

FCC RF Test Report

APPLICANT : Hannaford LLC
EQUIPMENT : Electronic Display Device
MODEL NAME : EY21
FCC ID : A8Z-2690
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Oct. 03, 2011 and completely tested on Mar. 03, 2012. We 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 the test report shall not be reproduced except in full.

Reviewed by:



Jones Tsai / Manager

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR1O0313-01	Rev. 01	Initial issue of report	Apr. 16, 2012

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.2	15.247(b)	A8.4	Power Output	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.6	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	-
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	-
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Hannaford LLC
Suite 700, 380 Jackson Street
St. Paul, MN 55101

1.2 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Electronic Display Device
Model Name	EY21
FCC ID	A8Z-2690
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Number of Channels	11
Carrier Frequency of Each Channel	2412+(n-1)*5 MHz; n=1~11
Channel Spacing	5 MHz
Maximum Output Power to Antenna	02.11b : 20.65 dBm (0.1161 W) 802.11g : 23.53 dBm (0.2254 W) 802.11n (BW 20MHz) : 22.68 dBm (0.1854 W)
Antenna Type	Fixed Internal Antenna with gain: Antenna 1: 2.2dBi Antenna 2: 2.4dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.3 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH07-HY	722060/4086B-1

1.4 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
- ANSI C63.4-2003
- FCC KDB Publication No. 558074D01 DTS Meas. Guidance v01 (Publication date : 1/18/2012)
- 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, recorded in a separate test report.

1.5 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Adapter	NA	NA	N/A	N/A	Unshielded, 1.8 m
2.	iPod Earphone	Apple	N/A	FCC DoC	Unshielded, 1.1 m	N/A
3.	USB Cable	N/A	N/A	N/A	Unshielded, 1.6 m	N/A

2 Test Configuration of Equipment Under Test

The EUT supports 802.11bgn (HT-20) mode with two diversity antennas, Antenna 1 and 2 which are capable of transmitting. The test configurations are reported in following sections.

2.1 Maximum RF Peak Power

Preliminary tests were performed across all data rates and recorded the RF power output in the following table:

Antenna 1:

Channel	Frequency (MHz)	802.11b (dBm)	802.11g (dBm)	802.11g(HT-20)(dBm)
01	2412	18.90	17.32	15.99
06	2437	20.65	23.53	22.27
11	2462	17.29	14.60	14.32

Antenna 2:

Channel	Frequency (MHz)	802.11b (dBm)	802.11g (dBm)	802.11g(HT-20) (dBm)
01	2412	17.36	15.78	16.04
06	2437	19.57	22.60	22.68
11	2462	17.74	15.82	14.07

Remark:

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

2.2 Test Mode

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

The worst-case test configurations for radiated spurious emissions are investigated by the maximum peak power across all the data rates, modulation types (11b, 11g, 11g/HT-20) and antenna 1 and 2, and in three orthogonal panels (X, Y, Z).

The worst case of radiated spurious emissions above 1 GHz are Z plane, Antenna 1, 1Mbps for 802.11b, 6Mbps for 802.11g, MCS0 for 802.11n (BW 20MHz) and the low frequency range from 30MHz to 1GHz and AC conducted emissions are chosen from the middle channel of the highest power condition.

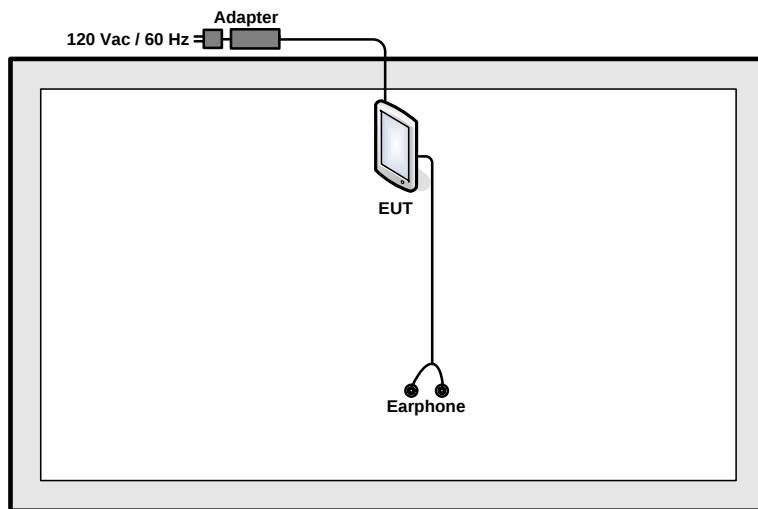
The worst case of radiated spurious emissions above 1 GHz are Z plane, Antenna 2, 1Mbps for 802.11b, 6Mbps for 802.11g, MCS0 for 802.11n (BW 20MHz) and the low frequency range from 30MHz to 1GHz and AC conducted emissions are chosen from the middle channel of the highest power condition.

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

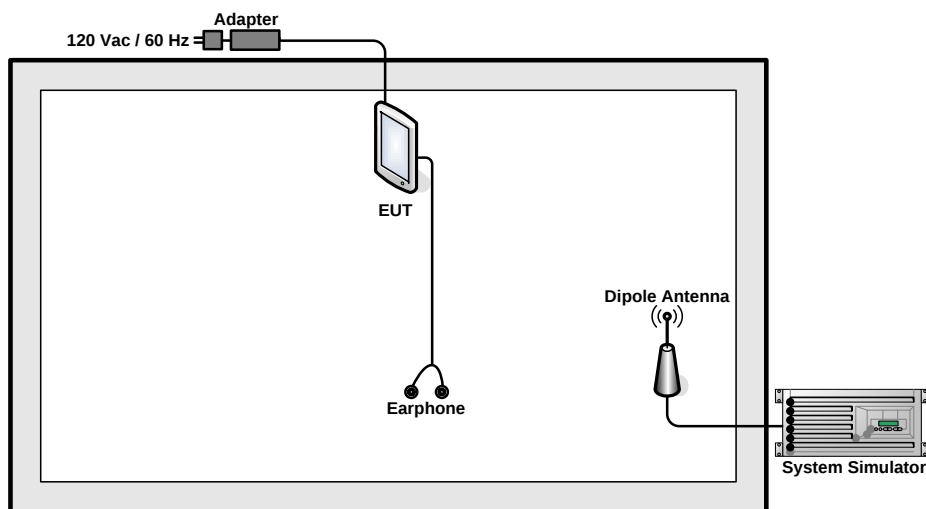
Test Cases		
Test Item		802.11b(Modulation : DSSS) 802.11g/n(Modulation : OFDM)
Conducted TCs	Antenna 1	Mode 1 : 802.11b_CH01_2412 MHz Mode 2 : 802.11b_CH06_2437 MHz Mode 3 : 802.11b_CH11_2462 MHz Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz
	Antenna 2	Mode 7: 802.11g/n (BW 20M)_CH01_2412 MHz Mode 8: 802.11g/n (BW 20M)_CH06_2437 MHz Mode 9: 802.11g/n (BW 20M)_CH11_2462 MHz
Radiated TCs	Antenna 1	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: 802.11g/n (BW 20M)_CH01_2412 MHz Mode 8: 802.11g/n (BW 20M)_CH06_2437 MHz Mode 9: 802.11g/n (BW 20M)_CH11_2462 MHz
	Antenna 2	Mode 10 : 802.11b_CH01_2412 MHz Mode 11 : 802.11b_CH06_2437 MHz Mode 12 : 802.11b_CH11_2462 MHz Mode 13: 802.11g_CH01_2412 MHz Mode 14: 802.11g_CH06_2437 MHz Mode 15: 802.11g_CH11_2462 MHz Mode 16: 802.11g/n (BW 20M)_CH01_2412 MHz Mode 17: 802.11g/n (BW 20M)_CH06_2437 MHz Mode 18: 802.11g/n (BW 20M)_CH11_2462 MHz
AC Conducted Emission		Mode 1 : EUT + WLAN Tx + Adapter + Earphone

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<EUT with Adapter and Earphone Mode>



2.4 RF Utility

The programmed RF utility 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.

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.

