FEB.2011 11:08:40

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.

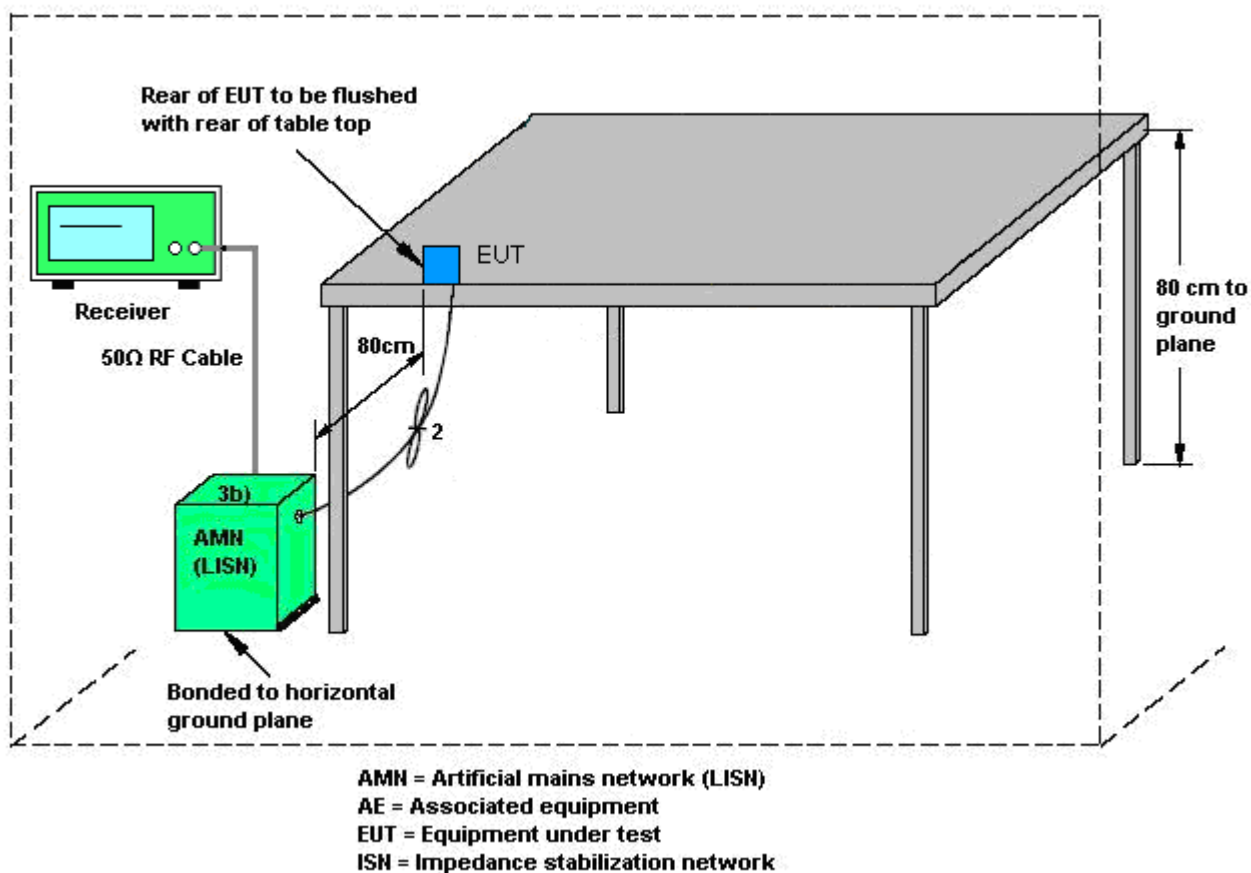
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

