

FCC RF Test Report

APPLICANT : HTC Corporation
EQUIPMENT : Windows Phone
MODEL NAME : PC40200(MWP6985)
FCC ID : NM8PC40220
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Sep. 07, 2010 and completely tested on Oct. 20, 2010. 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:



Anderson Chiu / Deputy 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
FR120119A	Rev. 01	Initial issue of report	Feb. 10, 2011
FR120119A	Rev. 02	Update model name	Feb. 11, 2011

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.2	15.247(b)	A8.4	Power Output	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.6	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 10.90 dB at 0.79 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.13 dB at 2483.85 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	Windows Phone
Model Name	PC40200(MWP6985)
FCC ID	NM8PC40220
Sample 1	EUT with LCM-Main
Sample 2	EUT with LCM-2nd source
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 : 20.64 dBm (0.116 W) 802.11g : 22.16 dBm (0.164 W) 802.11n (BW 20MHz) : 21.51 dBm (0.142 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.
4. The EUT supports 802.11n (BW 20 MHz) mode only, not supports 802.11n (BW 40 MHz) mode.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH07-HY	TW1022/4086B-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 7

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.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
6.	Earphone	Cotron	HS G400	N/A	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)			
		At DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	20.35	-	-	-
CH 06	2437 MHz	20.20	-	-	-
-CH 11	2462 MHz	20.64	20.52	20.61	20.55

Channel	Frequency	2.4GHz 802.11g RF Power (dBm)							
		At OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	22.16	21.61	21.17	21.17	21.14	21.10	21.08	21.13
CH 06	2437 MHz	21.80	-	-	-	-	-	-	-
CH 11	2462 MHz	21.85	-	-	-	-	-	-	-

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)							
		At OFDM Data Rate							
		m0	m1	m2	m3	m4	m5	m6	m7
CH 01	2412 MHz	21.51	21.37	21.40	21.34	21.16	21.13	21.25	21.27
CH 06	2437 MHz	21.14	-	-	-	-	-	-	-
CH 11	2462 MHz	21.37	-	-	-	-	-	-	-

Remark:

1. The data rates of WLAN 802.11b/g/n were set in 1Mbps for 802.11b, 6Mbps for 802.11g, and m0 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).

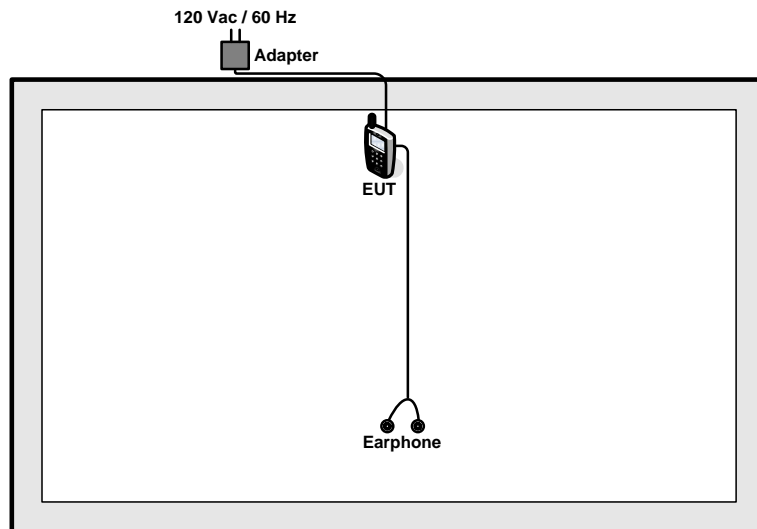
Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

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

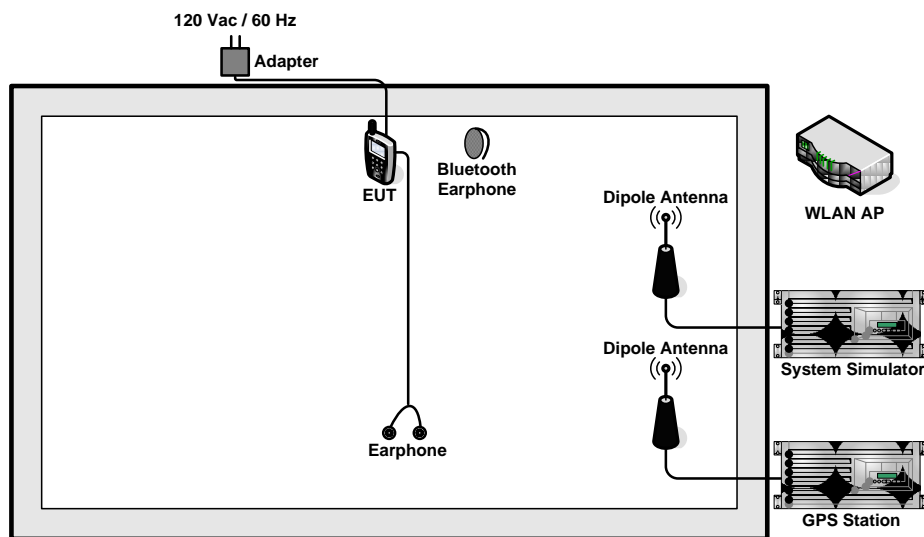
Test Cases	
Test Item	802.11b (Modulation : DSSS) / 802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 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 + TC for Sample 1 Mode 2 : 802.11b CH06_2437 MHz + TC for Sample 1 Mode 3 : 802.11b CH11_2462 MHz + TC for Sample 1 Mode 4: 802.11g_CH01_2412 MHz + TC for Sample 1 Mode 5: 802.11g_CH06_2437 MHz + TC for Sample 1 Mode 6: 802.11g_CH11_2462 MHz + TC for Sample 1 Mode 7: 802.11n (BW 20M)_CH01_2412 MHz + TC for Sample 1 Mode 8: 802.11n (BW 20M)_CH06_2437 MHz + TC for Sample 1 Mode 9: 802.11n (BW 20M)_CH11_2462 MHz + TC for Sample 1 Mode 10: 802.11g_CH11_2462 MHz + TC for Sample 2
AC Conducted Emission	Mode 1 : CDMA2000 BC0 Idle + Bluetooth Link + WLAN Link + GPS Rx + Earphone + Battery 1 + USB Cable 1 (Charging from Adapter 1) for Sample 1 Mode 2 : CDMA2000 BC0 Idle + Bluetooth Link + WLAN Link + GPS Rx + Earphone + Battery 1 + USB Cable 1 (Charging from Adapter 1) for Sample 2
Remark: 1. TC stands for Test Configuration, and consists of adapter 2, battery2, USB cable 2 and earphone. 2. The worst case of conducted emission is mode 1; only the test data of it was reported.	

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<EUT with Adapter in GPS Rx Mode>



2.4 RF Utility

The programmed RF utility "Remote 432X controller" is installed in notebook to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

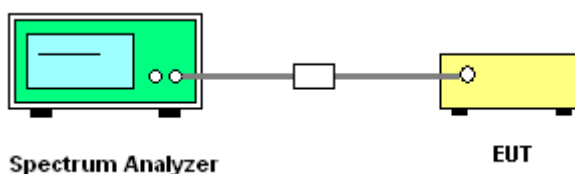
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

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

3.1.4 Test Setup

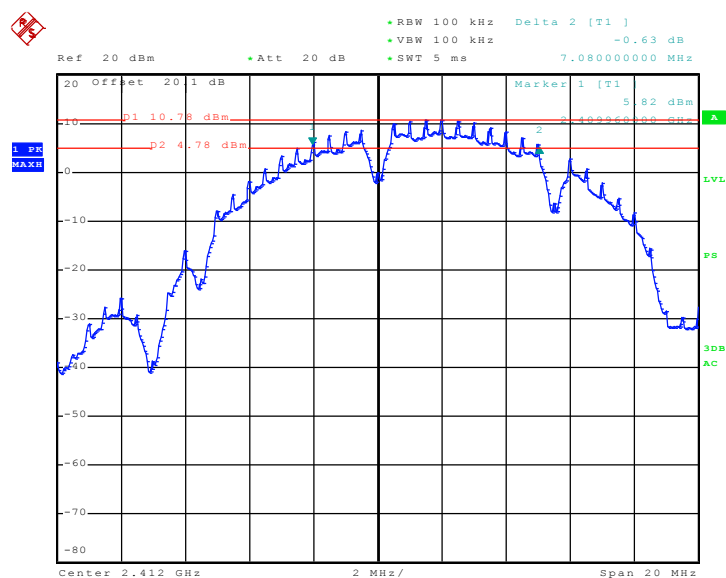


3.1.5 Test Result of 6dB Bandwidth

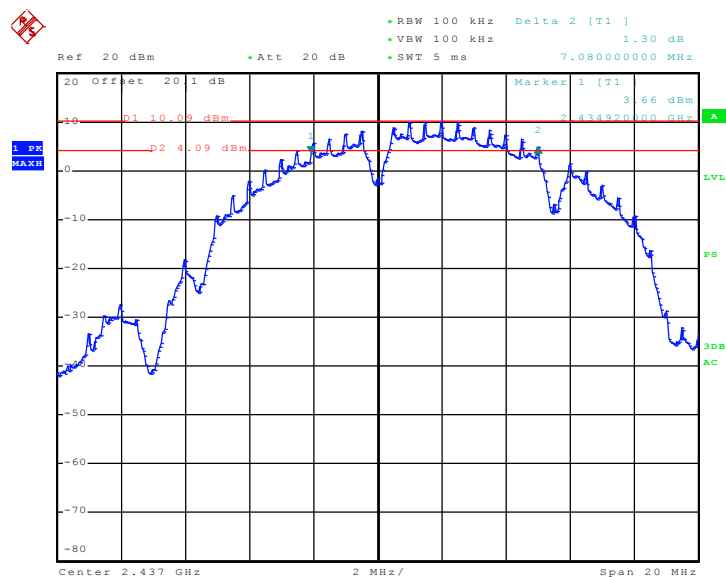
Test Mode :	Mode 1, 2, 3	Temperature :	26~28°C
Test Engineer :	Andy Yeh	Relative Humidity :	43~46%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	7.08	0.5	Pass
06	2437	7.08	0.5	Pass
11	2462	7.56	0.5	Pass

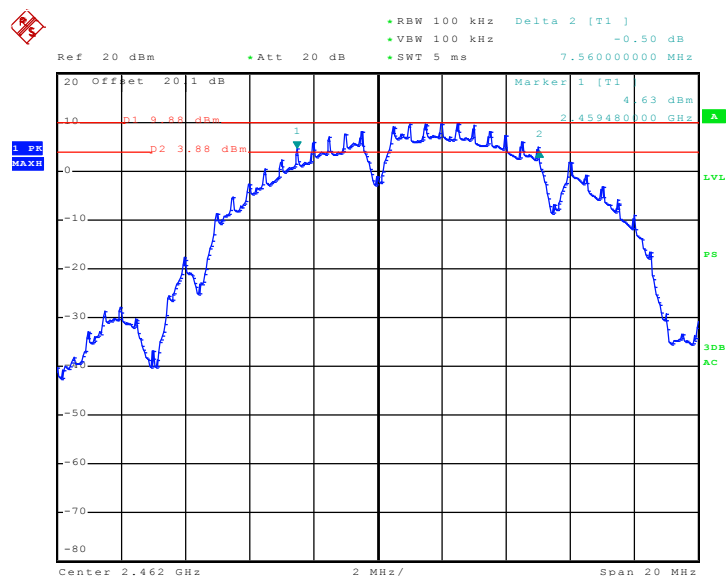
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 28.SEP.2010 18:40:32

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


Date: 28.SEP.2010 18:49:12

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


Date: 28.SEP.2010 18:50:46



Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.16	0.5	Pass
06	2437	15.16	0.5	Pass
11	2462	15.16	0.5	Pass

• RBW 100 kHz Delta 2 [T1]
 • VBW 100 kHz 1.10 dB
 Ref 20 dBm • Att 20 dB SWT 5 ms 15.16000000 MHz

