

FCC RF Test Report

APPLICANT : Unitech Electronics Co., Ltd.
EQUIPMENT : Mobile terminal with barcode reader
BRAND NAME : unitech
MODEL NAME : PA690 / HC1-9892QADG
FCC ID : HLEPA690BTGGR
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Mar. 24, 2011 and completely tested on Aug. 01, 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	7
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	8
2.1 RF Power	8
2.2 Test Mode	10
2.3 Connection Diagram of Test System	11
2.4 RF Utility	11
3 TEST RESULT	12
3.1 6dB Bandwidth Measurement	12
3.2 Output Power Measurement	19
3.3 Band Edges Measurement	21
3.4 Spurious Emission Measurement	30
3.5 Power Spectral Density Measurement	40
3.6 AC Conducted Emission Measurement	47
3.7 Radiated Emission Measurement	51
3.8 Antenna Requirements	84
4 LIST OF MEASURING EQUIPMENT	85
5 UNCERTAINTY OF EVALUATION	86
APPENDIX A. PHOTOGRAPHS OF EUT	
APPENDIX B. SETUP PHOTOGRAPHS	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR132448B	Rev. 01	Initial issue of report	Nov. 11, 2011

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.2	15.247(b)	A8.4	Output Power 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 15.5 dB at 2.46 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 1.19 dB at 2484.04 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Unitech Electronics Co., Ltd.

5Fl., No. 136, Lane 235, Pao-Chiao Rd. Hsin-Tien Area, New Taipei City, Taiwan 231, R.O.C.

1.2 Manufacturer

Unitech Electronics Co., Ltd.

5Fl., No. 136, Lane 235, Pao-Chiao Rd. Hsin-Tien Area, New Taipei City, Taiwan 231, R.O.C.

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Mobile terminal with barcode reader
Brand Name	unitech
Model Name	PA690 / HC1-9892QADG
FCC ID	HLEPA690BTGGR
Tx/Rx Frequency Range	802.11b/g : 2400 MHz ~ 2483.5 MHz 802.11a : 5725 MHz ~ 5825 MHz
Channel Spacing	802.11b/g : 5 MHz 802.11a : 20 MHz
Maximum Output Power to Antenna	802.11b : 20.42 dBm (0.1102 W) 802.11g : 24.27 dBm (0.2673 W) 802.11a : 23.53 dBm (0.2254 W)
Antenna Type	Antenna 1 802.11b/g : PIFA Antenna with gain 1.54 dBi 802.11a : PIFA Antenna with gain :-3.45 dBi Antenna 2 802.11b/g : PIFA Antenna with gain 1.18 dBi 802.11a : PIFA Antenna with gain -3.44 dBi
HW Version	CPU PXA320/806MHz
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/a : 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	03CH05HY	722060/4086B-1

1.5 Applied Standards

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

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

Remark:

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

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
5.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
6.	USB dongle	Transcend	N14939	FCC DoC	N/A	N/A
7.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A

2 Test Configuration of Equipment Under Test

2.1 RF Power

Preliminary tests were performed in different data rate and recorded the RF Output Power in the following table:

<Antenna 1>

Channel	Frequency	2.4GHz 802.11b RF Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	19.94	19.90	19.84	19.79
CH 06	2437 MHz	19.90	-	-	-
CH 11	2462 MHz	19.40	-	-	-

Channel	Frequency	2.4GHz 802.11g RF Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	24.09	-	-	-	-	-	-	-
CH 06	2437 MHz	24.23	23.82	24.04	23.75	24.07	24.0	24.05	24.15
CH 11	2462 MHz	23.86	-	-	-	-	-	-	-

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
CH149	5745 MHz	22.26	-	-	-	-	-	-	-
CH157	5785 MHz	22.45	22.03	22.42	22.15	22.37	22.29	22.13	22.46
CH165	5825 MHz	22.07	-	-	-	-	-	-	-

<Antenna 2>

Channel	Frequency	2.4GHz 802.11b RF Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	20.42	20.39	20.36	20.31
CH 06	2437 MHz	20.29	-	-	-
CH 11	2462 MHz	20.13	-	-	-

Channel	Frequency	2.4GHz 802.11g RF Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	24.27	24.02	24.21	24.09	24.20	24.19	24.13	24.25
CH 06	2437 MHz	24.19	-	-	-	-	-	-	-
CH 11	2462 MHz	23.94	-	-	-	-	-	-	-

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
CH149	5745 MHz	23.53	23.15	23.47	23.37	23.50	23.51	23.22	23.32
CH157	5785 MHz	23.16	-	-	-	-	-	-	-
CH165	5825 MHz	23.06	-	-	-	-	-	-	-

Remark:

1. The data rates of WLAN 802.11a/b/g were set in 1Mbps for 802.11b, 6Mbps for 802.11g, and 6Mbps for 802.11a all the test cases due to the highest RF output power.
2. The EUT is programmed to transmit signal continuously for all testing

2.2 Test Mode

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

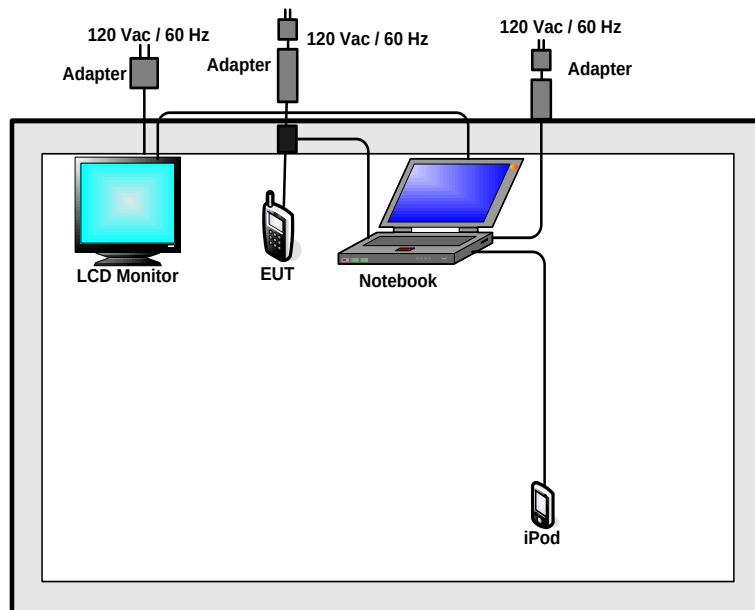
Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

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

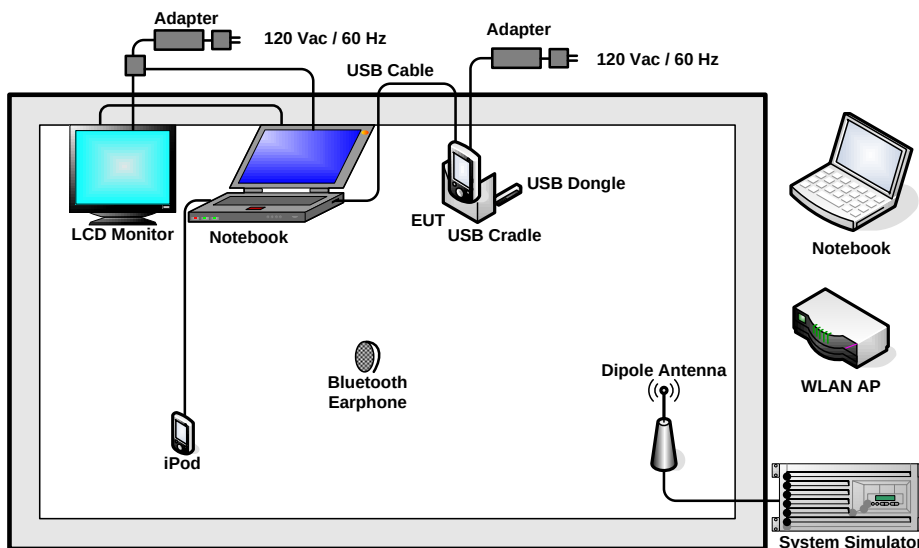
Test Cases			
Test Item	802.11b (Modulation : DSSS)	802.11g (Modulation : OFDM)	802.11a Band IV (Modulation : OFDM)
Conducted TCs	Mode 1: 802.11b_CH01_ 2412 MHz	Mode 4: 802.11g_CH01_ 2 412 MHz	Mode 7: 802.11a_CH149_ 5745 MHz
	Mode 2: 802.11b_CH06_ 2437 MHz	Mode 5: 802.11g_CH06_ 2437 MHz	Mode 8: 802.11a_CH157_ 5785 MHz
	Mode 3: 802.11b_CH11_ 2462 MHz	Mode 6: 802.11g_CH11_ 2462 MHz	Mode 9: 802.11a_CH165_ 5825 MHz
Radiated TCs	Mode 1: 802.11b_CH01_ 2412 MHz_ant-1	Mode 7: 802.11g_CH01_ 2412 MHz _ ant-1	Mode 13: 802.11a_CH149_ 5745 MHz _ ant-1
	Mode 2: 802.11b_CH06_ 2437 MHz_ant-1	Mode 8: 802.11g_CH06_ 2437 MHz _ ant-1	Mode 14: 802.11a_CH157_ 5785 MHz _ ant-1
	Mode 3: 802.11b_CH11_ 2462 MHz_ant-1	Mode 9: 802.11g_CH11_ 2462 MHz _ ant-1	Mode 15: 802.11a_CH165_ 5825 MHz _ ant-1
	Mode 4: 802.11b_CH01_ 2412 MHz _ ant-2	Mode 10: 802.11g_CH01_ 2 412 MHz _ ant-2	Mode 16: 802.11a_CH149_ 5745 MHz _ ant-2
	Mode 5: 802.11b_CH06_ 2437 MHz _ ant-2	Mode 11: 802.11g_CH06_ 2437 MHz _ ant-2	Mode 17: 802.11a_CH157_ 5785 MHz _ ant-2
	Mode 6: 802.11b_CH11_ 2462 MHz _ ant-2	Mode 12: 802.11g_CH11_ 2462 MHz _ ant-2	Mode 18: 802.11a_CH165_ 5825 MHz _ ant-2
AC Conducted Emission	Mode 1 :WCDMA Band V Idle + WLAN (2.4G) Link + Bluetooth Link + MPEG4 + USB Cradle + USB Cable (Link with Notebook) + Adapter + USB Dongle		
Remark:			
1. The conducted test was only performed with Antenna 2.			
2. The Radiated test was performed with USB Cable, Adapter and Battery 1.			

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 RF Utility

The programmed RF utility “SRU_30AG mode” and “WLAN RF Test” 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.

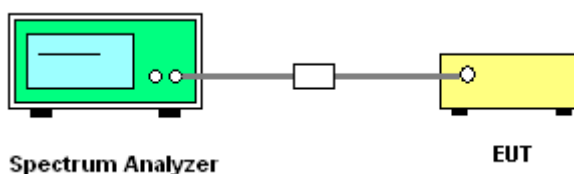
3.1.2 Measuring Instruments

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

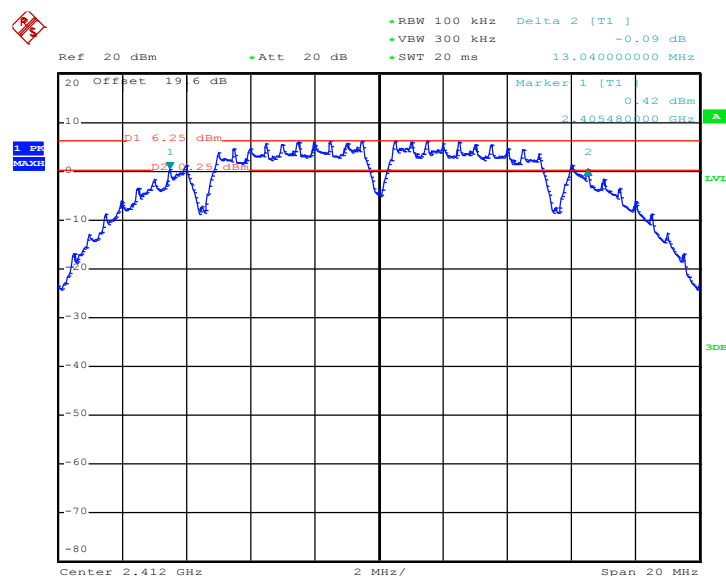


3.1.5 Test Result of 6dB Bandwidth

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

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	13.04	0.5	Pass
06	2437	12.56	0.5	Pass
11	2462	12.12	0.5	Pass

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



Date: 19.JUN.2011 15:44:51



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

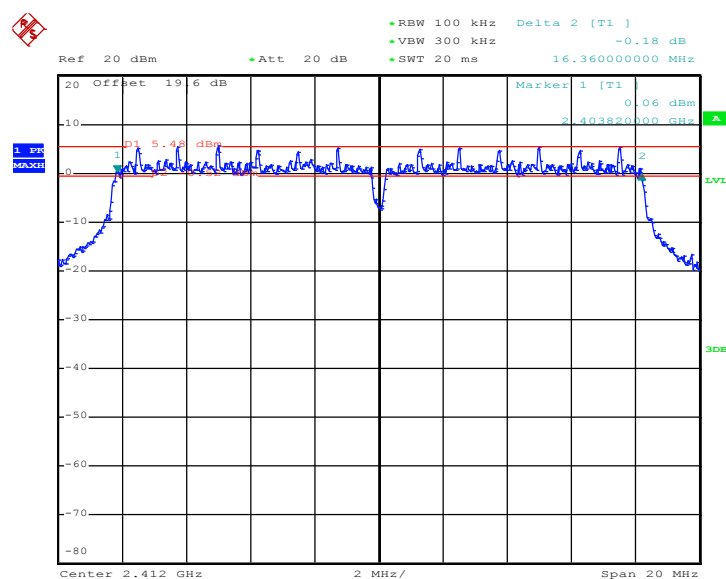




Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.36	0.5	Pass
06	2437	16.32	0.5	Pass
11	2462	16.36	0.5	Pass

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



Date: 19.JUN.2011 16:31:44



1.56 MHz

Ref 20 dBm Att 20 dB RBW 100 kHz VBW 300 kHz SWT 20 ms Delta 2 [T1] 16.320000000 MHz

Marker 1 [T1] 1.01 dBm 2.428840000 GHz

Center 2.437 GHz 2 MHz/ Span 20 MHz

Date: 19.JUN.2011 16:20:47

• RBW 100 kHz Delta 2 [T1] 0.20 dB
 • VBW 300 kHz
 • Att 20 dB
 • SWT 20 ms 16.36000000 MHz

Ref 20 dBm 20 Offset 19.6 dB

Marker 1 [T1] -0.51 dBm
 2.453820000 GHz

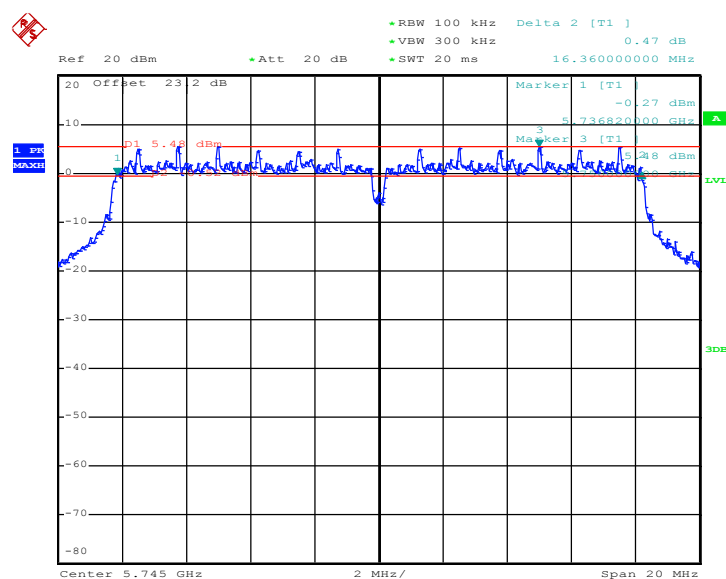
p1 5.39 dBm

Center 2.462 GHz 2 MHz/ Span 20 MHz

Date: 19.JUN.2011 16:45:15



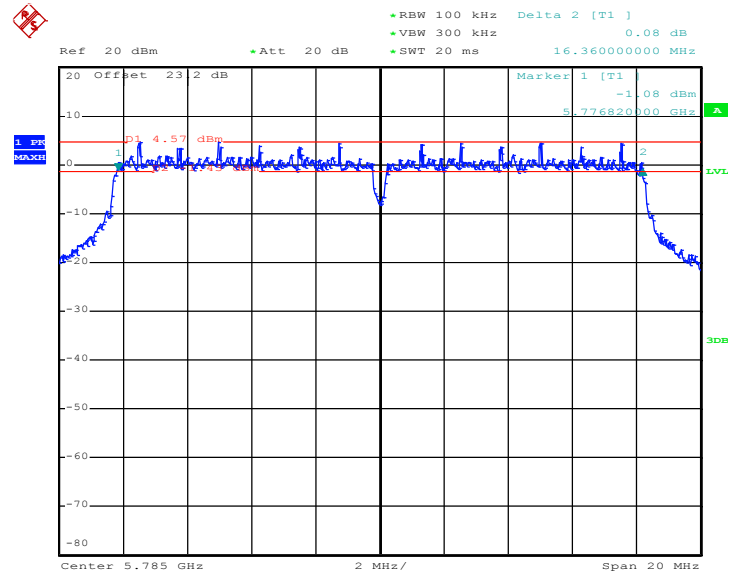
Channel	Frequency (MHz)	802.11a 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	16.36	0.5	Pass
157	5785	16.36	0.5	Pass
165	5825	16.32	0.5	Pass



