



FCC RF Test Report

APPLICANT : ASUSTek Computer Inc.
EQUIPMENT : Eee Pad
BRAND NAME : ASUS
MODEL NAME : TF201
FCC ID : MSQTF201
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Sep. 28, 2011 and completely tested on Oct. 14, 2011. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR182445-02B	Rev. 01	Initial issue of report	Oct. 25, 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 4.6.1	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	-
3.4	15.247(d)	A8.5	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 6.9 dB at 0.45 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.53 dB at 253.29 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

ASUSTek Computer Inc.

No. 15, Li-Te Rd., Peitou, Taipei 112, Taiwan

1.2 Manufacturer

1. PEGATRON CORPORATION Taoyuan Mfg.

No. 5, Shing Yeh St., Kwei Shan Hsiang Taoyuan 333, Taiwan

2. Protek (Shanghai) Limited.

No. 3768, Xiu Yan Rd., Nanhui District, Shanghai, China

3. Tech-Com (Shanghai) Computer Co., Ltd.

No. 68, SanZhuang Road, Songjiang Export Processing Zone (EPZ), Shanghai

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Eee Pad
Brand Name	ASUS
Model Name	TF201
FCC ID	MSQTF201
Integrated Module	Brand Name : AzureWave Model Name : AW-NH615
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 : 16.89 dBm (0.0489 W) 802.11g : 22.65 dBm (0.1841 W) 802.11n (BW 20MHz) : 22.18 dBm (0.1652 W)
Antenna Type	PIFA Antenna with gain 0.4 dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

Remark:

- For other wireless features of this EUT, test report will be issued separately.
- This test report recorded only product characteristics and test results of Digital Transmission System (DTS).
- 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	03CH05-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
- ♦ IC RSS-Gen Issue 3

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.	GPS Station	Pendulum	GSG-54	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.	LCD Monitor	Dell	U2410	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
5.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
6.	iPod	Apple	A1199	FCC DoC	Shielded, 1.0 m	N/A
7.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
8.	iPod Earphone	Apple	N/A	FCC DoC	Unshielded, 1.0 m	N/A

2 Test Configuration of Equipment Under Test

2.1 RF Power

Preliminary tests were performed in different data rate and recorded the RF power output in the following table:

Channel	Frequency	2.4GHz 802.11b RF Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	16.64	-	-	-
CH 06	2437 MHz	16.66	-	-	-
CH 11	2462 MHz	16.89	16.85	16.84	16.80

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	22.53	-	-	-	-	-	-	-
CH 06	2437 MHz	22.41	-	-	-	-	-	-	-
CH 11	2462 MHz	22.65	22.53	22.47	22.39	22.38	22.31	22.28	22.27

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)							
		OFDM Data Rate							
		MCS=0 6.5 Mbps	MCS=1 13 Mbps	MCS=2 19.5 Mbps	MCS=3 26 Mbps	MCS=4 39 Mbps	MCS=5 52 Mbps	MCS=6 58.5 Mbps	MCS=7 65 Mbps
CH 01	2412 MHz	22.16	-	-	-	-	-	-	-
CH 06	2437 MHz	22.08	-	-	-	-	-	-	-
CH 11	2462 MHz	22.18	22.10	22.07	22.06	22.02	21.92	21.88	21.80

Remark:

1. 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.
2. The EUT is programmed to transmit signals continuously for all testing.
3. The EUT have support 802.11n (BW 20 MHz) function only, not support 802.11n (BW 40 MHz) function.



2.2 Test Mode

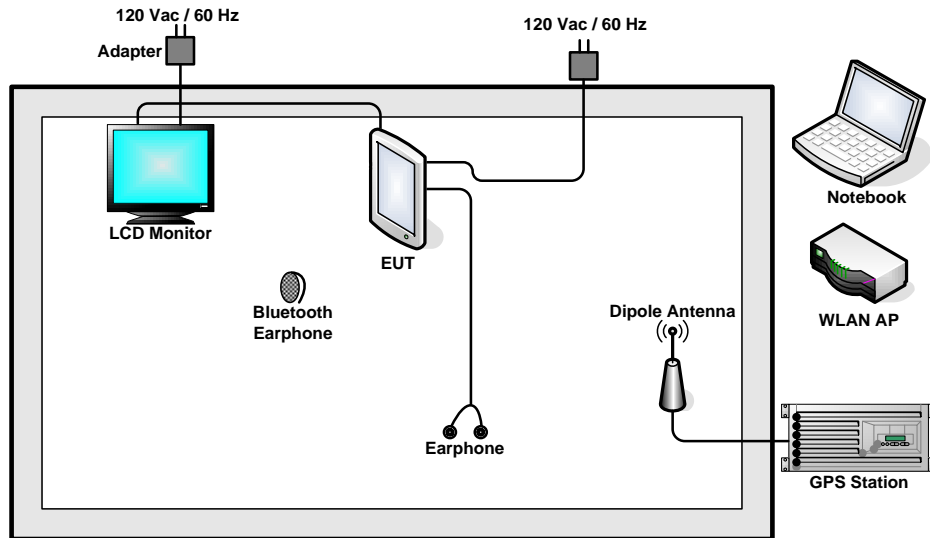
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic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

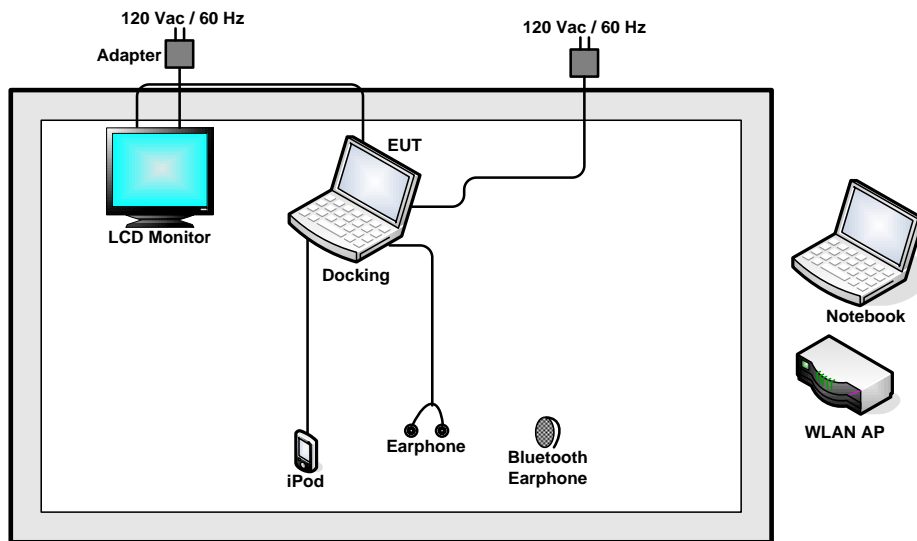
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 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: 802.11g_CH11_2462 MHz + Docking Mode 8: 802.11n (BW 20M)_CH01_2412 MHz Mode 9: 802.11n (BW 20M)_CH06_2437 MHz Mode 10: 802.11n (BW 20M)_CH11_2462 MHz
AC Conducted Emission	Mode 1 : WLAN Link + Bluetooth Link + GPS Rx + TC1 + Adapter Mode 2 : WLAN Link + Bluetooth Link + MPEG4 + TC2 + Adapter + Docking	
Remark: 1. TC1 stands for Test Configuration, and consists of earphone, and HDMI Monitor. 2. TC2 stands for Test Configuration, and consists of iPod, earphone, and HDMI Monitor. 3. The worst case of conducted emission is mode 1; only the test data of it was reported.		

2.3 Connection Diagram of Test System

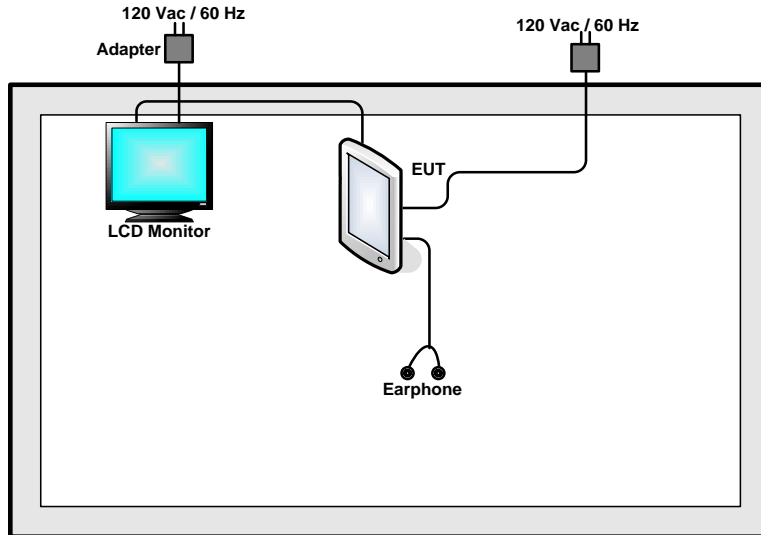
<AC Conducted Emission Mode>



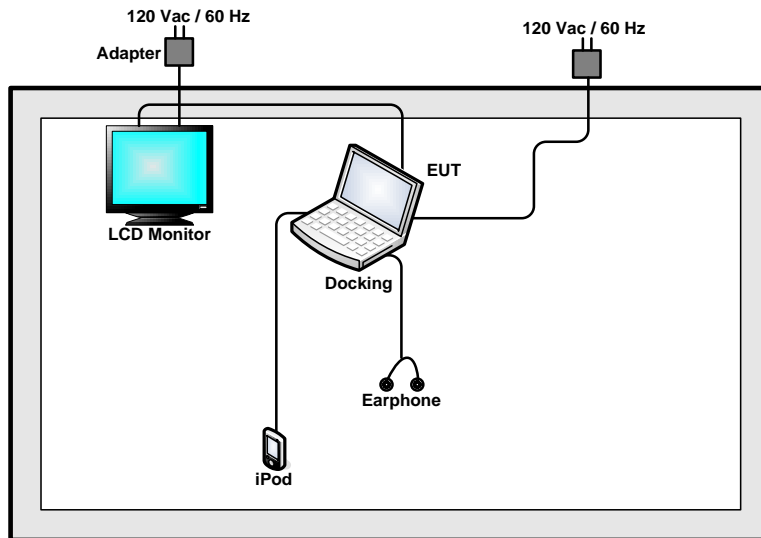
< AC Conducted Emission with Docking Mode >



<Radiation Emission Mode>



<Radiation Emission with Docking Mode >



2.4 RF Utility

The programmed RF utility "WLAN RF Test Tool" is installed in EUT. Then, the EUT provides functions like channel selection and power level for continuous transmitting and receiving signals.

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.

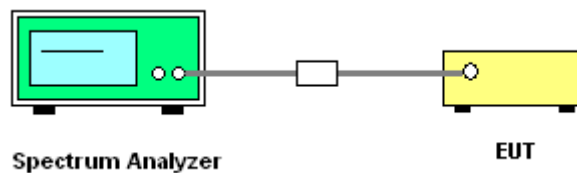
3.1.2 Measuring Instruments

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



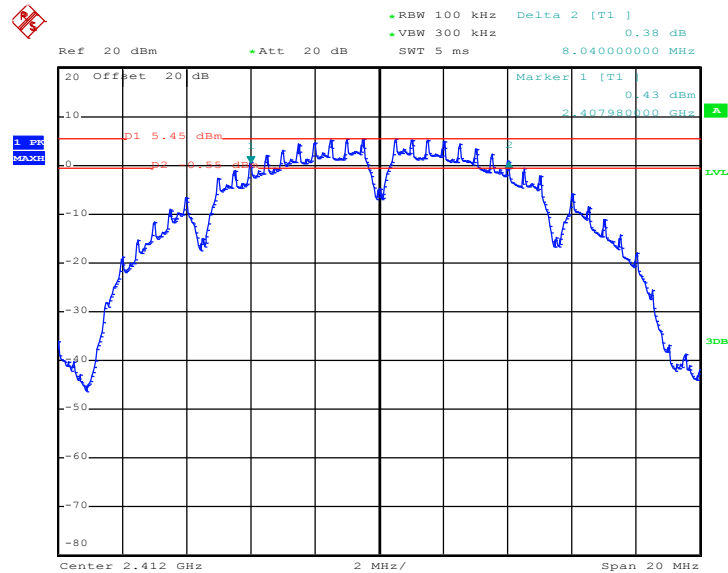


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	22~24°C
Test Engineer :	Reece Li	Relative Humidity :	52~55%

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	8.08	0.5	Pass

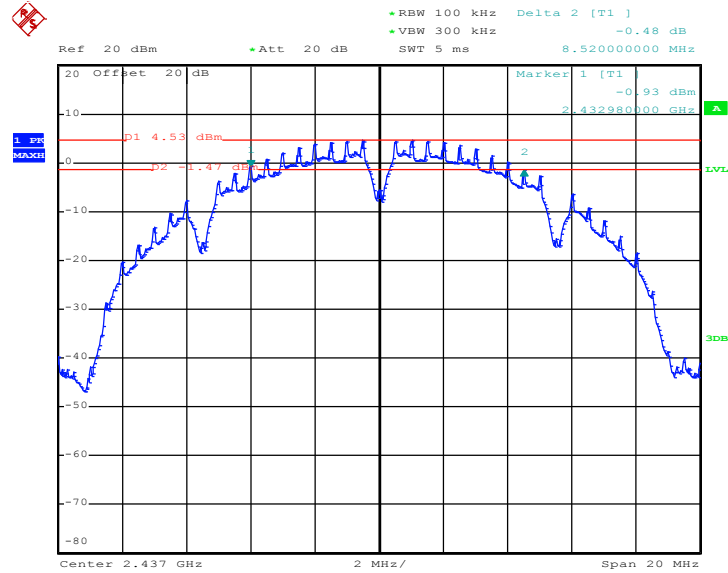
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 6.OCT.2011 20:35:24

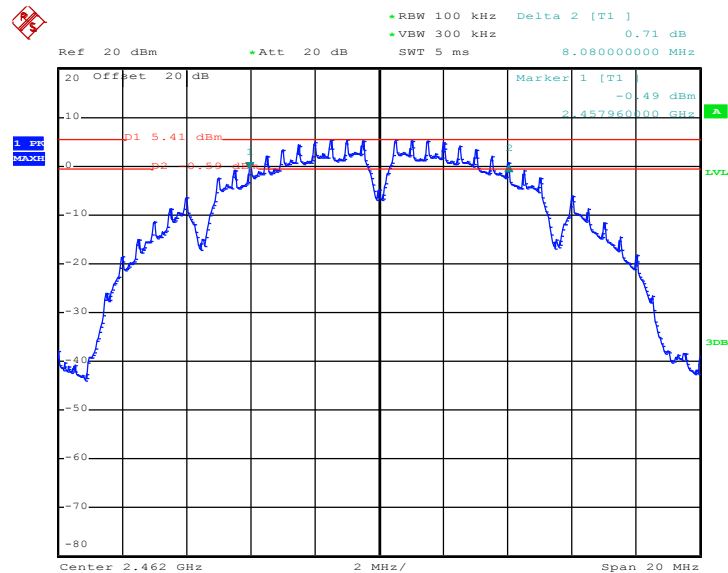


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 6.OCT.2011 20:43:57

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



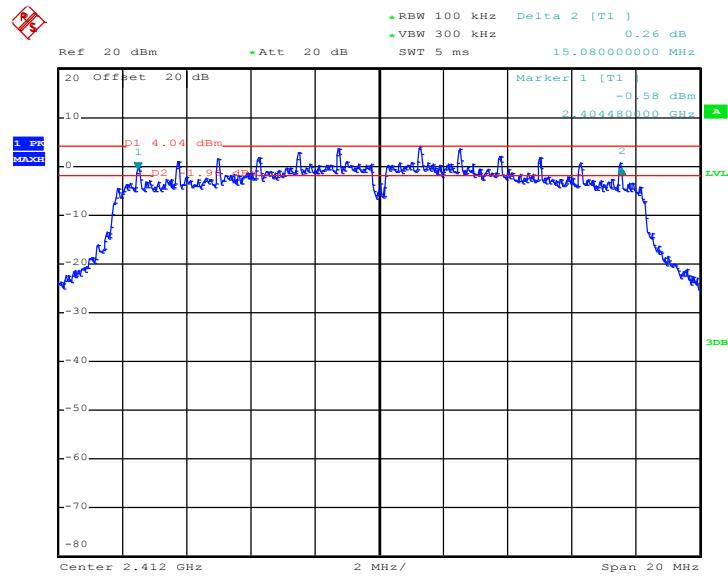
Date: 6.OCT.2011 20:49:15



Test Mode :	Mode 4, 5, 6	Temperature :	22~24°C
Test Engineer :	Reece Li	Relative Humidity :	52~55%

