



FCC RF Test Report

APPLICANT : HTC Corporation
EQUIPMENT : Smartphone
MODEL NAME : PG32120
FCC ID : NM8PG32120
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Jan. 05, 2011 and completely tested on Jan. 16, 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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**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 6.8 dB at 0.26 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 5.69 dB at 2389.99 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

HTC Corporation

1F., No. 6-3, Baoqiang Rd., Xindian City, Taipei, Taiwan

1.2 Manufacturer

HTC Corporation

1F., No. 6-3, Baoqiang Rd., Xindian City, Taipei, Taiwan

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Smartphone
Model Name	PG32120
FCC ID	NM8PG32120
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 : 21.01 dBm (0.13 W) 802.11g : 21.42 dBm (0.14 W) 802.11n (BW 20MHz) : 21.24 dBm (0.13 W)
Antenna Type	PIFA Antenna with gain 0 dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

Remark:

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

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH06-HY	722060/4086B-1

1.5 Applied Standards

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

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

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (DoC), recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A

2 Test Configuration of Equipment Under Test

2.1 RF Power

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

Channel	Frequency	2.4GHz 802.11b RF Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	20.53	-	-	20.87
CH 06	2437 MHz	20.40	-	-	20.77
CH 11	2462 MHz	20.81	20.99	20.97	21.01

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	21.19	-	-	-	-	-	-	-
CH 06	2437 MHz	21.40	-	-	-	-	-	-	-
CH 11	2462 MHz	21.42	21.16	20.88	20.76	20.43	20.58	20.73	20.86

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)							
		OFDM Data Rate							
		M0	M1	M2	M3	M4	M5	M6	M7
CH 01	2412 MHz	21.21	-	-	-	-	-	-	-
CH 06	2437 MHz	21.20	-	-	-	-	-	-	-
CH 11	2462 MHz	21.24	20.99	20.65	20.91	20.43	20.26	20.7	20.77

Remark:

1. The data rates of WLAN 802.11b/g/n were set in 11Mbps for 802.11b, 6Mbps for 802.11g, 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.

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).

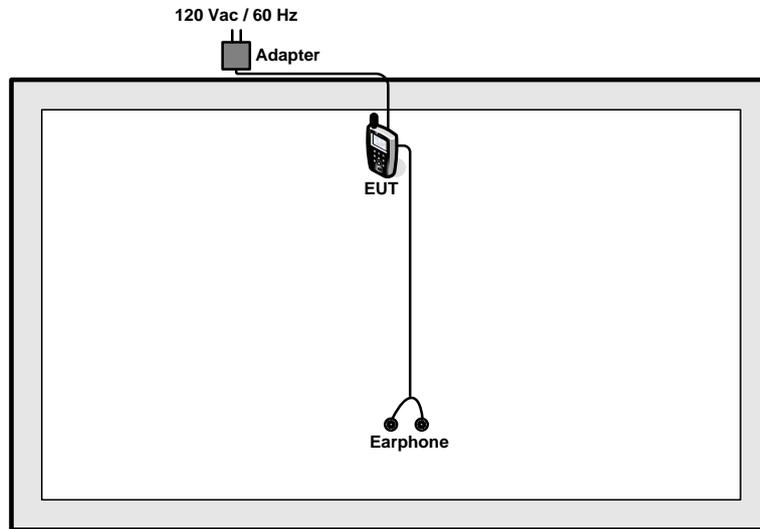
Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

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

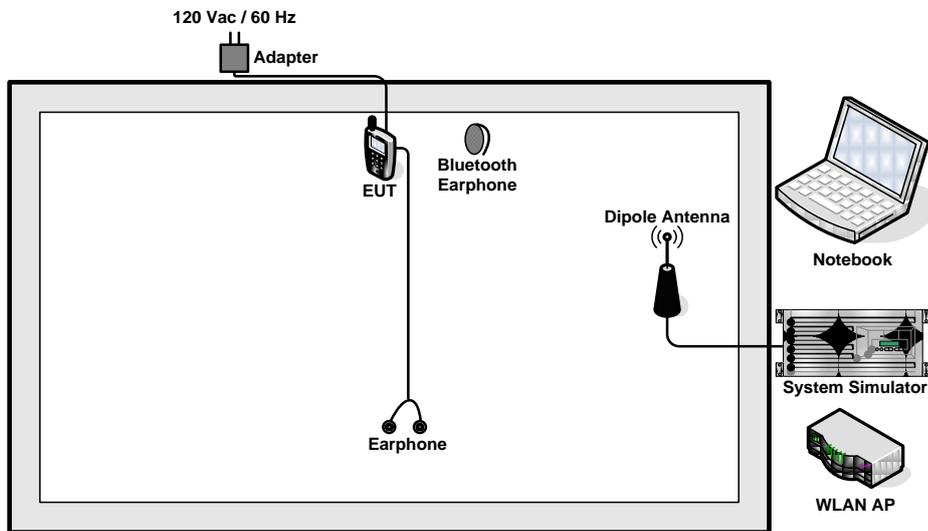
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 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
AC Conducted Emission	Mode 1 : GSM1900 Idle + Bluetooth Link + WLAN Link + Camera + Earphone 2 + Battery 2 + USB Cable 2 (Charging from Adapter 2)	
Remark: The test of radiation was performed with earphone 3, battery 2, and USB Cable 3 (Charging from Adapter 2).		

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<Conducted Emission Mode>



2.4 RF Utility

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

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

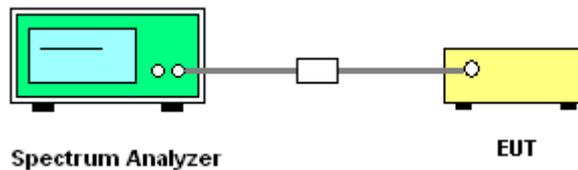
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

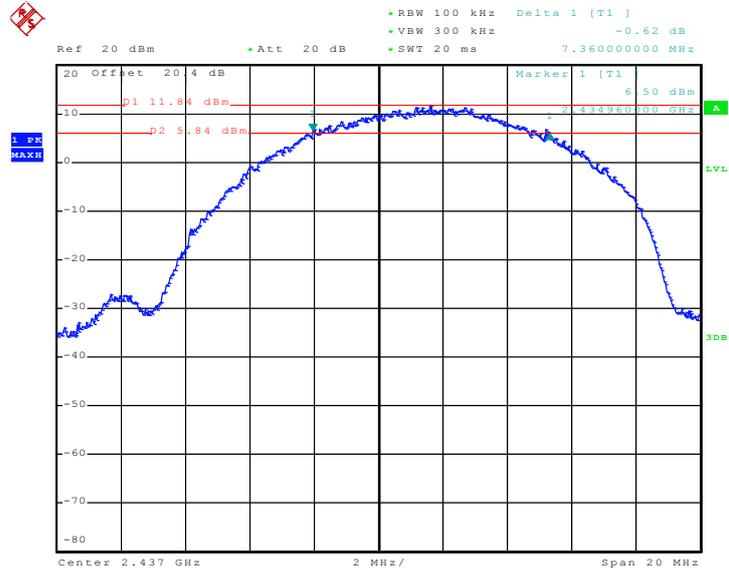
1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz.
In order to make an accurate measurement, 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



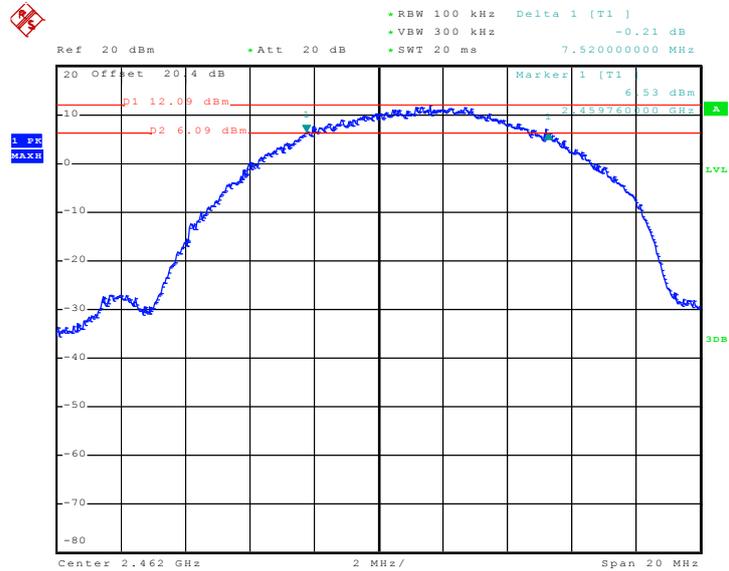


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



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



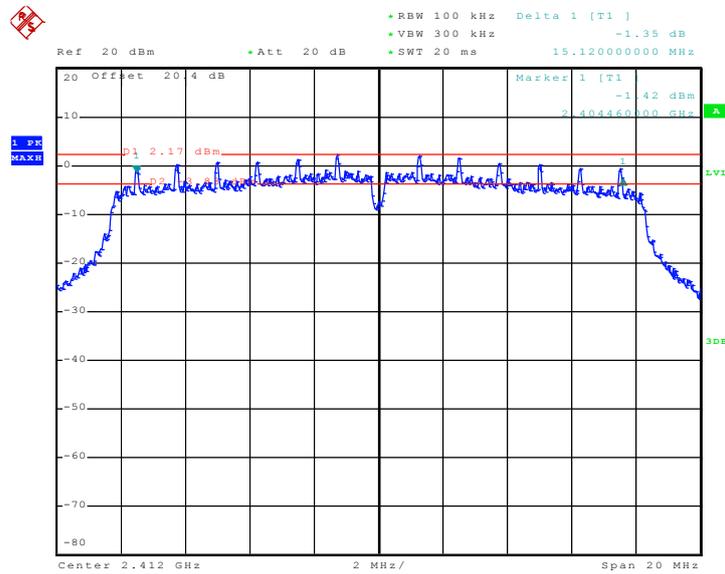
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Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Phoenix Chen	Relative Humidity :	47~51%

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

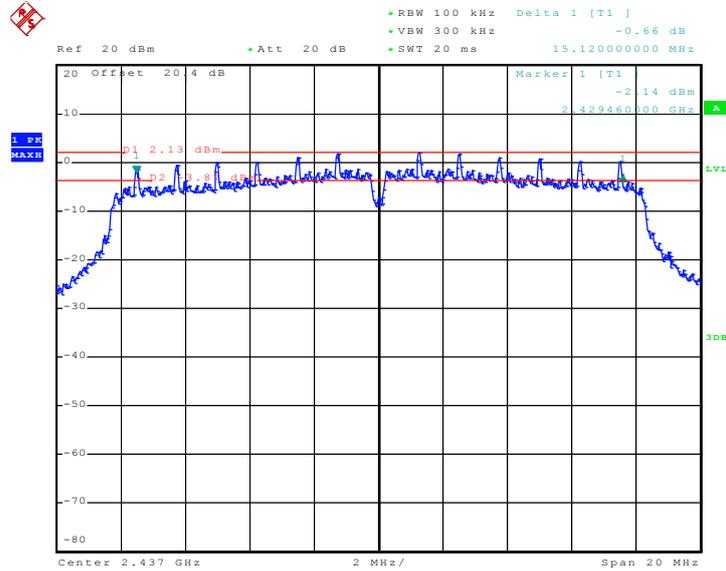
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



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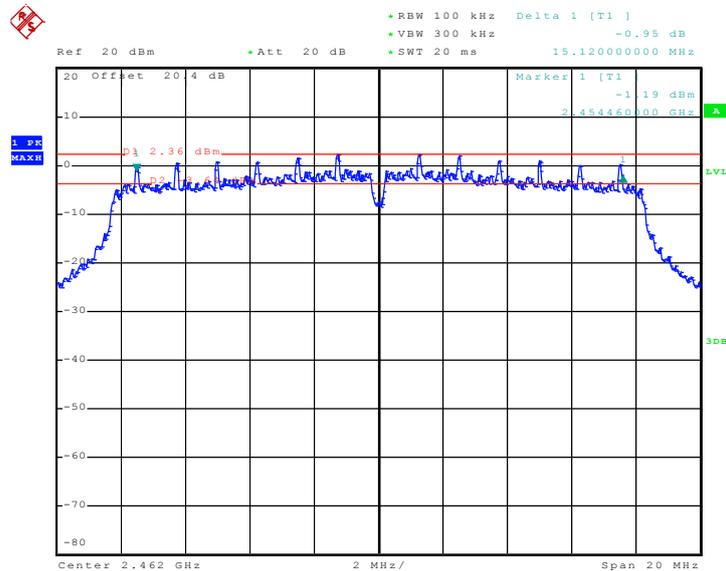


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



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



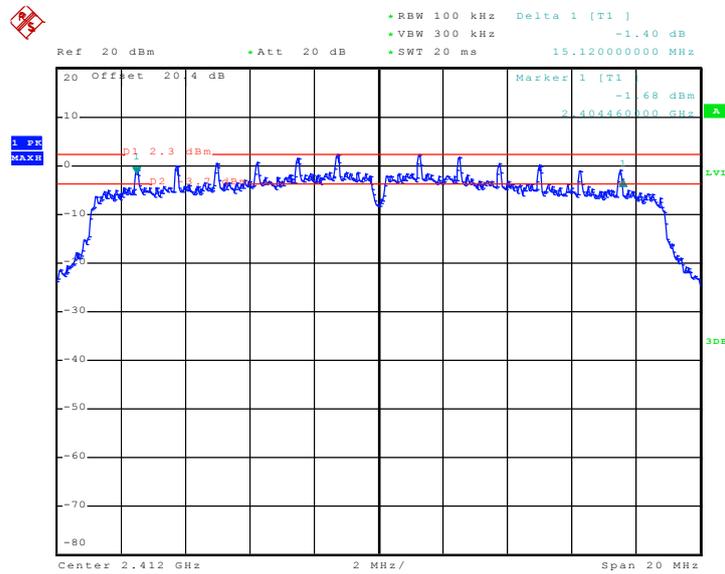
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Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Phoenix Chen	Relative Humidity :	47~51%