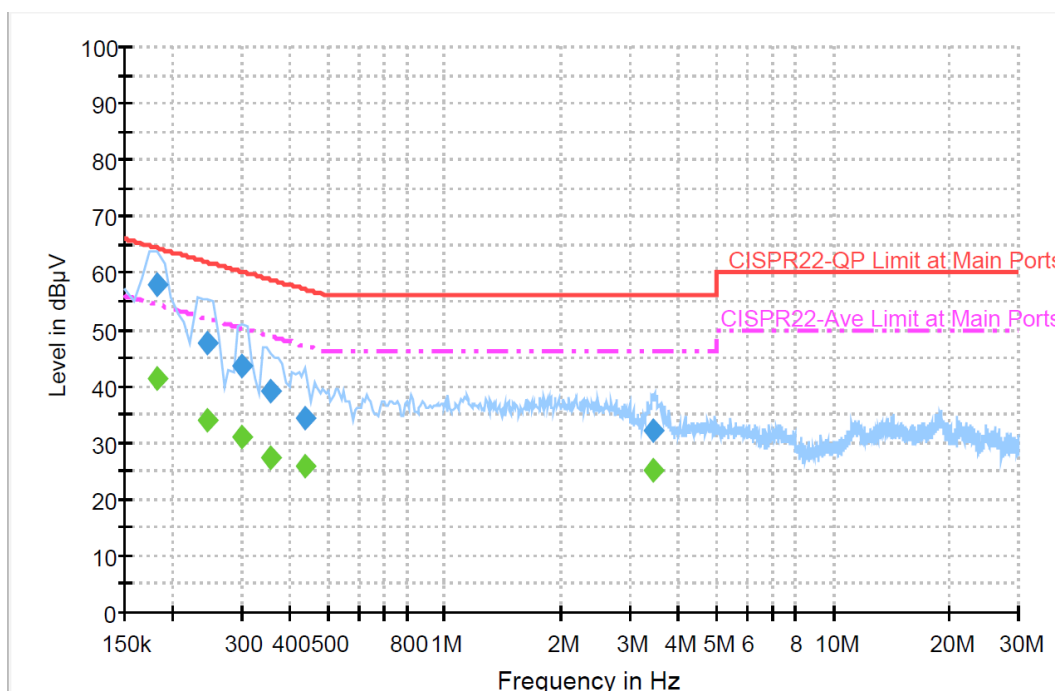
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 :	GSM850 (GPRS 8) Idle + WLAN Idle + Bluetooth Idle + TC 1 + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



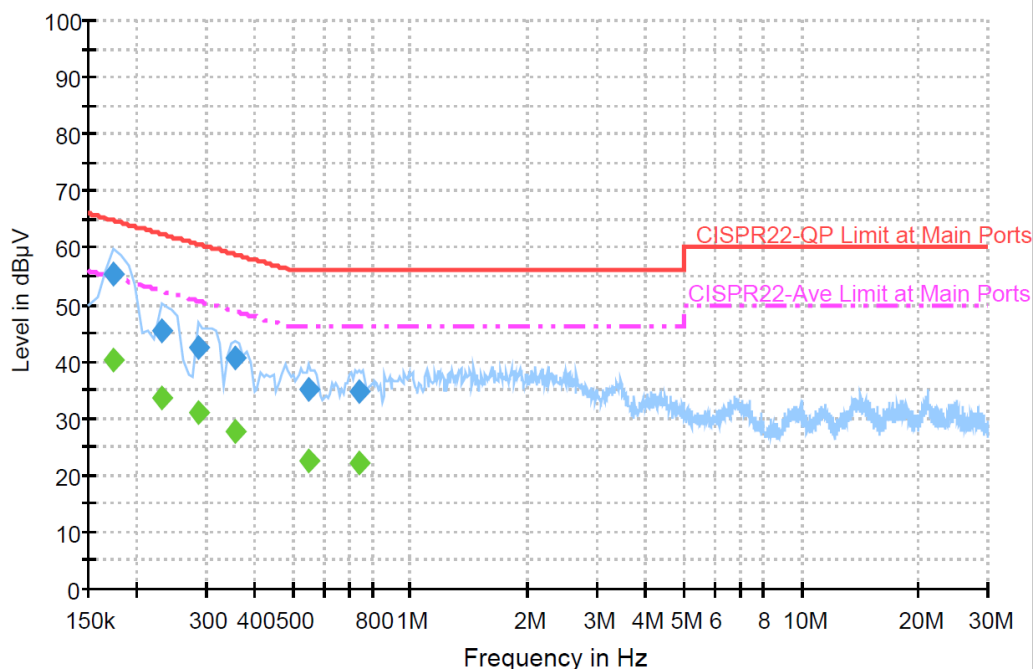
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.182000	57.8	Off	L1	19.4	6.6	64.4
0.246000	47.7	Off	L1	19.4	14.2	61.9
0.302000	43.7	Off	L1	19.4	16.5	60.2
0.358000	39.3	Off	L1	19.4	19.5	58.8
0.438000	34.3	Off	L1	19.5	22.8	57.1
3.454000	32.3	Off	L1	19.5	23.7	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.182000	41.2	Off	L1	19.4	13.2	54.4
0.246000	34.0	Off	L1	19.4	17.9	51.9
0.302000	31.1	Off	L1	19.4	19.1	50.2
0.358000	27.1	Off	L1	19.4	21.7	48.8
0.438000	25.9	Off	L1	19.5	21.2	47.1
3.454000	25.1	Off	L1	19.5	20.9	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 :	GSM850 (GPRS 8) Idle + WLAN Idle + Bluetooth Idle + TC 1 + 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)
0.174000	55.5	Off	N	19.4	9.3	64.8
0.230000	45.4	Off	N	19.5	17.0	62.4
0.286000	42.5	Off	N	19.4	18.1	60.6
0.358000	40.5	Off	N	19.4	18.3	58.8
0.550000	34.9	Off	N	19.4	21.1	56.0
0.742000	34.8	Off	N	19.4	21.2	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.174000	40.2	Off	N	19.4	14.6	54.8
0.230000	33.4	Off	N	19.5	19.0	52.4
0.286000	31.0	Off	N	19.4	19.6	50.6
0.358000	27.8	Off	N	19.4	21.0	48.8
0.550000	22.4	Off	N	19.4	23.6	46.0
0.742000	22.0	Off	N	19.4	24.0	46.0