Date: 19.JUN.2011 17:03:56

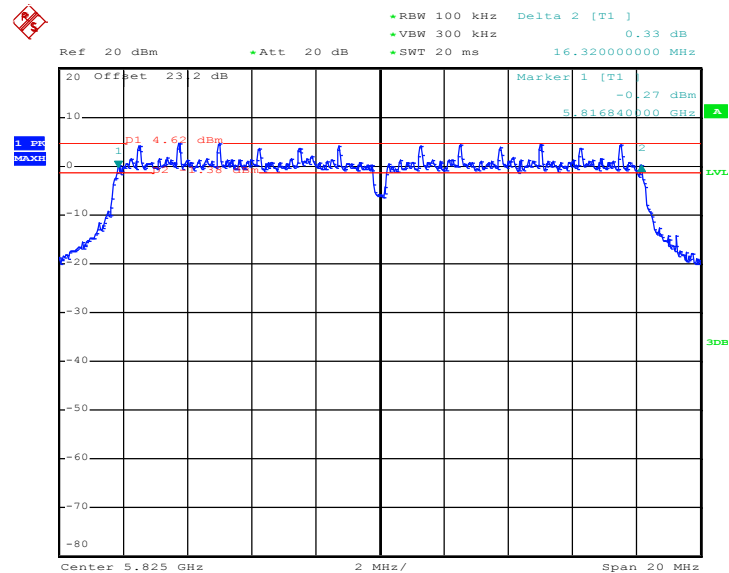


Mode 8: 6 dB Bandwidth Plot on 802.11a Channel 157



Date: 19.JUN.2011 17:10:34

Mode 9: 6 dB Bandwidth Plot on 802.11a Channel 165



Date: 19.JUN.2011 17:08:10

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.

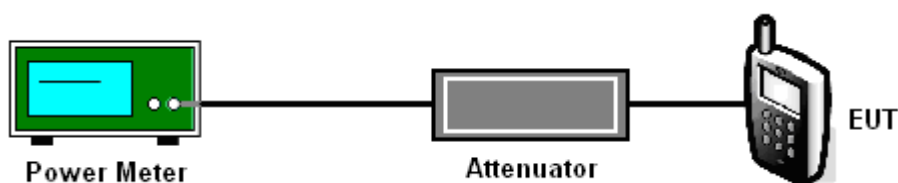
3.2.2 Measuring Instruments

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	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.42	30	Pass
06	2437	20.29	30	Pass
11	2462	20.13	30	Pass

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

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	24.27	30	Pass
06	2437	24.19	30	Pass
11	2462	23.94	30	Pass

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

Channel	Frequency (MHz)	802.11a Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	23.53	30	Pass
157	5785	23.16	30	Pass
165	5825	23.06	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

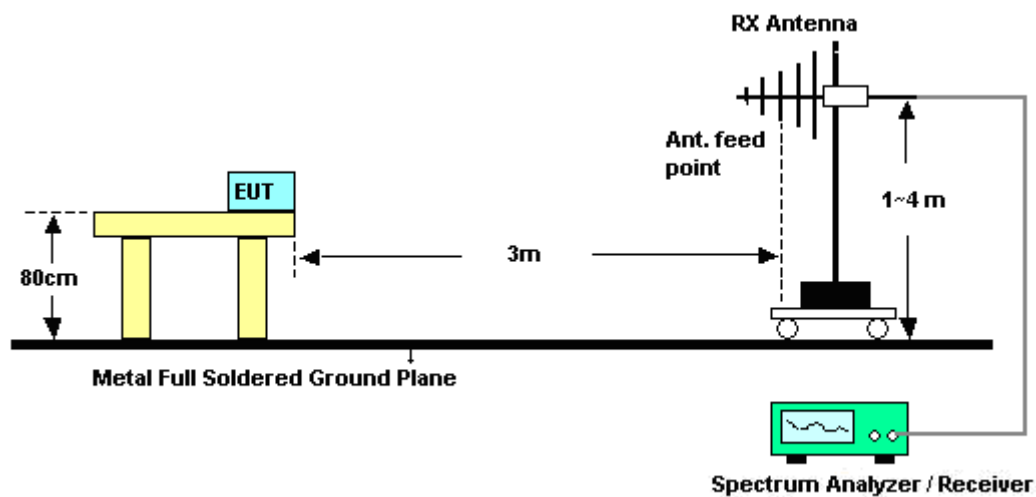
See list of measuring instruments of this test report.

3.3.3 Test Procedures

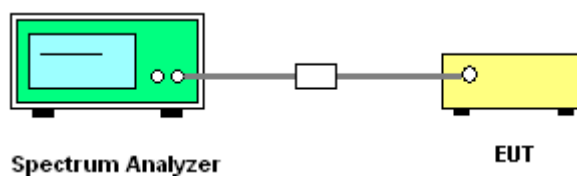
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) > RBW. Band edge emissions must be at least 20 dB below the highest emission level within the authorized band 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

<Antenna 1>

Test Mode :	Mode 1	Temperature :	23~25°C
Test Band :	802.11b	Relative Humidity :	49~51%
Test Channel :	01	Test Engineer :	Brian Chang

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
2385.81	49.91	-24.09	74	47.71	31.7	4.58	34.08	152	309	Peak
2385.81	40.91	-13.09	54	38.71	31.7	4.58	34.08	152	309	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
2385.62	48.59	-25.41	74	46.39	31.7	4.58	34.08	100	68	Peak
2385.62	38.63	-15.37	54	36.43	31.7	4.58	34.08	100	68	Average

Test Mode :	Mode 3	Temperature :	23~25°C
Test Band :	802.11b	Relative Humidity :	49~51%
Test Channel :	11	Test Engineer :	Brian Chang

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
2488.03	53.94	-20.06	74	51.58	31.8	4.64	34.08	180	312	Peak
2488.03	45.49	-8.51	54	43.13	31.8	4.64	34.08	180	312	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2487.46	51.39	-22.61	74	49.05	31.78	4.64	34.08	100	65	Peak
2487.46	43.23	-10.77	54	40.89	31.78	4.64	34.08	100	65	Average

<Antenna 2>

Test Mode :	Mode 4	Temperature :	23~25℃
Test Band :	802.11b	Relative Humidity :	49~51%
Test Channel :	01	Test Engineer :	Brian Chang

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
2386.57	51.95	-22.05	74	49.75	31.7	4.58	34.08	115	360	Peak
2386.57	43.92	-10.08	54	41.72	31.7	4.58	34.08	115	360	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
2386	47.74	-26.26	74	45.54	31.7	4.58	34.08	100	182	Peak
2386	37.87	-16.13	54	35.67	31.7	4.58	34.08	100	182	Average

Test Mode :	Mode 6	Temperature :	23~25℃
Test Band :	802.11b	Relative Humidity :	49~51%
Test Channel :	11	Test Engineer :	Brian Chang

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
2487.84	55.68	-18.32	74	53.32	31.8	4.64	34.08	117	359	Peak
2487.84	47.99	-6.01	54	45.63	31.8	4.64	34.08	117	359	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	48.7	-25.3	74	46.36	31.78	4.64	34.08	100	177	Peak
2483.5	41.72	-12.28	54	39.38	31.78	4.64	34.08	100	177	Average

**<Antenna 1>**

Test Mode :	Mode 7	Temperature :	23~25℃
Test Band :	802.11g	Relative Humidity :	49~51%
Test Channel :	01	Test Engineer :	Brian Chang

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
2389.42	65.1	-8.9	74	62.9	31.7	4.58	34.08	183	316	Peak
2389.42	47.36	-6.64	54	45.16	31.7	4.58	34.08	183	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
2389.61	61.54	-12.46	74	59.34	31.7	4.58	34.08	100	66	Peak
2389.61	44.14	-9.86	54	41.94	31.7	4.58	34.08	100	66	Average

Test Mode :	Mode 9	Temperature :	23~25℃
Test Band :	802.11g	Relative Humidity :	49~51%
Test Channel :	11	Test Engineer :	Brian Chang

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	62.18	-11.82	74	59.84	31.78	4.64	34.08	182	310	Peak
2483.5	46.88	-7.12	54	44.54	31.78	4.64	34.08	182	310	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
2484.8	59.46	-14.54	74	57.12	31.78	4.64	34.08	100	67	Peak
2484.8	43.84	-10.16	54	41.5	31.78	4.64	34.08	100	67	Average

<Antenna 2>

Test Mode :	Mode 10	Temperature :	23~25℃
Test Band :	802.11g	Relative Humidity :	49~51%
Test Channel :	01	Test Engineer :	Brian Chang

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
2389.23	65.36	-8.64	74	63.16	31.7	4.58	34.08	114	360	Peak
2389.23	48.1	-5.9	54	45.9	31.7	4.58	34.08	114	360	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.42	58.89	-15.11	74	56.69	31.7	4.58	34.08	100	182	Peak
2389.42	41.55	-12.45	54	39.35	31.7	4.58	34.08	100	182	Average

Test Mode :	Mode 12	Temperature :	23~25℃
Test Band :	802.11g	Relative Humidity :	49~51%
Test Channel :	11	Test Engineer :	Brian Chang

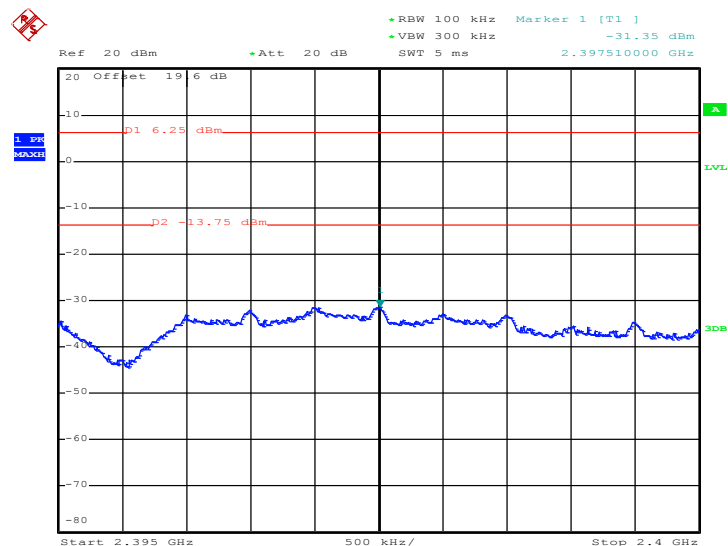
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.04	68.1	-5.9	74	65.76	31.78	4.64	34.08	115	360	Peak
2484.04	52.81	-1.19	54	50.47	31.78	4.64	34.08	115	360	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.85	63.42	-10.58	74	61.08	31.78	4.64	34.08	100	177	Peak
2483.85	46.68	-7.32	54	44.34	31.78	4.64	34.08	100	177	Average

3.3.6 Test Result of Conducted Band Edges

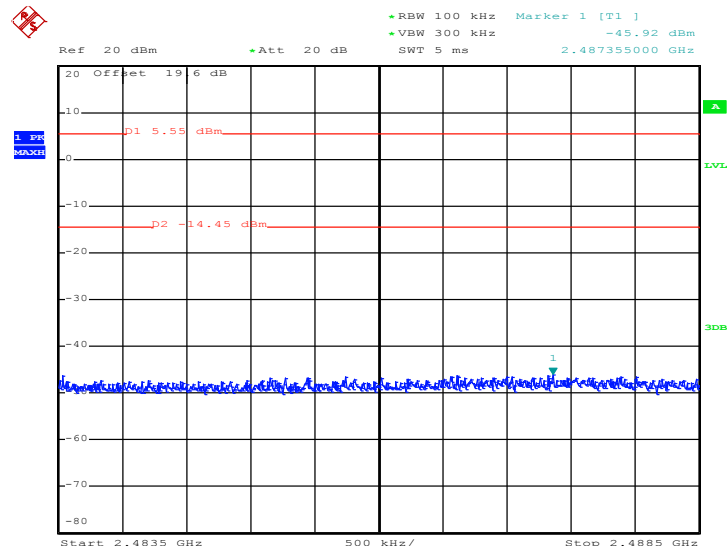
Test Mode :	Mode 1 and 3	Temperature :	24~26℃
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Hank Yu

Low Band Edge Plot on 802.11b Channel 01



Date: 19.JUN.2011 15:46:03

High Band Edge Plot on 802.11b Channel 11

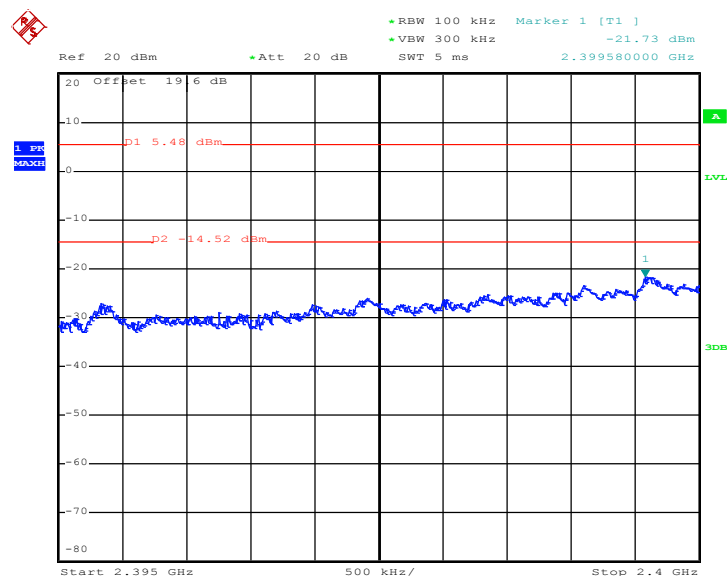


Date: 19.JUN.2011 15:58:45



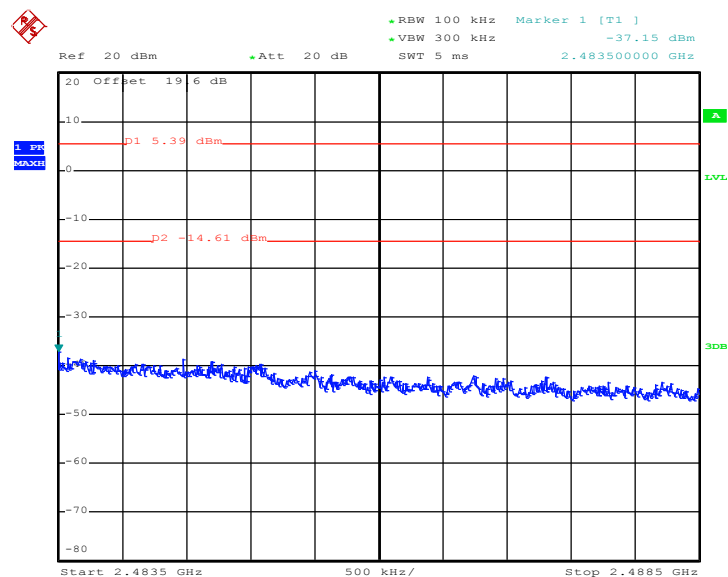
Test Mode :	Mode 4 and 6	Temperature :	24~26℃
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Hank Yu