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

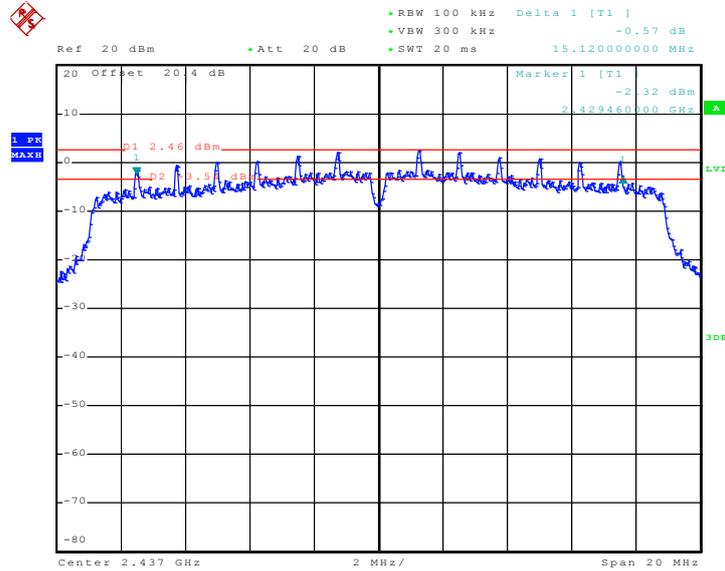
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



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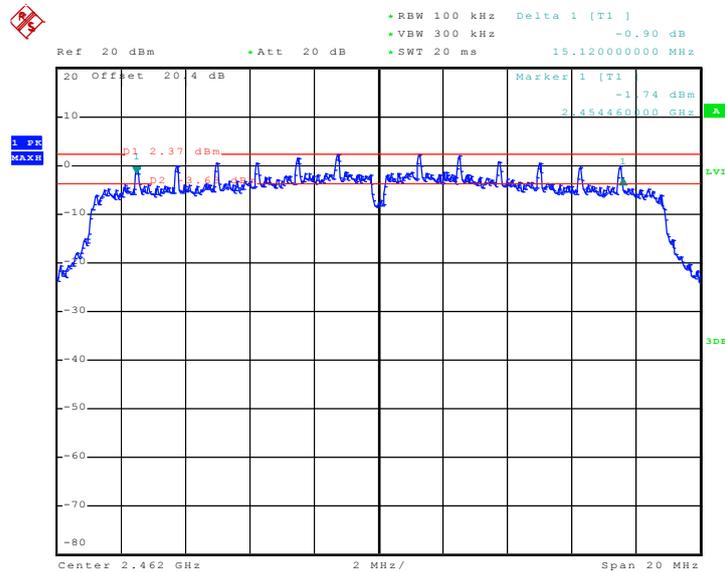


Mode 8 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



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



Date: 10.JAN.2011 14:16:00

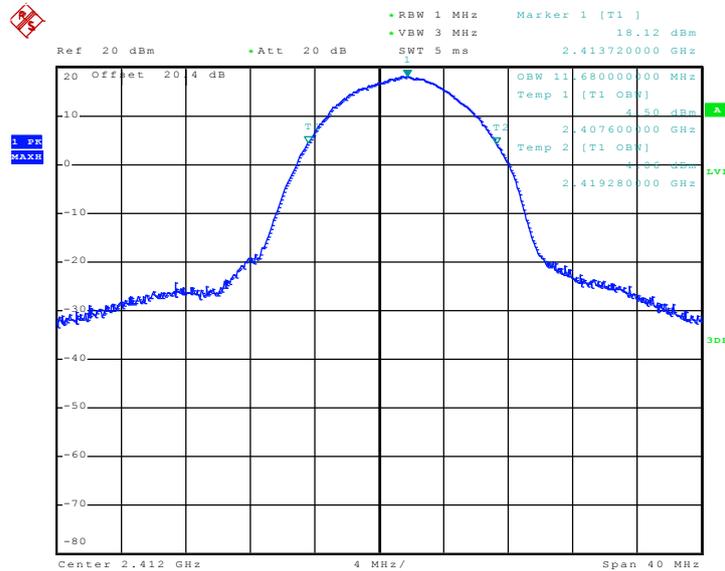


3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26°C
Test Engineer :	Phoenix Chen	Relative Humidity :	47~51%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	11.68	Pass
06	2437	11.64	Pass
11	2462	11.76	Pass

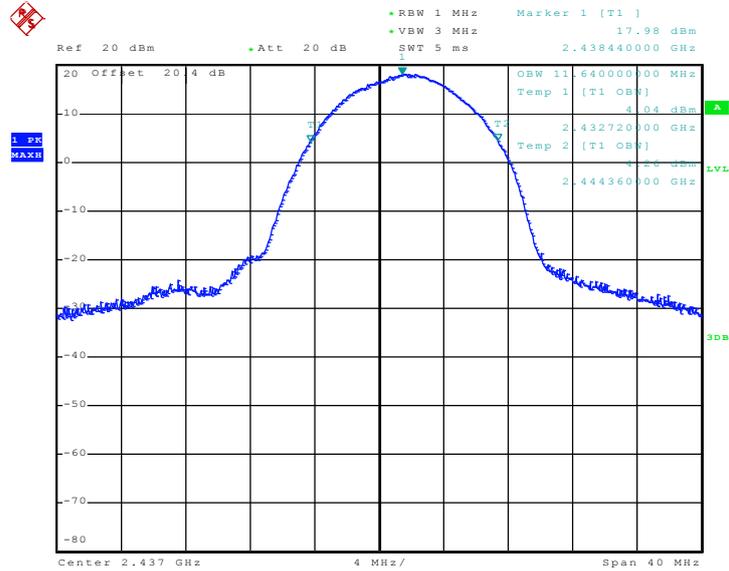
Mode 1 : 99% Occupied Bandwidth Plot on 802.11b Channel 01



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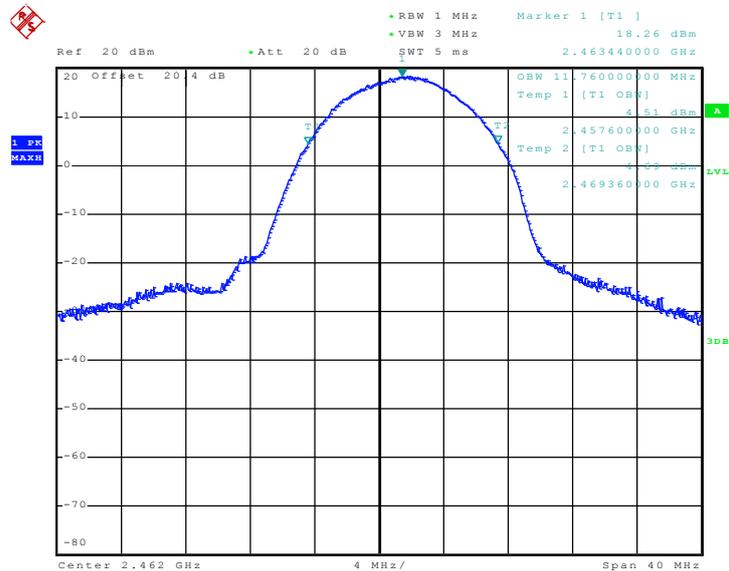


Mode 2 : 99% Occupied Bandwidth Plot on 802.11b Channel 06



Date: 10.JAN.2011 11:08:36

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



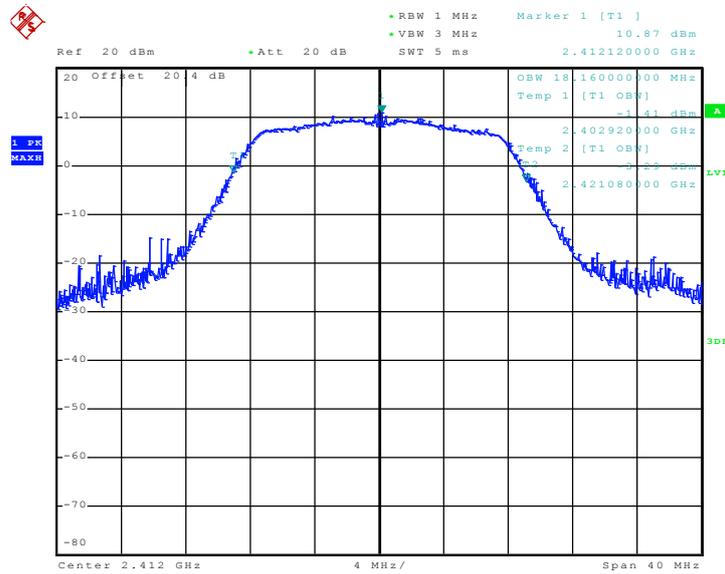
Date: 10.JAN.2011 11:24:11



Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Phoenix Chen	Relative Humidity :	47~51%

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	18.16	Pass
06	2437	18.24	Pass
11	2462	18.36	Pass

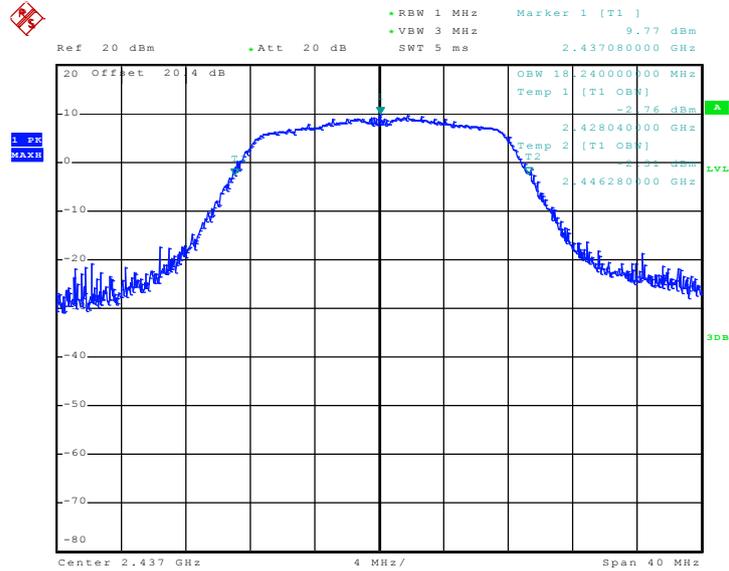
Mode 4 : 99% Occupied Bandwidth Plot on 802.11g Channel 01



Date: 10.JAN.2011 13:33:32

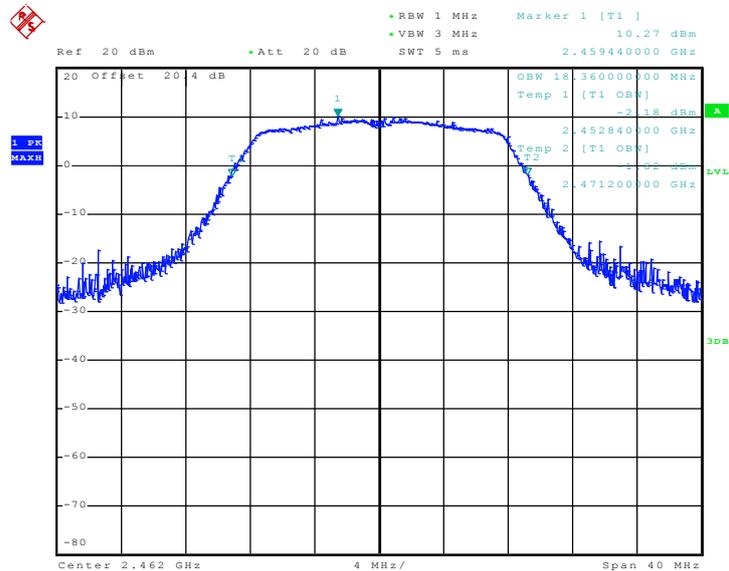


Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06



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



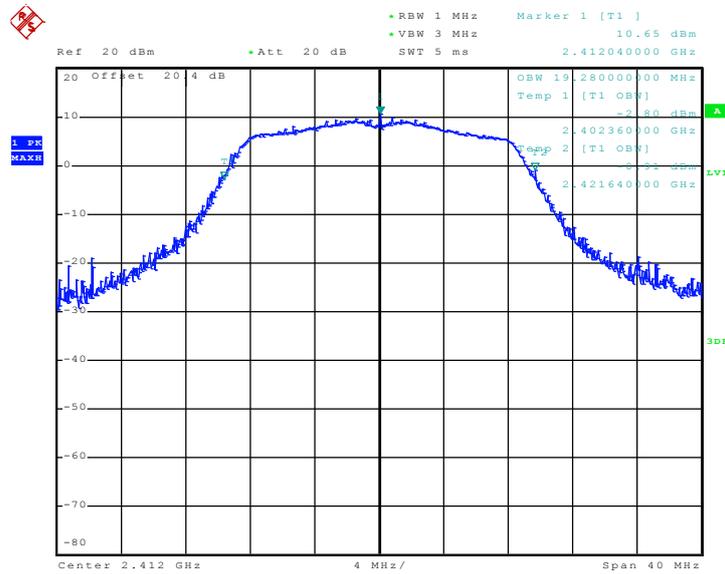
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Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Phoenix Chen	Relative Humidity :	47~51%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	19.28	Pass
06	2437	19.32	Pass
11	2462	19.48	Pass

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



Date: 10.JAN.2011 13:50:55

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.

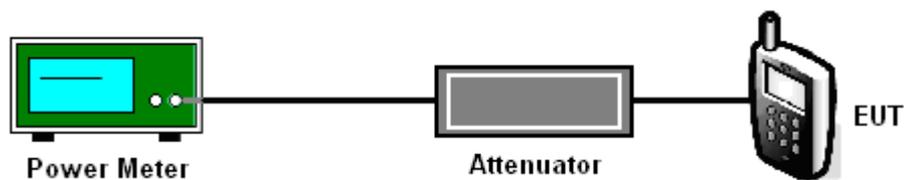
3.2.2 Measuring Instruments

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°C
Test Engineer :	Phoenix Chen	Relative Humidity :	47~51%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.87	30	Pass
06	2437	20.77	30	Pass
11	2462	21.01	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Phoenix Chen	Relative Humidity :	47~51%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.19	30	Pass
06	2437	21.40	30	Pass
11	2462	21.42	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Phoenix Chen	Relative Humidity :	47~51%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.21	30	Pass
06	2437	21.20	30	Pass
11	2462	21.24	30	Pass



3.3 Band Edges Measurement

3.3.1 Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB.