3.7 Radiated Emission Measurement

3.7.1 Limit of Radiated Emission

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

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

3.7.2 Measuring Instruments

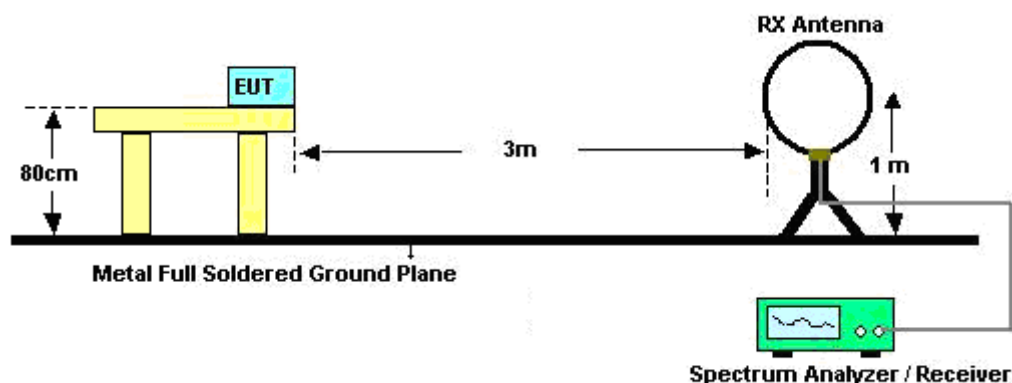
See list of measuring instruments of this test report.

3.7.3 Test Procedures

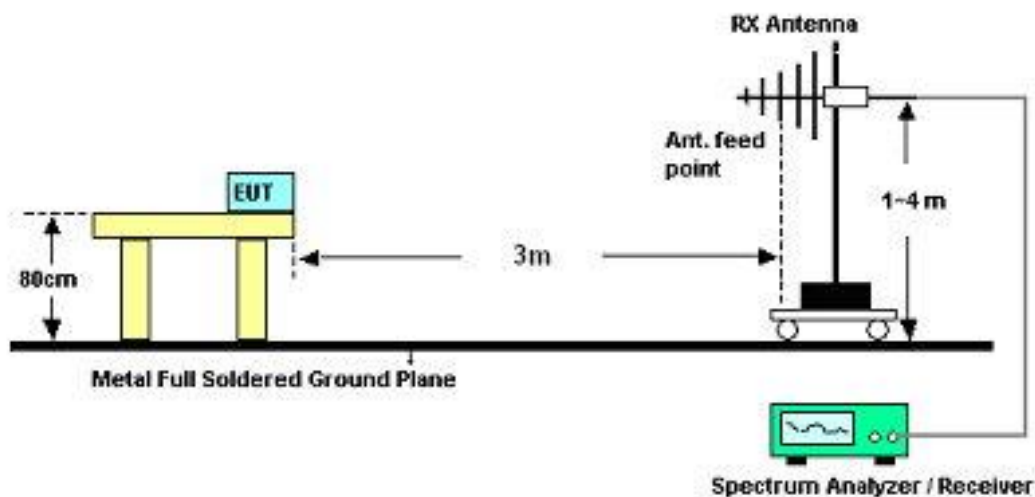
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
 - (1) If $f < 1$ GHz
 Span = wide enough to fully capture the emission being measured; RBW = 100 kHz; VBW = 300kHz; Sweep = auto; Detector function = peak; Trace = max hold.
 - (2) If $f \geq 1$ GHz
 Span = wide enough to fully capture the emission being measured; RBW = 1 MHz, VBW = 1MHz for Peak mode, RBW = 1 MHz, VBW = 10Hz for Average mode; Sweep = auto; Detector function = peak; Trace = max hold.
 - (3) Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
 Distance extrapolation factor = $20 \log (\text{specific distance [3m]} / \text{test distance [1m]})$ (dB)
3. Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