20 Offset 20 1 dB
 Marker 1 [T1]
 -1.17 dBm
 2.404400000 GHz

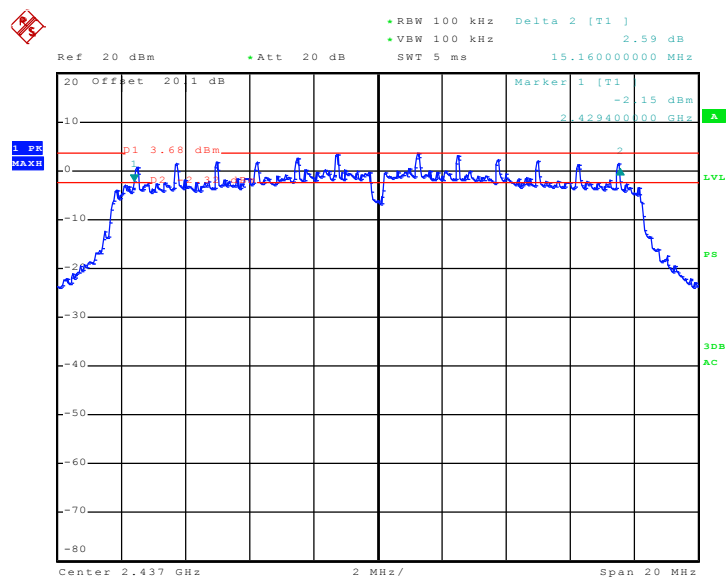
1. 9%
 MAX H

P1 3.88 dBm
 P2
 LVL
 PS
 3dB
 AC

Center 2.412 GHz 2 MHz/
 Span 20 MHz

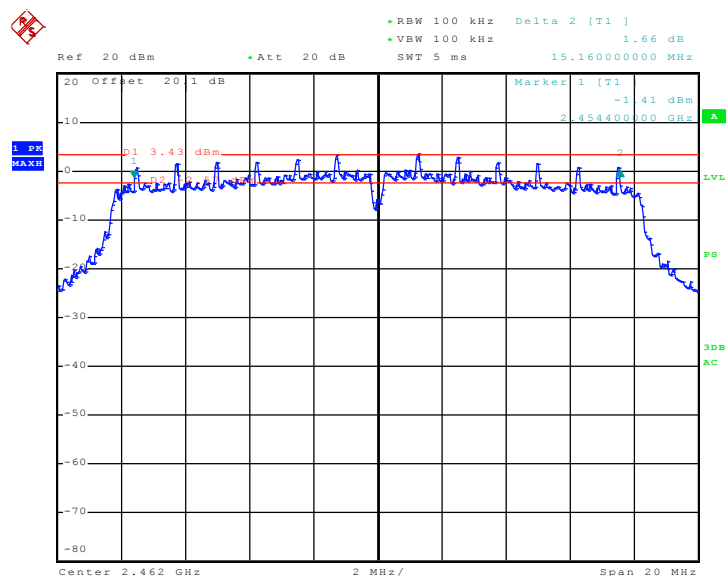
Date: 28.SEP.2010 21:35:46

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



Date: 28.SEP.2010 21:14:30

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



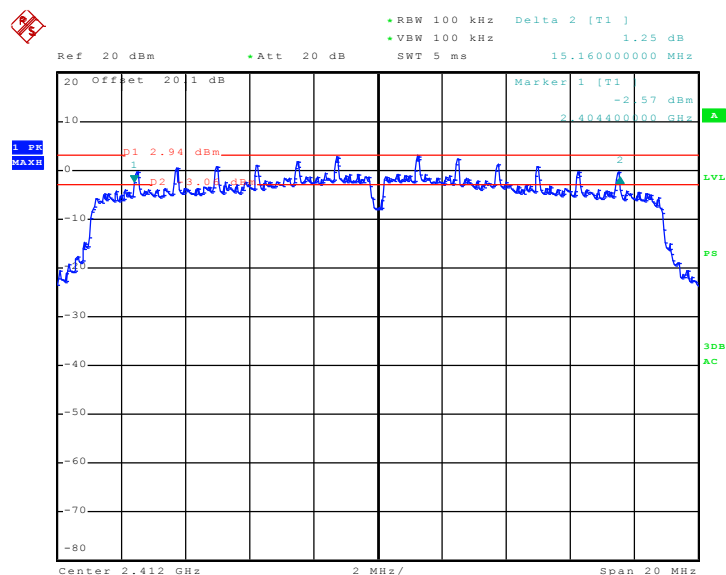
Date: 28.SEP.2010 21:09:52



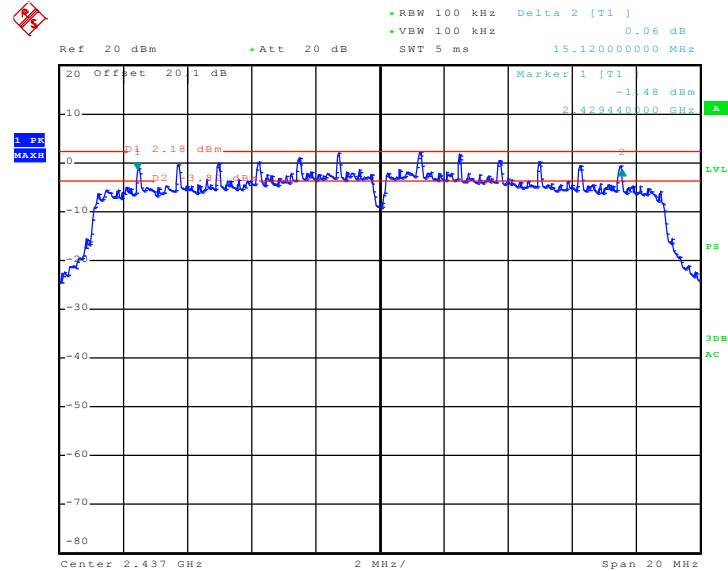
Test Mode :	Mode 7, 8, 9	Temperature :	26~28°C
Test Engineer :	Andy Yeh	Relative Humidity :	43~46%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.16	0.5	Pass
06	2437	15.12	0.5	Pass
11	2462	15.16	0.5	Pass

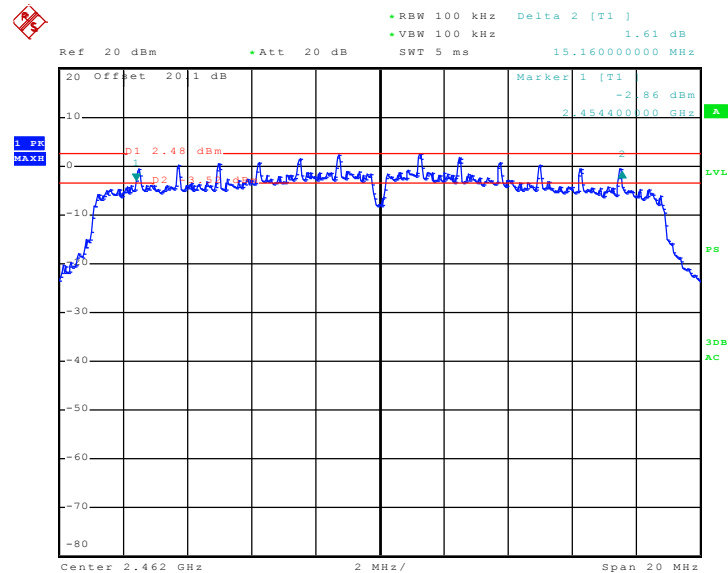
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 28.SEP.2010 21:00:51

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


Date: 28.SEP.2010 20:59:35

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


Date: 28.SEP.2010 21:29:13

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.

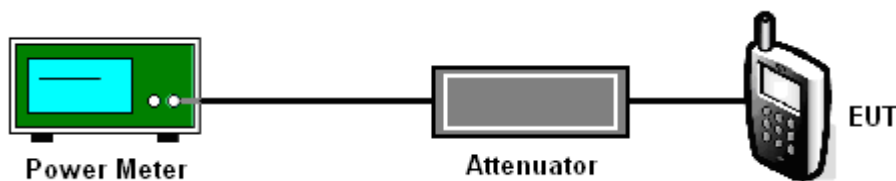
3.2.2 Measuring Instruments

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 :	26~28℃
Test Engineer :	Andy Yeh	Relative Humidity :	43~46%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.35	30	Pass
06	2437	20.20	30	Pass
11	2462	20.64	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	26~28℃
Test Engineer :	Andy Yeh	Relative Humidity :	43~46%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.16	30	Pass
06	2437	21.80	30	Pass
11	2462	21.85	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	26~28℃
Test Engineer :	Andy Yeh	Relative Humidity :	43~46%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.51	30	Pass
06	2437	21.14	30	Pass
11	2462	21.37	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

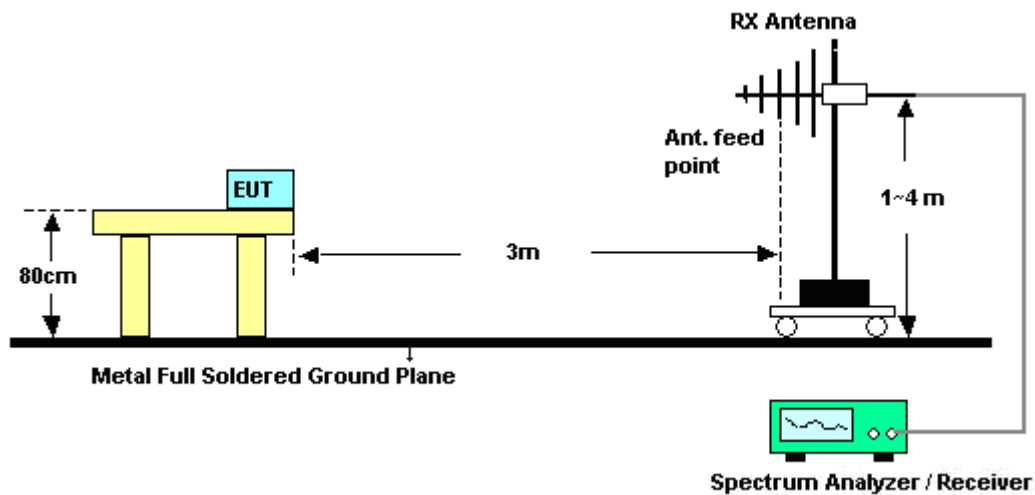
See list of measuring instruments of this test report.

3.3.3 Test Procedures

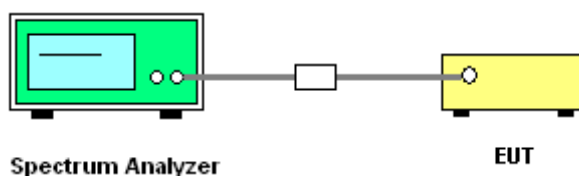
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) \geq RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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 :	22.4~24.8℃
Test Band :	802.11b	Relative Humidity :	47~52%
Test Channel :	01	Test Engineer :	Jason 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
2389.61	57.59	-16.41	74.00	52.91	32.18	6.03	33.53	102	318	Peak
2389.61	45.20	-8.80	54.00	40.52	32.18	6.03	33.53	102	318	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
2389.42	52.26	-21.74	74.00	47.58	32.18	6.03	33.53	100	194	Peak
2389.42	40.20	-13.80	54.00	35.52	32.18	6.03	33.53	100	194	Average

Test Mode :	Mode 3	Temperature :	22.4~24.8℃
Test Band :	802.11b	Relative Humidity :	47~52%
Test Channel :	11	Test Engineer :	Jason 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
2483.85	50.08	-3.92	54.00	45.18	32.28	6.18	33.56	101	2	Average
2483.85	61.50	-12.50	74.00	56.60	32.28	6.18	33.56	101	2	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	44.94	-9.06	54.00	40.04	32.28	6.18	33.56	103	192	Average
2483.66	56.62	-17.38	74.00	51.72	32.28	6.18	33.56	103	192	Peak



Test Mode :	Mode 4	Temperature :	22.4~24.8℃
Test Band :	802.11g	Relative Humidity :	47~52%
Test Channel :	01	Test Engineer :	Jason 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
2389.61	67.57	-6.43	74.00	62.89	32.18	6.03	33.53	103	10	Peak
2389.61	47.23	-6.77	54.00	42.55	32.18	6.03	33.53	103	10	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	63.25	-10.75	74.00	58.57	32.18	6.03	33.53	178	321	Peak
2389.99	42.99	-11.01	54.00	38.31	32.18	6.03	33.53	178	321	Average

Test Mode :	Mode 6	Temperature :	22.4~24.8℃
Test Band :	802.11g	Relative Humidity :	47~52%
Test Channel :	11	Test Engineer :	Jason 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
2483.85	70.87	-3.13	74.00	65.97	32.28	6.18	33.56	100	16	Peak
2483.85	50.58	-3.42	54.00	45.68	32.28	6.18	33.56	100	16	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
2483.50	67.94	-6.06	74.00	63.54	31.78	6.18	33.56	100	211	Peak
2483.50	46.78	-7.22	54.00	42.38	31.78	6.18	33.56	100	211	Average



Test Mode :	Mode 7	Temperature :	22.4~24.8℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~52%
Test Channel :	01	Test Engineer :	Jason 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	47.06	-6.94	54.00	42.38	32.18	6.03	33.53	109	335	Average
2389.99	67.27	-6.73	74.00	62.59	32.18	6.03	33.53	109	335	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.42	43.32	-10.68	54.00	38.64	32.18	6.03	33.53	100	193	Average
2389.42	63.70	-10.30	74.00	59.02	32.18	6.03	33.53	100	193	Peak

Test Mode :	Mode 9	Temperature :	22.4~24.8℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~52%
Test Channel :	11	Test Engineer :	Jason Wang

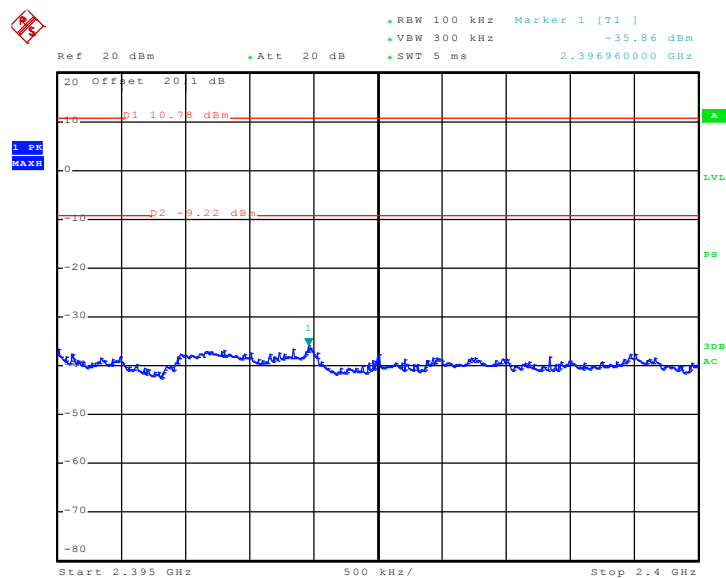
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.50	49.48	-4.52	54.00	44.58	32.28	6.18	33.56	103	333	Average
2483.50	68.66	-5.34	74.00	63.76	32.28	6.18	33.56	103	333	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	66.95	-7.05	74.00	62.05	32.28	6.18	33.56	100	210	Peak
2483.66	45.39	-8.61	54.00	40.49	32.28	6.18	33.56	100	210	Average

3.3.6 Test Plots of Conducted Band Edges

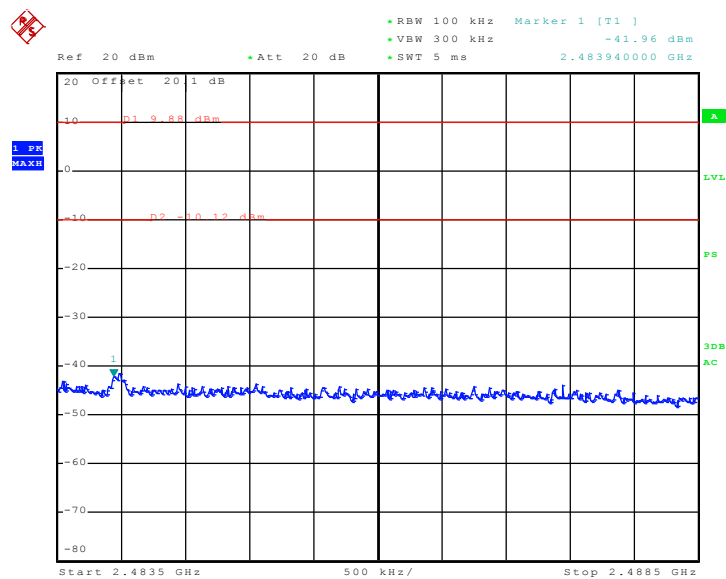
Test Mode :	Mode 1 and 3	Temperature :	26~28°C
Test Band :	802.11b	Relative Humidity :	43~46%
Test Channel :	01 and 11	Test Engineer :	Andy Yeh