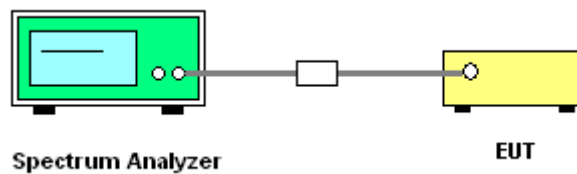
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
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) = 1-5% of the emission bandwidth (EBW). Set the Video bandwidth (VBW) $\geq 3 * \text{RBW}$. In order to make an accurate measurement. 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

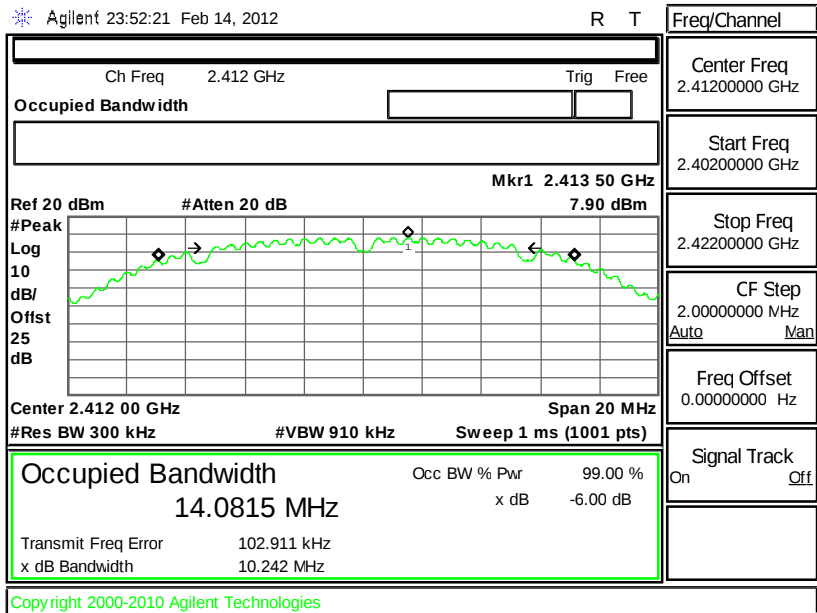


3.1.5 Test Result of 6dB Bandwidth

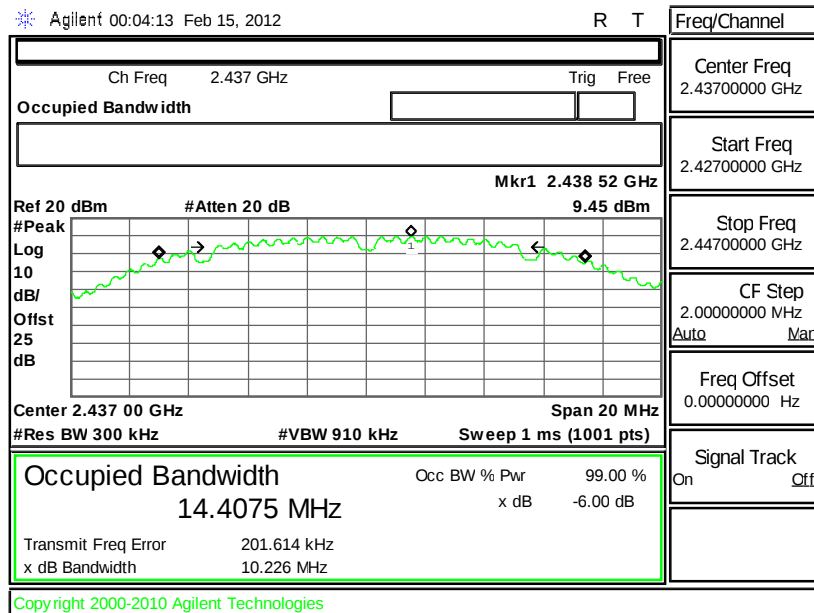
Test Mode :	Mode 1, 2, 3	Temperature :	23~25℃	
Test Engineer :	Alan Liu	Relative Humidity :	57~59%	

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	10.242	0.5	Pass
06	2437	10.226	0.5	Pass
11	2462	10.230	0.5	Pass

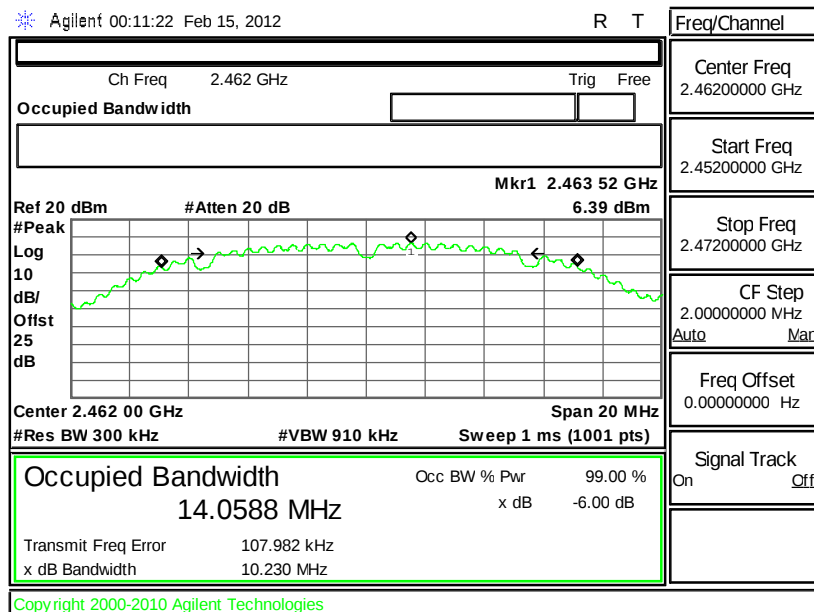
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



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



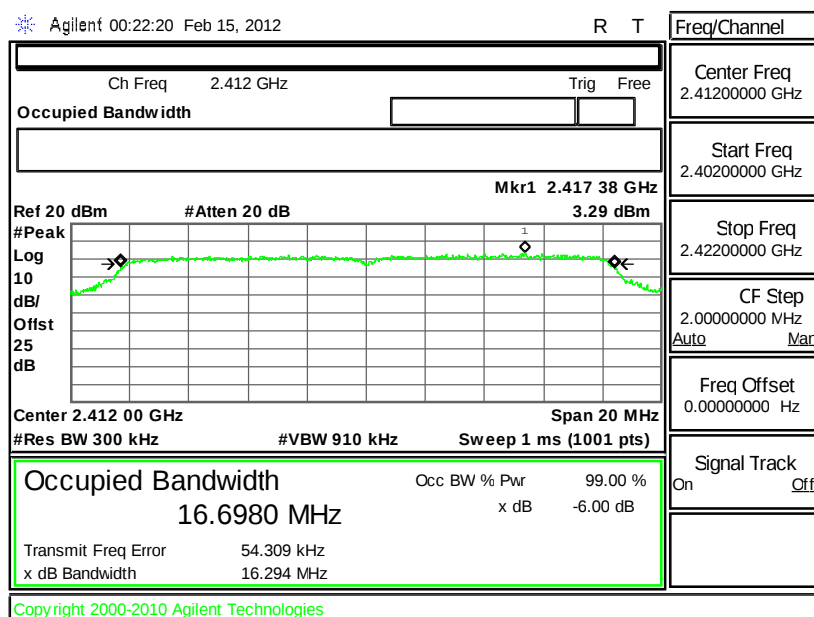
Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11



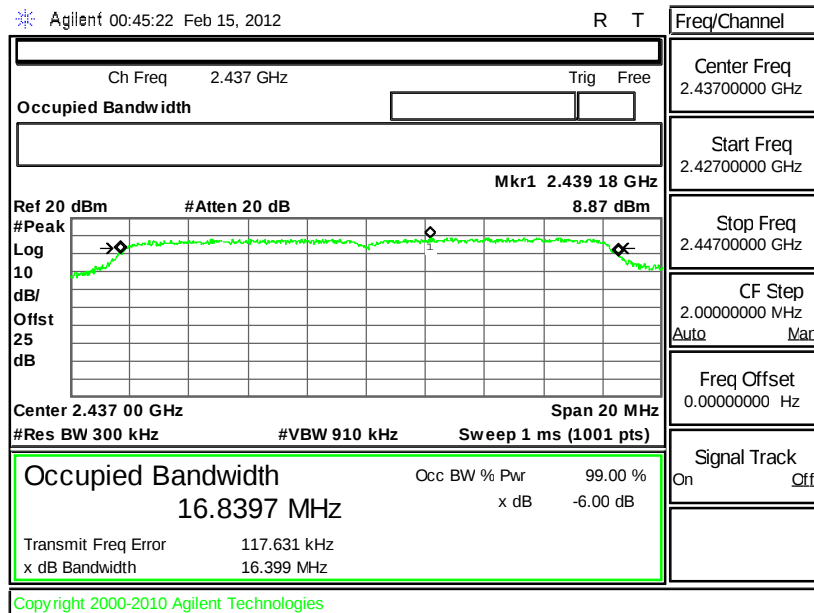
Test Mode :	Mode 4, 5, 6	Temperature :	23~25℃
Test Engineer :	Alan Liu	Relative Humidity :	57~59%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.294	0.5	Pass
06	2437	16.399	0.5	Pass
11	2462	16.333	0.5	Pass