3.7.4 Test Setup

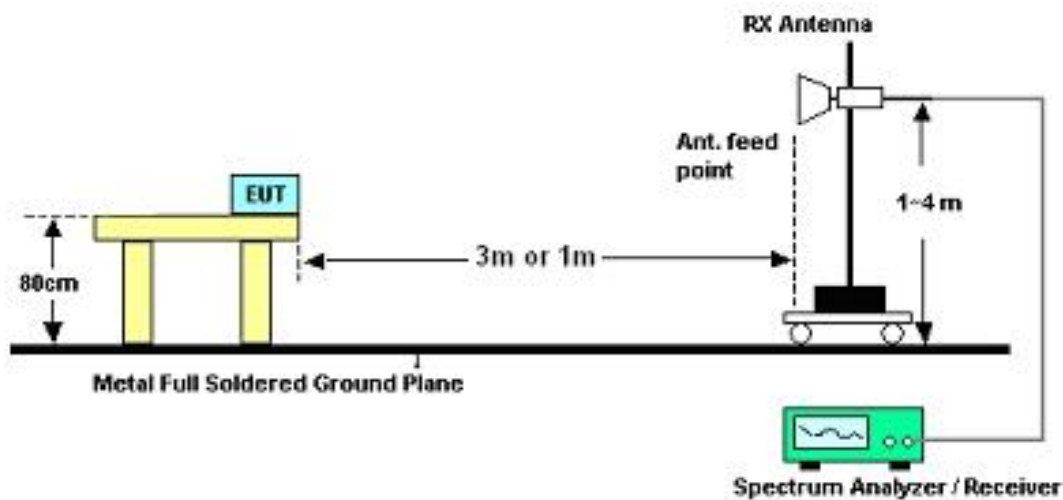
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

Test Engineer :	Ivan Chiang	Temperature :	23~24℃	
		Relative Humidity :	49~50%	

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

Note:

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

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

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

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

Test Mode :	Mode 1	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
61.86	18.57	-21.43	40	43.54	5.79	0.78	31.54	-	-	Peak
198.21	20.9	-22.6	43.5	41.99	9.09	1.31	31.49	-	-	Peak
221.7	20.67	-25.33	46	40.02	10.68	1.43	31.46	-	-	Peak
341.3	27.53	-18.47	46	42.18	14.75	1.9	31.3	-	-	Peak
399.4	35.54	-10.46	46	48.02	16.56	2.14	31.18	100	203	Peak
799.8	30.72	-15.28	46	35.79	22.47	3.14	30.68	-	-	Peak
2376.69	55.04	-18.96	74	50.73	32.16	5.99	33.84	100	256	Peak
2376.69	35.26	-18.74	54	30.95	32.16	5.99	33.84	100	256	Average
2412	109.67	-	-	105.27	32.2	6.07	33.87	100	256	Peak
2412	104.75	-	-	100.35	32.2	6.07	33.87	100	256	Average
2484	35.7	-18.3	54	31.14	32.28	6.18	33.9	100	256	Average
2484	48.25	-25.75	74	43.69	32.28	6.18	33.9	100	256	Peak
4824	51.42	-22.58	74	64.68	34.07	9.12	56.45	190	245	Peak
4824	50.39	-3.61	54	63.65	34.07	9.12	56.45	190	245	Average

Test Mode :	Mode 1	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
33.78	30.81	-9.19	40	46.14	15.57	0.57	31.47	110	239	Peak
42.69	28.82	-11.18	40	48.09	11.59	0.64	31.5	-	-	Peak
61.86	25.81	-14.19	40	50.78	5.79	0.78	31.54	-	-	Peak
456.1	21.68	-24.32	46	32.97	17.49	2.31	31.09	-	-	Peak
685.7	27.94	-18.06	46	35.13	20.73	2.91	30.83	-	-	Peak
915.3	25.48	-20.52	46	28.93	23.83	3.38	30.66	-	-	Peak
2390	56.46	-17.54	74	52.1	32.18	6.03	33.85	104	276	Peak
2390	41.2	-12.8	54	36.84	32.18	6.03	33.85	104	276	Average
2412	108.9	-	-	104.5	32.2	6.07	33.87	104	276	Peak
2412	103.77	-	-	99.37	32.2	6.07	33.87	104	276	Average
2486	34.81	-19.19	54	30.25	32.28	6.18	33.9	104	276	Average
2486	46.16	-27.84	74	41.6	32.28	6.18	33.9	104	276	Peak
4824	50.2	-23.8	74	63.46	34.07	9.12	56.45	100	0	Peak

Test Mode :	Mode 2	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
42.69	23.24	-16.76	40	42.51	11.59	0.64	31.5	-	-	Peak
61.86	22.75	-17.25	40	47.72	5.79	0.78	31.54	-	-	Peak
282.18	21.51	-24.49	46	38.02	13.18	1.65	31.34	-	-	Peak
341.3	28.88	-17.12	46	43.53	14.75	1.9	31.3	-	-	Peak
399.4	35.25	-10.75	46	47.73	16.56	2.14	31.18	100	125	Peak
976.2	27.22	-26.78	54	29.73	24.58	3.49	30.58	-	-	Peak
2356	52.3	-21.7	74	48.05	32.13	5.95	33.83	131	238	Peak
2356	42.61	-11.39	54	38.36	32.13	5.95	33.83	131	238	Average
2437	112.39	-	-	107.92	32.24	6.11	33.88	131	238	Peak
2437	107.55	-	-	103.08	32.24	6.11	33.88	131	238	Average
2494	51.15	-22.85	74	46.57	32.3	6.18	33.9	131	238	Peak
2494	39.63	-14.37	54	35.05	32.3	6.18	33.9	131	238	Average
4874	47.2	-26.8	74	60.48	34.08	9.13	56.49	100	0	Peak