3.3.2 Measuring Instruments

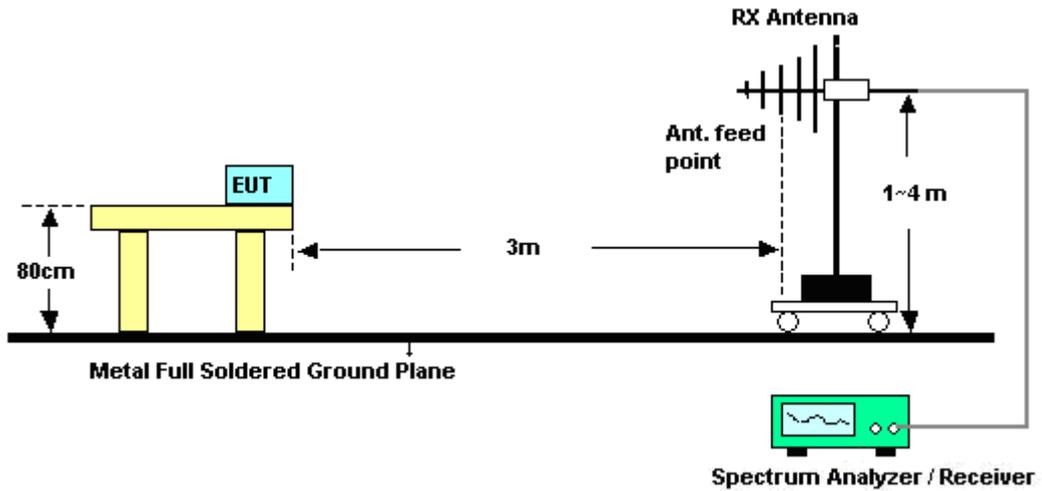
See list of measuring instruments of this test report.

3.3.3 Test Procedures

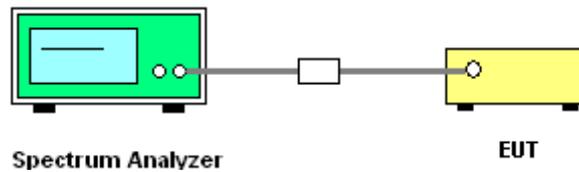
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) \geq RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the device complies with the use of power option 2 the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Apply to band edge emissions that fall in the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurements above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation as in FCC Section 15.35(b) and (c).

3.3.4 Test Setup

<Radiated Band Edges>



<Conducted Band Edges>





3.3.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	22~23°C
Test Band :	802.11b	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Kai Wang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388.85	59.26	-14.74	74	57.25	32.48	3.92	34.39	103	48	Peak
2388.85	46.17	-7.83	54	44.16	32.48	3.92	34.39	103	48	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	58.8	-15.2	74	56.79	32.48	3.92	34.39	100	27	Peak
2389.99	44.66	-9.34	54	42.65	32.48	3.92	34.39	100	27	Average

Test Mode :	Mode 3	Temperature :	22~23°C
Test Band :	802.11b	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Kai Wang

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	57.17	-16.83	74	54.91	32.58	4.05	34.37	104	50	Peak
2483.5	44.52	-9.48	54	42.26	32.58	4.05	34.37	104	50	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	55.47	-18.53	74	53.21	32.58	4.05	34.37	116	11	Peak
2483.85	43.11	-10.89	54	40.85	32.58	4.05	34.37	116	11	Average



Test Mode :	Mode 4	Temperature :	22~23°C
Test Band :	802.11g	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Kai Wang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	68.31	-5.69	74	66.3	32.48	3.92	34.39	107	55	Peak
2389.99	46.88	-7.12	54	44.87	32.48	3.92	34.39	107	55	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	64.39	-9.61	74	62.38	32.48	3.92	34.39	144	20	Peak
2389.61	42.84	-11.16	54	40.83	32.48	3.92	34.39	144	20	Average

Test Mode :	Mode 6	Temperature :	22~23°C
Test Band :	802.11g	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Kai Wang

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	63.48	-10.52	74	61.22	32.58	4.05	34.37	102	60	Peak
2483.5	42.48	-11.52	54	40.22	32.58	4.05	34.37	102	60	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	52.84	-21.16	74	50.58	32.58	4.05	34.37	109	103	Peak
2483.85	35.41	-18.59	54	33.15	32.58	4.05	34.37	109	103	Average



Test Mode :	Mode 7	Temperature :	22~23°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Kai Wang

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	65.7	-8.3	74	63.69	32.48	3.92	34.39	108	47	Peak
2389.99	45.59	-8.41	54	43.58	32.48	3.92	34.39	108	47	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	65	-9	74	62.99	32.48	3.92	34.39	146	11	Peak
2389.61	43.85	-10.15	54	41.84	32.48	3.92	34.39	146	11	Average

Test Mode :	Mode 9	Temperature :	22~23°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Kai Wang

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
2484.42	58.54	-15.46	74	56.28	32.58	4.05	34.37	161	60	Peak
2484.42	39.6	-14.4	54	37.34	32.58	4.05	34.37	161	60	Average

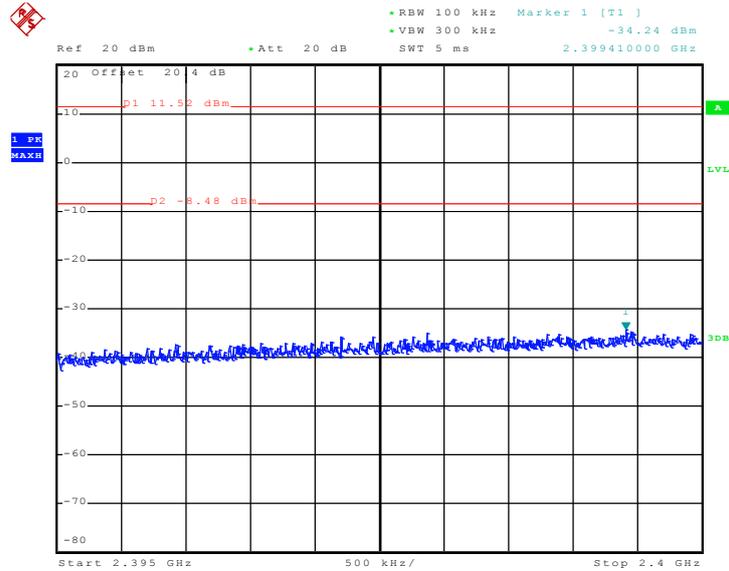
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2485.37	56.7	-17.3	74	54.44	32.58	4.05	34.37	116	9	Peak
2485.37	38.94	-15.06	54	36.68	32.58	4.05	34.37	116	9	Average



3.3.6 Test Plots of Conducted Band Edges

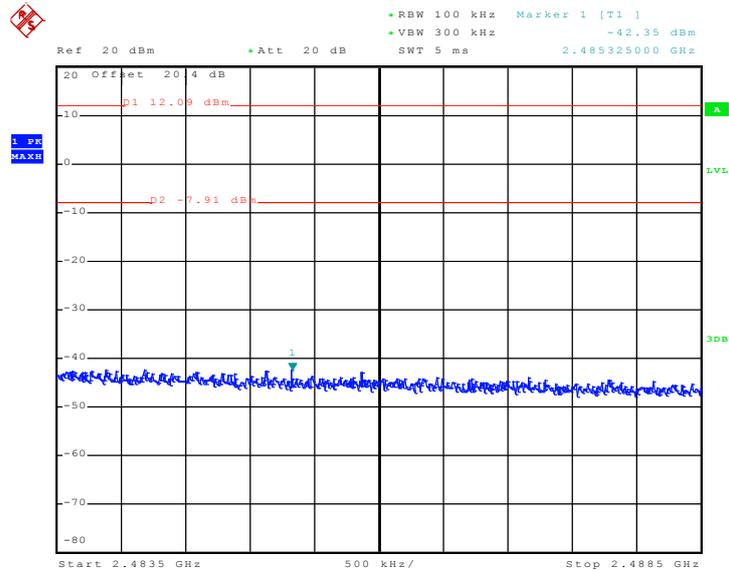
Test Mode :	Mode 1 and 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	47~51%
Test Channel :	01 and 11	Test Engineer :	Phoenix Chen

Low Band Edge Plot on 802.11b Channel 01



Date: 10.JAN.2011 10:53:50

High Band Edge Plot on 802.11b Channel 11

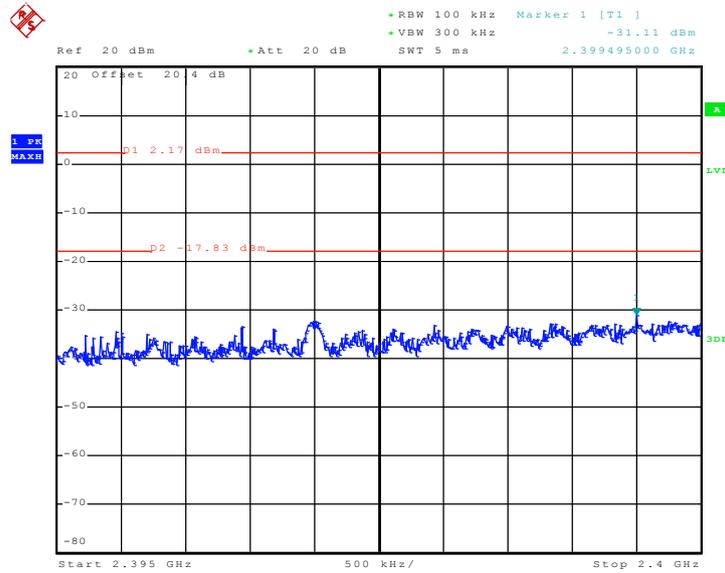


Date: 10.JAN.2011 11:23:44



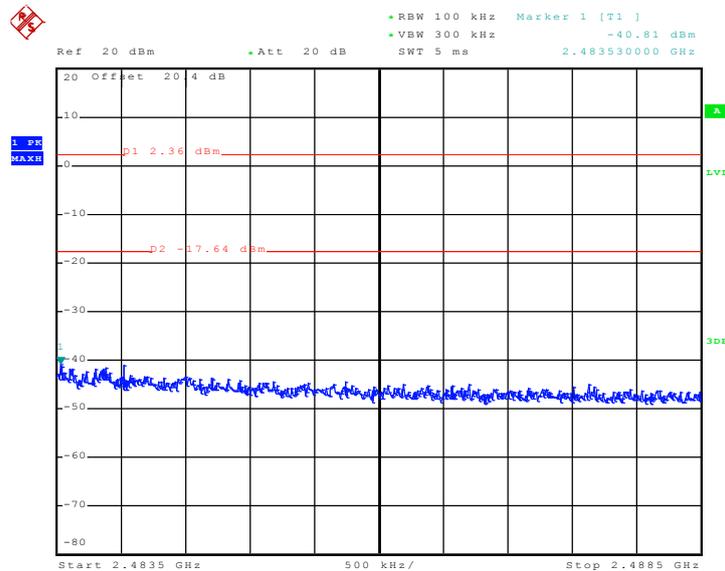
Test Mode :	Mode 4 and 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	47~51%
Test Channel :	01 and 11	Test Engineer :	Phoenix Chen

Low Band Edge Plot on 802.11g Channel 01



Date: 10.JAN.2011 13:33:06

High Band Edge Plot on 802.11g Channel 11

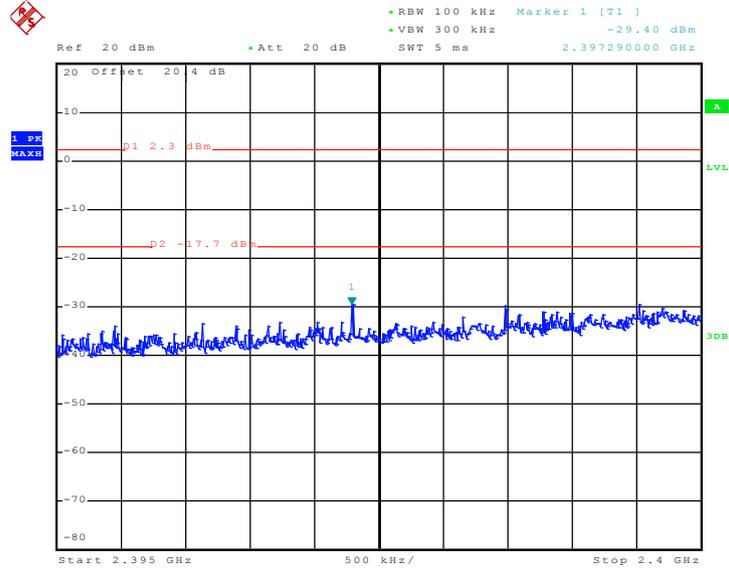


Date: 10.JAN.2011 11:40:31



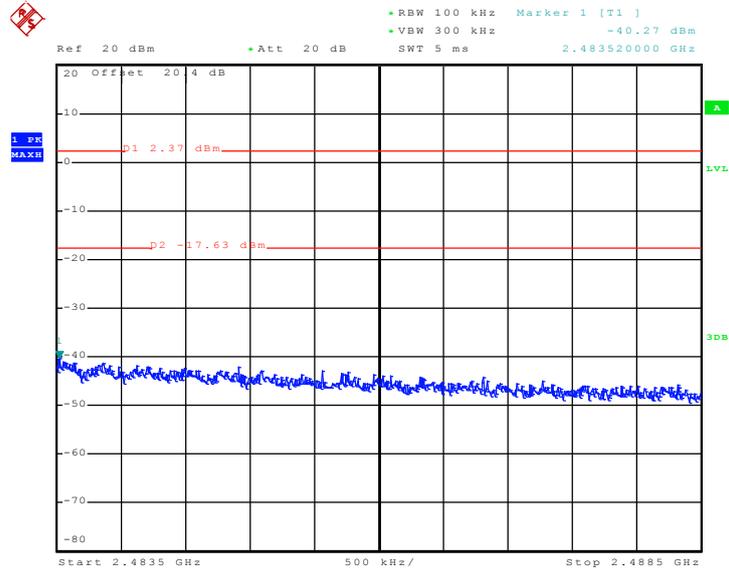
Test Mode :	Mode 7 and 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~51%
Test Channel :	01 and 11	Test Engineer :	Phoenix Chen