Low Band Edge Plot on 802.11g Channel 01



Date: 19.JUN.2011 16:32:57

High Band Edge Plot on 802.11g Channel 11

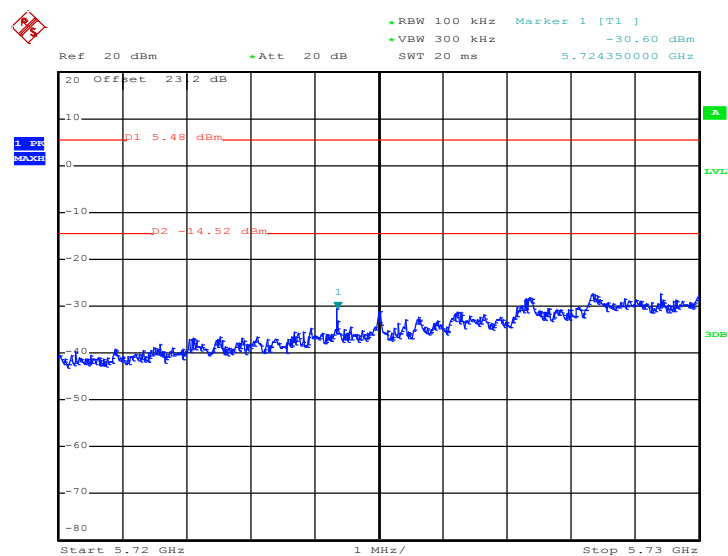


Date: 19.JUN.2011 16:46:03



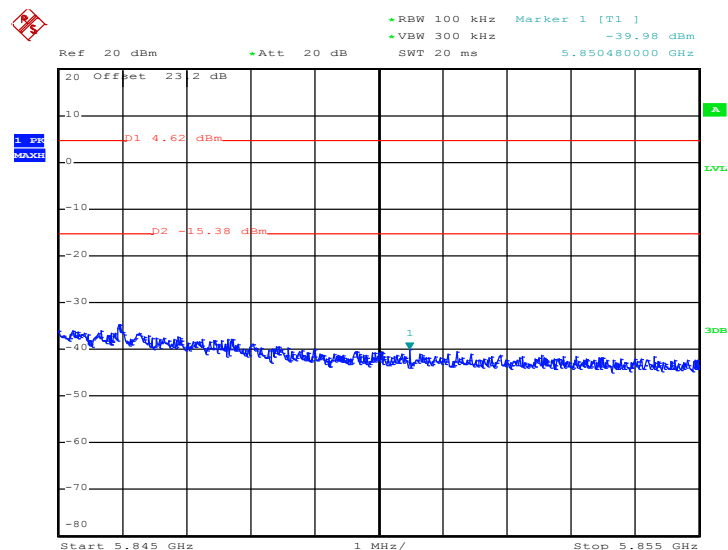
Test Mode :	Mode 7 and 9	Temperature :	24~26°C
Test Band :	802.11a	Relative Humidity :	50~53%
Test Channel :	149 and 165	Test Engineer :	Hank Yu

Low Band Edge Plot on 802.11a Channel 149



Date: 19.JUN.2011 17:04:56

High Band Edge Plot on 802.11a Channel 165



Date: 19.JUN.2011 17:08:38

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

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

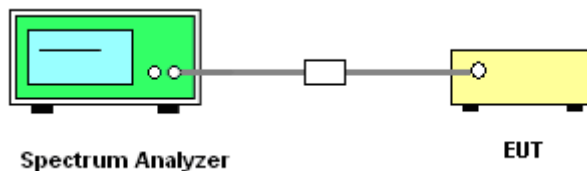
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, Video bandwidth (VBW) $\geq$ RBW, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

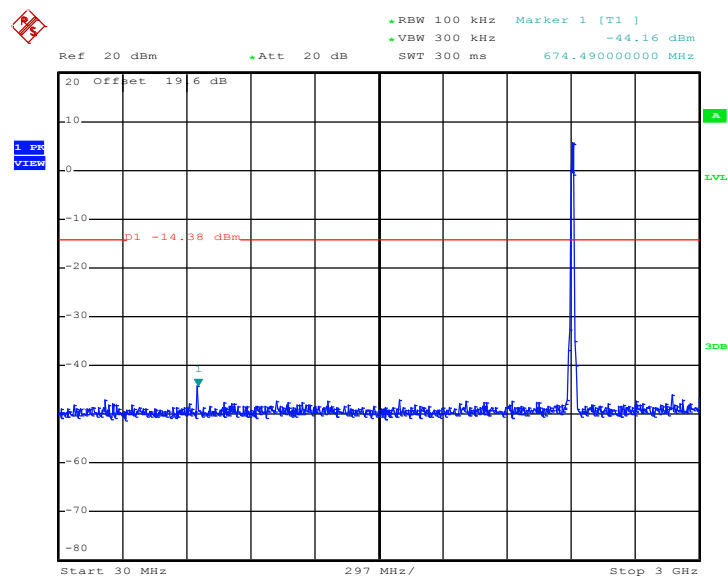
3.4.4 Test Setup



3.4.5 Test Result

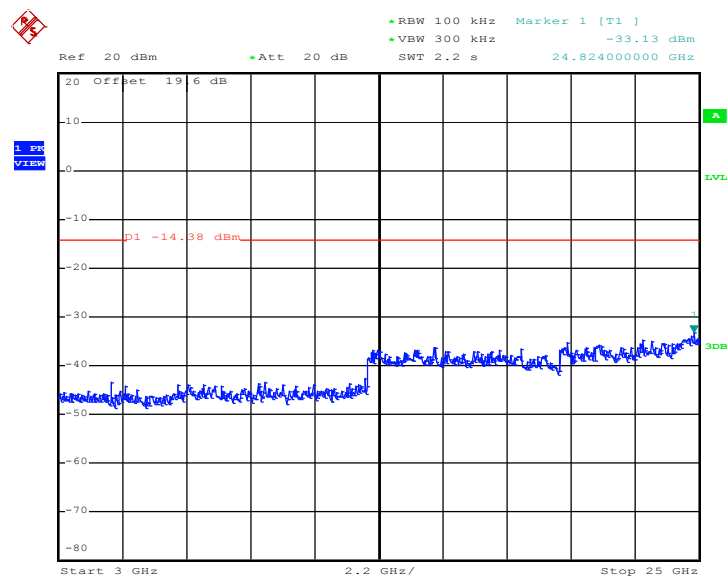
Test Mode :	Mode 1	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 19.JUN.2011 15:46:53

Conducted Spurious Emission Plot between 3GHz ~ 25 GHz

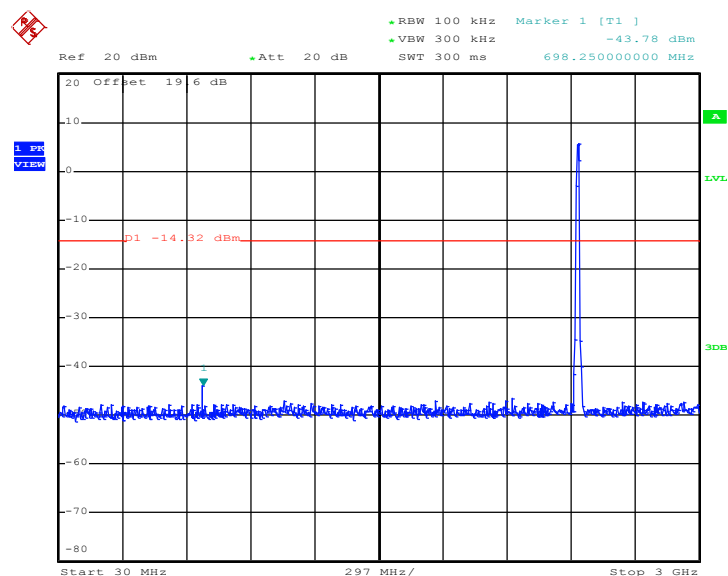


Date: 19.JUN.2011 15:47:11



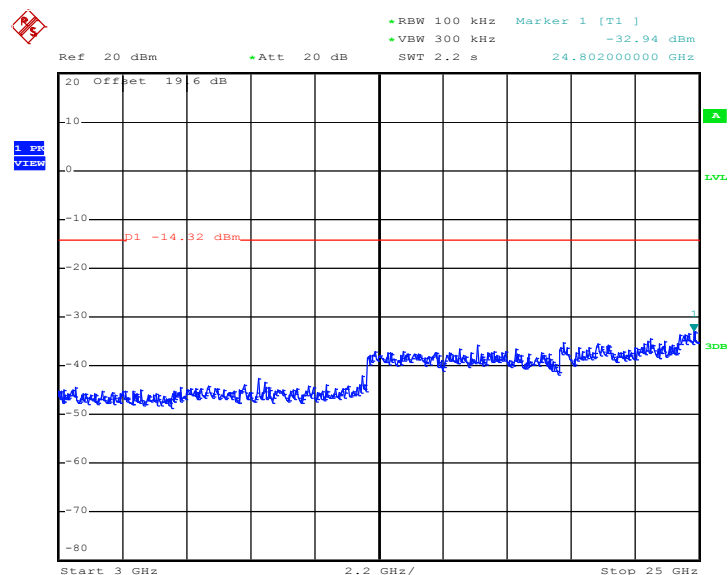
Test Mode :	Mode 2	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 19.JUN.2011 16:10:58

Conducted Spurious Emission Plot between 3GHz ~ 25 GHz



Date: 19.JUN.2011 16:11:16



Report No. : FR132448B

Test Mode :	Mode 3	Temperature :	24~26℃
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Hank Yu

Ref 20 dBm Att 20 dB SWT 300 ms

RBW 100 kHz VBW 300 kHz Marker 1 [T1] -46.02 dBm

724.98000000 MHz

20 Off set 19.6 dB

10

0

-10

-20

-30

-40

-50

-60

-70

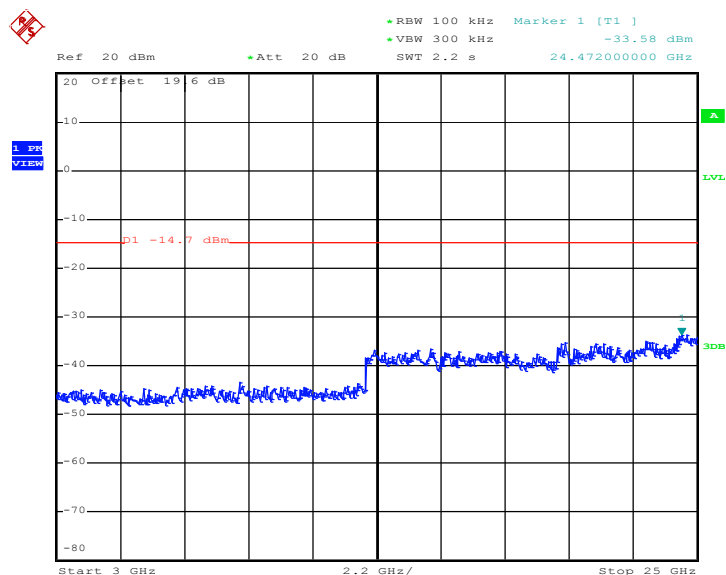
-80

Start 30 MHz 297 MHz/ Stop 3 GHz

1

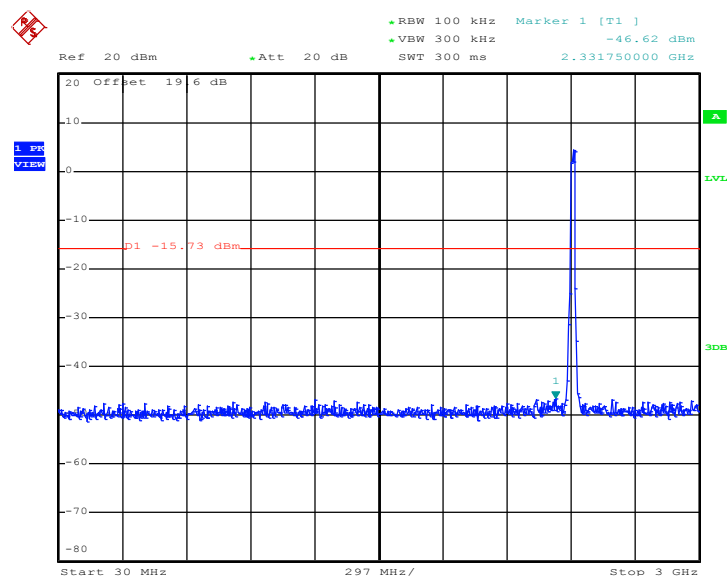
D1 -14.7 dBm

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

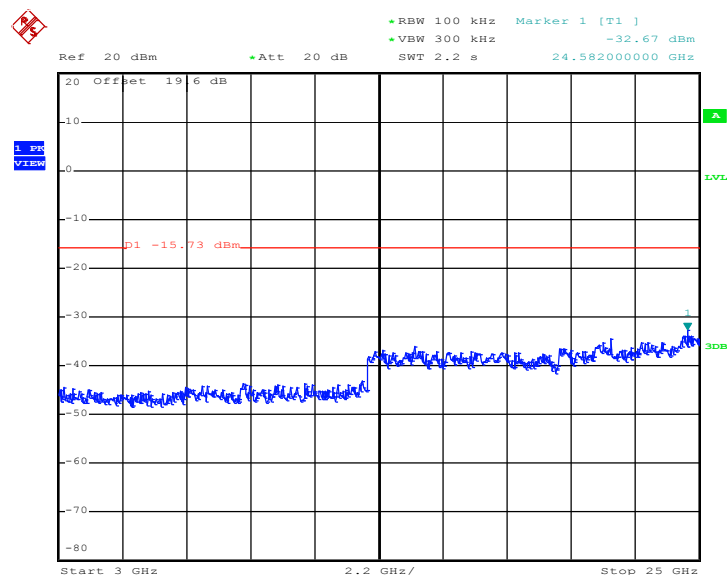


Date: 19.JUN.2011 15:59:52

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

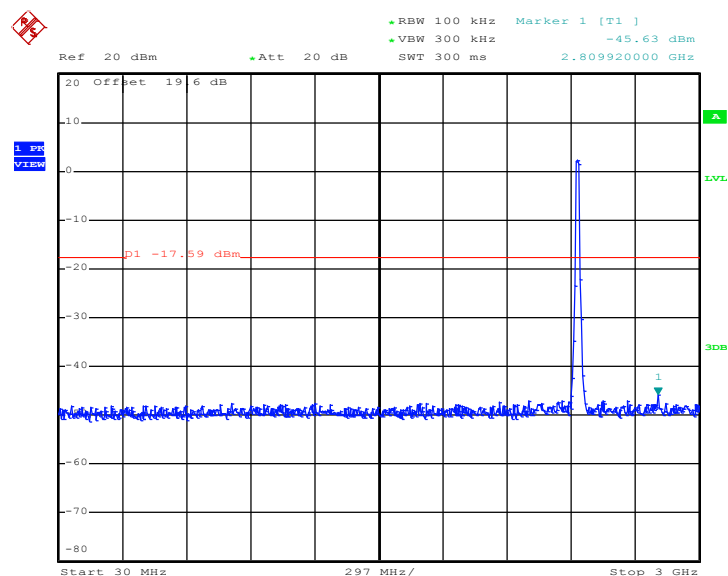
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 19.JUN.2011 16:33:47

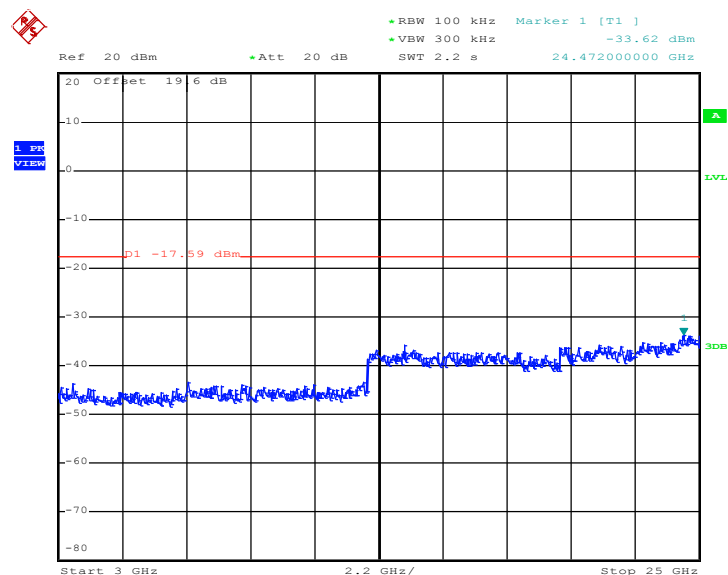
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 19.JUN.2011 16:34:05

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

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 19.JUN.2011 16:21:42

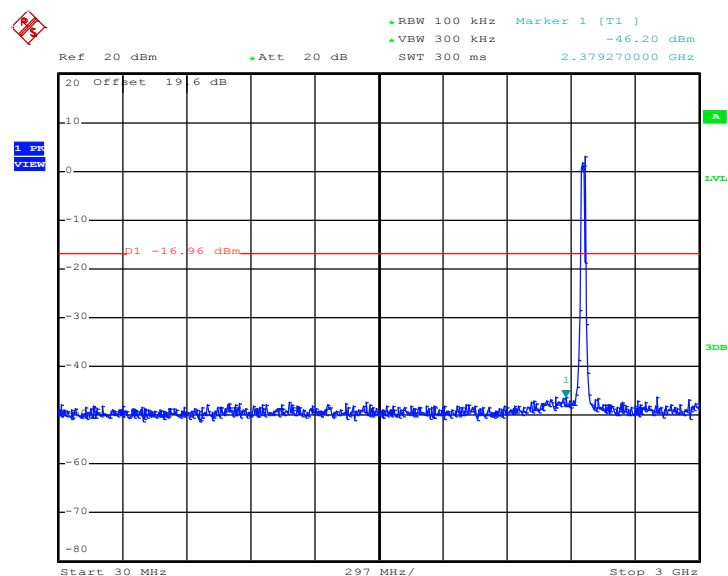
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 19.JUN.2011 16:22:00