Test Mode :	Mode 2	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
32.97	32.68	-7.32	40	47.79	15.8	0.56	31.47	100	311	Peak
62.13	30.76	-9.24	40	55.73	5.79	0.78	31.54	-	-	Peak
197.94	25.98	-17.52	43.5	47.07	9.09	1.31	31.49	-	-	Peak
399.4	22.2	-23.8	46	34.68	16.56	2.14	31.18	-	-	Peak
685.7	27.13	-18.87	46	34.32	20.73	2.91	30.83	-	-	Peak
799.8	25.51	-20.49	46	30.58	22.47	3.14	30.68	-	-	Peak
2358	48.37	-25.63	74	44.09	32.13	5.99	33.84	101	278	Peak
2358	39.1	-14.9	54	34.82	32.13	5.99	33.84	101	278	Average
2437	108.87	-	-	104.4	32.24	6.11	33.88	101	278	Peak
2437	103.87	-	-	99.4	32.24	6.11	33.88	101	278	Average
2484	47.07	-26.93	74	42.51	32.28	6.18	33.9	101	278	Peak
2484	35.71	-18.29	54	31.15	32.28	6.18	33.9	101	278	Average
4874	47.47	-26.53	74	60.75	34.08	9.13	56.49	100	0	Peak

Test Mode :	Mode 3	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
42.69	28.24	-11.76	40	47.51	11.59	0.64	31.5	-	-	Peak
61.05	20.73	-19.27	40	45.77	5.73	0.77	31.54	-	-	Peak
256.53	23.49	-22.51	46	40.56	12.78	1.57	31.42	-	-	Peak
399.4	35.11	-10.89	46	47.59	16.56	2.14	31.18	118	92	Peak
685.7	25.39	-20.61	46	32.58	20.73	2.91	30.83	-	-	Peak
799.8	29.47	-16.53	46	34.54	22.47	3.14	30.68	-	-	Peak
2380	52.19	-21.81	74	47.85	32.16	6.03	33.85	126	238	Peak
2380	43.08	-10.92	54	38.74	32.16	6.03	33.85	126	238	Average
2462	113.31	-	-	108.8	32.26	6.14	33.89	126	238	Peak
2462	108.47	-	-	103.96	32.26	6.14	33.89	126	238	Average
2483.66	66.52	-7.48	74	61.96	32.28	6.18	33.9	126	238	Peak
2483.66	50.16	-3.84	54	45.6	32.28	6.18	33.9	126	238	Average

Test Mode :	Mode 3	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
33.78	30.66	-9.34	40	45.99	15.57	0.57	31.47	100	267	Peak
61.05	28.91	-11.09	40	53.95	5.73	0.77	31.54	-	-	Peak
223.86	26	-20	46	45.19	10.82	1.44	31.45	-	-	Peak
399.4	22.56	-23.44	46	35.04	16.56	2.14	31.18	-	-	Peak
685.7	27.2	-18.8	46	34.39	20.73	2.91	30.83	-	-	Peak
799.8	26.77	-19.23	46	31.84	22.47	3.14	30.68	-	-	Peak
2382	48.6	-25.4	74	44.26	32.16	6.03	33.85	100	276	Peak
2382	38.36	-15.64	54	34.02	32.16	6.03	33.85	100	276	Average
2462	109.02	-	-	104.51	32.26	6.14	33.89	100	276	Peak
2462	104.15	-	-	99.64	32.26	6.14	33.89	100	276	Average
2483.66	63.26	-10.74	74	58.7	32.28	6.18	33.9	100	276	Peak
2483.66	46.8	-7.2	54	42.24	32.28	6.18	33.9	100	276	Average

Test Mode :	Mode 4	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
42.69	26.22	-13.78	40	45.49	11.59	0.64	31.5	-	-	Peak
198.21	21.32	-22.18	43.5	42.41	9.09	1.31	31.49	-	-	Peak
299.73	23.23	-22.77	46	39.33	13.46	1.77	31.33	-	-	Peak
341.3	31.46	-14.54	46	46.11	14.75	1.9	31.3	-	-	Peak
399.4	34.8	-11.2	46	47.28	16.56	2.14	31.18	121	166	Peak
799.8	29.67	-16.33	46	34.74	22.47	3.14	30.68	-	-	Peak
2390	70.38	-3.62	74	66.02	32.18	6.03	33.85	100	256	Peak
2390	47.74	-6.26	54	43.38	32.18	6.03	33.85	100	256	Average
2412	111.64	-	-	107.24	32.2	6.07	33.87	100	256	Peak
2412	92.81	-	-	88.41	32.2	6.07	33.87	100	256	Average
2484	38.76	-15.24	54	34.2	32.28	6.18	33.9	100	256	Average
2484	54.01	-19.99	74	49.45	32.28	6.18	33.9	100	256	Peak
4824	45.62	-28.38	74	58.88	34.07	9.12	56.45	100	0	Peak