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



Date: 10.JAN.2011 13:50:28

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



Date: 10.JAN.2011 14:16:48

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

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

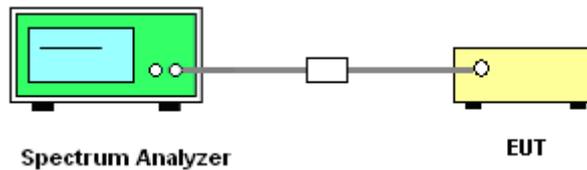
3.4.2 Measuring Instruments

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

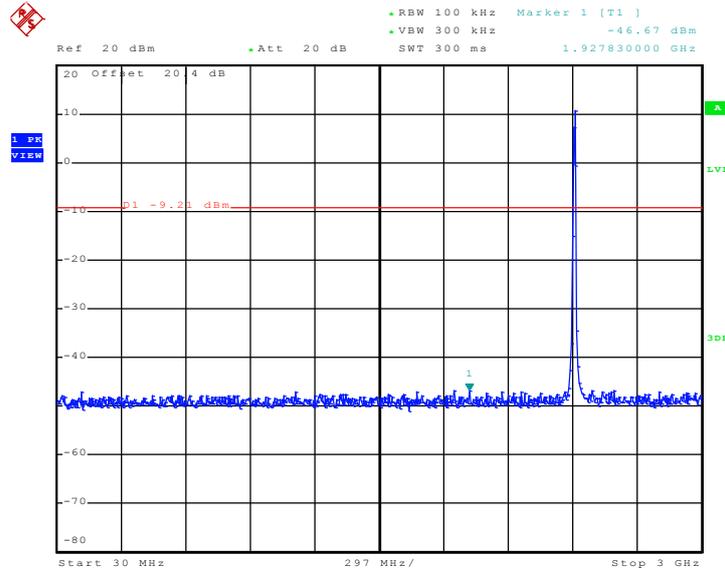




3.4.5 Test Plots of Spurious Emission

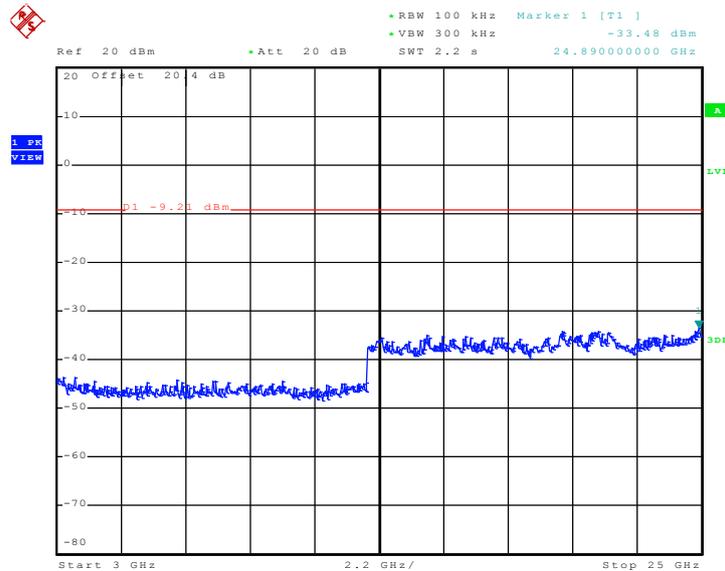
Test Mode :	Mode 1	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	47~51%
Test Channel :	01	Test Engineer :	Phoenix Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 10.JAN.2011 11:03:15

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

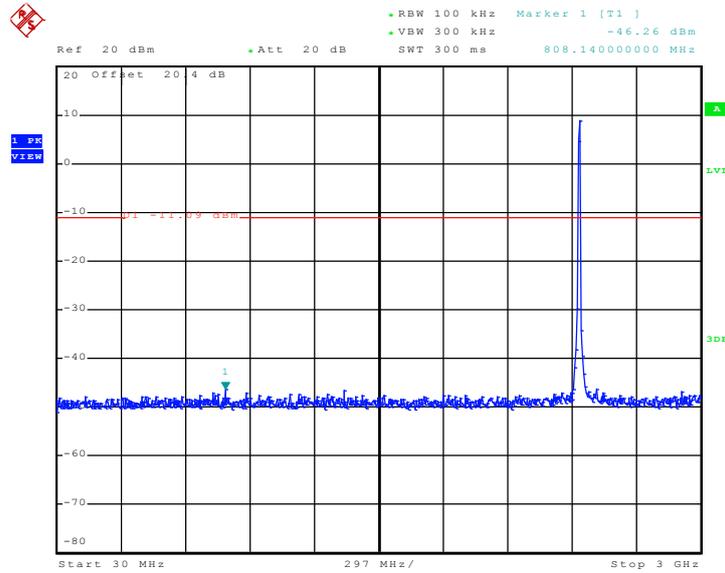


Date: 10.JAN.2011 11:03:32



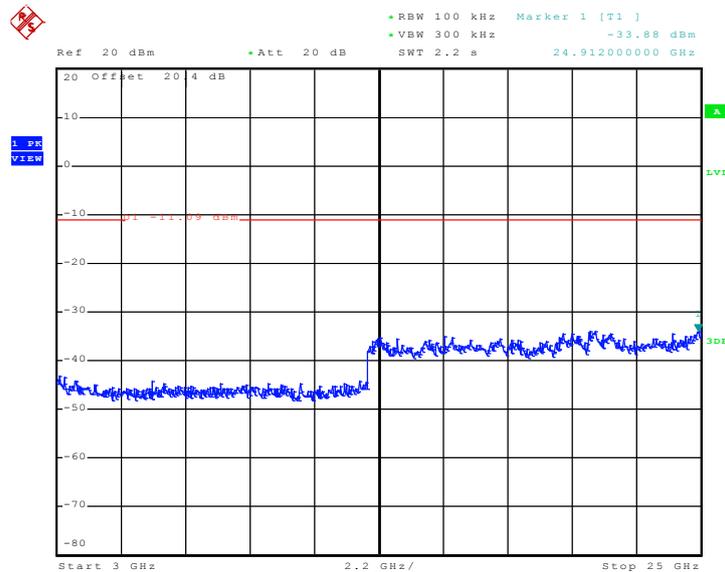
Test Mode :	Mode 2	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	47~51%
Test Channel :	06	Test Engineer :	Phoenix Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 10.JAN.2011 11:18:35

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

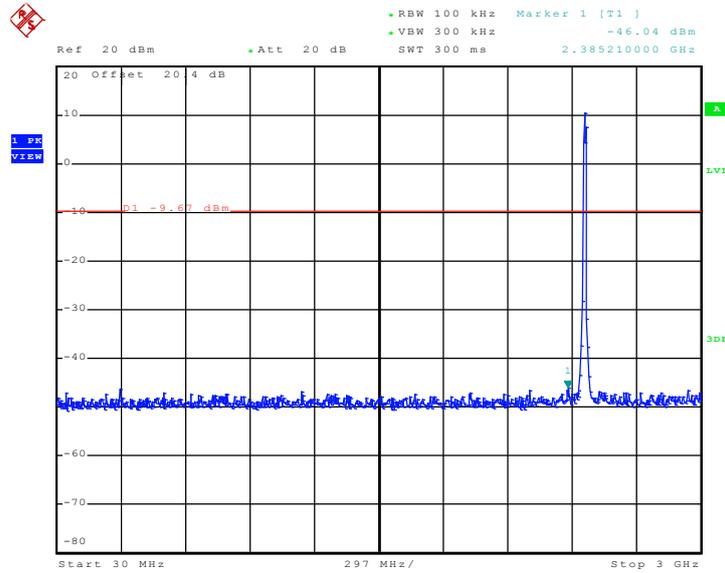


Date: 10.JAN.2011 11:18:53



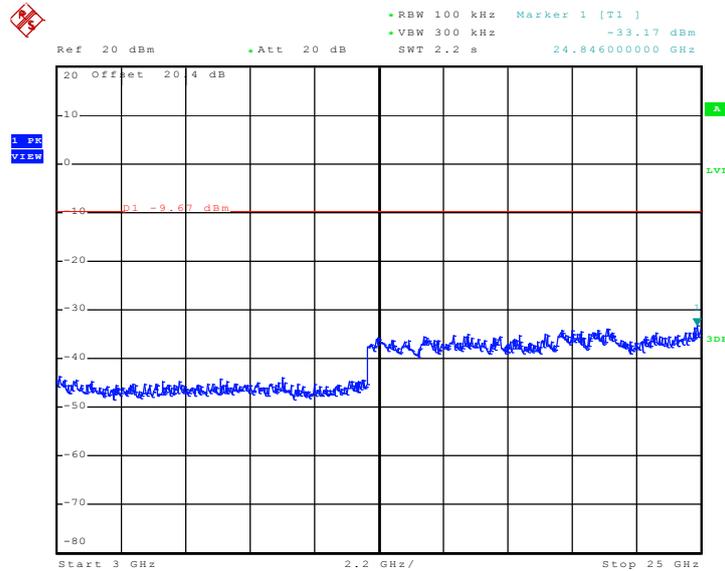
Test Mode :	Mode 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	47~51%
Test Channel :	11	Test Engineer :	Phoenix Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 10.JAN.2011 11:33:39

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

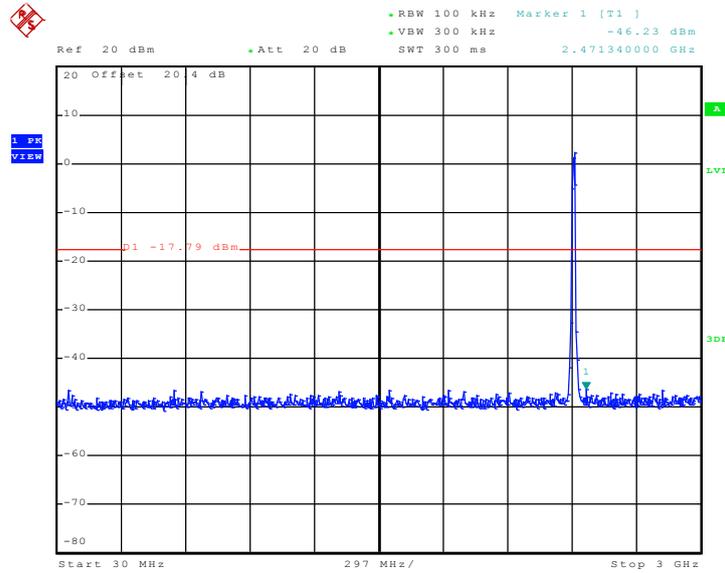


Date: 10.JAN.2011 11:33:57



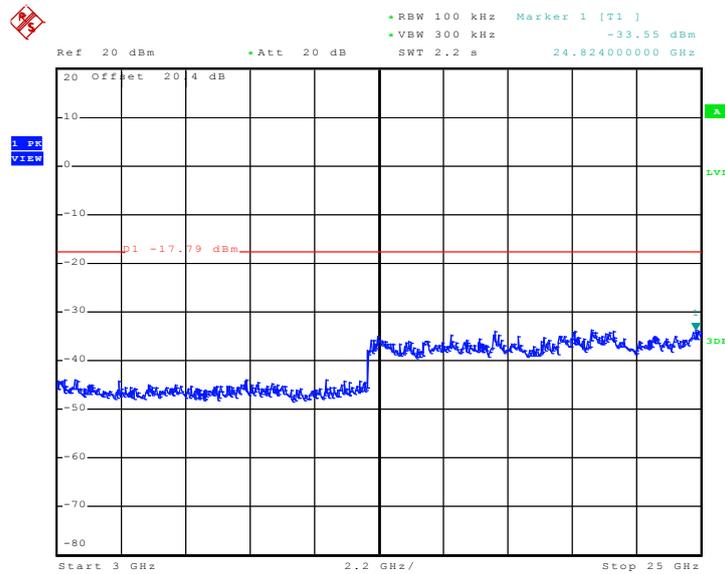
Test Mode :	Mode 4	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	47~51%
Test Channel :	01	Test Engineer :	Phoenix Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 10.JAN.2011 13:44:03

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

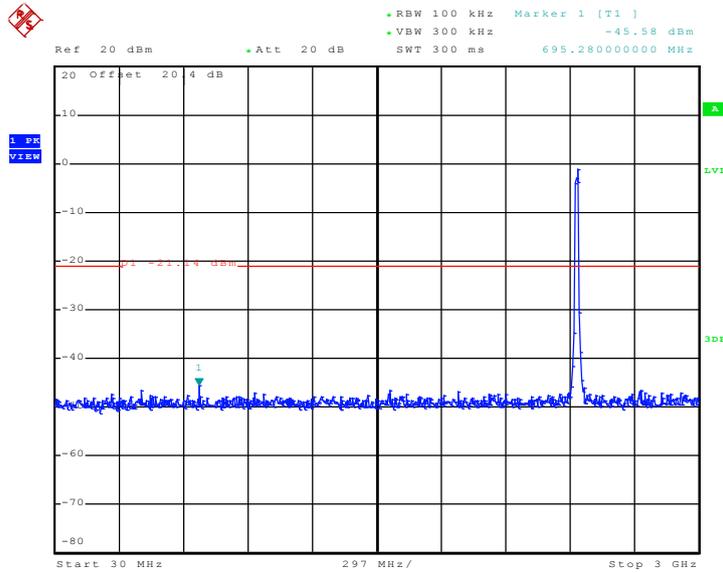


Date: 10.JAN.2011 13:44:21



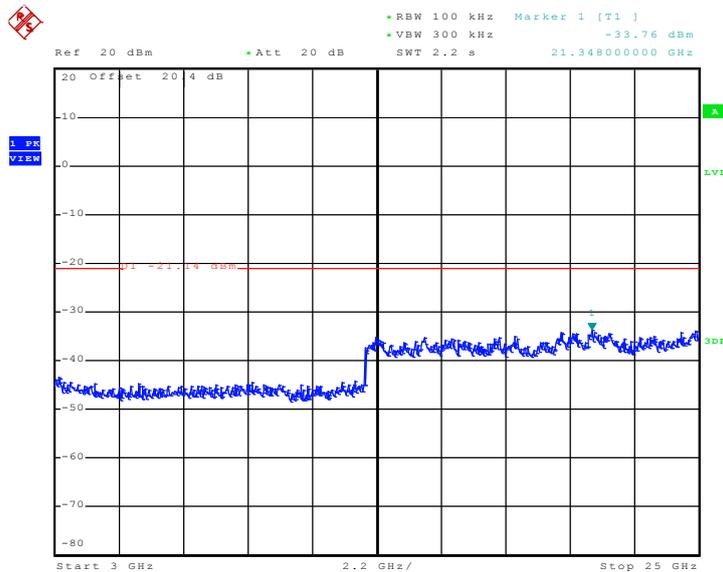
Test Mode :	Mode 5	Temperature :	24~26
Test Band :	802.11g	Relative Humidity :	47~51
Test Channel :	06	Test Engineer :	Phoenix Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 10.JAN.2011 14:29:53