Low Band Edge Plot on 802.11b Channel 01



Date: 28.SEP.2010 18:42:17

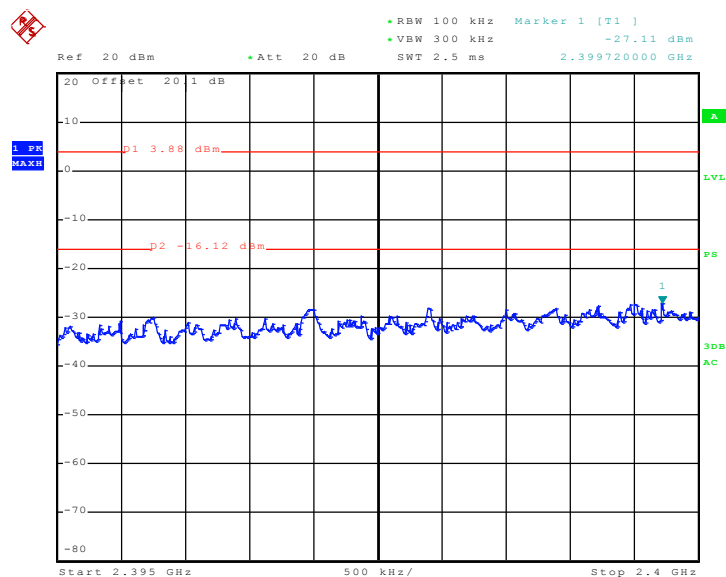
High Band Edge Plot on 802.11b Channel 11



Date: 28.SEP.2010 18:51:45

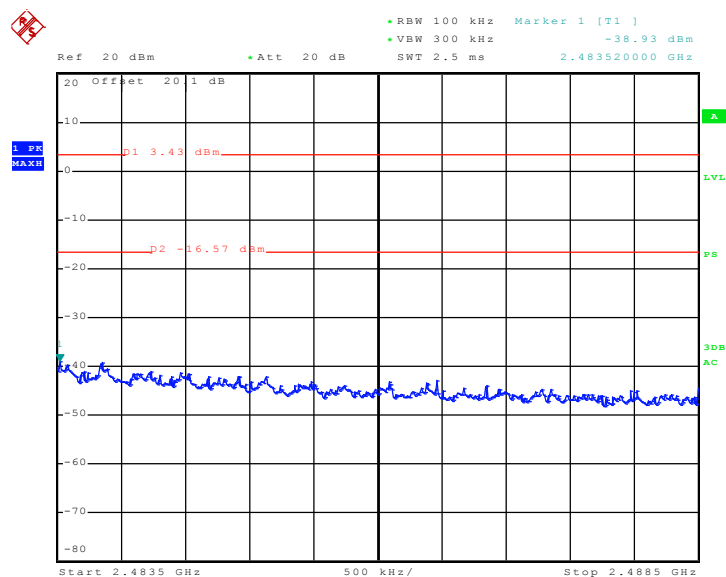
Test Mode :	Mode 4 and 6	Temperature :	26~28℃
Test Band :	802.11g	Relative Humidity :	43~46%
Test Channel :	01 and 11	Test Engineer :	Andy Yeh

Low Band Edge Plot on 802.11g Channel 01



Date: 28.SEP.2010 21:36:51

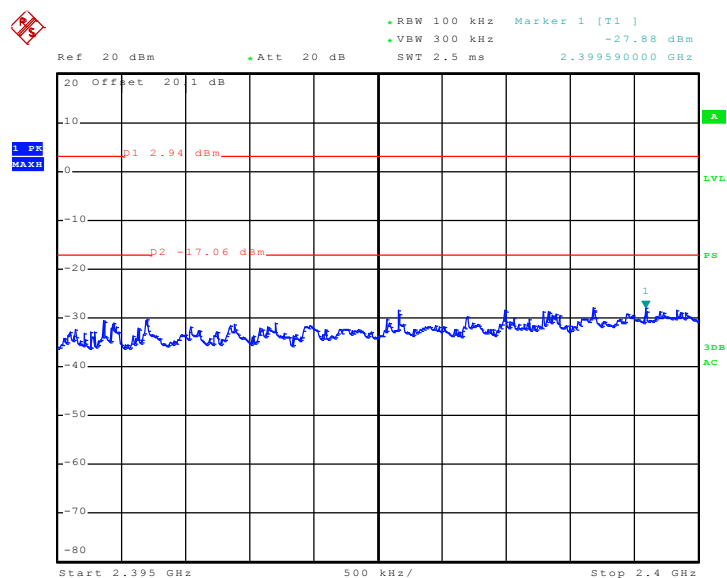
High Band Edge Plot on 802.11g Channel 11



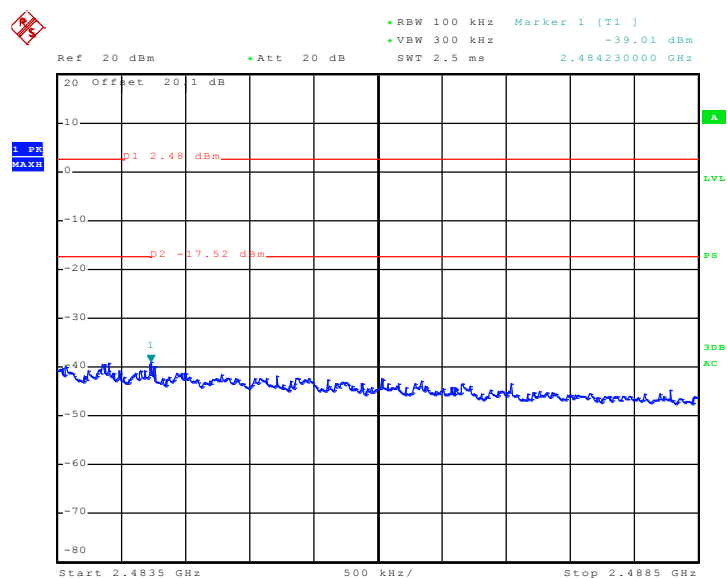
Date: 28.SEP.2010 21:10:44



Test Mode :	Mode 7 and 9	Temperature :	26~28°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	43~46%
Test Channel :	01 and 11	Test Engineer :	Andy Yeh

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

Date: 28.SEP.2010 21:01:46

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

Date: 28.SEP.2010 21:32:09

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.

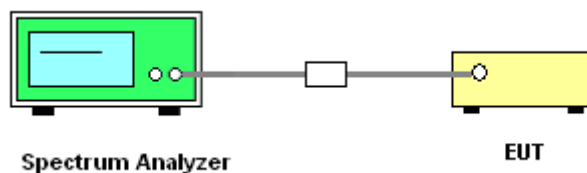
3.4.2 Measuring Instruments

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.

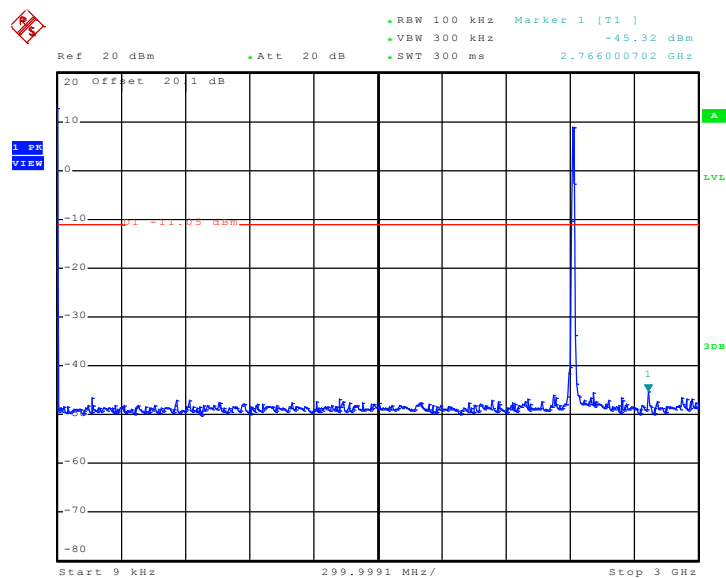
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

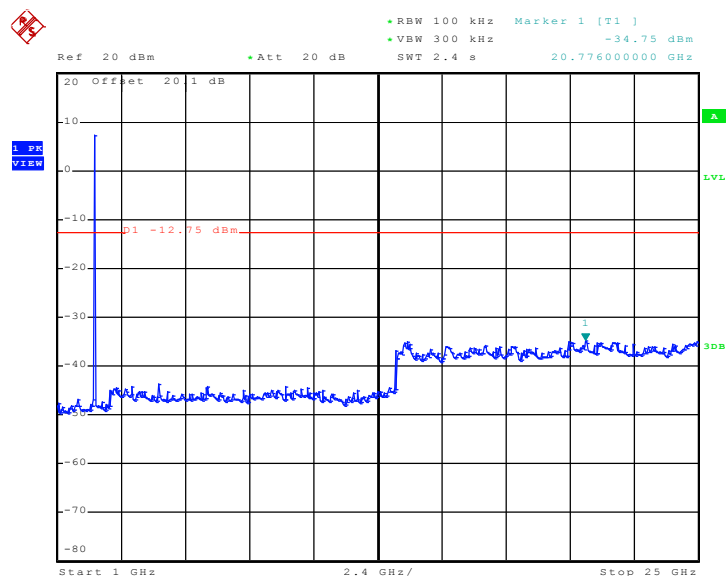
Test Mode :	Mode 1	Temperature :	26~28°C
Test Band :	802.11b	Relative Humidity :	43~46%
Test Channel :	01	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 28.SEP.2010 21:03:35

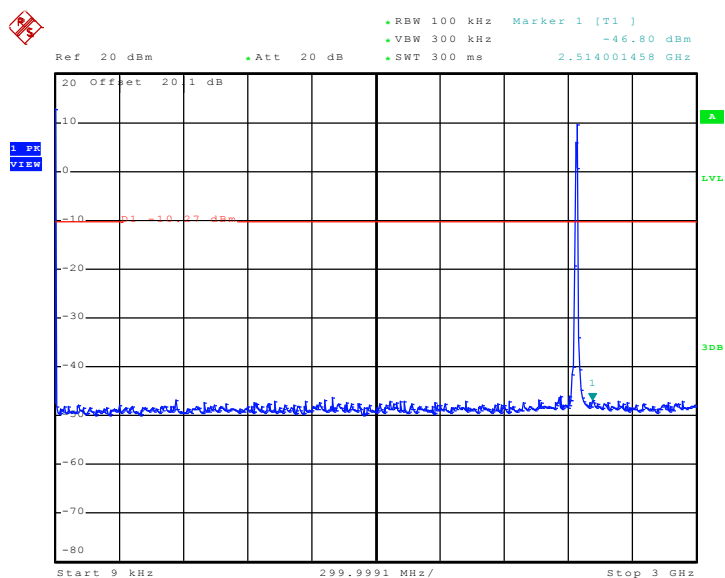
Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



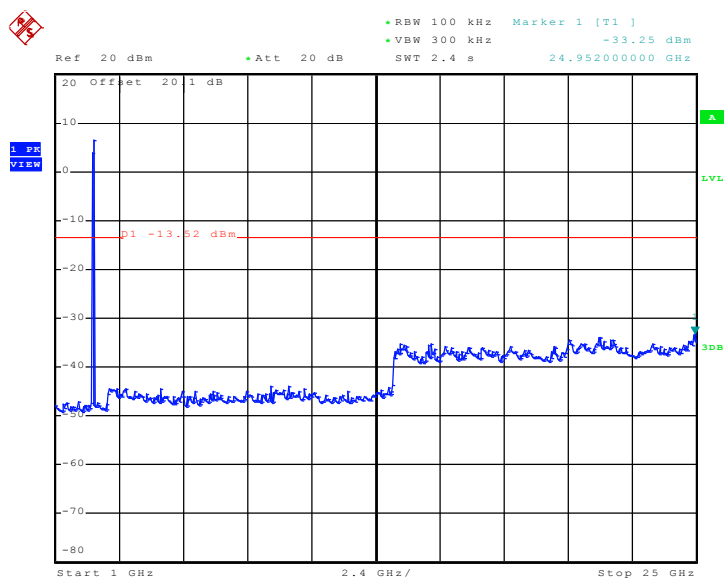
Date: 28.SEP.2010 21:22:33



Test Mode :	Mode 2	Temperature :	26~28°C
Test Band :	802.11b	Relative Humidity :	43~46%
Test Channel :	06	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz

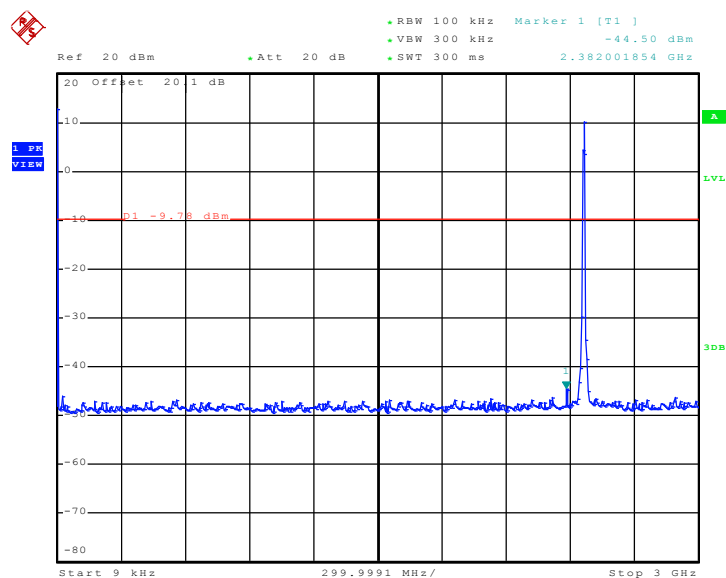
Date: 28.SEP.2010 21:04:33

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

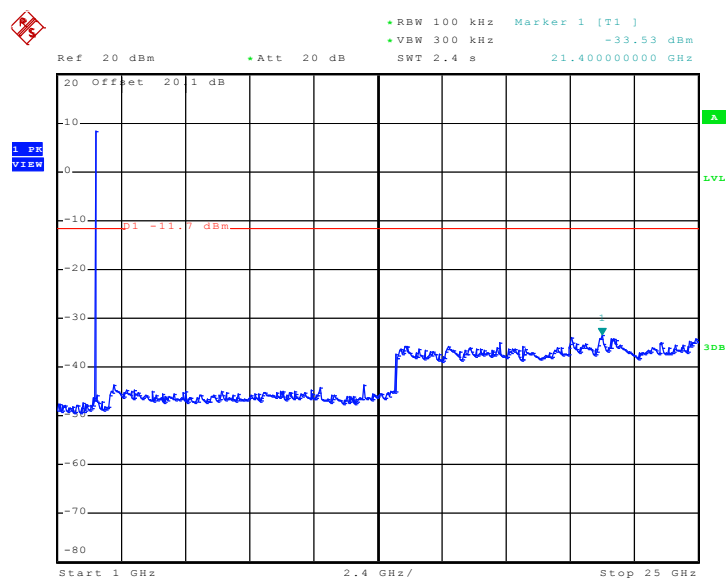
Date: 28.SEP.2010 21:21:32



Test Mode :	Mode 3	Temperature :	26~28°C
Test Band :	802.11b	Relative Humidity :	43~46%
Test Channel :	11	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz