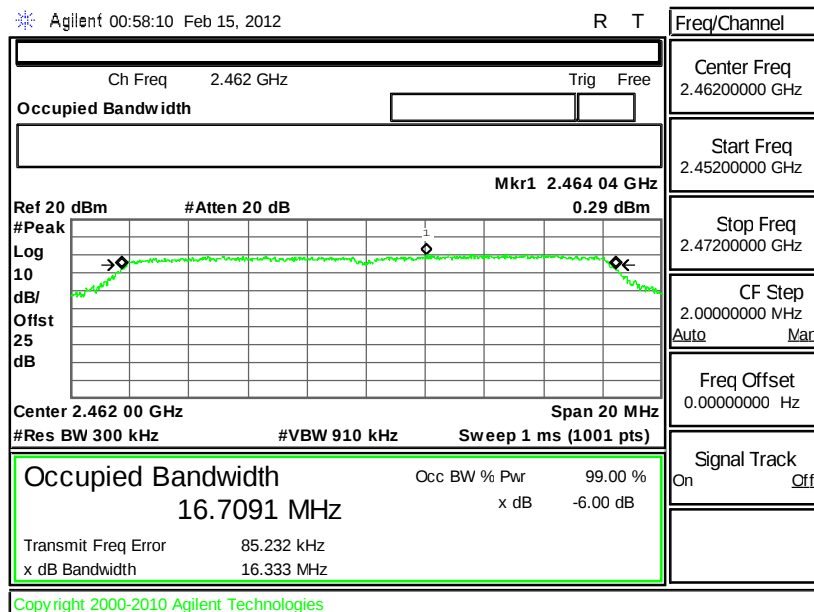
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



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



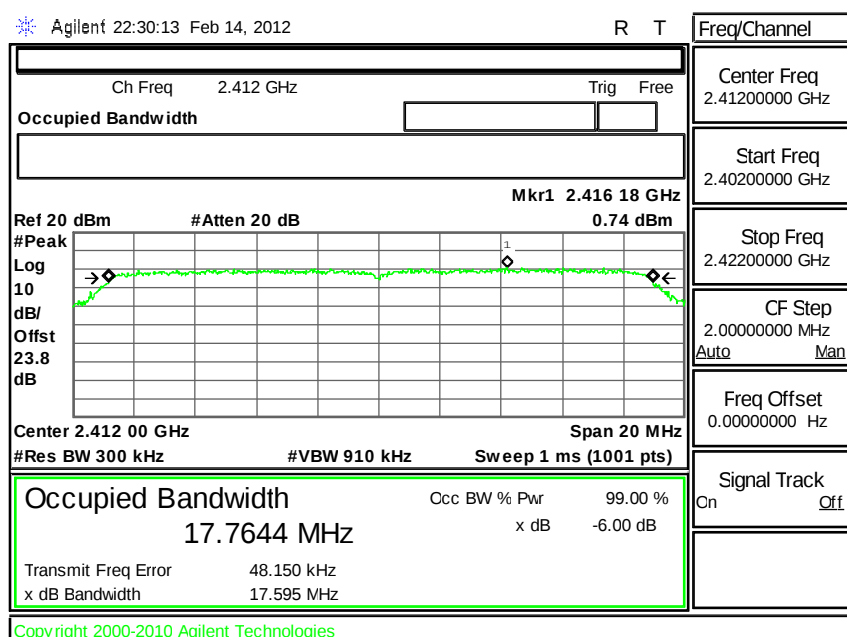
Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11



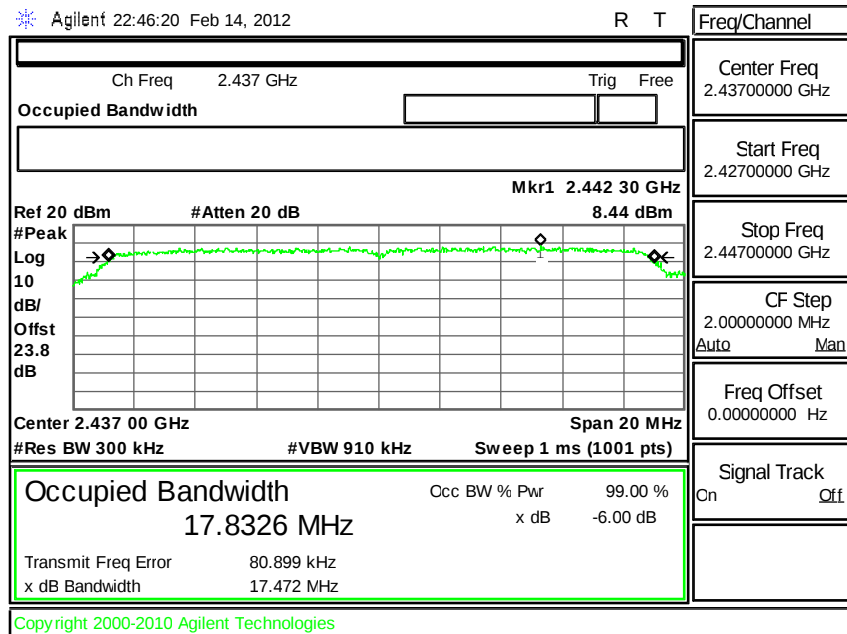
Test Mode :	Mode 7, 8, 9	Temperature :	23~25°C
Test Engineer :	Alan Liu	Relative Humidity :	57~59°C

Channel	Frequency (MHz)	802.11 g/n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.595	0.5	Pass
06	2437	17.472	0.5	Pass
11	2462	17.413	0.5	Pass

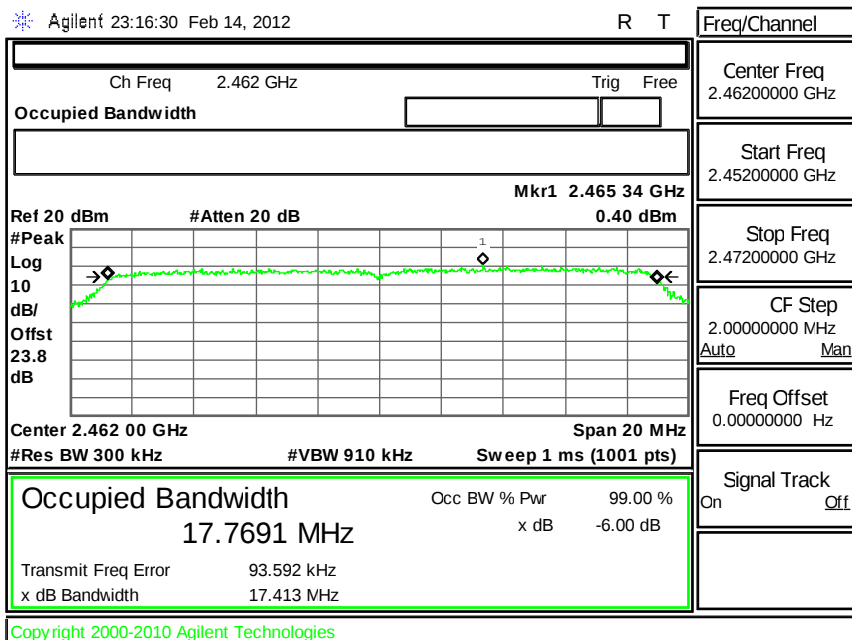
Mode 7 : 6 dB Bandwidth Plot on 802.11g/n (BW 20MHz) Channel 01



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



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



3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

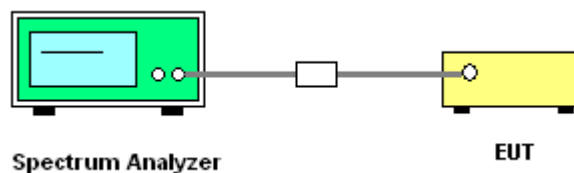
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
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) = 1MHz. Set the Video bandwidth (VBW) = 3MHz. In order to make an accurate measurement, set the span to a value that is 5-30 % greater than the EBW. The 6 dB bandwidth must be greater than 500 KHz.

