

FCC RF Test Report

APPLICANT : HTC Corporation
EQUIPMENT : Tablet computer
MODEL NAME : PG09410
FCC ID : NM8PG09410
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Mar. 29, 2011 and completely tested on Jun. 17, 2011. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

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

Reviewed by:



Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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



TABLE OF CONTENTS

REVISION HISTORY..... 3

SUMMARY OF TEST RESULT 4

1 GENERAL DESCRIPTION 5

 1.1 Applicant 5

 1.2 Manufacturer 5

 1.3 Feature of Equipment Under Test 5

 1.4 Testing Site 6

 1.5 Applied Standards 6

 1.6 Ancillary Equipment List 6

2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST 7

 2.1 RF Power 7

 2.2 Test Mode 8

 2.3 Connection Diagram of Test System 9

 2.4 RF Utility 9

3 TEST RESULT 10

 3.1 6dB Bandwidth Measurement 10

 3.2 Output Power Measurement 21

 3.3 Band Edges Measurement 24

 3.4 Spurious Emission Measurement 34

 3.5 Power Spectral Density Measurement 50

 3.6 AC Conducted Emission Measurement 61

 3.7 Radiated Emission Measurement 65

 3.8 Antenna Requirements 92

4 LIST OF MEASURING EQUIPMENT 93

5 UNCERTAINTY OF EVALUATION 95

APPENDIX A. SETUP PHOTOGRAPHS

**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 Measurement	$\leq 30\text{dBm}$	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 19.1 dB at 0.19 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 5.94 dB at 2389.61 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

HTC Corporation
6-3, Baoquang Rd., Xindian City, Taipei County, Taiwan

1.2 Manufacturer

HTC Corporation
6-3, Baoquang Rd., Xindian City, Taipei County, Taiwan

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Tablet computer
Model Name	PG09410
FCC ID	NM8PG09410
Tx/Rx Frequency Range	802.11b/g/n : 2400 MHz ~ 2483.5 MHz 802.11a/n : 5725 MHz ~ 5850 MHz
Channel Spacing	802.11b/g : 5 MHz 802.11a : 20 MHz
Maximum Output Power to Antenna	<2400 MHz ~ 2483.5 MHz> 802.11b : 22.26 dBm (0.17 W) 802.11g : 23.86 dBm (0.24 W) 802.11n (BW 20MHz) : 23.28 dBm (0.21 W) <5725 MHz ~ 5850 MHz> 802.11a : 20.35 dBm (0.11 W) 802.11n (BW 20MHz) : 20.54 dBm (0.11 W)
Antenna Type	802.11b/g/n : PIFA Antenna with gain -2.00 dBi 802.11a/n : PIFA Antenna with gain -1.00 dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11a/g/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	03CH06HY	722060/4086B-1

1.5 Applied Standards

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

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

Remark:

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

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	System Simulator	Agilent	MT8820C	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

2 Test Configuration of Equipment Under Test

2.1 RF Power

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

Channel	Frequency	2.4GHz 802.11b RF Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 11	2462 MHz	22.01	22.10	22.24	22.26

Channel	Frequency	2.4GHz 802.11g RF Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 11	2462 MHz	23.86	23.62	23.11	23.22	23.17	23.31	23.33	23.46

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 11	2462 MHz	23.28	22.81	22.77	22.31	22.58	22.64	22.65	22.64

Channel	Frequency	5GHz 802.11a RF Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH165	5825 MHz	20.35	20.03	20.08	20.01	20.17	20.28	20.31	20.33

Channel	Frequency	5GHz 802.11n (BW 20MHz) RF Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH149	5745 MHz	20.54	20.32	20.31	20.06	20.12	20.46	20.36	20.51

Remark:

1. The EUT is programmed to transmit signals continuously for all testing.
2. The data rates of WLAN 802.11a/b/g/n were set in 11Mbps for 802.11b, 6Mbps for 802.11g, MCS0 for 802.11n (BW 20MHz), 6Mbps for 802.11a, and MCS0 for 802.11n (BW 20MHz) for all the test cases due to the highest RF output power.
3. Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports.



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).

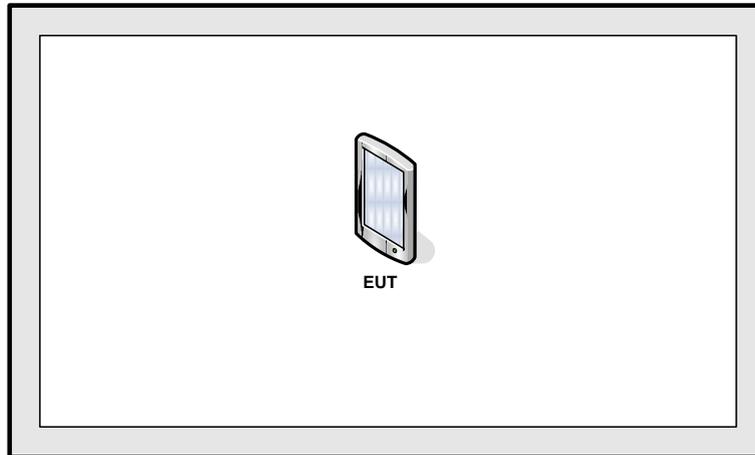
Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations, laptop / tablet modes.

The following table is showing the total pre-scanned test modes, and the worst modes are recorded in this report only.

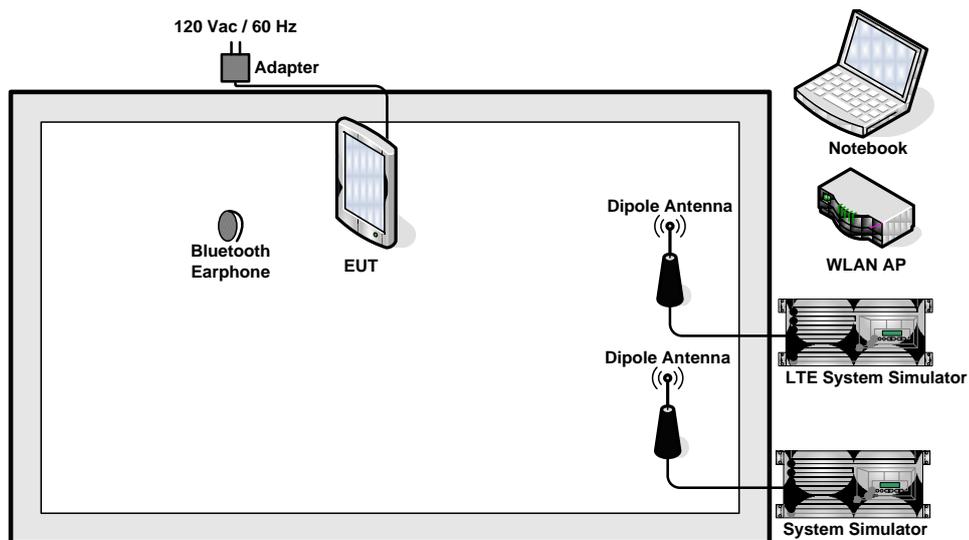
Test Cases		
Test Item	802.11b (Modulation : DSSS) 802.11g/n (Modulation : OFDM)	802.11a/n (Modulation : OFDM)
Conducted TCs	Mode 1: 802.11b_CH01_2412 MHz Mode 2: 802.11b_CH06_2437 MHz Mode 3: 802.11b_CH11_2462 MHz Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n_CH01_2412 MHz (BW 20M) Mode 8: 802.11n_CH06_2437 MHz (BW 20M) Mode 9: 802.11n_CH11_2462 MHz (BW 20M)	Mode 10: 802.11a_CH149_5745 MHz Mode 11: 802.11a_CH157_5785 MHz Mode 12: 802.11a_CH165_5825 MHz Mode 13: 802.11n_CH149_5745 MHz (BW 20M) Mode 14: 802.11n_CH157_5785 MHz (BW 20M) Mode 15: 802.11n_CH165_5825 MHz (BW 20M)
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_CH01_2412 MHz (BW 20M) Mode 8: 802.11n_CH06_2437 MHz (BW 20M) Mode 9: 802.11n_CH11_2462 MHz (BW 20M)	Mode 10: 802.11a_CH149_5745 MHz Mode 11: 802.11a_CH157_5785 MHz Mode 12: 802.11a_CH165_5825 MHz Mode 13: 802.11n_CH149_5745 MHz (BW 20M) Mode 14: 802.11n_CH157_5785 MHz (BW 20M) Mode 15: 802.11n_CH165_5825 MHz (BW 20M)
AC Conducted Emission	Mode 1 : GSM1900 Idle + LTE Band17 Idle + Bluetooth Link + WLAN (2.4G) Link + Adapter + Camera	

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 RF Utility

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

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

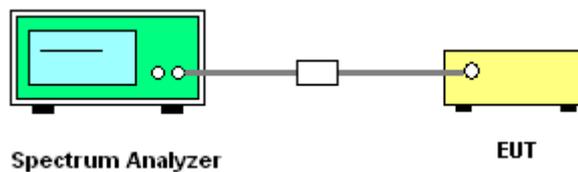
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

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

3.1.4 Test Setup





3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26°C
Test Engineer :	Hank Yu and Alan Liu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	7.48	0.5	Pass
06	2437	7.48	0.5	Pass
11	2462	7.40	0.5	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Hank Yu and Alan Liu	Relative Humidity :	50~53%

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

Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Hank Yu and Alan Liu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz, 2Tx) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.14	0.5	Pass
06	2437	15.08	0.5	Pass
11	2462	15.12	0.5	Pass

Note: Chain A+B was tested by combiner, and the chain A and B was tested individually.



Test Mode :	Mode 10, 11, 12	Temperature :	24~26°C
Test Engineer :	Hank Yu and Alan Liu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11a 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	15.10	0.5	Pass
157	5785	15.10	0.5	Pass
165	5825	15.10	0.5	Pass

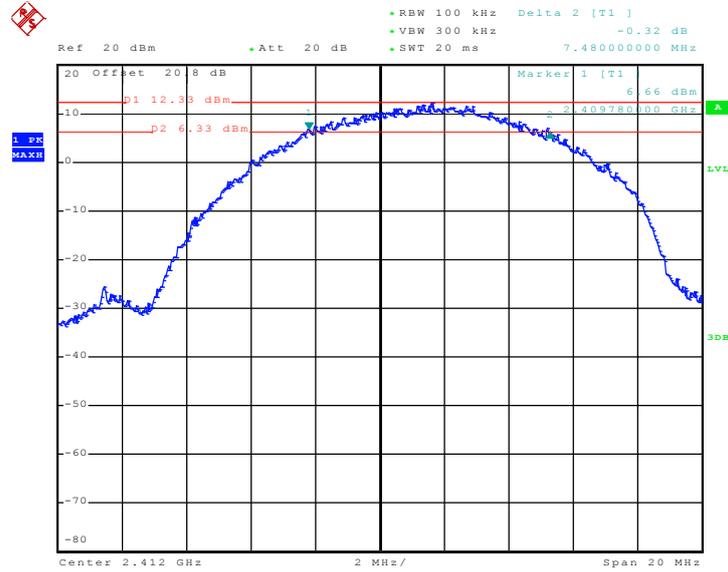
Test Mode :	Mode 13, 14, 15	Temperature :	24~26°C
Test Engineer :	Hank Yu and Alan Liu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	15.10	0.5	Pass
157	5785	15.10	0.5	Pass
165	5825	15.10	0.5	Pass



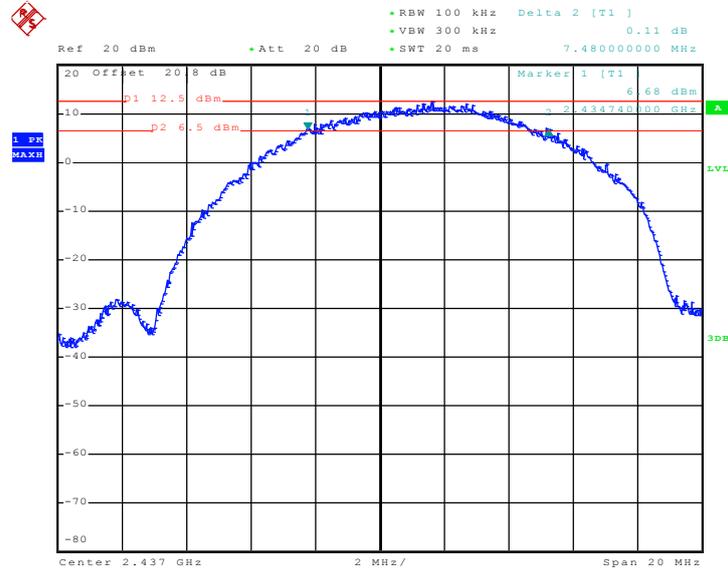
3.1.6 Test Result of 6dB Bandwidth Plots

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



Date: 17.JUN.2011 00:33:45

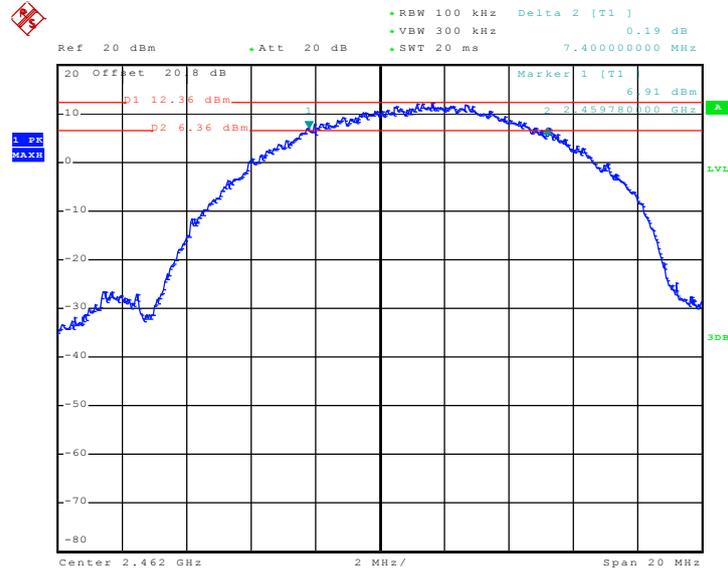
Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 17.JUN.2011 00:44:15

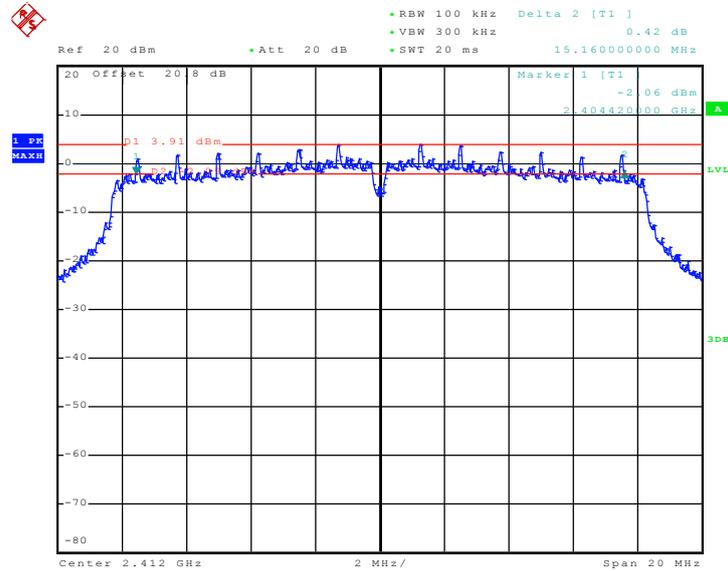


Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11



Date: 17.JUN.2011 00:38:59

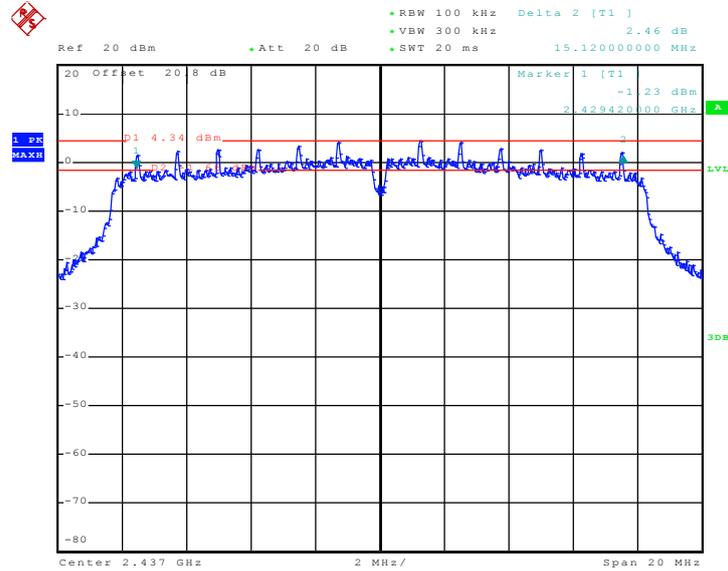
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



Date: 17.JUN.2011 00:53:55

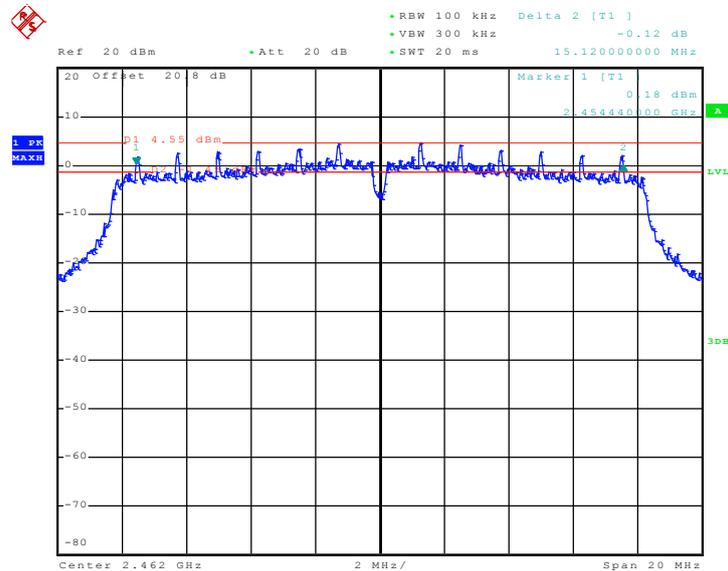


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



Date: 17.JUN.2011 00:47:15

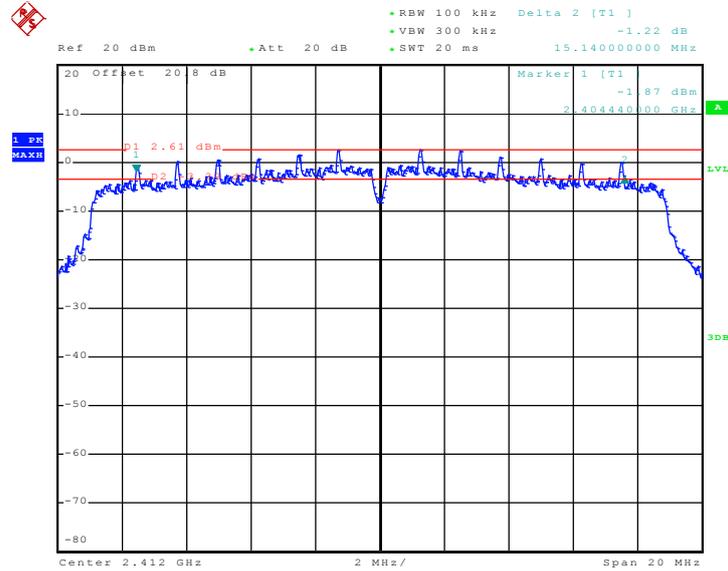
Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11