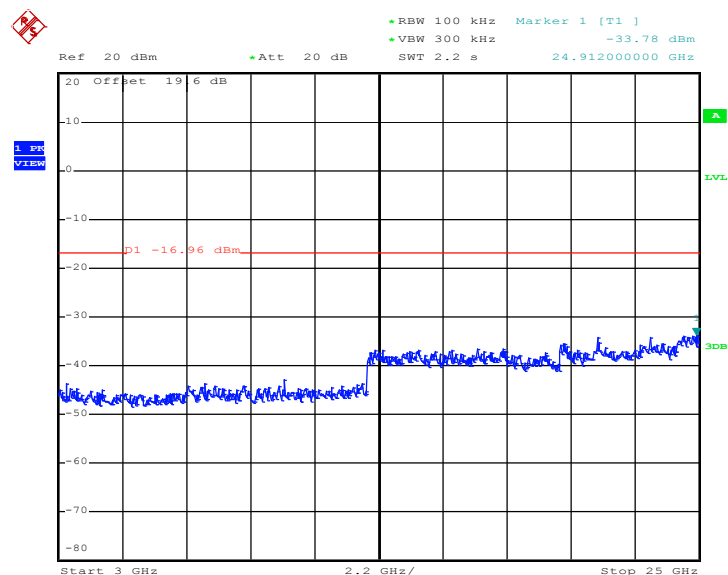
Test Mode :	Mode 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



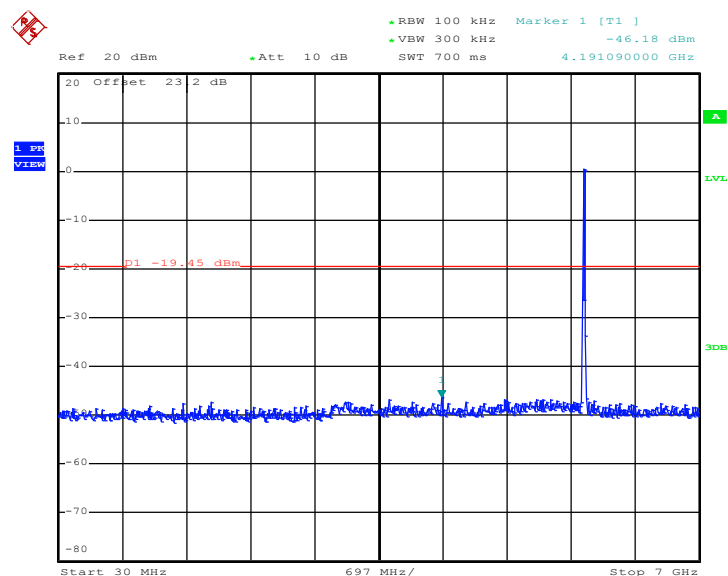
Date: 19.JUN.2011 16:46:53

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

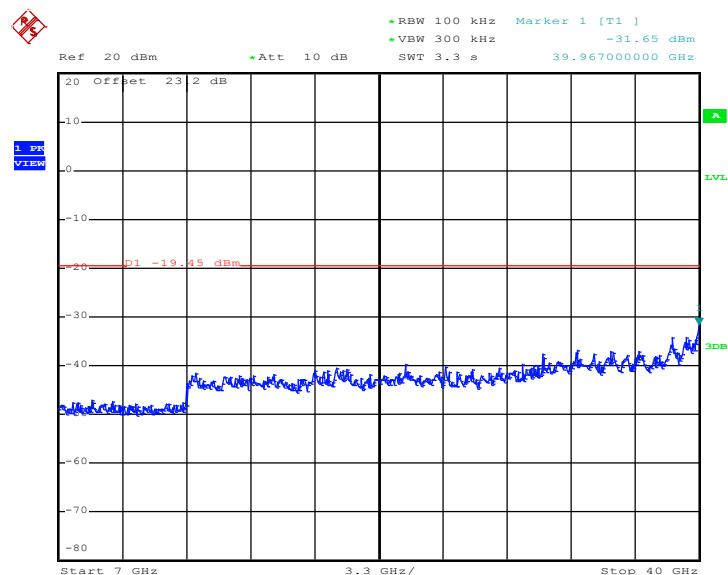


Date: 19.JUN.2011 16:47:11

Test Mode :	Mode 7	Temperature :	24~26°C
Test Band :	802.11a	Relative Humidity :	50~53%
Test Channel :	149	Test Engineer :	Hank Yu

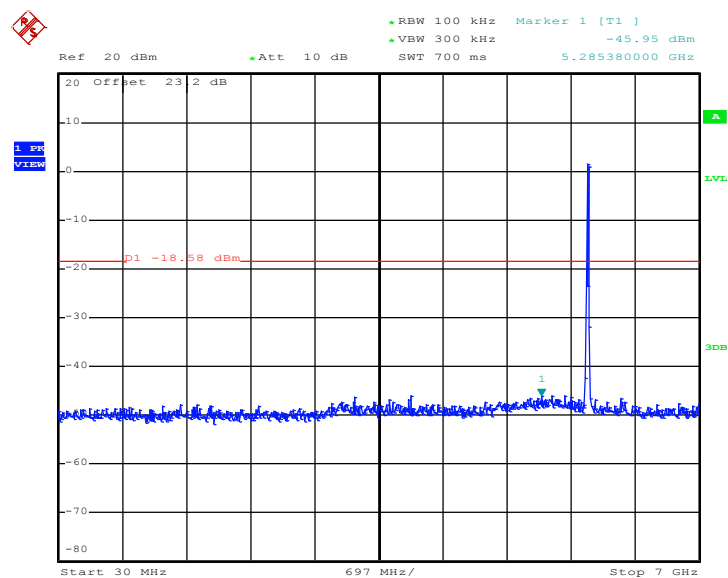
Conducted Spurious Emission Plot between 30MHz ~ 7 GHz


Date: 20.JUN.2011 16:46:02

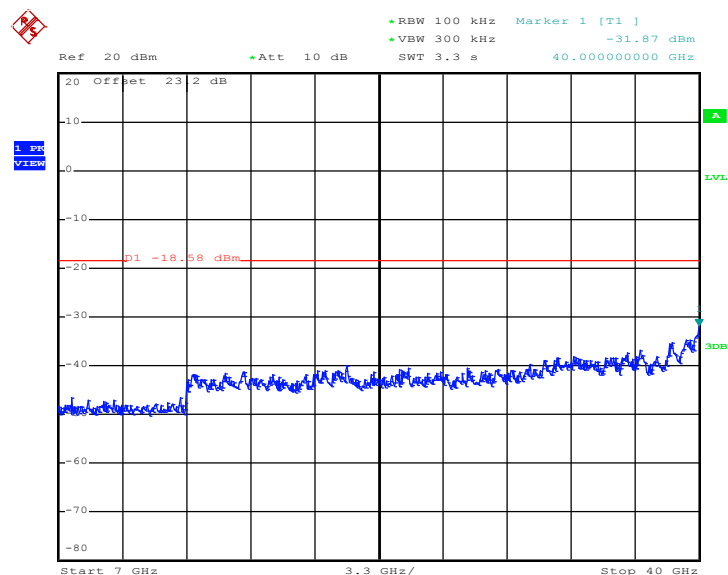
Conducted Spurious Emission Plot between 7 GHz ~ 40 Hz


Date: 20.JUN.2011 16:46:22

Test Mode :	Mode 8	Temperature :	24~26°C
Test Band :	802.11a	Relative Humidity :	50~53%
Test Channel :	157	Test Engineer :	Hank Yu

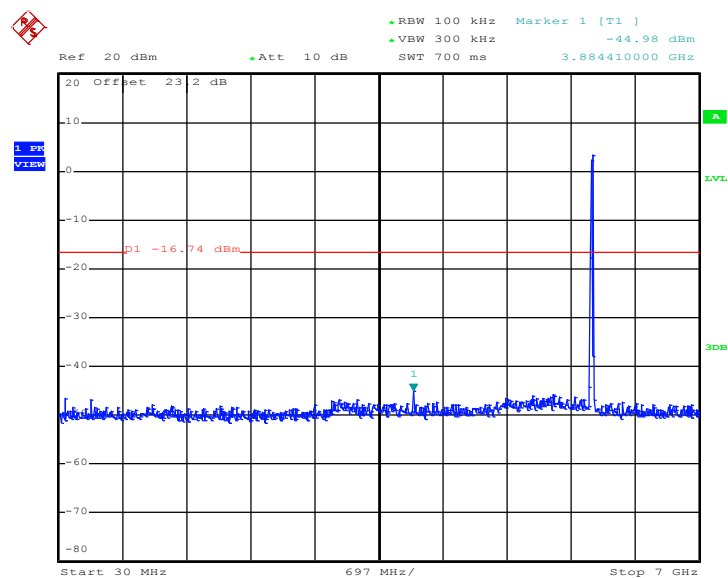
Conducted Spurious Emission Plot between 30MHz ~ 7 GHz


Date: 20.JUN.2011 16:42:44

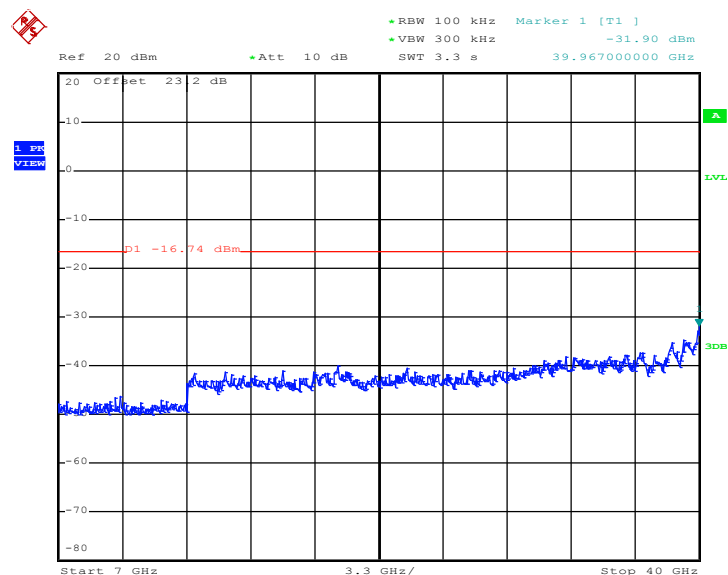
Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz


Date: 20.JUN.2011 16:43:01

Test Mode :	Mode 9	Temperature :	24~26°C
Test Band :	802.11a	Relative Humidity :	50~53%
Test Channel :	165	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz


Date: 20.JUN.2011 16:47:44

Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz


Date: 20.JUN.2011 16:48:01

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 3 kHz band at any time interval of continuous transmission.

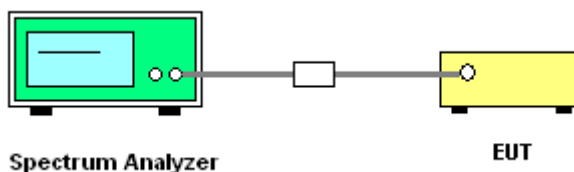
3.5.2 Measuring Instruments

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

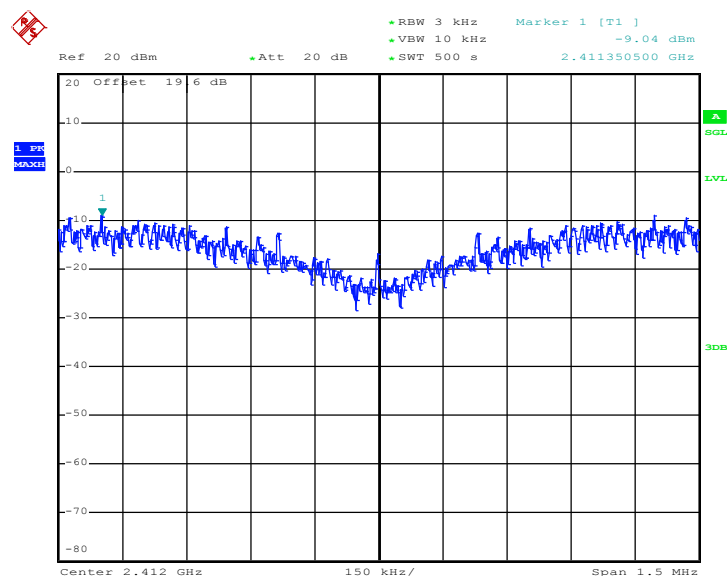


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Hank Yu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-9.04	8	Pass
06	2437	-8.75	8	Pass
11	2462	-9.24	8	Pass

Mode 1 : PSD Plot on 802.11b Channel 01



Date: 19.JUN.2011 15:55:50



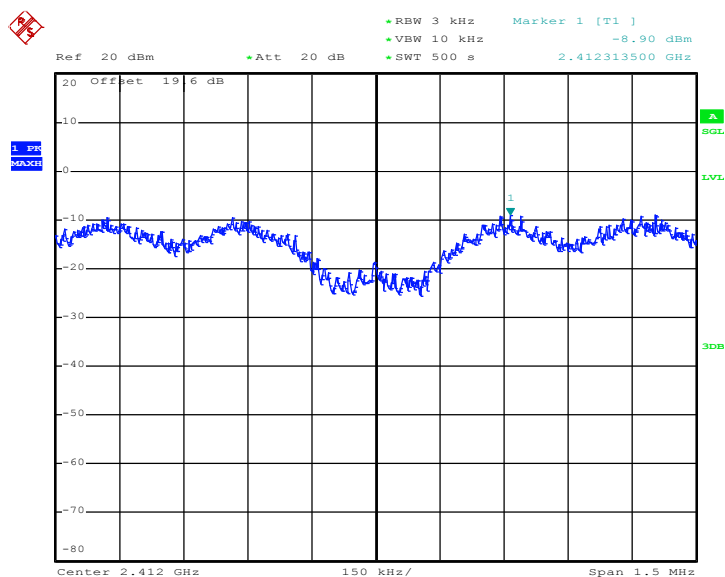
Mode 3 : PSD Plot on 802.11b Channel 11





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

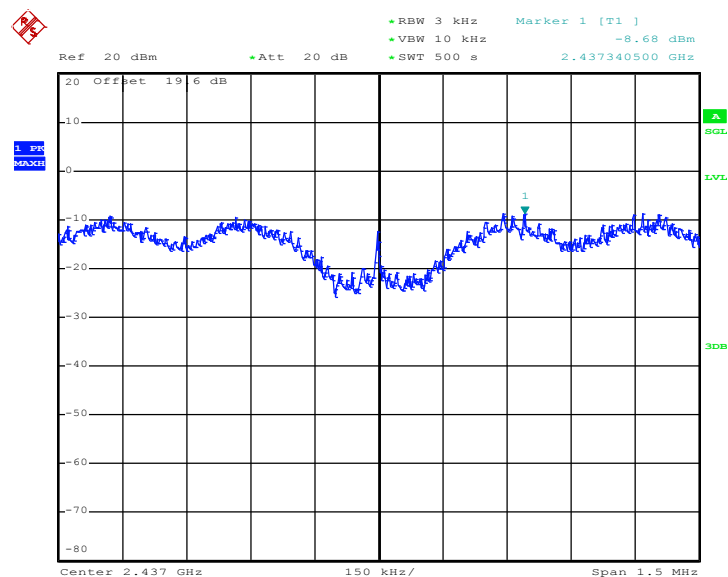
Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-8.90	8	Pass
06	2437	-8.68	8	Pass
11	2462	-9.08	8	Pass