3.2.4 Test Setup

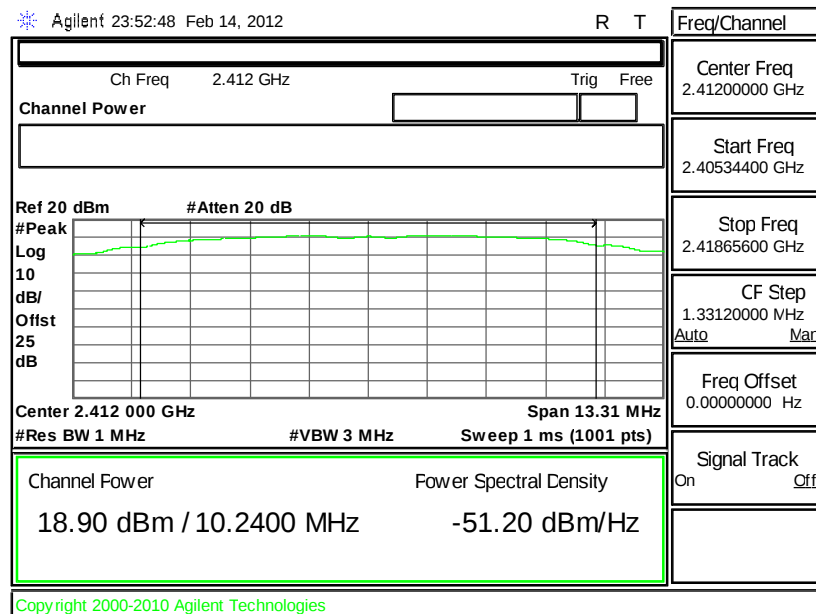


3.2.5 Test Result of Output Power

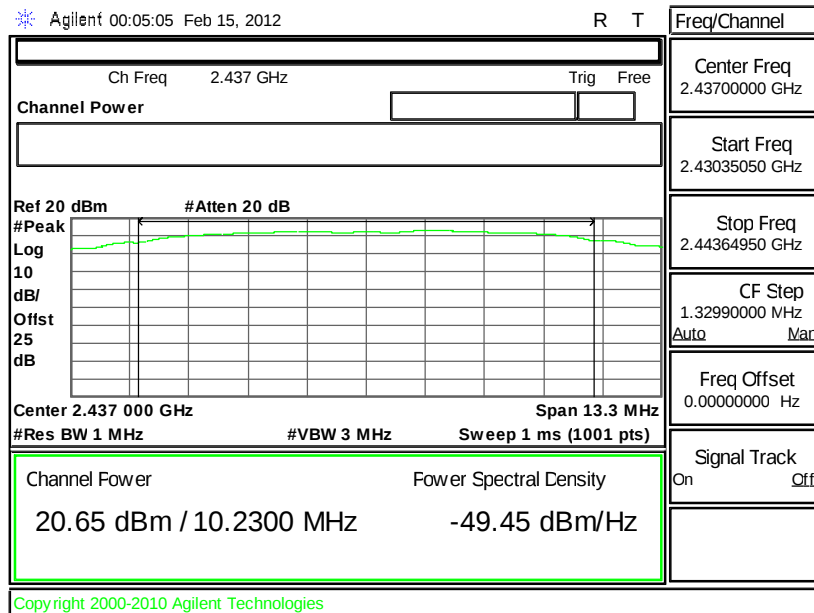
Test Mode :	Mode 1, 2, 3	Temperature :	23~25°C
Test Engineer :	Alan Liu	Relative Humidity :	57~59%

Channel	Frequency (MHz)	802.11b Measured Output Peak Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	18.90	30	Pass
06	2437	20.65	30	Pass
11	2462	17.29	30	Pass

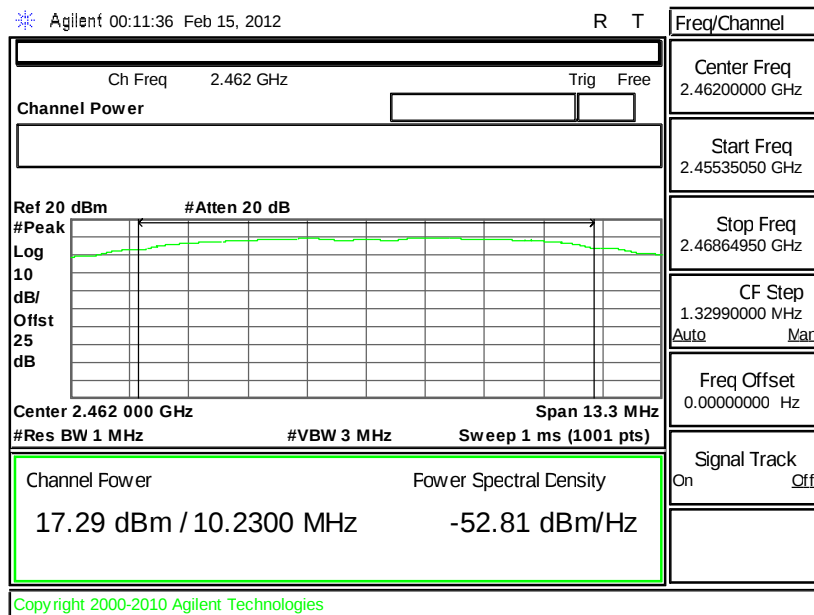
Mode 1 : Output Power Plot on 802.11b Channel 01



Mode 2 : Output Power Plot on 802.11b Channel 06



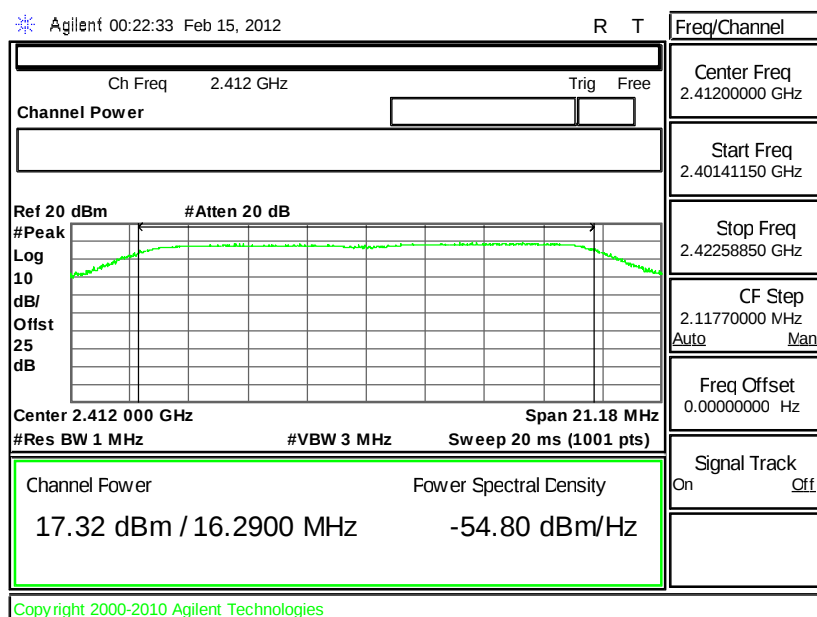
Mode 3 : Output Power Plot on 802.11b Channel 11



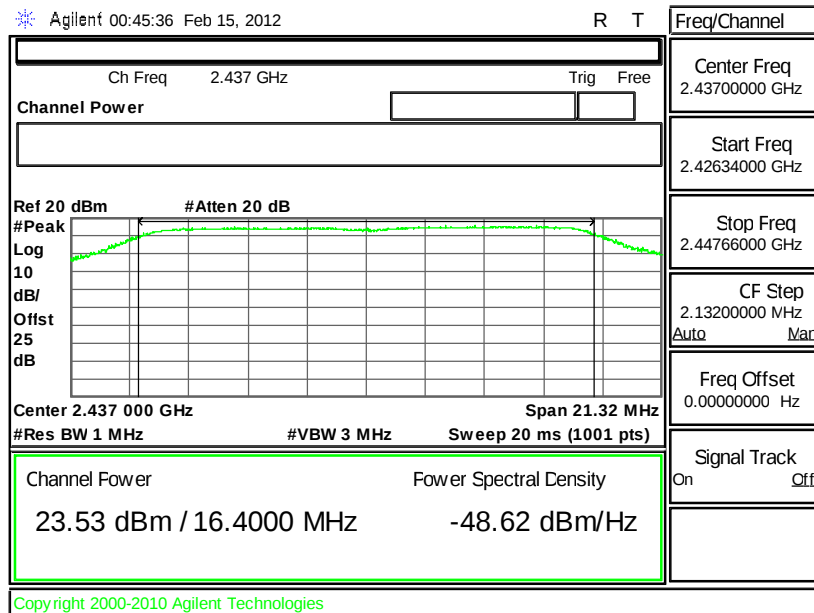
Test Mode :	Mode 4, 5, 6	Temperature :	23~25°C
Test Engineer :	Alan Liu	Relative Humidity :	57~59%

Channel	Frequency (MHz)	802.11g Measured Output Peak Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	17.32	30	Pass
06	2437	23.53	30	Pass
11	2462	14.60	30	Pass