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

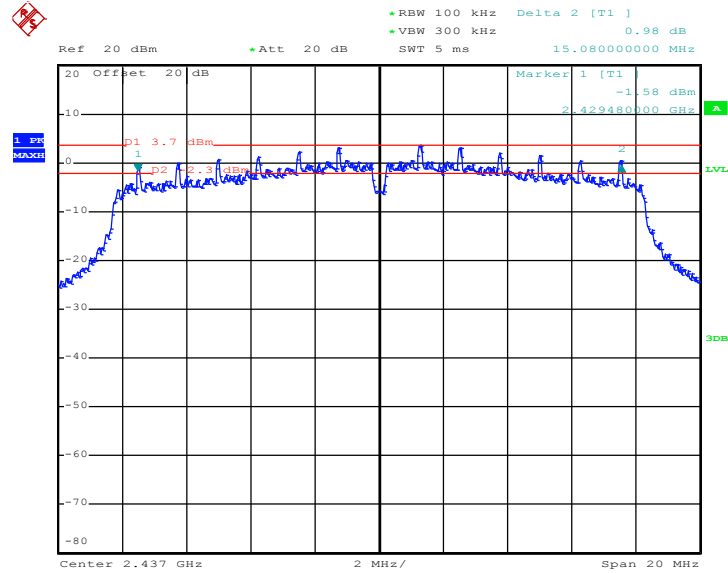
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



Date: 6.OCT.2011 19:32:25

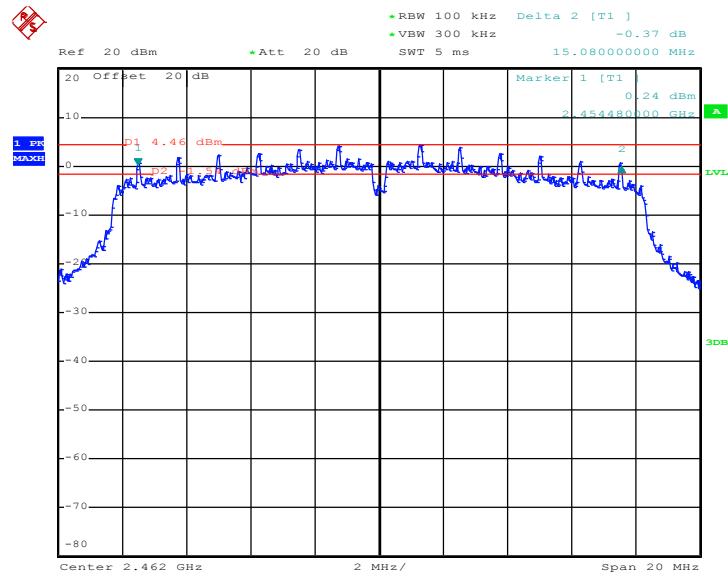


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



Date: 6.OCT.2011 19:51:46

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



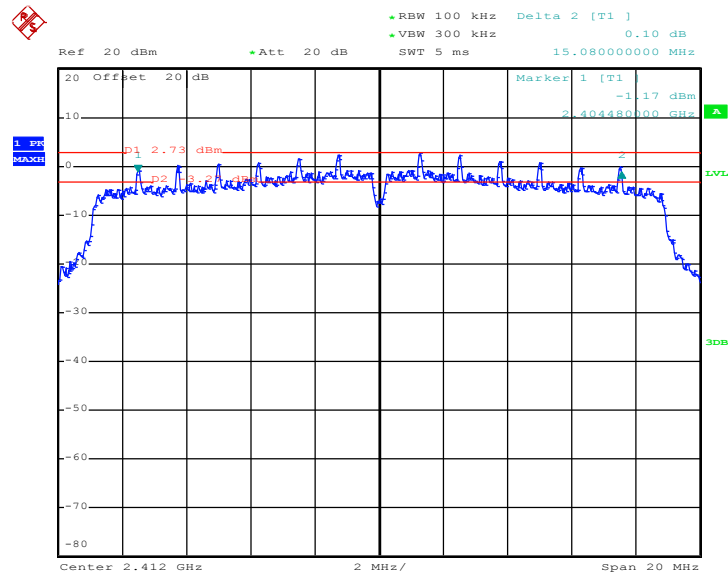
Date: 6.OCT.2011 19:58:26



Test Mode :	Mode 7, 8, 9	Temperature :	22~24°C
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.08	0.5	Pass
06	2437	15.12	0.5	Pass
11	2462	15.12	0.5	Pass

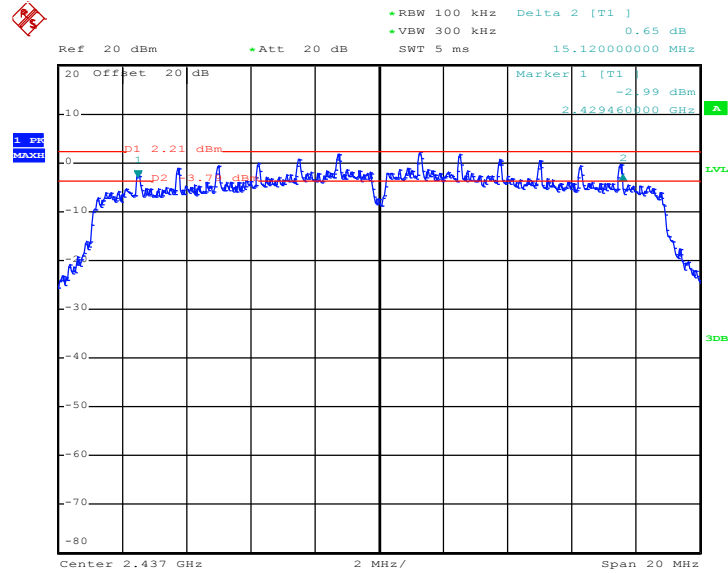
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 6.OCT.2011 21:19:54

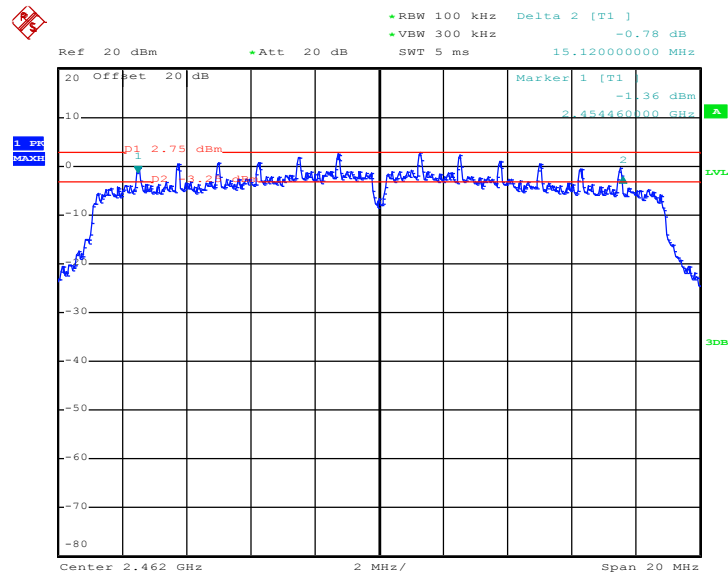


Mode 8 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 6.OCT.2011 21:41:28

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



Date: 6.OCT.2011 21:57:50

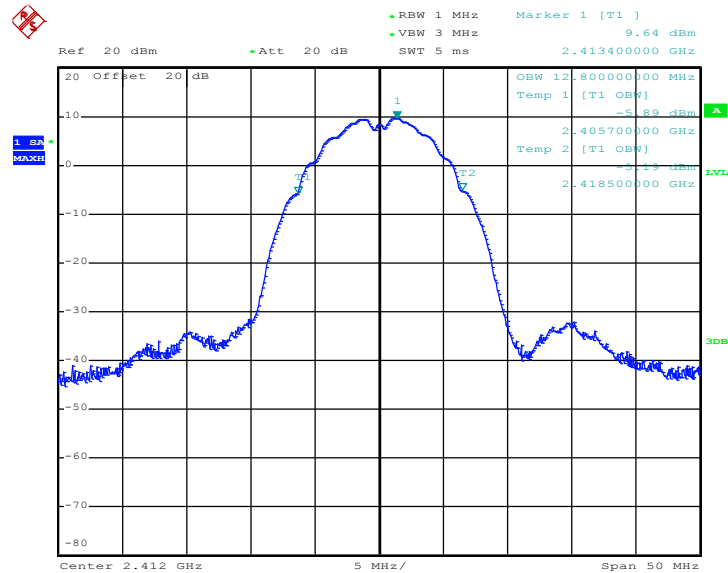


3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	22~24°C
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	12.80	Pass
06	2437	12.80	Pass
11	2462	12.85	Pass

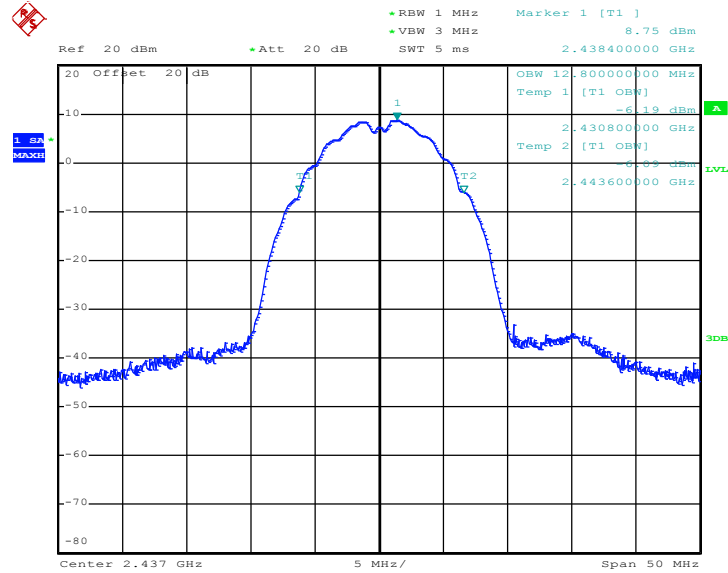
Mode 1 : 99% Occupied Bandwidth Plot on 802.11b Channel 01



Date: 6.OCT.2011 20:37:48

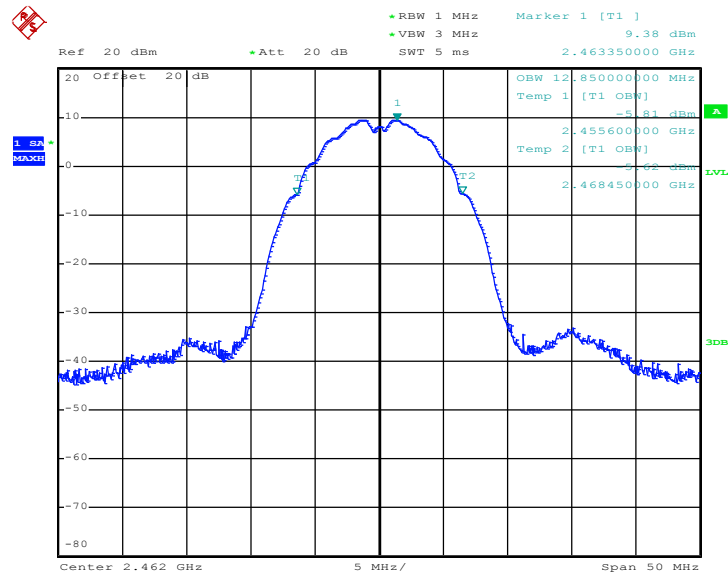


Mode 2 : 99% Occupied Bandwidth Plot on 802.11b Channel 06



Date: 6.OCT.2011 20:44:28

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



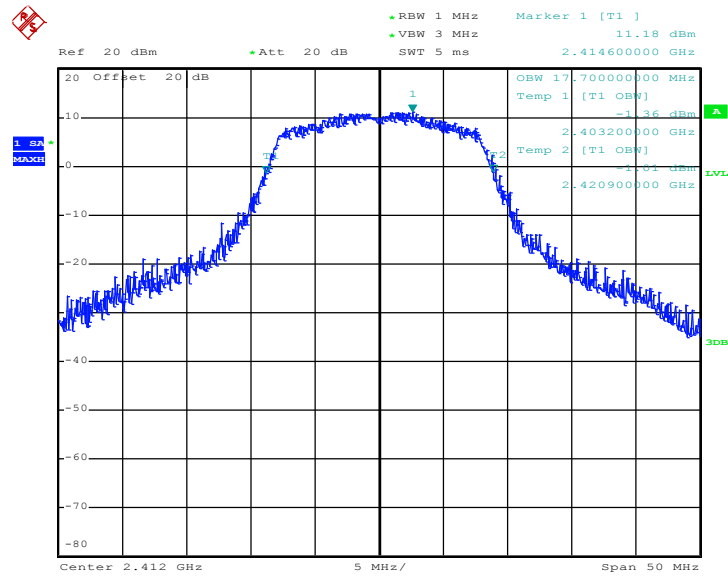
Date: 6.OCT.2011 20:52:09



Test Mode :	Mode 4, 5, 6	Temperature :	22~24°C
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	17.70	Pass
06	2437	17.65	Pass
11	2462	17.70	Pass

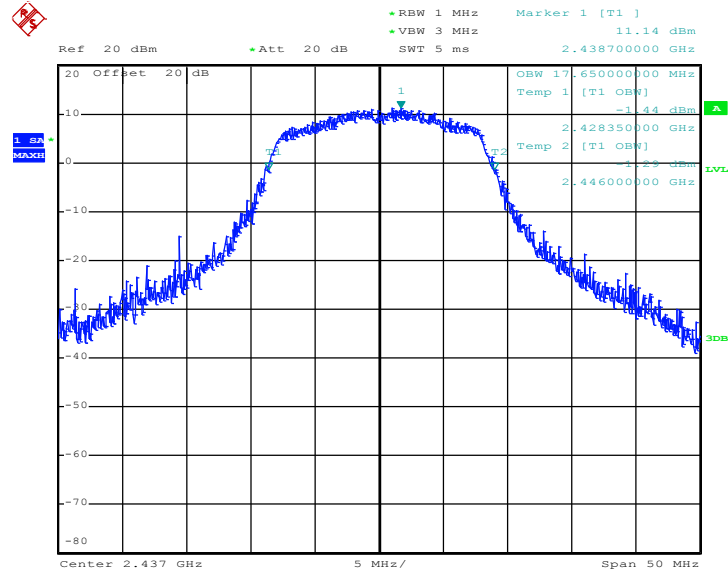
Mode 4 : 99% Occupied Bandwidth Plot on 802.11g Channel 01



