



FCC RF Test Report

APPLICANT : HTC Corporation
EQUIPMENT : Smartphone
MODEL NAME : PD42100
FCC ID : NM8PD42100
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Jul. 21, 2010 and completely tested on Aug. 11, 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.

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FCC ID : NM8PD42100

Page Number : 1 of 73

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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	-
3.2	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 13.4 dB at 0.27 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.35 dB at 31.62 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

HTC Corporation

No. 23, Xinghua Rd., Taoyuan City, 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	PD42100
FCC ID	NM8PD42100
Sample 1	EUT with LCM-Main and Camera-Main
Sample 2	EUT with LCM-2 nd and Camera-2 nd
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 : 19.43 dBm (0.088 W) 802.11g : 22.60 dBm (0.182 W) 802.11n (BW 20MHz) : 21.60 dBm (0.145 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	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.	Earphone	N/A	HS G235	N/A	N/A	N/A
5.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
6.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

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	19.08	19.21	19.41	19.43
CH 06	2437 MHz	18.71	18.92	18.72	18.92
CH 11	2462 MHz	17.59	17.62	17.59	17.75

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	22.60	22.58	22.08	22.49	21.42	21.03	22.15	22.05
CH 06	2437 MHz	21.68	21.53	21.13	21.50	21.00	22.12	21.73	21.73
CH 11	2462 MHz	21.10	21.52	20.22	20.23	19.51	19.55	20.39	20.54

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)							
		At OFDM Data Rate							
		MCS0	MCS1	MCS	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412 MHz	21.60	21.09	21.48	21.5	21.51	20.47	20.36	21.18
CH 06	2437 MHz	21.23	20.27	20.30	20.07	20.00	20.10	20.32	20.31
CH 11	2462 MHz	20.44	19.66	19.09	19.00	19.12	19.01	19.18	19.61

Remark:

1. The data rates of WLAN 802.11b/g/n were set in 11Mbps for 802.11b, 6Mbps for 802.11g, and MCS0 for 802.11n (BW 20MHz) for all the test cases due to the highest RF output power.
2. The EUT is programmed to transmit signals continuously for all testing.

2.2 Test Mode

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

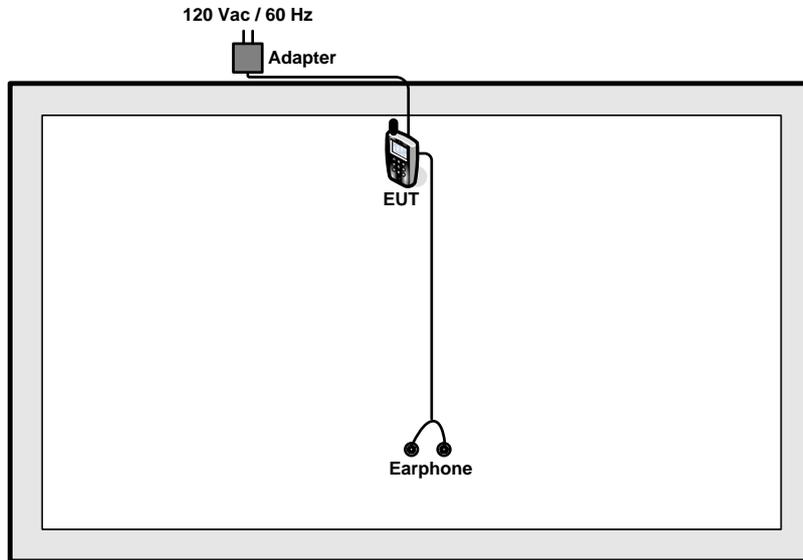
Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

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

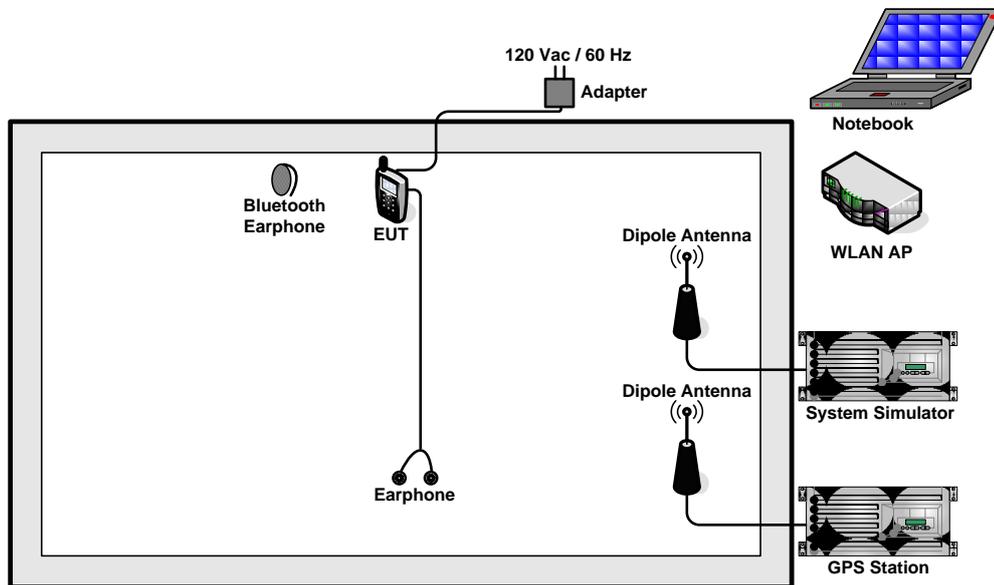
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 MHz Mode 8: 802.11n (BW 20M)_CH06_2437 MHz Mode 9: 802.11n (BW 20M)_CH11_2462 MHz
Radiated TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 MHz Mode 8: 802.11n (BW 20M)_CH06_2437 MHz Mode 9: 802.11n (BW 20M)_CH11_2462 MHz
AC Conducted Emission	Mode 1 : CDMA2000 BC0 Idle + Bluetooth Link + WLAN Link + GPS Rx + Earphone + Battery 2 +USB Cable 2 (Charging from Adapter 2) for Sample 1 Mode 2 : CDMA2000 BC0 Idle + Bluetooth Link + WLAN Link + GPS Rx + Earphone + Battery 2 + USB Cable 2 (Charging from Adapter 2) for Sample 2	
Remark:		
<ol style="list-style-type: none"> 1. Only Sample 1 was tested for Radiated TCs test. 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 Mode>





2.4 RF Utility

The programmed RF utility “Remote 432X controller(P1.5 Thread)” is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

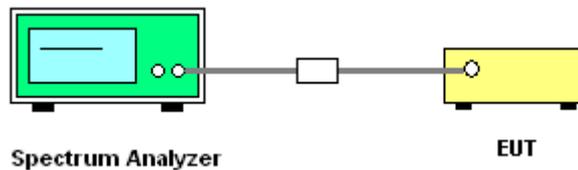
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

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

3.1.4 Test Setup



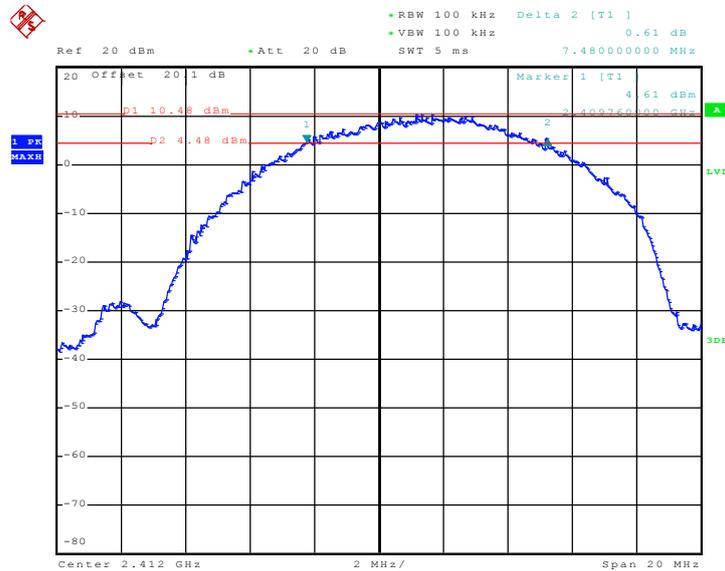


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	25~27°C
Test Engineer :	Lancelot Chen	Relative Humidity :	45~48%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	7.48	0.5	Pass
06	2437	7.52	0.5	Pass
11	2462	7.56	0.5	Pass

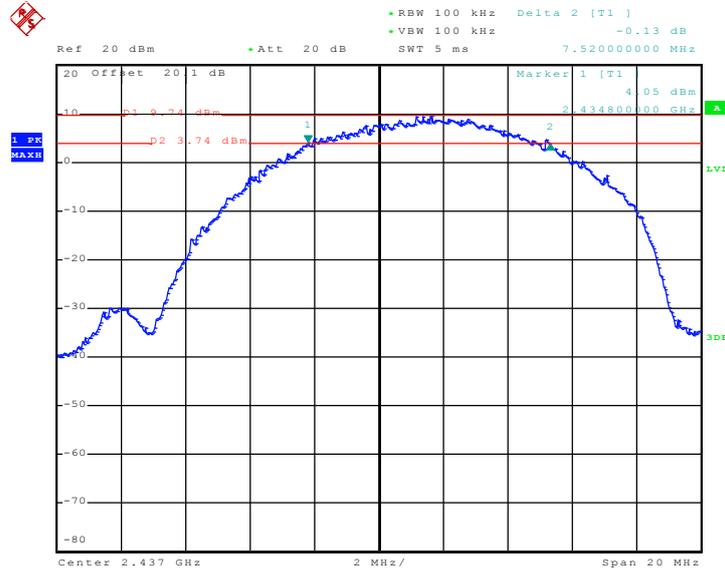
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



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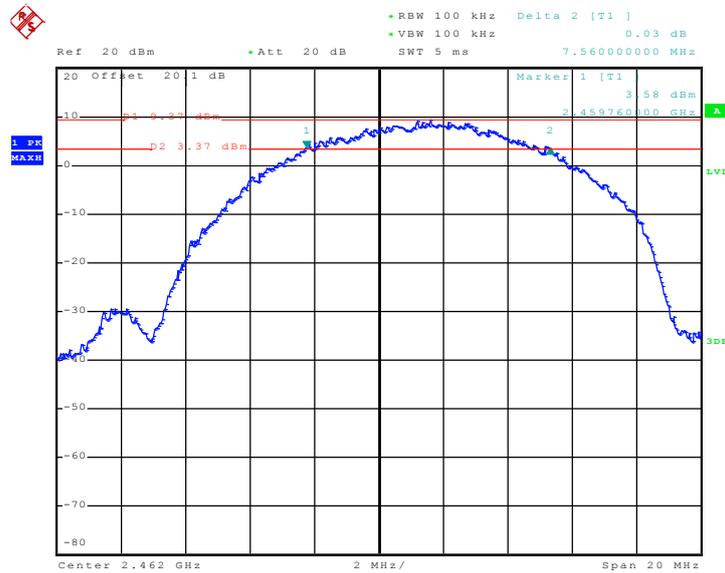


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



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



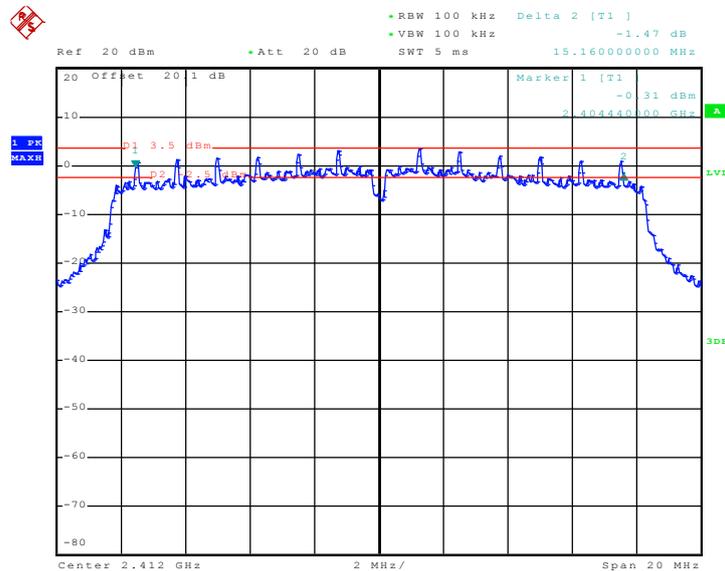
Date: 3.AUG.2010 22:44:42



Test Mode :	Mode 4, 5, 6	Temperature :	25~27°C
Test Engineer :	Lancelot Chen	Relative Humidity :	45~48%

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

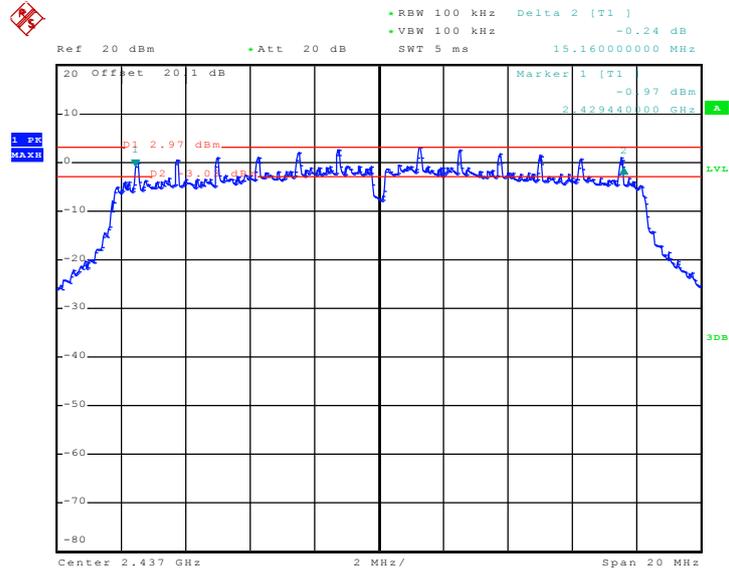
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