Mode 4 : PSD Plot on 802.11g Channel 01

Date: 19.JUN.2011 16:43:40

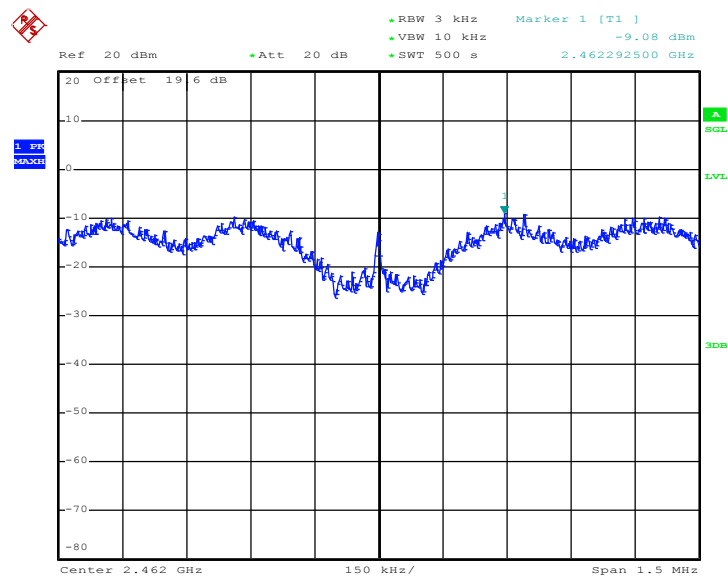


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 19.JUN.2011 16:30:38

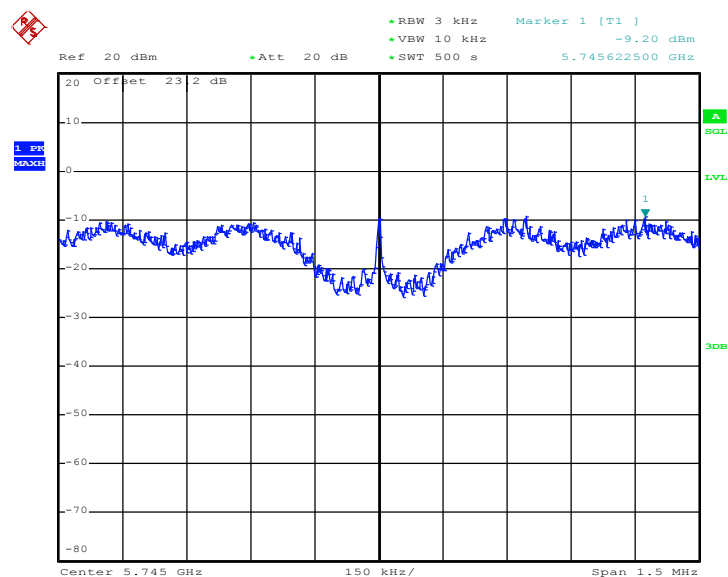
Mode 6 : PSD Plot on 802.11g Channel 11



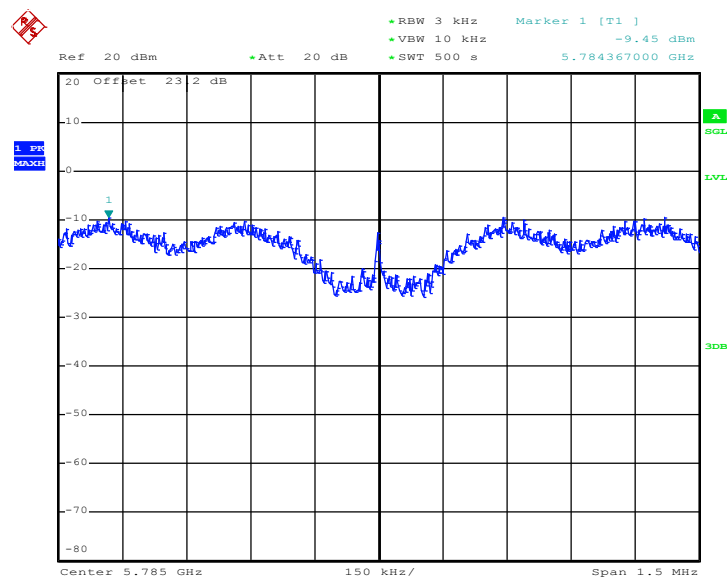
Date: 19.JUN.2011 16:55:44

Test Mode :	Mode 7, 8, 9	Temperature :	24~26
Test Engineer :	Hank Yu	Relative Humidity :	50~53

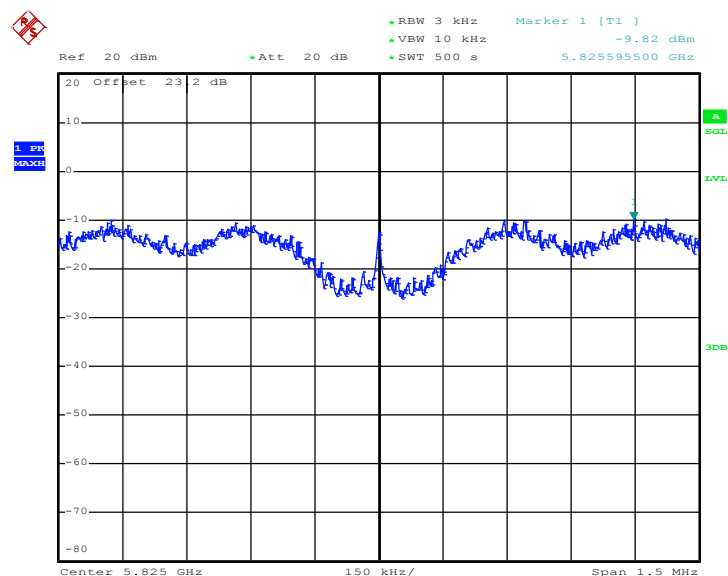
Channel	Frequency (MHz)	802.11a Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	-9.20	8	Pass
157	5785	-9.45	8	Pass
165	5825	-9.82	8	Pass

Mode 7 : PSD Plot on 802.11a Channel 149


Date: 19.JUN.2011 17:39:13

Mode 8 : PSD Plot on 802.11a Channel 157


Date: 19.JUN.2011 17:28:29

Mode 9 : PSD Plot on 802.11a Channel 165


Date: 19.JUN.2011 17:48:11

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

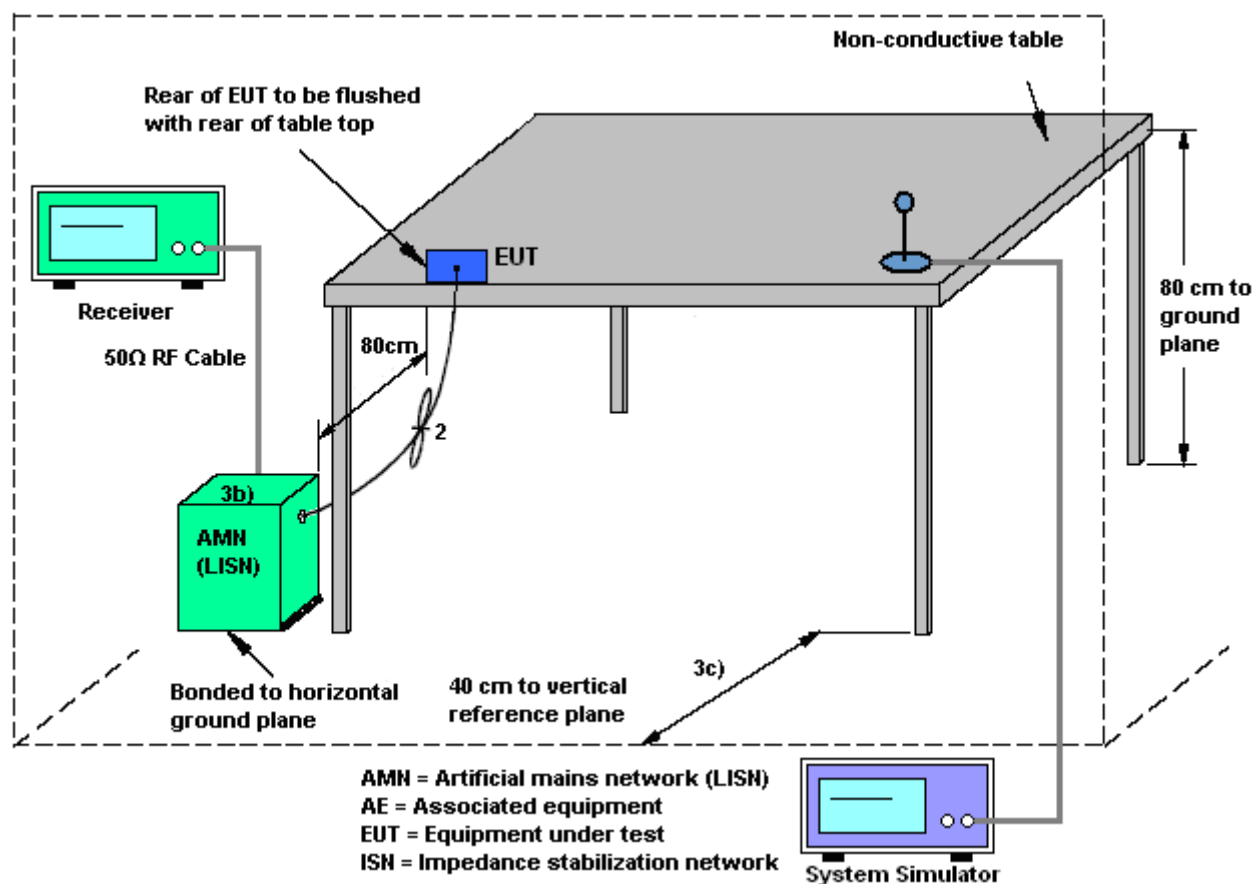
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

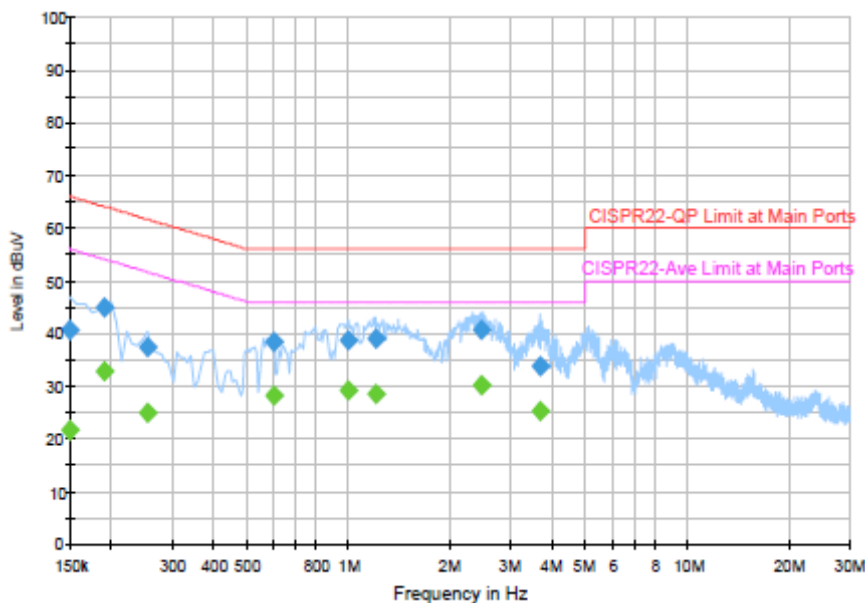
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	21~23°C
Test Engineer :	Novic Chiang	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band V Idle + WLAN (2.4G) Link + Bluetooth Link + MPEG4 + USB Cradle + USB Cable (Link with Notebook) + Adapter + USB Dongle		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



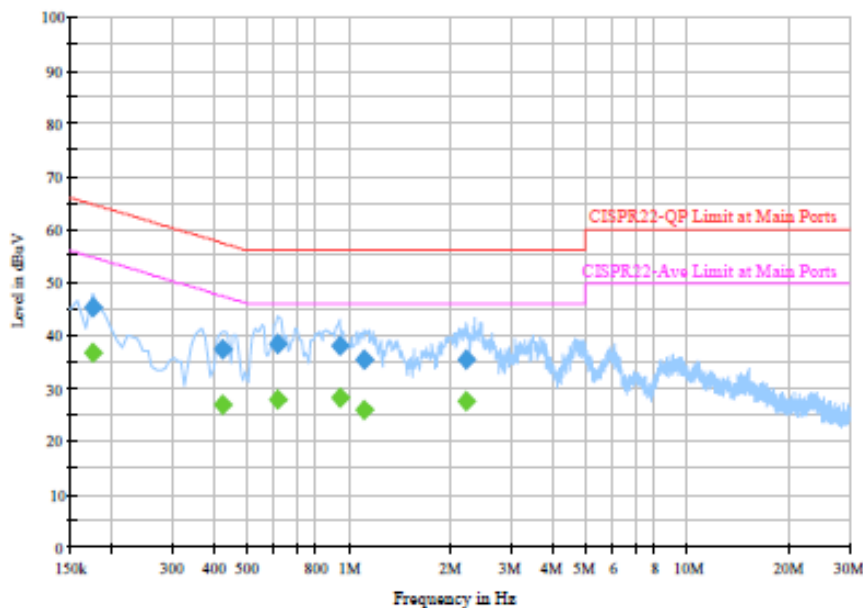
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	40.5	Off	L1	19.4	25.5	66.0
0.190000	44.9	Off	L1	19.4	19.1	64.0
0.254000	37.3	Off	L1	19.4	24.3	61.6
0.598000	38.2	Off	L1	19.4	17.8	56.0
0.990000	38.5	Off	L1	19.4	17.5	56.0
1.198000	38.9	Off	L1	19.4	17.1	56.0
2.462000	40.5	Off	L1	19.4	15.5	56.0
3.646000	33.8	Off	L1	19.5	22.2	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	21.8	Off	L1	19.4	34.2	56.0
0.190000	32.8	Off	L1	19.4	21.2	54.0
0.254000	25.0	Off	L1	19.4	26.6	51.6
0.598000	28.3	Off	L1	19.4	17.7	46.0
0.990000	29.2	Off	L1	19.4	16.8	46.0
1.198000	28.4	Off	L1	19.4	17.6	46.0
2.462000	30.3	Off	L1	19.4	15.7	46.0
3.646000	25.1	Off	L1	19.5	20.9	46.0

Test Mode :	Mode 1	Temperature :	21~23°C
Test Engineer :	Novic Chiang	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band V Idle + WLAN (2.4G) Link + Bluetooth Link + MPEG4 + USB Cradle + USB Cable (Link with Notebook) + Adapter + USB Dongle		
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)
0.174000	45.1	Off	N	19.4	19.7	64.8
0.422000	37.4	Off	N	19.5	20.0	57.4
0.614000	38.5	Off	N	19.4	17.5	56.0
0.934000	38.0	Off	N	19.4	18.0	56.0
1.110000	35.3	Off	N	19.5	20.7	56.0
2.222000	35.5	Off	N	19.5	20.5	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	36.9	Off	N	19.4	17.9	54.8
0.422000	26.8	Off	N	19.5	20.6	47.4
0.614000	27.7	Off	N	19.4	18.3	46.0
0.934000	28.4	Off	N	19.4	17.6	46.0
1.110000	25.8	Off	N	19.5	20.2	46.0
2.222000	27.4	Off	N	19.5	18.6	46.0

3.7 Radiated Emission Measurement

3.7.1 Limit of Radiated Emission

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

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

3.7.2 Measuring Instruments

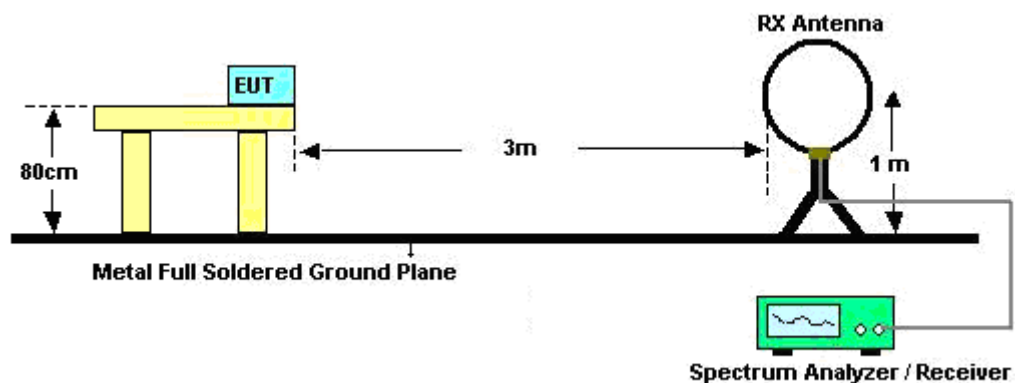
See list of measuring instruments of this test report.