Date: 6.OCT.2011 19:34:34

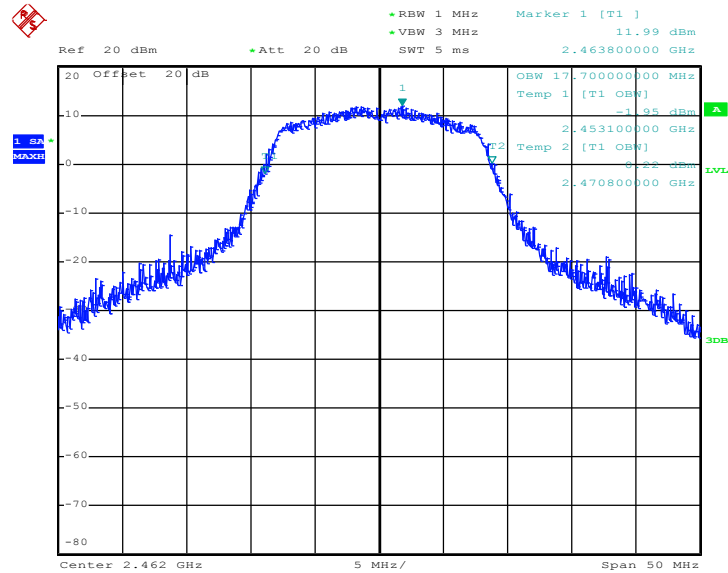


Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06



Date: 6.OCT.2011 19:53:04

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



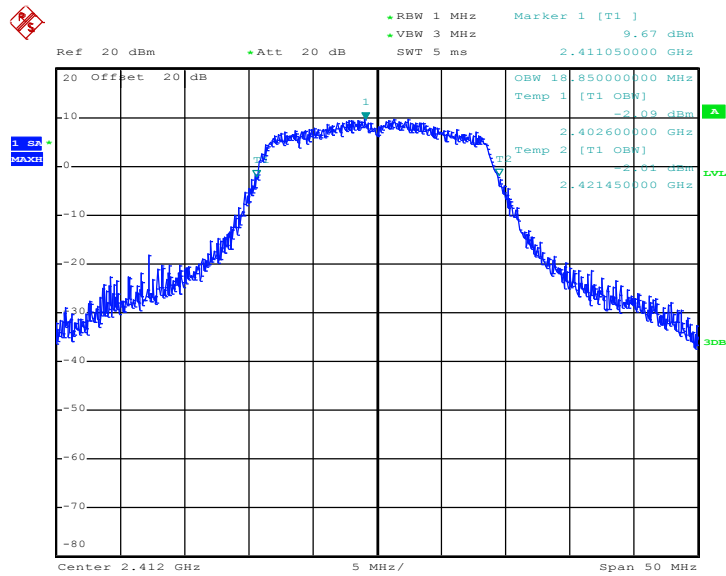
Date: 6.OCT.2011 20:00:04



Test Mode :	Mode 7, 8, 9	Temperature :	22~24°C
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	18.85	Pass
06	2437	18.75	Pass
11	2462	18.85	Pass

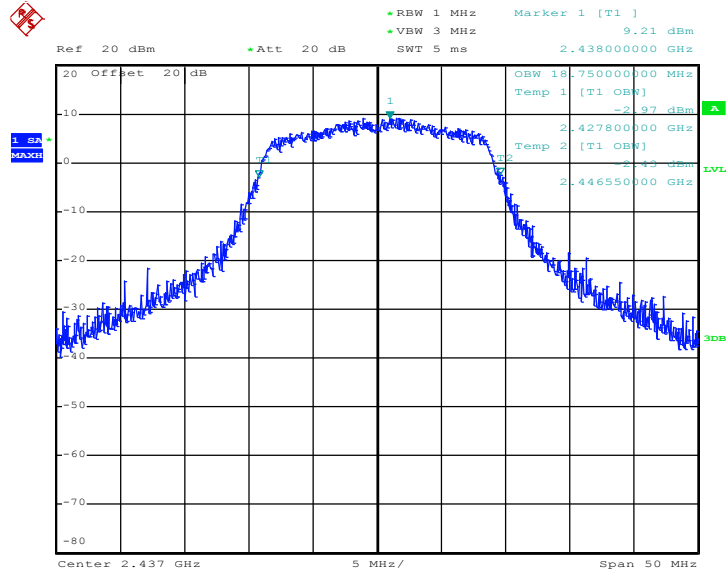
Mode 7 : 99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 6.OCT.2011 21:21:36

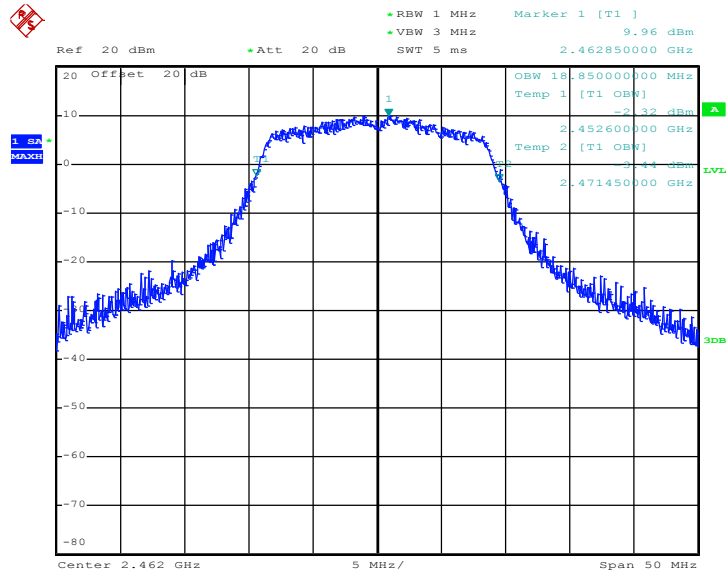


Mode 8 : 99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 6.OCT.2011 21:42:01

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



Date: 6.OCT.2011 21:59:03

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.

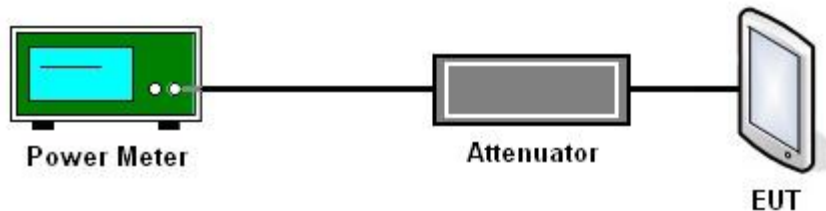
3.2.2 Measuring Instruments

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 :	22~24°C
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	16.64	30	Pass
06	2437	16.66	30	Pass
11	2462	16.89	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	22~24°C
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.53	30	Pass
06	2437	22.41	30	Pass
11	2462	22.65	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	22~24°C
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.16	30	Pass
06	2437	22.08	30	Pass
11	2462	22.18	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

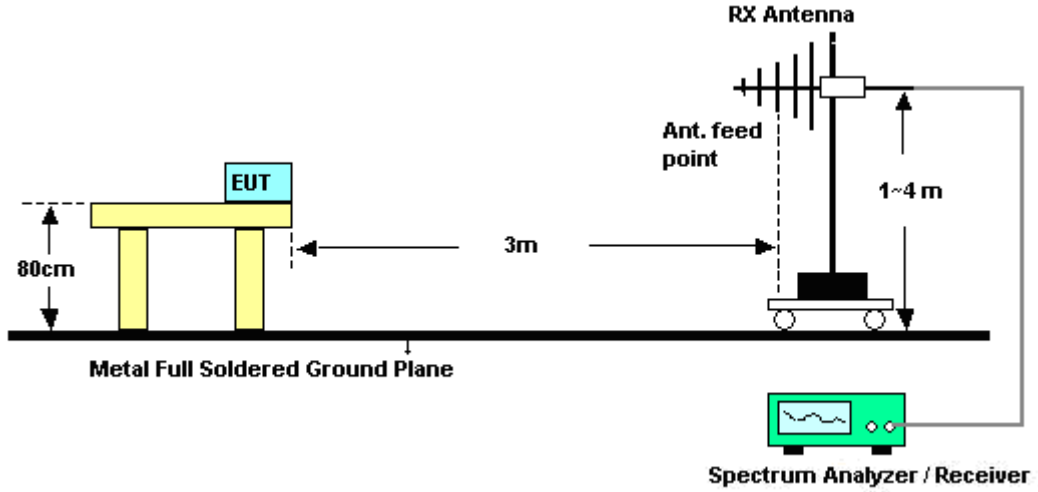
See list of measuring instruments of this test report.

3.3.3 Test Procedures

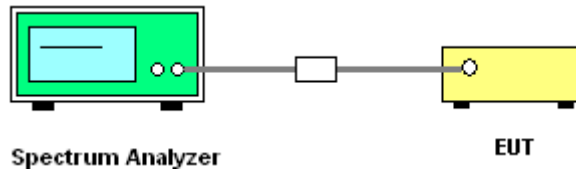
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) \geq RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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 :	23~24°C
Test Band :	802.11b	Relative Humidity :	48~50%
Test Channel :	01	Test Engineer :	David Yang

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
2383.72	46.69	-27.31	74	44.19	32	4.58	34.08	142	244	Peak
2383.72	32.94	-21.06	54	30.44	32	4.58	34.08	142	244	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
2330.52	45.67	-28.33	74	43.27	31.96	4.53	34.09	104	18	Peak
2330.52	33.28	-20.72	54	30.88	31.96	4.53	34.09	104	18	Average

Test Mode :	Mode 3	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	48~50%
Test Channel :	11	Test Engineer :	David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.99	45.73	-28.27	74	43.08	32.09	4.64	34.08	133	258	Peak
2484.99	35.37	-18.63	54	32.72	32.09	4.64	34.08	133	258	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
2487.46	44.72	-29.28	74	42.07	32.09	4.64	34.08	103	20	Peak
2487.46	34.54	-19.46	54	31.89	32.09	4.64	34.08	103	20	Average



Test Mode :	Mode 4	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	48~50%
Test Channel :	01	Test Engineer :	David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.8	58.24	-15.76	74	55.72	32.02	4.58	34.08	145	246	Peak
2389.8	37.96	-16.04	54	35.44	32.02	4.58	34.08	145	246	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
2387.71	54.79	-19.21	74	52.27	32.02	4.58	34.08	104	17	Peak
2387.71	32.36	-21.64	54	29.84	32.02	4.58	34.08	104	17	Average

Test Mode :	Mode 6	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	48~50%
Test Channel :	11	Test Engineer :	David Yang

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	62.69	-11.31	74	60.04	32.09	4.64	34.08	135	251	Peak
2483.66	41.96	-12.04	54	39.31	32.09	4.64	34.08	135	251	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	56.88	-17.12	74	54.23	32.09	4.64	34.08	102	19	Peak
2483.66	38.12	-15.88	54	35.47	32.09	4.64	34.08	102	19	Average



Test Mode :	Mode 7	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	48~50%
Test Channel :	11	Test Engineer :	David Yang

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	62.95	-11.05	74	60.3	32.09	4.64	34.08	112	249	Peak
2483.66	40.02	-13.98	54	37.37	32.09	4.64	34.08	112	249	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
2484.99	54.91	-19.09	74	52.26	32.09	4.64	34.08	100	133	Peak
2484.99	37.03	-16.97	54	34.38	32.09	4.64	34.08	100	133	Average

Test Mode :	Mode 8	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	48~50%
Test Channel :	01	Test Engineer :	David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.8	56.14	-17.86	74	53.62	32.02	4.58	34.08	139	245	Peak
2389.8	37.4	-16.6	54	34.88	32.02	4.58	34.08	139	245	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388.28	54.41	-19.59	74	51.89	32.02	4.58	34.08	105	15	Peak
2388.28	36.48	-17.52	54	33.96	32.02	4.58	34.08	105	15	Average



Test Mode :	Mode 10	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	48~50%
Test Channel :	11	Test Engineer :	David Yang

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	60.44	-13.56	74	57.79	32.09	4.64	34.08	135	234	Peak
2483.5	39.93	-14.07	54	37.28	32.09	4.64	34.08	135	234	Average

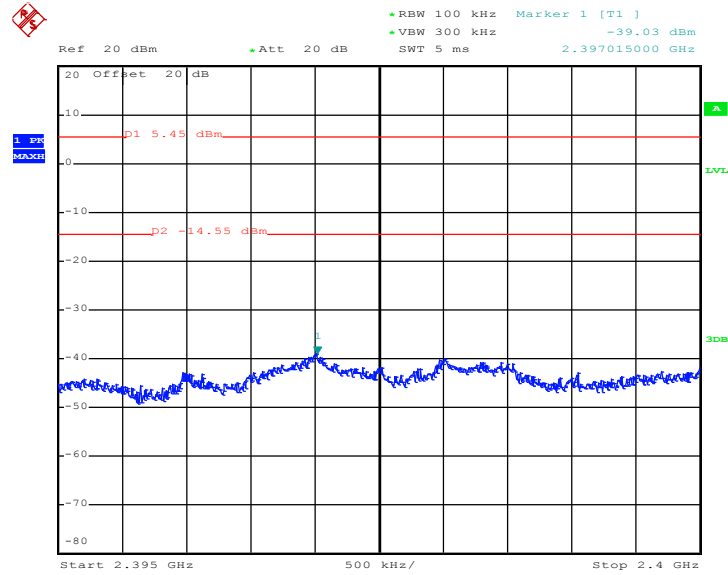
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	55.23	-18.77	74	52.58	32.09	4.64	34.08	102	20	Peak
2483.5	36.94	-17.06	54	34.29	32.09	4.64	34.08	102	20	Average



3.3.6 Test Plots of Conducted Band Edges

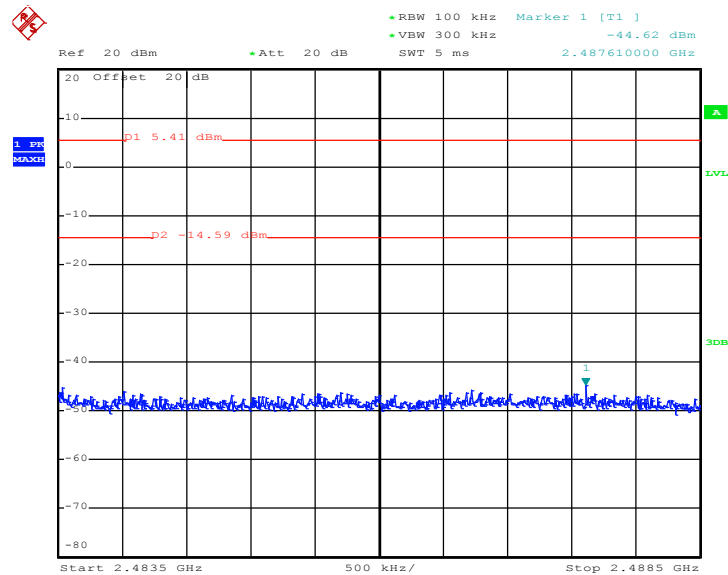
Test Mode :	Mode 1 and 3	Temperature :	22~24°C
Test Band :	802.11b	Relative Humidity :	52~55%
Test Channel :	01 and 11	Test Engineer :	Reece Li

Low Band Edge Plot on 802.11b Channel 01



Date: 6.OCT.2011 20:36:32

High Band Edge Plot on 802.11b Channel 11

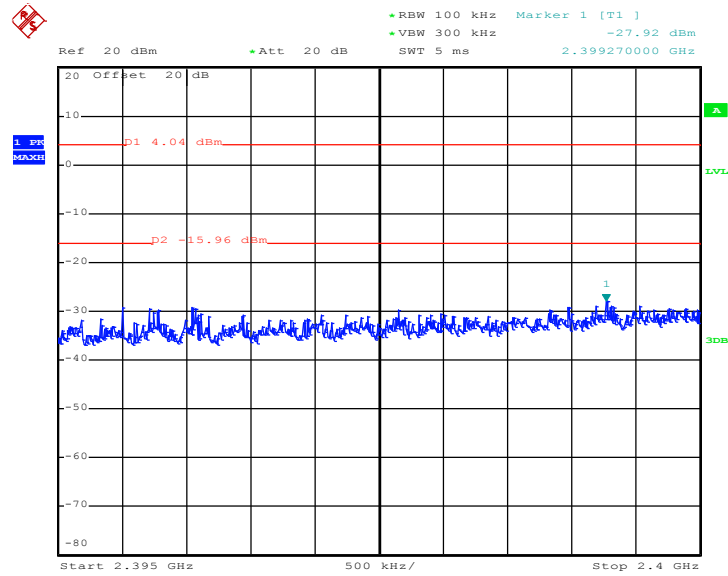


Date: 6.OCT.2011 20:50:00



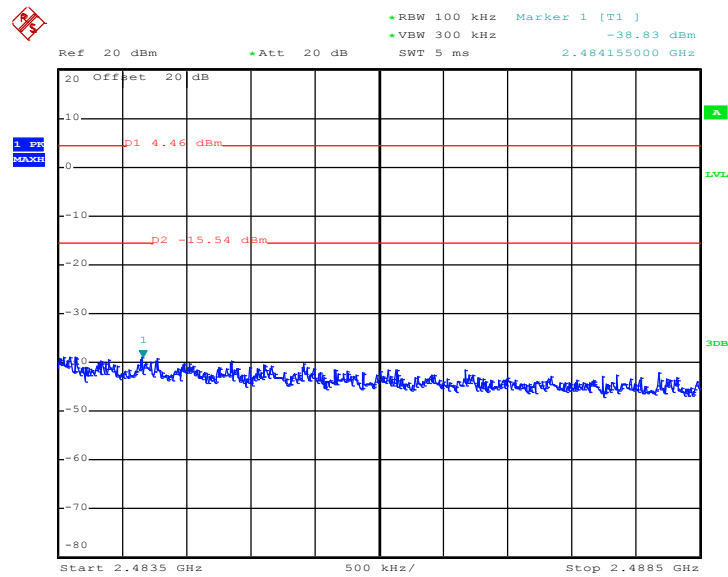
Test Mode :	Mode 4 and 6	Temperature :	22~24°C
Test Band :	802.11g	Relative Humidity :	52~55%
Test Channel :	01 and 11	Test Engineer :	Reece Li