Date: 17.JUN.2011 00:49:38

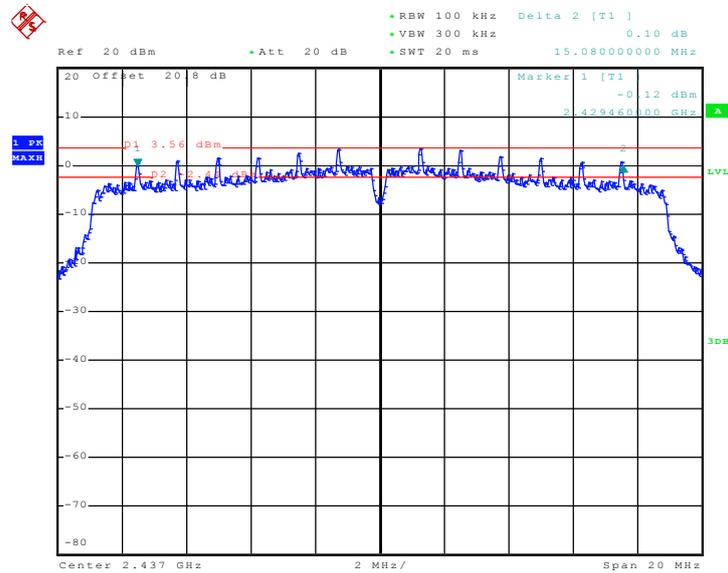


Mode 7 : 6 dB Bandwidth Plot on 802.11n Channel 01



Date: 17.JUN.2011 01:03:31

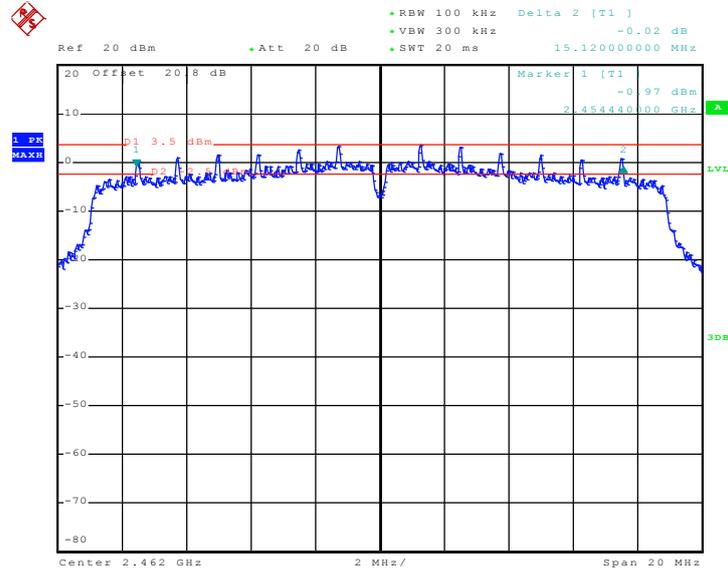
Mode 8 : 6 dB Bandwidth Plot on 802.11n Channel 06



Date: 17.JUN.2011 01:14:40

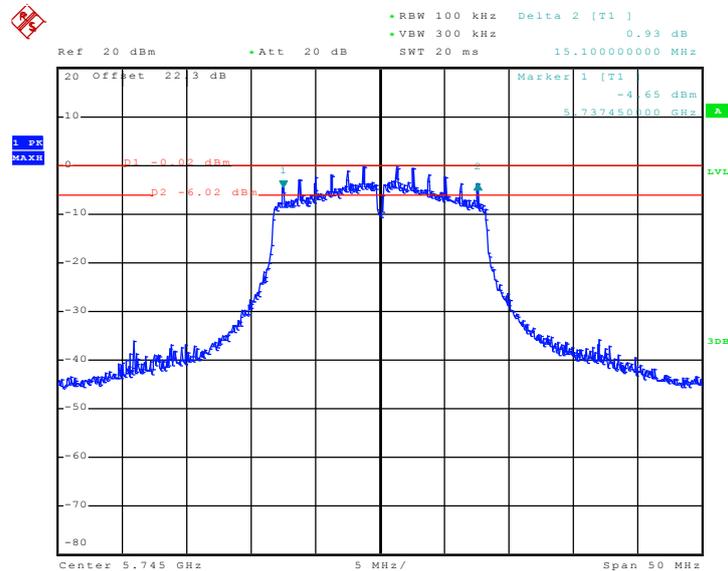


Mode 9 : 6 dB Bandwidth Plot on 802.11n Channel 11



Date: 17.JUN.2011 01:11:10

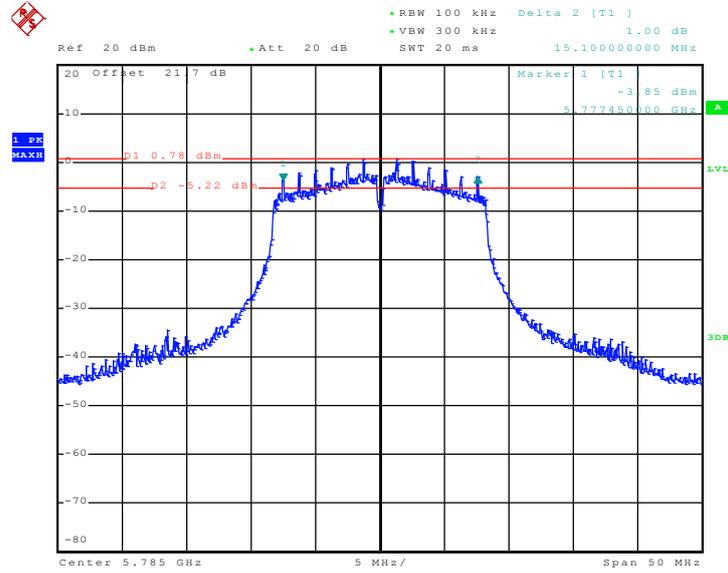
Mode 10: 6 dB Bandwidth Plot on 802.11a Channel 149



Date: 14.MAY.2011 14:32:23

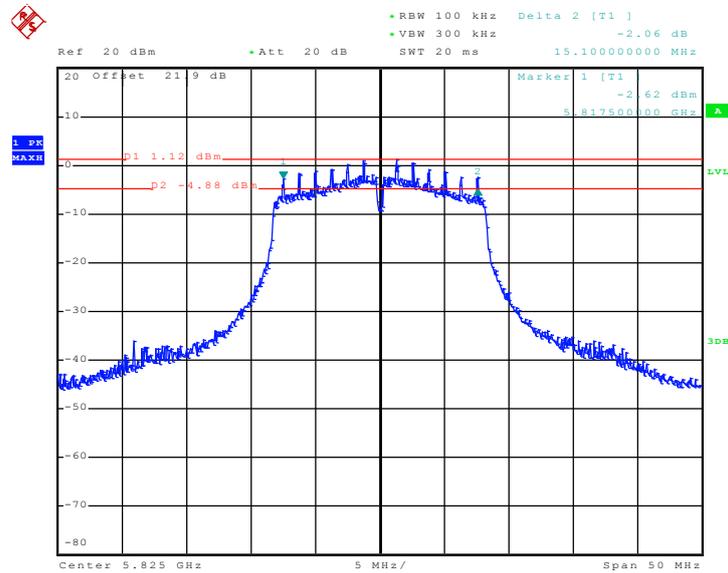


Mode 11: 6 dB Bandwidth Plot on 802.11a Channel 157



Date: 14.MAY.2011 14:50:23

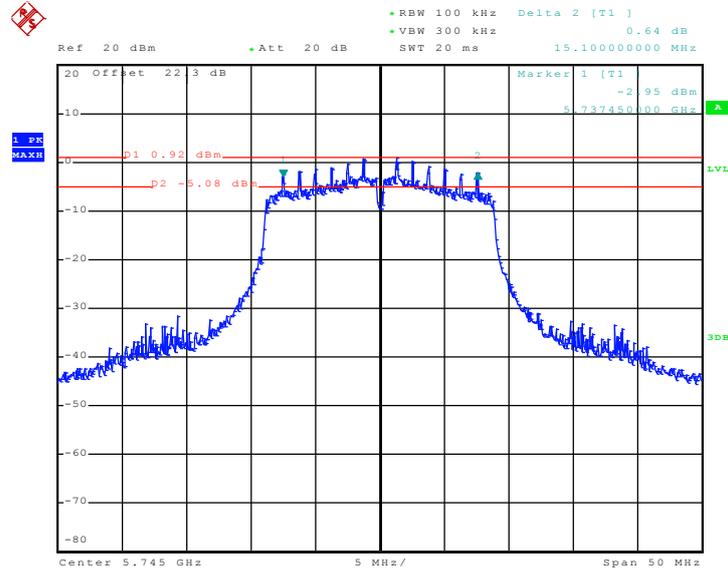
Mode 12: 6 dB Bandwidth Plot on 802.11a Channel 165



Date: 14.MAY.2011 15:02:44

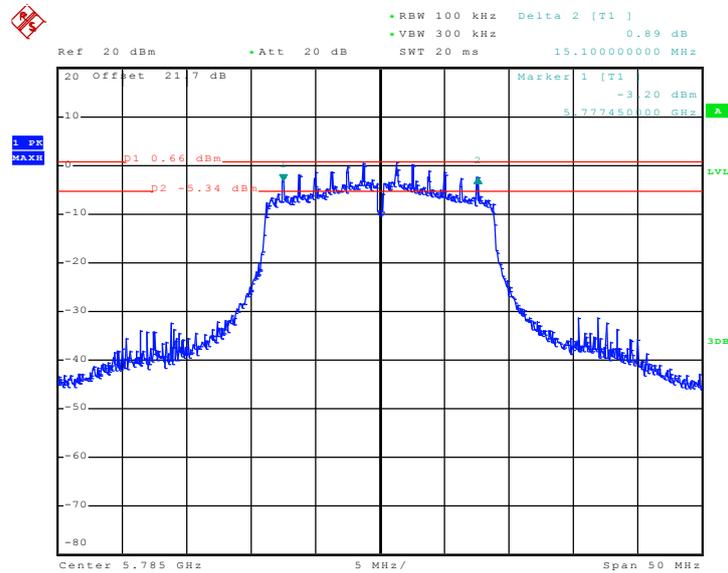


Mode 13: 6 dB Bandwidth Plot on 802.11n Channel 149



Date: 14.MAY.2011 11:52:39

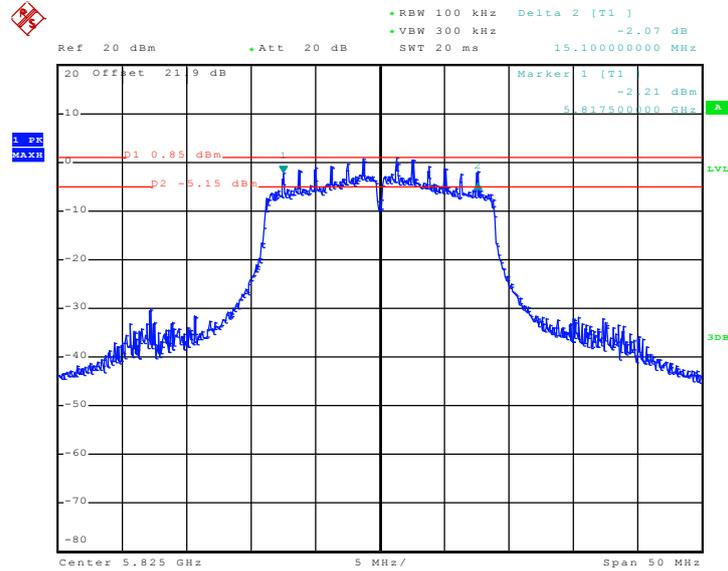
Mode 14: 6 dB Bandwidth Plot on 802.11n Channel 157



Date: 14.MAY.2011 15:15:11



Mode 15: 6 dB Bandwidth Plot on 802.11n Channel 165



Date: 14.MAY.2011 14:00:21

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz and 5725-5850MHz, the limit for peak output power is 30dBm. If transmitting antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

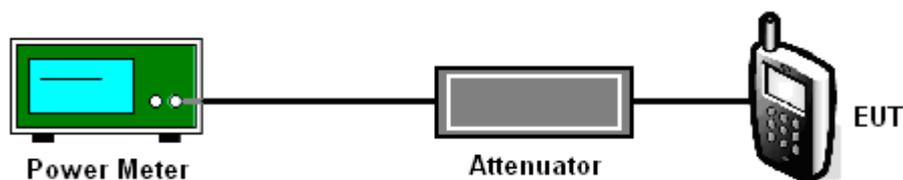
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the power meter by a low loss cable.
3. Measure the power by power meter.

3.2.4 Test Setup





3.2.5 Test Result of Output Power

Test Mode :	Mode 1, 2, 3	Temperature :	24~26°C
Test Engineer :	Hank Yu and Alan Liu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.70	30	Pass
06	2437	22.10	30	Pass
11	2462	22.26	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Hank Yu and Alan Liu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.92	30	Pass
06	2437	23.71	30	Pass
11	2462	23.86	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Hank Yu and Alan Liu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.55	30	Pass
06	2437	23.05	30	Pass
11	2462	23.28	30	Pass



Test Mode :	Mode 10, 11, 12	Temperature :	24~26°C
Test Engineer :	Hank Yu and Alan Liu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11a Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	19.82	30	Pass
157	5785	19.92	30	Pass
165	5825	20.35	30	Pass

Test Mode :	Mode 13, 14, 15	Temperature :	24~26°C
Test Engineer :	Hank Yu and Alan Liu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	20.54	30	Pass
157	5785	19.75	30	Pass
165	5825	20.06	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

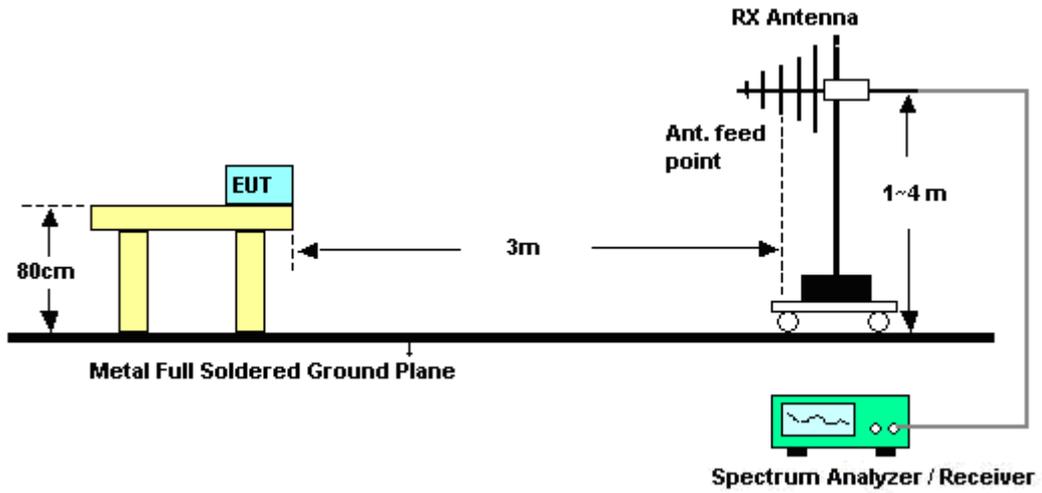
See list of measuring instruments of this test report.

3.3.3 Test Procedures

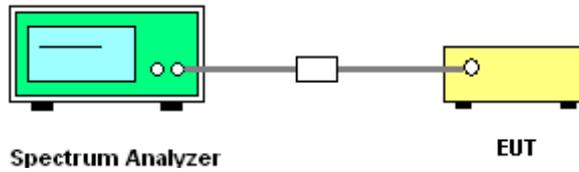
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) > RBW. Band edge emissions must be at least 20 dB below the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the output power of this device was measured by power meter, 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 :	21~22°C
Test Band :	802.11b	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Kay Wu

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	61.52	-12.48	74	58.61	31.9	5.4	34.39	133	325	Peak
2389.99	47.2	-6.8	54	44.29	31.9	5.4	34.39	133	325	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	56.38	-17.62	74	53.47	31.9	5.4	34.39	103	274	Peak
2389.99	43.27	-10.73	54	40.36	31.9	5.4	34.39	103	274	Average

Test Mode :	Mode 3	Temperature :	21~22°C
Test Band :	802.11b	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Kay Wu

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	59.47	-14.53	74	56.34	31.98	5.52	34.37	100	325	Peak
2483.85	47.19	-6.81	54	44.06	31.98	5.52	34.37	100	325	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.42	50.85	-23.15	74	47.72	31.98	5.52	34.37	103	258	Peak
2484.42	37.88	-16.12	54	34.75	31.98	5.52	34.37	103	258	Average



Test Mode :	Mode 4	Temperature :	21~22°C
Test Band :	802.11g	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Kay Wu

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	68.06	-5.94	74	65.15	31.9	5.4	34.39	135	328	Peak
2389.61	46.81	-7.19	54	43.9	31.9	5.4	34.39	135	328	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	60.01	-13.99	74	57.1	31.9	5.4	34.39	109	271	Peak
2389.99	40.96	-13.04	54	38.05	31.9	5.4	34.39	109	271	Average

Test Mode :	Mode 6	Temperature :	21~22°C
Test Band :	802.11g	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Kay Wu

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	67.08	-6.92	74	63.95	31.98	5.52	34.37	100	321	Peak
2483.5	46.13	-7.87	54	43	31.98	5.52	34.37	100	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
2483.66	61.84	-12.16	74	58.71	31.98	5.52	34.37	198	130	Peak
2483.66	40.82	-13.18	54	37.69	31.98	5.52	34.37	198	130	Average



Test Mode :	Mode 7	Temperature :	21~22°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Kay Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388.66	65.43	-8.57	74	62.52	31.9	5.4	34.39	132	324	Peak
2388.66	46.15	-7.85	54	43.24	31.9	5.4	34.39	132	324	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388.85	60.97	-13.03	74	58.06	31.9	5.4	34.39	102	271	Peak
2388.85	42.83	-11.17	54	39.92	31.9	5.4	34.39	102	271	Average

Test Mode :	Mode 9	Temperature :	21~22°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Kay Wu

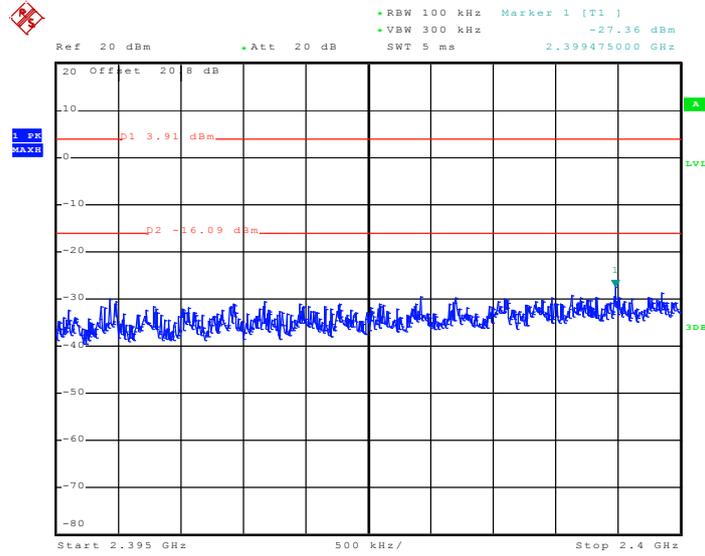
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2485.18	65.9	-8.1	74	62.77	31.98	5.52	34.37	100	316	Peak
2485.18	47.52	-6.48	54	44.39	31.98	5.52	34.37	100	316	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.42	64.53	-9.47	74	61.4	31.98	5.52	34.37	189	109	Peak
2484.42	44.86	-9.14	54	41.73	31.98	5.52	34.37	189	109	Average



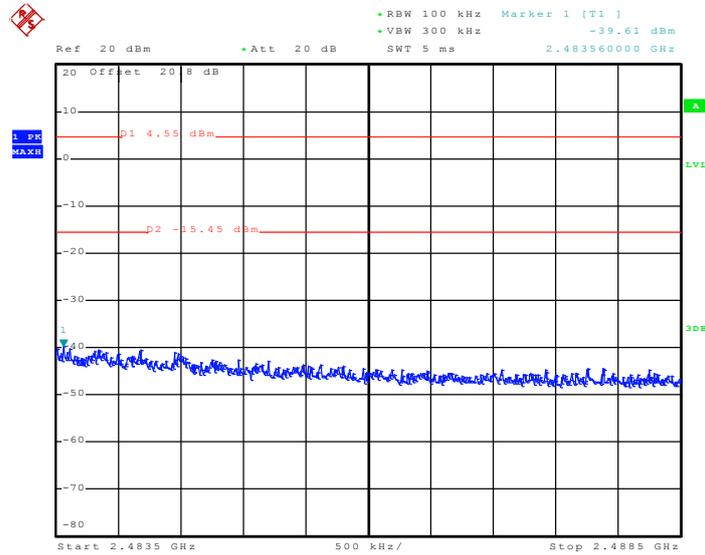
Test Mode :	Mode 4 and 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Hank Yu and Alan Liu