Test Mode :	Mode 4	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
32.7	31.19	-8.81	40	46.3	15.8	0.56	31.47	100	208	Peak
61.05	28.68	-11.32	40	53.72	5.73	0.77	31.54	-	-	Peak
128.82	28.64	-14.86	43.5	47.5	11.57	1.14	31.57	-	-	Peak
570.9	22.22	-23.78	46	31.24	19.32	2.61	30.95	-	-	Peak
685.7	26.65	-19.35	46	33.84	20.73	2.91	30.83	-	-	Peak
981.8	27.02	-26.98	54	29.45	24.66	3.49	30.58	-	-	Peak
2390	69.56	-4.44	74	65.2	32.18	6.03	33.85	102	278	Peak
2390	46.37	-7.63	54	42.01	32.18	6.03	33.85	102	278	Average
2412	109.45	-	-	105.05	32.2	6.07	33.87	102	278	Peak
2412	91.98	-	-	87.58	32.2	6.07	33.87	102	278	Average
2484	38.12	-15.88	54	33.56	32.28	6.18	33.9	102	278	Average
2484	51.6	-22.4	74	47.04	32.28	6.18	33.9	102	278	Peak
4824	49.38	-24.62	74	62.64	34.07	9.12	56.45	100	0	Peak

Test Mode :	Mode 5	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
42.69	24.52	-15.48	40	43.79	11.59	0.64	31.5	-	-	Peak
197.94	23.24	-20.26	43.5	44.33	9.09	1.31	31.49	-	-	Peak
258.42	21.73	-24.27	46	38.78	12.79	1.58	31.42	-	-	Peak
341.3	31.31	-14.69	46	45.96	14.75	1.9	31.3	-	-	Peak
399.4	34.9	-11.1	46	47.38	16.56	2.14	31.18	141	199	Peak
799.8	30.08	-15.92	46	35.15	22.47	3.14	30.68	-	-	Peak
2388	62.33	-11.67	74	57.97	32.18	6.03	33.85	130	238	Peak
2388	41.74	-12.26	54	37.38	32.18	6.03	33.85	130	238	Average
2437	114.57	-	-	110.1	32.24	6.11	33.88	130	238	Peak
2437	97.02	-	-	92.55	32.24	6.11	33.88	130	238	Average
2486	60.58	-13.42	74	56.02	32.28	6.18	33.9	130	238	Peak
2486	43.18	-10.82	54	38.62	32.28	6.18	33.9	130	238	Average
4874	46.97	-27.03	74	60.25	34.08	9.13	56.49	100	0	Peak
7311	48.86	-25.14	74	60.33	35.45	10.06	56.98	100	0	Peak

Test Mode :	Mode 5	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
32.7	32.59	-7.41	40	47.7	15.8	0.56	31.47	102	100	Peak
61.86	30.32	-9.68	40	55.29	5.79	0.78	31.54	-	-	Peak
198.21	28.97	-14.53	43.5	50.06	9.09	1.31	31.49	-	-	Peak
341.3	23.51	-22.49	46	38.16	14.75	1.9	31.3	-	-	Peak
570.9	23.61	-22.39	46	32.63	19.32	2.61	30.95	-	-	Peak
685.7	26.68	-19.32	46	33.87	20.73	2.91	30.83	-	-	Peak
2390	57.83	-16.17	74	53.47	32.18	6.03	33.85	102	277	Peak
2390	40.65	-13.35	54	36.29	32.18	6.03	33.85	102	277	Average
2437	111.09	-	-	106.62	32.24	6.11	33.88	102	277	Peak
2437	94.1	-	-	89.63	32.24	6.11	33.88	102	277	Average
2484	58.27	-15.73	74	53.71	32.28	6.18	33.9	102	277	Peak
2484	42.01	-11.99	54	37.45	32.28	6.18	33.9	102	277	Average
4874	46.93	-27.07	74	60.21	34.08	9.13	56.49	100	0	Peak
7311	47.42	-26.58	74	58.89	35.45	10.06	56.98	100	0	Peak