Low Band Edge Plot on 802.11g Channel 01



Date: 6.OCT.2011 19:33:52

High Band Edge Plot on 802.11g Channel 11

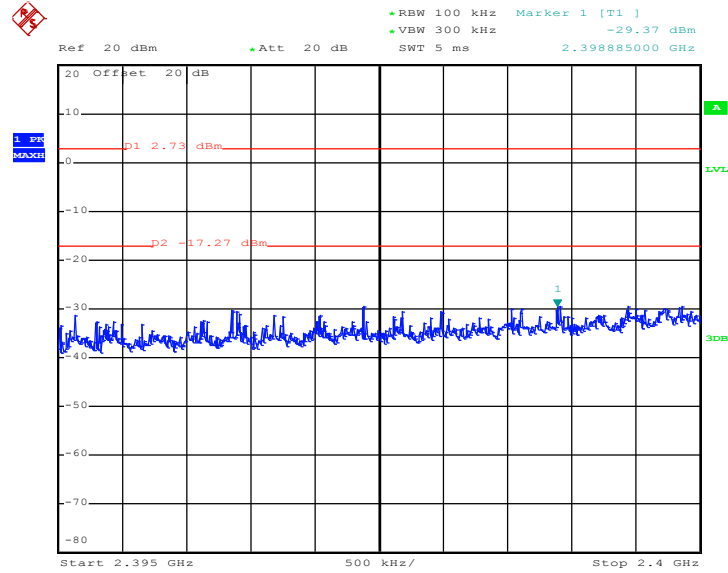


Date: 6.OCT.2011 19:59:12



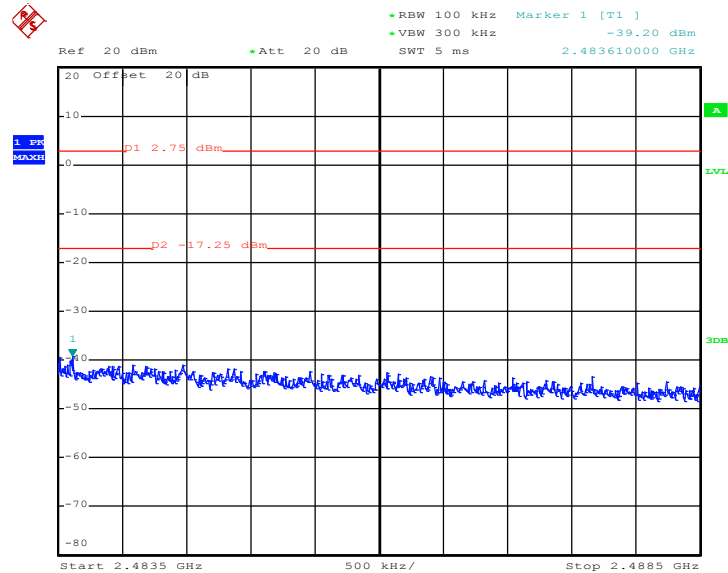
Test Mode :	Mode 7 and 9	Temperature :	22~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	52~55%
Test Channel :	01 and 11	Test Engineer :	Reece Li

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



Date: 6.OCT.2011 21:21:05

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



Date: 6.OCT.2011 21:58:36

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.

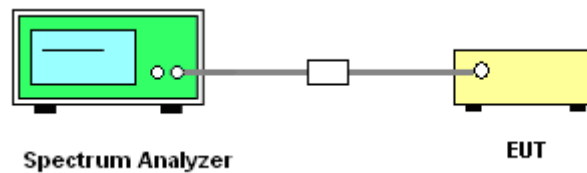
3.4.2 Measuring Instruments

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

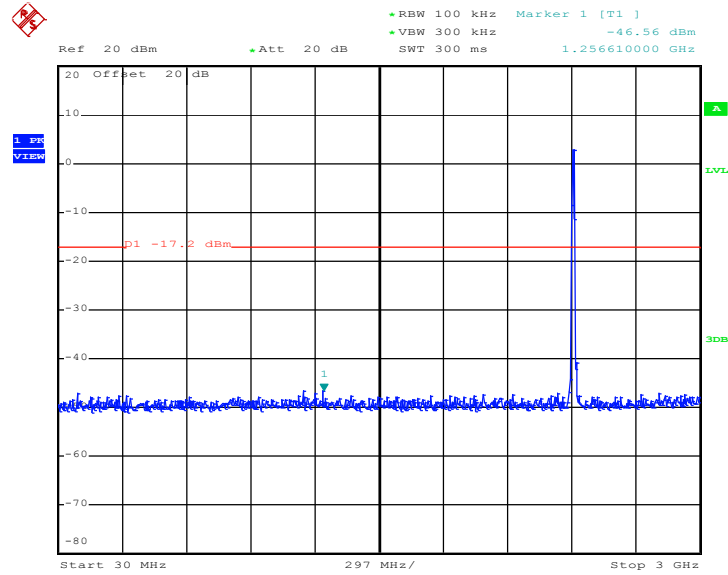




3.4.5 Test Plots of Spurious Emission

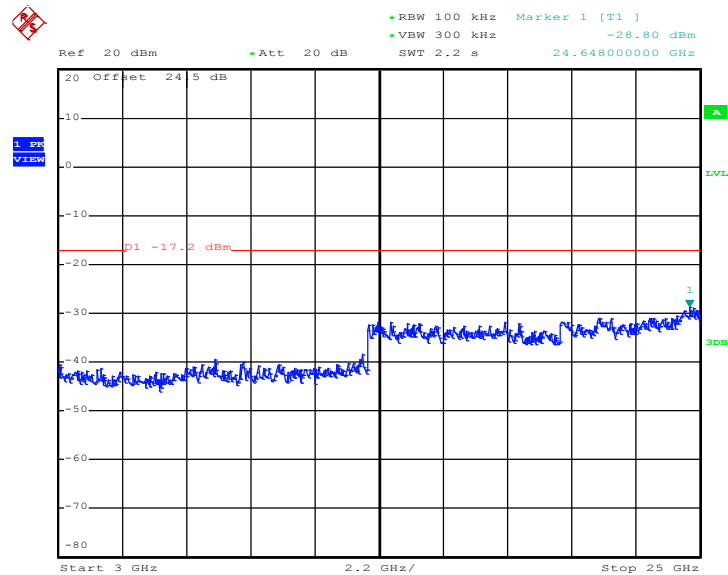
Test Mode :	Mode 1	Temperature :	22~24°C
Test Band :	802.11b	Relative Humidity :	52~55%
Test Channel :	01	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.OCT.2011 03:10:31

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

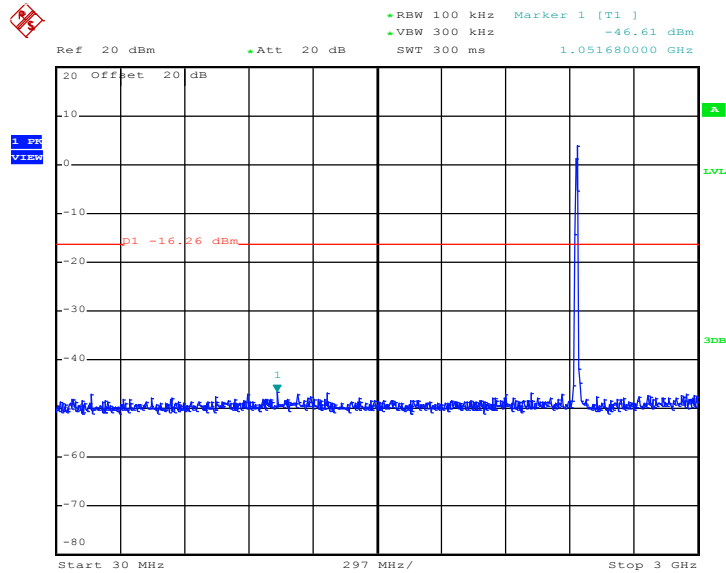


Date: 14.OCT.2011 03:10:49



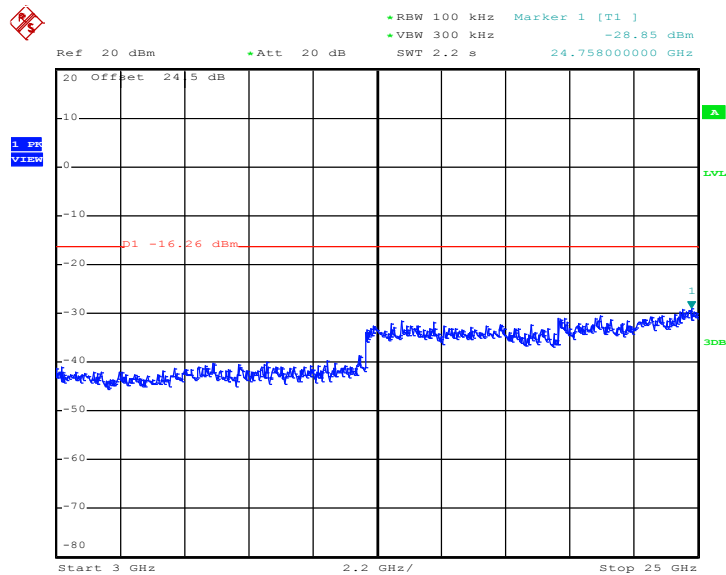
Test Mode :	Mode 2	Temperature :	22~24°C
Test Band :	802.11b	Relative Humidity :	52~55%
Test Channel :	06	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.OCT.2011 03:17:59

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

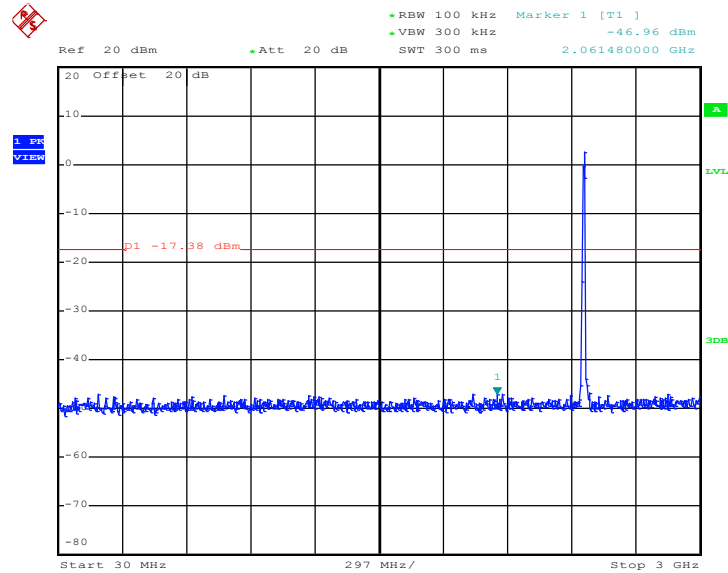


Date: 14.OCT.2011 03:18:22



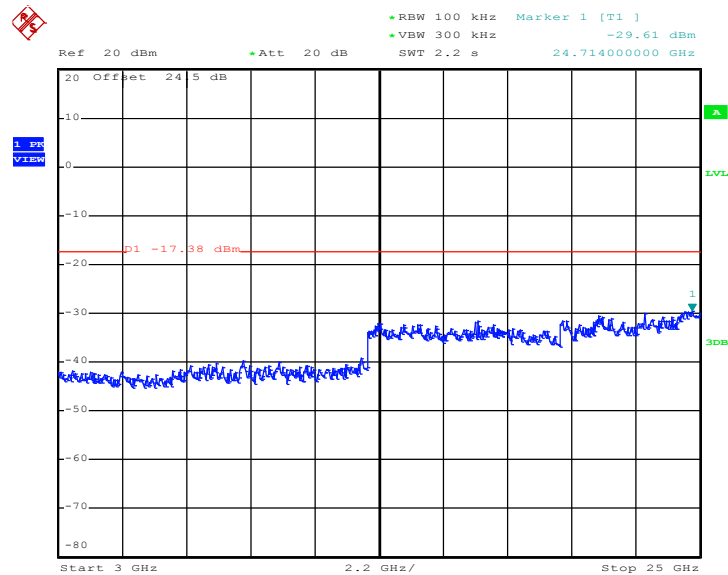
Test Mode :	Mode 3	Temperature :	22~24°C
Test Band :	802.11b	Relative Humidity :	52~55%
Test Channel :	11	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.OCT.2011 03:19:01

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

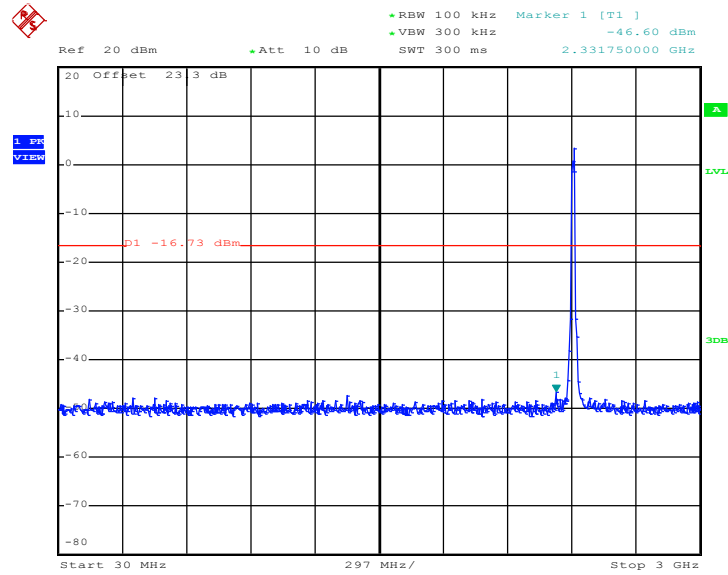


Date: 14.OCT.2011 03:19:23



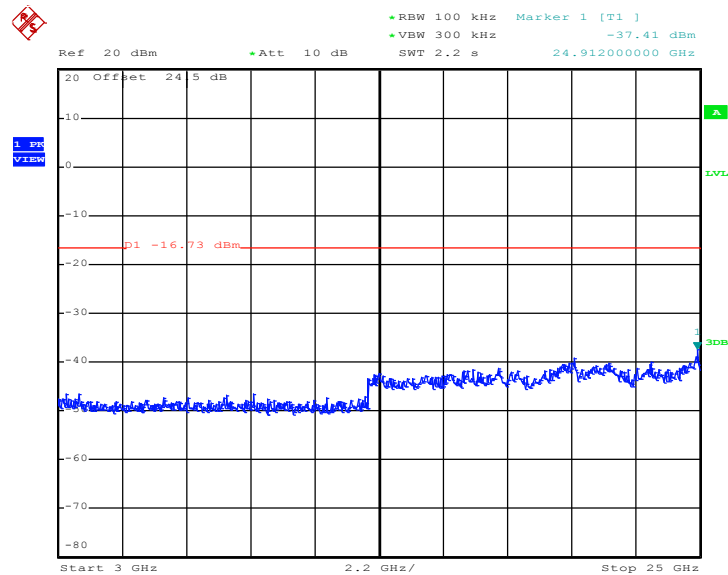
Test Mode :	Mode 4	Temperature :	22~24°C
Test Band :	802.11g	Relative Humidity :	52~55%
Test Channel :	01	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 9.SEP.2011 19:12:49