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

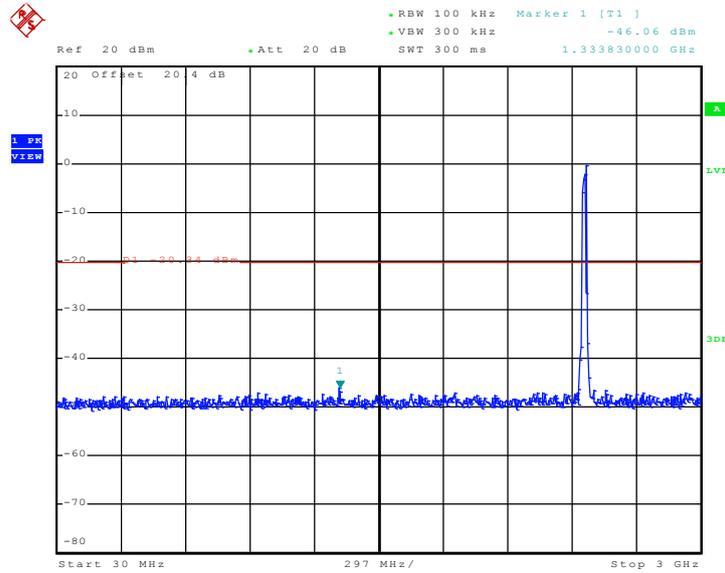


Date: 10.JAN.2011 14:30:10



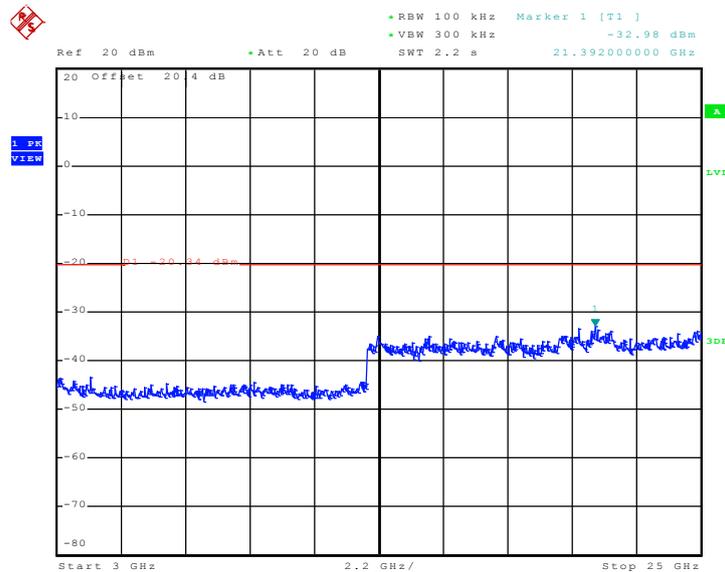
Test Mode :	Mode 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	47~51%
Test Channel :	11	Test Engineer :	Phoenix Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 10.JAN.2011 11:51:41

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

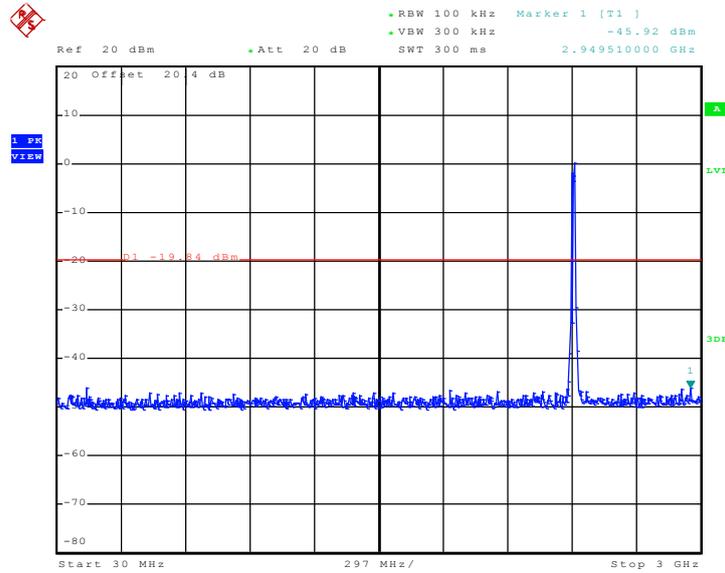


Date: 10.JAN.2011 11:51:59



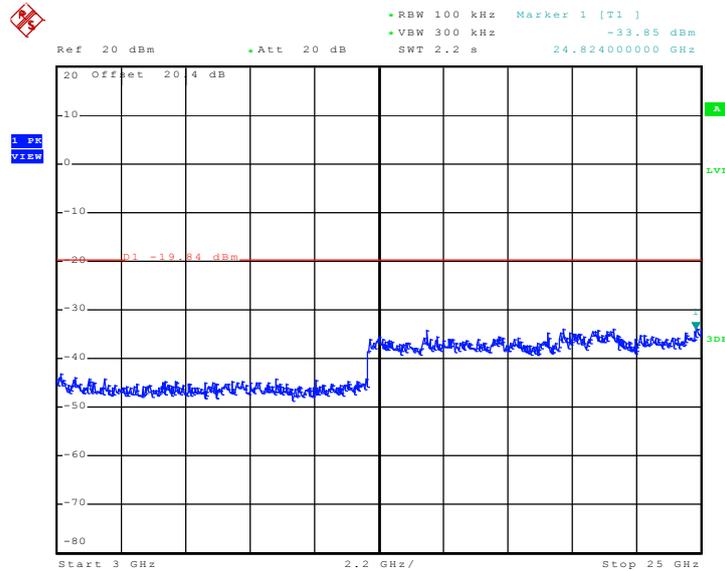
Test Mode :	Mode 7	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~51%
Test Channel :	01	Test Engineer :	Phoenix Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 10.JAN.2011 14:01:03

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

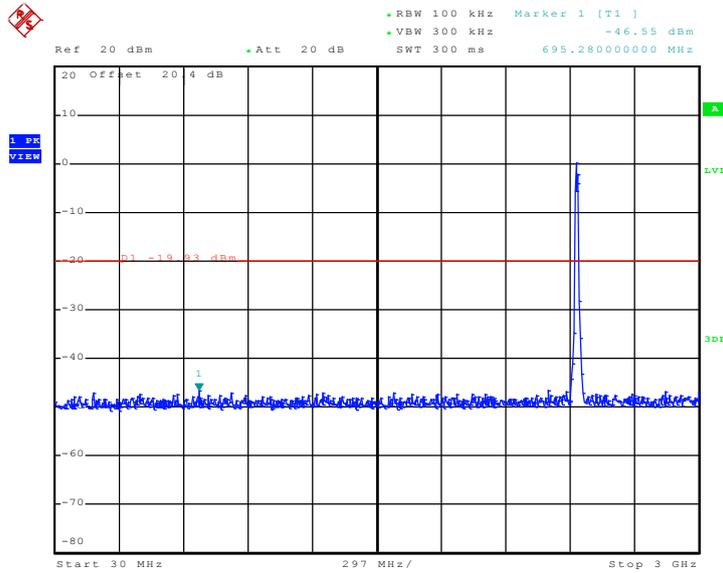


Date: 10.JAN.2011 14:01:20



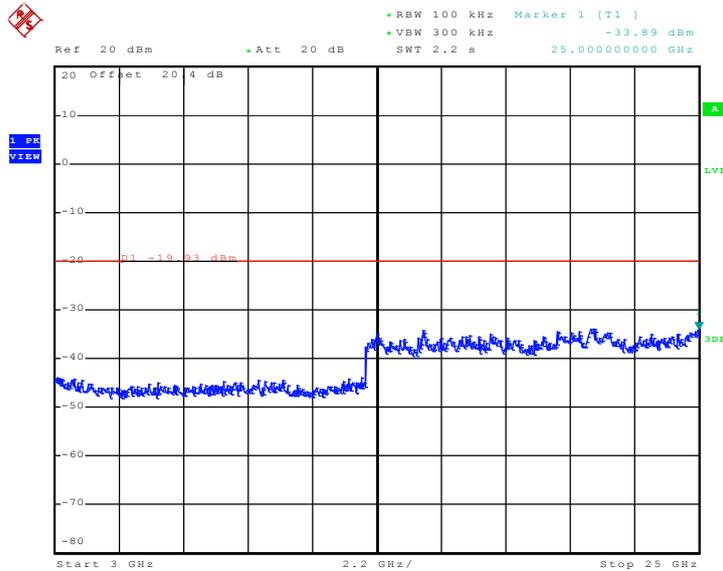
Test Mode :	Mode 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~51%
Test Channel :	11	Test Engineer :	Phoenix Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 10.JAN.2011 14:28:38

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 10.JAN.2011 14:28:56

3.5 Power Spectral Density Measurement

3.5.1 Limit of Power Spectral Density

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

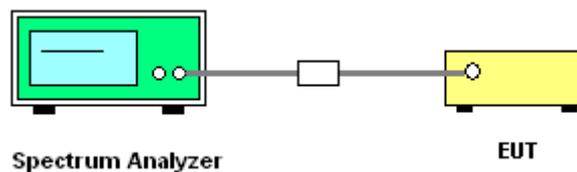
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

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

3.5.4 Test Setup



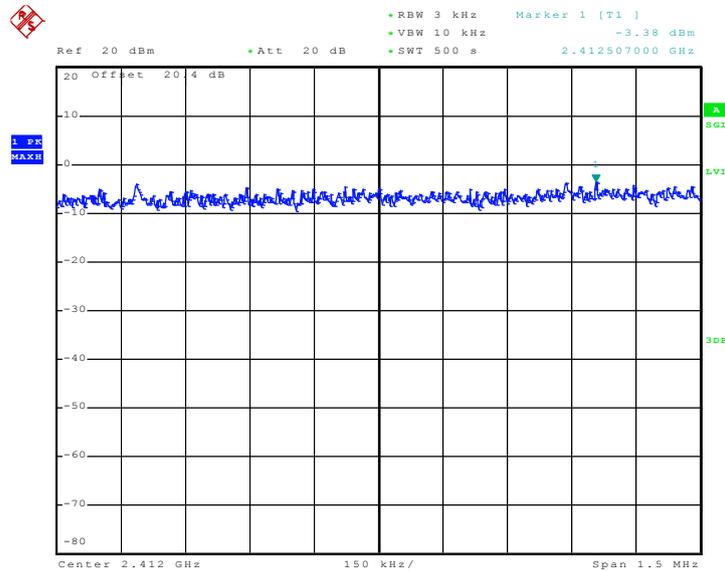


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	24~26°C
Test Engineer :	Phoenix Chen	Relative Humidity :	47~51%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-3.38	8	Pass
06	2437	-3.88	8	Pass
11	2462	-3.44	8	Pass

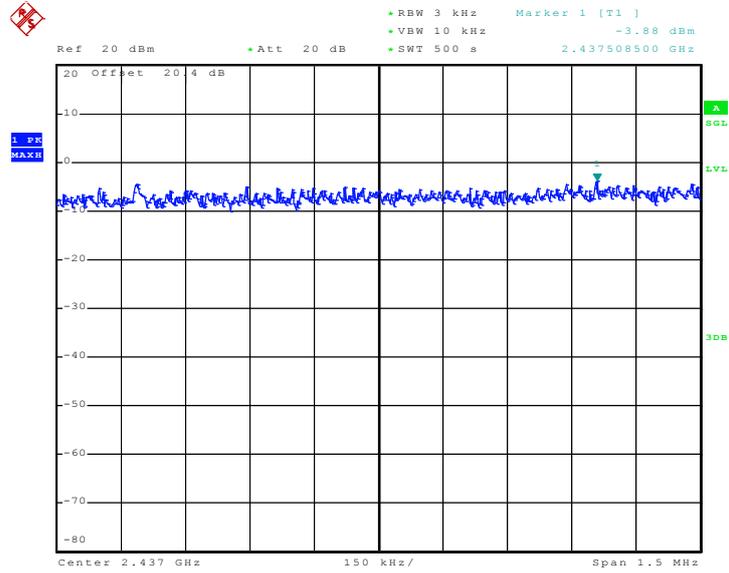
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 10.JAN.2011 11:02:53

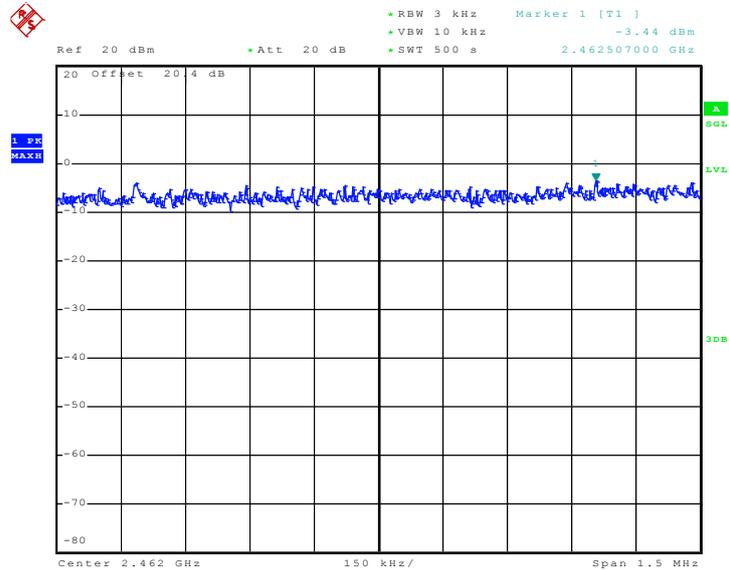


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 10.JAN.2011 11:18:14

Mode 3 : PSD Plot on 802.11b Channel 11



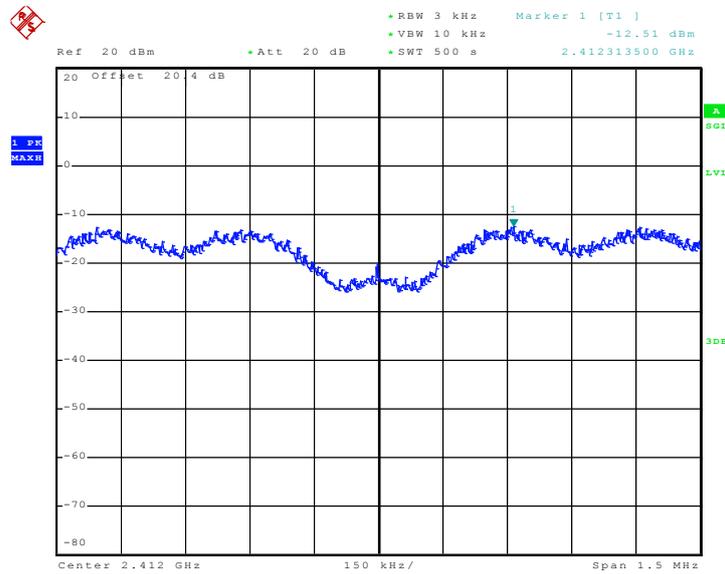
Date: 10.JAN.2011 11:33:18



Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Phoenix Chen	Relative Humidity :	47~51%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-12.51	8	Pass
06	2437	-12.90	8	Pass
11	2462	-12.27	8	Pass