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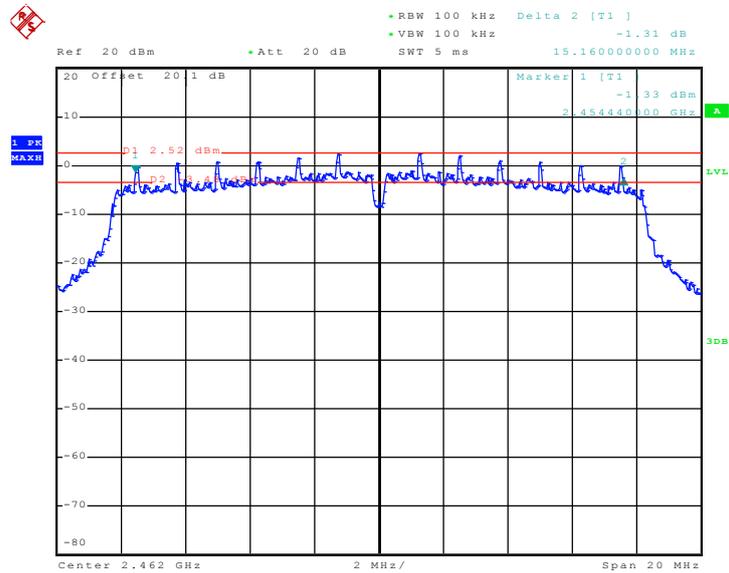


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



Date: 3.AUG.2010 22:16:56

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



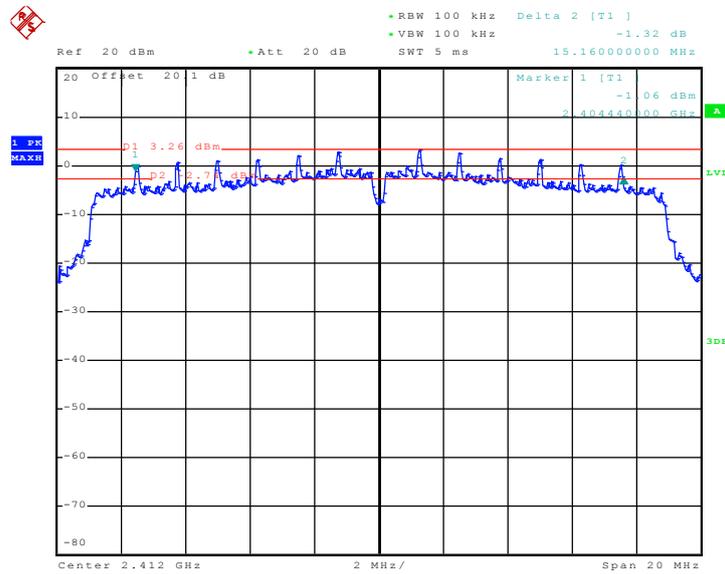
Date: 3.AUG.2010 22:13:08



Test Mode :	Mode 7, 8, 9	Temperature :	25~27°C
Test Engineer :	Lancelot Chen	Relative Humidity :	45~48%

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	15.16	0.5	Pass
11	2462	15.16	0.5	Pass

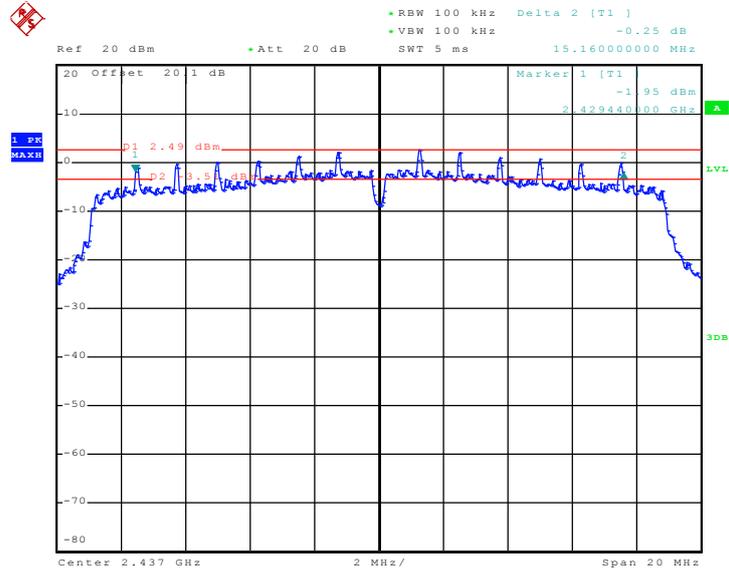
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 3.AUG.2010 23:45:52

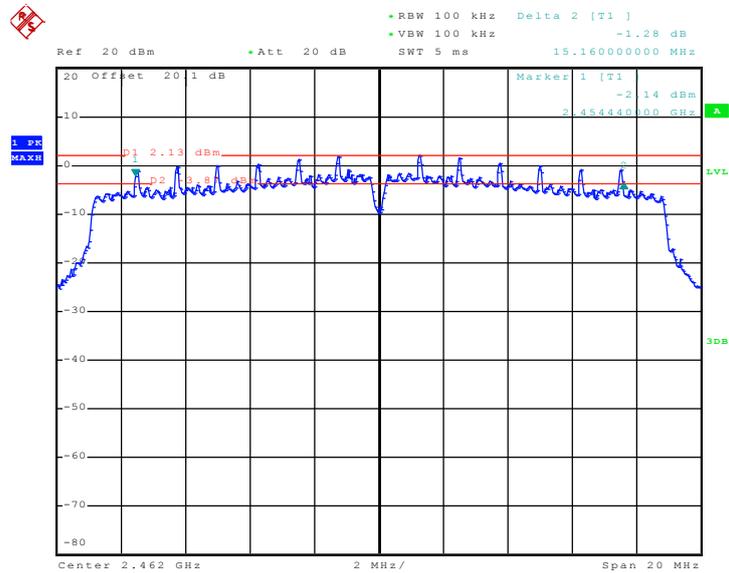


Mode 8 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 3.AUG.2010 23:14:16

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



Date: 3.AUG.2010 23:08:05

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.

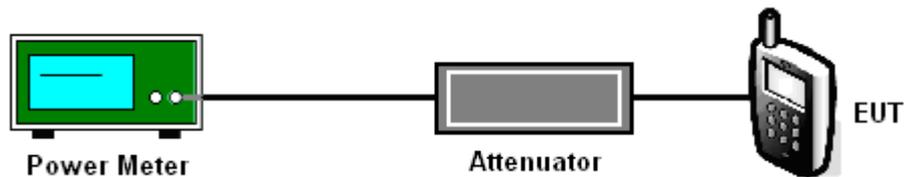
3.2.2 Measuring Instruments

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 :	25~27°C
Test Engineer :	Lancelot Chen	Relative Humidity :	45~48%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	19.43	30	Pass
06	2437	18.92	30	Pass
11	2462	17.75	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	25~27°C
Test Engineer :	Lancelot Chen	Relative Humidity :	45~48%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.60	30	Pass
06	2437	21.68	30	Pass
11	2462	21.10	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	25~27°C
Test Engineer :	Lancelot Chen	Relative Humidity :	45~48%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.60	30	Pass
06	2437	21.23	30	Pass
11	2462	20.44	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

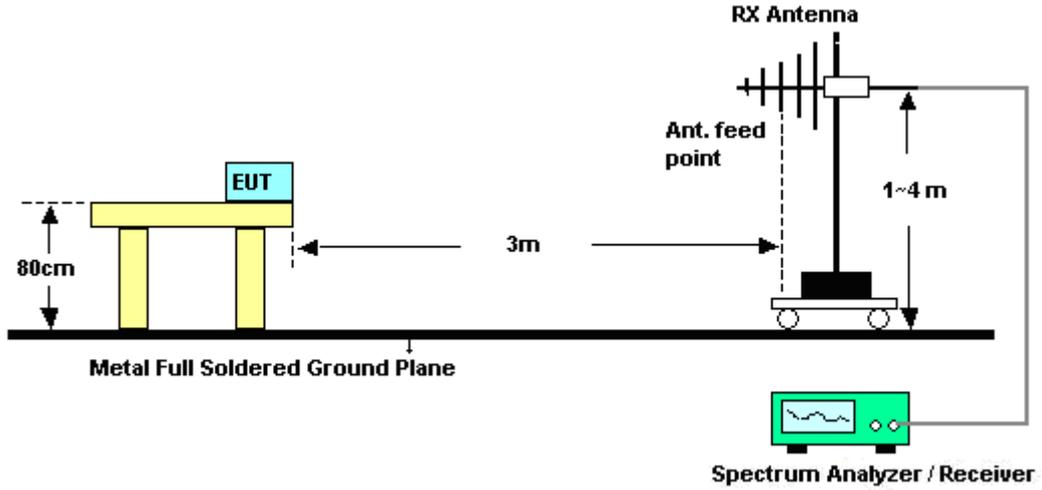
See list of measuring instruments of this test report.

3.3.3 Test Procedures

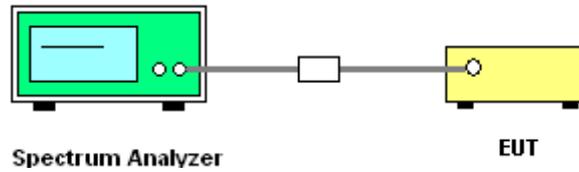
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) \geq RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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 :	24~25°C
Test Band :	802.11b	Relative Humidity :	49~52%
Test Channel :	01	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	53.86	-20.14	74	49.23	32.13	6.03	33.53	167	321	Peak
2390	41.56	-12.44	54	36.93	32.13	6.03	33.53	167	321	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	55.09	-18.91	74	50.46	32.13	6.03	33.53	130	52	Peak
2390	42.97	-11.03	54	38.34	32.13	6.03	33.53	130	52	Average

Test Mode :	Mode 3	Temperature :	24~25°C
Test Band :	802.11b	Relative Humidity :	49~52%
Test Channel :	11	Test Engineer :	Cona Huang

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	57.25	-16.75	74	52.36	32.27	6.18	33.56	104	327	Peak
2483.5	44.97	-9.03	54	40.08	32.27	6.18	33.56	104	327	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	56.06	-17.94	74	51.17	32.27	6.18	33.56	116	347	Peak
2483.5	43.82	-10.18	54	38.93	32.27	6.18	33.56	116	347	Average



Test Mode :	Mode 4	Temperature :	24~25°C
Test Band :	802.11g	Relative Humidity :	49~52%
Test Channel :	01	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	60.45	-13.55	74	55.82	32.13	6.03	33.53	136	327	Peak
2390	43.34	-10.66	54	38.71	32.13	6.03	33.53	136	327	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	60.33	-13.67	74	55.7	32.13	6.03	33.53	100	45	Peak
2390	43.35	-10.65	54	38.72	32.13	6.03	33.53	100	45	Average

Test Mode :	Mode 6	Temperature :	24~25°C
Test Band :	802.11g	Relative Humidity :	49~52%
Test Channel :	11	Test Engineer :	Cona Huang

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	67.62	-6.38	74	62.73	32.27	6.18	33.56	128	333	Peak
2483.5	48.2	-5.8	54	43.31	32.27	6.18	33.56	128	333	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	65.95	-8.05	74	61.06	32.27	6.18	33.56	100	53	Peak
2483.5	46.57	-7.43	54	41.68	32.27	6.18	33.56	100	53	Average



Test Mode :	Mode 7	Temperature :	24~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~52%
Test Channel :	01	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	58.19	-15.81	74	53.56	32.13	6.03	33.53	191	337	Peak
2390	40.16	-13.84	54	35.53	32.13	6.03	33.53	191	337	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	59.29	-14.71	74	54.66	32.13	6.03	33.53	100	45	Peak
2390	42.51	-11.49	54	37.88	32.13	6.03	33.53	100	45	Average

Test Mode :	Mode 9	Temperature :	24~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~52%
Test Channel :	11	Test Engineer :	Cona Huang

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	63.53	-10.47	74	58.64	32.27	6.18	33.56	131	334	Peak
2483.5	46.3	-7.7	54	41.41	32.27	6.18	33.56	131	334	Average

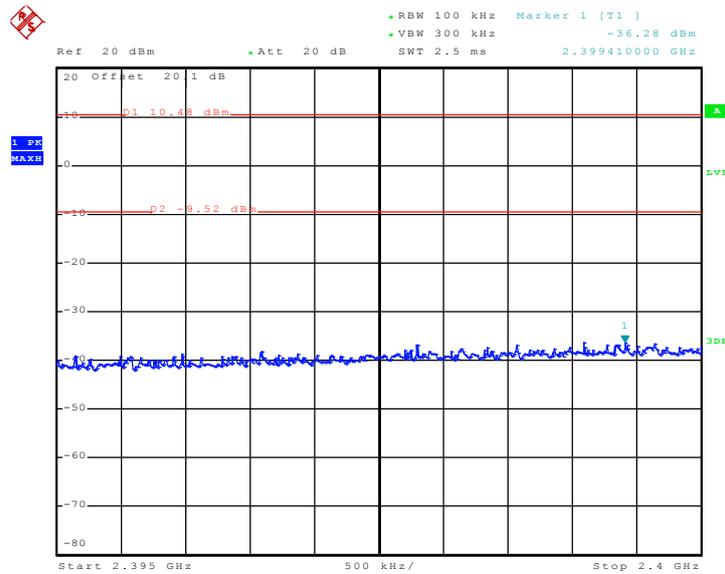
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	65.49	-8.51	74	60.6	32.27	6.18	33.56	138	342	Peak
2483.5	46.57	-7.43	54	41.68	32.27	6.18	33.56	138	342	Average



3.3.6 Test Plots of Conducted Band Edges

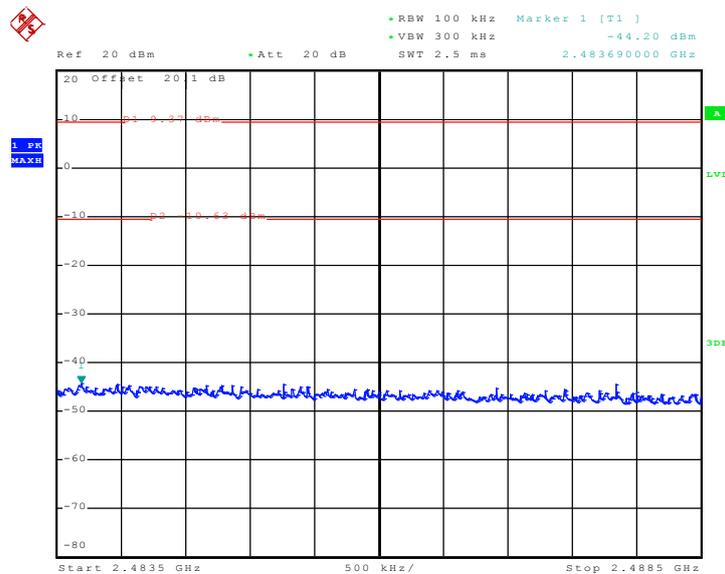
Test Mode :	Mode 1 and 3	Temperature :	25~27°C
Test Band :	802.11b	Relative Humidity :	45~48%
Test Channel :	01 and 11	Test Engineer :	Lancelot Chen