Low Band Edge Plot on 802.11g Channel 01



Date: 17.JUN.2011 00:55:07

High Band Edge Plot on 802.11g Channel 11

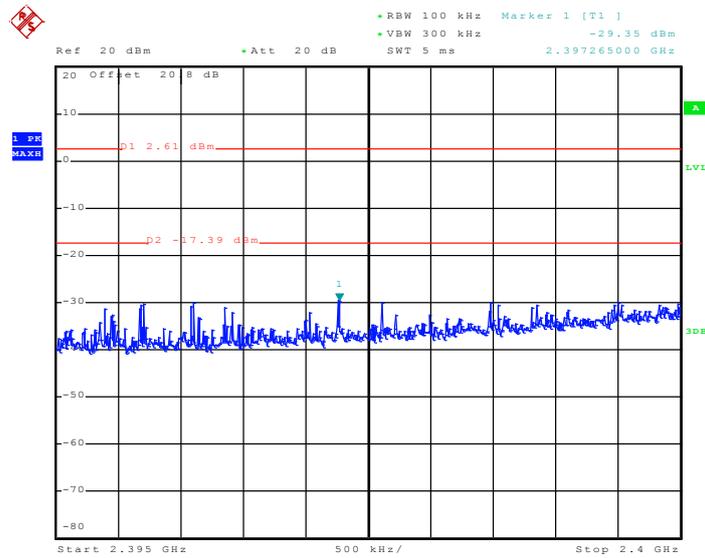


Date: 17.JUN.2011 00:50:29



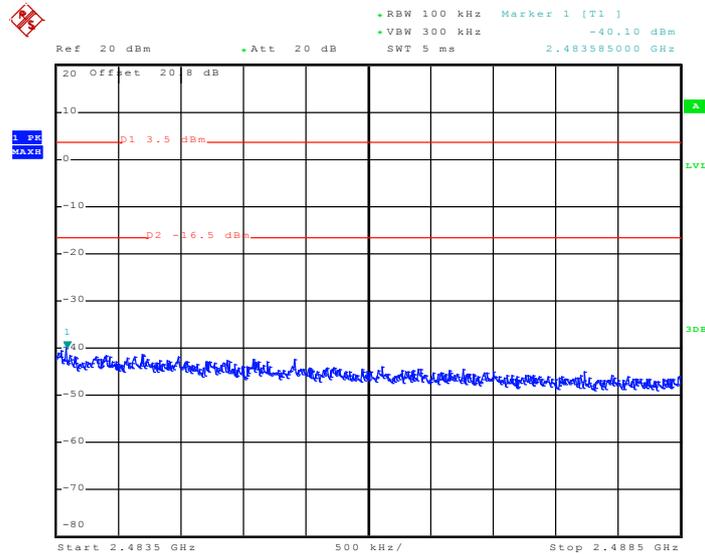
Test Mode :	Mode 7 and 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Hank Yu and Alan Liu

Low Band Edge Plot on 802.11n Channel 01



Date: 17.JUN.2011 01:04:43

High Band Edge Plot on 802.11n Channel 11

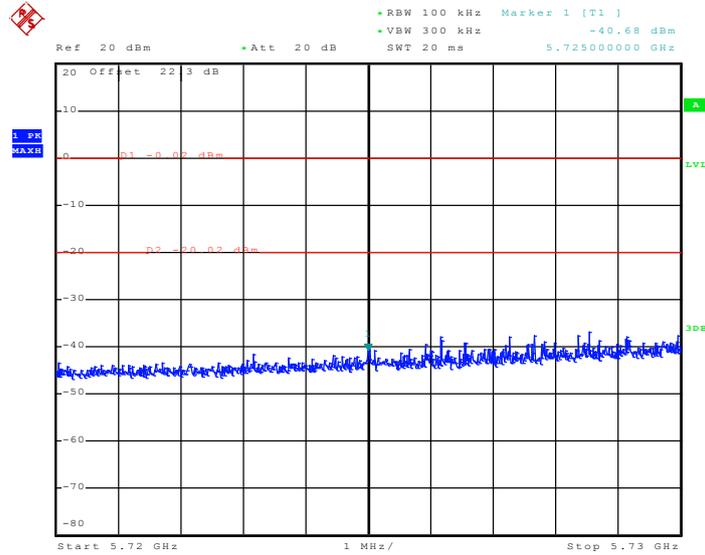


Date: 17.JUN.2011 01:11:58



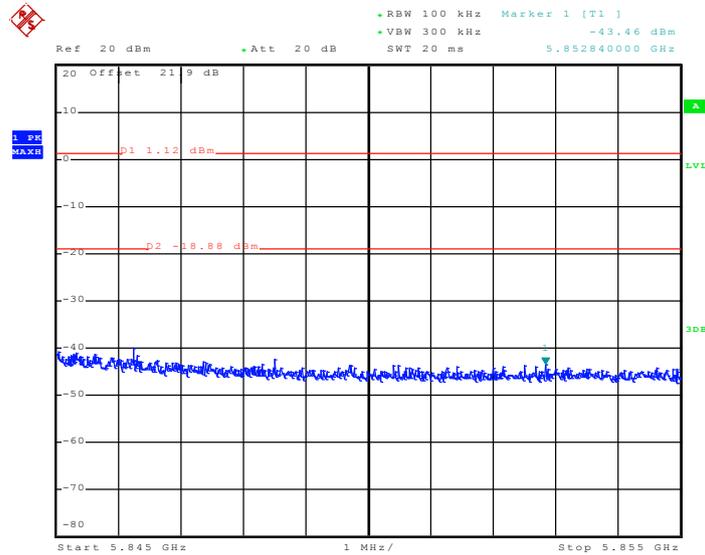
Test Mode :	Mode 10 and 12	Temperature :	24~26°C
Test Band :	802.11a	Relative Humidity :	50~53%
Test Channel :	149 and 165	Test Engineer :	Hank Yu and Alan Liu

Low Band Edge Plot on 802.11a Channel 149



Date: 14.MAY.2011 14:32:53

High Band Edge Plot on 802.11a Channel 165

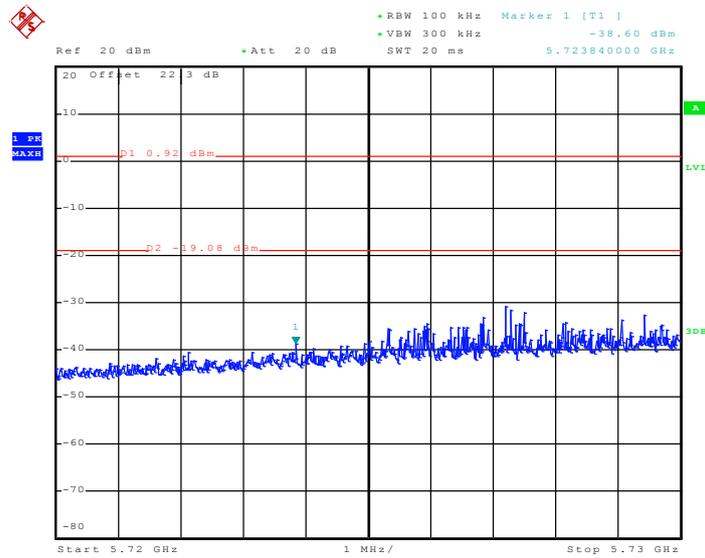


Date: 14.MAY.2011 15:03:08



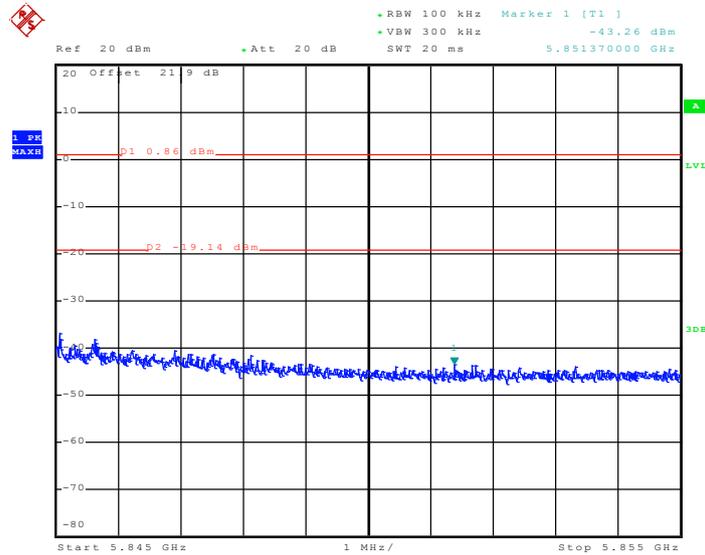
Test Mode :	Mode 13 and 15	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	149 and 165	Test Engineer :	Hank Yu and Alan Liu

Low Band Edge Plot on 802.11n Channel 149



Date: 14.MAY.2011 11:54:41

High Band Edge Plot on 802.11n Channel 165



Date: 14.MAY.2011 14:01:00

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

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

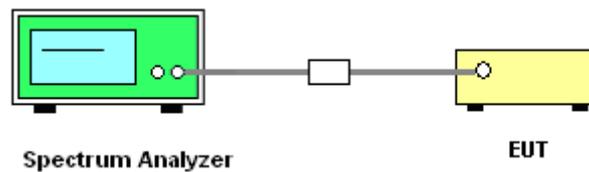
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, Video bandwidth (VBW) > 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

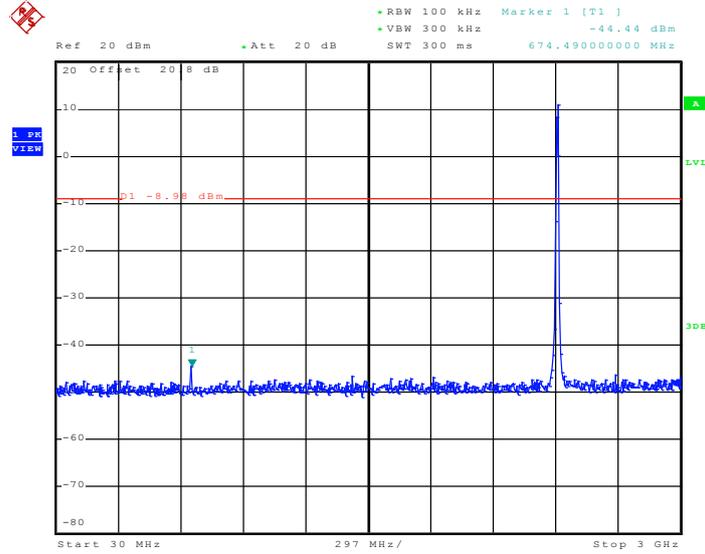




3.4.5 Test Result

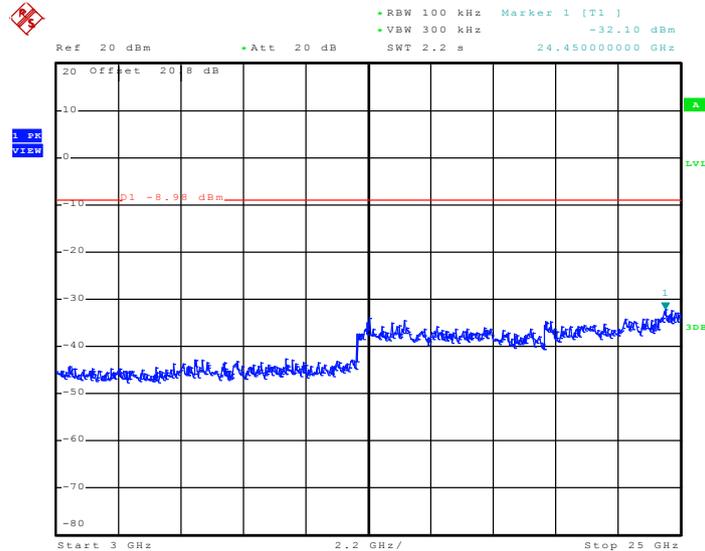
Test Mode :	Mode 1	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Hank Yu and Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 17.JUN.2011 00:35:48

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

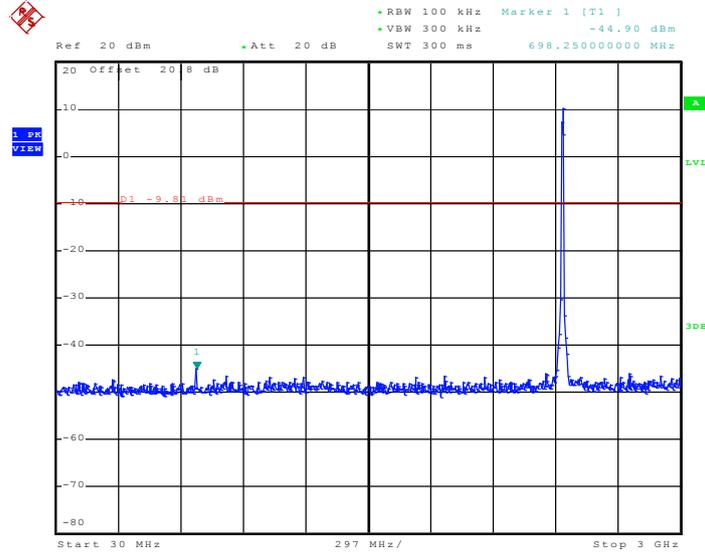


Date: 17.JUN.2011 00:36:06



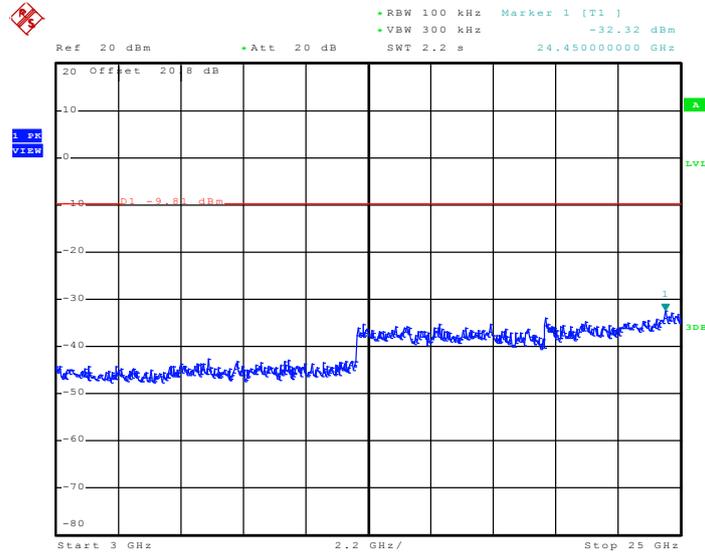
Test Mode :	Mode 2	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Hank Yu and Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 17.JUN.2011 00:45:10

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

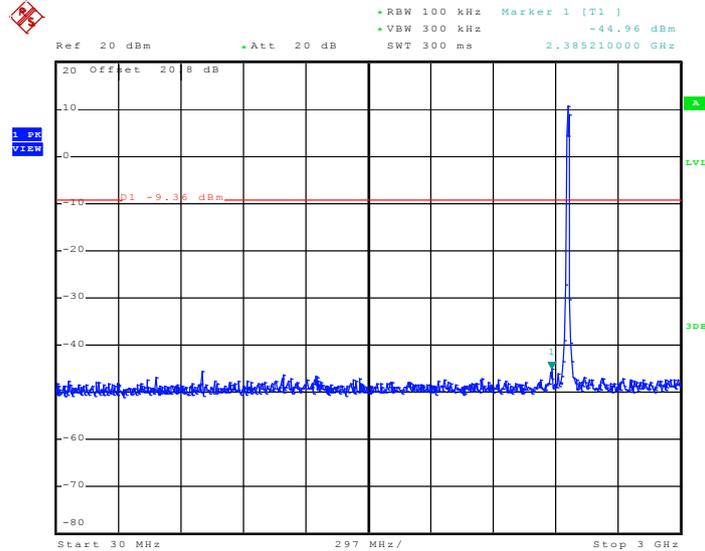


Date: 17.JUN.2011 00:45:28



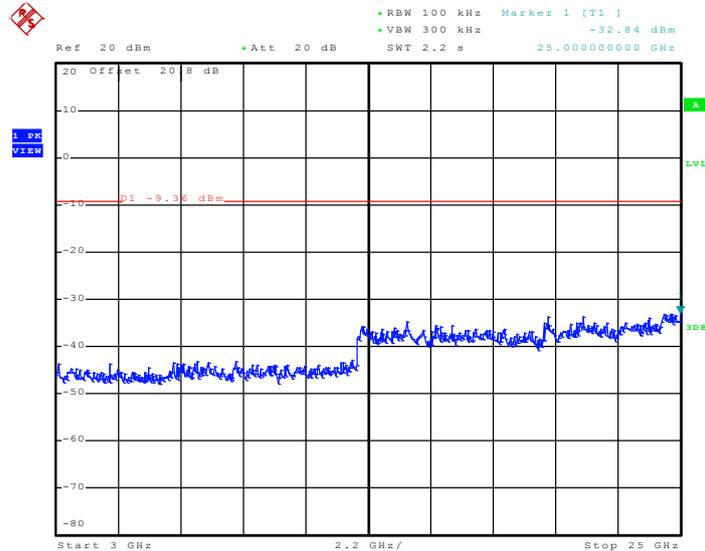
Test Mode :	Mode 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Hank Yu and Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 17.JUN.2011 00:40:36

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

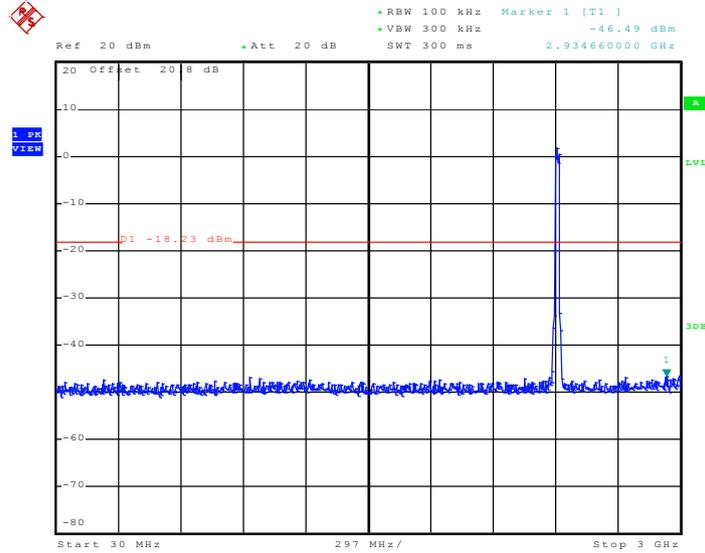


Date: 17.JUN.2011 00:41:52



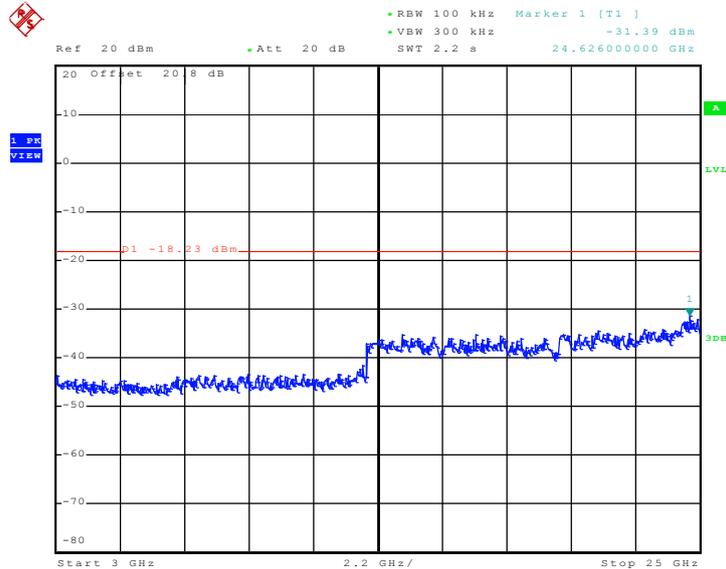
Test Mode :	Mode 4	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Hank Yu and Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 17.JUN.2011 00:55:57