Date: 28.SEP.2010 21:05:58

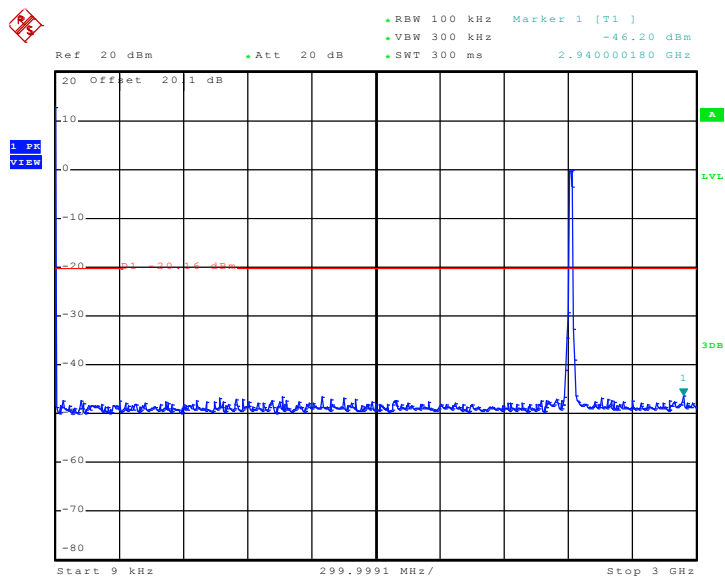
Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

Date: 28.SEP.2010 21:20:39



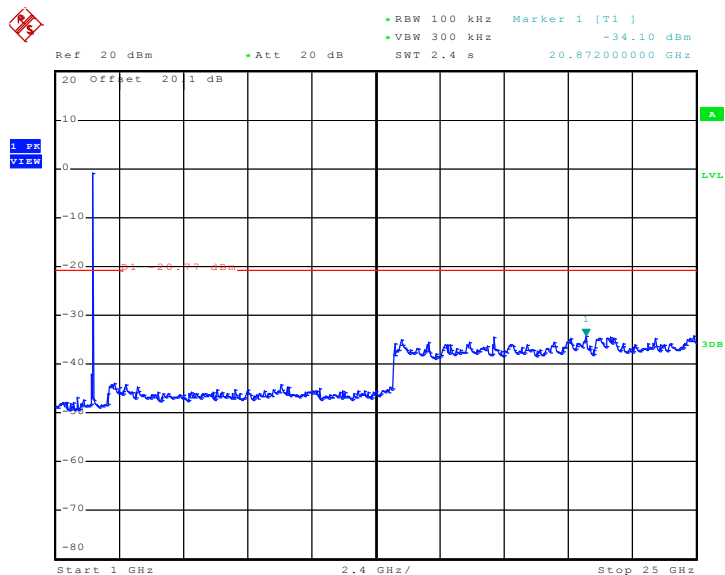
Test Mode :	Mode 4	Temperature :	26~28°C
Test Band :	802.11g	Relative Humidity :	43~46%
Test Channel :	01	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 28.SEP.2010 21:10:15

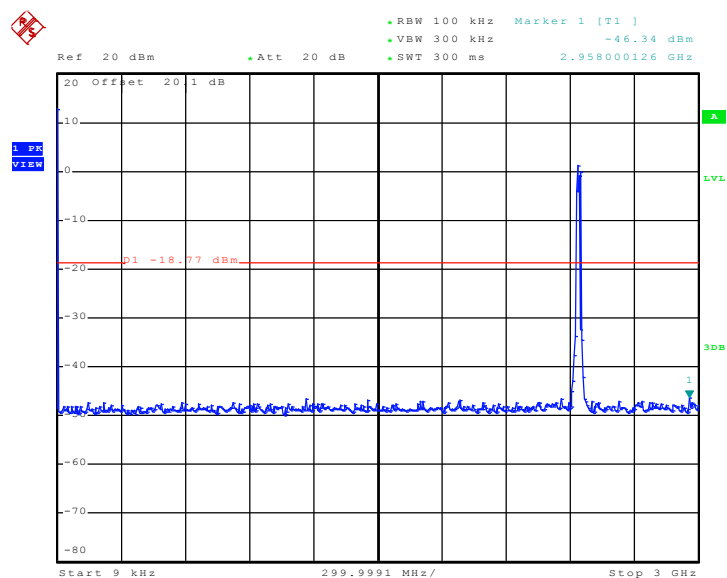
Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



Date: 28.SEP.2010 21:17:33

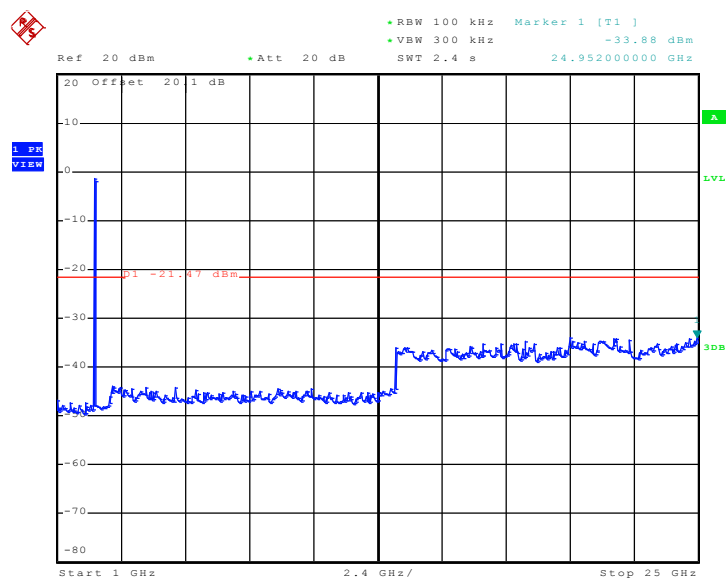
Test Mode :	Mode 5	Temperature :	26~28
Test Band :	802.11g	Relative Humidity :	43~46
Test Channel :	06	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 28.SEP.2010 21:09:12

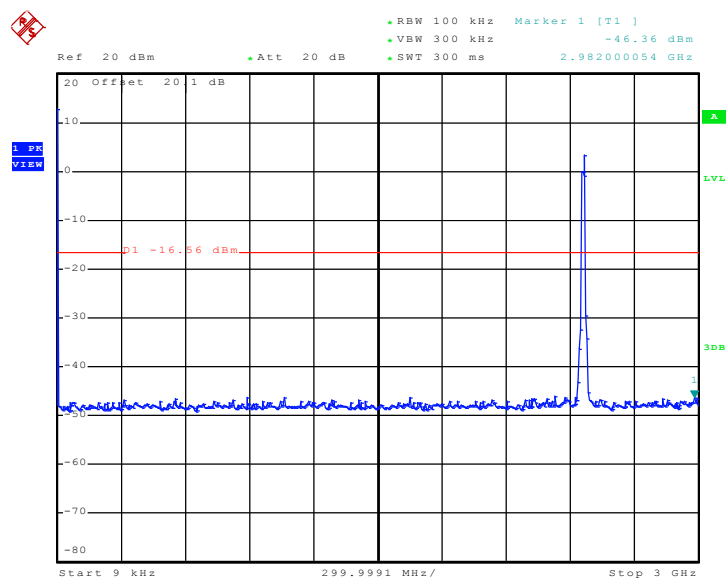
Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



Date: 28.SEP.2010 21:18:26

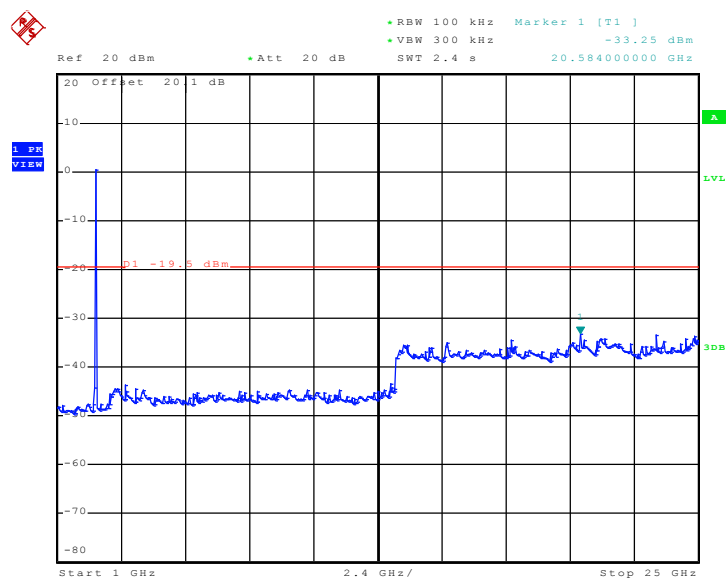
Test Mode :	Mode 6	Temperature :	26~28℃
Test Band :	802.11g	Relative Humidity :	43~46%
Test Channel :	11	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 28.SEP.2010 21:08:06

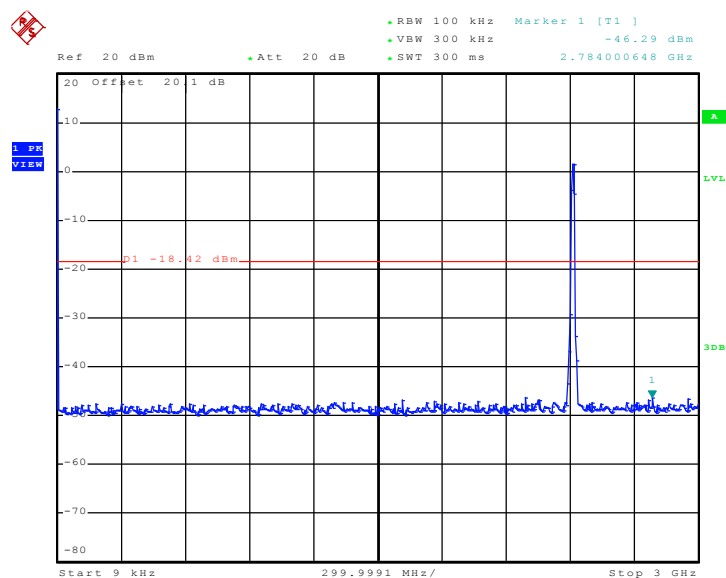
Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



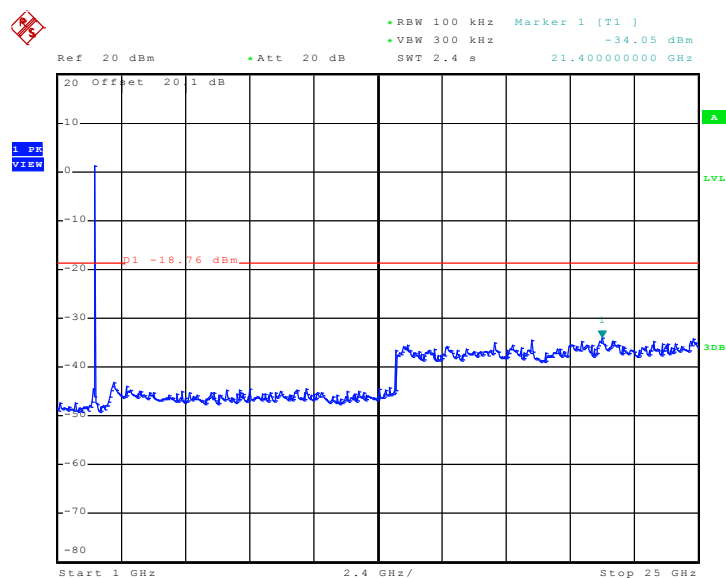
Date: 28.SEP.2010 21:19:30



Test Mode :	Mode 7	Temperature :	26~28°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	43~46%
Test Channel :	01	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz

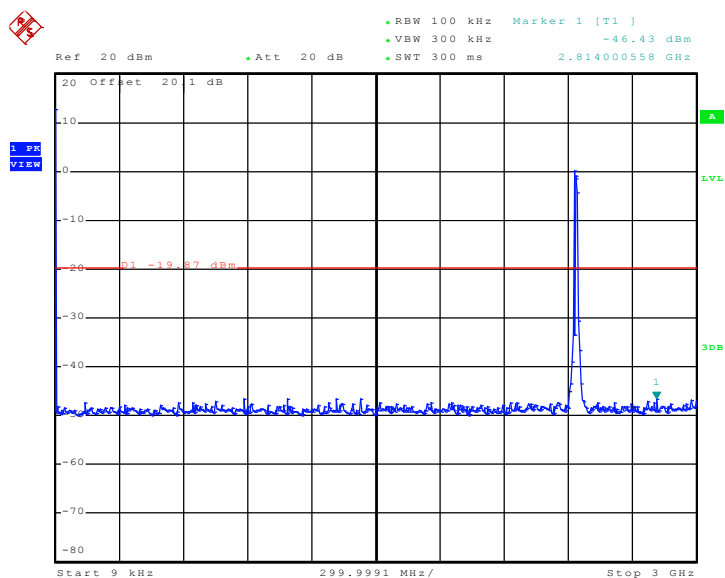
Date: 28.SEP.2010 21:11:15

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

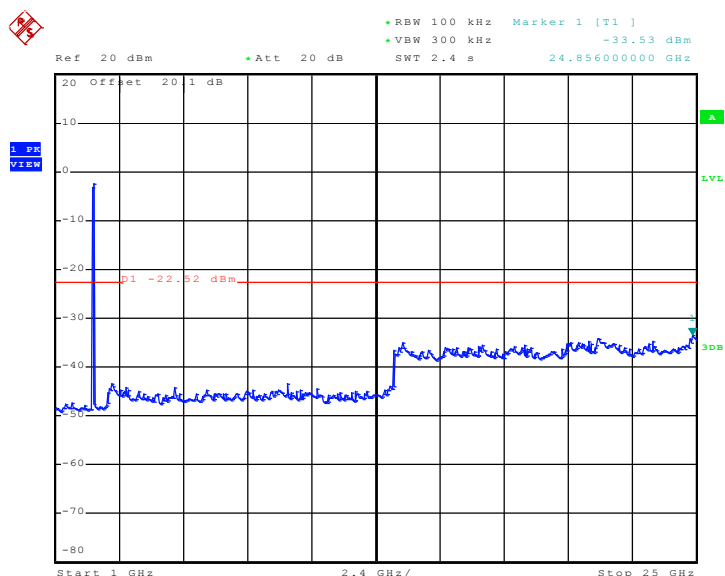
Date: 28.SEP.2010 21:16:20



Test Mode :	Mode 8	Temperature :	26~28°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	43~46%
Test Channel :	06	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz

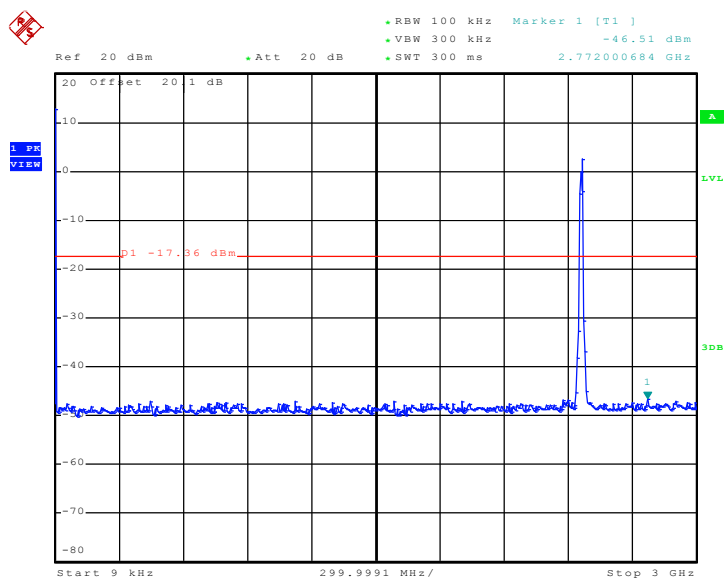
Date: 28.SEP.2010 21:12:09

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

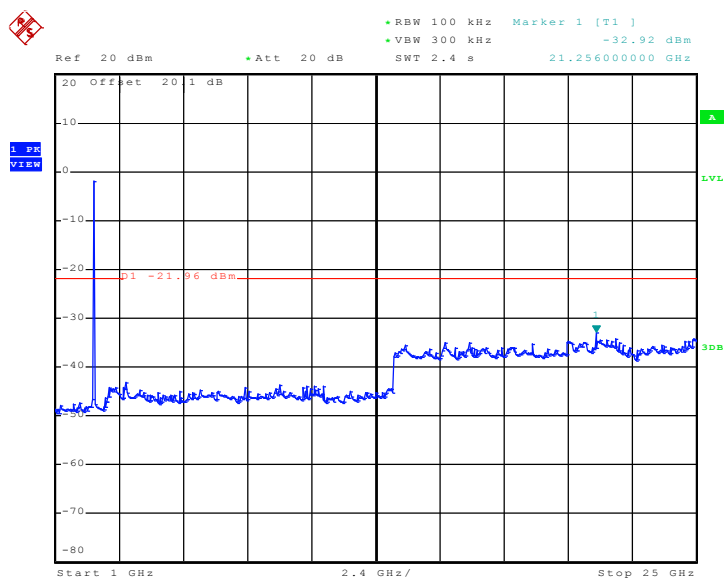
Date: 28.SEP.2010 21:15:27



Test Mode :	Mode 9	Temperature :	26~28°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	43~46%
Test Channel :	11	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz

Date: 28.SEP.2010 21:13:11

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

Date: 28.SEP.2010 21:14:28

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.

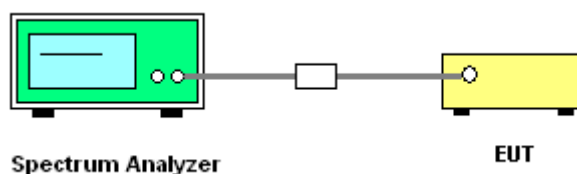
3.5.2 Measuring Instruments

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

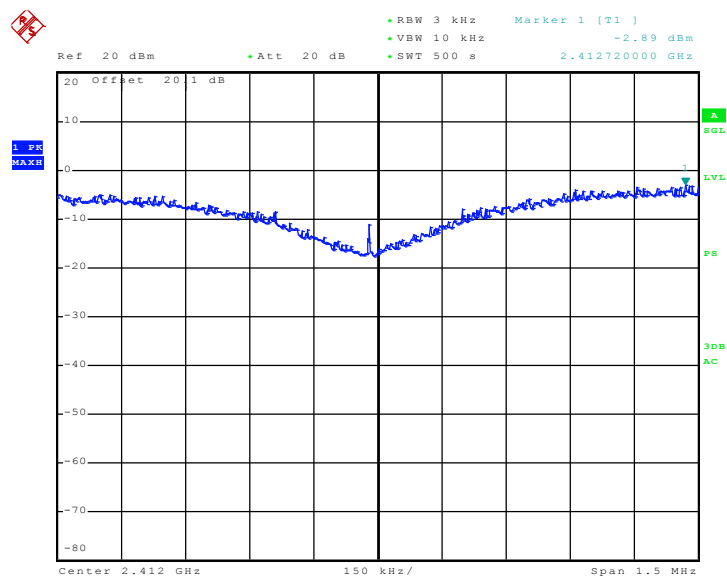


3.5.5 Test Result of Power Spectral Density

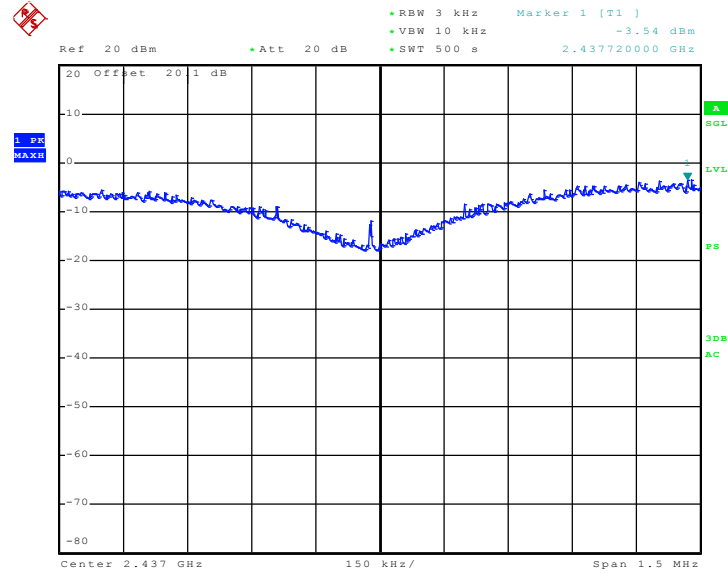
Test Mode :	Mode 1, 2, 3	Temperature :	26~28℃
Test Engineer :	Andy Yeh	Relative Humidity :	43~46%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-2.89	8	Pass
06	2437	-3.54	8	Pass
11	2462	-3.18	8	Pass

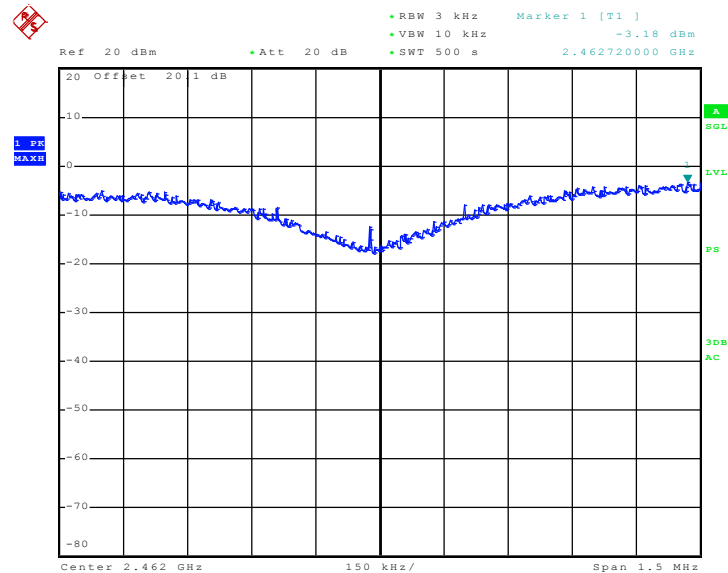
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 28.SEP.2010 19:22:53

Mode 2 : PSD Plot on 802.11b Channel 06


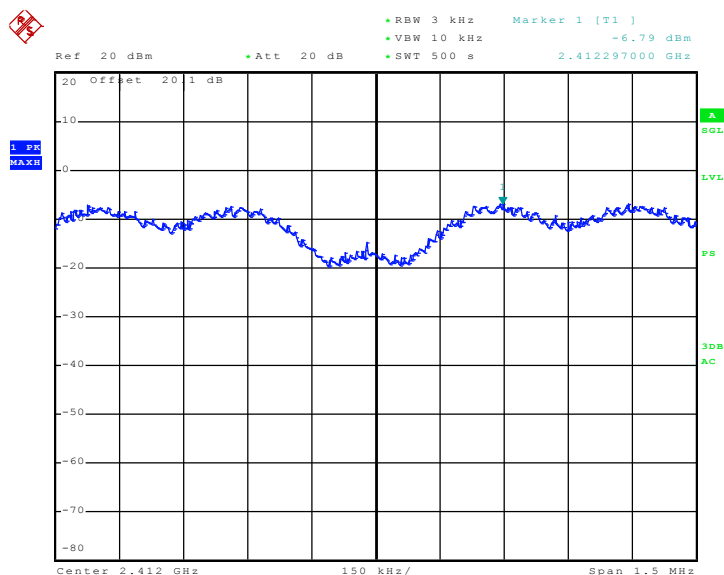
Date: 28.SEP.2010 19:12:41

Mode 3 : PSD Plot on 802.11b Channel 11


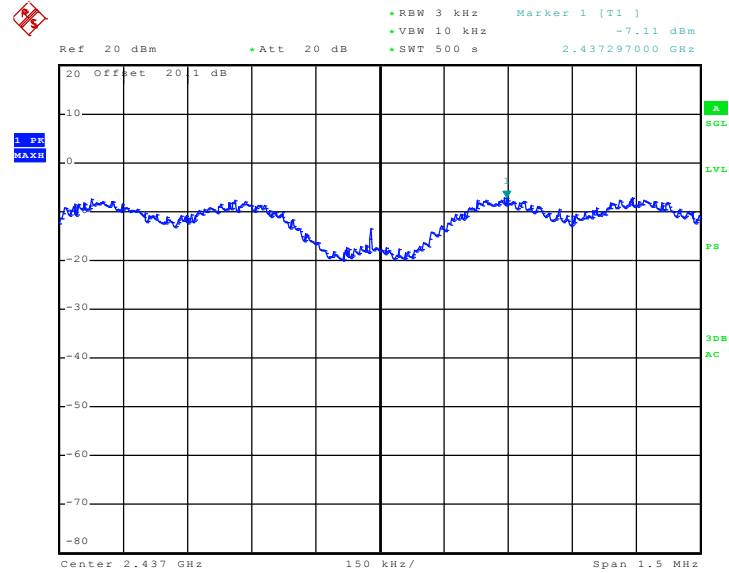
Date: 28.SEP.2010 19:03:48

Test Mode :	Mode 4, 5, 6	Temperature :	26~28°C
Test Engineer :	Andy Yeh	Relative Humidity :	43~46%

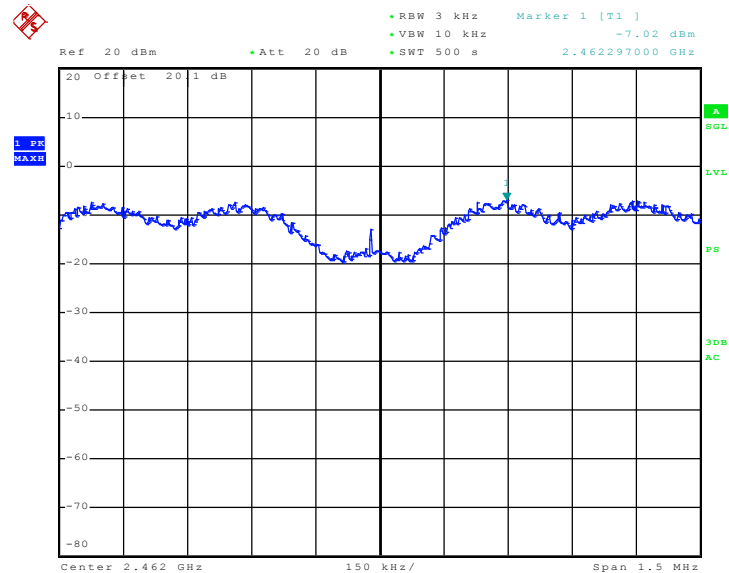
Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-6.79	8	Pass
06	2437	-7.11	8	Pass
11	2462	-7.02	8	Pass

Mode 4 : PSD Plot on 802.11g Channel 01


Date: 28.SEP.2010 19:32:05

Mode 5 : PSD Plot on 802.11g Channel 06


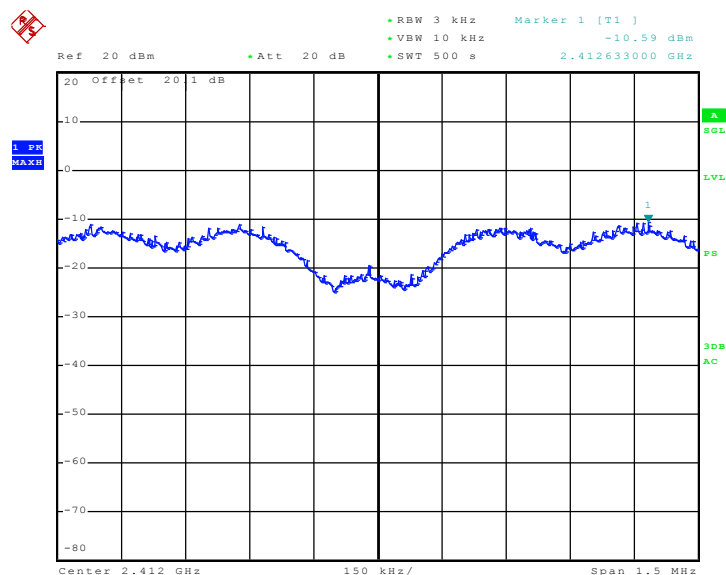
Date: 28.SEP.2010 19:41:18

Mode 6 : PSD Plot on 802.11g Channel 11


Date: 28.SEP.2010 20:13:22

Test Mode :	Mode 7, 8, 9	Temperature :	26~28°C
Test Engineer :	Andy Yeh	Relative Humidity :	43~46%