Low Band Edge Plot on 802.11b Channel 01



Date: 3.AUG.2010 22:40:43

High Band Edge Plot on 802.11b Channel 11

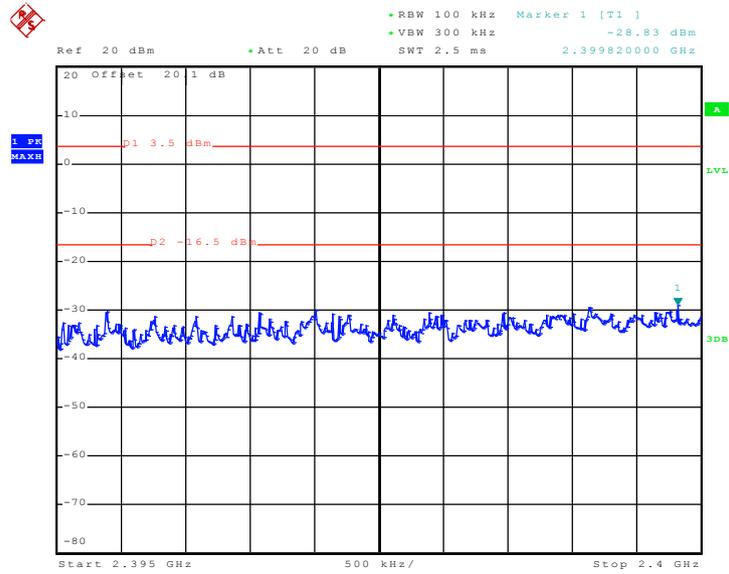


Date: 3.AUG.2010 22:45:31



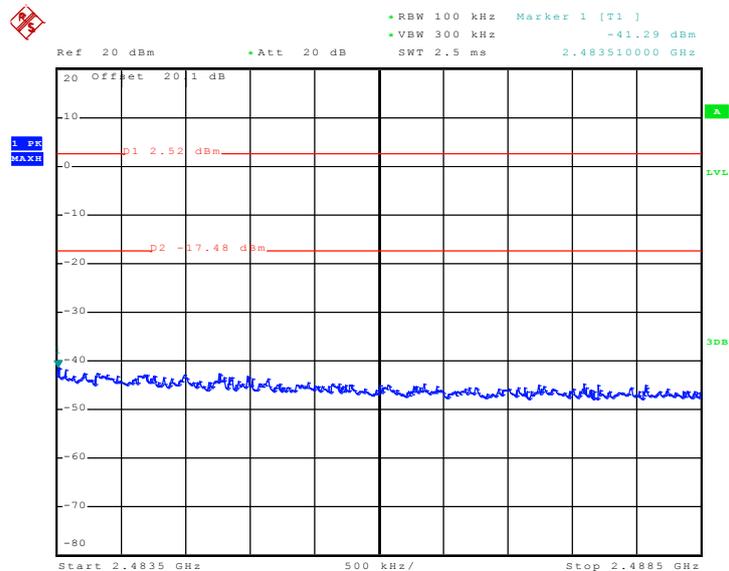
Test Mode :	Mode 4 and 6	Temperature :	25~27°C
Test Band :	802.11g	Relative Humidity :	45~48%
Test Channel :	01 and 11	Test Engineer :	Lancelot Chen

Low Band Edge Plot on 802.11g Channel 01



Date: 3.AUG.2010 20:32:22

High Band Edge Plot on 802.11g Channel 11

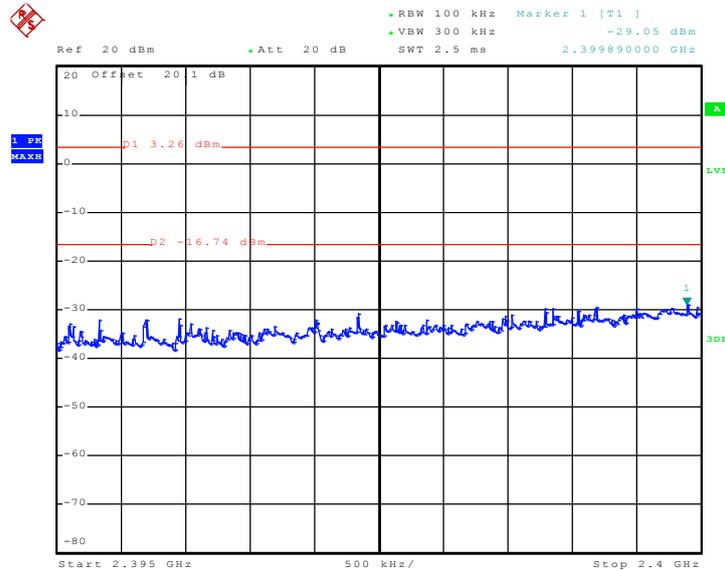


Date: 3.AUG.2010 22:14:19



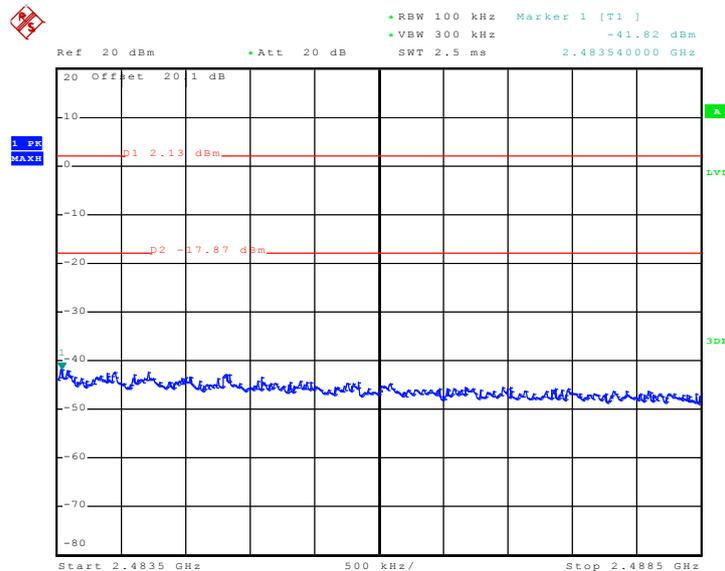
Test Mode :	Mode 7 and 9	Temperature :	25~27°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~48%
Test Channel :	01 and 11	Test Engineer :	Lancelot Chen

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



Date: 3.AUG.2010 23:46:40

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



Date: 3.AUG.2010 23:08:48

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.

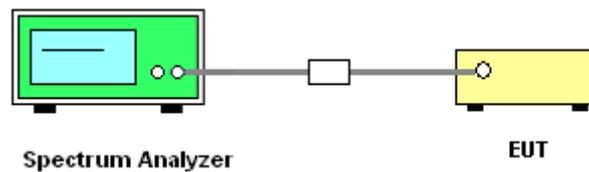
3.4.2 Measuring Instruments

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.

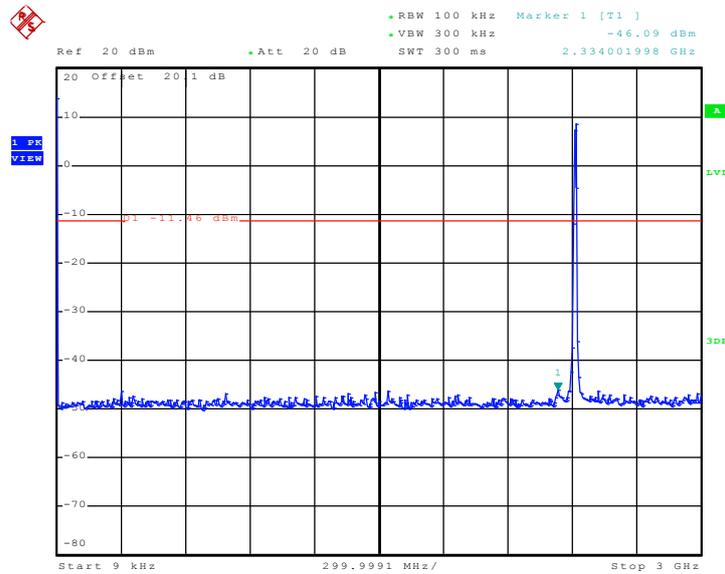
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

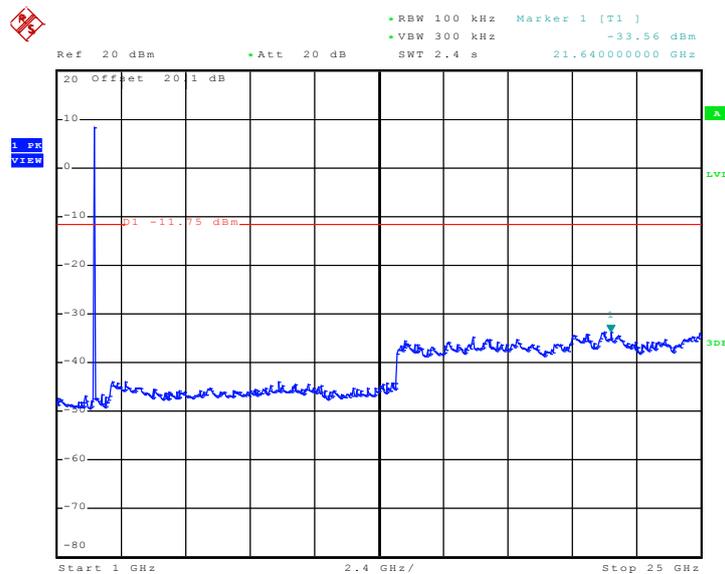
Test Mode :	Mode 1	Temperature :	25~27°C
Test Band :	802.11b	Relative Humidity :	45~48%
Test Channel :	01	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 4.AUG.2010 00:22:58

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

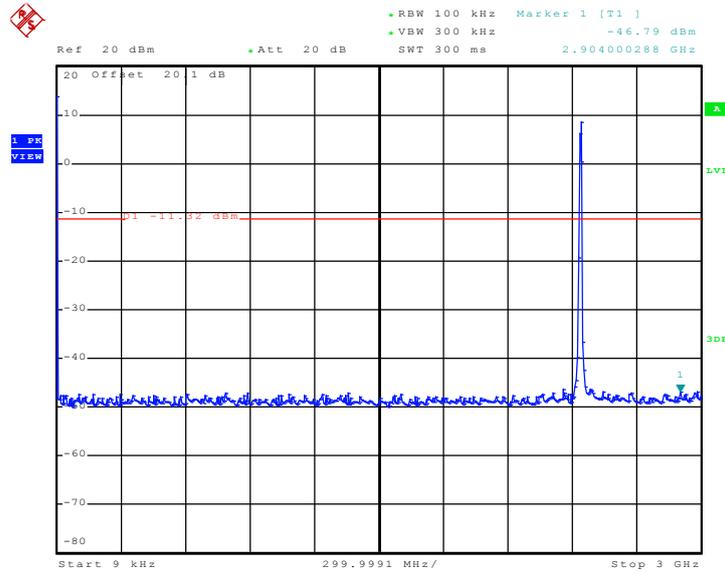


Date: 4.AUG.2010 00:23:24



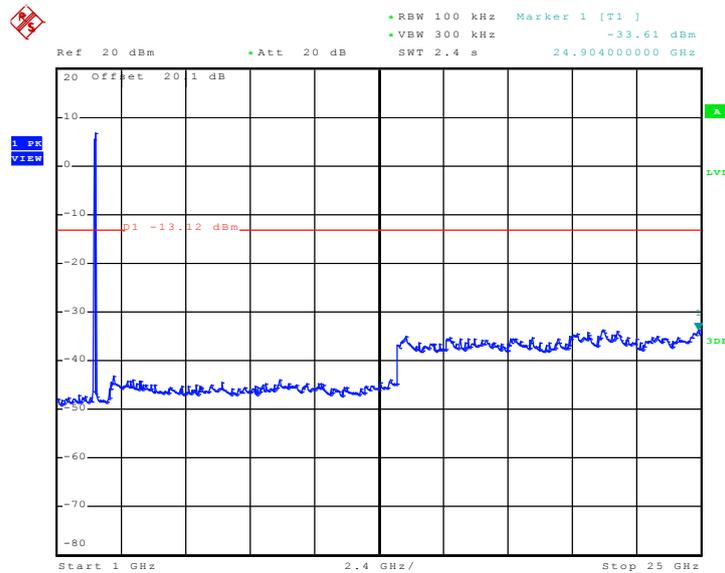
Test Mode :	Mode 2	Temperature :	25~27°C
Test Band :	802.11b	Relative Humidity :	45~48%
Test Channel :	06	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 4.AUG.2010 00:24:04