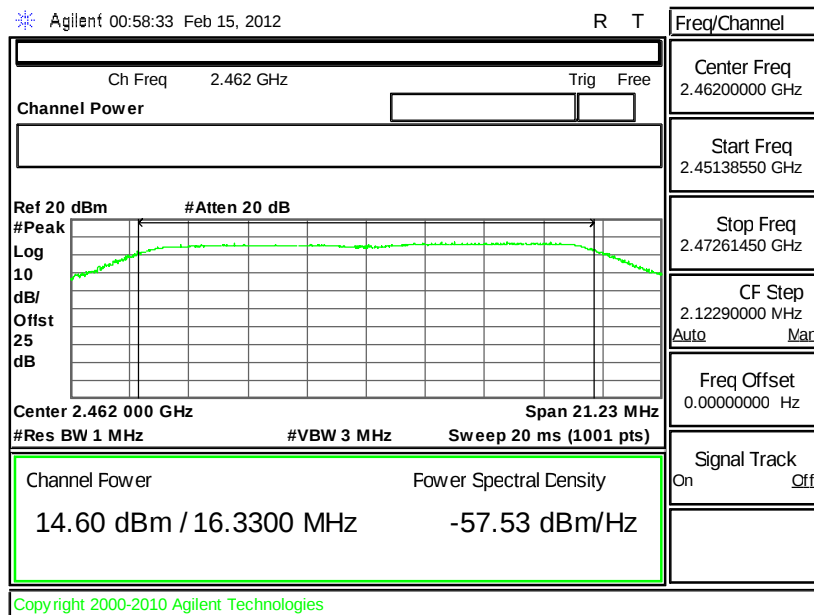
Mode 4 : Output Power Plot on 802.11g Channel 01



Mode 5 : Output Power Plot on 802.11g Channel 06



Mode 6 : Output Power Plot on 802.11g Channel 11

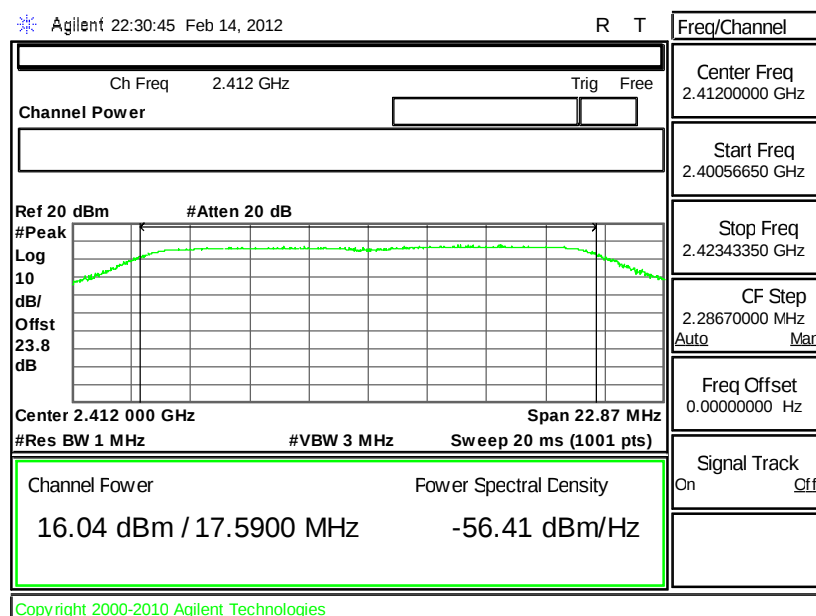


Test Mode :	Mode 7, 8, 9	Temperature :	23~25°C
Test Engineer :	Alan Liu	Relative Humidity :	57~59%

Channel	Frequency (MHz)	802.11g/n (BW 20MHz) Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	16.04	30	Pass
06	2437	22.68	30	Pass
11	2462	14.07	30	Pass

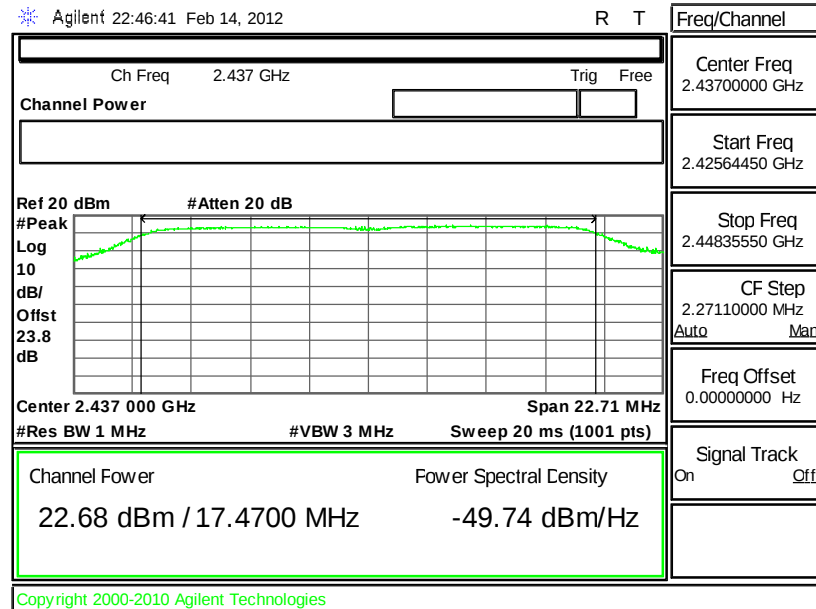
Mode 7 :

Output Power Plot on 802.11g/n (BW 20MHz) Channel 01



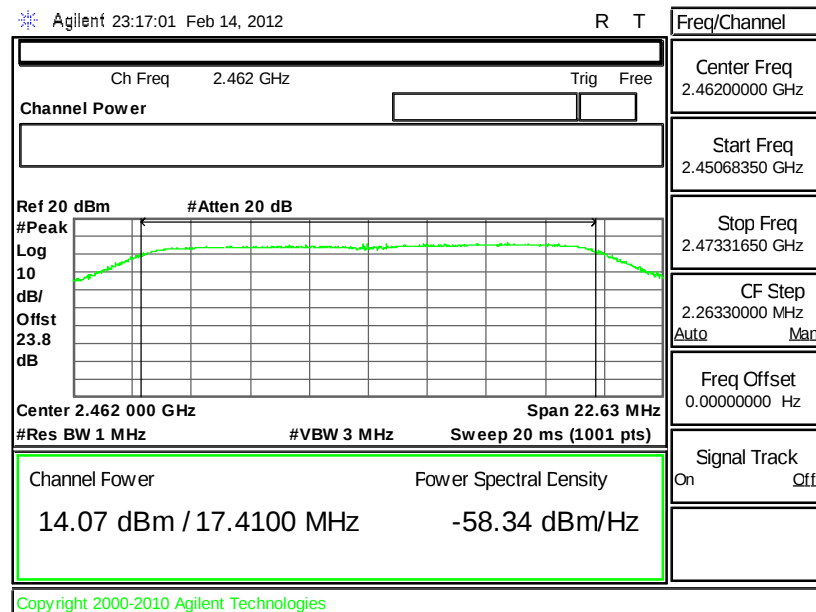
Mode 8 :

Output Power Plot on 802.11g/n (BW 20MHz) Channel 06



Mode 9 :

Output Power Plot on 802.11g/n (BW 20MHz) Channel 11



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

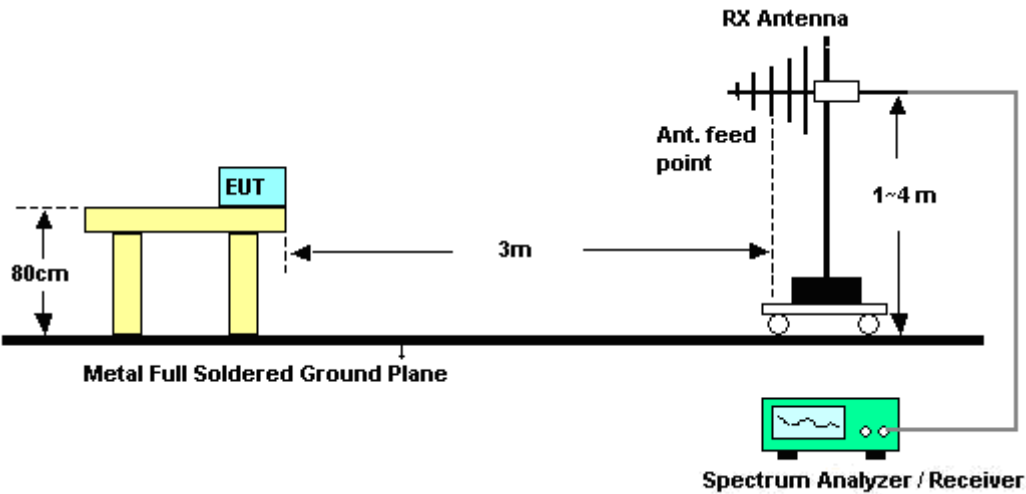
See list of measuring instruments of this test report.

3.3.3 Test Procedures

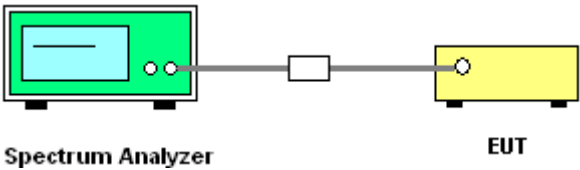
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) $\geq$ RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the device complies with the use of power option 2 the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Apply to band edge emissions that fall in the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurements above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation as in FCC Section 15.35(b) and (c).