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

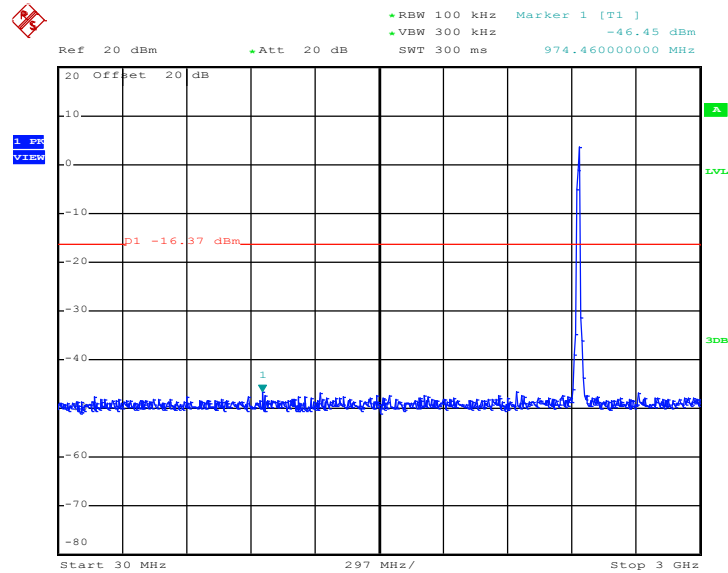


Date: 9.SEP.2011 19:13:07



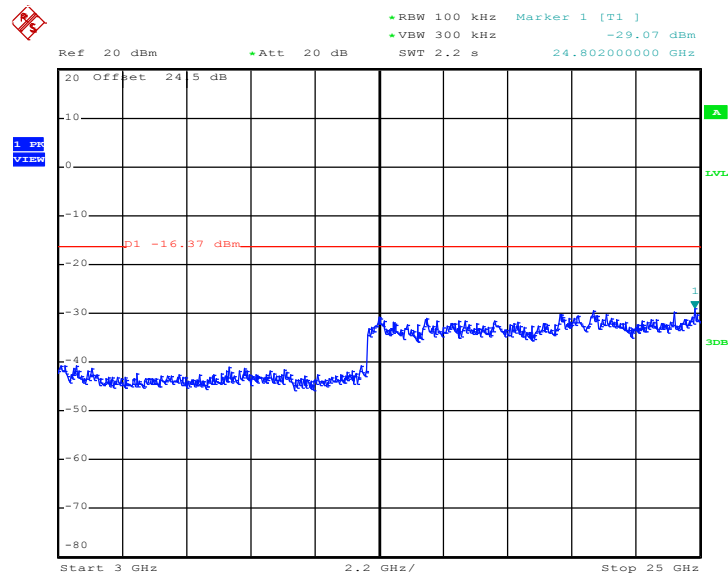
Test Mode :	Mode 5	Temperature :	22~24°C
Test Band :	802.11g	Relative Humidity :	52~55%
Test Channel :	06	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 6.OCT.2011 19:53:29

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

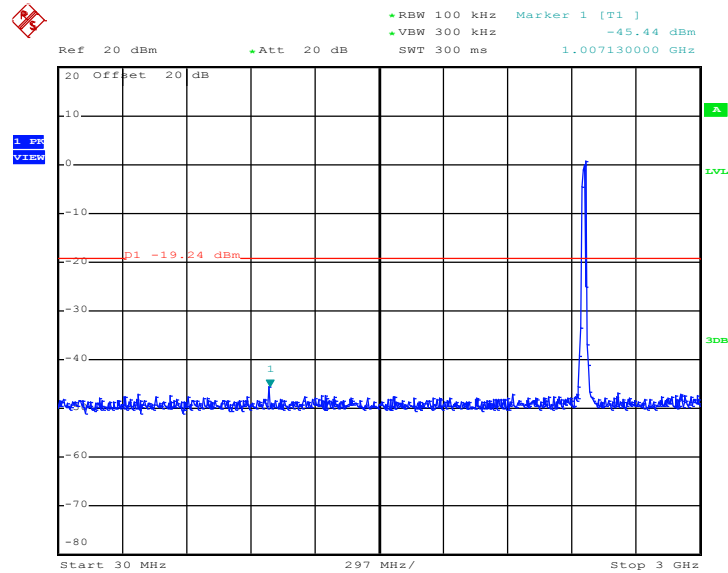


Date: 6.OCT.2011 19:53:46



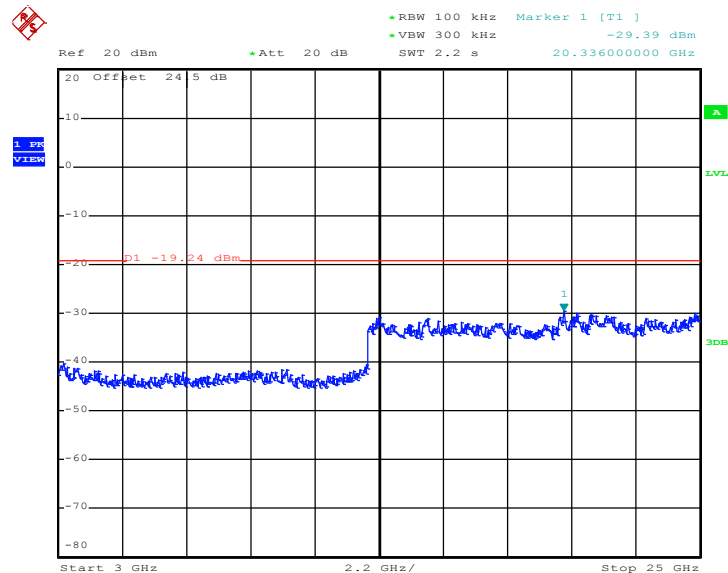
Test Mode :	Mode 6	Temperature :	22~24°C
Test Band :	802.11g	Relative Humidity :	52~55%
Test Channel :	11	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 6.OCT.2011 20:00:52

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

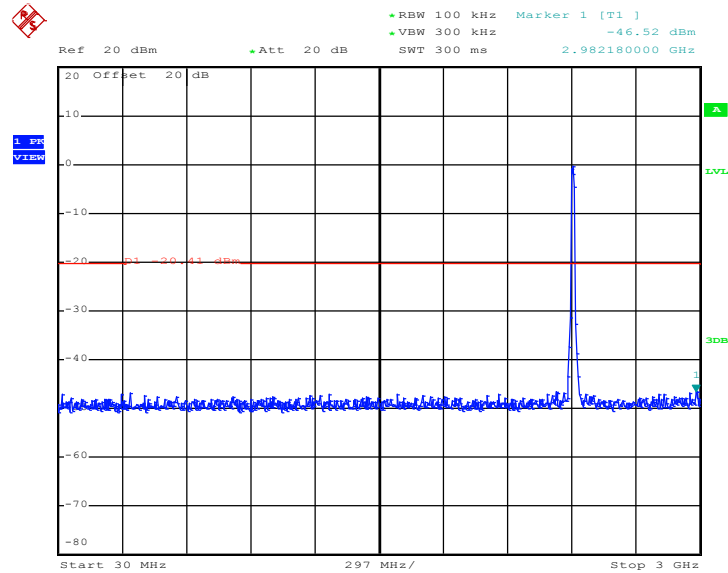


Date: 6.OCT.2011 20:01:09



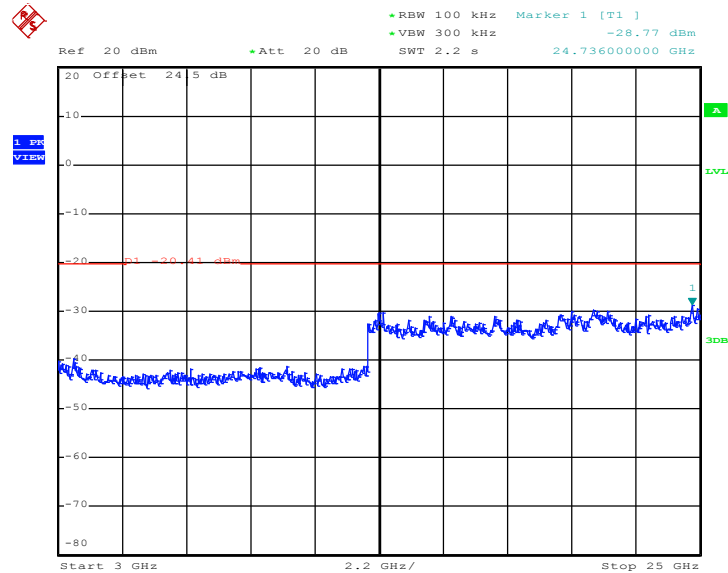
Test Mode :	Mode 7	Temperature :	22~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	52~55%
Test Channel :	01	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 6.OCT.2011 21:22:03

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

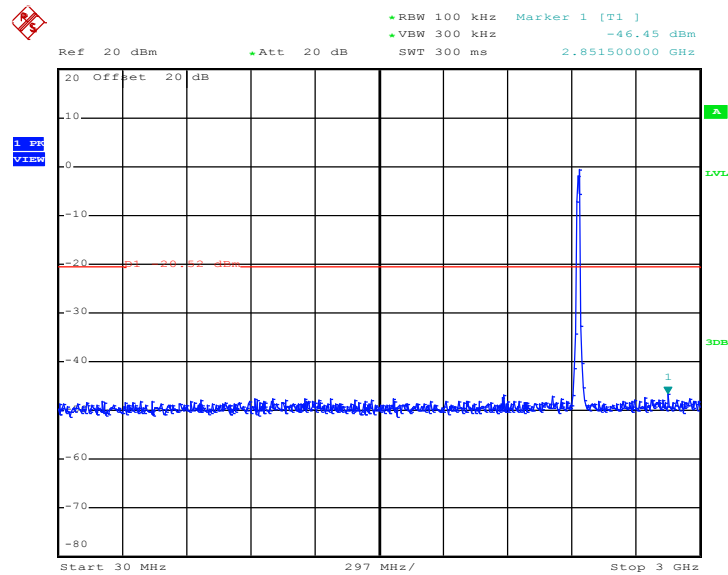


Date: 6.OCT.2011 21:22:20



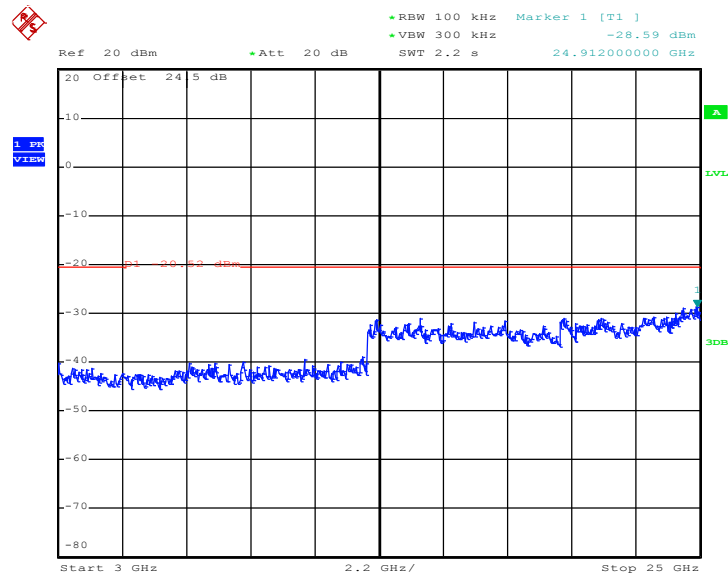
Test Mode :	Mode 8	Temperature :	22~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	52~55%
Test Channel :	06	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.OCT.2011 03:22:21

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

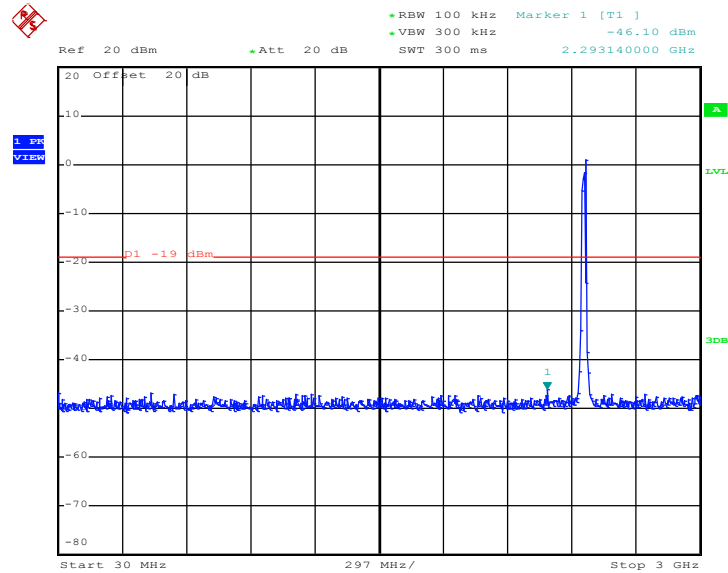


Date: 14.OCT.2011 03:22:39



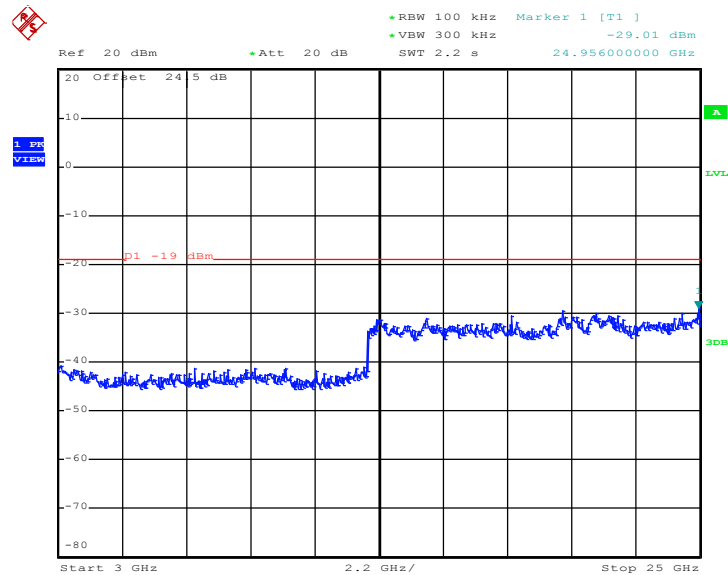
Test Mode :	Mode 9	Temperature :	22~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	52~55%
Test Channel :	11	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 6.OCT.2011 21:59:27

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 6.OCT.2011 21:59:44

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.