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

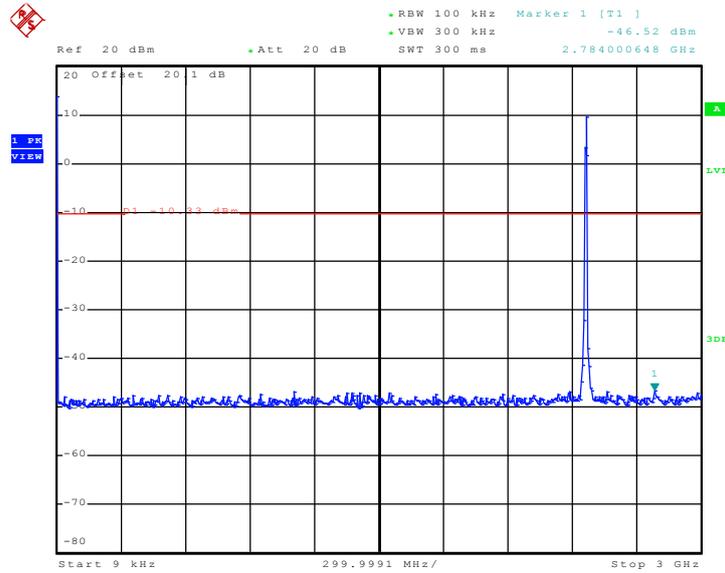


Date: 4.AUG.2010 00:24:43



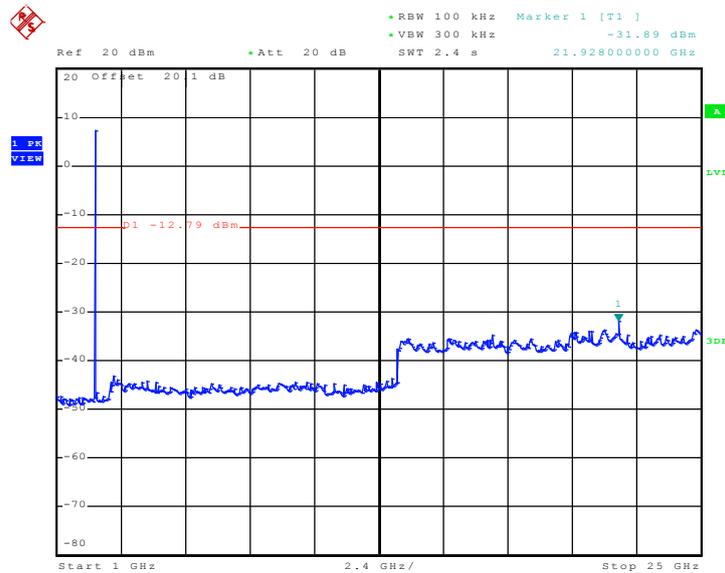
Test Mode :	Mode 3	Temperature :	25~27°C
Test Band :	802.11b	Relative Humidity :	45~48%
Test Channel :	11	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 4.AUG.2010 00:25:19

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

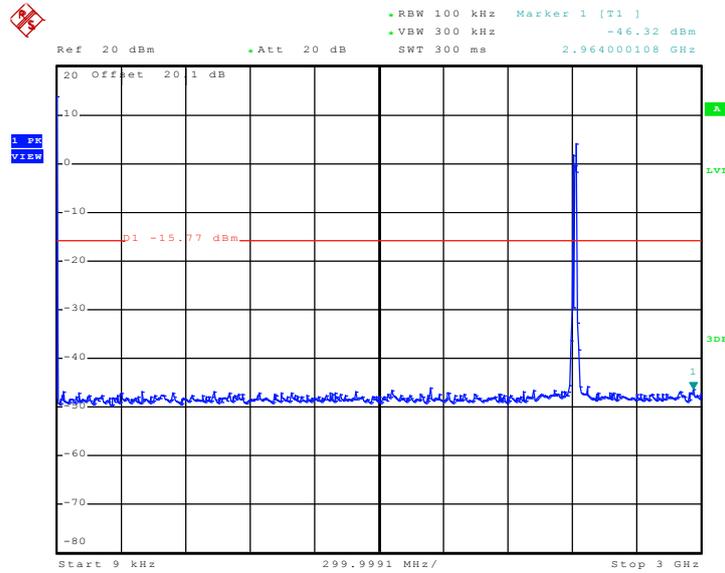


Date: 4.AUG.2010 00:25:56



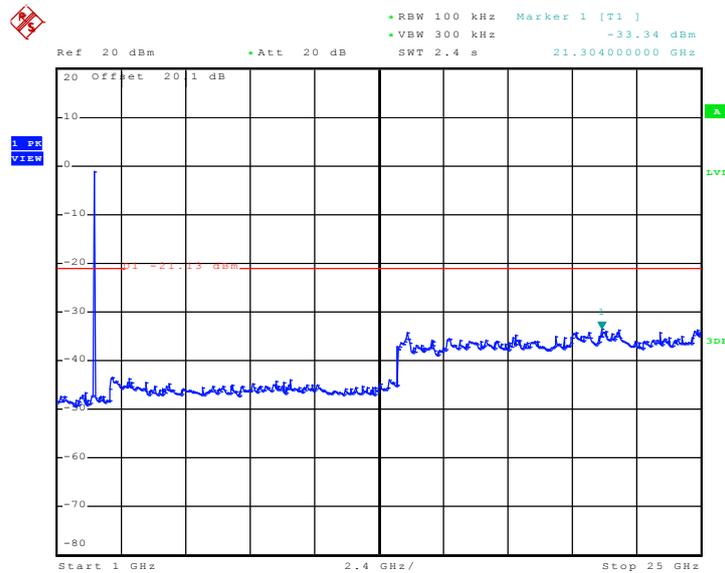
Test Mode :	Mode 4	Temperature :	25~27°C
Test Band :	802.11g	Relative Humidity :	45~48%
Test Channel :	01	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 4.AUG.2010 00:27:04

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

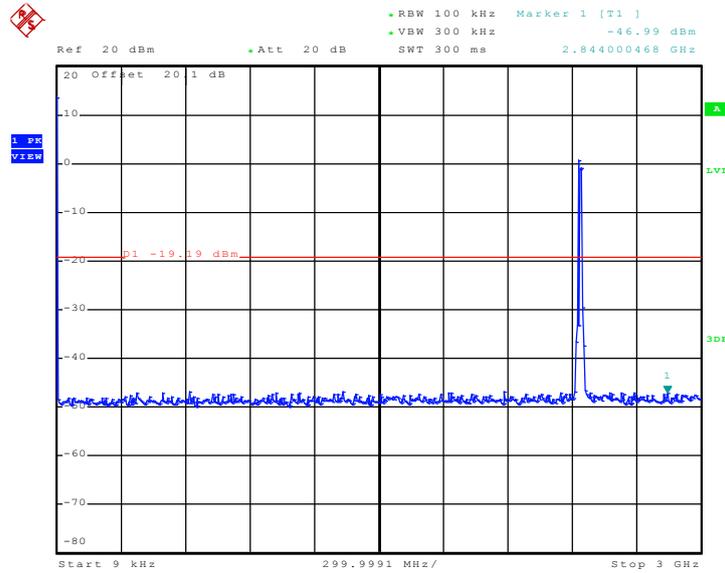


Date: 4.AUG.2010 00:27:36



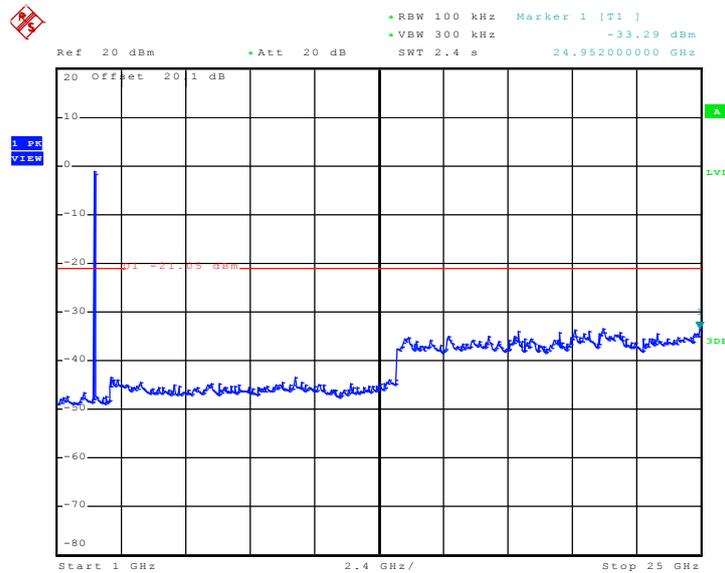
Test Mode :	Mode 5	Temperature :	25~27
Test Band :	802.11g	Relative Humidity :	45~48
Test Channel :	06	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 4.AUG.2010 00:28:17

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

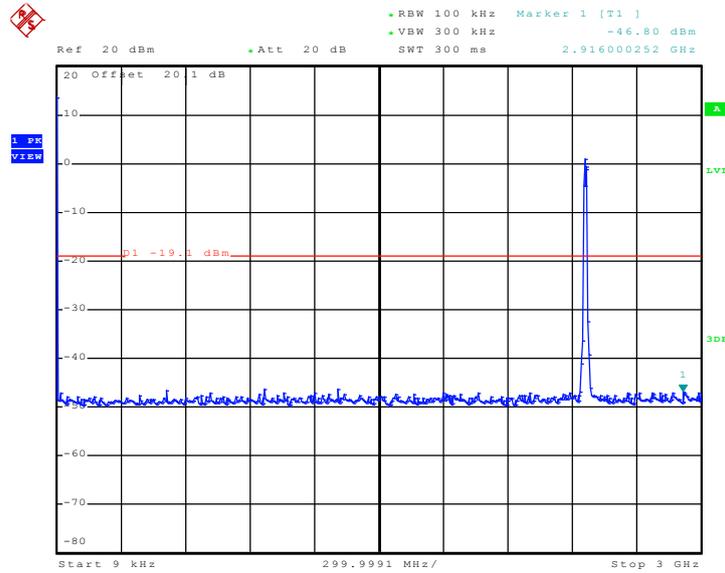


Date: 4.AUG.2010 00:28:47



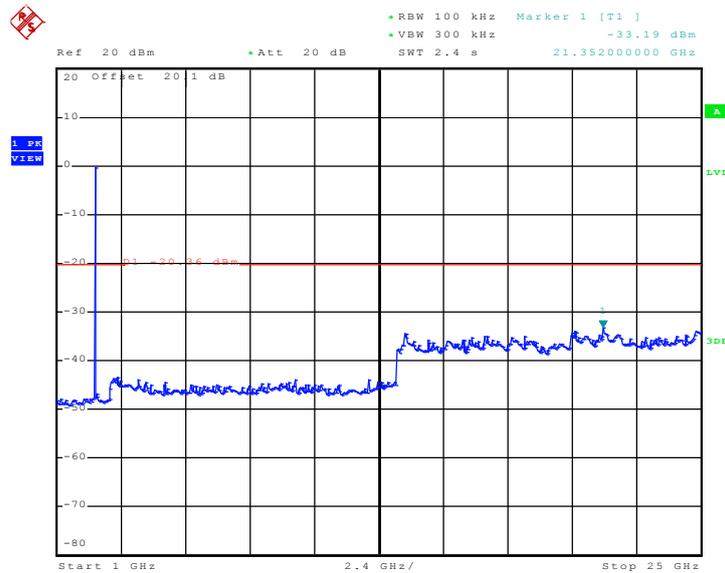
Test Mode :	Mode 6	Temperature :	25~27°C
Test Band :	802.11g	Relative Humidity :	45~48%
Test Channel :	11	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 4.AUG.2010 00:29:32

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

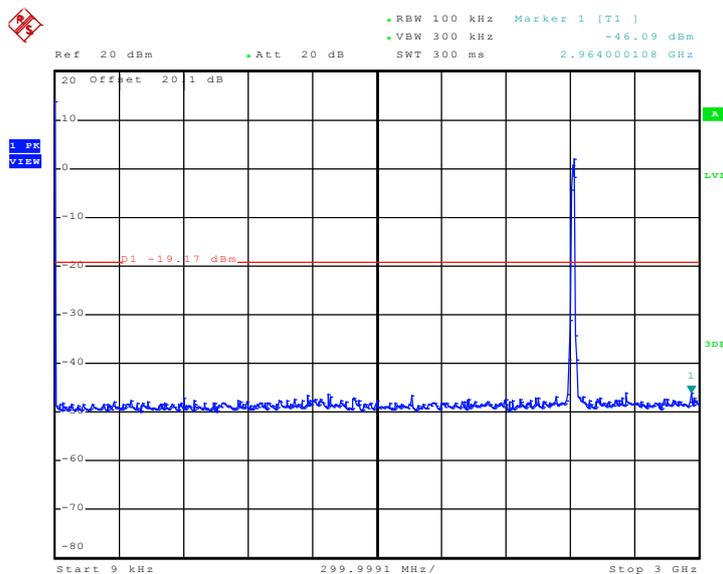


Date: 4.AUG.2010 00:30:04



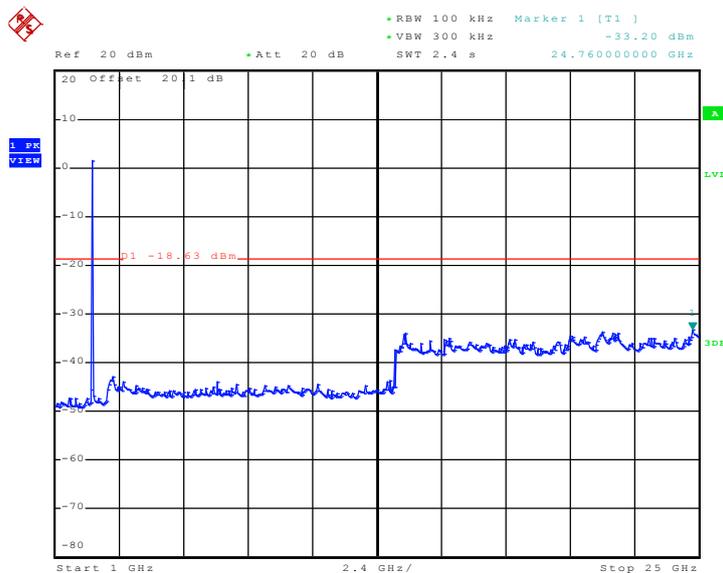
Test Mode :	Mode 7	Temperature :	25~27°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~48%
Test Channel :	01	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 4.AUG.2010 00:33:15