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

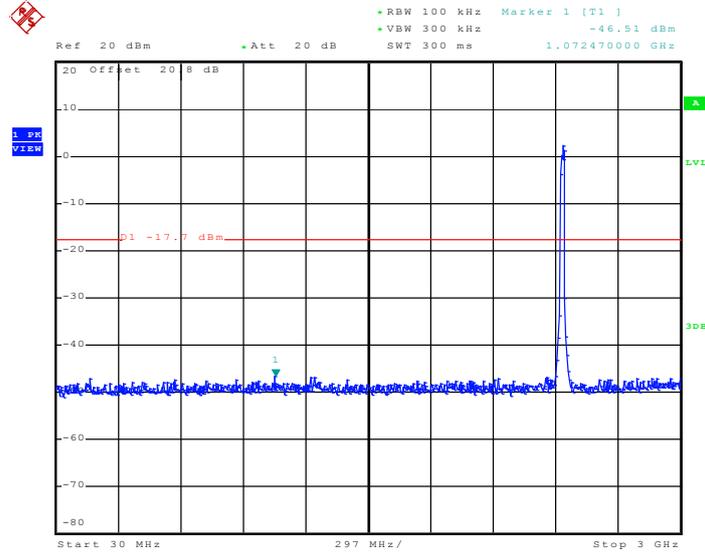


Date: 17.JUN.2011 00:56:15



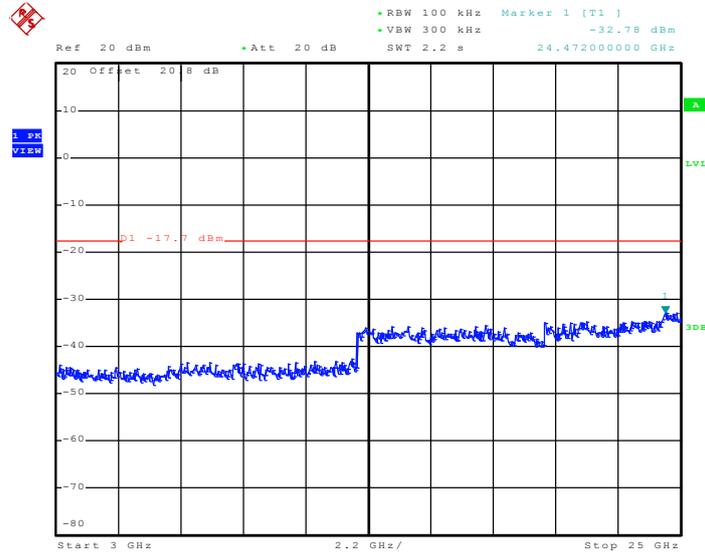
Test Mode :	Mode 5	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Hank Yu and Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 17.JUN.2011 00:48:10

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

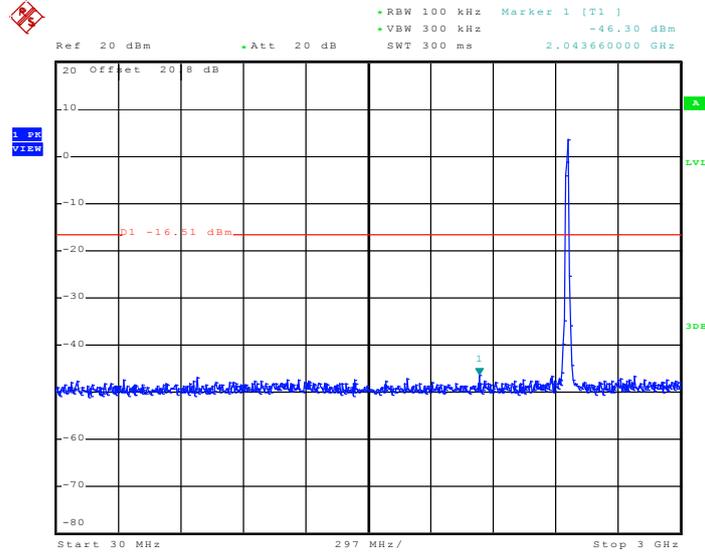


Date: 17.JUN.2011 00:48:29



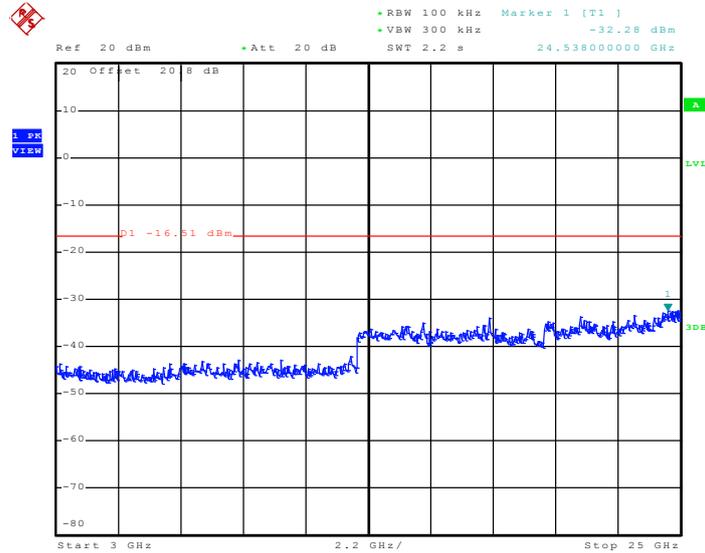
Test Mode :	Mode 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Hank Yu and Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 17.JUN.2011 00:51:21

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

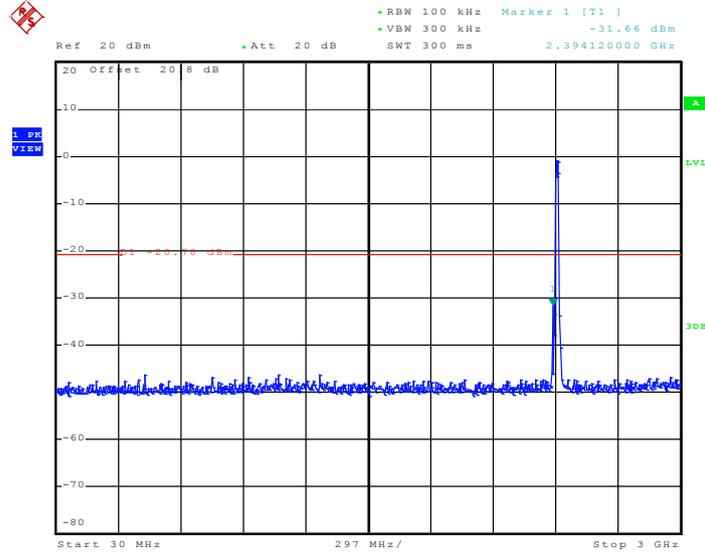


Date: 17.JUN.2011 00:51:39



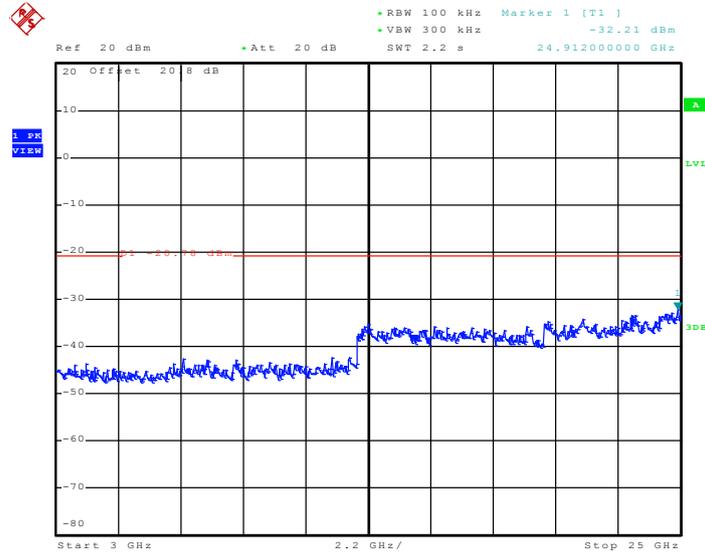
Test Mode :	Mode 7	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Hank Yu and Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 17.JUN.2011 01:05:33

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

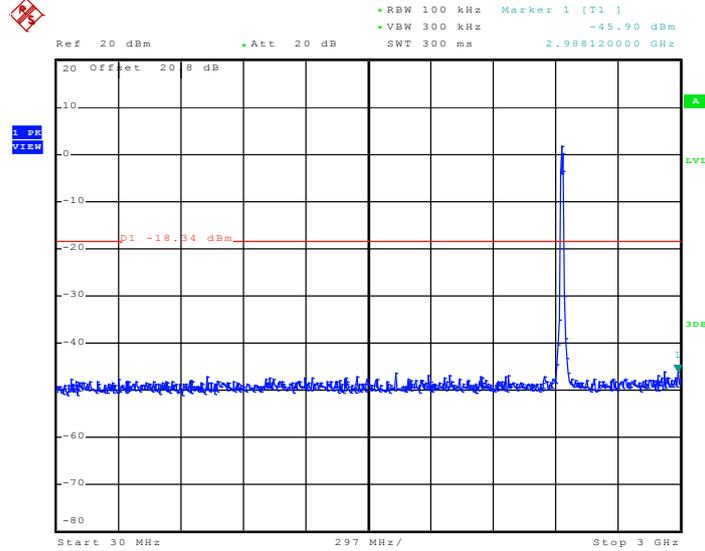


Date: 17.JUN.2011 01:05:50



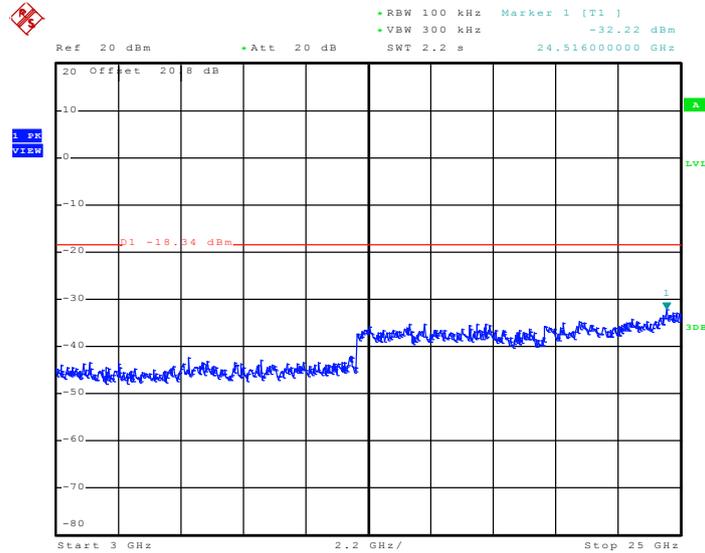
Test Mode :	Mode 8	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Hank Yu and Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 17.JUN.2011 01:15:29

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

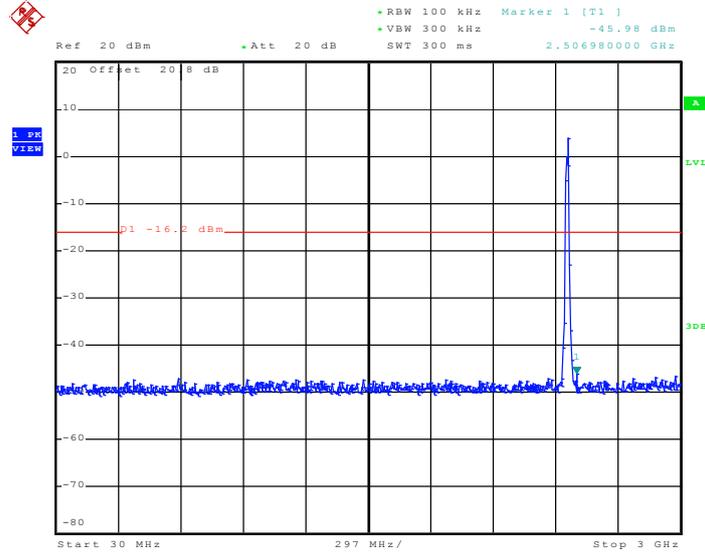


Date: 17.JUN.2011 01:15:47



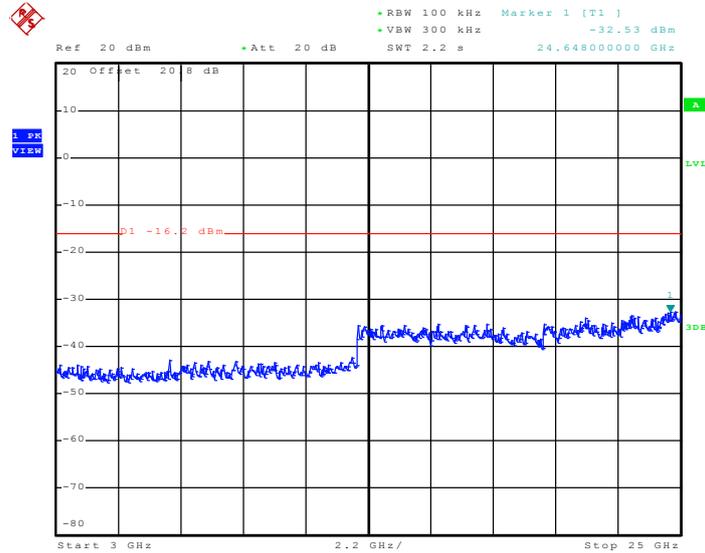
Test Mode :	Mode 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Hank Yu and Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 17.JUN.2011 01:12:47

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

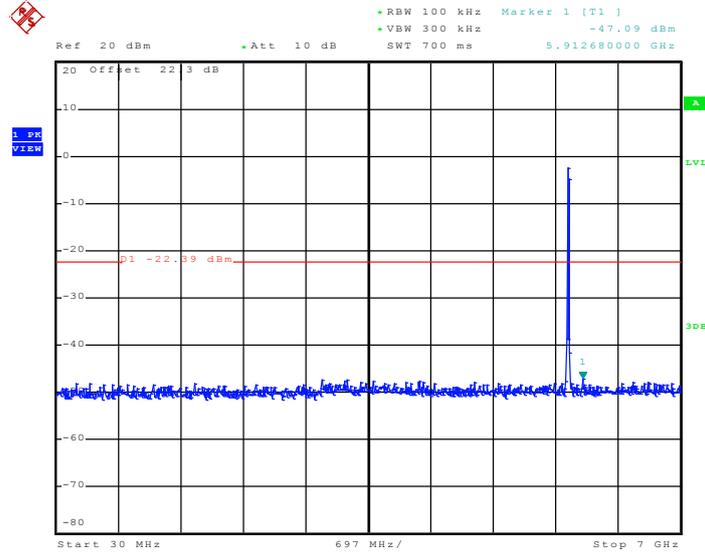


Date: 17.JUN.2011 01:13:05



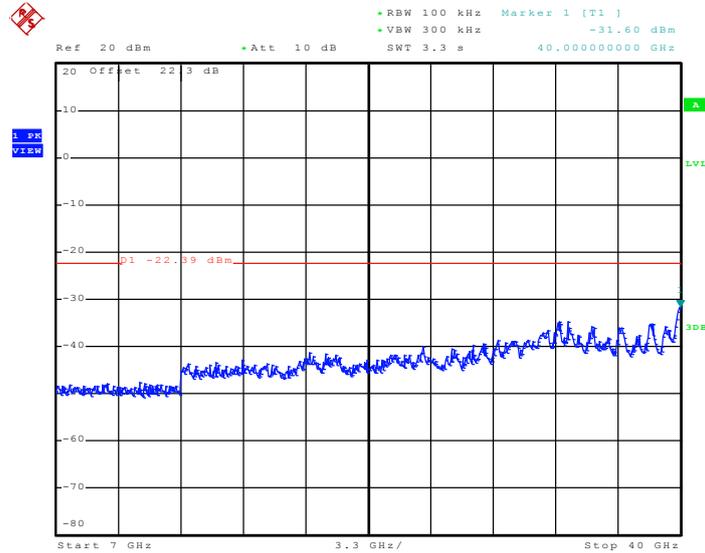
Test Mode :	Mode 10	Temperature :	24~26°C
Test Band :	802.11a	Relative Humidity :	50~53%
Test Channel :	149	Test Engineer :	Hank Yu and Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 14.MAY.2011 11:44:31

Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz

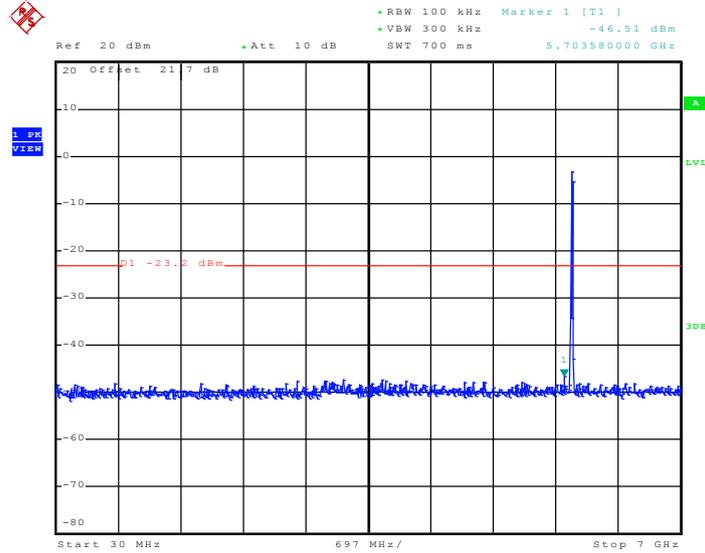


Date: 14.MAY.2011 11:44:48



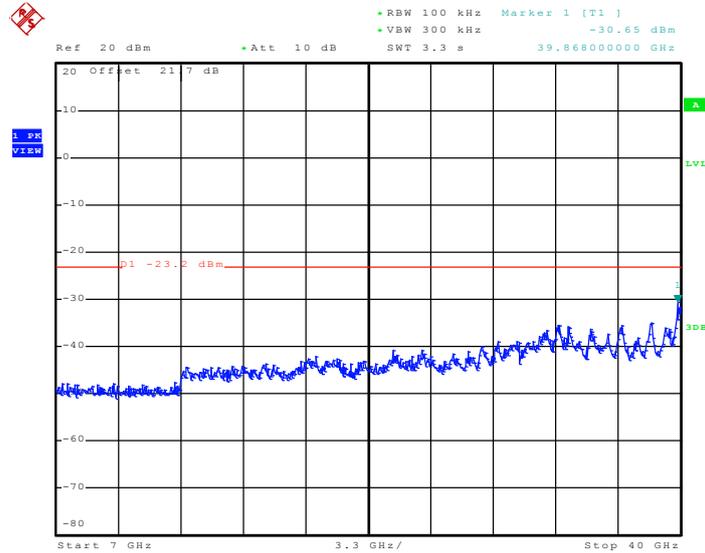
Test Mode :	Mode 11	Temperature :	24~26°C
Test Band :	802.11a	Relative Humidity :	50~53%
Test Channel :	157	Test Engineer :	Hank Yu and Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 14.MAY.2011 11:43:37

Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz

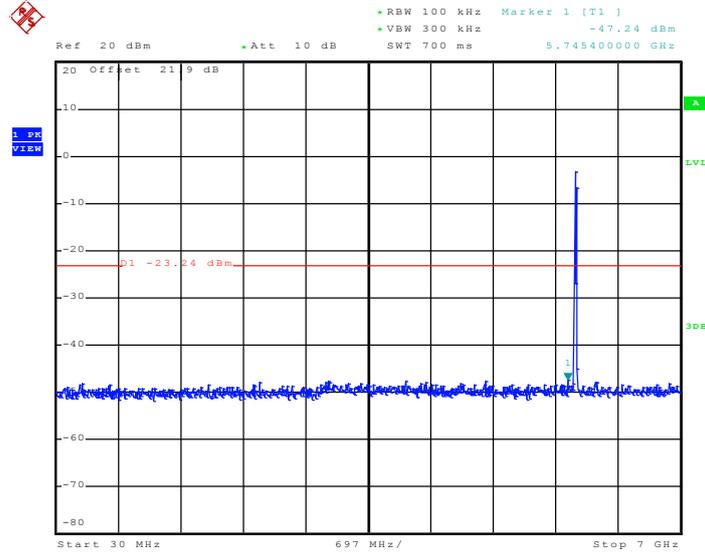


Date: 14.MAY.2011 11:43:54



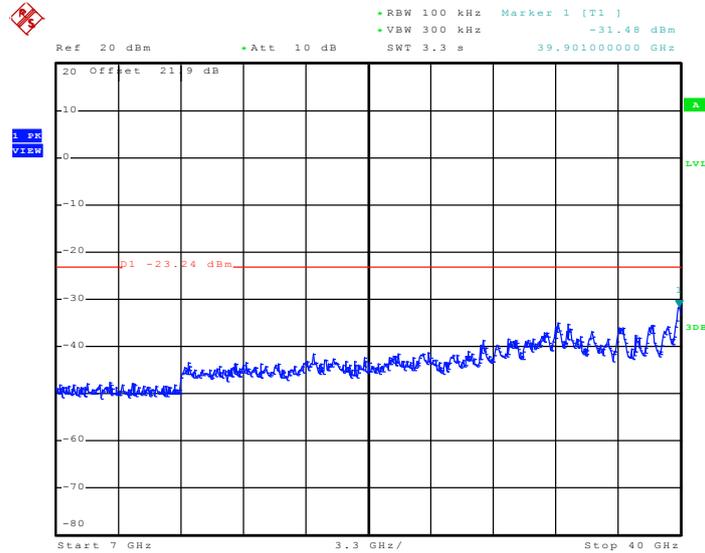
Test Mode :	Mode 12	Temperature :	24~26°C
Test Band :	802.11a	Relative Humidity :	50~53%
Test Channel :	165	Test Engineer :	Hank Yu and Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 14.MAY.2011 11:45:30

Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz

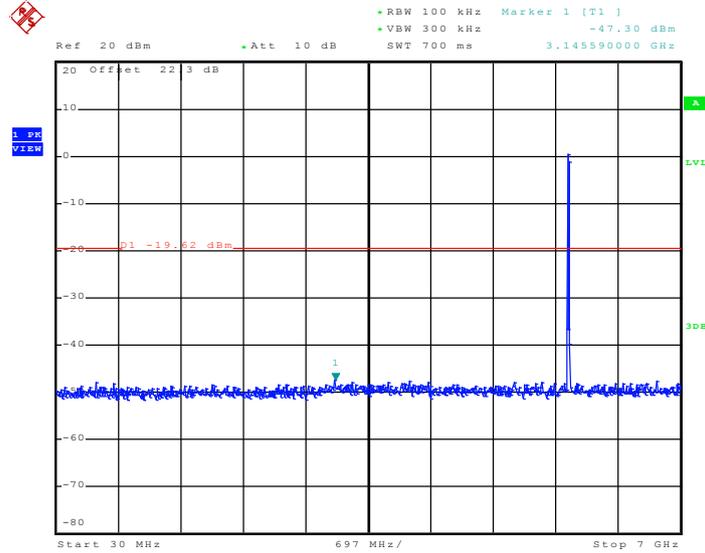


Date: 14.MAY.2011 11:45:47



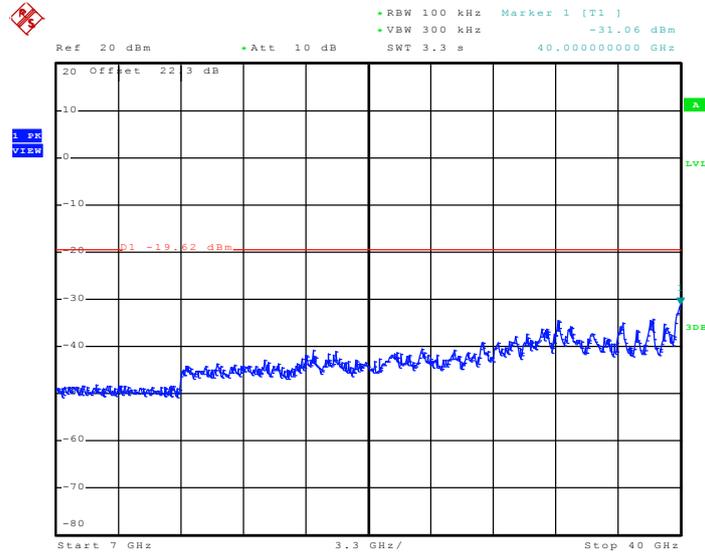
Test Mode :	Mode 13	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	149	Test Engineer :	Hank Yu and Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 14.MAY.2011 11:50:06

Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz

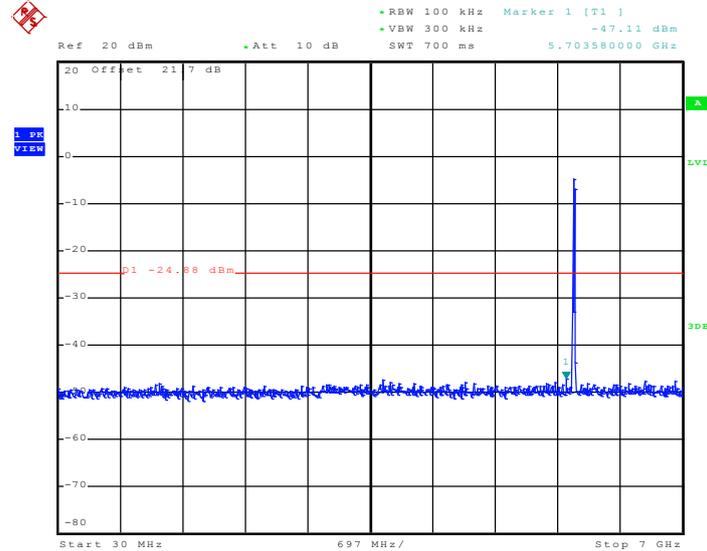


Date: 14.MAY.2011 11:50:23



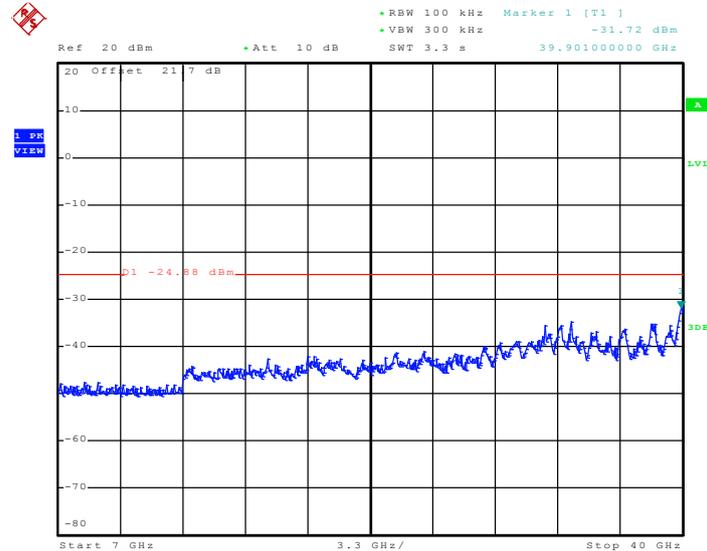
Test Mode :	Mode 14	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	157	Test Engineer :	Hank Yu and Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 14.MAY.2011 11:48:30

Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz

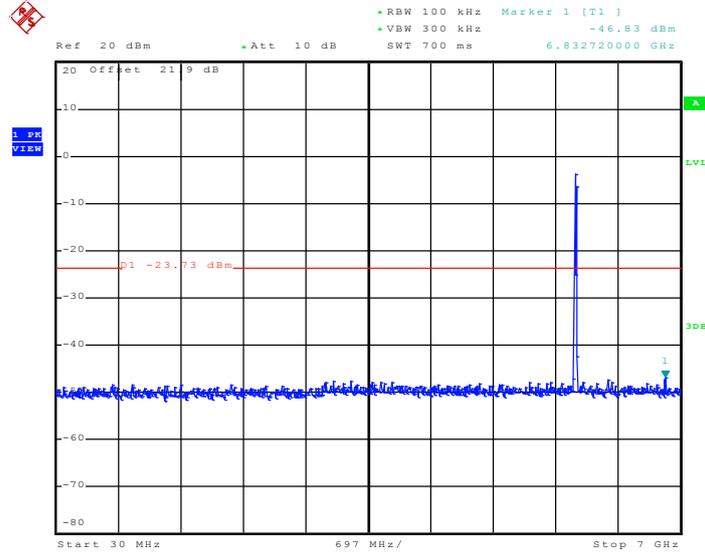


Date: 14.MAY.2011 11:48:48



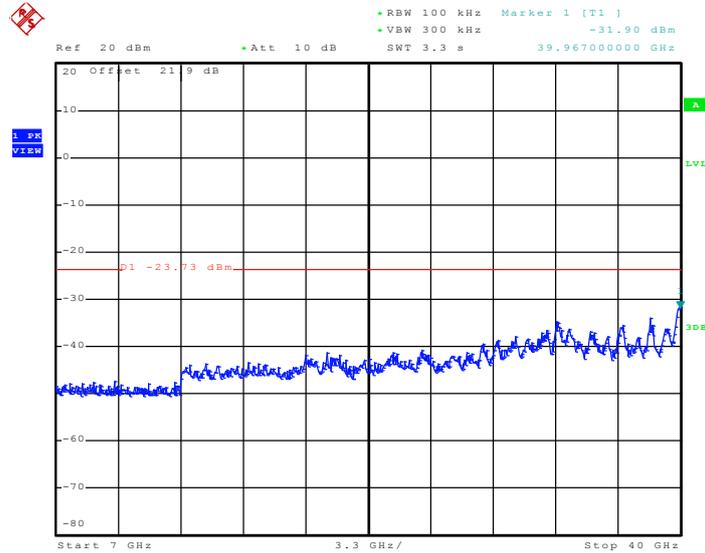
Test Mode :	Mode 15	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	165	Test Engineer :	Hank Yu and Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 14.MAY.2011 11:47:15

Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz



Date: 14.MAY.2011 11:47:32

3.5 Power Spectral Density Measurement

3.5.1 Limit of Power Spectral Density

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

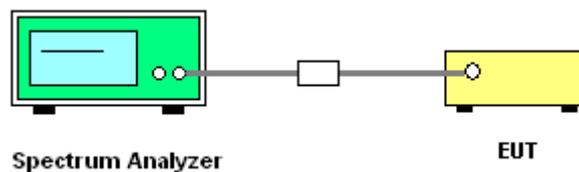
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

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

3.5.4 Test Setup





3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	24~26°C
Test Engineer :	Hank Yu and Alan Liu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-3.46	8	Pass
06	2437	-2.93	8	Pass
11	2462	-3.02	8	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Hank Yu and Alan Liu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.23	8	Pass
06	2437	-9.96	8	Pass
11	2462	-9.79	8	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Hank Yu and Alan Liu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.31	8	Pass
06	2437	-10.13	8	Pass
11	2462	-9.73	8	Pass



Test Mode :	Mode 10, 11, 12	Temperature :	24~26°C
Test Engineer :	Hank Yu and Alan Liu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11a Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	-14.29	8	Pass
157	5785	-13.62	8	Pass
165	5825	-13.05	8	Pass

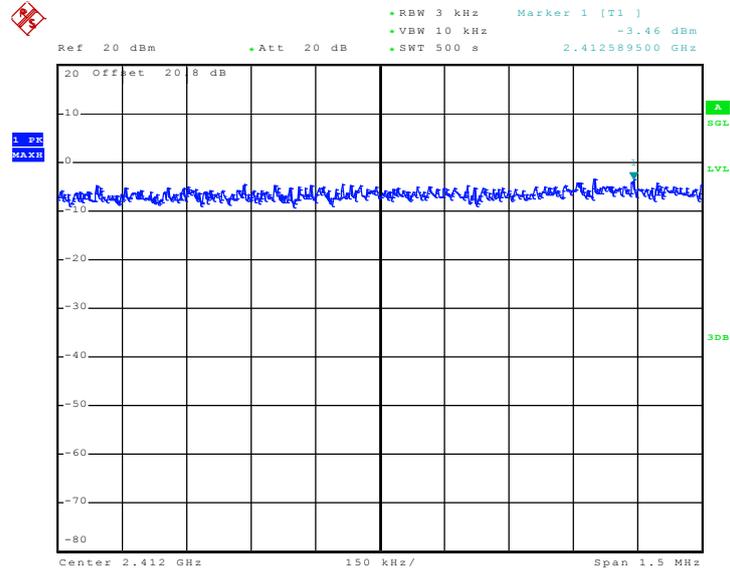
Test Mode :	Mode 13, 14, 15	Temperature :	24~26°C
Test Engineer :	Hank Yu and Alan Liu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	-12.63	8	Pass
157	5785	-12.91	8	Pass
165	5825	-12.65	8	Pass



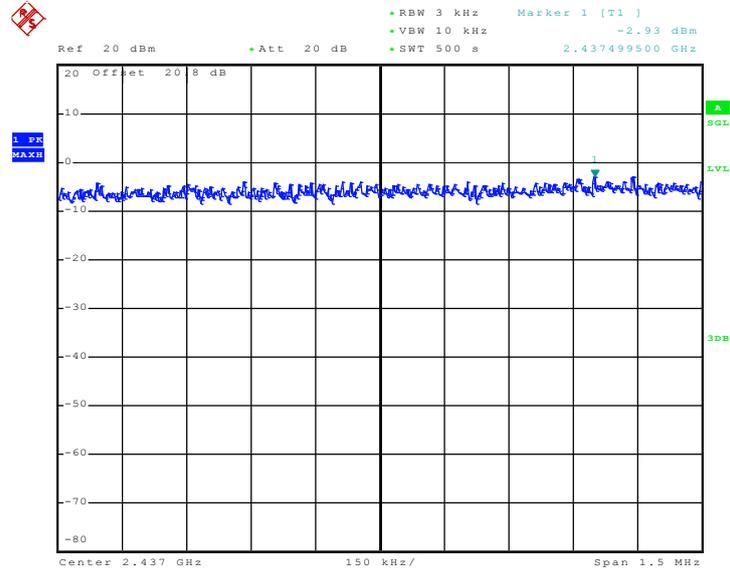
3.5.6 Test Result of Power Spectral Density Plots