3.7.3 Test Procedures

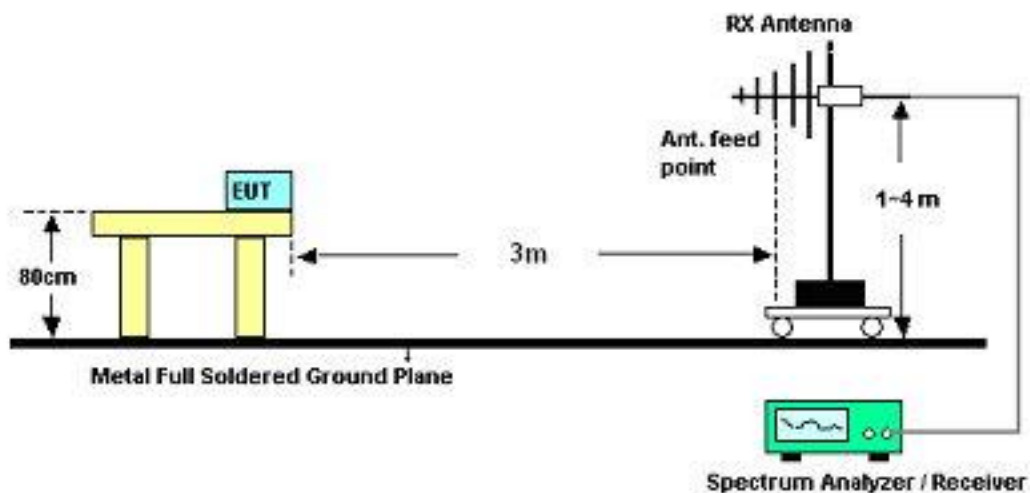
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep =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

3.7.4 Test Setup

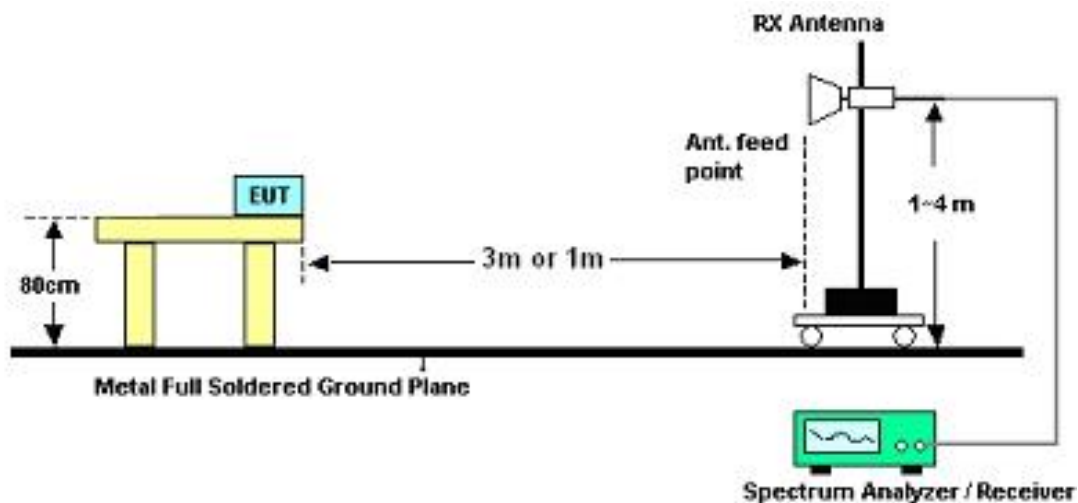
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

Test Engineer :	Brian Chang	Temperature :	23~25℃	
		Relative Humidity :	49~51%	

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)

<Antenna 1>

Test Mode :	Mode 1	Temperature :	23~25℃
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Horizontal
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 1880 MHz is not within a restricted band.		

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
182.01	35.73	-7.77	43.5	57.32	8.5	1.41	31.5	108	41	Peak
234.12	35.24	-10.76	46	54.63	10.52	1.59	31.5	-	-	Peak
286.23	35.09	-10.91	46	52.65	12.03	1.75	31.34	-	-	Peak
311.9	34.42	-11.58	46	51.4	12.49	1.81	31.28	-	-	Peak
337.8	34.51	-11.49	46	50.8	13.14	1.87	31.3	-	-	Peak
389.6	31.57	-14.43	46	46.28	14.51	1.99	31.21	-	-	Peak
1880	48.51	-36.35	84.86	48.01	30.53	4.15	34.18	152	309	Peak
2385.81	40.91	-13.09	54	38.71	31.7	4.58	34.08	152	309	Average
2385.81	49.91	-24.09	74	47.71	31.7	4.58	34.08	152	309	Peak
2412	100.98	-	-	98.76	31.71	4.59	34.08	152	309	Average
2412	104.86	-	-	102.64	31.71	4.59	34.08	152	309	Peak
2498	35.64	-18.36	54	33.28	31.8	4.64	34.08	152	309	Average
2498	47.06	-26.94	74	44.7	31.8	4.64	34.08	152	309	Peak
4824	48.96	-5.04	54	67.14	33.77	6.51	58.46	100	186	Average
4824	51.78	-22.22	74	69.96	33.77	6.51	58.46	100	186	Peak

Test Mode :	Mode 1	Temperature :	23~25°C
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Vertical
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 1882 MHz is not within a restricted band.		

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
129.9	26.86	-16.64	43.5	46.29	10.87	1.22	31.52	-	-	Peak
182.01	33.35	-10.15	43.5	54.94	8.5	1.41	31.5	139	114	Peak
234.12	24.05	-21.95	46	43.44	10.52	1.59	31.5	-	-	Peak
311.9	24.84	-21.16	46	41.82	12.49	1.81	31.28	-	-	Peak
754.3	26.33	-19.67	46	33.95	20.16	2.76	30.54	-	-	Peak
835.5	24.93	-21.07	46	31.26	21.29	2.89	30.51	-	-	Peak
1882	48.2	-34.79	82.99	47.7	30.53	4.15	34.18	100	68	Peak
2385.62	38.63	-15.37	54	36.43	31.7	4.58	34.08	100	68	Average
2385.62	48.59	-25.41	74	46.39	31.7	4.58	34.08	100	68	Peak
2412	98.62	-	-	96.4	31.71	4.59	34.08	100	68	Average
2412	102.99	-	-	100.77	31.71	4.59	34.08	100	68	Peak
2500	35.58	-18.42	54	33.22	31.8	4.64	34.08	100	68	Average
2500	47.28	-26.72	74	44.92	31.8	4.64	34.08	100	68	Peak
4824	49.9	-24.1	74	68.08	33.77	6.51	58.46	100	0	Peak

Test Mode :	Mode 2	Temperature :	23~25°C
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 1882 MHz is not within a restricted band.		

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
182.01	35.88	-7.62	43.5	57.47	8.5	1.41	31.5	121	106	Peak
234.12	35.22	-10.78	46	54.61	10.52	1.59	31.5	-	-	Peak
286.23	34.99	-11.01	46	52.55	12.03	1.75	31.34	-	-	Peak
337.8	34.46	-11.54	46	50.75	13.14	1.87	31.3	-	-	Peak
493.9	28.57	-17.43	46	40.52	16.92	2.22	31.09	-	-	Peak
835.5	30.82	-15.18	46	37.15	21.29	2.89	30.51	-	-	Peak
1882	48.64	-34.8	83.44	48.14	30.53	4.15	34.18	151	313	Peak
2324	36.29	-17.71	54	34.22	31.63	4.53	34.09	151	313	Average
2324	48.22	-25.78	74	46.15	31.63	4.53	34.09	151	313	Peak
2437	99.57	-	-	97.29	31.75	4.61	34.08	151	313	Average
2437	103.44	-	-	101.16	31.75	4.61	34.08	151	313	Peak
2484	33.23	-20.77	54	30.89	31.78	4.64	34.08	151	313	Average
2484	45.86	-28.14	74	43.52	31.78	4.64	34.08	151	313	Peak
4874	50.44	-23.56	74	68.49	33.78	6.53	58.36	100	0	Peak

Test Mode :	Mode 2	Temperature :	23~25℃
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 1882 MHz is not within a restricted band.		

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
129.9	26.54	-16.96	43.5	45.97	10.87	1.22	31.52	-	-	Peak
182.01	33.53	-9.97	43.5	55.12	8.5	1.41	31.5	103	347	Peak
234.12	24.7	-21.3	46	44.09	10.52	1.59	31.5	-	-	Peak
389.6	23.4	-22.6	46	38.11	14.51	1.99	31.21	-	-	Peak
571.6	23.3	-22.7	46	33.61	18.24	2.37	30.92	-	-	Peak
754.3	25.85	-20.15	46	33.47	20.16	2.76	30.54	-	-	Peak
1882	47.67	-33.27	80.94	47.17	30.53	4.15	34.18	100	67	Peak
2348	36.31	-17.69	54	34.21	31.64	4.55	34.09	100	67	Average
2348	46.75	-27.25	74	44.65	31.64	4.55	34.09	100	67	Peak
2437	97.12	-	-	94.84	31.75	4.61	34.08	100	67	Average
2437	100.94	-	-	98.66	31.75	4.61	34.08	100	67	Peak
2488	33.19	-20.81	54	30.83	31.8	4.64	34.08	100	67	Average
2488	44.38	-29.62	74	42.02	31.8	4.64	34.08	100	67	Peak
4874	49.56	-24.44	74	67.61	33.78	6.53	58.36	100	0	Peak

Test Mode :	Mode 3	Temperature :	23~25°C
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Horizontal
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 1898 MHz is not within a restricted band.		

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
182.01	36.02	-7.48	43.5	57.61	8.5	1.41	31.5	109	306	Peak
234.12	35.46	-10.54	46	54.85	10.52	1.59	31.5	-	-	Peak
286.23	34.74	-11.26	46	52.3	12.03	1.75	31.34	-	-	Peak
337.8	33.86	-12.14	46	50.15	13.14	1.87	31.3	-	-	Peak
389.6	30.69	-15.31	46	45.4	14.51	1.99	31.21	-	-	Peak
806.1	30.39	-15.61	46	37.03	21.06	2.84	30.54	-	-	Peak
1898	50.4	-32.87	83.27	49.79	30.64	4.15	34.18	180	312	Peak
2374	36.45	-17.55	54	34.28	31.68	4.57	34.08	180	312	Average
2374	47.95	-26.05	74	45.78	31.68	4.57	34.08	180	312	Peak
2462	99.33	-	-	97.02	31.77	4.62	34.08	180	312	Average
2462	103.27	-	-	100.96	31.77	4.62	34.08	180	312	Peak
2488.03	45.49	-8.51	54	43.13	31.8	4.64	34.08	180	312	Average
2488.03	53.94	-20.06	74	51.58	31.8	4.64	34.08	180	312	Peak
4924	48.9	-25.1	74	66.81	33.79	6.56	58.26	100	0	Peak

Test Mode :	Mode 3	Temperature :	23~25℃
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Vertical
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 1882 MHz is not within a restricted band.		

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
129.9	26.28	-17.22	43.5	45.71	10.87	1.22	31.52	-	-	Peak
182.01	33.35	-10.15	43.5	54.94	8.5	1.41	31.5	133	258	Peak
234.12	24.83	-21.17	46	44.22	10.52	1.59	31.5	-	-	Peak
311.9	23.81	-22.19	46	40.79	12.49	1.81	31.28	-	-	Peak
389.6	22.84	-23.16	46	37.55	14.51	1.99	31.21	-	-	Peak
860.7	26.45	-19.55	46	32.53	21.48	2.94	30.5	-	-	Peak
1882	46.17	-34.53	80.7	45.67	30.53	4.15	34.18	100	65	Peak
2350	36.05	-17.95	54	33.95	31.64	4.55	34.09	100	65	Average
2350	46.8	-27.2	74	44.7	31.64	4.55	34.09	100	65	Peak
2462	96.81	-	-	94.5	31.77	4.62	34.08	100	65	Average
2462	100.7	-	-	98.39	31.77	4.62	34.08	100	65	Peak
2487.46	43.23	-10.77	54	40.89	31.78	4.64	34.08	100	65	Average
2487.46	51.39	-22.61	74	49.05	31.78	4.64	34.08	100	65	Peak
4924	49.42	-24.58	74	67.33	33.79	6.56	58.26	100	0	Peak

<Antenna 2>

Test Mode :	Mode 4	Temperature :	23~25℃
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Horizontal
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 1882 MHz is not within a restricted band.		

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
182.01	36.06	-7.44	43.5	57.65	8.5	1.41	31.5	102	168	Peak
234.12	35.18	-10.82	46	54.57	10.52	1.59	31.5	-	-	Peak
286.23	37.21	-8.79	46	54.77	12.03	1.75	31.34	-	-	Peak
311.9	35.32	-10.68	46	52.3	12.49	1.81	31.28	-	-	Peak
337.8	34.49	-11.51	46	50.78	13.14	1.87	31.3	-	-	Peak
832	32.16	-13.84	46	38.52	21.26	2.89	30.51	-	-	Peak
1882	49.72	-35.11	84.83	49.22	30.53	4.15	34.18	115	360	Peak
2386.57	43.92	-10.08	54	41.72	31.7	4.58	34.08	115	360	Average
2386.57	51.95	-22.05	74	49.75	31.7	4.58	34.08	115	360	Peak
2412	100.99	-	-	98.77	31.71	4.59	34.08	115	360	Average
2412	104.83	-	-	102.61	31.71	4.59	34.08	115	360	Peak
2500	39.38	-14.62	54	37.02	31.8	4.64	34.08	115	360	Average
2500	49.57	-24.43	74	47.21	31.8	4.64	34.08	115	360	Peak
4824	50.98	-3.02	54	69.16	33.77	6.51	58.46	114	213	Average
4824	52.65	-21.35	74	70.83	33.77	6.51	58.46	114	213	Peak

Test Mode :	Mode 4	Temperature :	23~25℃
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Vertical
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 1902.75 MHz is not within a restricted band.		

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
182.01	22.2	-21.3	43.5	43.79	8.5	1.41	31.5	-	-	Peak
234.12	25.66	-20.34	46	45.05	10.52	1.59	31.5	-	-	Peak
286.23	23.41	-22.59	46	40.97	12.03	1.75	31.34	-	-	Peak
545.7	25.47	-20.53	46	36.28	17.83	2.32	30.96	-	-	Peak
806.1	26.07	-19.93	46	32.71	21.06	2.84	30.54	-	-	Peak
860.7	26.66	-19.34	46	32.74	21.48	2.94	30.5	133	201	Peak
1902.75	48.15	-32.63	80.78	80.04	0	4.19	36.08	100	182	Peak
2386	37.87	-16.13	54	35.67	31.7	4.58	34.08	100	182	Average
2386	47.74	-26.26	74	45.54	31.7	4.58	34.08	100	182	Peak
2412	96.13	-	-	93.91	31.71	4.59	34.08	100	182	Average
2412	100.78	-	-	98.56	31.71	4.59	34.08	100	182	Peak
2498	35.15	-18.85	54	32.79	31.8	4.64	34.08	100	182	Average
2498	46.52	-27.48	74	44.16	31.8	4.64	34.08	100	182	Peak
4824	50.59	-3.41	54	68.77	33.77	6.51	58.46	104	37	Average
4824	52.35	-21.65	74	70.53	33.77	6.51	58.46	104	37	Peak

Test Mode :	Mode 5	Temperature :	23~25°C
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 1884 MHz is not within a restricted band.		

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
182.01	36.13	-7.37	43.5	57.72	8.5	1.41	31.5	107	222	Peak
234.12	35.27	-10.73	46	54.66	10.52	1.59	31.5	-	-	Peak
286.23	37.34	-8.66	46	54.9	12.03	1.75	31.34	-	-	Peak
311.9	35.26	-10.74	46	52.24	12.49	1.81	31.28	-	-	Peak
337.8	34.46	-11.54	46	50.75	13.14	1.87	31.3	-	-	Peak
806.1	31.77	-14.23	46	38.41	21.06	2.84	30.54	-	-	Peak
1884	49.2	-36.27	85.47	48.7	30.53	4.15	34.18	120	360	Peak
2352	34.44	-19.56	54	32.32	31.66	4.55	34.09	120	360	Average
2352	46.76	-27.24	74	44.64	31.66	4.55	34.09	120	360	Peak
2437	101.17	-	-	98.89	31.75	4.61	34.08	120	360	Average
2437	105.47	-	-	103.19	31.75	4.61	34.08	120	360	Peak
2484	38.27	-15.73	54	35.93	31.78	4.64	34.08	120	360	Average
2484	49.54	-24.46	74	47.2	31.78	4.64	34.08	120	360	Peak
4874	50.65	-3.35	54	68.7	33.78	6.53	58.36	102	5	Average
4874	52.21	-21.79	74	70.26	33.78	6.53	58.36	102	5	Peak

Test Mode :	Mode 5	Temperature :	23~25°C
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 1882 MHz is not within a restricted band.		