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

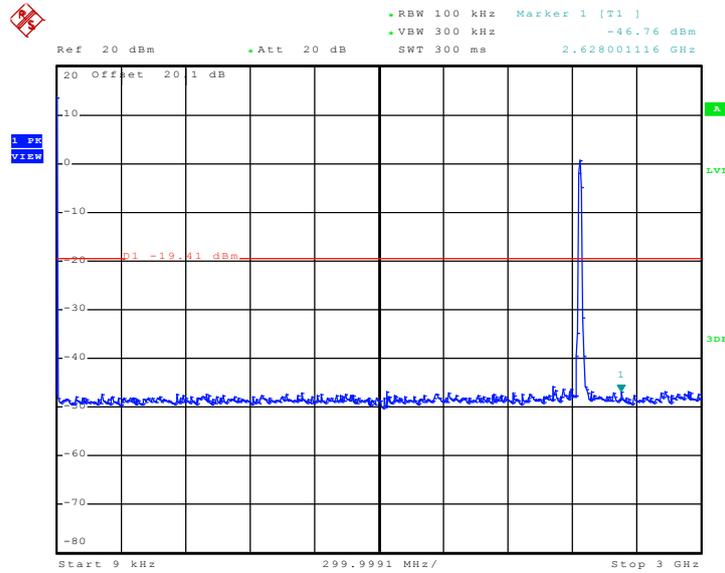


Date: 4.AUG.2010 00:33:46



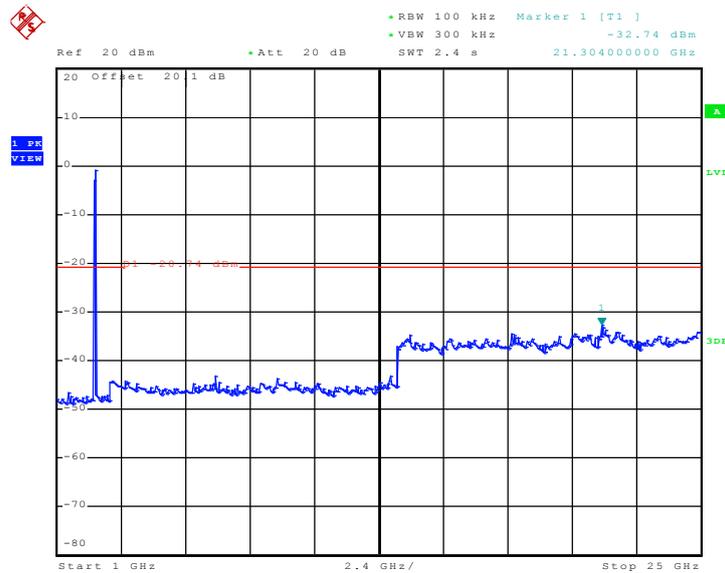
Test Mode :	Mode 8	Temperature :	25~27°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~48%
Test Channel :	06	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 4.AUG.2010 00:34:25

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

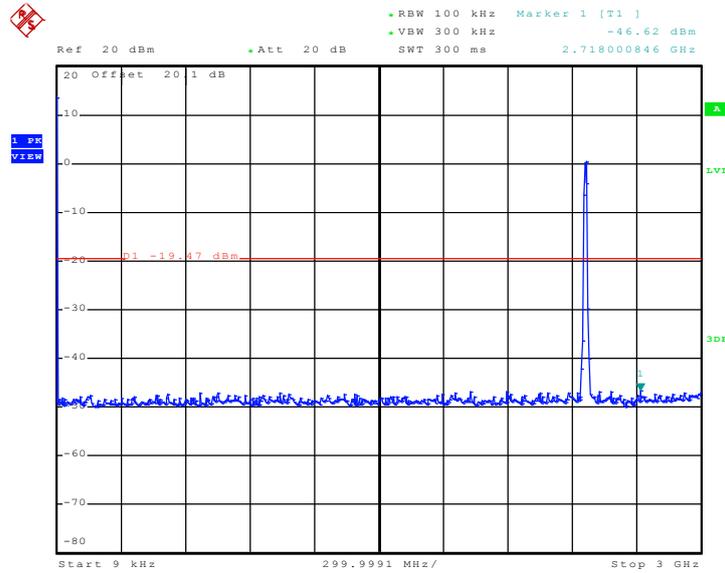


Date: 4.AUG.2010 00:35:03



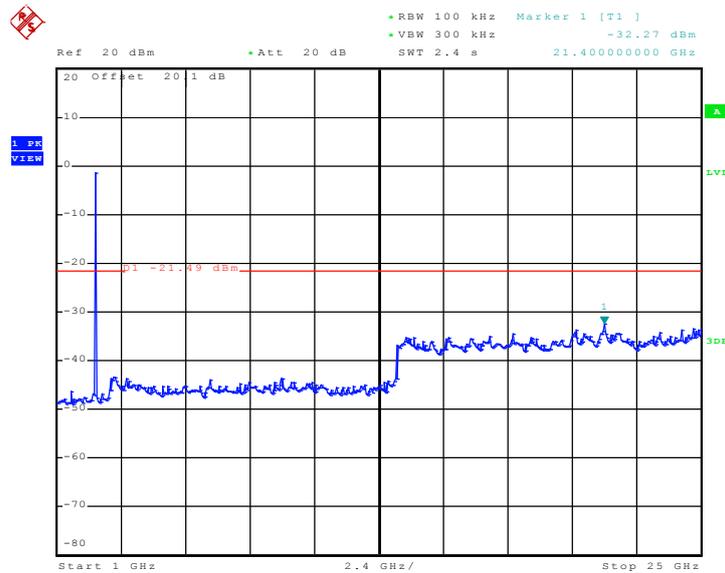
Test Mode :	Mode 9	Temperature :	25~27°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~48%
Test Channel :	11	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 4.AUG.2010 00:35:48

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



Date: 4.AUG.2010 00:36:26

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.

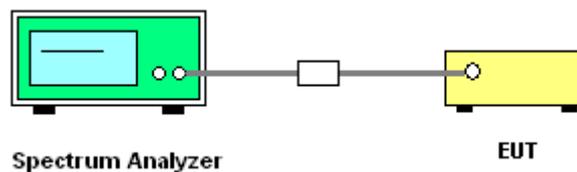
3.5.2 Measuring Instruments

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



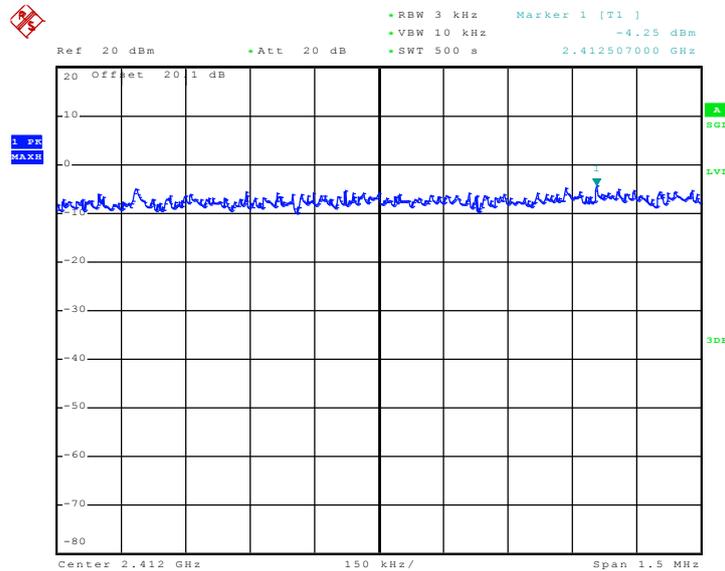


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	25~27°C
Test Engineer :	Lancelot Chen	Relative Humidity :	45~48%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-4.25	8	Pass
06	2437	-5.08	8	Pass
11	2462	-5.43	8	Pass

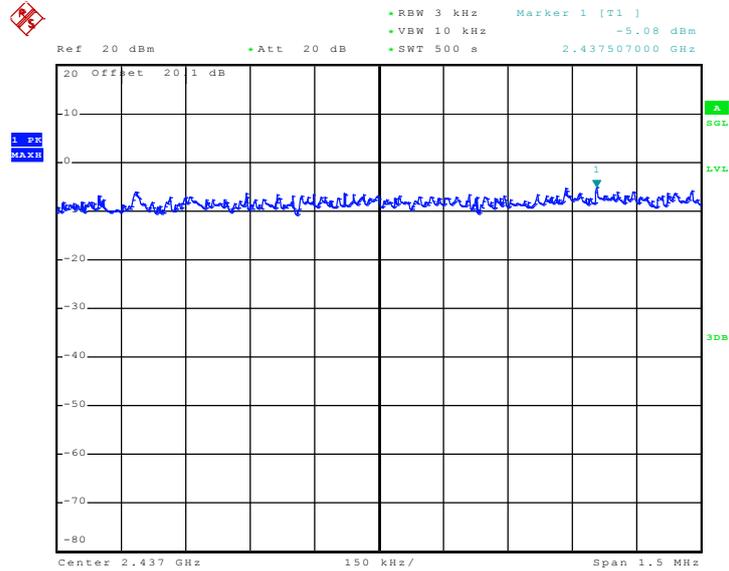
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 3.AUG.2010 22:38:16

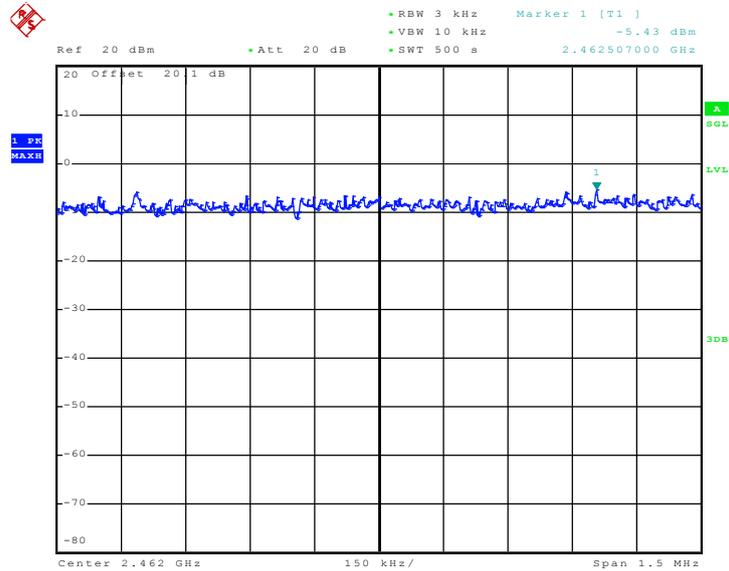


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 3.AUG.2010 22:28:49

Mode 3 : PSD Plot on 802.11b Channel 11



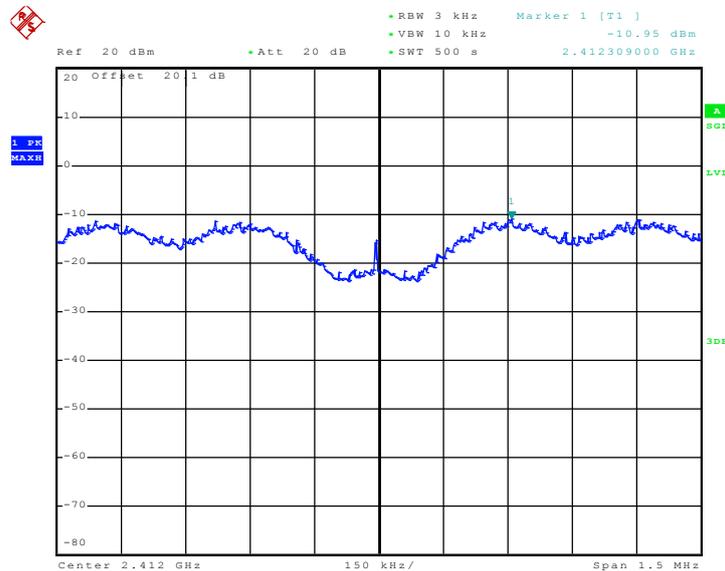
Date: 3.AUG.2010 22:55:37



Test Mode :	Mode 4, 5, 6	Temperature :	25~27°C
Test Engineer :	Lancelot Chen	Relative Humidity :	45~48%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.95	8	Pass
06	2437	-11.54	8	Pass
11	2462	-11.92	8	Pass

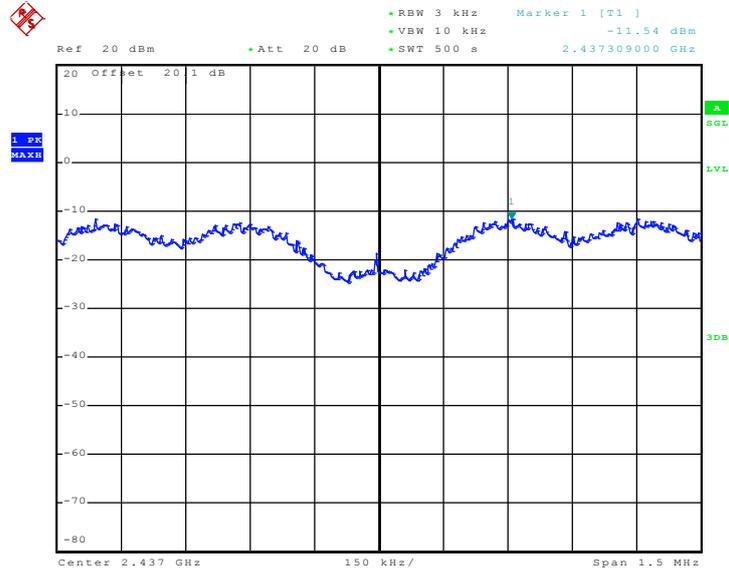
Mode 4 : PSD Plot on 802.11g Channel 01



Date: 3.AUG.2010 21:31:34

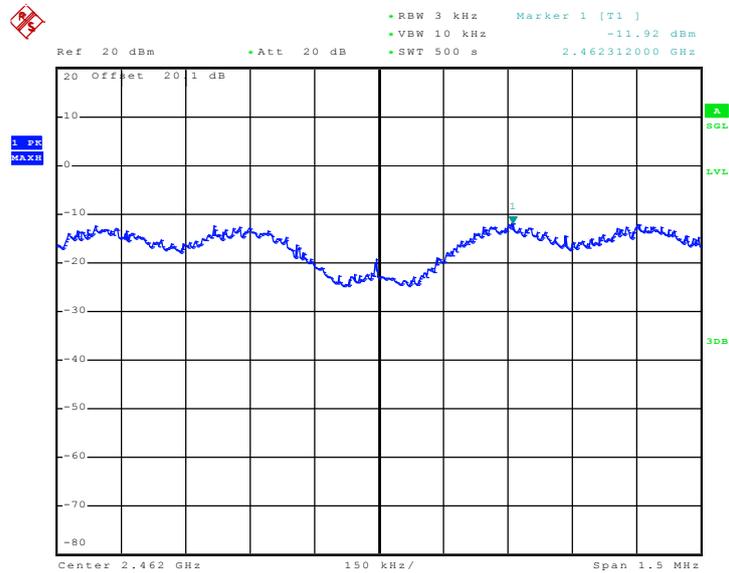


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 3.AUG.2010 22:00:56

Mode 6 : PSD Plot on 802.11g Channel 11



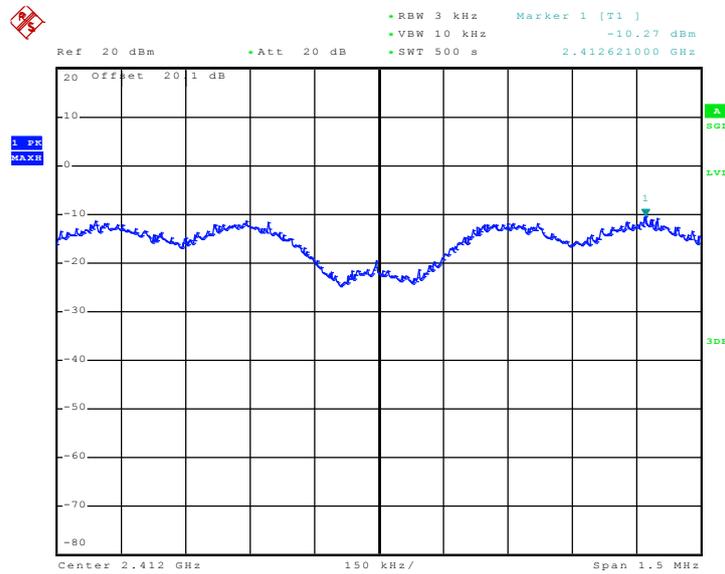
Date: 3.AUG.2010 22:10:50



Test Mode :	Mode 7, 8, 9	Temperature :	25~27°C
Test Engineer :	Lancelot Chen	Relative Humidity :	45~48%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.27	8	Pass
06	2437	-11.10	8	Pass
11	2462	-11.79	8	Pass