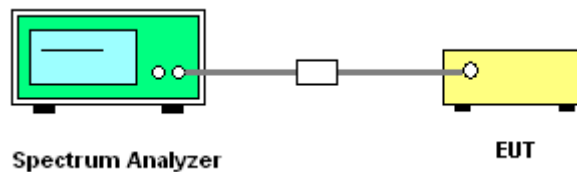
3.5.2 Measuring Instruments

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



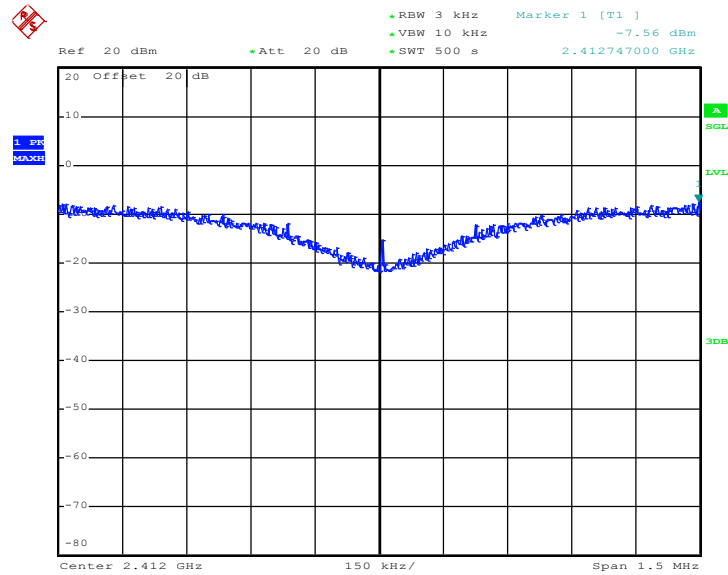


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	22~24°C
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-7.56	8	Pass
06	2437	-8.66	8	Pass
11	2462	-7.68	8	Pass

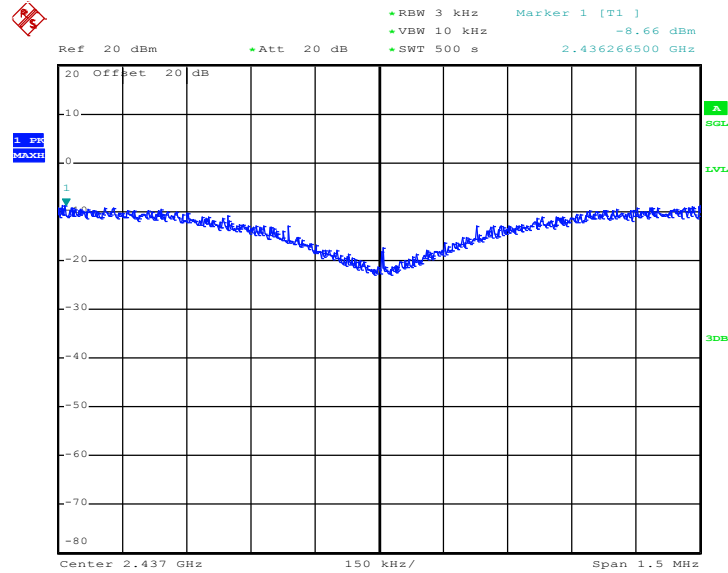
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 6.OCT.2011 20:33:06

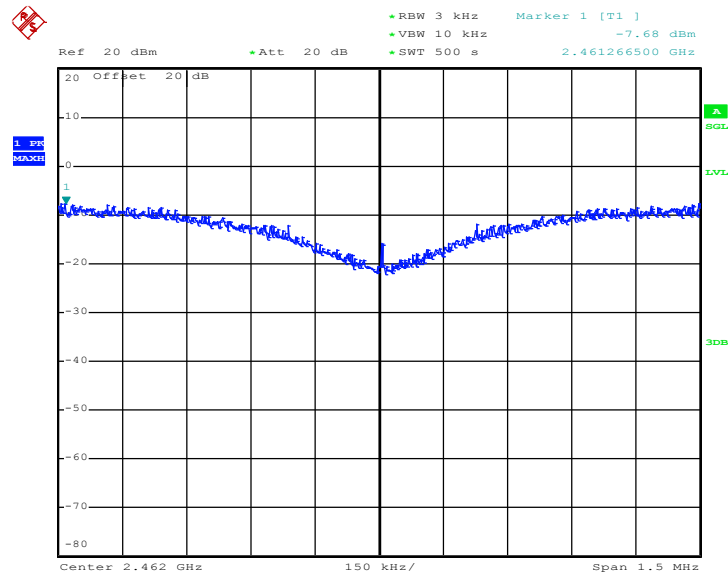


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 6.OCT.2011 21:13:42

Mode 3 : PSD Plot on 802.11b Channel 11



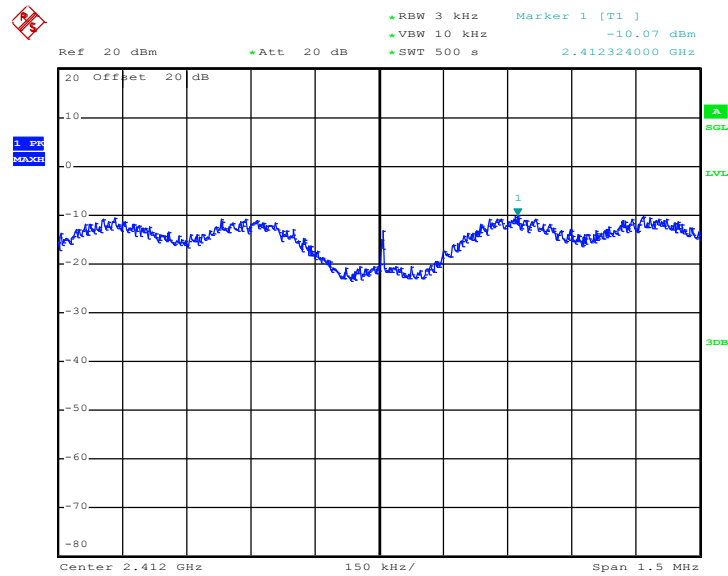
Date: 6.OCT.2011 21:04:39



Test Mode :	Mode 4, 5, 6	Temperature :	22~24°C
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.07	8	Pass
06	2437	-11.11	8	Pass
11	2462	-9.89	8	Pass

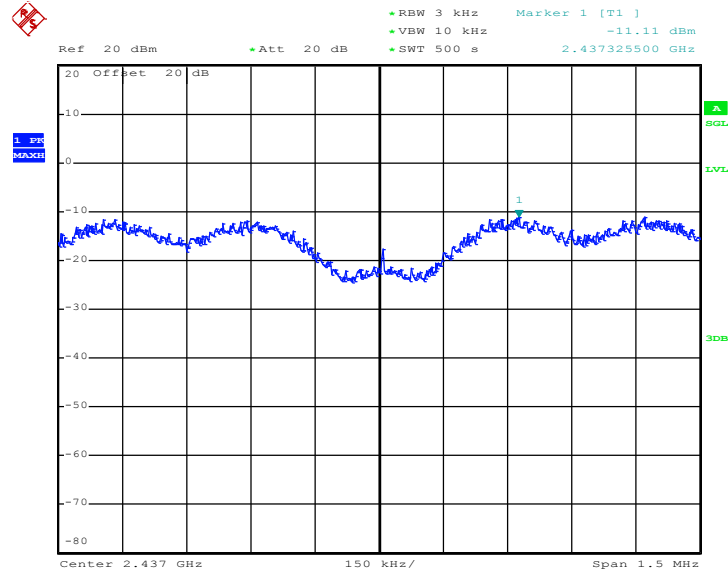
Mode 4 : PSD Plot on 802.11g Channel 01



Date: 6.OCT.2011 19:43:21

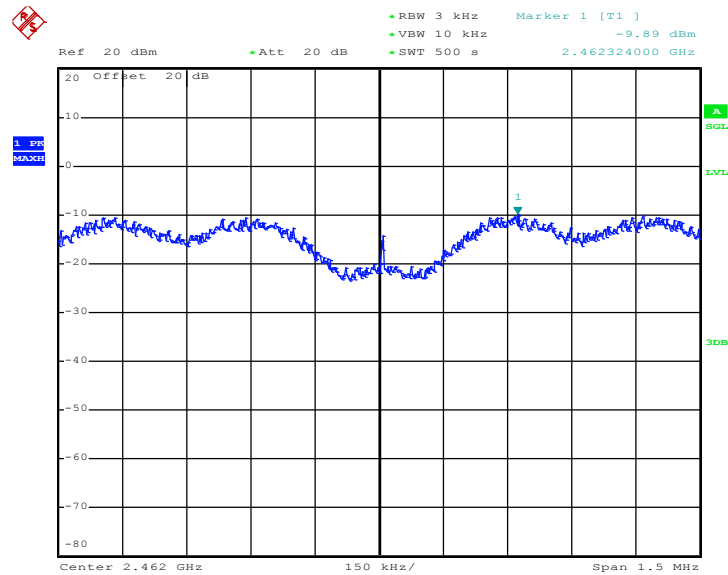


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 6.OCT.2011 20:21:30

Mode 6 : PSD Plot on 802.11g Channel 11



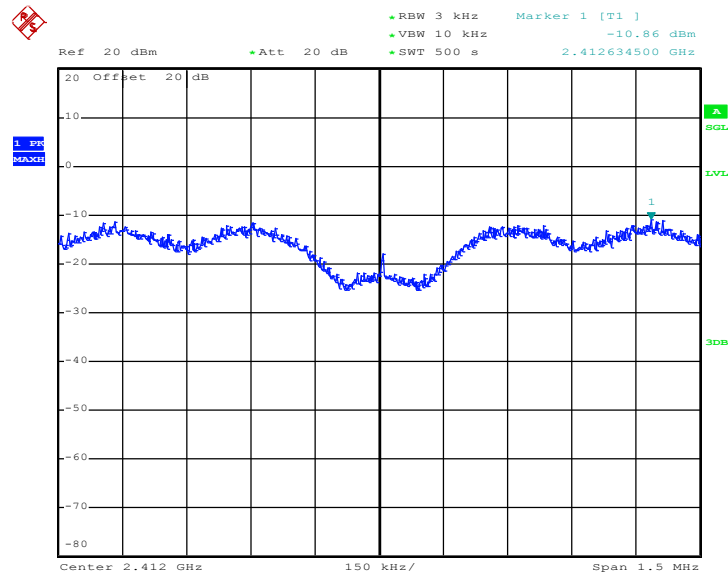
Date: 6.OCT.2011 20:12:15



Test Mode :	Mode 7, 8, 9	Temperature :	22~24°C
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.86	8	Pass
06	2437	-11.45	8	Pass
11	2462	-10.62	8	Pass

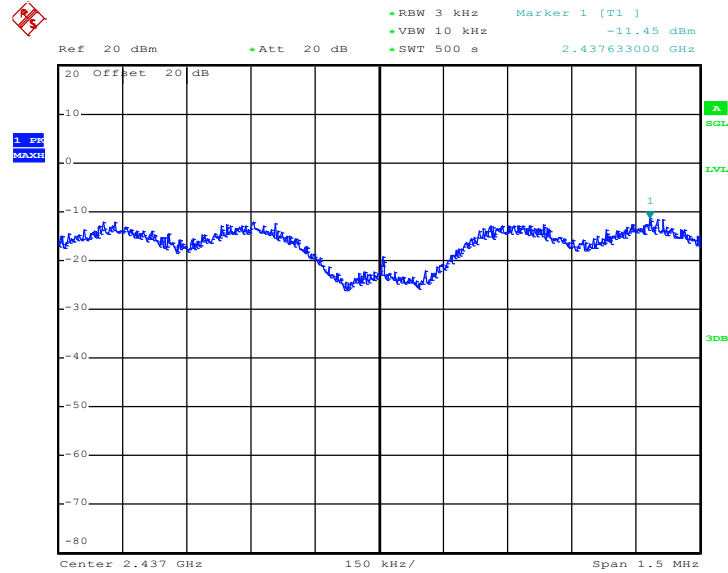
Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01



Date: 6.OCT.2011 21:38:05

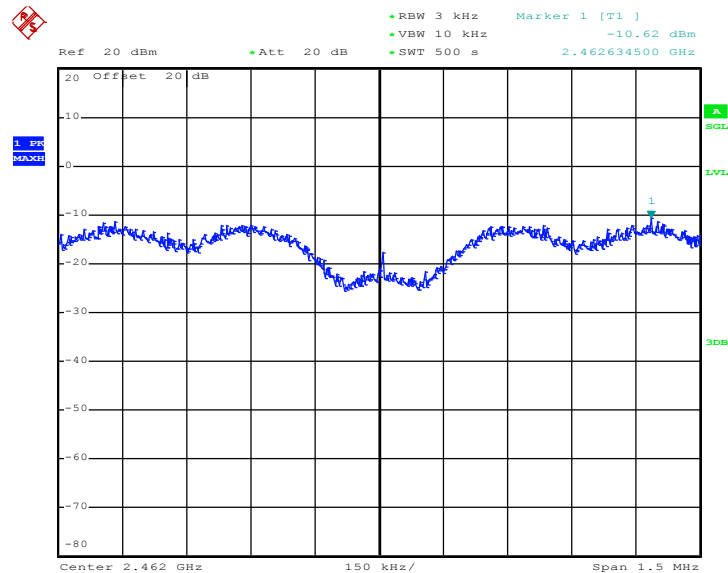


Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06



Date: 6.OCT.2011 21:55:07

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



Date: 6.OCT.2011 22:10:08

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.

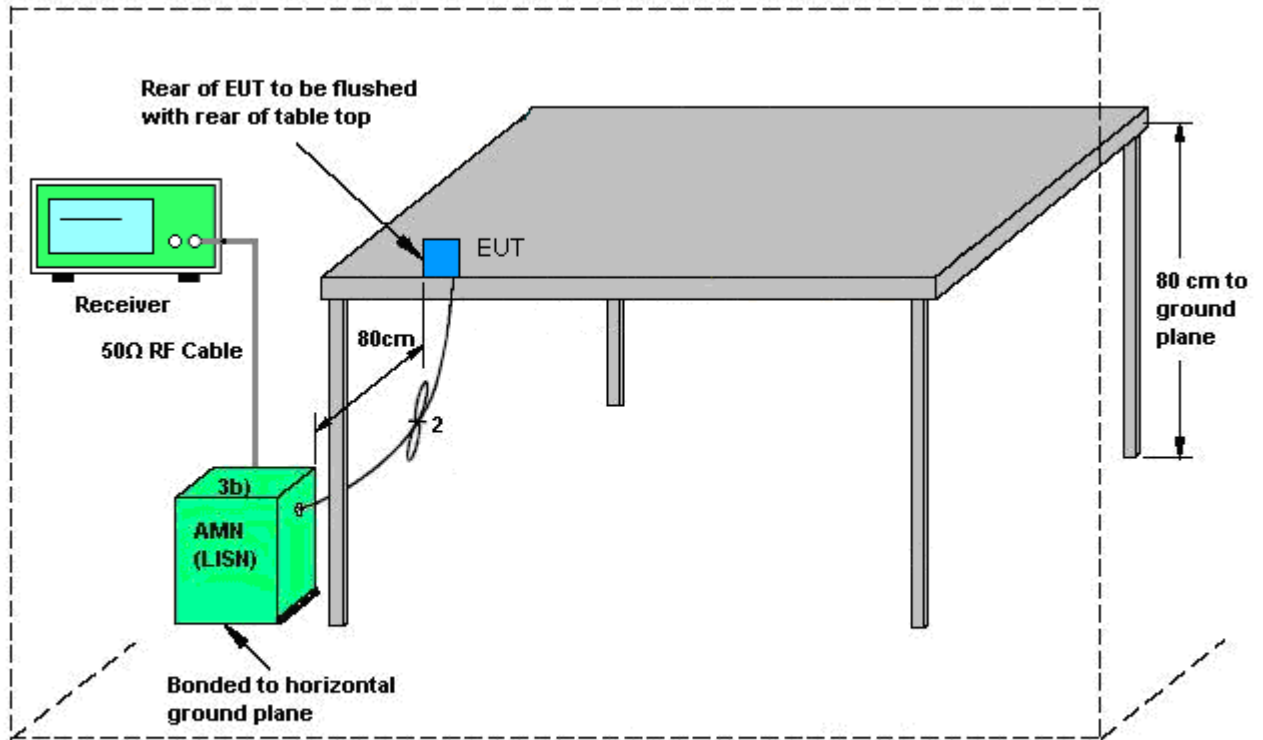
3.6.2 Measuring Instruments

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.