3.3.4 Test Setup

<Radiated Band Edges>



<Conducted Band Edges>



3.3.5 Test Result of Radiated Band Edges

<Antenna 1>

Test Mode :	Mode 1	Temperature :	19~21℃
Test Band :	802.11b	Relative Humidity :	54~56%
Test Channel :	01	Test Engineer :	David Yang

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	56.14	-17.86	74	52.01	32.06	6.03	33.96	100	260	Peak
2386.57	48.25	-5.75	54	44.12	32.06	6.03	33.96	100	260	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
2385.81	55.04	-18.96	74	50.91	32.06	6.03	33.96	134	10	Peak
2385.81	49.08	-4.92	54	44.95	32.06	6.03	33.96	134	10	Average

Test Mode :	Mode 3	Temperature :	19~21℃
Test Band :	802.11b	Relative Humidity :	54~56%
Test Channel :	11	Test Engineer :	David Yang

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
2485.37	58.69	-15.31	74	54.33	32.18	6.18	34	100	252	Peak
2485.37	49.22	-4.78	54	44.86	32.18	6.18	34	100	252	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
2484.61	59.96	-14.04	74	55.6	32.18	6.18	34	102	6	Peak
2484.61	50.97	-3.03	54	46.61	32.18	6.18	34	102	6	Average

Test Mode :	Mode 4	Temperature :	19~21℃
Test Band :	802.11g	Relative Humidity :	54~56%
Test Channel :	01	Test Engineer :	David Yang

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	69.79	-4.21	74	65.66	32.06	6.03	33.96	100	258	Peak
2389.99	49.46	-4.54	54	45.33	32.06	6.03	33.96	100	258	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	71.61	-2.39	74	67.48	32.06	6.03	33.96	106	14	Peak
2389.99	50.64	-3.36	54	46.51	32.06	6.03	33.96	106	14	Average

Test Mode :	Mode 6	Temperature :	19~21℃
Test Band :	802.11g	Relative Humidity :	54~56%
Test Channel :	11	Test Engineer :	David Yang

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	70.35	-3.65	74	65.99	32.18	6.18	34	100	261	Peak
2483.5	45.76	-8.24	54	41.4	32.18	6.18	34	100	261	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	71.57	-2.43	74	67.21	32.18	6.18	34	133	11	Peak
2483.66	47.15	-6.85	54	42.79	32.18	6.18	34	133	11	Average

Test Mode :	Mode 7	Temperature :	19~21℃
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	54~56%
Test Channel :	01	Test Engineer :	David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	68.2	-5.8	74	64.07	32.06	6.03	33.96	100	257	Peak
2389.99	47.55	-6.45	54	43.42	32.06	6.03	33.96	100	257	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.42	71.5	-2.5	74	67.37	32.06	6.03	33.96	108	14	Peak
2389.42	51.18	-2.82	54	47.05	32.06	6.03	33.96	108	14	Average

Test Mode :	Mode 9	Temperature :	19~21℃
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	54~56%
Test Channel :	11	Test Engineer :	David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	67.69	-6.31	74	63.33	32.18	6.18	34	100	253	Peak
2483.5	44.46	-9.54	54	40.1	32.18	6.18	34	100	253	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	71.69	-2.31	74	67.33	32.18	6.18	34	133	13	Peak
2483.5	48.12	-5.88	54	43.76	32.18	6.18	34	133	13	Average

<Antenna 2>

Test Mode :	Mode 10	Temperature :	19~21℃
Test Band :	802.11b	Relative Humidity :	54~56%
Test Channel :	01	Test Engineer :	David Yang

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	57.18	-16.82	74	53.05	32.06	6.03	33.96	102	253	Peak
2385.81	51.19	-2.81	54	47.06	32.06	6.03	33.96	102	253	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
2387.33	52.95	-21.05	74	48.82	32.06	6.03	33.96	100	350	Peak
2387.33	46.11	-7.89	54	41.98	32.06	6.03	33.96	100	350	Average

Test Mode :	Mode 12	Temperature :	19~21℃
Test Band :	802.11b	Relative Humidity :	54~56%
Test Channel :	11	Test Engineer :	David Yang

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	58.11	-15.89	74	53.75	32.18	6.18	34	125	255	Peak
2483.5	50.59	-3.41	54	46.23	32.18	6.18	34	125	255	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	52.27	-21.73	74	47.91	32.18	6.18	34	100	155	Peak
2483.5	44.45	-9.55	54	40.09	32.18	6.18	34	100	155	Average

Test Mode :	Mode 13	Temperature :	19~21℃
Test Band :	802.11g	Relative Humidity :	54~56%
Test Channel :	01	Test Engineer :	David Yang

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	71.23	-2.77	74	67.1	32.06	6.03	33.96	100	260	Peak
2389.99	50.43	-3.57	54	46.3	32.06	6.03	33.96	100	260	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	68.25	-5.75	74	64.12	32.06	6.03	33.96	172	151	Peak
2389.99	47.63	-6.37	54	43.5	32.06	6.03	33.96	172	151	Average

Test Mode :	Mode 15	Temperature :	19~21℃
Test Band :	802.11g	Relative Humidity :	54~56%
Test Channel :	11	Test Engineer :	David Yang

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	71.82	-2.18	74	67.46	32.18	6.18	34	100	257	Peak
2483.5	48.91	-5.09	54	44.55	32.18	6.18	34	100	257	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	70.09	-3.91	74	65.73	32.18	6.18	34	169	152	Peak
2483.5	46.94	-7.06	54	42.58	32.18	6.18	34	169	152	Average

Test Mode :	Mode 16	Temperature :	19~21℃
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	54~56%
Test Channel :	01	Test Engineer :	David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	70.67	-3.33	74	66.54	32.06	6.03	33.96	100	243	Peak
2389.99	51.38	-2.62	54	47.25	32.06	6.03	33.96	100	243	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.42	66.91	-7.09	74	62.78	32.06	6.03	33.96	101	351	Peak
2389.42	48.18	-5.82	54	44.05	32.06	6.03	33.96	101	351	Average

Test Mode :	Mode 18	Temperature :	19~21℃
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	54~56%
Test Channel :	11	Test Engineer :	David Yang

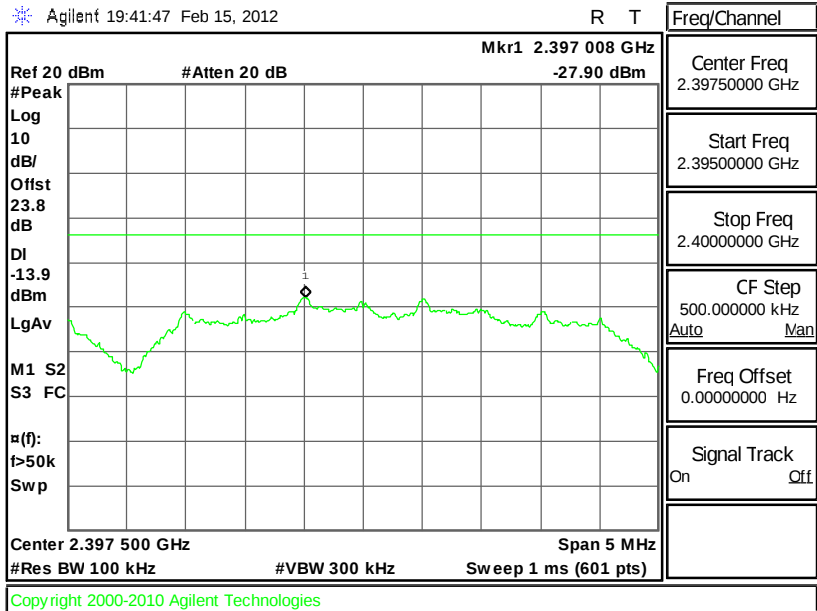
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	69.82	-4.18	74	65.46	32.18	6.18	34	125	251	Peak
2483.66	46.63	-7.37	54	42.27	32.18	6.18	34	125	251	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	60.09	-13.91	74	55.73	32.18	6.18	34	100	344	Peak
2483.66	40.87	-13.13	54	36.51	32.18	6.18	34	100	344	Average