Mode 1 : PSD Plot on 802.11b Channel 01



Date: 17.JUN.2011 02:36:51

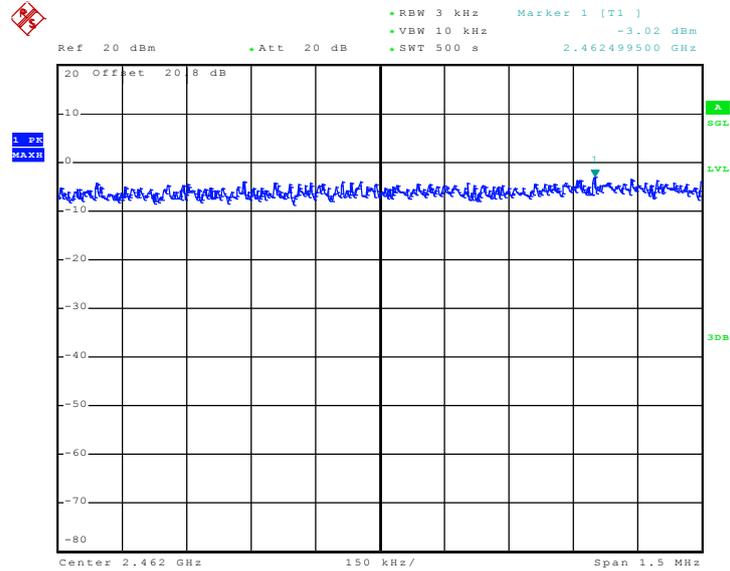
Mode 2 : PSD Plot on 802.11b Channel 06



Date: 17.JUN.2011 02:19:06

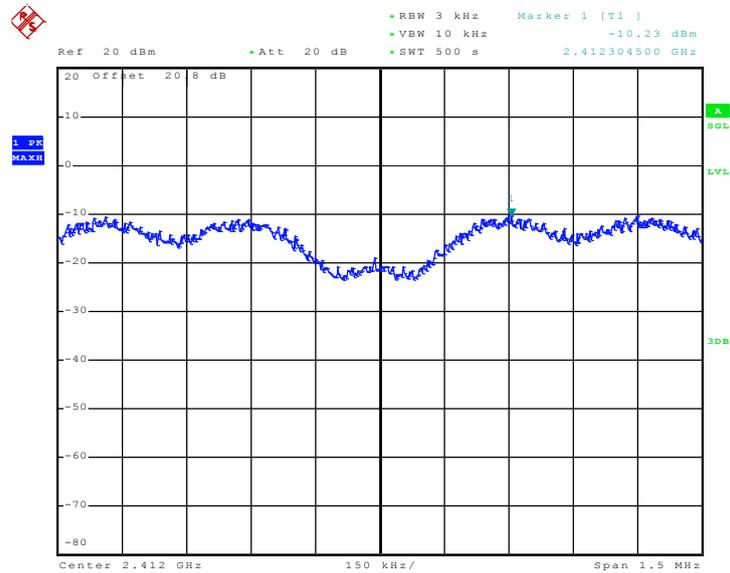


Mode 3 : PSD Plot on 802.11b Channel 11



Date: 17.JUN.2011 02:27:57

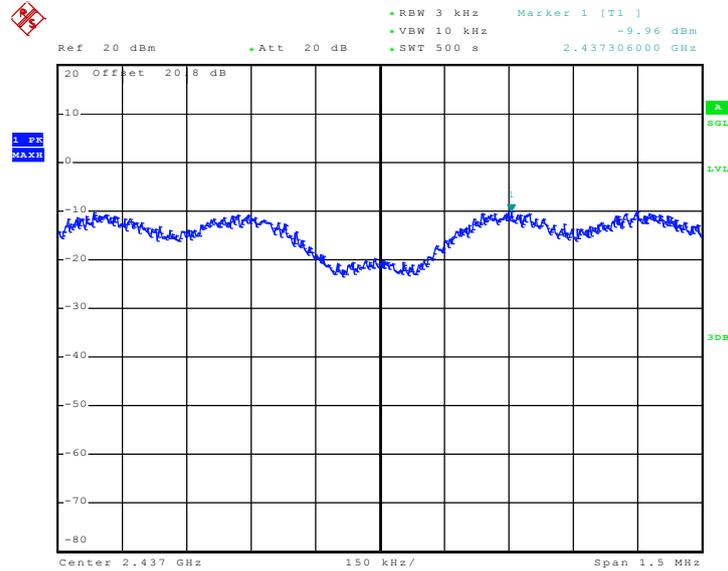
Mode 4 : PSD Plot on 802.11g Channel 01



Date: 17.JUN.2011 02:01:11

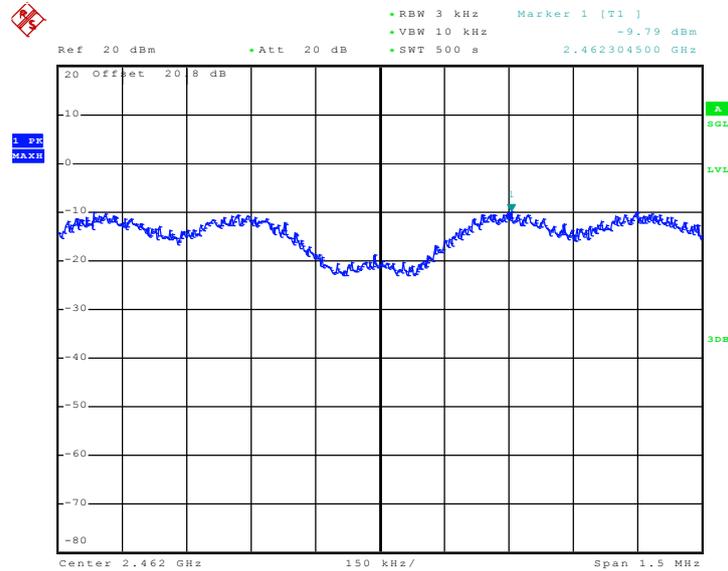


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 17.JUN.2011 02:10:16

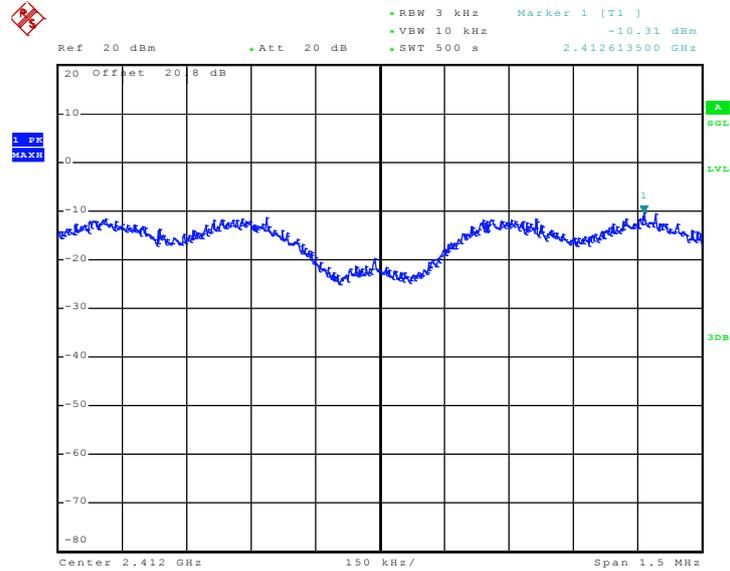
Mode 6 : PSD Plot on 802.11g Channel 11



Date: 17.JUN.2011 01:52:12

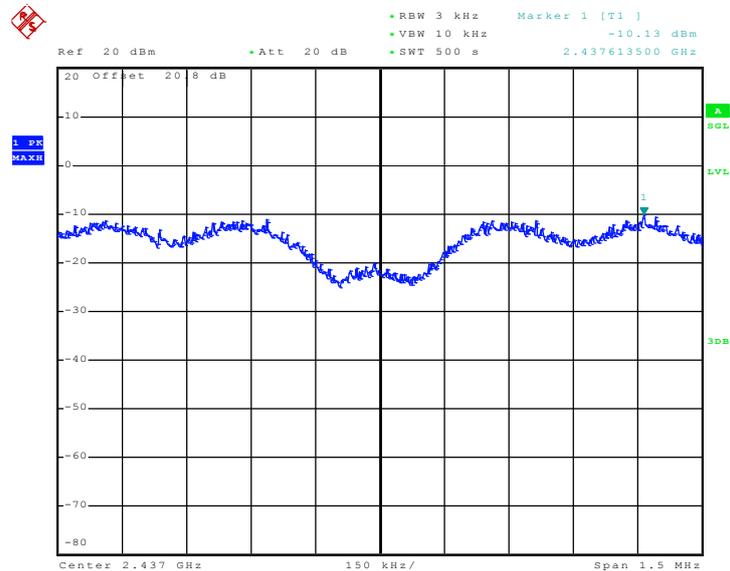


Mode 7 : PSD Plot on 802.11n Channel 01



Date: 17.JUN.2011 01:33:44

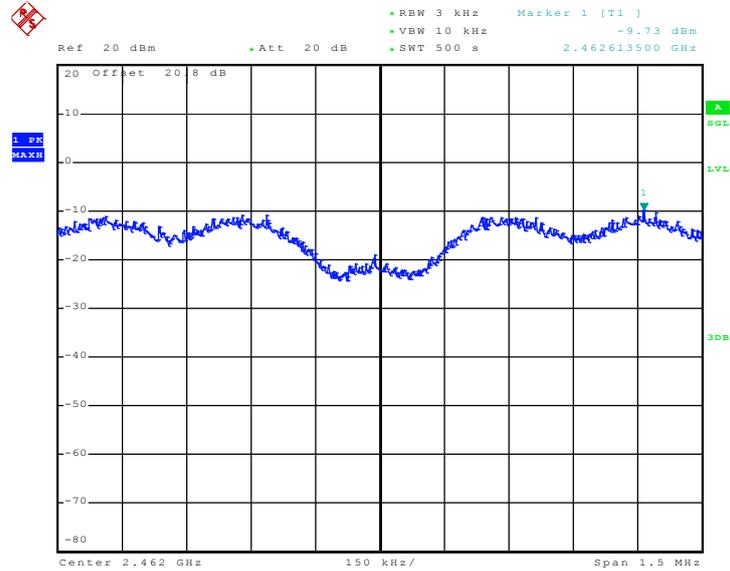
Mode 8 : PSD Plot on 802.11n Channel 06



Date: 17.JUN.2011 01:24:53

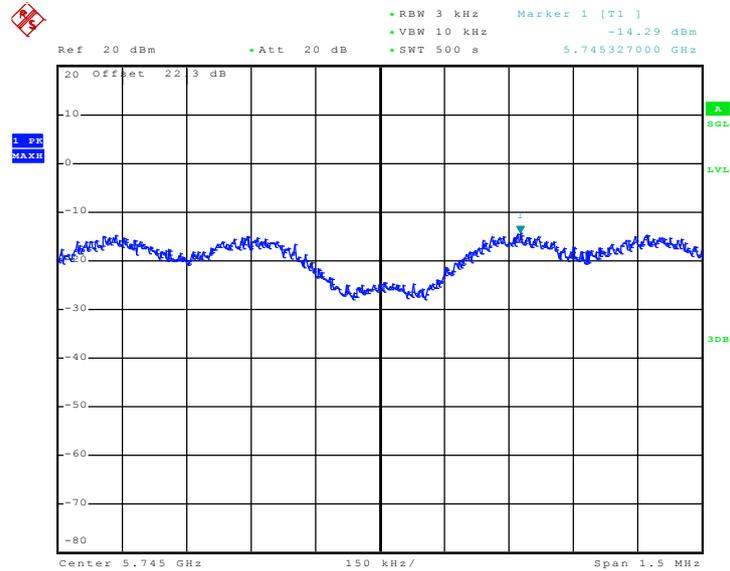


Mode 9 : PSD Plot on 802.11n Channel 11



Date: 17.JUN.2011 01:42:33

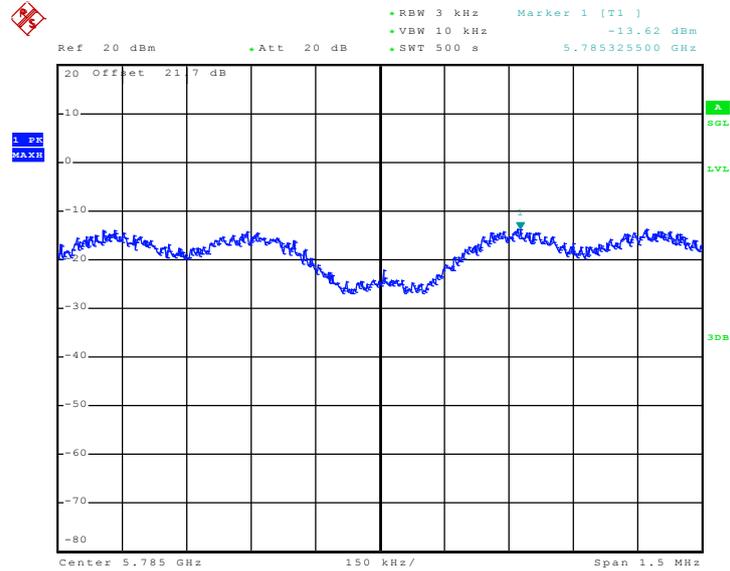
Mode 10: PSD Plot on 802.11a Channel 149



Date: 14.MAY.2011 14:45:45

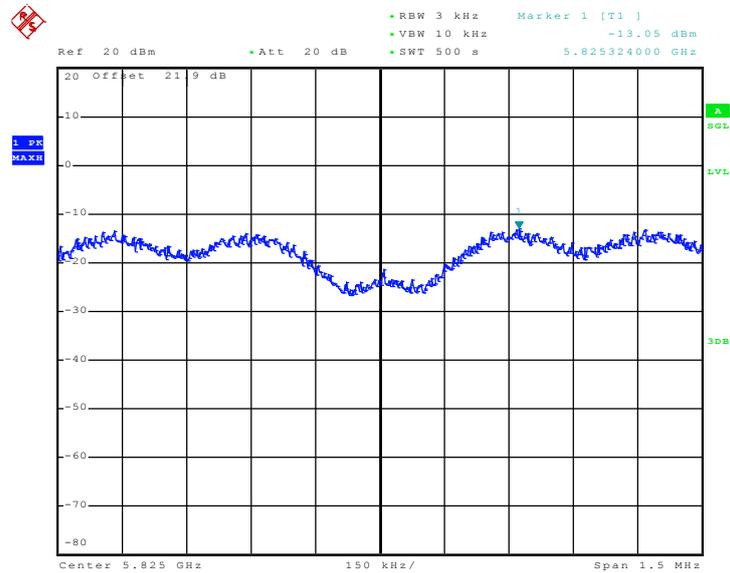


Mode 11: PSD Plot on 802.11a Channel 157



Date: 14.MAY.2011 15:00:07

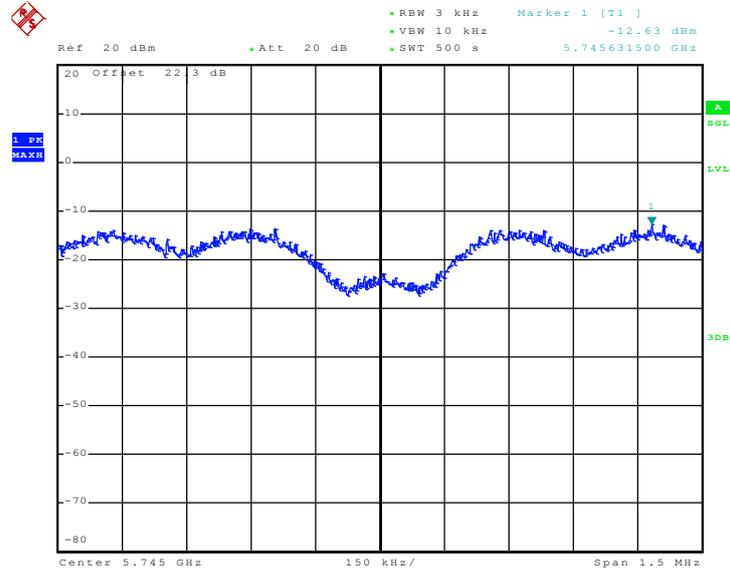
Mode 12: PSD Plot on 802.11a Channel 165



Date: 14.MAY.2011 15:13:11

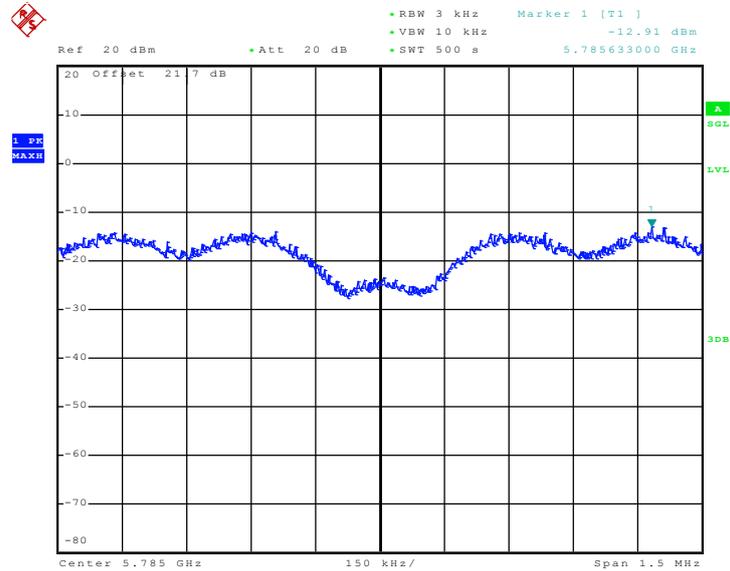


Mode 13: PSD Plot on 802.11n Channel 149



Date: 14.MAY.2011 12:33:15

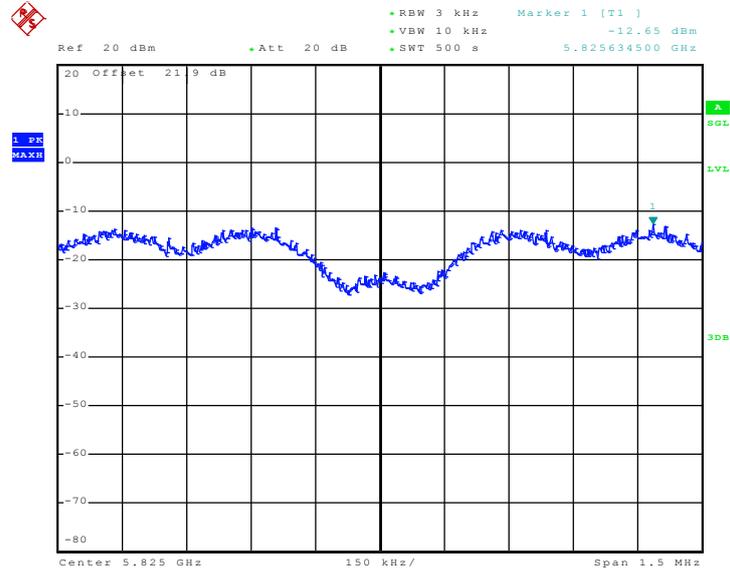
Mode 14: PSD Plot on 802.11n Channel 157



Date: 14.MAY.2011 15:24:24



Mode 15: PSD Plot on 802.11n Channel 165



Date: 14.MAY.2011 14:29:44

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.

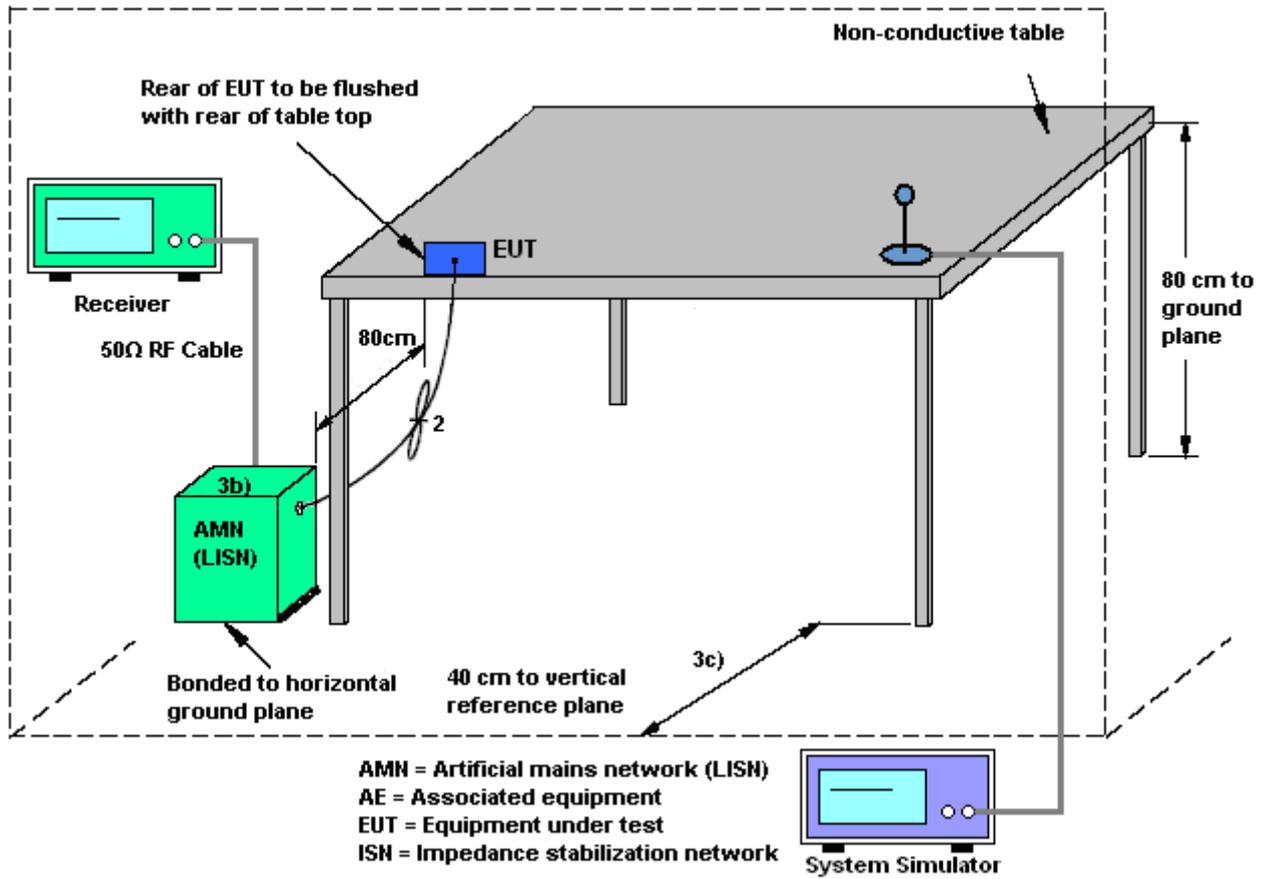
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

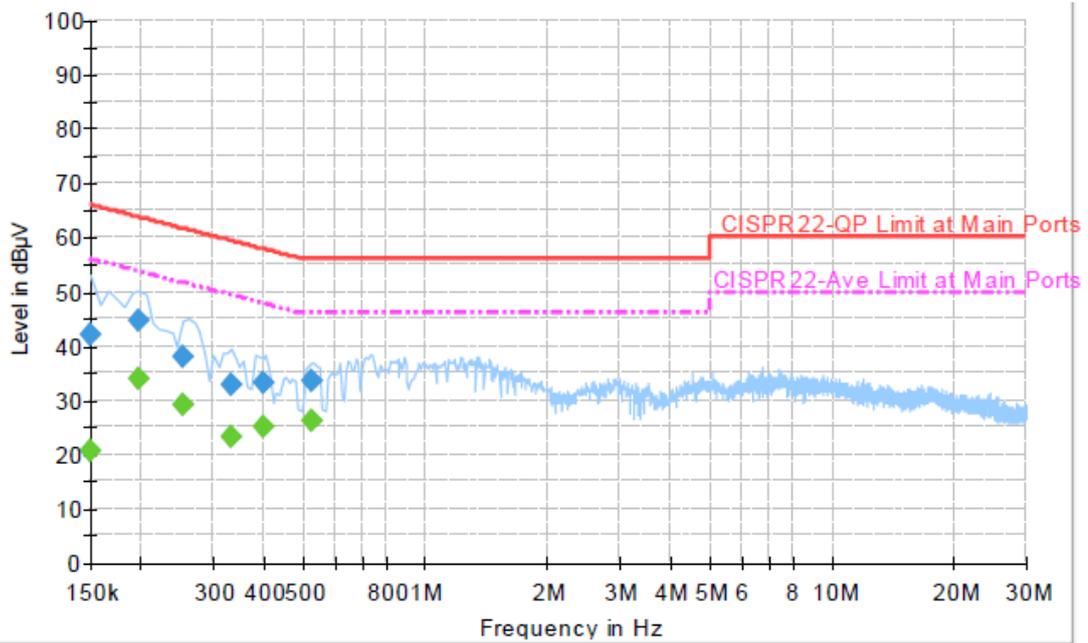
4. The testing follows the guidelines in ANSI C63.4-2003.
5. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
6. Connect EUT to the power mains through a line impedance stabilization network (LISN).
7. All the support units are connecting to the other LISN.
8. The LISN provides 50 ohm coupling impedance for the measuring instrument.
9. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
10. Both sides of AC line were checked for maximum conducted interference.
11. The frequency range from 150 kHz to 30 MHz was searched.
12. 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 :	22~24°C
Test Engineer :	Novic Chiang	Relative Humidity :	42~44%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM1900 Idle + LTE Band17 Idle + Bluetooth Link + WLAN (2.4G) Link + Adapter + Camera		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

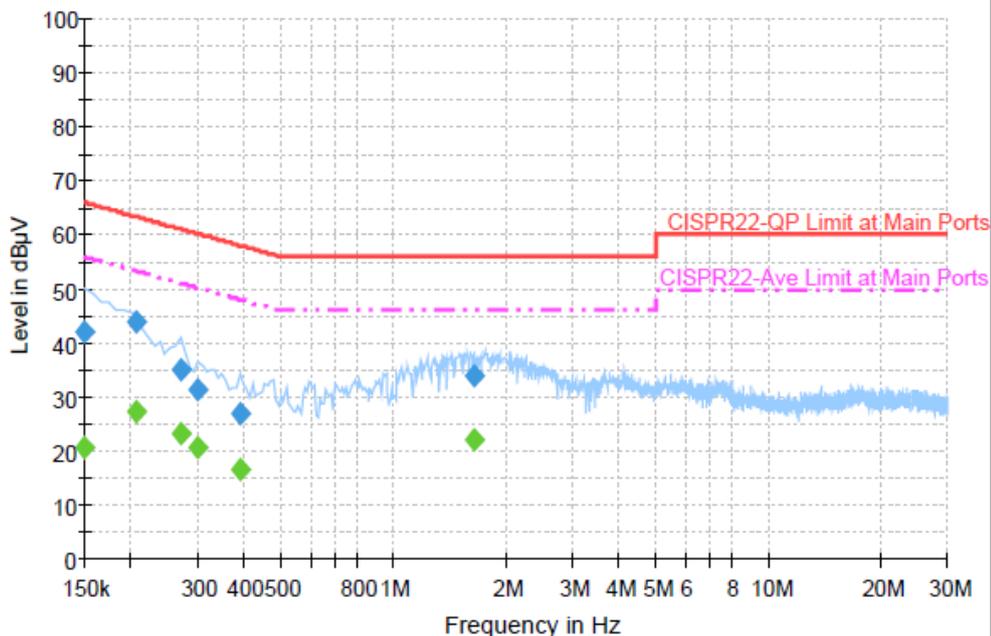
Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	42.2	Off	L1	19.4	23.8	66.0
0.198000	44.6	Off	L1	19.4	19.1	63.7
0.254000	37.9	Off	L1	19.4	23.7	61.6
0.334000	32.8	Off	L1	19.4	26.6	59.4
0.398000	33.1	Off	L1	19.4	24.8	57.9
0.526000	33.5	Off	L1	19.4	22.5	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	20.5	Off	L1	19.4	35.5	56.0
0.198000	33.8	Off	L1	19.4	19.9	53.7
0.254000	29.2	Off	L1	19.4	22.4	51.6
0.334000	23.4	Off	L1	19.4	26.0	49.4
0.398000	25.2	Off	L1	19.4	22.7	47.9
0.526000	26.1	Off	L1	19.4	19.9	46.0