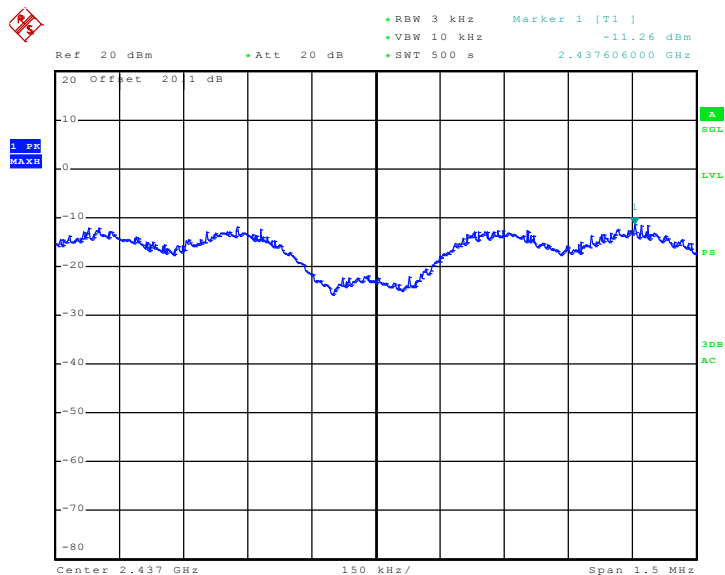
Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.59	8	Pass
06	2437	-11.26	8	Pass
11	2462	-10.90	8	Pass

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


Date: 28.SEP.2010 20:40:17

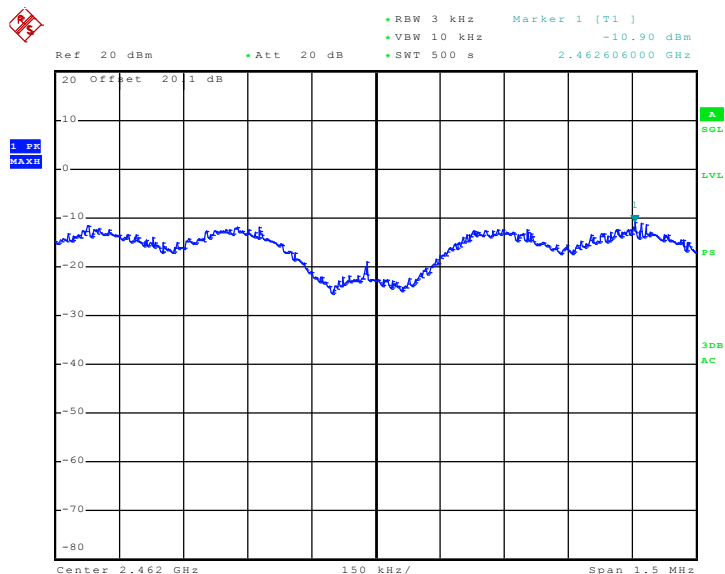


Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06



Date: 28.SEP.2010 20:58:01

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



Date: 28.SEP.2010 20:22:28

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.

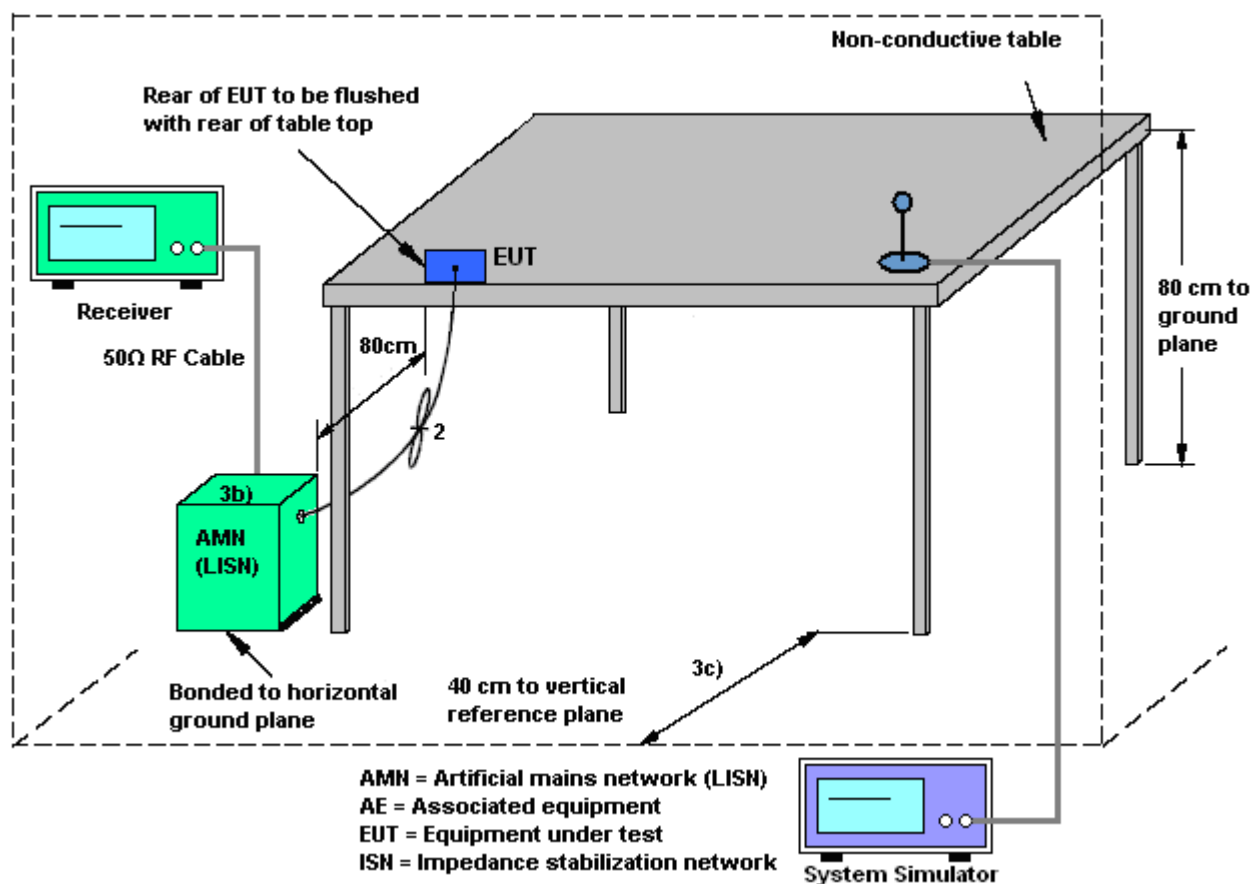
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

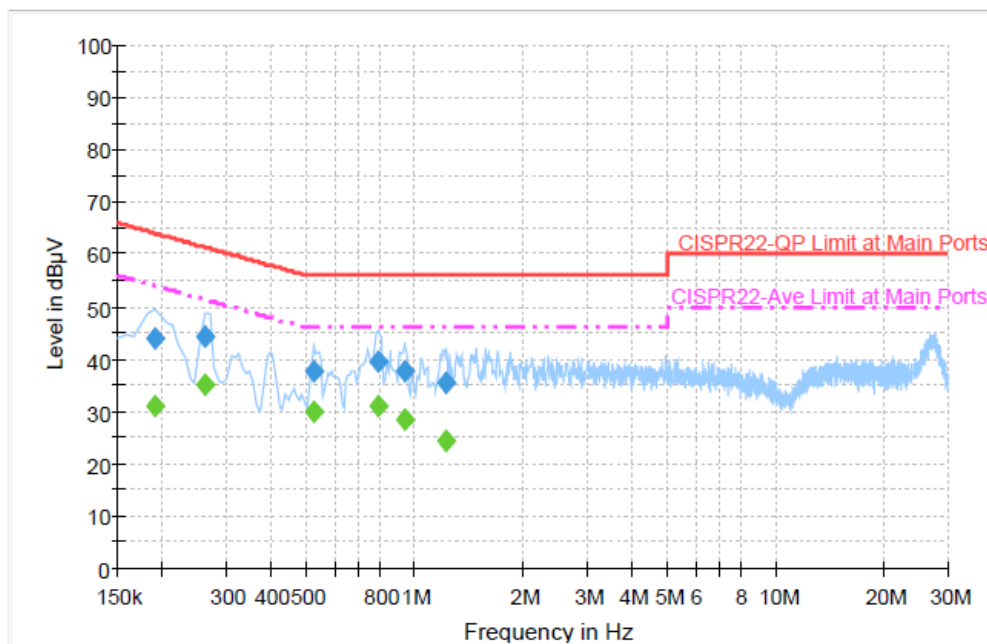
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 Jiang	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	CDMA2000 BC0 Idle + Bluetooth Link + WLAN Link + GPS Rx + Earphone + Battery 1 + USB Cable 1 (Charging from Adapter 1) for Sample 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



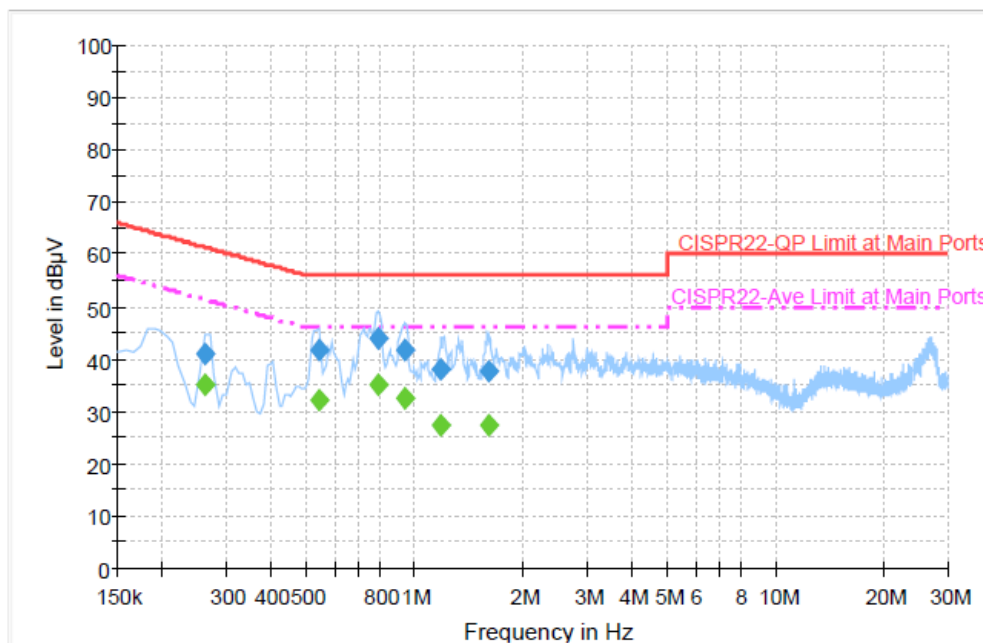
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.190000	43.9	Off	L1	19.4	20.1	64.0
0.262000	44.2	Off	L1	19.3	17.2	61.4
0.526000	37.7	Off	L1	19.3	18.3	56.0
0.790000	39.5	Off	L1	19.4	16.5	56.0
0.934000	37.5	Off	L1	19.4	18.5	56.0
1.222000	35.4	Off	L1	19.4	20.6	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.190000	31.0	Off	L1	19.4	23.0	54.0
0.262000	35.2	Off	L1	19.3	16.2	51.4
0.526000	29.9	Off	L1	19.3	16.1	46.0
0.790000	31.1	Off	L1	19.4	14.9	46.0
0.934000	28.4	Off	L1	19.4	17.6	46.0
1.222000	24.4	Off	L1	19.4	21.6	46.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Novic Jiang	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	CDMA2000 BC0 Idle + Bluetooth Link + WLAN Link + GPS Rx + Earphone + Battery 1 + USB Cable 1 (Charging from Adapter 1) for Sample 1		
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	41.1	Off	N	19.4	20.3	61.4
0.542000	41.8	Off	N	19.3	14.2	56.0
0.790000	44.0	Off	N	19.4	12.0	56.0
0.942000	41.8	Off	N	19.4	14.2	56.0
1.182000	37.9	Off	N	19.5	18.1	56.0
1.606000	37.6	Off	N	19.4	18.4	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.262000	35.0	Off	N	19.4	16.4	51.4
0.542000	32.0	Off	N	19.3	14.0	46.0
0.790000	35.1	Off	N	19.4	10.9	46.0
0.942000	32.4	Off	N	19.4	13.6	46.0
1.182000	27.4	Off	N	19.5	18.6	46.0
1.606000	27.2	Off	N	19.4	18.8	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

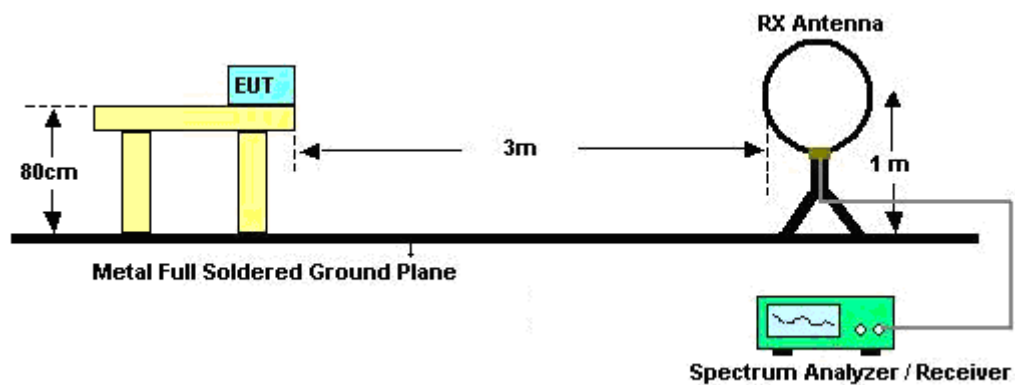
See list of measuring instruments of this test report.