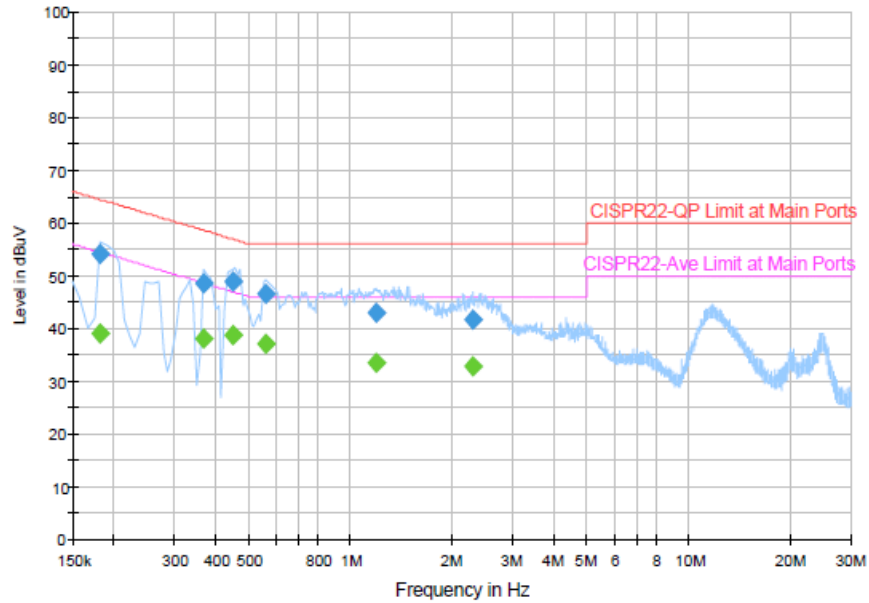
3.6.4 Test Setup



AMN = Artificial mains network (LISN)
 AE = Associated equipment
 EUT = Equipment under test
 ISN = Impedance stabilization network

3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	21~23°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	43~45%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + Bluetooth Link + GPS Rx + TC1 + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

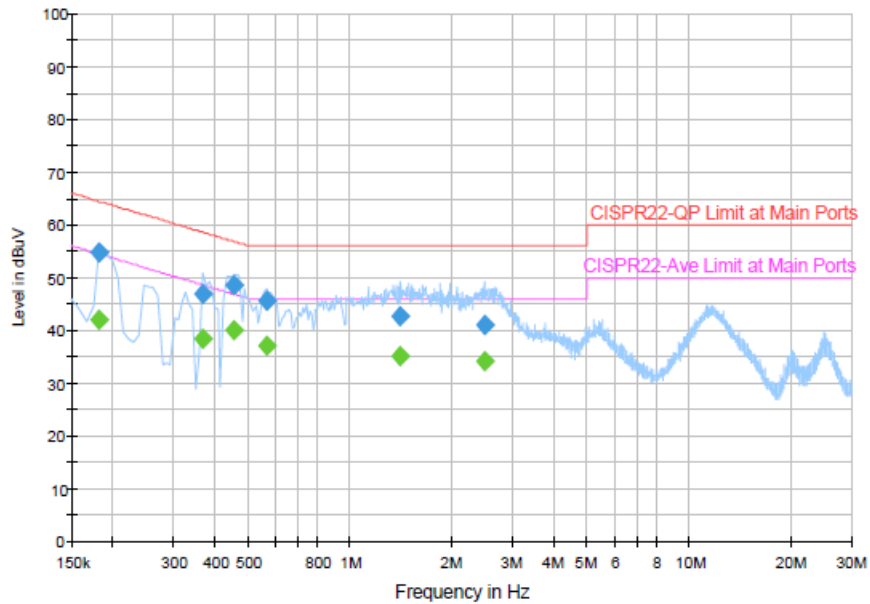
Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.182000	54.2	Off	L1	19.4	10.2	64.4
0.366000	48.5	Off	L1	19.4	10.1	58.6
0.446000	48.9	Off	L1	19.4	8.0	56.9
0.558000	46.7	Off	L1	19.4	9.3	56.0
1.182000	42.9	Off	L1	19.4	13.1	56.0
2.286000	41.8	Off	L1	19.5	14.2	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.182000	39.2	Off	L1	19.4	15.2	54.4
0.366000	38.1	Off	L1	19.4	10.5	48.6
0.446000	38.8	Off	L1	19.4	8.1	46.9
0.558000	36.9	Off	L1	19.4	9.1	46.0
1.182000	33.3	Off	L1	19.4	12.7	46.0
2.286000	32.8	Off	L1	19.5	13.2	46.0



Test Mode :	Mode 1	Temperature :	21~23°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	43~45%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + Bluetooth Link + GPS Rx + TC1 + 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	54.6	Off	N	19.4	9.8	64.4
0.366000	47.0	Off	N	19.4	11.6	58.6
0.454000	48.5	Off	N	19.4	8.3	56.8
0.566000	45.5	Off	N	19.4	10.5	56.0
1.406000	42.5	Off	N	19.5	13.5	56.0
2.478000	41.1	Off	N	19.5	14.9	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.182000	42.0	Off	N	19.4	12.4	54.4
0.366000	38.5	Off	N	19.4	10.1	48.6
0.454000	39.9	Off	N	19.4	6.9	46.8
0.566000	37.0	Off	N	19.4	9.0	46.0
1.406000	35.2	Off	N	19.5	10.8	46.0
2.478000	34.2	Off	N	19.5	11.8	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

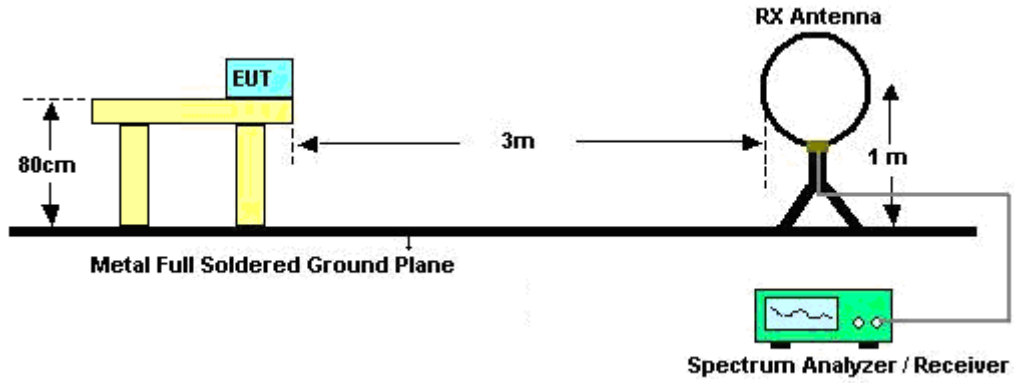
See list of measuring instruments of this test report.

3.7.3 Test Procedures

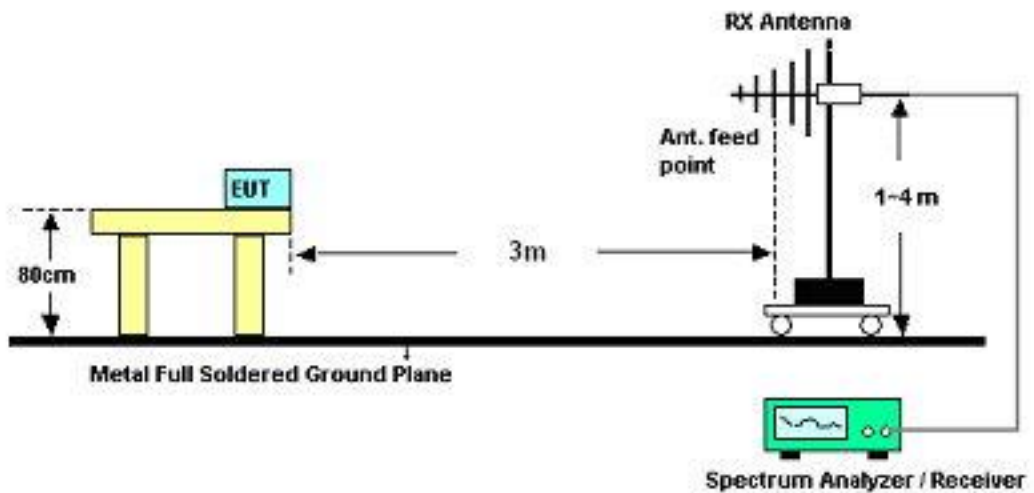
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
 - (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep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

3.7.4 Test Setup

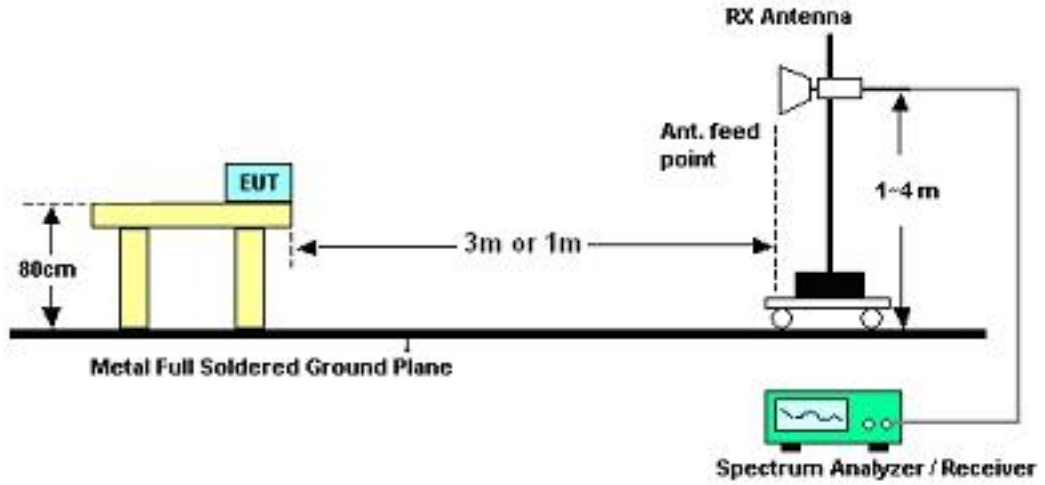
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

Test Engineer :	David Yang	Temperature :	23~24°C	
		Relative Humidity :	48~50%	
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°C
Test Channel :	01	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
31.08	24.04	-15.96	40	37.1	17.78	0.71	31.55	-	-	Peak
168.78	30.87	-12.63	43.5	52.01	9.05	1.36	31.55	138	200	Peak
251.13	25.26	-20.74	46	43.44	11.68	1.66	31.52	-	-	Peak
339.9	28.06	-17.94	46	44.3	13.19	1.87	31.3	-	-	Peak
475.7	24.24	-21.76	46	36.67	16.5	2.18	31.11	-	-	Peak
612.2	31.69	-14.31	46	41.31	18.77	2.46	30.85	-	-	Peak
2383.72	32.94	-21.06	54	30.44	32	4.58	34.08	142	244	Average
2383.72	46.69	-27.31	74	44.19	32	4.58	34.08	142	244	Peak
2412	87.04	-	-	84.5	32.03	4.59	34.08	142	244	Average
2412	91.99	-	-	89.45	32.03	4.59	34.08	142	244	Peak
2500	32.42	-21.58	54	29.76	32.1	4.64	34.08	142	244	Average
2500	43.98	-30.02	74	41.32	32.1	4.64	34.08	142	244	Peak



Test Mode :	Mode 1	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
32.43	33.68	-6.32	40	47.87	16.63	0.72	31.54	100	112	Peak
56.46	25.34	-14.66	40	49.75	6.28	0.84	31.53	-	-	Peak
154.2	27.28	-16.22	43.5	47.48	10	1.3	31.5	-	-	Peak
339.9	27.29	-18.71	46	43.53	13.19	1.87	31.3	-	-	Peak
612.2	38.24	-7.76	46	47.86	18.77	2.46	30.85	-	-	Peak
748	34.19	-11.81	46	41.96	20.03	2.75	30.55	-	-	Peak
2330.52	33.28	-20.72	54	30.88	31.96	4.53	34.09	104	18	Average
2330.52	45.67	-28.33	74	43.27	31.96	4.53	34.09	104	18	Peak
2412	85.42	-	-	82.88	32.03	4.59	34.08	104	18	Average
2412	90.29	-	-	87.75	32.03	4.59	34.08	104	18	Peak
2484	32.46	-21.54	54	29.81	32.09	4.64	34.08	104	18	Average
2484	42.79	-31.21	74	40.14	32.09	4.64	34.08	104	18	Peak
4824	46.77	-27.23	74	64.89	33.83	6.51	58.46	100	0	Peak



Test Mode :	Mode 2	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
31.62	20.84	-19.16	40	34.45	17.21	0.72	31.54	-	-	Peak
138	19.61	-23.89	43.5	39.13	10.73	1.26	31.51	-	-	Peak
251.13	25.38	-20.62	46	43.56	11.68	1.66	31.52	-	-	Peak
339.9	27.41	-18.59	46	43.65	13.19	1.87	31.3	-	-	Peak
612.2	30.6	-15.4	46	40.22	18.77	2.46	30.85	121	108	Peak
748	25.06	-20.94	46	32.83	20.03	2.75	30.55	-	-	Peak
2318	33.76	-20.24	54	31.36	31.96	4.53	34.09	135	248	Average
2318	44.84	-29.16	74	42.44	31.96	4.53	34.09	135	248	Peak
2437	88.38	-	-	85.79	32.06	4.61	34.08	135	248	Average
2437	93.33	-	-	90.74	32.06	4.61	34.08	135	248	Peak
2486	32.47	-21.53	54	29.82	32.09	4.64	34.08	135	248	Average
2486	44.67	-29.33	74	42.02	32.09	4.64	34.08	135	248	Peak
7311	46.56	-27.44	74	60.24	35.6	8.42	57.7	100	0	Peak



Test Mode :	Mode 2	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
32.16	33.79	-6.21	40	47.4	17.21	0.72	31.54	103	228	Peak
58.08	27.69	-12.31	40	52.58	5.8	0.85	31.54	-	-	Peak
152.85	27.9	-15.6	43.5	48.05	10.06	1.29	31.5	-	-	Peak
339.9	27.14	-18.86	46	43.38	13.19	1.87	31.3	-	-	Peak
612.2	38.35	-7.65	46	47.97	18.77	2.46	30.85	-	-	Peak
748	33.48	-12.52	46	41.25	20.03	2.75	30.55	-	-	Peak
2356	34.4	-19.6	54	31.95	31.99	4.55	34.09	103	19	Average
2356	45.08	-28.92	74	42.63	31.99	4.55	34.09	103	19	Peak
2437	85.31	-	-	82.72	32.06	4.61	34.08	103	19	Average
2437	90.35	-	-	87.76	32.06	4.61	34.08	103	19	Peak
2488	32.4	-21.6	54	29.74	32.1	4.64	34.08	103	19	Average
2488	44.57	-29.43	74	41.91	32.1	4.64	34.08	103	19	Peak
4874	46.69	-27.31	74	64.7	33.82	6.53	58.36	100	0	Peak
7311	47.66	-26.34	74	61.34	35.6	8.42	57.7	100	0	Peak



Test Mode :	Mode 3	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
31.62	20.65	-19.35	40	34.26	17.21	0.72	31.54	-	-	Peak
181.47	17.34	-26.16	43.5	38.93	8.52	1.4	31.51	-	-	Peak
247.08	25.09	-20.91	46	43.5	11.47	1.65	31.53	-	-	Peak
339.9	28.28	-17.72	46	44.52	13.19	1.87	31.3	145	326	Peak
475.7	24.5	-21.5	46	36.93	16.5	2.18	31.11	-	-	Peak
612.2	27.12	-18.88	46	36.74	18.77	2.46	30.85	-	-	Peak
2380	35.24	-18.76	54	32.74	32	4.58	34.08	133	258	Average
2380	45.61	-28.39	74	43.11	32	4.58	34.08	133	258	Peak
2462	87.13	-	-	84.52	32.07	4.62	34.08	133	258	Average
2462	92.25	-	-	89.64	32.07	4.62	34.08	133	258	Peak
2484.99	35.37	-18.63	54	32.72	32.09	4.64	34.08	133	258	Average
2484.99	45.73	-28.27	74	43.08	32.09	4.64	34.08	133	258	Peak