Test Mode :	Mode 1	Temperature :	22~24°C
Test Engineer :	Novic Chiang	Relative Humidity :	42~44%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM1900 Idle + LTE Band17 Idle + Bluetooth Link + WLAN (2.4G) Link + Adapter + Camera		
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	42.1	Off	N	19.4	23.9	66.0
0.206000	43.9	Off	N	19.4	19.5	63.4
0.270000	34.9	Off	N	19.4	26.2	61.1
0.302000	31.4	Off	N	19.4	28.8	60.2
0.390000	27.1	Off	N	19.4	31.0	58.1
1.646000	33.9	Off	N	19.5	22.1	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	20.6	Off	N	19.4	35.4	56.0
0.206000	27.3	Off	N	19.4	26.1	53.4
0.270000	23.3	Off	N	19.4	27.8	51.1
0.302000	20.6	Off	N	19.4	29.6	50.2
0.390000	16.7	Off	N	19.4	31.4	48.1
1.646000	22.2	Off	N	19.5	23.8	46.0

3.7 Radiated Emission Measurement

3.7.1 Limit of Radiated Emission

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

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

3.7.2 Measuring Instruments

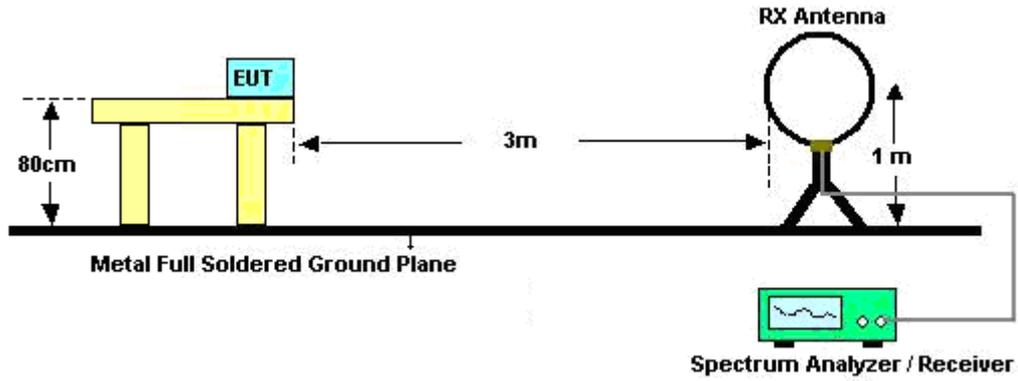
See list of measuring instruments of this test report.

3.7.3 Test Procedures

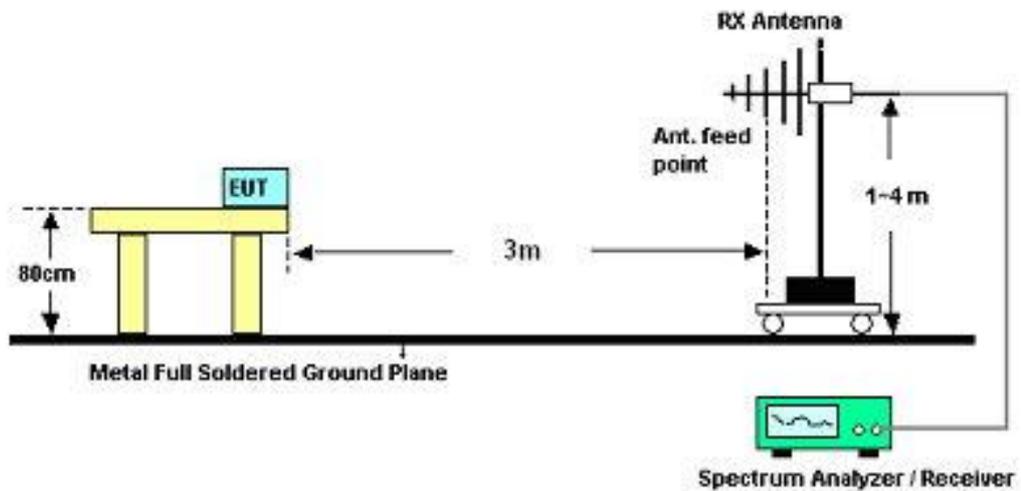
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
 - (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep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

3.7.4 Test Setup

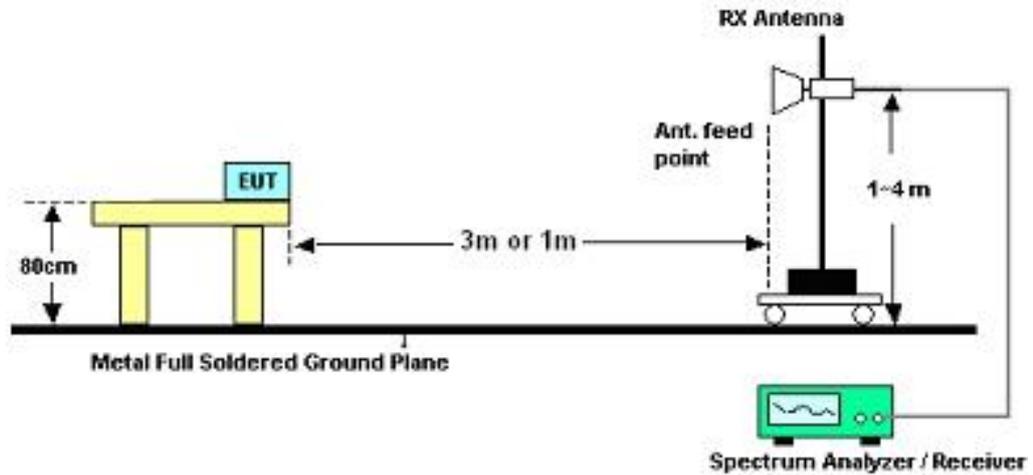
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

Test Engineer :	Kay Wu	Temperature :	21~22°C	
		Relative Humidity :	47~48%	
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 (30MHz ~ 10th Harmonic)

Test Mode :	Mode 1	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	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
142.59	24.36	-19.14	43.5	43.4	11.21	1.45	31.7	-	-	Peak
194.43	27.3	-16.2	43.5	47.95	9.37	1.63	31.65	100	219	Peak
251.13	28.4	-17.6	46	45.52	12.69	1.85	31.66	-	-	Peak
306.3	23.21	-22.79	46	39.16	13.62	2.08	31.65	-	-	Peak
399.4	23.45	-22.55	46	37.07	15.76	2.41	31.79	-	-	Peak
638.8	25.23	-20.77	46	34.95	19.26	3.02	32	-	-	Peak
2389.99	61.52	-12.48	74	58.61	31.9	5.4	34.39	133	325	Peak
2389.99	47.2	-6.8	54	44.29	31.9	5.4	34.39	133	325	Average
2412	114.36	-	-	111.41	31.91	5.43	34.39	133	325	Peak
2412	100.25	-	-	97.3	31.91	5.43	34.39	133	325	Average
2494	55.1	-18.9	74	51.95	32	5.52	34.37	133	325	Peak
2494	42.71	-11.29	54	39.56	32	5.52	34.37	133	325	Average
4824	48.12	-25.88	74	62.21	34.4	7.96	56.45	100	0	Peak
142.59	24.36	-19.14	43.5	43.4	11.21	1.45	31.7	-	-	Peak
194.43	27.3	-16.2	43.5	47.95	9.37	1.63	31.65	100	219	Peak



Test Mode :	Mode 1	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	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
52.68	27.41	-12.59	40	50.46	7.76	0.88	31.69	-	-	Peak
189.84	32.36	-11.14	43.5	53.02	9.4	1.6	31.66	114	158	Peak
228.18	32.58	-13.42	46	51.22	11.2	1.77	31.61	-	-	Peak
318.9	21.69	-24.31	46	37.27	13.91	2.13	31.62	-	-	Peak
568.8	25.28	-20.72	46	35.64	18.74	2.88	31.98	-	-	Peak
638.8	27.87	-18.13	46	37.59	19.26	3.02	32	-	-	Peak
2389.99	56.38	-17.62	74	53.47	31.9	5.4	34.39	103	274	Peak
2389.99	43.27	-10.73	54	40.36	31.9	5.4	34.39	103	274	Average
2412	109.84	-	-	106.89	31.91	5.43	34.39	103	274	Peak
2412	95.71	-	-	92.76	31.91	5.43	34.39	103	274	Average
2494	51.35	-22.65	74	48.2	32	5.52	34.37	103	274	Peak
2494	39.19	-14.81	54	36.04	32	5.52	34.37	103	274	Average
52.68	27.41	-12.59	40	50.46	7.76	0.88	31.69	-	-	Peak
189.84	32.36	-11.14	43.5	53.02	9.4	1.6	31.66	114	158	Peak
228.18	32.58	-13.42	46	51.22	11.2	1.77	31.61	-	-	Peak



Test Mode :	Mode 2	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	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
53.49	29.17	-10.83	40	52.38	7.6	0.88	31.69	115	278	Peak
191.19	32.28	-11.22	43.5	52.94	9.39	1.61	31.66	-	-	Peak
225.48	33.18	-12.82	46	51.98	11.07	1.76	31.63	-	-	Peak
315.4	23.52	-22.48	46	39.21	13.82	2.11	31.62	-	-	Peak
568.8	25.77	-20.23	46	36.13	18.74	2.88	31.98	-	-	Peak
658.4	23.25	-22.75	46	32.84	19.3	3.09	31.98	-	-	Peak
2358	51.04	-22.96	74	48.21	31.86	5.37	34.4	100	268	Peak
2358	42.69	-11.31	54	39.86	31.86	5.37	34.4	100	268	Average
2437	106.69	-	-	103.66	31.95	5.46	34.38	100	268	Peak
2437	93.13	-	-	90.1	31.95	5.46	34.38	100	268	Average
2492	47.49	-26.51	74	44.34	32	5.52	34.37	100	268	Peak
2492	38.26	-15.74	54	35.11	32	5.52	34.37	100	268	Average



Test Mode :	Mode 2	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	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
72.93	20.11	-19.89	40	44.25	6.49	1.06	31.69			Peak
188.49	27.81	-15.69	43.5	48.48	9.4	1.59	31.66	100	236	Peak
243.03	27.27	-18.73	46	44.89	12.22	1.82	31.66			Peak
313.3	24.39	-21.61	46	40.14	13.77	2.11	31.63			Peak
409.9	23.39	-22.61	46	36.79	15.98	2.43	31.81			Peak
638.8	24.08	-21.92	46	33.8	19.26	3.02	32			Peak
2358	53.26	-20.74	74	50.43	31.86	5.37	34.4	132	313	Peak
2358	44.1	-9.9	54	41.27	31.86	5.37	34.4	132	313	Average
2437	112.27	-	-	109.24	31.95	5.46	34.38	132	313	Peak
2437	99.65	-	-	96.62	31.95	5.46	34.38	132	313	Average
2486	49.95	-24.05	74	46.82	31.98	5.52	34.37	132	313	Peak
2486	40.49	-13.51	54	37.36	31.98	5.52	34.37	132	313	Average
4874	46.75	-27.25	74	60.86	34.37	8.01	56.49	100	0	Peak



Test Mode :	Mode 3	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	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
141.24	24.08	-19.42	43.5	43.07	11.27	1.44	31.7	-	-	Peak
187.68	27.47	-16.03	43.5	48.15	9.4	1.59	31.67	110	215	Peak
249.78	26.95	-19.05	46	44.08	12.67	1.85	31.65	-	-	Peak
318.9	20.56	-25.44	46	36.14	13.91	2.13	31.62	-	-	Peak
554.8	22.81	-23.19	46	33.29	18.56	2.86	31.9	-	-	Peak
638.8	23.68	-22.32	46	33.4	19.26	3.02	32	-	-	Peak
2382	56.2	-17.8	74	53.31	31.88	5.4	34.39	100	325	Peak
2382	44.83	-9.17	54	41.94	31.88	5.4	34.39	100	325	Average
2462	114.3	-	-	111.22	31.97	5.49	34.38	100	325	Peak
2462	101.87	-	-	98.79	31.97	5.49	34.38	100	325	Average
2483.85	59.47	-14.53	74	56.34	31.98	5.52	34.37	100	325	Peak
2483.85	47.19	-6.81	54	44.06	31.98	5.52	34.37	100	325	Average
4924	45.81	-28.19	74	59.95	34.34	8.04	56.52	100	0	Peak



Test Mode :	Mode 3	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	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
54.03	26.98	-13.02	40	50.33	7.44	0.89	31.68	-	-	Peak
68.88	24.9	-15.1	40	49.25	6.31	1.04	31.7	-	-	Peak
190.38	30.88	-12.62	43.5	51.54	9.4	1.6	31.66	100	125	Peak
318.9	21.88	-24.12	46	37.46	13.91	2.13	31.62	-	-	Peak
385.4	20.38	-25.62	46	34.35	15.43	2.36	31.76	-	-	Peak
831.3	24.72	-21.28	46	32.14	21.04	3.47	31.93	-	-	Peak
2382	53.25	-20.75	74	50.36	31.88	5.4	34.39	103	258	Peak
2382	38.52	-15.48	54	35.63	31.88	5.4	34.39	103	258	Average
2462	106.58	-	-	103.5	31.97	5.49	34.38	103	258	Peak
2462	96.04	-	-	92.96	31.97	5.49	34.38	103	258	Average
2484.42	50.85	-23.15	74	47.72	31.98	5.52	34.37	103	258	Peak
2484.42	37.88	-16.12	54	34.75	31.98	5.52	34.37	103	258	Average



Test Mode :	Mode 4	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	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
141.24	24.32	-19.18	43.5	43.31	11.27	1.44	31.7	-	-	Peak
191.73	28.27	-15.23	43.5	48.93	9.39	1.61	31.66	110	248	Peak
249.78	26.15	-19.85	46	43.28	12.67	1.85	31.65	-	-	Peak
313.3	23.87	-22.13	46	39.62	13.77	2.11	31.63	-	-	Peak
365.8	20.43	-25.57	46	34.78	14.98	2.29	31.62	-	-	Peak
638.8	23.73	-22.27	46	33.45	19.26	3.02	32	-	-	Peak
2389.61	46.81	-7.19	54	43.9	31.9	5.4	34.39	135	328	Average
2389.61	68.06	-5.94	74	65.15	31.9	5.4	34.39	135	328	Peak
2412	91.83	-	-	88.88	31.91	5.43	34.39	135	328	Average
2412	104.05	-	-	101.1	31.91	5.43	34.39	135	328	Peak
2492	49.09	-24.91	74	45.94	32	5.52	34.37	135	328	Peak
2492	37.37	-16.63	54	34.22	32	5.52	34.37	135	328	Average



Test Mode :	Mode 4	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	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
53.49	29.37	-10.63	40	52.58	7.6	0.88	31.69	100	279	Peak
189.03	30.91	-12.59	43.5	51.57	9.4	1.6	31.66	-	-	Peak
246.54	31.54	-14.46	46	48.94	12.41	1.84	31.65	-	-	Peak
315.4	24.9	-21.1	46	40.59	13.82	2.11	31.62	-	-	Peak
568.8	24.35	-21.65	46	34.71	18.74	2.88	31.98	-	-	Peak
638.8	27.81	-18.19	46	37.53	19.26	3.02	32	-	-	Peak
2389.99	40.96	-13.04	54	38.05	31.9	5.4	34.39	109	271	Average
2389.99	60.01	-13.99	74	57.1	31.9	5.4	34.39	109	271	Peak
2412	100.07	-	-	97.12	31.91	5.43	34.39	109	271	Peak
2412	88.41	-	-	85.46	31.91	5.43	34.39	109	271	Average
2486	33.76	-20.24	54	30.63	31.98	5.52	34.37	109	271	Average
2486	46.44	-27.56	74	43.31	31.98	5.52	34.37	109	271	Peak



Test Mode :	Mode 5	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	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
141.24	23.82	-19.68	43.5	42.81	11.27	1.44	31.7	-	-	Peak
191.73	28.04	-15.46	43.5	48.7	9.39	1.61	31.66	100	102	Peak
248.43	30.1	-15.9	46	47.37	12.54	1.84	31.65	-	-	Peak
315.4	23.83	-22.17	46	39.52	13.82	2.11	31.62	-	-	Peak
420.4	24.7	-21.3	46	37.9	16.18	2.45	31.83	-	-	Peak
638.8	23.81	-22.19	46	33.53	19.26	3.02	32	-	-	Peak
2358	48.94	-25.06	74	46.11	31.86	5.37	34.4	104	336	Peak
2358	38.2	-15.8	54	35.37	31.86	5.37	34.4	104	336	Average
2437	104.54	-	-	101.51	31.95	5.46	34.38	104	336	Peak
2437	92.62	-	-	89.59	31.95	5.46	34.38	104	336	Average
2484	34.76	-19.24	54	31.63	31.98	5.52	34.37	104	336	Average
2484	46.89	-27.11	74	43.76	31.98	5.52	34.37	104	336	Peak



Test Mode :	Mode 5	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	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
52.68	28.79	-11.21	40	51.84	7.76	0.88	31.69	-	-	Peak
191.73	32.31	-11.19	43.5	52.97	9.39	1.61	31.66	128	31	Peak
227.64	32.58	-13.42	46	51.22	11.2	1.77	31.61	-	-	Peak
568.8	23.85	-22.15	46	34.21	18.74	2.88	31.98	-	-	Peak
638.8	27.78	-18.22	46	37.5	19.26	3.02	32	-	-	Peak
897.8	26.11	-19.89	46	32.36	21.61	3.75	31.61	-	-	Peak
2356	46.85	-27.15	74	44.06	31.86	5.34	34.41	100	260	Peak
2356	35.71	-18.29	54	32.92	31.86	5.34	34.41	100	260	Average
2437	102.46	-	-	99.43	31.95	5.46	34.38	100	260	Peak
2437	89.53	-	-	86.5	31.95	5.46	34.38	100	260	Average
2486	45.83	-28.17	74	42.7	31.98	5.52	34.37	100	260	Peak
2486	33.94	-20.06	54	30.81	31.98	5.52	34.37	100	260	Average



Test Mode :	Mode 6	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	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
189.03	26.68	-16.82	43.5	47.34	9.4	1.6	31.66	-	-	Peak
243.03	29.71	-16.29	46	47.33	12.22	1.82	31.66	137	24	Peak
255.99	27.25	-18.75	46	44.31	12.76	1.87	31.69	-	-	Peak
318.2	22.48	-23.52	46	38.1	13.88	2.12	31.62	-	-	Peak
638.8	23.66	-22.34	46	33.38	19.26	3.02	32	-	-	Peak
903.4	25.7	-20.3	46	31.86	21.64	3.76	31.56	-	-	Peak
2382	49.75	-24.25	74	46.86	31.88	5.4	34.39	100	321	Peak
2382	39.45	-14.55	54	36.56	31.88	5.4	34.39	100	321	Average
2462	104.82	-	-	101.74	31.97	5.49	34.38	100	321	Peak
2462	92.44	-	-	89.36	31.97	5.49	34.38	100	321	Average
2483.5	46.13	-7.87	54	43	31.98	5.52	34.37	100	321	Average
2483.5	67.08	-6.92	74	63.95	31.98	5.52	34.37	100	321	Peak