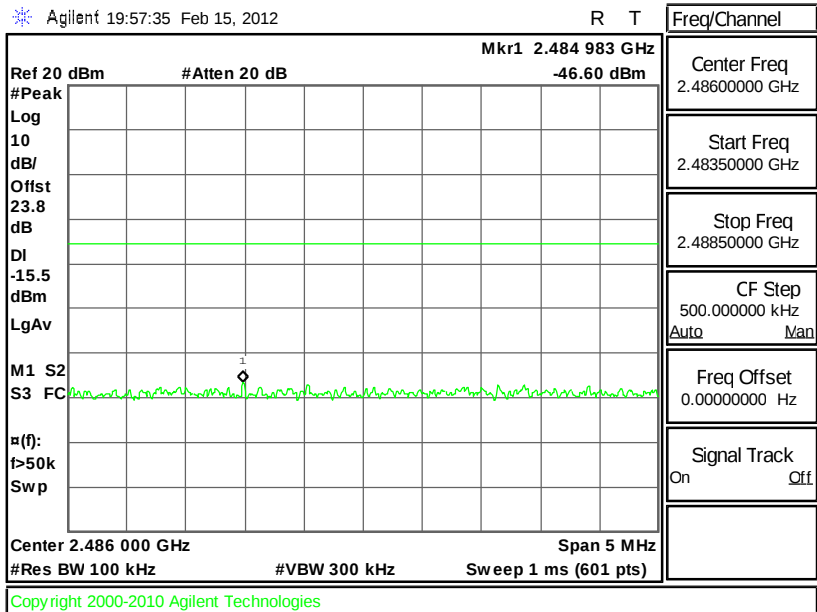
3.3.6 Test Plots of Conducted Band Edges

Test Mode :	Mode 1 and 3	Temperature :	23~25℃
Test Band :	802.11b	Relative Humidity :	57~59%
Test Channel :	01 and 11	Test Engineer :	Alan Liu

Low Band Edge Plot on 802.11b Channel 01

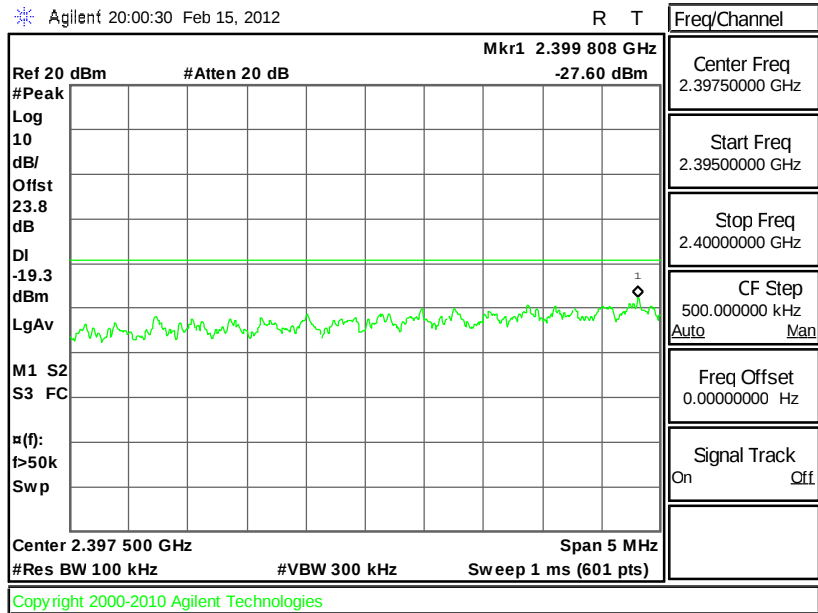


High Band Edge Plot on 802.11b Channel 11

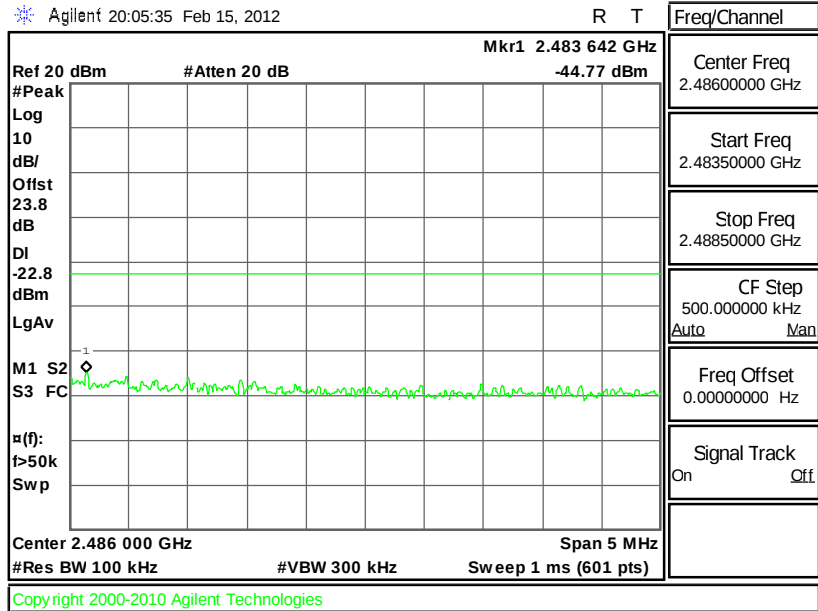


Test Mode :	Mode 4 and 6	Temperature :	23~25°C
Test Band :	802.11g	Relative Humidity :	57~59%
Test Channel :	01 and 11	Test Engineer :	Alan Liu

Low Band Edge Plot on 802.11g Channel 01

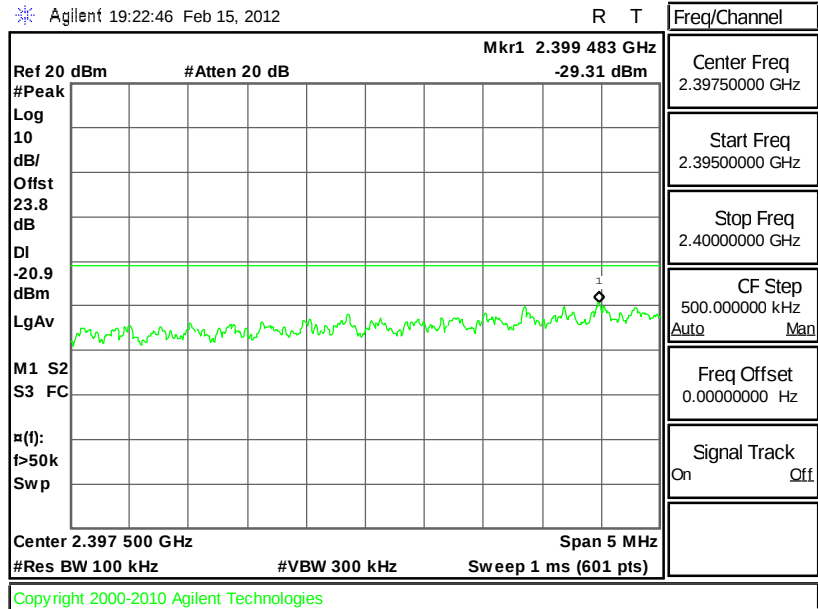


High Band Edge Plot on 802.11g Channel 11

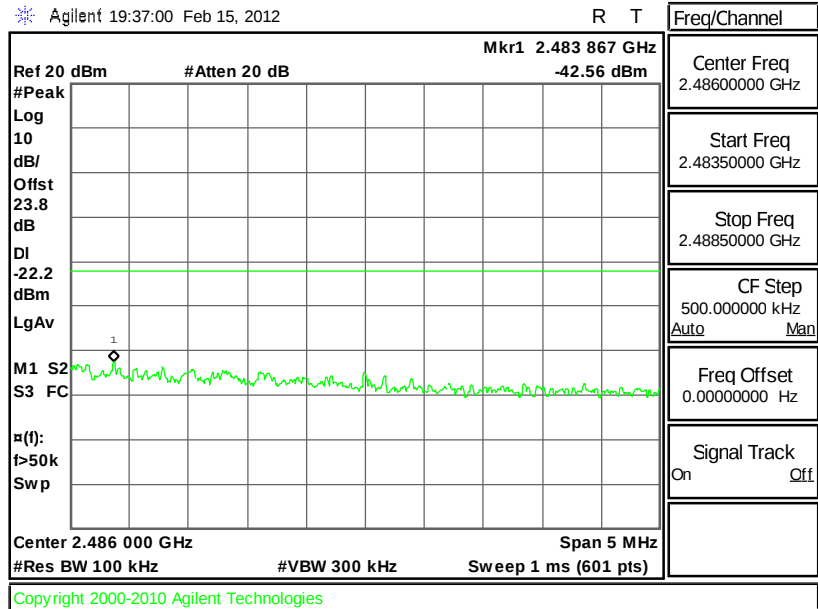


Test Mode :	Mode 7 and 9	Temperature :	23~25℃
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	57~59%
Test Channel :	01 and 11	Test Engineer :	Alan Liu

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



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



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.

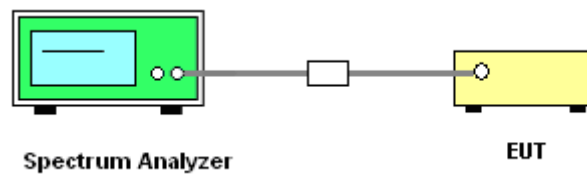
3.4.2 Measuring Instruments

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.