3.7.3 Test Procedures

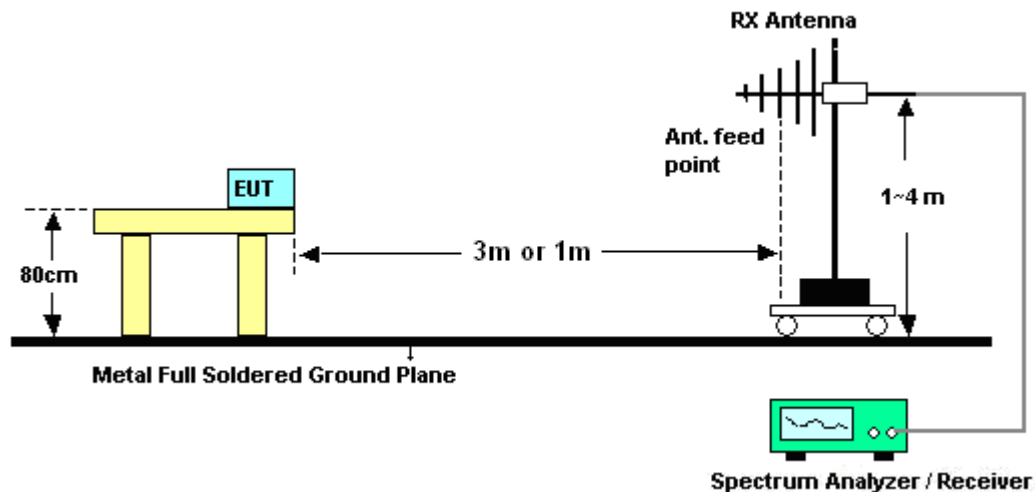
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto;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

3.7.4 Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz



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

Test Engineer :	Jason Wang	Temperature :	22.4~24.8℃	
		Relative Humidity :	47~52%	

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 :	22.4~24.8℃
Test Channel :	01	Relative Humidity :	47~52%
Test Engineer :	Jason 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
35.94	32.48	-7.52	40.00	47.17	16.20	0.59	31.48	159	354	Peak
49.17	29.62	-10.38	40.00	51.99	8.47	0.69	31.53	-	-	Peak
106.41	26.95	-16.55	43.50	46.50	10.97	1.03	31.55	-	-	Peak
657.00	23.45	-22.55	46.00	30.96	20.50	2.85	30.86	-	-	Peak
825.00	25.07	-20.93	46.00	30.11	22.46	3.21	30.71	-	-	Peak
973.40	27.83	-26.17	54.00	30.63	24.29	3.48	30.57	-	-	Peak
2389.61	57.59	-16.41	74.00	52.91	32.18	6.03	33.53	102	318	Peak
2389.61	45.20	-8.80	54.00	40.52	32.18	6.03	33.53	102	318	Average
2412.00	108.69	-	-	103.96	32.20	6.07	33.54	102	318	Peak
2412.00	104.41	-	-	99.68	32.20	6.07	33.54	102	318	Average
2492.00	37.66	-16.34	54.00	32.75	32.30	6.18	33.57	102	318	Average
2492.00	48.55	-25.45	74.00	43.64	32.30	6.18	33.57	102	318	Peak



Test Mode :	Mode 1	Temperature :	22.4~24.8℃
Test Channel :	01	Relative Humidity :	47~52%
Test Engineer :	Jason 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
31.62	35.84	-4.16	40.00	48.35	18.40	0.55	31.46	169	43	Peak
41.61	32.87	-7.13	40.00	50.95	12.80	0.63	31.51	-	-	Peak
106.41	28.55	-14.95	43.50	48.10	10.97	1.03	31.55	-	-	Peak
637.40	22.04	-23.96	46.00	29.77	20.35	2.80	30.88	-	-	Peak
800.50	24.35	-21.65	46.00	29.67	22.22	3.14	30.68	-	-	Peak
962.90	26.57	-27.43	54.00	29.54	24.13	3.47	30.57	-	-	Peak
2389.42	52.26	-21.74	74.00	47.58	32.18	6.03	33.53	100	194	Peak
2389.42	40.20	-13.80	54.00	35.52	32.18	6.03	33.53	100	194	Average
2412.00	105.43	-	-	100.70	32.20	6.07	33.54	100	194	Peak
2412.00	101.38	-	-	96.65	32.20	6.07	33.54	100	194	Average
2486.00	35.05	-18.95	54.00	30.15	32.28	6.18	33.56	100	194	Average
2486.00	47.36	-26.64	74.00	42.46	32.28	6.18	33.56	100	194	Peak

Test Mode :	Mode 2	Temperature :	22.4~24.8℃
Test Channel :	06	Relative Humidity :	47~52%
Test Engineer :	Jason 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
33.24	32.90	-6.10	40.00	46.97	17.84	0.56	31.47	152	336	Peak
42.42	32.95	-7.05	40.00	51.63	12.18	0.64	31.50	-	-	Peak
54.84	29.83	-10.17	40.00	53.70	6.95	0.73	31.55	-	-	Peak
699.00	23.47	-22.53	46.00	30.52	20.83	2.94	30.82	-	-	Peak
915.30	26.03	-19.97	46.00	29.90	23.41	3.38	30.66	-	-	Peak
993.70	27.17	-26.83	54.00	29.65	24.60	3.50	30.58	-	-	Peak
2358.00	49.92	-24.08	74.00	45.32	32.13	5.99	33.52	108	340	Peak
2358.00	40.35	-13.65	54.00	35.75	32.13	5.99	33.52	108	340	Average
2437.00	110.24	-	-	105.44	32.24	6.11	33.55	108	340	Peak
2437.00	105.86	-	-	101.06	32.24	6.11	33.55	108	340	Average
2484.00	47.92	-26.08	74.00	43.02	32.28	6.18	33.56	108	340	Peak
2484.00	36.32	-17.68	54.00	31.42	32.28	6.18	33.56	108	340	Average



Test Mode :	Mode 2	Temperature :	22.4~24.8℃
Test Channel :	06	Relative Humidity :	47~52%
Test Engineer :	Jason 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	35.76	-4.24	40.00	48.27	18.40	0.55	31.46	145	332	Peak
48.36	33.45	-6.55	40.00	55.34	8.96	0.68	31.53	-	-	Peak
106.41	27.61	-15.89	43.50	47.16	10.97	1.03	31.55	-	-	Peak
699.70	24.14	-21.86	46.00	31.19	20.83	2.94	30.82	-	-	Peak
819.40	25.43	-20.57	46.00	30.53	22.41	3.19	30.70	-	-	Peak
993.70	26.86	-27.14	54.00	29.34	24.60	3.50	30.58	-	-	Peak
2358.00	49.99	-24.01	74.00	45.39	32.13	5.99	33.52	178	357	Peak
2358.00	40.88	-13.12	54.00	36.28	32.13	5.99	33.52	178	357	Average
2437.00	106.80	-	-	102.00	32.24	6.11	33.55	178	357	Peak
2437.00	102.65	-	-	97.85	32.24	6.11	33.55	178	357	Average
2494.00	46.90	-27.10	74.00	41.99	32.30	6.18	33.57	178	357	Peak
2494.00	35.03	-18.97	54.00	30.12	32.30	6.18	33.57	178	357	Average
4874.00	49.87	-24.13	74.00	63.15	34.08	9.13	56.49	100	262	Peak
4874.00	42.38	-11.62	54.00	55.66	34.08	9.13	56.49	100	262	Average



Test Mode :	Mode 3	Temperature :	22.4~24.8℃
Test Channel :	11	Relative Humidity :	47~52%
Test Engineer :	Jason 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
35.13	33.43	-6.57	40.00	47.59	16.73	0.58	31.47	174	328	Peak
49.98	31.87	-8.13	40.00	54.73	7.98	0.70	31.54	-	-	Peak
106.41	30.13	-13.37	43.50	49.68	10.97	1.03	31.55	-	-	Peak
766.90	23.81	-22.19	46.00	29.65	21.76	3.09	30.69	-	-	Peak
853.00	25.85	-20.15	46.00	30.59	22.72	3.27	30.73	-	-	Peak
984.60	27.40	-26.60	54.00	30.03	24.46	3.49	30.58	-	-	Peak
2382.00	51.33	-22.67	74.00	46.67	32.16	6.03	33.53	101	2	Peak
2382.00	42.56	-11.44	54.00	37.90	32.16	6.03	33.53	101	2	Average
2462.00	109.54	-	-	104.70	32.26	6.14	33.56	101	2	Peak
2462.00	105.44	-	-	100.60	32.26	6.14	33.56	101	2	Average
2483.85	50.08	-3.92	54.00	45.18	32.28	6.18	33.56	101	2	Average
2483.85	61.50	-12.50	74.00	56.60	32.28	6.18	33.56	101	2	Peak
7386.00	50.80	-23.20	74.00	62.25	35.38	10.10	56.93	100	148	Peak
7386.00	44.16	-9.84	54.00	55.61	35.38	10.10	56.93	100	148	Average



Test Mode :	Mode 3	Temperature :	22.4~24.8℃
Test Channel :	11	Relative Humidity :	47~52%
Test Engineer :	Jason 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
30.81	35.83	-4.17	40.00	47.80	18.95	0.54	31.46	159	164	Peak
48.90	30.72	-9.28	40.00	52.61	8.96	0.68	31.53	-	-	Peak
106.41	27.89	-15.61	43.50	47.44	10.97	1.03	31.55	-	-	Peak
758.50	23.56	-22.44	46.00	29.55	21.64	3.07	30.70	-	-	Peak
887.30	25.57	-20.43	46.00	29.90	23.06	3.32	30.71	-	-	Peak
995.80	27.11	-26.89	54.00	29.55	24.63	3.51	30.58	-	-	Peak
2382.00	49.75	-24.25	74.00	45.09	32.16	6.03	33.53	103	192	Peak
2382.00	41.22	-12.78	54.00	36.56	32.16	6.03	33.53	103	192	Average
2462.00	104.46	-	-	99.62	32.26	6.14	33.56	103	192	Peak
2462.00	100.45	-	-	95.61	32.26	6.14	33.56	103	192	Average
2483.66	44.94	-9.06	54.00	40.04	32.28	6.18	33.56	103	192	Average
2483.66	56.62	-17.38	74.00	51.72	32.28	6.18	33.56	103	192	Peak
7386.00	53.55	-20.45	74.00	65.00	35.38	10.10	56.93	100	325	Peak
7386.00	47.58	-6.42	54.00	59.03	35.38	10.10	56.93	100	325	Average



Test Mode :	Mode 4	Temperature :	22.4~24.8℃
Test Channel :	01	Relative Humidity :	47~52%
Test Engineer :	Jason 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
30.81	32.80	-7.20	40.00	44.77	18.95	0.54	31.46	132	157	Peak
48.90	30.84	-9.16	40.00	52.73	8.96	0.68	31.53	-	-	Peak
106.41	30.46	-13.04	43.50	50.01	10.97	1.03	31.55	-	-	Peak
713.00	22.88	-23.12	46.00	29.69	21.01	2.97	30.79	-	-	Peak
839.00	25.62	-20.38	46.00	30.51	22.59	3.24	30.72	-	-	Peak
951.70	27.42	-18.58	46.00	30.57	23.96	3.46	30.57	-	-	Peak
2389.61	67.57	-6.43	74.00	62.89	32.18	6.03	33.53	103	10	Peak
2389.61	47.23	-6.77	54.00	42.55	32.18	6.03	33.53	103	10	Average
2412.00	106.86	-	-	102.13	32.20	6.07	33.54	103	10	Peak
2412.00	94.65	-	-	89.92	32.20	6.07	33.54	103	10	Average
2500.00	35.59	-18.41	54.00	30.68	32.30	6.18	33.57	103	10	Average
2500.00	48.07	-25.93	74.00	43.16	32.30	6.18	33.57	103	10	Peak

Test Mode :	Mode 4	Temperature :	22.4~24.8℃
Test Channel :	01	Relative Humidity :	47~52%
Test Engineer :	Jason 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
30.00	35.15	-4.85	40.00	46.57	19.51	0.53	31.46	114	29	Peak
49.71	28.23	-11.77	40.00	50.60	8.47	0.69	31.53	-	-	Peak
106.41	31.61	-11.89	43.50	51.16	10.97	1.03	31.55	-	-	Peak
727.70	23.86	-22.14	46.00	30.38	21.22	3.01	30.75	-	-	Peak
842.50	25.17	-20.83	46.00	30.01	22.63	3.25	30.72	-	-	Peak
973.40	26.99	-27.01	54.00	29.79	24.29	3.48	30.57	-	-	Peak
2389.99	63.25	-10.75	74.00	58.57	32.18	6.03	33.53	178	321	Peak
2389.99	42.99	-11.01	54.00	38.31	32.18	6.03	33.53	178	321	Average
2412.00	104.07	-	-	99.34	32.20	6.07	33.54	178	321	Peak
2412.00	91.51	-	-	86.78	32.20	6.07	33.54	178	321	Average
2492.00	46.10	-27.90	74.00	41.19	32.30	6.18	33.57	178	321	Peak
2492.00	34.49	-19.51	54.00	29.58	32.30	6.18	33.57	178	321	Average



Test Mode :	Mode 5	Temperature :	22.4~24.8℃
Test Channel :	06	Relative Humidity :	47~52%
Test Engineer :	Jason 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
30.00	33.60	-6.40	40.00	45.02	19.51	0.53	31.46	168	232	Peak
48.90	30.02	-9.98	40.00	51.91	8.96	0.68	31.53	-	-	Peak
106.41	27.01	-16.49	43.50	46.56	10.97	1.03	31.55	-	-	Peak
746.60	24.57	-21.43	46.00	30.75	21.48	3.05	30.71	-	-	Peak
909.00	26.02	-19.98	46.00	30.03	23.31	3.36	30.68	-	-	Peak
996.50	27.82	-26.18	54.00	30.26	24.63	3.51	30.58	-	-	Peak
2356.00	49.36	-24.64	74.00	44.80	32.13	5.95	33.52	102	12	Peak
2356.00	37.65	-16.35	54.00	33.09	32.13	5.95	33.52	102	12	Average
2437.00	107.44	-	-	102.66	32.22	6.11	33.55	102	12	Peak
2437.00	94.87	-	-	90.07	32.24	6.11	33.55	102	12	Average
2484.00	47.63	-26.37	74.00	42.73	32.28	6.18	33.56	102	12	Peak
2484.00	35.42	-18.58	54.00	30.52	32.28	6.18	33.56	102	12	Average

Test Mode :	Mode 5	Temperature :	22.4~24.8℃
Test Channel :	06	Relative Humidity :	47~52%
Test Engineer :	Jason 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
30.00	35.26	-4.74	40.00	46.68	19.51	0.53	31.46	170	166	Peak
40.53	31.79	-8.21	40.00	49.24	13.43	0.63	31.51	-	-	Peak
106.41	35.25	-8.25	43.50	54.80	10.97	1.03	31.55	-	-	Peak
705.30	23.25	-22.75	46.00	30.20	20.91	2.95	30.81	-	-	Peak
822.20	25.49	-20.51	46.00	30.56	22.43	3.20	30.70	-	-	Peak
998.60	26.91	-27.09	54.00	29.30	24.68	3.51	30.58	-	-	Peak
2390.00	48.59	-25.41	74.00	43.91	32.18	6.03	33.53	181	320	Peak
2390.00	35.19	-18.81	54.00	30.51	32.18	6.03	33.53	181	320	Average
2437.00	103.27	-	-	98.49	32.22	6.11	33.55	181	320	Peak
2437.00	91.10	-	-	86.30	32.24	6.11	33.55	181	320	Average
2484.00	46.06	-27.94	74.00	41.16	32.28	6.18	33.56	181	320	Peak
2484.00	34.17	-19.83	54.00	29.27	32.28	6.18	33.56	181	320	Average