Test Mode :	Mode 3	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
32.16	33.65	-6.35	40	47.26	17.21	0.72	31.54	100	117	Peak
56.46	24.19	-15.81	40	48.6	6.28	0.84	31.53	-	-	Peak
147.45	27.57	-15.93	43.5	47.43	10.37	1.27	31.5	-	-	Peak
475.7	27.51	-18.49	46	39.94	16.5	2.18	31.11	-	-	Peak
612.2	37.86	-8.14	46	47.48	18.77	2.46	30.85	-	-	Peak
748	30.06	-15.94	46	37.83	20.03	2.75	30.55	-	-	Peak
2384	33.25	-20.75	54	30.75	32	4.58	34.08	103	20	Average
2384	45.2	-28.8	74	42.7	32	4.58	34.08	103	20	Peak
2462	85.57	-	-	82.96	32.07	4.62	34.08	103	20	Average
2462	90.71	-	-	88.1	32.07	4.62	34.08	103	20	Peak
2487.46	34.54	-19.46	54	31.89	32.09	4.64	34.08	103	20	Average
2487.46	44.72	-29.28	74	42.07	32.09	4.64	34.08	103	20	Peak
4924	47.01	-26.99	74	64.9	33.81	6.56	58.26	100	0	Peak



Test Mode :	Mode 4	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
31.62	19.66	-20.34	40	33.27	17.21	0.72	31.54	-	-	Peak
180.12	16.81	-26.69	43.5	38.38	8.54	1.4	31.51	-	-	Peak
246	25.18	-20.82	46	43.66	11.4	1.64	31.52	-	-	Peak
339.9	27.34	-18.66	46	43.58	13.19	1.87	31.3	-	-	Peak
475.7	23.8	-22.2	46	36.23	16.5	2.18	31.11	-	-	Peak
612.2	28.15	-17.85	46	37.77	18.77	2.46	30.85	119	233	Peak
2389.8	37.96	-16.04	54	35.44	32.02	4.58	34.08	145	246	Average
2389.8	58.24	-15.76	74	55.72	32.02	4.58	34.08	145	246	Peak
2412	78.56	-	-	76.02	32.03	4.59	34.08	145	246	Average
2412	94.04	-	-	91.5	32.03	4.59	34.08	145	246	Peak
2496	32.62	-21.38	54	29.96	32.1	4.64	34.08	145	246	Average
2496	43.96	-30.04	74	41.3	32.1	4.64	34.08	145	246	Peak



Test Mode :	Mode 4	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	48~50%
Test Engineer :	David Yang	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	33.86	-6.14	40	48.05	16.63	0.72	31.54	117	215	Peak
56.19	25.55	-14.45	40	49.96	6.28	0.84	31.53	-	-	Peak
154.47	29.03	-14.47	43.5	49.23	10	1.3	31.5	-	-	Peak
339.9	20.85	-25.15	46	37.09	13.19	1.87	31.3	-	-	Peak
612.2	39.44	-6.56	46	49.06	18.77	2.46	30.85	-	-	Peak
748	34.26	-11.74	46	42.03	20.03	2.75	30.55	-	-	Peak
2387.71	32.36	-21.64	54	29.84	32.02	4.58	34.08	104	17	Average
2387.71	54.79	-19.21	74	52.27	32.02	4.58	34.08	104	17	Peak
2412	76.59	-	-	74.05	32.03	4.59	34.08	104	17	Average
2412	92.33	-	-	89.79	32.03	4.59	34.08	104	17	Peak
2490	32.51	-21.49	54	29.85	32.1	4.64	34.08	104	17	Average
2490	44.87	-29.13	74	42.21	32.1	4.64	34.08	104	17	Peak
4824	44.74	-29.26	74	62.86	33.83	6.51	58.46	100	0	Peak



Test Mode :	Mode 5	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
32.43	20.12	-19.88	40	34.31	16.63	0.72	31.54	-	-	Peak
145.29	16.92	-26.58	43.5	36.7	10.45	1.27	31.5	-	-	Peak
247.35	24.86	-21.14	46	43.27	11.47	1.65	31.53	-	-	Peak
339.9	27.69	-18.31	46	43.93	13.19	1.87	31.3	151	224	Peak
475.7	23.86	-22.14	46	36.29	16.5	2.18	31.11	-	-	Peak
612.2	27.05	-18.95	46	36.67	18.77	2.46	30.85	-	-	Peak
2354	33.85	-20.15	54	31.4	31.99	4.55	34.09	136	249	Average
2354	45.44	-28.56	74	42.99	31.99	4.55	34.09	136	249	Peak
2437	79.69	-	-	77.1	32.06	4.61	34.08	136	249	Average
2437	95.58	-	-	92.99	32.06	4.61	34.08	136	249	Peak
2486	33.02	-20.98	54	30.37	32.09	4.64	34.08	136	249	Average
2486	45.18	-28.82	74	42.53	32.09	4.64	34.08	136	249	Peak
7311	48.99	-25.01	74	62.67	35.6	8.42	57.7	100	0	Peak



Test Mode :	Mode 5	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
32.16	34.04	-5.96	40	47.65	17.21	0.72	31.54	126	100	Peak
57.27	24.67	-15.33	40	49.32	6.04	0.85	31.54	-	-	Peak
154.47	28.22	-15.28	43.5	48.42	10	1.3	31.5	-	-	Peak
475.7	25.02	-20.98	46	37.45	16.5	2.18	31.11	-	-	Peak
612.2	37.45	-8.55	46	47.07	18.77	2.46	30.85	-	-	Peak
748	34.35	-11.65	46	42.12	20.03	2.75	30.55	-	-	Peak
2362	34.12	-19.88	54	31.64	31.99	4.57	34.08	104	20	Average
2362	45.59	-28.41	74	43.11	31.99	4.57	34.08	104	20	Peak
2437	76.83	-	-	74.24	32.06	4.61	34.08	104	20	Average
2437	92.67	-	-	90.08	32.06	4.61	34.08	104	20	Peak
2492	32.68	-21.32	54	30.02	32.1	4.64	34.08	104	20	Average
2492	44.57	-29.43	74	41.91	32.1	4.64	34.08	104	20	Peak
4874	45.62	-28.38	74	63.63	33.82	6.53	58.36	100	0	Peak
7311	49.04	-24.96	74	62.72	35.6	8.42	57.7	100	0	Peak



Test Mode :	Mode 6	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
30	20.11	-19.89	40	32.61	18.36	0.7	31.56	-	-	Peak
142.59	17.52	-25.98	43.5	37.18	10.58	1.27	31.51	-	-	Peak
247.08	25.22	-20.78	46	43.63	11.47	1.65	31.53	-	-	Peak
339.9	27.7	-18.3	46	43.94	13.19	1.87	31.3	145	218	Peak
475.7	23.68	-22.32	46	36.11	16.5	2.18	31.11	-	-	Peak
612.2	27.43	-18.57	46	37.05	18.77	2.46	30.85	-	-	Peak
2390	33.92	-20.08	54	31.4	32.02	4.58	34.08	135	251	Average
2390	45.93	-28.07	74	43.41	32.02	4.58	34.08	135	251	Peak
2462	79.69	-	-	77.08	32.07	4.62	34.08	135	251	Average
2462	95.93	-	-	93.32	32.07	4.62	34.08	135	251	Peak
2483.66	41.96	-12.04	54	39.31	32.09	4.64	34.08	135	251	Average
2483.66	62.69	-11.31	74	60.04	32.09	4.64	34.08	135	251	Peak
7386	48.4	-25.6	74	62.01	35.6	8.55	57.76	100	0	Peak



Test Mode :	Mode 6	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
32.43	33.24	-6.76	40	47.43	16.63	0.72	31.54	100	54	Peak
56.19	24.03	-15.97	40	48.44	6.28	0.84	31.53	-	-	Peak
155.28	28.17	-15.33	43.5	48.42	9.94	1.31	31.5	-	-	Peak
475.7	25.11	-20.89	46	37.54	16.5	2.18	31.11	-	-	Peak
612.2	38.33	-7.67	46	47.95	18.77	2.46	30.85	-	-	Peak
748	34.77	-11.23	46	42.54	20.03	2.75	30.55	-	-	Peak
2384	34.21	-19.79	54	31.71	32	4.58	34.08	102	19	Average
2384	46.42	-27.58	74	43.92	32	4.58	34.08	102	19	Peak
2462	76.73	-	-	74.12	32.07	4.62	34.08	102	19	Average
2462	92.29	-	-	89.68	32.07	4.62	34.08	102	19	Peak
2483.66	38.12	-15.88	54	35.47	32.09	4.64	34.08	102	19	Average
2483.66	56.88	-17.12	74	54.23	32.09	4.64	34.08	102	19	Peak
4924	49.27	-24.73	74	67.16	33.81	6.56	58.26	100	0	Peak
7386	50.05	-23.95	74	63.66	35.6	8.55	57.76	100		Peak



Test Mode :	Mode 7	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
151.77	33.6	-9.9	43.5	53.68	10.13	1.29	31.5	-	-	Peak
253.29	42.47	-3.53	46	60.61	11.7	1.67	31.51	100	55	Peak
297.03	41.93	-4.07	46	59.32	12.13	1.77	31.29	-	-	Peak
370.7	39.97	-6.03	46	55.28	14	1.95	31.26	-	-	Peak
400.1	41.33	-4.67	46	55.72	14.78	2.01	31.18	-	-	Peak
445.6	36.9	-9.1	46	50.11	15.81	2.13	31.15	-	-	Peak
2386	32.58	-21.42	54	30.06	32.02	4.58	34.08	112	249	Average
2386	45.64	-28.36	74	43.12	32.02	4.58	34.08	112	249	Peak
2462	78.19	-	-	75.58	32.07	4.62	34.08	112	249	Average
2462	94.42	-	-	91.81	32.07	4.62	34.08	112	249	Peak
2483.66	40.02	-13.98	54	37.37	32.09	4.64	34.08	112	249	Average
2483.66	62.95	-11.05	74	60.3	32.09	4.64	34.08	112	249	Peak
7386	47.75	-26.25	74	61.36	35.6	8.55	57.76	100	0	Peak



Test Mode :	Mode 7	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
35.4	33.19	-6.81	40	48.93	15.04	0.74	31.52	-	-	Peak
253.29	39.21	-6.79	46	57.35	11.7	1.67	31.51	-	-	Peak
297.03	35.31	-10.69	46	52.7	12.13	1.77	31.29	-	-	Peak
400.1	41.32	-4.68	46	55.71	14.78	2.01	31.18	100	21	Peak
445.6	36.44	-9.56	46	49.65	15.81	2.13	31.15	-	-	Peak
519.8	38.92	-7.08	46	50.28	17.4	2.27	31.03	-	-	Peak
2380	33.27	-20.73	54	30.77	32	4.58	34.08	100	133	Average
2380	45.14	-28.86	74	42.64	32	4.58	34.08	100	133	Peak
2462	75.76	-	-	73.15	32.07	4.62	34.08	100	133	Average
2462	91.98	-	-	89.37	32.07	4.62	34.08	100	133	Peak
2484.99	37.03	-16.97	54	34.38	32.09	4.64	34.08	100	133	Average
2484.99	54.91	-19.09	74	52.26	32.09	4.64	34.08	100	133	Peak
4924	45.14	-28.86	74	63.03	33.81	6.56	58.26	100	0	Peak
7386	48.46	-25.54	74	62.07	35.6	8.55	57.76	100	0	Peak



Test Mode :	Mode 8	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
2389.8	37.4	-16.6	54	34.88	32.02	4.58	34.08	139	245	Average
2389.8	56.14	-17.86	74	53.62	32.02	4.58	34.08	139	245	Peak
2412	76.43	-	-	73.89	32.03	4.59	34.08	139	245	Average
2412	92.29	-	-	89.75	32.03	4.59	34.08	139	245	Peak
2496	32.53	-21.47	54	29.87	32.1	4.64	34.08	139	245	Average
2496	44.66	-29.34	74	42	32.1	4.64	34.08	139	245	Peak

Test Mode :	Mode 8	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
2388.28	36.48	-17.52	54	33.96	32.02	4.58	34.08	105	15	Average
2388.28	54.41	-19.59	74	51.89	32.02	4.58	34.08	105	15	Peak
2412	74.39	-	-	71.85	32.03	4.59	34.08	105	15	Average
2412	90.35	-	-	87.81	32.03	4.59	34.08	105	15	Peak
2486	32.4	-21.6	54	29.75	32.09	4.64	34.08	105	15	Average
2486	43.86	-30.14	74	41.21	32.09	4.64	34.08	105	15	Peak



Test Mode :	Mode 9	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
2320	33.23	-20.77	54	30.83	31.96	4.53	34.09	138	230	Average
2320	44.55	-29.45	74	42.15	31.96	4.53	34.09	138	230	Peak
2437	76.68	-	-	74.09	32.06	4.61	34.08	138	230	Average
2437	92.65	-	-	90.06	32.06	4.61	34.08	138	230	Peak
2488	32.85	-21.15	54	30.19	32.1	4.64	34.08	138	230	Average
2488	44.53	-29.47	74	41.87	32.1	4.64	34.08	138	230	Peak

Test Mode :	Mode 9	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
2354	33.79	-20.21	54	31.34	31.99	4.55	34.09	103	19	Average
2354	45.6	-28.4	74	43.15	31.99	4.55	34.09	103	19	Peak
2437	74.88	-	-	72.29	32.06	4.61	34.08	103	19	Average
2437	90.65	-	-	88.06	32.06	4.61	34.08	103	19	Peak
2484	32.58	-21.42	54	29.93	32.09	4.64	34.08	103	19	Average
2484	44.56	-29.44	74	41.91	32.09	4.64	34.08	103	19	Peak



Test Mode :	Mode 10	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
2358	33.43	-20.57	54	30.95	31.99	4.57	34.08	135	234	Average
2358	44.86	-29.14	74	42.38	31.99	4.57	34.08	135	234	Peak
2462	76.85	-	-	74.24	32.07	4.62	34.08	135	234	Average
2462	93.31	-	-	90.7	32.07	4.62	34.08	135	234	Peak
2483.5	39.93	-14.07	54	37.28	32.09	4.64	34.08	135	234	Average
2483.5	60.44	-13.56	74	57.79	32.09	4.64	34.08	135	234	Peak

Test Mode :	Mode 10	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	48~50%
Test Engineer :	David Yang	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
2386	33.76	-20.24	54	31.24	32.02	4.58	34.08	102	20	Average
2386	45.13	-28.87	74	42.61	32.02	4.58	34.08	102	20	Peak
2462	74.76	-	-	72.15	32.07	4.62	34.08	102	20	Average
2462	91.4	-	-	88.79	32.07	4.62	34.08	102	20	Peak
2483.5	36.94	-17.06	54	34.29	32.09	4.64	34.08	102	20	Average
2483.5	55.23	-18.77	74	52.58	32.09	4.64	34.08	102	20	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
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 13, 2011	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Sep. 17, 2012	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)
EMI Test Receive	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Aug. 21, 2012	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)
GPS Station	Pendulum	GSG-54	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
Spectrum Analyzer	R&S	FSP30	101352	9KHz-30GHz	Nov. 03, 2010	Nov. 02, 2011	Radiation (03CH05-HY)
COM-POWER	Double Ridge Horn	AH-118	701030	1HGz~18GHz	N/A	N/A	Radiation (03CH05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2725	30MHz ~ 1GHz	Nov. 06, 2010	Nov. 05, 2011	Radiation (03CH05-HY)
Turn Table	HD	Deis HD 2000	420/611	0 - 360 degree	N/A	N/A	Radiation (03CH05-HY)
Antenna Mast	HD	MA 240	240/666	1 m - 4 m	N/A	N/A	Radiation (03CH05-HY)
Horn Antenna	ESCO	3117	66584	1GHz ~ 18GHz	Aug. 04, 2011	Aug. 03, 2012	Radiation (03CH05-HY)
COM-POWER	COM-POWER	PA-103	161075	1KHz - 1GHz	Mar. 29, 2011	Mar. 28, 2012	Radiation (03CH05-HY)
Pre Amplifier	EMCI	EMC051845	SN980048	1GHz~18GHz	Jul. 19, 2011	Jul. 18, 2012	Radiation (03CH05-HY)
Preamplifier	MITEQ	AMF-7D-00101800-30-10P	159087	1GHz~18GHz	Feb. 21, 2011	Feb. 20, 2012	Radiation (03CH05-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz- 26.5GHz	Apr. 14, 2011	Apr. 13, 2012	Radiation (03CH05-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 EP182445-02 as below.