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
129.9	24.72	-18.78	43.5	44.15	10.87	1.22	31.52	-	-	Peak
182.01	27.2	-16.3	43.5	48.79	8.5	1.41	31.5	147	325	Peak
234.12	27.27	-18.73	46	46.66	10.52	1.59	31.5	-	-	Peak
545.7	25.38	-20.62	46	36.19	17.83	2.32	30.96	-	-	Peak
780.2	27.02	-18.98	46	34.12	20.64	2.8	30.54	-	-	Peak
860.7	26.42	-19.58	46	32.5	21.48	2.94	30.5	-	-	Peak
1882	47.46	-32.78	80.24	46.96	30.53	4.15	34.18	127	186	Peak
2356	32.59	-21.41	54	30.47	31.66	4.55	34.09	127	186	Average
2356	44.33	-29.67	74	42.21	31.66	4.55	34.09	127	186	Peak
2437	96.3	-	-	94.02	31.75	4.61	34.08	127	186	Average
2437	100.24	-	-	97.96	31.75	4.61	34.08	127	186	Peak
2494	33.95	-20.05	54	31.59	31.8	4.64	34.08	127	186	Average
2494	46.81	-27.19	74	44.45	31.8	4.64	34.08	127	186	Peak
4874	49.98	-4.02	54	68.03	33.78	6.53	58.36	100	331	Average
4874	51.88	-22.12	74	69.93	33.78	6.53	58.36	100	331	Peak

Test Mode :	Mode 6	Temperature :	23~25°C
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Horizontal
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 1882 MHz is not within a restricted band.		

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
182.01	35.98	-7.52	43.5	57.57	8.5	1.41	31.5	105	110	Peak
234.12	35.52	-10.48	46	54.91	10.52	1.59	31.5	-	-	Peak
286.23	37.33	-8.67	46	54.89	12.03	1.75	31.34	-	-	Peak
311.9	34.58	-11.42	46	51.56	12.49	1.81	31.28	-	-	Peak
337.8	34.58	-11.42	46	50.87	13.14	1.87	31.3	-	-	Peak
832	32.15	-13.85	46	38.51	21.26	2.89	30.51	-	-	Peak
1882	50.21	-36.23	86.44	49.71	30.53	4.15	34.18	117	359	Peak
2378	35.13	-18.87	54	32.96	31.68	4.57	34.08	117	359	Average
2378	46.64	-27.36	74	44.47	31.68	4.57	34.08	117	359	Peak
2462	102.6	-	-	100.29	31.77	4.62	34.08	117	359	Average
2462	106.44	-	-	104.13	31.77	4.62	34.08	117	359	Peak
2487.84	47.99	-6.01	54	45.63	31.8	4.64	34.08	117	359	Average
2487.84	55.68	-18.32	74	53.32	31.8	4.64	34.08	117	359	Peak
4924	49.19	-24.81	74	67.1	33.79	6.56	58.26	100	0	Peak

Test Mode :	Mode 6	Temperature :	23~25°C
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Vertical
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 1882 MHz is not within a restricted band.		

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
182.01	27.52	-15.98	43.5	49.11	8.5	1.41	31.5	141	321	Peak
234.12	27.01	-18.99	46	46.4	10.52	1.59	31.5	-	-	Peak
286.23	24.26	-21.74	46	41.82	12.03	1.75	31.34	-	-	Peak
337.8	23.89	-22.11	46	40.18	13.14	1.87	31.3	-	-	Peak
545.7	25.98	-20.02	46	36.79	17.83	2.32	30.96	-	-	Peak
860.7	27.81	-18.19	46	33.89	21.48	2.94	30.5	-	-	Peak
1882	48.17	-34.36	82.53	47.67	30.53	4.15	34.18	100	177	Peak
2376	33.45	-20.55	54	31.28	31.68	4.57	34.08	100	177	Average
2376	45.75	-28.25	74	43.58	31.68	4.57	34.08	100	177	Peak
2462	98.93	-	-	96.62	31.77	4.62	34.08	100	177	Average
2462	102.53	-	-	100.22	31.77	4.62	34.08	100	177	Peak
2483.5	41.72	-12.28	54	39.38	31.78	4.64	34.08	100	177	Average
2483.5	48.7	-25.3	74	46.36	31.78	4.64	34.08	100	177	Peak
4924	48.81	-25.19	74	66.72	33.79	6.56	58.26	100	0	Peak

<Antenna 1>

Test Mode :	Mode 7	Temperature :	23~25℃
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Horizontal
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 1898 MHz is not within a restricted band.		

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
182.01	35.9	-7.6	43.5	57.49	8.5	1.41	31.5	152	248	Peak
234.12	35.39	-10.61	46	54.78	10.52	1.59	31.5	-	-	Peak
286.23	34.96	-11.04	46	52.52	12.03	1.75	31.34	-	-	Peak
311.9	34.53	-11.47	46	51.51	12.49	1.81	31.28	-	-	Peak
442.1	29.31	-16.69	46	42.6	15.74	2.12	31.15	-	-	Peak
860.7	30.44	-15.56	46	36.52	21.48	2.94	30.5	-	-	Peak
1898	52.18	-33.43	85.61	51.57	30.64	4.15	34.18	183	316	Peak
2389.42	47.36	-6.64	54	45.16	31.7	4.58	34.08	183	316	Average
2389.42	65.1	-8.9	74	62.9	31.7	4.58	34.08	183	316	Peak
2412	95.82	-	-	93.6	31.71	4.59	34.08	183	316	Average
2412	105.61	-	-	103.39	31.71	4.59	34.08	183	316	Peak
2498	35.52	-18.48	54	33.16	31.8	4.64	34.08	183	316	Average
2498	48.54	-25.46	74	46.18	31.8	4.64	34.08	183	316	Peak
4824	45.12	-28.88	74	63.3	33.77	6.51	58.46	100	0	Peak

Test Mode :	Mode 7	Temperature :	23~25°C
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Vertical
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 1882 MHz is not within a restricted band.		

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
129.9	26.19	-17.31	43.5	45.62	10.87	1.22	31.52	-	-	Peak
182.01	33.2	-10.3	43.5	54.79	8.5	1.41	31.5	103	25	Peak
234.12	24.3	-21.7	46	43.69	10.52	1.59	31.5	-	-	Peak
311.9	24.1	-21.9	46	41.08	12.49	1.81	31.28	-	-	Peak
754.3	26.33	-19.67	46	33.95	20.16	2.76	30.54	-	-	Peak
884.5	25.87	-20.13	46	31.72	21.66	2.98	30.49	-	-	Peak
1882	46.34	-36.77	83.11	45.84	30.53	4.15	34.18	100	66	Peak
2389.61	44.14	-9.86	54	41.94	31.7	4.58	34.08	100	66	Average
2389.61	61.54	-12.46	74	59.34	31.7	4.58	34.08	100	66	Peak
2412	94.05	-	-	91.83	31.71	4.59	34.08	100	66	Average
2412	103.11	-	-	100.89	31.71	4.59	34.08	100	66	Peak
2496	45.43	-8.57	54	43.07	31.8	4.64	34.08	100	66	Average
2496	47.16	-26.84	74	44.8	31.8	4.64	34.08	100	66	Peak
4824	45.56	-28.44	74	63.74	33.77	6.51	58.46	100	0	Peak

Test Mode :	Mode 8	Temperature :	23~25°C
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 1900 MHz is not within a restricted band.		

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
182.01	36.07	-7.43	43.5	57.66	8.5	1.41	31.5	100	304	Peak
234.12	35.27	-10.73	46	54.66	10.52	1.59	31.5	-	-	Peak
286.23	34.78	-11.22	46	52.34	12.03	1.75	31.34	-	-	Peak
311.9	33.87	-12.13	46	50.85	12.49	1.81	31.28	-	-	Peak
337.8	33.44	-12.56	46	49.73	13.14	1.87	31.3	-	-	Peak
835.5	31.83	-14.17	46	38.16	21.29	2.89	30.51	-	-	Peak
1900	53.44	-31.62	85.06	52.77	30.64	4.19	34.16	184	308	Peak
2390	38.43	-15.57	54	36.23	31.7	4.58	34.08	184	308	Average
2390	51.02	-22.98	74	48.82	31.7	4.58	34.08	184	308	Peak
2437	95.4	-	-	93.12	31.75	4.61	34.08	184	308	Average
2437	105.06	-	-	102.78	31.75	4.61	34.08	184	308	Peak
2490	35.19	-18.81	54	32.83	31.8	4.64	34.08	184	308	Average
2490	47.72	-26.28	74	45.36	31.8	4.64	34.08	184	308	Peak
4874	46.71	-27.29	74	64.76	33.78	6.53	58.36	100	0	Peak



Test Mode :	Mode 8	Temperature :	23~25℃
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 1882 MHz is not within a restricted band.		

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
129.9	26.38	-17.12	43.5	45.81	10.87	1.22	31.52	-	-	Peak
182.01	33.16	-10.34	43.5	54.75	8.5	1.41	31.5	111	89	Peak
234.12	24.39	-21.61	46	43.78	10.52	1.59	31.5	-	-	Peak
311.9	23.51	-22.49	46	40.49	12.49	1.81	31.28	-	-	Peak
754.3	26.19	-19.81	46	33.81	20.16	2.76	30.54	-	-	Peak
835.5	26.93	-19.07	46	33.26	21.29	2.89	30.51	-	-	Peak
1882	47.07	-36.22	83.29	46.57	30.53	4.15	34.18	100	68	Peak
2342	38.62	-15.38	54	36.52	31.64	4.55	34.09	100	68	Average
2342	49.97	-24.03	74	47.87	31.64	4.55	34.09	100	68	Peak
2437	93.54	-	-	91.26	31.75	4.61	34.08	100	68	Average
2437	103.29	-	-	101.01	31.75	4.61	34.08	100	68	Peak
2494	34.62	-19.38	54	32.26	31.8	4.64	34.08	100	68	Average
2494	46.3	-27.7	74	43.94	31.8	4.64	34.08	100	68	Peak
4874	45.94	-28.06	74	63.99	33.78	6.53	58.36	100	0	Peak

Test Mode :	Mode 9	Temperature :	23~25℃
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Horizontal
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 1900 MHz is not within a restricted band.		

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
182.01	36.65	-6.85	43.5	58.24	8.5	1.41	31.5	102	334	Peak
234.12	34.9	-11.1	46	54.29	10.52	1.59	31.5	-	-	Peak
286.23	34.38	-11.62	46	51.94	12.03	1.75	31.34	-	-	Peak
311.9	33.77	-12.23	46	50.75	12.49	1.81	31.28	-	-	Peak
337.8	34.37	-11.63	46	50.66	13.14	1.87	31.3	-	-	Peak
806.1	30.72	-15.28	46	37.36	21.06	2.84	30.54	-	-	Peak
1900	52.97	-32.02	84.99	52.3	30.64	4.19	34.16	182	310	Peak
2382	38.97	-15.03	54	36.79	31.68	4.58	34.08	182	310	Average
2382	51.57	-22.43	74	49.39	31.68	4.58	34.08	182	310	Peak
2462	95.06	-	-	92.75	31.77	4.62	34.08	182	310	Average
2462	104.99	-	-	102.68	31.77	4.62	34.08	182	310	Peak
2483.5	46.88	-7.12	54	44.54	31.78	4.64	34.08	182	310	Average
2483.5	62.18	-11.82	74	59.84	31.78	4.64	34.08	182	310	Peak
4924	45.35	-28.65	74	63.26	33.79	6.56	58.26	100	0	Peak

Test Mode :	Mode 9	Temperature :	23~25℃
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Vertical
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 1882 MHz is not within a restricted band.		

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
129.9	25.8	-17.7	43.5	45.23	10.87	1.22	31.52	-	-	Peak
182.01	32.75	-10.75	43.5	54.34	8.5	1.41	31.5	143	221	Peak
234.12	24.22	-21.78	46	43.61	10.52	1.59	31.5	-	-	Peak
311.9	23.17	-22.83	46	40.15	12.49	1.81	31.28	-	-	Peak
442.1	23.46	-22.54	46	36.75	15.74	2.12	31.15	-	-	Peak
860.7	26.76	-19.24	46	32.84	21.48	2.94	30.5	-	-	Peak
1882	47.56	-35.08	82.64	47.06	30.53	4.15	34.18	100	67	Peak
2380	37.88	-16.12	54	35.7	31.68	4.58	34.08	100	67	Average
2380	50.71	-23.29	74	48.53	31.68	4.58	34.08	100	67	Peak
2462	92.64	-	-	90.33	31.77	4.62	34.08	100	67	Average
2462	102.64	-	-	100.33	31.77	4.62	34.08	100	67	Peak
2484.8	43.84	-10.16	54	41.5	31.78	4.64	34.08	100	67	Average
2484.8	59.46	-14.54	74	57.12	31.78	4.64	34.08	100	67	Peak
4924	46.57	-27.43	74	64.48	33.79	6.56	58.26	100	0	Peak

<Antenna 2>

Test Mode :	Mode 10	Temperature :	23~25℃
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Horizontal
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 1882 MHz is not within a restricted band.		

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
182.01	36.1	-7.4	43.5	57.69	8.5	1.41	31.5	113	94	Peak
234.12	35.4	-10.6	46	54.79	10.52	1.59	31.5	-	-	Peak
286.23	37.34	-8.66	46	54.9	12.03	1.75	31.34	-	-	Peak
311.9	35.48	-10.52	46	52.46	12.49	1.81	31.28	-	-	Peak
337.8	34.45	-11.55	46	50.74	13.14	1.87	31.3	-	-	Peak
832	32	-14	46	38.36	21.26	2.89	30.51	-	-	Peak
1882	49.65	-36.62	86.27	49.15	30.53	4.15	34.18	114	360	Peak
2389.23	48.1	-5.9	54	45.9	31.7	4.58	34.08	114	360	Average
2389.23	65.36	-8.64	74	63.16	31.7	4.58	34.08	114	360	Peak
2412	96.24	-	-	94.02	31.71	4.59	34.08	114	360	Average
2412	106.27	-	-	104.05	31.71	4.59	34.08	114	360	Peak
2496	40.76	-13.24	54	38.4	31.8	4.64	34.08	114	360	Average
2496	53.5	-20.5	74	51.14	31.8	4.64	34.08	114	360	Peak
4824	49.84	-4.16	54	68.02	33.77	6.51	58.46	111	118	Average
4824	51.52	-22.48	74	69.7	33.77	6.51	58.46	111	118	Peak

Test Mode :	Mode 10	Temperature :	23~25°C
Test Channel :	01	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Vertical
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 1882 MHz is not within a restricted band.		

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
182.01	26.73	-16.77	43.5	48.32	8.5	1.41	31.5	148	253	Peak
234.12	27.17	-18.83	46	46.56	10.52	1.59	31.5	-	-	Peak
286.23	24.95	-21.05	46	42.51	12.03	1.75	31.34	-	-	Peak
545.7	26.42	-19.58	46	37.23	17.83	2.32	30.96	-	-	Peak
780.2	26.26	-19.74	46	33.36	20.64	2.8	30.54	-	-	Peak
860.7	27.06	-18.94	46	33.14	21.48	2.94	30.5	-	-	Peak
1882	48.56	-32.95	81.51	48.06	30.53	4.15	34.18	100	182	Peak
2389.42	41.55	-12.45	54	39.35	31.7	4.58	34.08	100	182	Average
2389.42	58.89	-15.11	74	56.69	31.7	4.58	34.08	100	182	Peak
2412	91.73	-	-	89.51	31.71	4.59	34.08	100	182	Average
2412	101.51	-	-	99.29	31.71	4.59	34.08	100	182	Peak
2500	35.89	-18.11	54	33.53	31.8	4.64	34.08	100	182	Average
2500	48.78	-25.22	74	46.42	31.8	4.64	34.08	100	182	Peak
4824	50.4	-23.6	74	68.58	33.77	6.51	58.46	100	0	Peak

Test Mode :	Mode 11	Temperature :	23~25°C
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 1880 MHz is not within a restricted band.		

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
182.01	36.13	-7.37	43.5	57.72	8.5	1.41	31.5	102	25	Peak
234.12	35.26	-10.74	46	54.65	10.52	1.59	31.5	-	-	Peak
286.23	37.14	-8.86	46	54.7	12.03	1.75	31.34	-	-	Peak
337.8	34.71	-11.29	46	51	13.14	1.87	31.3	-	-	Peak
545.7	29.18	-16.82	46	39.99	17.83	2.32	30.96	-	-	Peak
832	32.23	-13.77	46	38.59	21.26	2.89	30.51	-	-	Peak
1880	48.76	-38.53	87.29	48.26	30.53	4.15	34.18	118	360	Peak
2374	36.91	-17.09	54	34.74	31.68	4.57	34.08	118	360	Average
2374	48.79	-25.21	74	46.62	31.68	4.57	34.08	118	360	Peak
2437	97.75	-	-	95.47	31.75	4.61	34.08	118	360	Average
2437	107.29	-	-	105.01	31.75	4.61	34.08	118	360	Peak
2490	38.6	-15.4	54	36.24	31.8	4.64	34.08	118	360	Average
2490	51.16	-22.84	74	48.8	31.8	4.64	34.08	118	360	Peak
4874	50.14	-23.86	74	68.19	33.78	6.53	58.36	100	0	Peak

Test Mode :	Mode 11	Temperature :	23~25℃
Test Channel :	06	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 1882 MHz is not within a restricted band.		