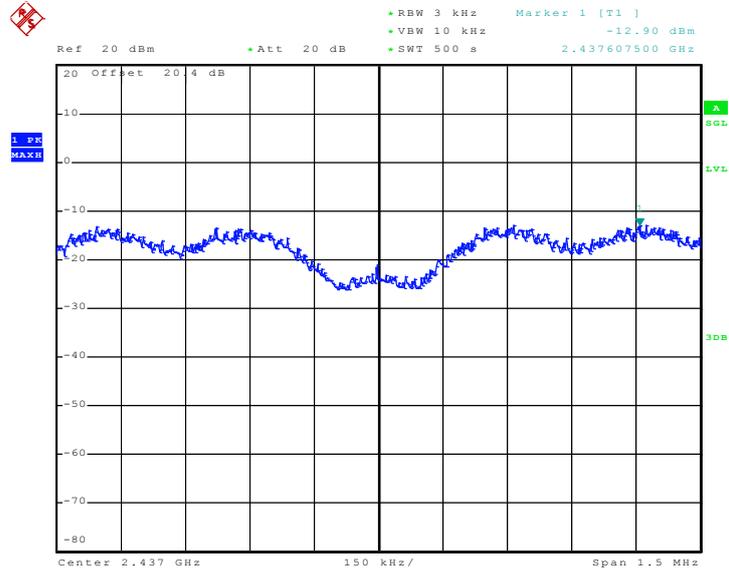
Mode 4 : PSD Plot on 802.11g Channel 01



Date: 10.JAN.2011 13:43:42

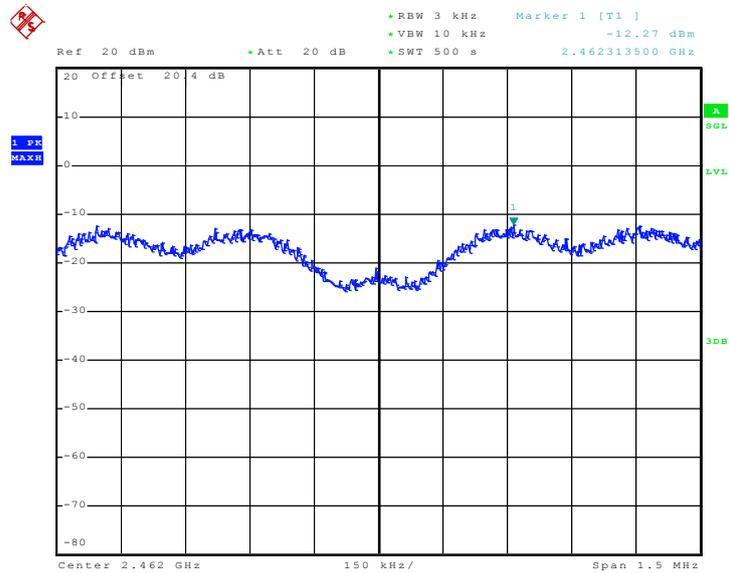


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 10.JAN.2011 12:30:04

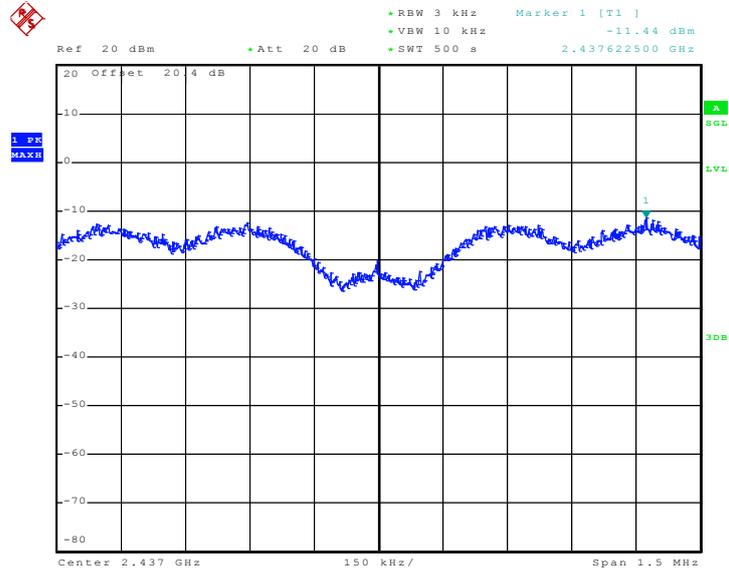
Mode 6 : PSD Plot on 802.11g Channel 11



Date: 10.JAN.2011 11:51:19

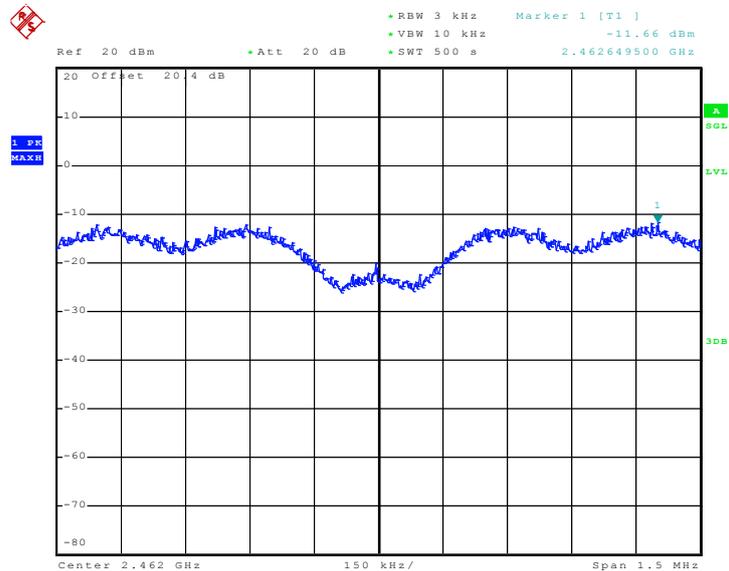


Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06



Date: 10.JAN.2011 14:12:45

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



Date: 10.JAN.2011 14:25:54

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.

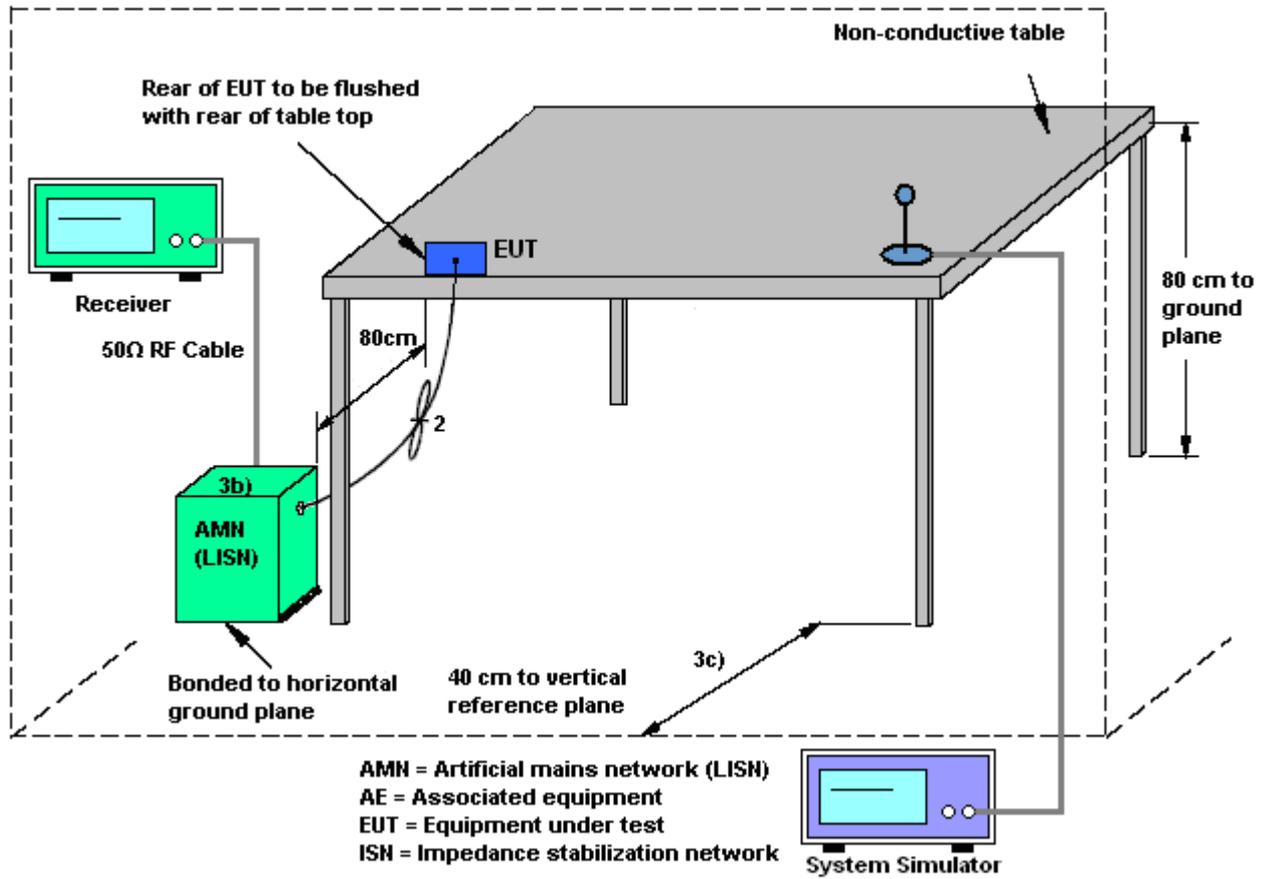
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

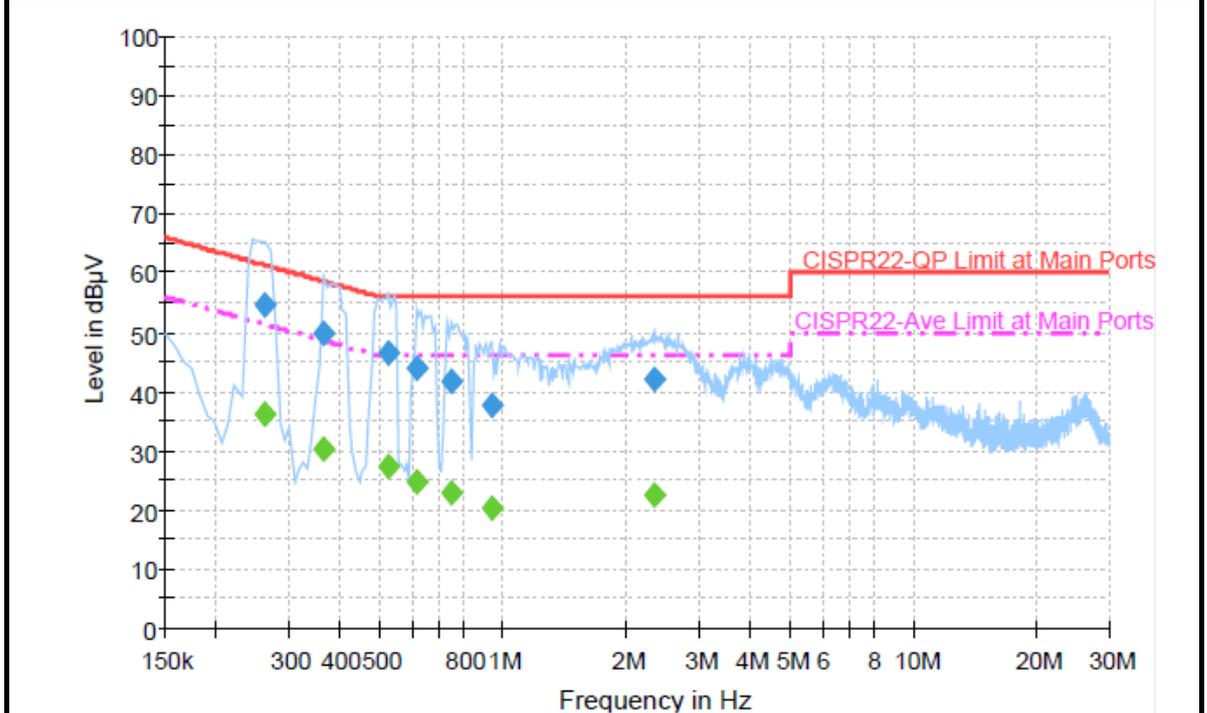
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM1900 Idle + Bluetooth Link + WLAN Link + Camera + Earphone 2 + Battery 2 + USB Cable 2 (Charging from Adapter 2)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