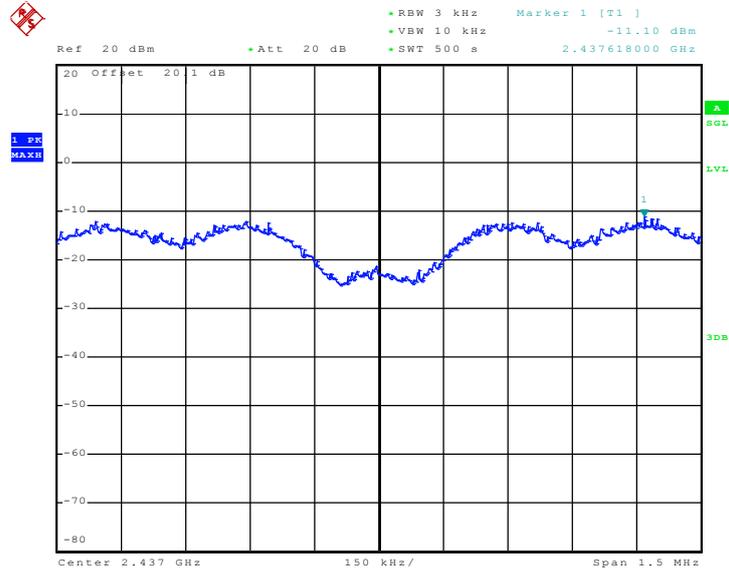
Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01



Date: 3.AUG.2010 23:44:10

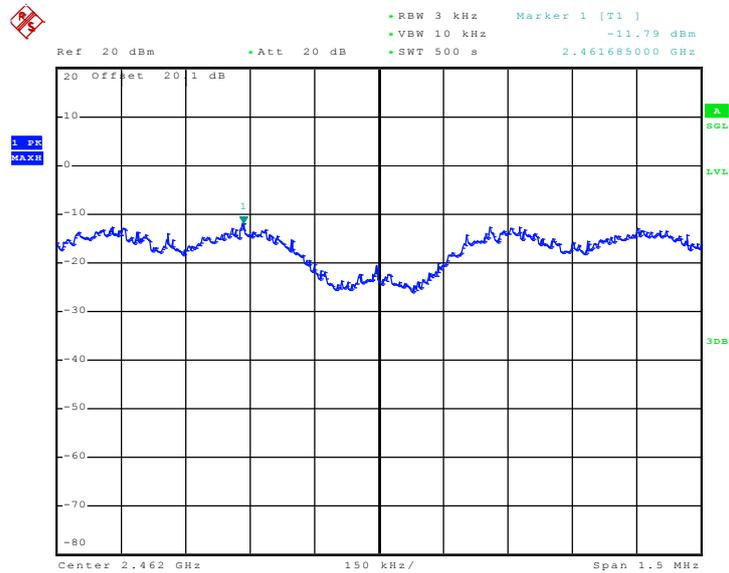


Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06



Date: 3.AUG.2010 23:23:59

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



Date: 3.AUG.2010 23:06:36

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.

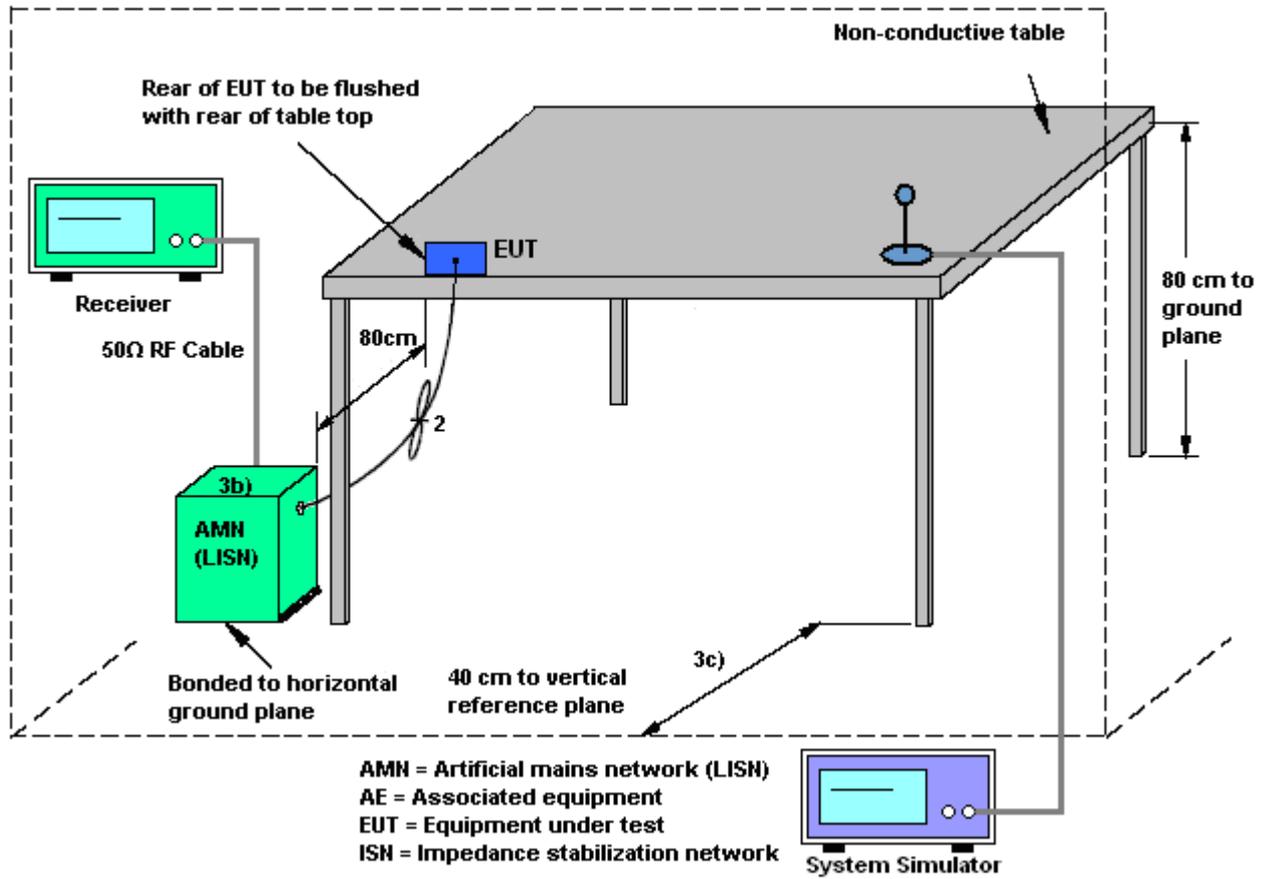
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

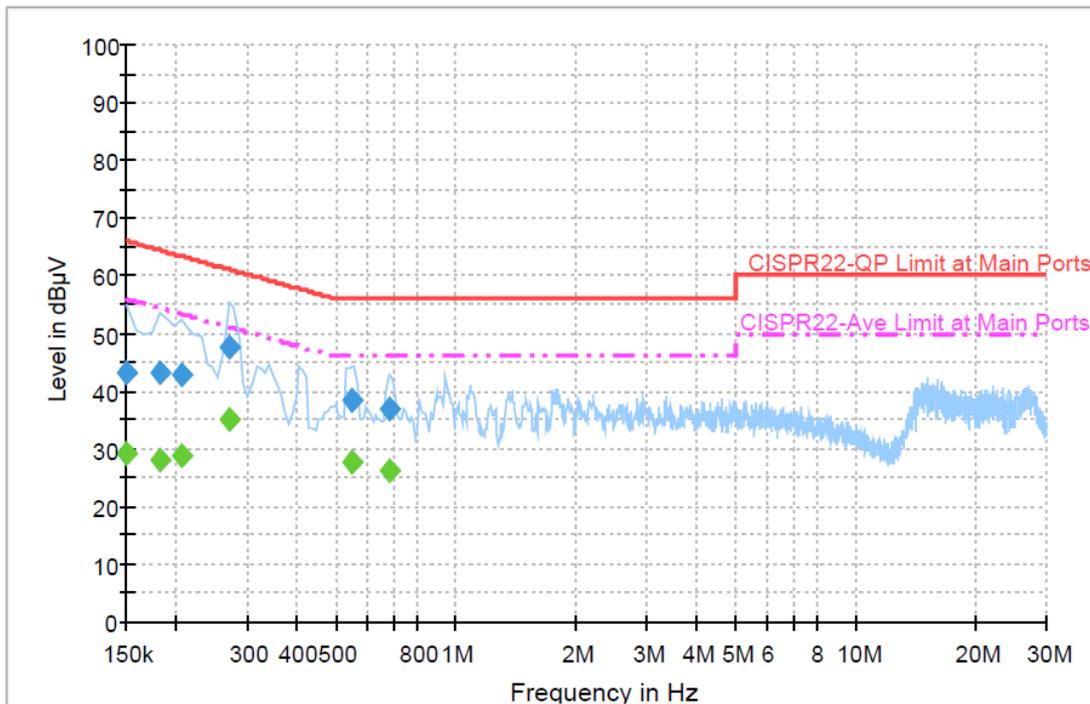
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 :	42~44%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	CDMA2000 BC0 Idle + Bluetooth Link + WLAN Link + GPS Rx + Earphone + Battery 2 +USB Cable 2 (Charging from Adapter 2) for Sample 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

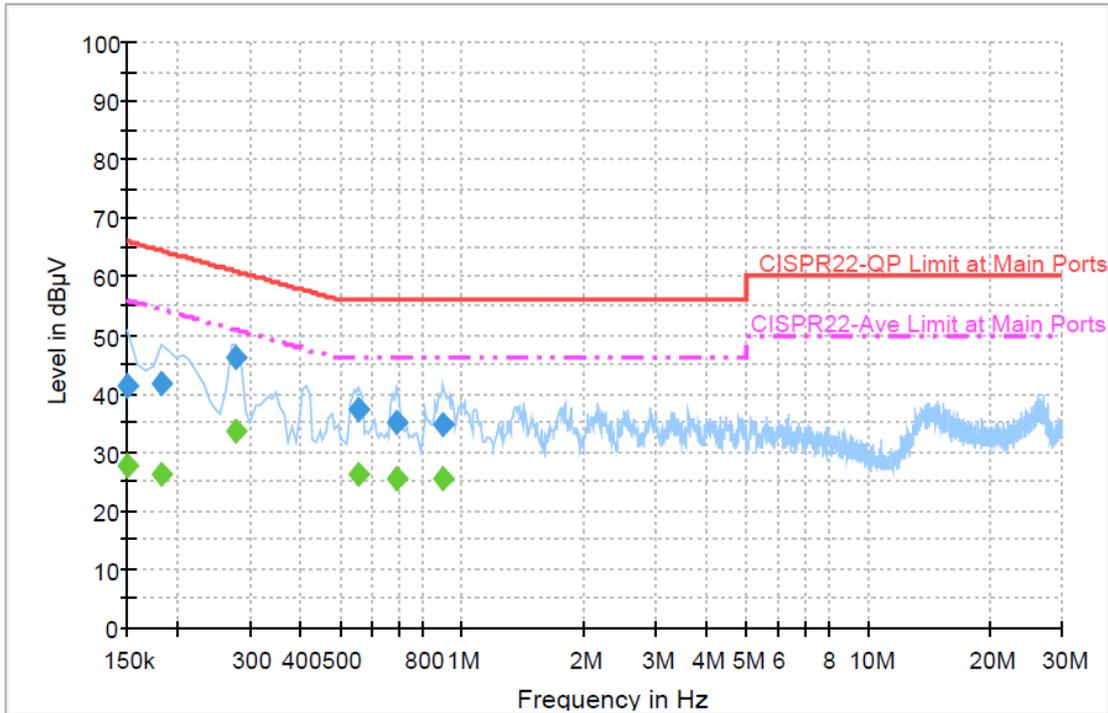
Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	43.0	Off	L1	19.4	23.0	66.0
0.182000	43.1	Off	L1	19.4	21.3	64.4
0.206000	43.0	Off	L1	19.3	20.4	63.4
0.270000	47.7	Off	L1	19.3	13.4	61.1
0.550000	38.5	Off	L1	19.3	17.5	56.0
0.686000	37.0	Off	L1	19.5	19.0	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	29.0	Off	L1	19.4	27.0	56.0
0.182000	27.9	Off	L1	19.4	26.5	54.4
0.206000	28.7	Off	L1	19.3	24.7	53.4
0.270000	35.0	Off	L1	19.3	16.1	51.1
0.550000	27.7	Off	L1	19.3	18.3	46.0
0.686000	26.4	Off	L1	19.5	19.6	46.0



Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Novic Jiang	Relative Humidity :	42~44%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	CDMA2000 BC0 Idle + Bluetooth Link + WLAN Link + GPS Rx + Earphone + Battery 2 +USB Cable 2 (Charging from Adapter 2) 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)
0.150000	41.4	Off	N	19.4	24.6	66.0
0.182000	41.7	Off	N	19.4	22.7	64.4
0.278000	46.0	Off	N	19.3	14.9	60.9
0.558000	37.2	Off	N	19.3	18.8	56.0
0.694000	35.2	Off	N	19.5	20.8	56.0
0.902000	34.7	Off	N	19.4	21.3	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	27.6	Off	N	19.4	28.4	56.0
0.182000	26.2	Off	N	19.4	28.2	54.4
0.278000	33.5	Off	N	19.3	17.4	50.9
0.558000	26.2	Off	N	19.3	19.8	46.0
0.694000	25.5	Off	N	19.5	20.5	46.0
0.902000	25.6	Off	N	19.4	20.4	46.0

3.7 Radiated Emission Measurement

3.7.1 Limit of Radiated Emission

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

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

3.7.2 Measuring Instruments

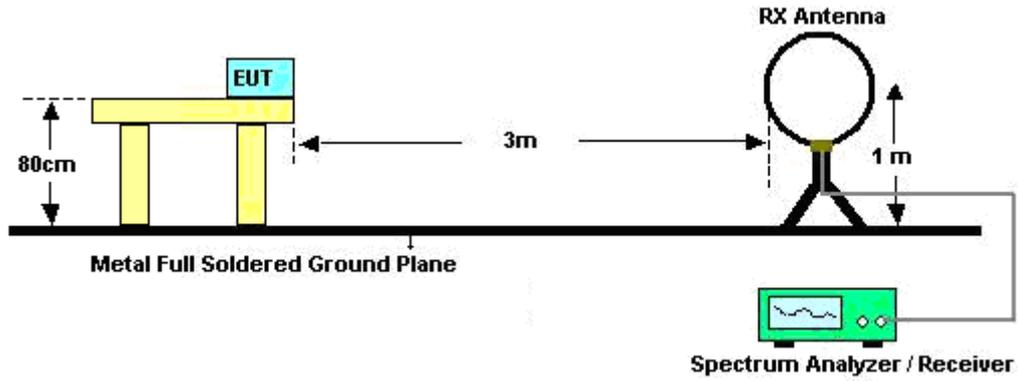
See list of measuring instruments of this test report.

3.7.3 Test Procedures

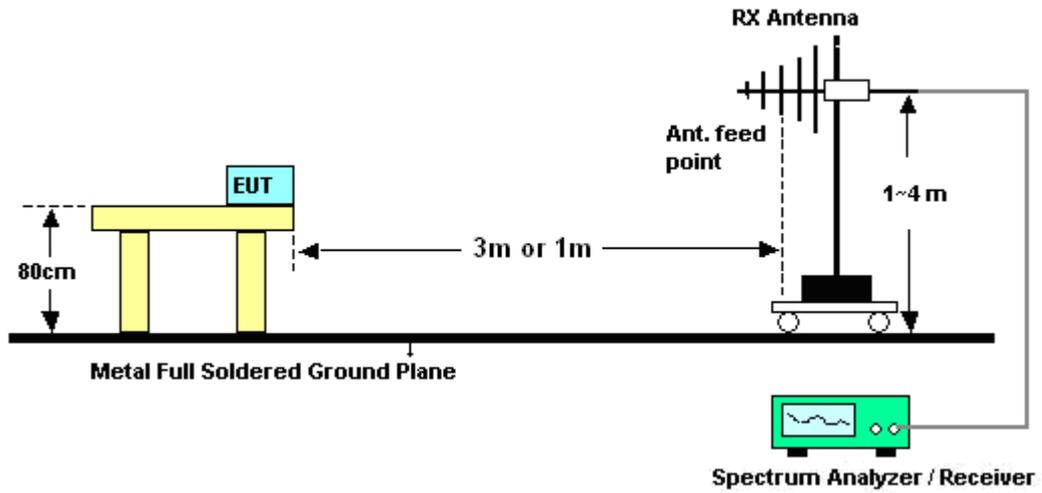
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; 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 :	Cona Huang	Temperature :	24~25°C	
		Relative Humidity :	49~52%	
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 :	24~25°C
Test Channel :	01	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	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
48.9	33.2	-6.8	40	55.09	8.96	0.68	31.53	103	268	Peak
107.49	17.71	-25.79	43.5	37.16	11.06	1.04	31.55	-	-	Peak
151.77	15.34	-28.16	43.5	34.64	11.04	1.21	31.55	-	-	Peak
394.5	16.82	-29.18	46	29.9	15.98	2.13	31.19	-	-	Peak
570.9	20.52	-25.48	46	29.34	19.52	2.61	30.95	-	-	Peak
679.4	22.86	-23.14	46	30.12	20.68	2.9	30.84	-	-	Peak
2390	41.56	-12.44	54	36.93	32.13	6.03	33.53	167	321	Average
2390	53.86	-20.14	74	49.23	32.13	6.03	33.53	167	321	Peak
2412	97.8	-	-	93.11	32.16	6.07	33.54	167	321	Average
2412	110.97	-	-	106.28	32.16	6.07	33.54	167	321	Peak
2494	46.82	-27.18	74	41.91	32.3	6.18	33.57	167	321	Peak
2494	35.23	-18.77	54	30.32	32.3	6.18	33.57	167	321	Average
8181	54.25	-19.75	74	41.48	36	10.88	34.11	100	251	Peak
8181	40.26	-13.74	54	27.49	36	10.88	34.11	100	251	Average



Test Mode :	Mode 1	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	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	35.93	-4.07	40	47.35	19.51	0.53	31.46	100	288	Peak
48.9	35.63	-4.37	40	57.52	8.96	0.68	31.53	-	-	Peak
107.49	22.77	-20.73	43.5	42.22	11.06	1.04	31.55	-	-	Peak
442.1	18.35	-27.65	46	30.2	16.99	2.28	31.12	-	-	Peak
601.7	22.88	-23.12	46	31.03	20.08	2.69	30.92	-	-	Peak
777.4	24.18	-21.82	46	29.86	21.91	3.1	30.69	-	-	Peak
2390	42.97	-11.03	54	38.34	32.13	6.03	33.53	130	52	Average
2390	55.09	-18.91	74	50.46	32.13	6.03	33.53	130	52	Peak
2412	95.45	-	-	90.76	32.16	6.07	33.54	130	52	Average
2412	108.25	-	-	103.56	32.16	6.07	33.54	130	52	Peak
2494	47.08	-26.92	74	42.17	32.3	6.18	33.57	130	52	Peak
2494	31.02	-22.98	54	26.11	32.3	6.18	33.57	130	52	Average
8163	53.95	-20.05	74	41.19	36	10.87	34.11	100	156	Peak
8163	40.6	-13.4	54	27.84	36	10.87	34.11	100	156	Average



Test Mode :	Mode 2	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	23.4	-16.6	40	35.91	18.4	0.55	31.46	-	-	Peak
48.9	27.75	-12.25	40	49.64	8.96	0.68	31.53	100	135	Peak
107.49	17.05	-26.45	43.5	36.5	11.06	1.04	31.55	-	-	Peak
410.6	17.52	-28.48	46	30.17	16.33	2.18	31.16	-	-	Peak
593.3	21.43	-24.57	46	29.75	19.94	2.67	30.93	-	-	Peak
755	24.13	-21.87	46	30.17	21.59	3.07	30.7	-	-	Peak
2358	51.34	-22.66	74	46.79	32.08	5.99	33.52	137	320	Peak
2358	41.75	-12.25	54	37.2	32.08	5.99	33.52	137	320	Average
2437	110.33	-	-	105.55	32.22	6.11	33.55	137	320	Peak
2437	98.08	-	-	93.3	32.22	6.11	33.55	137	320	Average
2484	47.02	-26.98	74	42.13	32.27	6.18	33.56	137	320	Peak
2484	35.49	-18.51	54	30.6	32.27	6.18	33.56	137	320	Average
8181	53.85	-20.15	74	41.08	36	10.88	34.11	100	139	Peak
8181	40.11	-13.89	54	27.34	36	10.88	34.11	100	139	Average



Test Mode :	Mode 2	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	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
30.81	35.9	-4.1	40	47.87	18.95	0.54	31.46	100	69	Peak
48.9	34.11	-5.89	40	56	8.96	0.68	31.53	-	-	Peak
107.49	22.99	-20.51	43.5	42.44	11.06	1.04	31.55	-	-	Peak
489	20.64	-25.36	46	31.35	17.94	2.41	31.06	-	-	Peak
634.6	22.41	-23.59	46	30.18	20.33	2.79	30.89	-	-	Peak
775.3	24.73	-21.27	46	30.45	21.87	3.1	30.69	-	-	Peak
2358	52.69	-21.31	74	48.14	32.08	5.99	33.52	100	340	Peak
2358	42.74	-11.26	54	38.19	32.08	5.99	33.52	100	340	Average
2437	108.26	-	-	103.48	32.22	6.11	33.55	100	340	Peak
2437	96.15	-	-	91.37	32.22	6.11	33.55	100	340	Average
2484	47.48	-26.52	74	42.59	32.27	6.18	33.56	100	340	Peak
2484	35.89	-18.11	54	31	32.27	6.18	33.56	100	340	Average
8190	53.66	-20.34	74	40.88	36	10.89	34.11	100	221	Peak
8190	40.25	-13.75	54	27.47	36	10.89	34.11	100	221	Average



Test Mode :	Mode 3	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	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	30.84	-9.16	40	42.26	19.51	0.53	31.46	100	142	Peak
140.97	32.75	-10.75	43.5	51.45	11.65	1.2	31.55	-	-	Peak
202.53	22.78	-20.72	43.5	44.08	8.85	1.33	31.48	-	-	Peak
416.9	17.66	-28.34	46	30.14	16.47	2.2	31.15	-	-	Peak
587.7	22.49	-23.51	46	30.94	19.83	2.65	30.93	-	-	Peak
783.7	24.6	-21.4	46	30.19	21.99	3.11	30.69	-	-	Peak
2382	53.9	-20.1	74	49.29	32.11	6.03	33.53	104	327	Peak
2382	44.45	-9.55	54	39.84	32.11	6.03	33.53	104	327	Average
2462	99.13	-	-	94.31	32.24	6.14	33.56	104	327	Average
2462	111.06	-	-	106.24	32.24	6.14	33.56	104	327	Peak
2483.5	44.97	-9.03	54	40.08	32.27	6.18	33.56	104	327	Average
2483.5	57.25	-16.75	74	52.36	32.27	6.18	33.56	104	327	Peak
8184	53.64	-20.36	74	40.87	36	10.88	34.11	100	185	Peak
8184	40.36	-13.64	54	27.59	36	10.88	34.11	100	185	Average



Test Mode :	Mode 3	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	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	35.59	-4.41	40	48.1	18.4	0.55	31.46	106	115	Peak
35.94	34.13	-5.87	40	48.82	16.2	0.59	31.48	-	-	Peak
43.5	29.68	-10.32	40	48.99	11.55	0.64	31.5	-	-	Peak
442.1	18.5	-27.5	46	30.35	16.99	2.28	31.12	-	-	Peak
553.4	21.32	-24.68	46	30.55	19.19	2.56	30.98	-	-	Peak
671	23.33	-22.67	46	30.68	20.62	2.88	30.85	-	-	Peak
2382	49.54	-24.46	74	44.93	32.11	6.03	33.53	116	347	Peak
2382	40.27	-13.73	54	35.66	32.11	6.03	33.53	116	347	Average
2462	109.2	-	-	104.38	32.24	6.14	33.56	116	347	Peak
2462	96.86	-	-	92.04	32.24	6.14	33.56	116	347	Average
2483.5	43.82	-10.18	54	38.93	32.27	6.18	33.56	116	347	Average
2483.5	56.06	-17.94	74	51.17	32.27	6.18	33.56	116	347	Peak
8214	53.62	-20.38	74	40.83	36	10.9	34.11	100	299	Peak
8214	40.28	-13.72	54	27.49	36	10.9	34.11	100	299	Average



Test Mode :	Mode 4	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	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	30.55	-9.45	40	41.97	19.51	0.53	31.46	100	328	Peak
48.9	26.76	-13.24	40	48.65	8.96	0.68	31.53	-	-	Peak
202.53	22.19	-21.31	43.5	43.49	8.85	1.33	31.48	-	-	Peak
360.2	19.12	-26.88	46	33.27	15.06	2.06	31.27	-	-	Peak
603.8	22.97	-23.03	46	31.09	20.1	2.7	30.92	-	-	Peak
759.2	23.74	-22.26	46	29.7	21.66	3.08	30.7	-	-	Peak
2390	43.34	-10.66	54	38.71	32.13	6.03	33.53	136	327	Average
2390	60.45	-13.55	74	55.82	32.13	6.03	33.53	136	327	Peak
2412	94.19	-	-	89.5	32.16	6.07	33.54	136	327	Average
2412	106.31	-	-	101.62	32.16	6.07	33.54	136	327	Peak
2492	46.74	-27.26	74	41.83	32.3	6.18	33.57	136	327	Peak
2492	34.96	-19.04	54	30.05	32.3	6.18	33.57	136	327	Average
8160	53.51	-20.49	74	40.75	36	10.87	34.11	100	284	Peak
8160	40.71	-13.29	54	27.95	36	10.87	34.11	100	284	Average



Test Mode :	Mode 4	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	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	35.93	-4.07	40	48.44	18.4	0.55	31.46	100	196	Peak
36.21	33.36	-6.64	40	48.05	16.2	0.59	31.48	-	-	Peak
45.12	25.68	-14.32	40	46.1	10.43	0.66	31.51	-	-	Peak
377	17.99	-28.01	46	31.62	15.52	2.09	31.24	-	-	Peak
461	19.22	-26.78	46	30.62	17.36	2.32	31.08	-	-	Peak
654.9	22.63	-23.37	46	30.16	20.49	2.85	30.87	-	-	Peak
2390	43.35	-10.65	54	38.72	32.13	6.03	33.53	100	45	Average
2390	60.33	-13.67	74	55.7	32.13	6.03	33.53	100	45	Peak
2412	90.49	-	-	85.8	32.16	6.07	33.54	100	45	Average
2412	102.27	-	-	97.58	32.16	6.07	33.54	100	45	Peak
2500	45.46	-28.54	74	40.55	32.3	6.18	33.57	100	45	Peak
2500	34.46	-19.54	54	29.55	32.3	6.18	33.57	100	45	Average
8160	53.78	-20.22	74	41.02	36	10.87	34.11	100	106	Peak
8160	40.28	-13.72	54	27.52	36	10.87	34.11	100	106	Average