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
42.15	26.74	-13.26	40	45.99	11.53	0.76	31.54	134	309	Peak
182.01	26.96	-16.54	43.5	48.55	8.5	1.41	31.5	-	-	Peak
234.12	27.19	-18.81	46	46.58	10.52	1.59	31.5	-	-	Peak
545.7	25.74	-20.26	46	36.55	17.83	2.32	30.96	-	-	Peak
701.8	25.26	-20.74	46	34.14	19.18	2.65	30.71	-	-	Peak
806.1	26.2	-19.8	46	32.84	21.06	2.84	30.54	-	-	Peak
1882	48.42	-33.64	82.06	47.92	30.53	4.15	34.18	129	175	Peak
2378	33.73	-20.27	54	31.56	31.68	4.57	34.08	129	175	Average
2378	46.18	-27.82	74	44.01	31.68	4.57	34.08	129	175	Peak
2437	92.65	-	-	90.37	31.75	4.61	34.08	129	175	Average
2437	102.06	-	-	99.78	31.75	4.61	34.08	129	175	Peak
2492	35.04	-18.96	54	32.68	31.8	4.64	34.08	129	175	Average
2492	46.82	-27.18	74	44.46	31.8	4.64	34.08	129	175	Peak
4874	49.02	-24.98	74	67.07	33.78	6.53	58.36	100	0	Peak

Test Mode :	Mode 12	Temperature :	23~25°C
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Horizontal
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 1880 MHz is not within a restricted band.		

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
182.01	36.28	-7.22	43.5	57.87	8.5	1.41	31.5	105	66	Peak
234.12	35.24	-10.76	46	54.63	10.52	1.59	31.5	-	-	Peak
286.23	37.33	-8.67	46	54.89	12.03	1.75	31.34	-	-	Peak
311.9	35.25	-10.75	46	52.23	12.49	1.81	31.28	-	-	Peak
337.8	34.5	-11.5	46	50.79	13.14	1.87	31.3	-	-	Peak
832	31.9	-14.1	46	38.26	21.26	2.89	30.51	-	-	Peak
1880	48.3	-40.21	88.51	47.8	30.53	4.15	34.18	115	360	Peak
2368	39.97	-14.03	54	37.82	31.66	4.57	34.08	115	360	Average
2368	51.79	-22.21	74	49.64	31.66	4.57	34.08	115	360	Peak
2462	98.81	-	-	96.5	31.77	4.62	34.08	115	360	Average
2462	108.51	-	-	106.2	31.77	4.62	34.08	115	360	Peak
2484.04	52.81	-1.19	54	50.47	31.78	4.64	34.08	115	360	Average
2484.04	68.1	-5.9	74	65.76	31.78	4.64	34.08	115	360	Peak
4924	45.84	-28.16	74	63.75	33.79	6.56	58.26	100	0	Peak

Test Mode :	Mode 12	Temperature :	23~25℃
Test Channel :	11	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	Polarization :	Vertical
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 1882 MHz is not within a restricted band.		

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
129.9	24.51	-18.99	43.5	43.94	10.87	1.22	31.52	-	-	Peak
182.01	27.62	-15.88	43.5	49.21	8.5	1.41	31.5	129	30	Peak
234.12	27.51	-18.49	46	46.9	10.52	1.59	31.5	-	-	Peak
545.7	26.26	-19.74	46	37.07	17.83	2.32	30.96	-	-	Peak
806.1	27.41	-18.59	46	34.05	21.06	2.84	30.54	-	-	Peak
860.7	26.7	-19.3	46	32.78	21.48	2.94	30.5	-	-	Peak
1882	48.22	-35.95	84.17	47.72	30.53	4.15	34.18	100	177	Peak
2372	35.91	-18.09	54	33.74	31.68	4.57	34.08	100	177	Average
2372	47.72	-26.28	74	45.55	31.68	4.57	34.08	100	177	Peak
2462	94.65	-	-	92.34	31.77	4.62	34.08	100	177	Average
2462	104.17	-	-	101.86	31.77	4.62	34.08	100	177	Peak
2483.85	46.68	-7.32	54	44.34	31.78	4.64	34.08	100	177	Average
2483.85	63.42	-10.58	74	61.08	31.78	4.64	34.08	100	177	Peak
4924	47.01	-26.99	74	64.92	33.79	6.56	58.26	100	0	Peak

<Antenna 1>

Test Mode :	Mode 13	Temperature :	23~25℃
Test Channel :	149	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	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
182.01	36.4	-7.1	43.5	57.99	8.5	1.41	31.5	104	301	Peak
234.12	35.18	-10.82	46	54.57	10.52	1.59	31.5	-	-	Peak
286.23	37.43	-8.57	46	54.99	12.03	1.75	31.34	-	-	Peak
311.9	34.83	-11.17	46	51.81	12.49	1.81	31.28	-	-	Peak
389.6	31.94	-14.06	46	46.65	14.51	1.99	31.21	-	-	Peak
832	31.91	-14.09	46	38.27	21.26	2.89	30.51	-	-	Peak
5745	94.2	-	-	85.66	34.54	7.19	33.19	112	303	Average
5745	103.76	-	-	95.22	34.54	7.19	33.19	112	303	Peak

Test Mode :	Mode 13	Temperature :	23~25℃
Test Channel :	149	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	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
182.01	27.14	-16.36	43.5	48.73	8.5	1.41	31.5	100	179	Peak
234.12	27.09	-18.91	46	46.48	10.52	1.59	31.5	-	-	Peak
286.23	24.79	-21.21	46	42.35	12.03	1.75	31.34	-	-	Peak
311.9	24.17	-21.83	46	41.15	12.49	1.81	31.28	-	-	Peak
545.7	26.54	-19.46	46	37.35	17.83	2.32	30.96	-	-	Peak
860.7	27.07	-18.93	46	33.15	21.48	2.94	30.5	-	-	Peak
5745	92.94	-	-	84.4	34.54	7.19	33.19	158	275	Average
5745	102.49	-	-	93.95	34.54	7.19	33.19	158	275	Peak

Test Mode :	Mode 14	Temperature :	23~25°C
Test Channel :	157	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	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
182.01	36.25	-7.25	43.5	57.84	8.5	1.41	31.5	133	245	Peak
234.12	35.17	-10.83	46	54.56	10.52	1.59	31.5	-	-	Peak
286.23	37.28	-8.72	46	54.84	12.03	1.75	31.34	-	-	Peak
311.9	35.83	-10.17	46	52.81	12.49	1.81	31.28	-	-	Peak
337.8	34.64	-11.36	46	50.93	13.14	1.87	31.3	-	-	Peak
832	32.38	-13.62	46	38.74	21.26	2.89	30.51	-	-	Peak
5785	95.14	-	-	86.52	34.59	7.22	33.19	123	298	Average
5785	104.8	-	-	96.18	34.59	7.22	33.19	123	298	Peak

Test Mode :	Mode 14	Temperature :	23~25°C
Test Channel :	157	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	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
129.9	24.7	-18.8	43.5	44.13	10.87	1.22	31.52	-	-	Peak
182.01	26.9	-16.6	43.5	48.49	8.5	1.41	31.5	124	13	Peak
234.12	27.16	-18.84	46	46.55	10.52	1.59	31.5	-	-	Peak
545.7	25.61	-20.39	46	36.42	17.83	2.32	30.96	-	-	Peak
754.3	25.97	-20.03	46	33.59	20.16	2.76	30.54	-	-	Peak
832	26.54	-19.46	46	32.9	21.26	2.89	30.51	-	-	Peak
5785	94.21	-	-	85.59	34.59	7.22	33.19	103	339	Average
5785	103.81	-	-	95.19	34.59	7.22	33.19	103	339	Peak

Test Mode :	Mode 15	Temperature :	23~25℃
Test Channel :	165	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	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
182.01	36.21	-7.29	43.5	57.8	8.5	1.41	31.5	204	317	Peak
234.12	35.09	-10.91	46	54.48	10.52	1.59	31.5	-	-	Peak
286.23	37.3	-8.7	46	54.86	12.03	1.75	31.34	-	-	Peak
311.9	35.29	-10.71	46	52.27	12.49	1.81	31.28	-	-	Peak
337.8	34.73	-11.27	46	51.02	13.14	1.87	31.3	-	-	Peak
832	32.16	-13.84	46	38.52	21.26	2.89	30.51	-	-	Peak
5825	94.14	-	-	85.41	34.66	7.27	33.2	100	310	Average
5825	104.08	-	-	95.35	34.66	7.27	33.2	100	310	Peak

Test Mode :	Mode 15	Temperature :	23~25
Test Channel :	165	Relative Humidity :	49~51
Test Engineer :	Brian Chang	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
182.01	27.1	-16.4	43.5	48.69	8.5	1.41	31.5	100	229	Peak
234.12	27.03	-18.97	46	46.42	10.52	1.59	31.5	-	-	Peak
286.23	24.56	-21.44	46	42.12	12.03	1.75	31.34	-	-	Peak
545.7	25.69	-20.31	46	36.5	17.83	2.32	30.96	-	-	Peak
806.1	26.38	-19.62	46	33.02	21.06	2.84	30.54	-	-	Peak
884.5	25.76	-20.24	46	31.61	21.66	2.98	30.49	-	-	Peak
5825	93.29	-	-	84.56	34.66	7.27	33.2	100	328	Average
5825	102.95	-	-	94.22	34.66	7.27	33.2	100	328	Peak

<Antenna 2>

Test Mode :	Mode 16	Temperature :	23~25℃
Test Channel :	149	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	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
182.01	36.15	-7.35	43.5	57.74	8.5	1.41	31.5	145	249	Peak
234.12	35.2	-10.8	46	54.59	10.52	1.59	31.5	-	-	Peak
286.23	37.42	-8.58	46	54.98	12.03	1.75	31.34	-	-	Peak
311.9	35.27	-10.73	46	52.25	12.49	1.81	31.28	-	-	Peak
337.8	34.48	-11.52	46	50.77	13.14	1.87	31.3	-	-	Peak
832	31.95	-14.05	46	38.31	21.26	2.89	30.51	-	-	Peak
5745	94.02	-	-	85.48	34.54	7.19	33.19	100	99	Average
5745	103.87	-	-	95.33	34.54	7.19	33.19	100	99	Peak

Test Mode :	Mode 16	Temperature :	23~25℃
Test Channel :	149	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	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
129.9	24.61	-18.89	43.5	44.04	10.87	1.22	31.52	-	-	Peak
182.01	27.06	-16.44	43.5	48.65	8.5	1.41	31.5	100	301	Peak
234.12	27.55	-18.45	46	46.94	10.52	1.59	31.5	-	-	Peak
545.7	26.11	-19.89	46	36.92	17.83	2.32	30.96	-	-	Peak
806.1	25.83	-20.17	46	32.47	21.06	2.84	30.54	-	-	Peak
860.7	27	-19	46	33.08	21.48	2.94	30.5	-	-	Peak
5745	89.88	-	-	81.34	34.54	7.19	33.19	100	142	Average
5745	99.57	-	-	91.03	34.54	7.19	33.19	100	142	Peak

Test Mode :	Mode 17	Temperature :	23~25°C
Test Channel :	157	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	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
182.01	35.95	-7.55	43.5	57.54	8.5	1.41	31.5	111	73	Peak
234.12	35.25	-10.75	46	54.64	10.52	1.59	31.5	-	-	Peak
286.23	37.19	-8.81	46	54.75	12.03	1.75	31.34	-	-	Peak
311.9	35.51	-10.49	46	52.49	12.49	1.81	31.28	-	-	Peak
363.7	32.47	-13.53	46	47.98	13.83	1.93	31.27	-	-	Peak
832	32.24	-13.76	46	38.6	21.26	2.89	30.51	-	-	Peak
5785	93.56	-	-	84.94	34.59	7.22	33.19	100	102	Average
5785	103.29	-	-	94.67	34.59	7.22	33.19	100	102	Peak

Test Mode :	Mode 17	Temperature :	23~25°C
Test Channel :	157	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	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
129.9	25.2	-18.3	43.5	44.63	10.87	1.22	31.52	-	-	Peak
182.01	27.03	-16.47	43.5	48.62	8.5	1.41	31.5	126	256	Peak
234.12	27.77	-18.23	46	47.16	10.52	1.59	31.5	-	-	Peak
337.8	24.3	-21.7	46	40.59	13.14	1.87	31.3	-	-	Peak
545.7	25.82	-20.18	46	36.63	17.83	2.32	30.96	-	-	Peak
884.5	28.26	-17.74	46	34.11	21.66	2.98	30.49	-	-	Peak
5785	89.65	-	-	81.03	34.59	7.22	33.19	100	80	Average
5785	99.24	-	-	90.62	34.59	7.22	33.19	100	80	Peak

Test Mode :	Mode 18	Temperature :	23~25℃
Test Channel :	165	Relative Humidity :	49~51%
Test Engineer :	Brian Chang	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
182.01	36.01	-7.49	43.5	57.6	8.5	1.41	31.5	114	269	Peak
234.12	35.07	-10.93	46	54.46	10.52	1.59	31.5	-	-	Peak
286.23	37.3	-8.7	46	54.86	12.03	1.75	31.34	-	-	Peak
311.9	34.92	-11.08	46	51.9	12.49	1.81	31.28	-	-	Peak
337.8	34.42	-11.58	46	50.71	13.14	1.87	31.3	-	-	Peak
832	31.85	-14.15	46	38.21	21.26	2.89	30.51	-	-	Peak
5825	93.57	-	-	84.84	34.66	7.27	33.2	100	100	Average
5825	103.19	-	-	94.46	34.66	7.27	33.2	100	100	Peak

Test Mode :	Mode 18	Temperature :	23~25
Test Channel :	165	Relative Humidity :	49~51
Test Engineer :	Brian Chang	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
129.9	24.65	-18.85	43.5	44.08	10.87	1.22	31.52	-	-	Peak
182.01	27.28	-16.22	43.5	48.87	8.5	1.41	31.5	103	276	Peak
234.12	27.45	-18.55	46	46.84	10.52	1.59	31.5	-	-	Peak
545.7	26.24	-19.76	46	37.05	17.83	2.32	30.96	-	-	Peak
780.2	26.35	-19.65	46	33.45	20.64	2.8	30.54	-	-	Peak
860.7	26.91	-19.09	46	32.99	21.48	2.94	30.5	-	-	Peak
5825	88.65	-	-	79.92	34.66	7.27	33.2	100	82	Average
5825	98.37	-	-	89.64	34.66	7.27	33.2	100	82	Peak

3.8 Antenna Requirements

3.8.1 Standard Applicable

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

3.8.2 Antenna Connected Construction

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

3.8.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
System Simulator	R&S	CMU200	117995	N/A	Aug. 11, 2010	Aug.10, 2011	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 13, 2011	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 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. 27, 2011	Jul. 26, 2012	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)
System Simulator	R&S	CMU200	117591	N/A	Oct. 18, 2010	Oct. 17, 2011	Conduction (CO05-HY)
Spectrum Analyzer	R&S	FSP30	101352	9KHz-30GHz	Nov. 03, 2010	Nov. 02, 2011	Radiation (03CH05-HY)
COM-POWER	Double Ridge Horn	AH-118	701030	1HGz~18GHz	N/A	N/A	Radiation (03CH05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2725	30MHz ~ 1GHz	Nov. 06, 2010	Nov. 05, 2011	Radiation (03CH05-HY)
Turn Table	HD	Deis HD 2000	420/611	0 - 360 degree	N/A	N/A	Radiation (03CH05-HY)
Antenna Mast	HD	MA 240	240/666	1 m - 4 m	N/A	N/A	Radiation (03CH05-HY)
Horn Antenna	ESCO	3117	66584	1GHz ~ 18GHz	Aug. 04, 2011	Aug. 03, 2012	Radiation (03CH05-HY)
COM-POWER	COM-POWER	PA-103	161075	1KHz - 1GHz	Mar. 29, 2011	Mar. 28, 2012	Radiation (03CH05-HY)
Pre Amplifier	EMCI	EMC051845	SN980048	1HGz~18GHz	Jul. 19, 2011	Jul. 18, 2012	Radiation (03CH05-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	159087	1HGz~18GHz	Feb. 21, 2011	Feb. 20, 2012	Radiation (03CH05-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz- 26.5GHz	Apr. 14, 2011	Apr. 13, 2012	Radiation (03CH05-HY)

5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (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				



Appendix A. Photographs of EUT

Please refer to Sporton report number EP132448 as below.