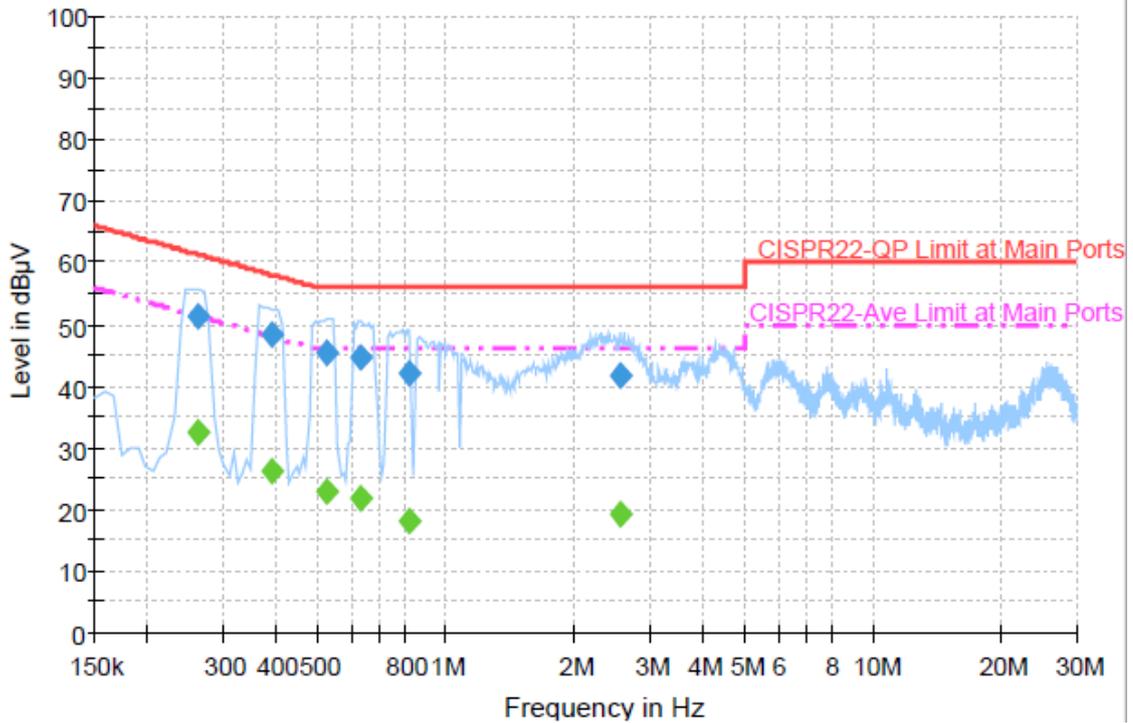
Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.262000	54.6	Off	L1	19.3	6.8	61.4
0.366000	49.8	Off	L1	19.3	8.8	58.6
0.526000	46.5	Off	L1	19.3	9.5	56.0
0.614000	43.9	Off	L1	19.3	12.1	56.0
0.750000	41.6	Off	L1	19.4	14.4	56.0
0.934000	37.6	Off	L1	19.4	18.4	56.0
2.334000	42.0	Off	L1	19.5	14.0	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.262000	36.0	Off	L1	19.3	15.4	51.4
0.366000	30.4	Off	L1	19.3	18.2	48.6
0.526000	27.3	Off	L1	19.3	18.7	46.0
0.614000	24.6	Off	L1	19.3	21.4	46.0
0.750000	22.9	Off	L1	19.4	23.1	46.0
0.934000	20.1	Off	L1	19.4	25.9	46.0
2.334000	22.5	Off	L1	19.5	23.5	46.0



Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Novic Chiang	Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM1900 Idle + Bluetooth Link + WLAN Link + Camera + Earphone 2 + Battery 2 + USB Cable 2 (Charging from Adapter 2)		
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)
0.262000	51.4	Off	N	19.4	10.0	61.4
0.390000	48.3	Off	N	19.4	9.8	58.1
0.526000	45.4	Off	N	19.3	10.6	56.0
0.630000	44.8	Off	N	19.4	11.2	56.0
0.822000	42.0	Off	N	19.5	14.0	56.0
2.550000	41.8	Off	N	19.5	14.2	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.262000	32.3	Off	N	19.4	19.1	51.4
0.390000	26.4	Off	N	19.4	21.7	48.1
0.526000	22.9	Off	N	19.3	23.1	46.0
0.630000	21.8	Off	N	19.4	24.2	46.0
0.822000	17.9	Off	N	19.5	28.1	46.0
2.550000	19.2	Off	N	19.5	26.8	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

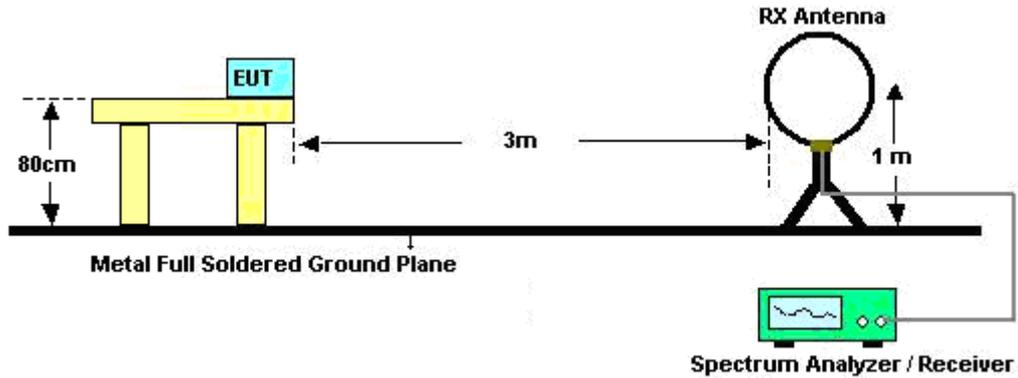
See list of measuring instruments of this test report.

3.7.3 Test Procedures

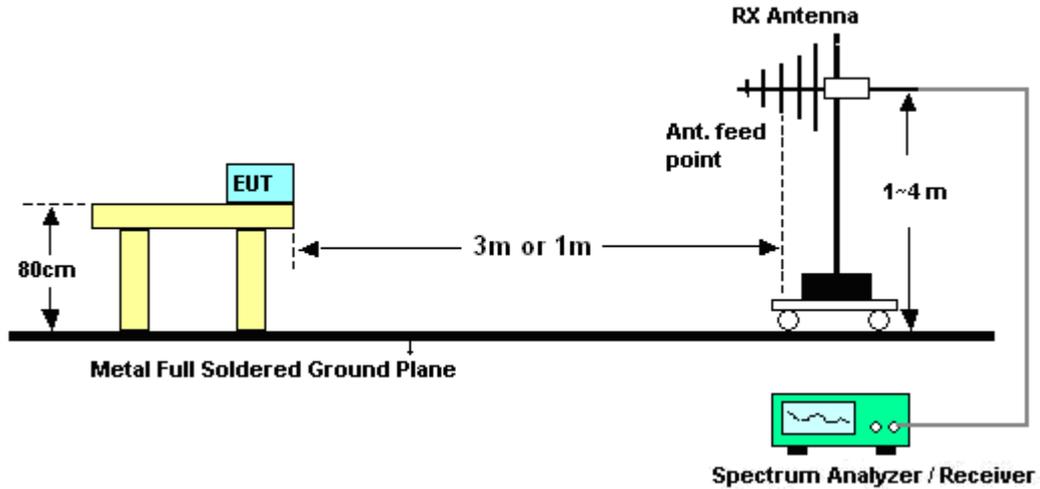
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
 - (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep = 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 above 30MHz





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

Test Engineer :	Kai Wang	Temperature :	22~23°C	
		Relative Humidity :	41~42%	
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 :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	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
60.24	23.77	-16.23	40	47.95	6.47	0.96	31.61	-	-	Peak
176.34	23.03	-20.47	43.5	43.46	9.53	1.56	31.52	-	-	Peak
259.23	35.4	-10.6	46	52.18	12.81	1.89	31.48	100	298	Peak
430.9	20.43	-25.57	46	32.99	16.4	2.47	31.43	-	-	Peak
768.3	24.19	-21.81	46	32.08	20.33	3.35	31.57	-	-	Peak
913.9	28.25	-17.75	46	33.64	21.69	3.77	30.85	-	-	Peak
2388.85	59.26	-14.74	74	57.25	32.48	3.92	34.39	103	48	Peak
2388.85	46.17	-7.83	54	44.16	32.48	3.92	34.39	103	48	Average
2412	112.96	-	-	110.9	32.5	3.95	34.39	103	48	Peak
2412	100.84	-	-	98.78	32.5	3.95	34.39	103	48	Average
2494	53.33	-20.67	74	51.05	32.6	4.05	34.37	103	48	Peak
2494	40.9	-13.1	54	38.62	32.6	4.05	34.37	103	48	Average



Test Mode :	Mode 1	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	Polarization :	Vertical
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.08	32.02	-7.98	40	45.65	17.31	0.72	31.66	-	-	Peak
41.34	33.27	-6.73	40	52.31	11.78	0.81	31.63	100	125	Peak
58.89	31.94	-8.06	40	55.96	6.63	0.95	31.6	-	-	Peak
589.8	22.65	-23.35	46	32.38	19.03	2.91	31.67	-	-	Peak
747.3	23.19	-22.81	46	31.43	20.03	3.35	31.62	-	-	Peak
913.9	27.87	-18.13	46	33.26	21.69	3.77	30.85	-	-	Peak
2389.99	58.8	-15.2	74	56.79	32.48	3.92	34.39	100	27	Peak
2389.99	44.66	-9.34	54	42.65	32.48	3.92	34.39	100	27	Average
2412	110.09	-	-	108.03	32.5	3.95	34.39	100	27	Peak
2412	97.98	-	-	95.92	32.5	3.95	34.39	100	27	Average
2492	50.55	-23.45	74	48.27	32.6	4.05	34.37	100	27	Peak
2492	38.8	-15.2	54	36.52	32.6	4.05	34.37	100	27	Average



Test Mode :	Mode 2	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	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
58.08	22.41	-17.59	40	46.27	6.79	0.94	31.59	-	-	Peak
173.64	22.58	-20.92	43.5	42.92	9.6	1.57	31.51	-	-	Peak
267.33	34.51	-11.49	46	51.08	12.95	1.92	31.44	100	116	Peak
336.4	20.58	-25.42	46	35.44	14.31	2.18	31.35	-	-	Peak
754.3	24.01	-21.99	46	32.13	20.14	3.35	31.61	-	-	Peak
913.9	29.5	-16.5	46	34.89	21.69	3.77	30.85	-	-	Peak
2356	52.75	-21.25	74	50.87	32.43	3.86	34.41	100	48	Peak
2356	42.07	-11.93	54	40.19	32.43	3.86	34.41	100	48	Average
2437	112.03	-	-	109.88	32.54	3.99	34.38	100	48	Peak
2437	99.82	-	-	97.67	32.54	3.99	34.38	100	48	Average
2484	52.43	-21.57	74	50.17	32.58	4.05	34.37	100	48	Peak
2484	39.38	-14.62	54	37.12	32.58	4.05	34.37	100	48	Average



Test Mode :	Mode 2	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	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
31.08	32.7	-7.3	40	46.33	17.31	0.72	31.66	-	-	Peak
42.69	32.71	-7.29	40	52.29	11.25	0.81	31.64	100	118	Peak
58.08	32.07	-7.93	40	55.93	6.79	0.94	31.59	-	-	Peak
393.8	20.51	-25.49	46	33.95	15.63	2.39	31.46	-	-	Peak
654.9	23.4	-22.6	46	32.67	19.29	3.07	31.63	-	-	Peak
913.9	26.6	-19.4	46	31.99	21.69	3.77	30.85	-	-	Peak
2358	51.05	-22.95	74	49.13	32.43	3.89	34.4	200	16	Peak
2358	39.81	-14.19	54	37.89	32.43	3.89	34.4	200	16	Average
2437	109	-	-	106.85	32.54	3.99	34.38	200	16	Peak
2437	97.18	-	-	95.03	32.54	3.99	34.38	200	16	Average
2486	50.47	-23.53	74	48.21	32.58	4.05	34.37	200	16	Peak
2486	38.53	-15.47	54	36.27	32.58	4.05	34.37	200	16	Average



Test Mode :	Mode 3	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	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
58.08	22.37	-17.63	40	46.23	6.79	0.94	31.59	-	-	Peak
174.99	22.91	-20.59	43.5	43.28	9.57	1.57	31.51	-	-	Peak
264.09	34.3	-11.7	46	50.96	12.89	1.91	31.46	100	102	Peak
523.3	21.17	-24.83	46	31.81	18.14	2.75	31.53	-	-	Peak
722.8	23.58	-22.42	46	32.22	19.7	3.31	31.65	-	-	Peak
913.9	27.13	-18.87	46	32.52	21.69	3.77	30.85	-	-	Peak
2382	53.85	-20.15	74	51.86	32.46	3.92	34.39	104	50	Peak
2382	42.14	-11.86	54	40.15	32.46	3.92	34.39	104	50	Average
2462	111.74	-	-	109.54	32.56	4.02	34.38	104	50	Peak
2462	99.47	-	-	97.27	32.56	4.02	34.38	104	50	Average
2483.5	57.17	-16.83	74	54.91	32.58	4.05	34.37	104	50	Peak
2483.5	44.52	-9.48	54	42.26	32.58	4.05	34.37	104	50	Average



Test Mode :	Mode 3	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	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
30.54	30.6	-9.4	40	44.23	17.31	0.72	31.66	-	-	Peak
42.69	32.29	-7.71	40	51.87	11.25	0.81	31.64	100	193	Peak
58.08	32.1	-7.9	40	55.96	6.79	0.94	31.59	-	-	Peak
518.4	21.42	-24.58	46	32.12	18.08	2.74	31.52	-	-	Peak
680.8	22.72	-23.28	46	31.84	19.35	3.19	31.66	-	-	Peak
880.3	26.67	-19.33	46	32.57	21.46	3.68	31.04	-	-	Peak
2382	52.43	-21.57	74	50.44	32.46	3.92	34.39	116	11	Peak
2382	40.87	-13.13	54	38.88	32.46	3.92	34.39	116	11	Average
2462	108.65	-	-	106.45	32.56	4.02	34.38	116	11	Peak
2462	96.79	-	-	94.59	32.56	4.02	34.38	116	11	Average
2483.85	55.47	-18.53	74	53.21	32.58	4.05	34.37	116	11	Peak
2483.85	43.11	-10.89	54	40.85	32.58	4.05	34.37	116	11	Average