Test Mode :	Mode 6	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
42.69	22.01	-17.99	40	41.28	11.59	0.64	31.5	-	-	Peak
198.21	21.14	-22.36	43.5	42.23	9.09	1.31	31.49	-	-	Peak
285.69	23.54	-22.46	46	39.96	13.24	1.67	31.33	-	-	Peak
341.3	31.72	-14.28	46	46.37	14.75	1.9	31.3	-	-	Peak
399.4	35.27	-10.73	46	47.75	16.56	2.14	31.18	100	146	Peak
799.8	30.17	-15.83	46	35.24	22.47	3.14	30.68	-	-	Peak
2390	40.01	-13.99	54	35.65	32.18	6.03	33.85	128	235	Average
2390	53.61	-20.39	74	49.25	32.18	6.03	33.85	128	235	Peak
2462	94.16	-	-	89.65	32.26	6.14	33.89	128	235	Average
2462	111.26	-	-	106.75	32.26	6.14	33.89	128	235	Peak
2483.5	69.69	-4.31	74	65.13	32.28	6.18	33.9	128	235	Peak
2483.5	50.62	-3.38	54	46.06	32.28	6.18	33.9	128	235	Average

Test Mode :	Mode 6	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
31.89	30.07	-9.93	40	44.94	16.04	0.55	31.46	116	323	Peak
61.05	28.31	-11.69	40	53.35	5.73	0.77	31.54	-	-	Peak
197.94	28.89	-14.61	43.5	49.98	9.09	1.31	31.49	-	-	Peak
456.1	21.72	-24.28	46	33.01	17.49	2.31	31.09	-	-	Peak
685.7	27.29	-18.71	46	34.48	20.73	2.91	30.83	-	-	Peak
962.2	26.23	-27.77	54	28.92	24.41	3.47	30.57	-	-	Peak
2388	48.3	-25.7	74	43.94	32.18	6.03	33.85	100	276	Peak
2388	35.46	-18.54	54	31.1	32.18	6.03	33.85	100	276	Average
2462	107.37	-	-	102.86	32.26	6.14	33.89	100	276	Peak
2462	90.09	-	-	85.58	32.26	6.14	33.89	100	276	Average
2483.5	68.26	-5.74	74	63.7	32.28	6.18	33.9	100	276	Peak
2483.5	48.25	-5.75	54	43.69	32.28	6.18	33.9	100	276	Average



Test Mode :	Mode 7	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
2390	70.64	-3.36	74	66.28	32.18	6.03	33.85	131	241	Peak
2390	49.91	-4.09	54	45.55	32.18	6.03	33.85	131	241	Average
2412	110.29	-	-	105.89	32.2	6.07	33.87	131	241	Peak
2412	92.65	-	-	88.25	32.2	6.07	33.87	131	241	Average
2484	40.56	-13.44	54	36	32.28	6.18	33.9	131	241	Average
2484	52.42	-21.58	74	47.86	32.28	6.18	33.9	131	241	Peak

Test Mode :	Mode 7	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
2390	67.04	-6.96	74	62.68	32.18	6.03	33.85	103	277	Peak
2390	45.81	-8.19	54	41.45	32.18	6.03	33.85	103	277	Average
2412	106.84	-	-	102.44	32.2	6.07	33.87	103	277	Peak
2412	89.14	-	-	84.74	32.2	6.07	33.87	103	277	Average
2486	36.23	-17.77	54	31.67	32.28	6.18	33.9	103	277	Average
2486	49.9	-24.1	74	45.34	32.28	6.18	33.9	103	277	Peak



Test Mode :	Mode 8	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
2390	58.11	-15.89	74	53.75	32.18	6.03	33.85	130	238	Peak
2390	41.39	-12.61	54	37.03	32.18	6.03	33.85	130	238	Average
2437	111.93	-	-	107.46	32.24	6.11	33.88	130	238	Peak
2437	94.16	-	-	89.69	32.24	6.11	33.88	130	238	Average
2484	57.42	-16.58	74	52.86	32.28	6.18	33.9	130	238	Peak
2484	41.88	-12.12	54	37.32	32.28	6.18	33.9	130	238	Average

Test Mode :	Mode 8	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
2390	55.07	-18.93	74	50.71	32.18	6.03	33.85	103	277	Peak
2390	36.22	-17.78	54	31.86	32.18	6.03	33.85	103	277	Average
2437	107.48	-	-	103.01	32.24	6.11	33.88	103	277	Peak
2437	89.92	-	-	85.45	32.24	6.11	33.88	103	277	Average
2492	53.15	-20.85	74	48.57	32.3	6.18	33.9	103	277	Peak
2492	35.66	-18.34	54	31.08	32.3	6.18	33.9	103	277	Average



Test Mode :	Mode 9	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
2390	36.61	-17.39	54	32.25	32.18	6.03	33.85	128	240	Average
2390	52.39	-21.61	74	48.03	32.18	6.03	33.85	128	240	Peak
2462	92.26	-	-	87.75	32.26	6.14	33.89	128	240	Average
2462	110.25	-	-	105.74	32.26	6.14	33.89	128	240	Peak
2483.5	69.37	-4.63	74	64.81	32.28	6.18	33.9	128	240	Peak
2483.5	48.96	-5.04	54	44.4	32.28	6.18	33.9	128	240	Average