Test Mode :	Mode 6	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	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
53.49	28.87	-11.13	40	52.08	7.6	0.88	31.69	103	208	Peak
192.54	30.46	-13.04	43.5	51.12	9.38	1.62	31.66	-	-	Peak
250.59	30.89	-15.11	46	48.02	12.67	1.85	31.65	-	-	Peak
568.8	24.29	-21.71	46	34.65	18.74	2.88	31.98	-	-	Peak
638.8	28.15	-17.85	46	37.87	19.26	3.02	32	-	-	Peak
911.8	26.3	-19.7	46	32.33	21.68	3.77	31.48	-	-	Peak
2382	48.76	-25.24	74	45.87	31.88	5.4	34.39	198	130	Peak
2382	37.09	-16.91	54	34.2	31.88	5.4	34.39	198	130	Average
2462	102.59	-	-	99.51	31.97	5.49	34.38	198	130	Peak
2462	89.24	-	-	86.16	31.97	5.49	34.38	198	130	Average
2483.66	61.84	-12.16	74	58.71	31.98	5.52	34.37	198	130	Peak
2483.66	40.82	-13.18	54	37.69	31.98	5.52	34.37	198	130	Average



Test Mode :	Mode 7	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	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
187.14	26.33	-17.17	43.5	47	9.41	1.59	31.67	127	304	Peak
245.19	26.27	-19.73	46	43.74	12.35	1.83	31.65	-	-	Peak
268.68	23.22	-22.78	46	40.01	12.96	1.93	31.68	-	-	Peak
315.4	23.38	-22.62	46	39.07	13.82	2.11	31.62	-	-	Peak
638.8	23.8	-22.2	46	33.52	19.26	3.02	32	-	-	Peak
897.8	27.54	-18.46	46	33.79	21.61	3.75	31.61	-	-	Peak
2388.66	65.43	-8.57	74	62.52	31.9	5.4	34.39	132	324	Peak
2388.66	46.15	-7.85	54	43.24	31.9	5.4	34.39	132	324	Average
2412	103.38	-	-	100.43	31.91	5.43	34.39	132	324	Peak
2412	92.82	-	-	89.87	31.91	5.43	34.39	132	324	Average
2486	50.79	-23.21	74	47.66	31.98	5.52	34.37	132	324	Peak
2486	37.6	-16.4	54	34.47	31.98	5.52	34.37	132	324	Average



Test Mode :	Mode 7	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	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
53.49	29.44	-10.56	40	52.65	7.6	0.88	31.69	101	55	Peak
187.68	30.31	-13.19	43.5	50.99	9.4	1.59	31.67	-	-	Peak
243.03	31.95	-14.05	46	49.57	12.22	1.82	31.66	-	-	Peak
381.9	21.61	-24.39	46	35.65	15.36	2.35	31.75	-	-	Peak
638.8	28.36	-17.64	46	38.08	19.26	3.02	32	-	-	Peak
901.3	26.61	-19.39	46	32.8	21.63	3.76	31.58	-	-	Peak
2388.85	60.97	-13.03	74	58.06	31.9	5.4	34.39	102	271	Peak
2388.85	42.83	-11.17	54	39.92	31.9	5.4	34.39	102	271	Average
2412	100.46	-	-	97.51	31.91	5.43	34.39	102	271	Peak
2412	87.92	-	-	84.97	31.91	5.43	34.39	102	271	Average
2486	47.39	-26.61	74	44.26	31.98	5.52	34.37	102	271	Peak
2486	34.42	-19.58	54	31.29	31.98	5.52	34.37	102	271	Average



Test Mode :	Mode 8	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	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
142.59	25.14	-18.36	43.5	44.18	11.21	1.45	31.7	-	-	Peak
189.84	28.24	-15.26	43.5	48.9	9.4	1.6	31.66	-	-	Peak
245.19	30.93	-15.07	46	48.4	12.35	1.83	31.65	111	249	Peak
469.4	24.85	-21.15	46	36.9	17.19	2.57	31.81	-	-	Peak
638.8	24.14	-21.86	46	33.86	19.26	3.02	32	-	-	Peak
901.3	29.98	-16.02	46	36.17	21.63	3.76	31.58	-	-	Peak
2356	49.87	-24.13	74	47.08	31.86	5.34	34.41	102	328	Peak
2356	38.89	-15.11	54	36.1	31.86	5.34	34.41	102	328	Average
2437	104.34	-	-	101.33	31.93	5.46	34.38	102	328	Peak
2437	93.06	-	-	90.05	31.93	5.46	34.38	102	328	Average
2484	48.49	-25.51	74	45.36	31.98	5.52	34.37	102	328	Peak
2484	35.86	-18.14	54	32.73	31.98	5.52	34.37	102	328	Average



Test Mode :	Mode 8	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	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
55.11	27.95	-12.05	40	51.45	7.27	0.9	31.67	-	-	Peak
191.19	32.45	-11.05	43.5	53.11	9.39	1.61	31.66	148	23	Peak
226.83	32.79	-13.21	46	51.51	11.14	1.76	31.62	-	-	Peak
568.8	24.93	-21.07	46	35.29	18.74	2.88	31.98	-	-	Peak
638.8	28.22	-17.78	46	37.94	19.26	3.02	32	-	-	Peak
918.8	26.4	-19.6	46	32.34	21.71	3.77	31.42	-	-	Peak
2358	47.9	-26.1	74	45.07	31.86	5.37	34.4	102	275	Peak
2358	36.73	-17.27	54	33.9	31.86	5.37	34.4	102	275	Average
2437	100.41	-	-	97.38	31.95	5.46	34.38	102	275	Peak
2437	87.07	-	-	84.04	31.95	5.46	34.38	102	275	Average
2500	46.56	-27.44	74	43.41	32	5.52	34.37	102	275	Peak
2500	33.3	-20.7	54	30.15	32	5.52	34.37	102	275	Average



Test Mode :	Mode 9	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
42.69	23.42	-16.58	40	43.06	11.25	0.81	31.7	100	35	Peak
143.13	25.66	-17.84	43.5	44.76	11.15	1.45	31.7	-	-	Peak
261.39	29.18	-16.82	46	46.14	12.86	1.9	31.72	-	-	Peak
392.4	28.82	-17.18	46	42.6	15.6	2.39	31.77	-	-	Peak
638.8	27.15	-18.85	46	36.87	19.26	3.02	32	-	-	Peak
878.9	26.88	-19.12	46	33.49	21.45	3.67	31.73	-	-	Peak
2382	51.85	-22.15	74	48.96	31.88	5.4	34.39	100	316	Peak
2382	39.05	-14.95	54	36.16	31.88	5.4	34.39	100	316	Average
2462	105.74	-	-	102.66	31.97	5.49	34.38	100	316	Peak
2462	93.76	-	-	90.68	31.97	5.49	34.38	100	316	Average
2485.18	65.9	-8.1	74	62.77	31.98	5.52	34.37	100	316	Peak
2485.18	47.52	-6.48	54	44.39	31.98	5.52	34.37	100	316	Average



Test Mode :	Mode 9	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	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
52.68	29.75	-10.25	40	52.8	7.76	0.88	31.69	100	39	Peak
101.28	27.4	-16.1	43.5	47.09	10.76	1.23	31.68	-	-	Peak
270.03	24.59	-21.41	46	41.36	12.98	1.93	31.68	-	-	Peak
395.9	24.66	-21.34	46	38.37	15.67	2.4	31.78	-	-	Peak
638.8	24.77	-21.23	46	34.49	19.26	3.02	32	-	-	Peak
841.8	26.49	-19.51	46	33.77	21.13	3.51	31.92	-	-	Peak
2382	50.07	-23.93	74	47.18	31.88	5.4	34.39	189	109	Peak
2382	37.11	-16.89	54	34.22	31.88	5.4	34.39	189	109	Average
2462	99.42	-	-	96.34	31.97	5.49	34.38	189	109	Peak
2462	89.43	-	-	86.35	31.97	5.49	34.38	189	109	Average
2484.42	64.53	-9.47	74	61.4	31.98	5.52	34.37	189	109	Peak
2484.42	44.86	-9.14	54	41.73	31.98	5.52	34.37	189	109	Average



Test Mode :	Mode 10	Temperature :	21~22°C
Test Channel :	149	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	5745 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
143.94	24.66	-18.84	43.5	43.76	11.15	1.45	31.7	-	-	Peak
232.23	27.56	-18.44	46	45.93	11.46	1.78	31.61	100	39	Peak
268.14	26.24	-19.76	46	43.04	12.96	1.93	31.69	-	-	Peak
388.9	23.37	-22.63	46	37.26	15.51	2.37	31.77	-	-	Peak
638.8	23.46	-22.54	46	33.18	19.26	3.02	32	-	-	Peak
833.4	24.57	-21.43	46	31.97	21.05	3.48	31.93	-	-	Peak
5745	87.24	-	-	77.08	35.04	8.9	33.78	125	4	Peak
5745	76.76	-	-	66.6	35.04	8.9	33.78	125	4	Average

Test Mode :	Mode 10	Temperature :	21~22°C
Test Channel :	149	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	5745 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
50.79	27.41	-12.59	40	50.18	8.08	0.86	31.71	100	284	Peak
101.28	27.38	-16.12	43.5	47.07	10.76	1.23	31.68	-	-	Peak
279.48	31.67	-14.33	46	48.3	13.13	1.97	31.73	-	-	Peak
367.9	20.28	-25.72	46	34.61	15.02	2.29	31.64	-	-	Peak
638.8	26.47	-19.53	46	36.19	19.26	3.02	32	-	-	Peak
904.8	25.88	-20.12	46	32.02	21.65	3.76	31.55	-	-	Peak
5745	80.79	-	-	70.63	35.04	8.9	33.78	100	8	Peak
5745	69.09	-	-	58.93	35.04	8.9	33.78	100	8	Average



Test Mode :	Mode 11	Temperature :	21~22°C
Test Channel :	157	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	5785 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
101.28	15.88	-27.62	43.5	35.57	10.76	1.23	31.68	-	-	Peak
141.78	20.27	-23.23	43.5	39.26	11.27	1.44	31.7	-	-	Peak
276.24	26.4	-19.6	46	43.06	13.09	1.96	31.71	100	66	Peak
488.3	20.61	-25.39	46	32.18	17.57	2.63	31.77	-	-	Peak
638.8	22.92	-23.08	46	32.64	19.26	3.02	32	-	-	Peak
901.3	25.88	-20.12	46	32.07	21.63	3.76	31.58	-	-	Peak
5785	89.89	-	-	79.59	35.11	8.94	33.75	124	6	Peak
5785	79.79	-	-	69.49	35.11	8.94	33.75	124	6	Average

Test Mode :	Mode 11	Temperature :	21~22°C
Test Channel :	157	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	5785 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
51.33	27.18	-12.82	40	50.09	7.92	0.87	31.7	100	85	Peak
98.58	27.96	-15.54	43.5	47.9	10.53	1.21	31.68	-	-	Peak
274.08	32.49	-13.51	46	49.18	13.06	1.95	31.7	-	-	Peak
474.3	21.13	-24.87	46	33.05	17.29	2.58	31.79	-	-	Peak
638.8	26.39	-19.61	46	36.11	19.26	3.02	32	-	-	Peak
791.4	23.67	-22.33	46	31.65	20.65	3.36	31.99	-	-	Peak
5785	82.87	-	-	72.57	35.11	8.94	33.75	100	267	Peak
5785	71.76	-	-	61.46	35.11	8.94	33.75	100	267	Average



Test Mode :	Mode 12	Temperature :	21~22°C
Test Channel :	165	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	5825 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
140.43	24.62	-18.88	43.5	43.54	11.34	1.44	31.7	-	-	Peak
233.58	30.54	-15.46	46	48.79	11.58	1.79	31.62	100	285	Peak
274.89	27.05	-18.95	46	43.74	13.06	1.95	31.7	-	-	Peak
355.3	21	-25	46	35.58	14.73	2.25	31.56	-	-	Peak
474.3	24.39	-21.61	46	36.31	17.29	2.58	31.79	-	-	Peak
780.9	23.12	-22.88	46	31.28	20.5	3.36	32.02	-	-	Peak
5825	91.99	-	-	81.6	35.16	8.97	33.74	102	356	Peak
5825	80.66	-	-	70.27	35.16	8.97	33.74	102	356	Average

Test Mode :	Mode 12	Temperature :	21~22°C
Test Channel :	165	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	5825 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
52.68	27.61	-12.39	40	50.66	7.76	0.88	31.69	100	99	Peak
101.28	28.76	-14.74	43.5	48.45	10.76	1.23	31.68	-	-	Peak
275.43	32.19	-13.81	46	48.87	13.07	1.96	31.71	-	-	Peak
300	23.12	-22.88	46	39.27	13.46	2.06	31.67	-	-	Peak
329.4	21.7	-24.3	46	36.98	14.15	2.16	31.59	-	-	Peak
638.8	26.52	-19.48	46	36.24	19.26	3.02	32	-	-	Peak
5825	85.33	-	-	74.94	35.16	8.97	33.74	102	126	Peak
5825	74.43	-	-	64.04	35.16	8.97	33.74	102	126	Average



Test Mode :	Mode 13	Temperature :	21~22°C
Test Channel :	149	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	5745 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
101.28	16.92	-26.58	43.5	36.61	10.76	1.23	31.68	-	-	Peak
142.59	25.32	-18.18	43.5	44.36	11.21	1.45	31.7	-	-	Peak
232.23	30.77	-15.23	46	49.14	11.46	1.78	31.61	100	129	Peak
301.4	21.49	-24.51	46	37.59	13.5	2.07	31.67	-	-	Peak
388.9	30.71	-15.29	46	44.6	15.51	2.37	31.77	-	-	Peak
474.3	24.99	-21.01	46	36.91	17.29	2.58	31.79	-	-	Peak
5745	89.08	-	-	78.92	35.04	8.9	33.78	115	6	Peak
5745	78.92	-	-	68.76	35.04	8.9	33.78	115	6	Average

Test Mode :	Mode 13	Temperature :	21~22°C
Test Channel :	149	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	5745 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
51.33	27.25	-12.75	40	50.16	7.92	0.87	31.7	100	237	Peak
99.93	28.39	-15.11	43.5	48.16	10.69	1.22	31.68	-	-	Peak
275.43	32.4	-13.6	46	49.08	13.07	1.96	31.71	-	-	Peak
302.8	21.04	-24.96	46	37.1	13.53	2.07	31.66	-	-	Peak
393.8	20.13	-25.87	46	33.89	15.63	2.39	31.78	-	-	Peak
638.8	27.33	-18.67	46	37.05	19.26	3.02	32	-	-	Peak
5745	83.71	-	-	73.55	35.04	8.9	33.78	100	354	Peak
5745	72.83	-	-	62.67	35.04	8.9	33.78	100	354	Average



Test Mode :	Mode 14	Temperature :	21~22°C
Test Channel :	157	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	5785 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
142.59	24.47	-19.03	43.5	43.51	11.21	1.45	31.7	-	-	Peak
233.58	28.7	-17.3	46	46.95	11.58	1.79	31.62	100	69	Peak
275.43	25.48	-20.52	46	42.16	13.07	1.96	31.71	-	-	Peak
302.8	20.29	-25.71	46	36.35	13.53	2.07	31.66	-	-	Peak
364.4	20.27	-25.73	46	34.63	14.96	2.28	31.6	-	-	Peak
638.8	23.62	-22.38	46	33.34	19.26	3.02	32	-	-	Peak
5785	89.22	-	-	78.97	35.09	8.92	33.76	115	4	Peak
5785	78.51	-	-	68.26	35.09	8.92	33.76	115	4	Average

Test Mode :	Mode 14	Temperature :	21~22°C
Test Channel :	157	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	5785 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
99.39	28.94	-14.56	43.5	48.71	10.69	1.22	31.68	100	207	Peak
218.19	27.81	-18.19	46	47.19	10.56	1.73	31.67	-	-	Peak
275.43	31.14	-14.86	46	47.82	13.07	1.96	31.71	-	-	Peak
323.8	21.78	-24.22	46	37.22	14.02	2.14	31.6	-	-	Peak
638.8	28.16	-17.84	46	37.88	19.26	3.02	32	-	-	Peak
876.8	25.18	-20.82	46	31.83	21.43	3.66	31.74	-	-	Peak
5785	83.56	-	-	73.31	35.09	8.92	33.76	100	266	Peak
5785	71.61	-	-	61.36	35.09	8.92	33.76	100	266	Average



Test Mode :	Mode 15	Temperature :	21~22°C
Test Channel :	165	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	5825 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
143.94	24.49	-19.01	43.5	43.59	11.15	1.45	31.7	-	-	Peak
232.23	28.58	-17.42	46	46.95	11.46	1.78	31.61	100	98	Peak
277.59	26.34	-19.66	46	42.99	13.1	1.97	31.72	-	-	Peak
302.8	20.68	-25.32	46	36.74	13.53	2.07	31.66	-	-	Peak
638.8	24.25	-21.75	46	33.97	19.26	3.02	32	-	-	Peak
934.9	26.1	-19.9	46	31.8	21.79	3.78	31.27	-	-	Peak
5825	91.53	-	-	81.14	35.16	8.97	33.74	103	10	Peak
5825	80.31	-	-	69.92	35.16	8.97	33.74	103	10	Average

Test Mode :	Mode 15	Temperature :	21~22°C
Test Channel :	165	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	5825 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
51.33	26.8	-13.2	40	49.71	7.92	0.87	31.7	100	67	Peak
99.93	28.91	-14.59	43.5	48.68	10.69	1.22	31.68	-	-	Peak
282.99	30.37	-15.63	46	46.88	13.2	1.99	31.7	-	-	Peak
458.9	19.45	-26.55	46	31.8	16.97	2.53	31.85	-	-	Peak
638.8	27.48	-18.52	46	37.2	19.26	3.02	32	-	-	Peak
854.4	24.33	-21.67	46	31.41	21.24	3.56	31.88	-	-	Peak
5825	85.71	-	-	75.32	35.16	8.97	33.74	100	130	Peak
5825	74.24	-	-	63.85	35.16	8.97	33.74	100	130	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
System Simulator	R&S	CMU200	117995	N/A	Aug. 11, 2010	Aug.10, 2011	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP30	101329	9kHz~40GHz	May. 03, 2011	May. 02, 2012	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)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D35P	TBN-930701	N/A	Jul. 30, 2010	Jul. 29, 2011	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz – 2.75GHz	Aug. 16, 2010	Aug. 15, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz – 30MHz	Dec. 03, 2010	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz – 30MHz	Dec. 01, 2010	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
ISN	Teseq GmbH	ISN T400A	25696	N/A	Jun. 19, 2010	Jun. 18, 2011	Conduction (CO05-HY)
ISN	Teseq GmbH	ISN T800	27134	N/A	Jun. 19, 2010	Jun. 18, 2011	Conduction (CO05-HY)
DC- LISN	R&S	ESH3-26	1000485	0.1MHz~200MHz	Jun. 17, 2010	Jun. 16, 2011	Conduction (CO05-HY)
DC- LISN	R&S	ESH3-26	1000484	0.1MHz~200MHz	Jun. 17, 2010	Jun. 16, 2011	Conduction (CO05-HY)
LTE Base Station	Anritsu	MT8820C	6200930978	N/A	Dec. 28, 2010	Dec. 27, 2011	Conduction (CO05-HY)
System Simulator	R&S	CMU200	117591	N/A	Oct. 18, 2010	Oct. 17, 2011	Conduction (CO05-HY)



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100057	9KHz-40GHz	Oct. 25, 2010	Oct. 24, 2011	Radiation (03CH06-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz~7GHz	Aug.19, 2010	Aug.19, 2011	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Oct. 31, 2010	Oct. 31, 2011	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz~18GHz	Aug. 02, 2010	Aug. 01, 2011	Radiation (03CH06-HY)
Double Ridge Horn Antenna	Training Research	AH-0801	95119	8GHz~18GHz	Oct. 20, 2010	Oct. 19, 2011	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz- 26.5GHz	Apr. 14, 2011	Apr. 13, 2012	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9KHz~1GHz	Apr. 14, 2011	Apr. 13, 2012	Radiation (03CH06-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	Radiation (03CH06-HY)

5 Uncertainty of Evaluation

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

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 (30MHz ~ 1000MHz)

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 (1GHz ~ 40GHz)

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				