Test Mode :	Mode 4	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	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
58.89	21.7	-18.3	40	45.72	6.63	0.95	31.6	-	-	Peak
176.88	21.63	-21.87	43.5	42.06	9.53	1.56	31.52	-	-	Peak
267.33	33.86	-12.14	46	50.43	12.95	1.92	31.44	100	82	Peak
488.3	20.46	-25.54	46	31.74	17.57	2.63	31.48	-	-	Peak
752.9	24.28	-21.72	46	32.43	20.11	3.35	31.61	-	-	Peak
906.9	26.65	-19.35	46	32.13	21.66	3.76	30.9	-	-	Peak
2389.99	68.31	-5.69	74	66.3	32.48	3.92	34.39	107	55	Peak
2389.99	46.88	-7.12	54	44.87	32.48	3.92	34.39	107	55	Average
2412	104.66	-	-	102.6	32.5	3.95	34.39	107	55	Peak
2412	91.85	-	-	89.79	32.5	3.95	34.39	107	55	Average
2492	47.51	-26.49	74	45.23	32.6	4.05	34.37	107	55	Peak
2492	35.49	-18.51	54	33.21	32.6	4.05	34.37	107	55	Average



Test Mode :	Mode 4	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	Polarization :	Vertical
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.08	31.36	-8.64	40	44.99	17.31	0.72	31.66	-	-	Peak
42.69	32.11	-7.89	40	51.69	11.25	0.81	31.64	-	-	Peak
58.08	32.16	-7.84	40	56.02	6.79	0.94	31.59	100	135	Peak
430.9	21.04	-24.96	46	33.6	16.4	2.47	31.43	-	-	Peak
647.9	22.31	-23.69	46	31.62	19.27	3.04	31.62	-	-	Peak
894.3	26.55	-19.45	46	32.22	21.58	3.73	30.98	-	-	Peak
2389.61	64.39	-9.61	74	62.38	32.48	3.92	34.39	144	20	Peak
2389.61	42.84	-11.16	54	40.83	32.48	3.92	34.39	144	20	Average
2412	100.7	-	-	98.64	32.5	3.95	34.39	144	20	Peak
2412	87.55	-	-	85.49	32.5	3.95	34.39	144	20	Average
2500	46.17	-27.83	74	43.89	32.6	4.05	34.37	144	20	Peak
2500	33.2	-20.8	54	30.92	32.6	4.05	34.37	144	20	Average



Test Mode :	Mode 5	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	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
59.43	21.28	-18.72	40	45.3	6.63	0.95	31.6	-	-	Peak
174.18	21.81	-21.69	43.5	42.18	9.57	1.57	31.51	-	-	Peak
267.33	33.61	-12.39	46	50.18	12.95	1.92	31.44	100	126	Peak
341.3	19.78	-26.22	46	34.5	14.42	2.2	31.34	-	-	Peak
565.3	23.39	-22.61	46	33.44	18.7	2.87	31.62	-	-	Peak
880.3	26.11	-19.89	46	32.01	21.46	3.68	31.04	-	-	Peak
2356	49.26	-24.74	74	47.38	32.43	3.86	34.41	104	59	Peak
2356	36.31	-17.69	54	34.43	32.43	3.86	34.41	104	59	Average
2437	101.75	-	-	99.6	32.54	3.99	34.38	104	59	Peak
2437	89.32	-	-	87.17	32.54	3.99	34.38	104	59	Average
2486	46.45	-27.55	74	44.19	32.58	4.05	34.37	104	59	Peak
2486	33.69	-20.31	54	31.43	32.58	4.05	34.37	104	59	Average



Test Mode :	Mode 5	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	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
31.62	30.45	-9.55	40	44.65	16.72	0.73	31.65	-	-	Peak
42.69	31.87	-8.13	40	51.45	11.25	0.81	31.64	100	226	Peak
58.89	31.09	-8.91	40	55.11	6.63	0.95	31.6	-	-	Peak
535.9	22.39	-23.61	46	32.84	18.31	2.8	31.56	-	-	Peak
722.8	23.52	-22.48	46	32.16	19.7	3.31	31.65	-	-	Peak
892.9	26.21	-19.79	46	31.89	21.57	3.73	30.98	-	-	Peak
2350	46.62	-27.38	74	44.76	32.41	3.86	34.41	116	359	Peak
2350	35.15	-18.85	54	33.29	32.41	3.86	34.41	116	359	Average
2437	97.76	-	-	95.61	32.54	3.99	34.38	116	359	Peak
2437	86.03	-	-	83.88	32.54	3.99	34.38	116	359	Average
2486	45.57	-28.43	74	43.31	32.58	4.05	34.37	116	359	Peak
2486	32.98	-21.02	54	30.72	32.58	4.05	34.37	116	359	Average



Test Mode :	Mode 6	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	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
58.89	21.24	-18.76	40	45.26	6.63	0.95	31.6	-	-	Peak
173.64	22.93	-20.57	43.5	43.27	9.6	1.57	31.51	-	-	Peak
264.09	35.96	-10.04	46	52.62	12.89	1.91	31.46	100	114	Peak
551.3	21.37	-24.63	46	31.59	18.51	2.85	31.58	-	-	Peak
707.4	23.01	-22.99	46	31.92	19.48	3.28	31.67	-	-	Peak
945.4	27.99	-18.01	46	32.99	21.84	3.79	30.63	-	-	Peak
2388	47.63	-26.37	74	45.62	32.48	3.92	34.39	102	60	Peak
2388	35.75	-18.25	54	33.74	32.48	3.92	34.39	102	60	Average
2462	102.23	-	-	100.03	32.56	4.02	34.38	102	60	Peak
2462	89.68	-	-	87.48	32.56	4.02	34.38	102	60	Average
2483.5	63.48	-10.52	74	61.22	32.58	4.05	34.37	102	60	Peak
2483.5	42.48	-11.52	54	40.22	32.58	4.05	34.37	102	60	Average



Test Mode :	Mode 6	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	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
31.08	30.06	-9.94	40	43.69	17.31	0.72	31.66	-	-	Peak
41.88	32.45	-7.55	40	51.49	11.78	0.81	31.63	100	213	Peak
58.08	31.66	-8.34	40	55.52	6.79	0.94	31.59	-	-	Peak
418.3	19.23	-26.77	46	32.06	16.14	2.44	31.41	-	-	Peak
644.4	23.03	-22.97	46	32.36	19.27	3.03	31.63	-	-	Peak
910.4	26.03	-19.97	46	31.45	21.68	3.77	30.87	-	-	Peak
2390	45.91	-28.09	74	43.9	32.48	3.92	34.39	109	103	Peak
2390	33.29	-20.71	54	31.28	32.48	3.92	34.39	109	103	Average
2462	97.38	-	-	95.18	32.56	4.02	34.38	109	103	Peak
2462	84.94	-	-	82.74	32.56	4.02	34.38	109	103	Average
2483.85	52.84	-21.16	74	50.58	32.58	4.05	34.37	109	103	Peak
2483.85	35.41	-18.59	54	33.15	32.58	4.05	34.37	109	103	Average



Test Mode :	Mode 7	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	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
60.78	25.04	-14.96	40	49.23	6.45	0.96	31.6	100	46	Peak
138.54	18.76	-24.74	43.5	37.41	11.44	1.44	31.53	-	-	Peak
269.49	21.81	-24.19	46	38.33	12.98	1.93	31.43	-	-	Peak
442.8	20.71	-25.29	46	33.02	16.66	2.49	31.46	-	-	Peak
630.4	23.13	-22.87	46	32.54	19.24	3	31.65	-	-	Peak
897.8	26.96	-19.04	46	32.56	21.61	3.75	30.96	-	-	Peak
2389.99	65.7	-8.3	74	63.69	32.48	3.92	34.39	108	47	Peak
2389.99	45.59	-8.41	54	43.58	32.48	3.92	34.39	108	47	Average
2412	101.05	-	-	98.99	32.5	3.95	34.39	108	47	Peak
2412	89.1	-	-	87.04	32.5	3.95	34.39	108	47	Average
2486	46.18	-27.82	74	43.92	32.58	4.05	34.37	108	47	Peak
2486	34.35	-19.65	54	32.09	32.58	4.05	34.37	108	47	Average



Test Mode :	Mode 7	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	Polarization :	Vertical
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	29.21	-10.79	40	43.41	16.72	0.73	31.65	-	-	Peak
42.69	33.04	-6.96	40	52.62	11.25	0.81	31.64	100	172	Peak
58.08	31.25	-8.75	40	55.11	6.79	0.94	31.59	-	-	Peak
561.8	22.04	-23.96	46	32.13	18.65	2.87	31.61	-	-	Peak
783.7	24.2	-21.8	46	31.83	20.54	3.36	31.53	-	-	Peak
897.8	28.07	-17.93	46	33.67	21.61	3.75	30.96	-	-	Peak
2389.61	65	-9	74	62.99	32.48	3.92	34.39	146	11	Peak
2389.61	43.85	-10.15	54	41.84	32.48	3.92	34.39	146	11	Average
2412	98.52	-	-	96.46	32.5	3.95	34.39	146	11	Peak
2412	86.45	-	-	84.39	32.5	3.95	34.39	146	11	Average
2492	45.41	-28.59	74	43.13	32.6	4.05	34.37	146	11	Peak
2492	32.89	-21.11	54	30.61	32.6	4.05	34.37	146	11	Average



Test Mode :	Mode 8	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	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
41.88	20.49	-19.51	40	39.53	11.78	0.81	31.63	-	-	Peak
60.78	24.4	-15.6	40	48.59	6.45	0.96	31.6	100	68	Peak
173.64	21.59	-21.91	43.5	41.93	9.6	1.57	31.51	-	-	Peak
500.9	20.76	-25.24	46	31.75	17.83	2.67	31.49	-	-	Peak
703.9	23.03	-22.97	46	31.99	19.44	3.28	31.68	-	-	Peak
897.8	28.07	-17.93	46	33.67	21.61	3.75	30.96	-	-	Peak
2358	47.79	-26.21	74	45.87	32.43	3.89	34.4	132	54	Peak
2358	36.01	-17.99	54	34.09	32.43	3.89	34.4	132	54	Average
2437	100.08	-	-	97.93	32.54	3.99	34.38	132	54	Peak
2437	87.92	-	-	85.77	32.54	3.99	34.38	132	54	Average
2486	45.52	-28.48	74	43.26	32.58	4.05	34.37	132	54	Peak
2486	33.31	-20.69	54	31.05	32.58	4.05	34.37	132	54	Average



Test Mode :	Mode 8	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	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
30	29.56	-10.44	40	42.61	17.91	0.72	31.68	-	-	Peak
43.23	33.24	-6.76	40	53.36	10.71	0.81	31.64	100	189	Peak
58.08	31.49	-8.51	40	55.35	6.79	0.94	31.59	-	-	Peak
430.9	19.19	-26.81	46	31.75	16.4	2.47	31.43	-	-	Peak
591.9	22.88	-23.12	46	32.6	19.05	2.91	31.68	-	-	Peak
897.8	30.41	-15.59	46	36.01	21.61	3.75	30.96	-	-	Peak
2366	46.34	-27.66	74	44.42	32.43	3.89	34.4	144	9	Peak
2366	33.9	-20.1	54	31.98	32.43	3.89	34.4	144	9	Average
2437	97.58	-	-	95.45	32.52	3.99	34.38	144	9	Peak
2437	85.03	-	-	82.88	32.54	3.99	34.38	144	9	Average
2500	44.4	-29.6	74	42.12	32.6	4.05	34.37	144	9	Peak
2500	32.39	-21.61	54	30.11	32.6	4.05	34.37	144	9	Average



Test Mode :	Mode 9	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	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
41.88	21.33	-18.67	40	40.37	11.78	0.81	31.63	-	-	Peak
59.43	25.22	-14.78	40	49.24	6.63	0.95	31.6	100	103	Peak
165.54	20.54	-22.96	43.5	40.61	9.88	1.53	31.48	-	-	Peak
481.3	20.23	-25.77	46	31.67	17.43	2.6	31.47	-	-	Peak
684.3	23.21	-22.79	46	32.31	19.36	3.2	31.66	-	-	Peak
913.9	26.07	-19.93	46	31.46	21.69	3.77	30.85	-	-	Peak
2380	46.46	-27.54	74	44.47	32.46	3.92	34.39	161	60	Peak
2380	34.54	-19.46	54	32.55	32.46	3.92	34.39	161	60	Average
2462	99.78	-	-	97.58	32.56	4.02	34.38	161	60	Peak
2462	87.87	-	-	85.67	32.56	4.02	34.38	161	60	Average
2484.42	58.54	-15.46	74	56.28	32.58	4.05	34.37	161	60	Peak
2484.42	39.6	-14.4	54	37.34	32.58	4.05	34.37	161	60	Average



Test Mode :	Mode 9	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Kai Wang	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
31.08	30.51	-9.49	40	44.14	17.31	0.72	31.66	-	-	Peak
43.23	33	-7	40	53.12	10.71	0.81	31.64	100	218	Peak
57.54	31.25	-8.75	40	54.95	6.95	0.92	31.57	-	-	Peak
560.4	21.96	-24.04	46	32.07	18.64	2.86	31.61	-	-	Peak
759.9	23.49	-22.51	46	31.53	20.21	3.35	31.6	-	-	Peak
924.4	26.46	-19.54	46	31.73	21.74	3.77	30.78	-	-	Peak
2382	45.94	-28.06	74	43.95	32.46	3.92	34.39	116	9	Peak
2382	34.4	-19.6	54	32.41	32.46	3.92	34.39	116	9	Average
2462	98.55	-	-	96.35	32.56	4.02	34.38	116	9	Peak
2462	85.54	-	-	83.34	32.56	4.02	34.38	116	9	Average
2485.37	56.7	-17.3	74	54.44	32.58	4.05	34.37	116	9	Peak
2485.37	38.94	-15.06	54	36.68	32.58	4.05	34.37	116	9	Average



3.8 Antenna Requirements

3.8.1 Standard Applicable

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

3.8.2 Antenna Connected Construction

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

3.8.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
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)
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	117995	N/A	Mar. 19, 2009	Mar. 18, 2011	Conduction (CO05-HY)
Spectrum Analyzer	R&S	FSP40	100057	9KHz-40GHz	Oct. 25, 2010	Oct. 24, 2011	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/003	20MHz-1000MHz	Apr. 28, 2010	Apr. 27, 2011	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Oct. 31, 2010	Oct. 31, 2011	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz~18GHz	Aug. 02, 2010	Aug. 01, 2011	Radiation (03CH06-HY)
Double Ridge Horn Antenna	Training Research	AH-0801	95119	8GHz~18GHz	Oct. 20, 2010	Oct. 19, 2011	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz- 26.5GHz	Apr. 15, 2010	Apr. 14, 2011	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9KHz~1GHz	Apr. 15, 2010	Apr. 14, 2011	Radiation (03CH06-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	Radiation (03CH06-HY)

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				