Test Mode :	Mode 6	Temperature :	22.4~24.8℃
Test Channel :	11	Relative Humidity :	47~52%
Test Engineer :	Jason 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
30.00	33.84	-6.16	40.00	45.26	19.51	0.53	31.46	126	336	Peak
48.90	31.28	-8.72	40.00	53.17	8.96	0.68	31.53	-	-	Peak
106.41	25.92	-17.58	43.50	45.47	10.97	1.03	31.55	-	-	Peak
685.00	23.24	-22.76	46.00	30.45	20.72	2.91	30.84	-	-	Peak
867.70	25.74	-20.26	46.00	30.29	22.87	3.30	30.72	-	-	Peak
984.60	27.40	-26.60	54.00	30.03	24.46	3.49	30.58	-	-	Peak
2374.00	48.83	-25.17	74.00	44.21	32.16	5.99	33.53	100	16	Peak
2374.00	37.87	-16.13	54.00	33.25	32.16	5.99	33.53	100	16	Average
2462.00	92.89	-	-	88.05	32.26	6.14	33.56	100	16	Average
2462.00	106.05	-	-	101.21	32.26	6.14	33.56	100	16	Peak
2483.85	70.87	-3.13	74.00	65.97	32.28	6.18	33.56	100	16	Peak
2483.85	50.58	-3.42	54.00	45.68	32.28	6.18	33.56	100	16	Average



Test Mode :	Mode 6	Temperature :	22.4~24.8℃
Test Channel :	11	Relative Humidity :	47~52%
Test Engineer :	Jason 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
30.00	35.88	-4.12	40.00	47.30	19.51	0.53	31.46	124	251	Peak
56.73	29.71	-10.29	40.00	53.98	6.54	0.74	31.55	-	-	Peak
106.41	28.70	-14.80	43.50	48.25	10.97	1.03	31.55	-	-	Peak
701.80	23.88	-22.12	46.00	30.89	20.87	2.94	30.82	-	-	Peak
819.40	25.56	-20.44	46.00	30.66	22.41	3.19	30.70	-	-	Peak
990.90	27.12	-26.88	54.00	29.64	24.56	3.50	30.58	-	-	Peak
2380.00	50.25	-23.75	74.00	46.07	31.68	6.03	33.53	100	211	Peak
2380.00	37.78	-16.22	54.00	33.60	31.68	6.03	33.53	100	211	Average
2462.00	89.01	-	-	84.66	31.77	6.14	33.56	100	211	Average
2462.00	101.08	-	-	96.73	31.77	6.14	33.56	100	211	Peak
2483.50	67.94	-6.06	74.00	63.54	31.78	6.18	33.56	100	211	Peak
2483.50	46.78	-7.22	54.00	42.38	31.78	6.18	33.56	100	211	Average



Test Mode :	Mode 7	Temperature :	22.4~24.8℃
Test Channel :	01	Relative Humidity :	47~52%
Test Engineer :	Jason 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
30.00	33.40	-5.60	40.00	44.82	19.51	0.53	31.46	143	278	Peak
48.90	33.62	-6.38	40.00	55.51	8.96	0.68	31.53	-	-	Peak
106.41	31.55	-11.95	43.50	51.10	10.97	1.03	31.55	-	-	Peak
691.30	23.56	-22.44	46.00	30.70	20.77	2.92	30.83	-	-	Peak
853.00	25.49	-20.51	46.00	30.23	22.72	3.27	30.73	-	-	Peak
976.90	27.95	-26.05	54.00	30.70	24.34	3.49	30.58	-	-	Peak
2389.99	47.06	-6.94	54.00	42.38	32.18	6.03	33.53	109	335	Average
2389.99	67.27	-6.73	74.00	62.59	32.18	6.03	33.53	109	335	Peak
2412.00	105.80	-	-	101.07	32.20	6.07	33.54	109	335	Peak
2412.00	92.80	-	-	88.07	32.20	6.07	33.54	109	335	Average
2494.00	35.09	-18.91	54.00	30.18	32.30	6.18	33.57	109	335	Average
2494.00	46.61	-27.39	74.00	41.70	32.30	6.18	33.57	109	335	Peak

Test Mode :	Mode 7	Temperature :	22.4~24.8℃
Test Channel :	01	Relative Humidity :	47~52%
Test Engineer :	Jason 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
30.00	35.64	-4.36	40.00	47.06	19.51	0.53	31.46	139	101	Peak
48.90	30.03	-9.97	40.00	51.92	8.96	0.68	31.53	-	-	Peak
106.41	33.23	-10.27	43.50	52.78	10.97	1.03	31.55	-	-	Peak
744.50	23.75	-22.25	46.00	29.95	21.46	3.05	30.71	-	-	Peak
886.60	25.91	-20.09	46.00	30.25	23.05	3.32	30.71	-	-	Peak
974.10	27.08	-26.92	54.00	29.88	24.29	3.48	30.57	-	-	Peak
2389.42	43.32	-10.68	54.00	38.64	32.18	6.03	33.53	100	193	Average
2389.42	63.70	-10.30	74.00	59.02	32.18	6.03	33.53	100	193	Peak
2412.00	102.39	-	-	97.66	32.20	6.07	33.54	100	193	Peak
2412.00	89.99	-	-	85.26	32.20	6.07	33.54	100	193	Average
2492.00	33.94	-20.06	54.00	29.03	32.30	6.18	33.57	100	193	Average
2492.00	45.59	-28.41	74.00	40.68	32.30	6.18	33.57	100	193	Peak

Test Mode :	Mode 8	Temperature :	22.4~24.8℃
Test Channel :	06	Relative Humidity :	47~52%
Test Engineer :	Jason 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
30.27	34.27	-5.73	40.00	45.69	19.51	0.53	31.46	145	296	Peak
48.90	29.20	-10.80	40.00	51.09	8.96	0.68	31.53	-	-	Peak
106.41	26.94	-16.56	43.50	46.49	10.97	1.03	31.55	-	-	Peak
727.00	24.00	-22.00	46.00	30.52	21.22	3.01	30.75	-	-	Peak
875.40	25.17	-20.83	46.00	29.62	22.95	3.31	30.71	-	-	Peak
996.50	27.29	-26.71	54.00	29.73	24.63	3.51	30.58	-	-	Peak
2390.00	48.18	-25.82	74.00	43.50	32.18	6.03	33.53	105	353	Peak
2390.00	34.77	-19.23	54.00	30.09	32.18	6.03	33.53	105	353	Average
2437.00	104.60	-	-	99.80	32.24	6.11	33.55	105	353	Peak
2437.00	92.20	-	-	87.40	32.24	6.11	33.55	105	353	Average
2484.00	48.41	-25.59	74.00	43.51	32.28	6.18	33.56	105	353	Peak
2484.00	35.86	-18.14	54.00	30.96	32.28	6.18	33.56	105	353	Average



Test Mode :	Mode 8	Temperature :	22.4~24.8℃
Test Channel :	06	Relative Humidity :	47~52%
Test Engineer :	Jason 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
30.00	35.38	-4.62	40.00	46.80	19.51	0.53	31.46	188	53	Peak
50.25	32.65	-7.35	40.00	55.51	7.98	0.70	31.54	-	-	Peak
106.41	33.85	-9.65	43.50	53.40	10.97	1.03	31.55	-	-	Peak
699.70	23.35	-22.65	46.00	30.40	20.83	2.94	30.82	-	-	Peak
889.40	25.60	-20.40	46.00	29.90	23.08	3.33	30.71	-	-	Peak
996.50	27.66	-26.34	54.00	30.10	24.63	3.51	30.58	-	-	Peak
2334.00	46.38	-27.62	74.00	41.85	32.09	5.95	33.51	100	234	Peak
2334.00	34.72	-19.28	54.00	30.19	32.09	5.95	33.51	100	234	Average
2437.00	101.53	-	-	96.73	32.24	6.11	33.55	100	234	Peak
2437.00	89.19	-	-	84.39	32.24	6.11	33.55	100	234	Average
2484.00	46.84	-27.16	74.00	41.94	32.28	6.18	33.56	100	234	Peak
2484.00	34.18	-19.82	54.00	29.28	32.28	6.18	33.56	100	234	Average



Test Mode :	Mode 9	Temperature :	22.4~24.8℃
Test Channel :	11	Relative Humidity :	47~52%
Test Engineer :	Jason 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
30.81	34.50	-5.50	40.00	46.47	18.95	0.54	31.46	141	325	Peak
48.90	27.14	-12.86	40.00	49.03	8.96	0.68	31.53	-	-	Peak
78.06	25.16	-14.84	40.00	48.43	7.39	0.87	31.53	-	-	Peak
755.00	23.54	-22.46	46.00	29.58	21.59	3.07	30.70	-	-	Peak
864.90	25.02	-20.98	46.00	29.61	22.84	3.29	30.72	-	-	Peak
948.20	27.18	-18.82	46.00	30.38	23.91	3.46	30.57	-	-	Peak
2388.00	49.42	-24.58	74.00	44.74	32.18	6.03	33.53	103	333	Peak
2388.00	37.75	-16.25	54.00	33.07	32.18	6.03	33.53	103	333	Average
2462.00	105.18	-	-	100.34	32.26	6.14	33.56	103	333	Peak
2462.00	92.74	-	-	87.90	32.26	6.14	33.56	103	333	Average
2483.50	49.48	-4.52	54.00	44.58	32.28	6.18	33.56	103	333	Average
2483.50	68.66	-5.34	74.00	63.76	32.28	6.18	33.56	103	333	Peak



Test Mode :	Mode 9	Temperature :	22.4~24.8℃
Test Channel :	11	Relative Humidity :	47~52%
Test Engineer :	Jason 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
30.81	35.63	-4.37	40.00	47.60	18.95	0.54	31.46	160	225	Peak
48.90	29.56	-10.44	40.00	51.45	8.96	0.68	31.53	-	-	Peak
106.41	32.92	-10.58	43.50	52.47	10.97	1.03	31.55	-	-	Peak
755.70	23.48	-22.52	46.00	29.51	21.60	3.07	30.70	-	-	Peak
914.60	25.66	-20.34	46.00	29.54	23.40	3.38	30.66	-	-	Peak
998.60	27.04	-26.96	54.00	29.43	24.68	3.51	30.58	-	-	Peak
2382.00	49.12	-24.88	74.00	44.46	32.16	6.03	33.53	100	210	Peak
2382.00	38.26	-15.74	54.00	33.60	32.16	6.03	33.53	100	210	Average
2462.00	102.35	-	-	97.51	32.26	6.14	33.56	100	210	Peak
2462.00	89.06	-	-	84.22	32.26	6.14	33.56	100	210	Average
2483.66	66.95	-7.05	74.00	62.05	32.28	6.18	33.56	100	210	Peak
2483.66	45.39	-8.61	54.00	40.49	32.28	6.18	33.56	100	210	Average

Test Mode :	Mode 10	Temperature :	22.4~24.8℃
Test Channel :	11	Relative Humidity :	47~52%
Test Engineer :	Jason 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
30.54	31.76	-8.24	40.00	43.73	18.95	0.54	31.46	107	248	Peak
49.17	31.11	-8.89	40.00	53.48	8.47	0.69	31.53	-	-	Peak
106.41	29.11	-14.39	43.50	48.66	10.97	1.03	31.55	-	-	Peak
743.80	24.01	-21.99	46.00	30.23	21.44	3.05	30.71	-	-	Peak
870.50	26.00	-20.00	46.00	30.53	22.89	3.30	30.72	-	-	Peak
990.20	27.65	-26.35	54.00	30.19	24.54	3.50	30.58	-	-	Peak
2380.00	46.29	-27.71	74.00	41.63	32.16	6.03	33.53	106	332	Peak
2380.00	34.94	-19.06	54.00	30.28	32.16	6.03	33.53	106	332	Average
2462.00	108.06	-	-	103.22	32.26	6.14	33.56	106	332	Peak
2462.00	95.51	-	-	90.67	32.26	6.14	33.56	106	332	Average
2483.50	49.59	-4.41	54.00	44.69	32.28	6.18	33.56	106	332	Average
2483.50	68.79	-5.21	74.00	63.89	32.28	6.18	33.56	106	332	Peak



Test Mode :	Mode 10	Temperature :	22.4~24.8℃
Test Channel :	11	Relative Humidity :	47~52%
Test Engineer :	Jason 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
31.62	35.12	-4.88	40.00	47.63	18.40	0.55	31.46	182	334	Peak
48.90	31.33	-8.67	40.00	53.22	8.96	0.68	31.53	-	-	Peak
106.41	32.53	-10.97	43.50	52.08	10.97	1.03	31.55	-	-	Peak
708.10	23.91	-22.09	46.00	30.80	20.95	2.96	30.80	-	-	Peak
914.60	25.94	-20.06	46.00	29.82	23.40	3.38	30.66	-	-	Peak
995.80	27.53	-26.47	54.00	29.97	24.63	3.51	30.58	-	-	Peak
2380.00	47.74	-26.26	74.00	43.08	32.16	6.03	33.53	103	192	Peak
2380.00	35.90	-18.10	54.00	31.24	32.16	6.03	33.53	103	192	Average
2462.00	103.46	-	-	98.62	32.26	6.14	33.56	103	192	Peak
2462.00	90.86	-	-	86.02	32.26	6.14	33.56	103	192	Average
2483.66	46.20	-7.80	54.00	41.30	32.28	6.18	33.56	103	192	Average
2483.66	65.72	-8.28	74.00	60.82	32.28	6.18	33.56	103	192	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	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	Nov. 30, 2009	Nov. 29, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9kHz~30MHz	Nov. 23, 2009	Nov. 22, 2010	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	105934	N/A	Nov. 11, 2008	Nov. 10, 2010	Conduction (CO05-HY)
GPS Station	T&E	GS-50	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2009	Oct. 30, 2010	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 04, 2009	Dec. 03, 2010	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 19, 2010	Aug. 18, 2011	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec.09,2009	Dec. 08, 2010	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 27, 2010	Mar. 26, 2011	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

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

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

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

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

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

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