Test Mode :	Mode 5	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	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	28.95	-11.05	40	40.37	19.51	0.53	31.46	100	195	Peak
48.9	16.61	-23.39	40	38.5	8.96	0.68	31.53	-	-	Peak
194.97	18.61	-24.89	43.5	39.94	8.86	1.3	31.49	-	-	Peak
388.9	17.7	-28.3	46	30.96	15.83	2.12	31.21	-	-	Peak
542.9	21.46	-24.54	46	30.92	18.99	2.54	30.99	-	-	Peak
761.3	24.27	-21.73	46	30.21	21.68	3.08	30.7	-	-	Peak
2388	49	-25	74	44.37	32.13	6.03	33.53	197	337	Peak
2388	38.02	-15.98	54	33.39	32.13	6.03	33.53	197	337	Average
2437	106.77	-	-	102.02	32.19	6.11	33.55	197	337	Peak
2437	93.29	-	-	88.51	32.22	6.11	33.55	197	337	Average
2494	45.4	-28.6	74	40.49	32.3	6.18	33.57	197	337	Peak
2494	33.81	-20.19	54	28.9	32.3	6.18	33.57	197	337	Average
8205	53.88	-20.12	74	41.1	36	10.89	34.11	100	316	Peak
8205	40.18	-13.82	54	27.4	36	10.89	34.11	100	316	Average



Test Mode :	Mode 5	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	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	35.45	-4.55	40	47.96	18.4	0.55	31.46	100	54	Peak
48.9	30.63	-9.37	40	52.52	8.96	0.68	31.53	-	-	Peak
107.49	21.72	-21.78	43.5	41.17	11.06	1.04	31.55	-	-	Peak
377	18.62	-27.38	46	32.25	15.52	2.09	31.24	-	-	Peak
424.6	20.8	-25.2	46	33.08	16.63	2.23	31.14	-	-	Peak
632.5	22.15	-23.85	46	29.93	20.32	2.79	30.89	-	-	Peak
2358	49.46	-24.54	74	44.91	32.08	5.99	33.52	100	341	Peak
2358	36.96	-17.04	54	32.41	32.08	5.99	33.52	100	341	Average
2437	104.19	-	-	99.44	32.19	6.11	33.55	100	341	Peak
2437	92.26	-	-	87.48	32.22	6.11	33.55	100	341	Average
2484	45.47	-28.53	74	40.58	32.27	6.18	33.56	100	341	Peak
2484	34.59	-19.41	54	29.7	32.27	6.18	33.56	100	341	Average
8193	53.92	-20.08	74	41.14	36	10.89	34.11	100	59	Peak
8193	40.33	-13.67	54	27.55	36	10.89	34.11	100	59	Average



Test Mode :	Mode 6	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	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	29.15	-10.85	40	40.57	19.51	0.53	31.46	100	101	Peak
48.9	16.14	-23.86	40	38.03	8.96	0.68	31.53	-	-	Peak
194.97	19.34	-24.16	43.5	40.67	8.86	1.3	31.49	-	-	Peak
383.3	17.33	-28.67	46	30.78	15.67	2.11	31.23	-	-	Peak
559.7	21.02	-24.98	46	30.11	19.3	2.58	30.97	-	-	Peak
766.2	24.56	-21.44	46	30.41	21.75	3.09	30.69	-	-	Peak
2382	51.6	-22.4	74	46.99	32.11	6.03	33.53	128	333	Peak
2382	40.59	-13.41	54	35.98	32.11	6.03	33.53	128	333	Average
2462	94.02	-	-	89.2	32.24	6.14	33.56	128	333	Average
2462	106.27	-	-	101.45	32.24	6.14	33.56	128	333	Peak
2483.5	48.2	-5.8	54	43.31	32.27	6.18	33.56	128	333	Average
2483.5	67.62	-6.38	74	62.73	32.27	6.18	33.56	128	333	Peak
8214	54.04	-19.96	74	41.25	36	10.9	34.11	100	317	Peak
8214	40.29	-13.71	54	27.5	36	10.9	34.11	100	317	Average



Test Mode :	Mode 6	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	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	34.94	-5.06	40	46.91	18.95	0.54	31.46	100	59	Peak
48.9	31.19	-8.81	40	53.08	8.96	0.68	31.53	-	-	Peak
107.49	22.17	-21.33	43.5	41.62	11.06	1.04	31.55	-	-	Peak
427.4	18.06	-27.94	46	30.27	16.69	2.24	31.14	-	-	Peak
615.7	22.11	-23.89	46	30.08	20.19	2.74	30.9	-	-	Peak
772.5	24.12	-21.88	46	29.88	21.83	3.1	30.69	-	-	Peak
2380	53.98	-20.02	74	49.37	32.11	6.03	33.53	100	53	Peak
2380	42.89	-11.11	54	38.28	32.11	6.03	33.53	100	53	Average
2462	104.36	-	-	99.54	32.24	6.14	33.56	100	53	Peak
2462	92.68	-	-	87.86	32.24	6.14	33.56	100	53	Average
2483.5	46.57	-7.43	54	41.68	32.27	6.18	33.56	100	53	Average
2483.5	65.95	-8.05	74	61.06	32.27	6.18	33.56	100	53	Peak
8202	53.78	-20.22	74	41	36	10.89	34.11	100	325	Peak
8202	40.59	-13.41	54	27.81	36	10.89	34.11	100	325	Average



Test Mode :	Mode 7	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	28.31	-11.69	40	40.28	18.95	0.54	31.46	-	-	Peak
48.9	29.87	-10.13	40	51.76	8.96	0.68	31.53	100	109	Peak
191.73	22.88	-20.62	43.5	44.19	8.9	1.29	31.5	-	-	Peak
369.3	17.7	-28.3	46	31.57	15.31	2.08	31.26	-	-	Peak
503.7	19.87	-26.13	46	30.23	18.24	2.46	31.06	-	-	Peak
673.8	22.94	-23.06	46	30.26	20.64	2.89	30.85	-	-	Peak
2390	40.16	-13.84	54	35.53	32.13	6.03	33.53	191	337	Average
2390	58.19	-15.81	74	53.56	32.13	6.03	33.53	191	337	Peak
2412	90.57	-	-	85.88	32.16	6.07	33.54	191	337	Average
2412	102.67	-	-	97.98	32.16	6.07	33.54	191	337	Peak
2486	46.53	-27.47	74	41.64	32.27	6.18	33.56	191	337	Peak
2486	34.37	-19.63	54	29.48	32.27	6.18	33.56	191	337	Average
8169	53.64	-20.36	74	40.87	36	10.88	34.11	102	112	Peak
8169	40.5	-13.5	54	27.73	36	10.88	34.11	102	112	Average



Test Mode :	Mode 7	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	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
30.81	34.33	-5.67	40	46.3	18.95	0.54	31.46	100	261	Peak
35.94	31.08	-8.92	40	45.77	16.2	0.59	31.48	-	-	Peak
48.9	29.2	-10.8	40	51.09	8.96	0.68	31.53	-	-	Peak
385.4	17.23	-28.77	46	30.63	15.72	2.11	31.23	-	-	Peak
601.7	21.83	-24.17	46	29.98	20.08	2.69	30.92	-	-	Peak
755	23.53	-22.47	46	29.57	21.59	3.07	30.7	-	-	Peak
2390	42.51	-11.49	54	37.88	32.13	6.03	33.53	100	45	Average
2390	59.29	-14.71	74	54.66	32.13	6.03	33.53	100	45	Peak
2412	88.81	-	-	84.12	32.16	6.07	33.54	100	45	Average
2412	100.95	-	-	96.26	32.16	6.07	33.54	100	45	Peak
2484	45.51	-28.49	74	40.62	32.27	6.18	33.56	100	45	Peak
2484	34.08	-19.92	54	29.19	32.27	6.18	33.56	100	45	Average
8226	53.95	-20.05	74	41.16	36	10.9	34.11	100	265	Peak
8226	40.58	-13.42	54	27.79	36	10.9	34.11	100	265	Average



Test Mode :	Mode 8	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	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
30.54	30.9	-9.1	40	42.87	18.95	0.54	31.46	100	250	Peak
48.9	28.53	-11.47	40	50.42	8.96	0.68	31.53	-	-	Peak
107.49	19.05	-24.45	43.5	38.5	11.06	1.04	31.55	-	-	Peak
383.3	21.05	-24.95	46	34.5	15.67	2.11	31.23	-	-	Peak
615.7	21.93	-24.07	46	29.9	20.19	2.74	30.9	-	-	Peak
738.9	23.98	-22.02	46	30.3	21.38	3.03	30.73	-	-	Peak
2356	49.09	-24.91	74	44.58	32.08	5.95	33.52	136	336	Peak
2356	37.18	-16.82	54	32.67	32.08	5.95	33.52	136	336	Average
2437	103.56	-	-	98.81	32.19	6.11	33.55	136	336	Peak
2437	91	-	-	86.22	32.22	6.11	33.55	136	336	Average
2494	46.56	-27.44	74	41.65	32.3	6.18	33.57	136	336	Peak
2494	33.98	-20.02	54	29.07	32.3	6.18	33.57	136	336	Average
8181	53.87	-20.13	74	41.1	36	10.88	34.11	100	16	Peak
8181	39.6	-14.4	54	26.83	36	10.88	34.11	100	16	Average



Test Mode :	Mode 8	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	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
30.81	36.44	-3.56	40	48.41	18.95	0.54	31.46	100	24	Peak
48.9	30.27	-9.73	40	52.16	8.96	0.68	31.53	-	-	Peak
107.49	21.66	-21.84	43.5	41.11	11.06	1.04	31.55	-	-	Peak
422.5	18.18	-27.82	46	30.52	16.59	2.22	31.15	-	-	Peak
596.1	21.93	-24.07	46	30.17	20	2.68	30.92	-	-	Peak
797	24.56	-21.44	46	29.92	22.18	3.14	30.68	-	-	Peak
2358	47.3	-26.7	74	42.75	32.08	5.99	33.52	100	341	Peak
2358	36.5	-17.5	54	31.95	32.08	5.99	33.52	100	341	Average
2437	89.05	-	-	84.36	32.16	6.07	33.54	100	341	Average
2437	101.03	-	-	96.28	32.19	6.11	33.55	100	341	Peak
2484	46.62	-27.38	74	41.73	32.27	6.18	33.56	100	341	Peak
2484	34.66	-19.34	54	29.77	32.27	6.18	33.56	100	341	Average
8226	53.82	-20.18	74	41.03	36	10.9	34.11	103	341	Peak
8226	40.82	-13.18	54	28.03	36	10.9	34.11	103	341	Average



Test Mode :	Mode 9	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	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	29.8	-10.2	40	41.77	18.95	0.54	31.46	100	59	Peak
48.9	28.64	-11.36	40	50.53	8.96	0.68	31.53	-	-	Peak
107.49	18.97	-24.53	43.5	38.42	11.06	1.04	31.55	-	-	Peak
368.6	18.52	-27.48	46	32.41	15.29	2.08	31.26	-	-	Peak
570.9	21.97	-24.03	46	30.79	19.52	2.61	30.95	-	-	Peak
774.6	23.79	-22.21	46	29.51	21.87	3.1	30.69	-	-	Peak
2380	50.78	-23.22	74	46.17	32.11	6.03	33.53	131	334	Peak
2380	40.43	-13.57	54	35.82	32.11	6.03	33.53	131	334	Average
2462	104.13	-	-	99.31	32.24	6.14	33.56	131	334	Peak
2462	92.12	-	-	87.3	32.24	6.14	33.56	131	334	Average
2483.5	46.3	-7.7	54	41.41	32.27	6.18	33.56	131	334	Average
2483.5	63.53	-10.47	74	58.64	32.27	6.18	33.56	131	334	Peak
8229	54.25	-19.75	74	41.46	36	10.9	34.11	100	106	Peak
8229	40.33	-13.67	54	27.54	36	10.9	34.11	100	106	Average



Test Mode :	Mode 9	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	49~52%
Test Engineer :	Cona Huang	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	36.65	-3.35	40	49.16	18.4	0.55	31.46	100	327	Peak
48.9	28.3	-11.7	40	50.19	8.96	0.68	31.53	-	-	Peak
107.49	21.8	-21.7	43.5	41.25	11.06	1.04	31.55	-	-	Peak
450.5	19.07	-26.93	46	30.71	17.16	2.3	31.1	-	-	Peak
617.8	22.58	-23.42	46	30.54	20.2	2.74	30.9	-	-	Peak
811	24.41	-21.59	46	29.61	22.32	3.17	30.69	-	-	Peak
2380	51.13	-22.87	74	46.52	32.11	6.03	33.53	138	342	Peak
2380	40.06	-13.94	54	35.45	32.11	6.03	33.53	138	342	Average
2462	102.12	-	-	97.3	32.24	6.14	33.56	138	342	Peak
2462	90.95	-	-	86.13	32.24	6.14	33.56	138	342	Average
2483.5	46.57	-7.43	54	41.68	32.27	6.18	33.56	138	342	Average
2483.5	65.49	-8.51	74	60.6	32.27	6.18	33.56	138	342	Peak
8220	53.51	-20.49	74	40.72	36	10.9	34.11	100	128	Peak
8220	40.78	-13.22	54	27.99	36	10.9	34.11	100	128	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. 17, 2009	Sep. 16, 2010	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 10, 2009	Sep. 09, 2010	Conducted (TH02-HY)
EMI Test Receive	R&S	ESU	100211	9KHz – 2.75GHz	May 28, 2010	May 27, 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-1000W	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)
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. 20, 2009	Aug. 19, 2010	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 14, 2009	Oct. 13, 2010	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.32dB.GAIN	Mar. 27, 2010	Mar. 26, 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				