Test Mode :	Mode 9	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
2390	48.93	-25.07	74	44.57	32.18	6.03	33.85	100	276	Peak
2390	34.38	-19.62	54	30.02	32.18	6.03	33.85	100	276	Average
2462	105.61	-	-	101.1	32.26	6.14	33.89	100	276	Peak
2462	87.11	-	-	82.6	32.26	6.14	33.89	100	276	Average
2483.85	66.13	-7.87	74	61.57	32.28	6.18	33.9	100	276	Peak
2483.85	46.42	-7.58	54	41.86	32.28	6.18	33.9	100	276	Average



Test Mode :	Mode 10	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
45.93	24.66	-15.34	40	45.24	10.27	0.66	31.51	115	232	Peak
233.58	22.65	-23.35	46	41.08	11.5	1.5	31.43	-	-	Peak
251.13	26.54	-19.46	46	43.72	12.69	1.54	31.41	-	-	Peak
341.3	29.23	-16.77	46	43.88	14.75	1.9	31.3	-	-	Peak
399.4	28.73	-17.27	46	41.21	16.56	2.14	31.18	-	-	Peak
995.8	26.23	-27.77	54	28.46	24.84	3.51	30.58	-	-	Peak
2389.99	46.35	-7.65	54	41.99	32.18	6.03	33.85	100	119	Average
2389.99	69.26	-4.74	74	64.9	32.18	6.03	33.85	100	119	Peak
2412	103.8	-	-	99.4	32.2	6.07	33.87	100	119	Peak
2412	86.37	-	-	81.97	32.2	6.07	33.87	100	119	Average
2484	35.23	-18.77	54	30.67	32.28	6.18	33.9	100	119	Average
2484	47.77	-26.23	74	43.21	32.28	6.18	33.9	100	119	Peak
7236	45.05	-38.75	83.8	57.62	35.51	10.03	58.11	100	0	Peak

Test Mode :	Mode 10	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
38.37	31.67	-8.33	40	49.13	13.43	0.61	31.5	133	105	Peak
45.93	30.57	-9.43	40	51.15	10.27	0.66	31.51	-	-	Peak
91.02	27.97	-15.53	43.5	49.75	8.79	0.95	31.52	-	-	Peak
399.4	30.24	-15.76	46	42.72	16.56	2.14	31.18	-	-	Peak
685.7	29.85	-16.15	46	37.04	20.73	2.91	30.83	-	-	Peak
979.7	25.82	-28.18	54	28.28	24.63	3.49	30.58	-	-	Peak
2389.99	45.51	-8.49	54	41.15	32.18	6.03	33.85	200	202	Average
2389.99	66.05	-7.95	74	61.69	32.18	6.03	33.85	200	202	Peak
2412	104.18	-	-	99.78	32.2	6.07	33.87	200	202	Peak
2412	86.23	-	-	81.83	32.2	6.07	33.87	200	202	Average
2492	36.05	-17.95	54	31.47	32.3	6.18	33.9	200	202	Average
2492	49.21	-24.79	74	44.63	32.3	6.18	33.9	200	202	Peak
4824	43.81	-30.19	74	59.73	34.07	9.12	59.11	100	0	Peak
7236	47.38	-36.8	84.18	59.95	35.51	10.03	58.11	100	0	Peak

3.8 Antenna Requirements

3.8.1 Standard Applicable

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

3.8.2 Antenna Connected Construction

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

3.8.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
System Simulator	R&S	CMU200	117995	N/A	Jun. 08, 2009	Jun. 07, 2011	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP30	101329	9kHz~30GHz	Apr. 26, 2010	Apr. 25, 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)
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	117591	N/A	Oct. 18, 2010	Oct. 17, 2011	Conduction (CO05-HY)
GPS Station	T&E	GS-50	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2010	Oct. 30, 2011	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 03, 2010	Dec. 02, 2011	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 19, 2010	Aug. 18, 2011	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 06, 2010	Dec. 05, 2011	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 29, 2011	Mar. 28, 2012	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty $U_c(y)$	1.13		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.26		

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty $U_c(y)$	1.27		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.54		

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	± 0.10	Normal ($k=2$)	0.10	1	0.10
Antenna Factor Calibration	± 1.70	Normal ($k=2$)	0.85	1	0.85
Cable Loss Calibration	± 0.50	Normal ($k=2$)	0.25	1	0.25
Receiver Correction	± 2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	± 1.50	Rectangular	0.87	1	0.87
Site Imperfection	± 2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\text{Log}(1-\Gamma_1*\Gamma_2)$	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty $U_c(y)$	2.36				
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.72				



Appendix A. Photographs of EUT

Please refer to Sporton report number EP132604 as below.