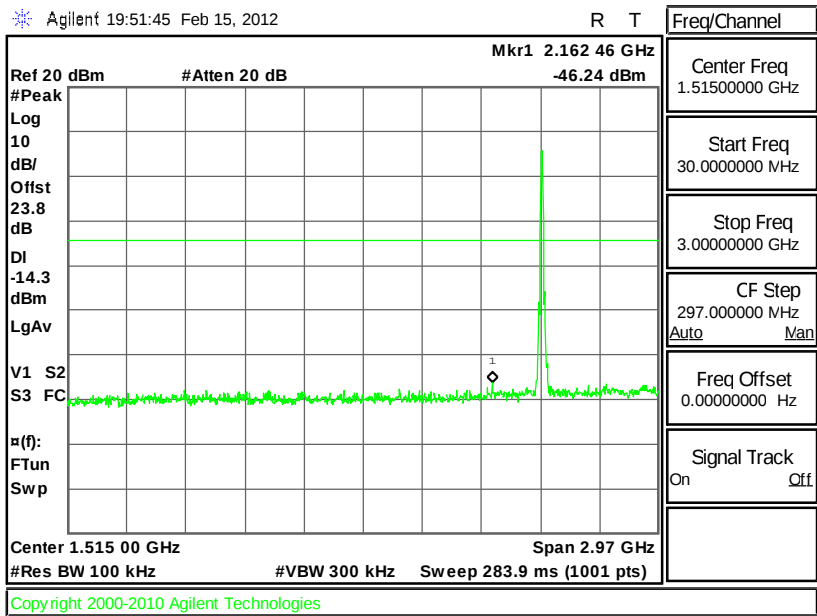
3.4.4 Test Setup



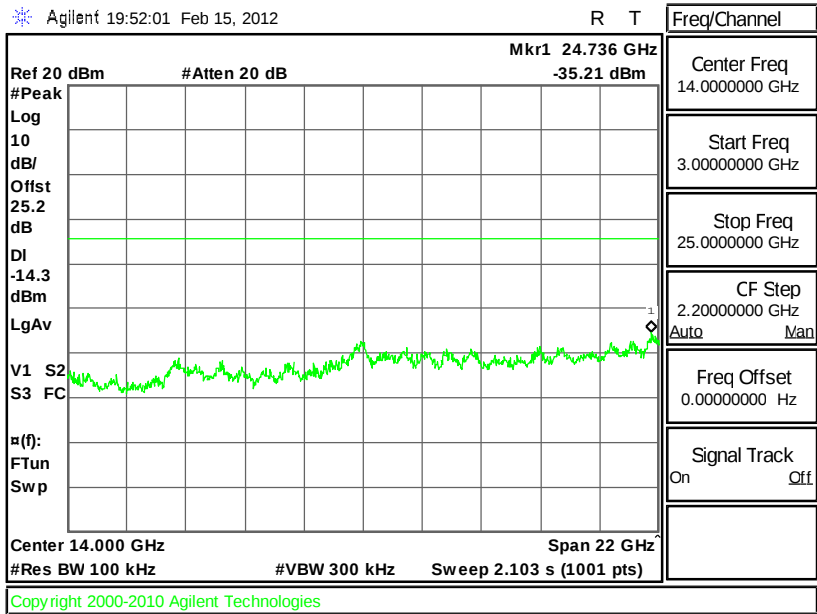
3.4.5 Test Plots of Spurious Emission

Test Mode :	Mode 1	Temperature :	23~25℃
Test Band :	802.11b	Relative Humidity :	57~59%
Test Channel :	01	Test Engineer :	Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

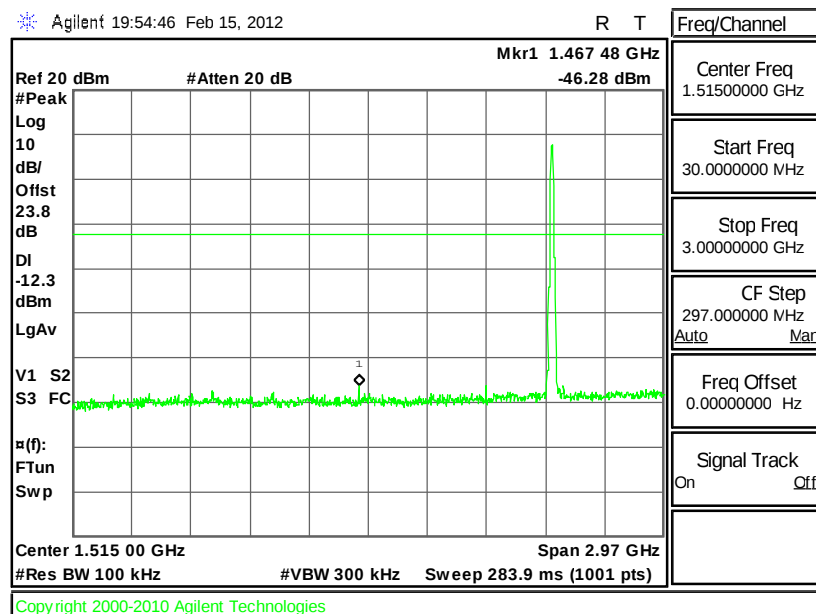


Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

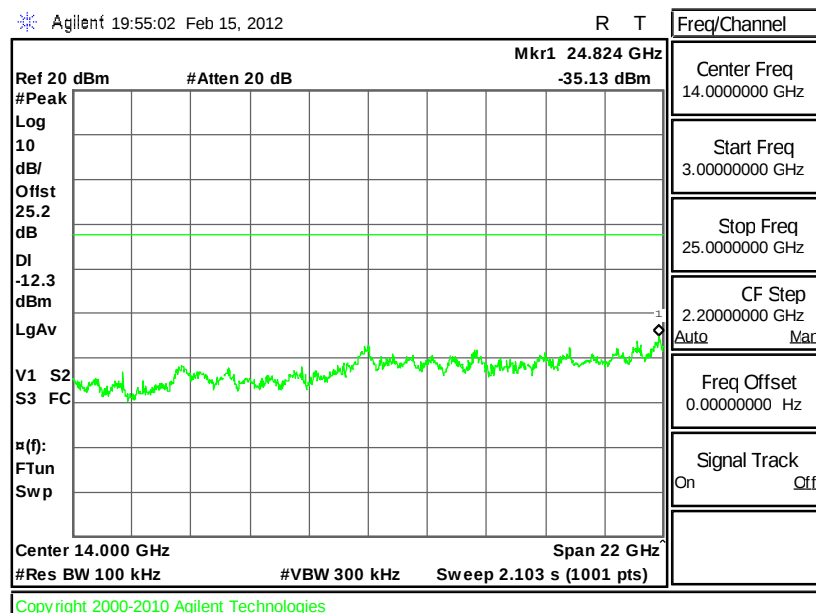


Test Mode :	Mode 2	Temperature :	23~25°C
Test Band :	802.11b	Relative Humidity :	57~59%
Test Channel :	06	Test Engineer :	Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

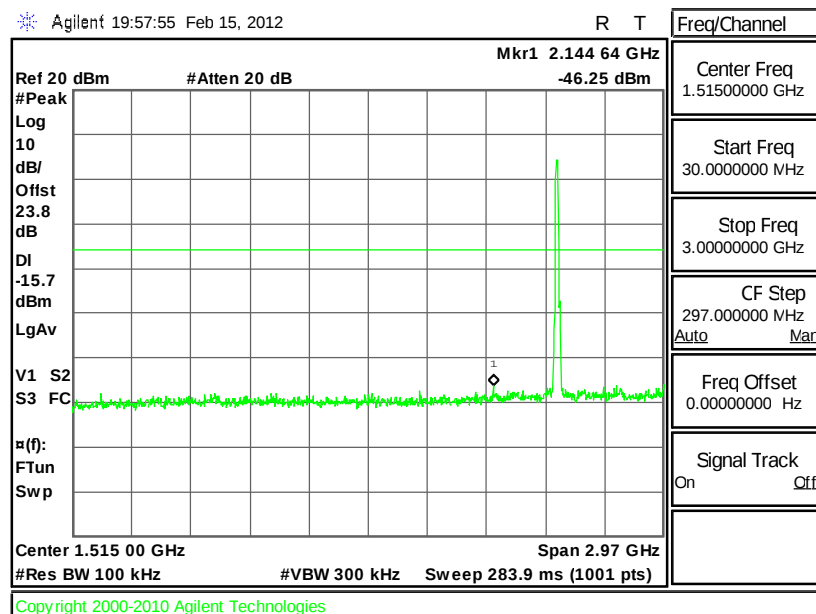


Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

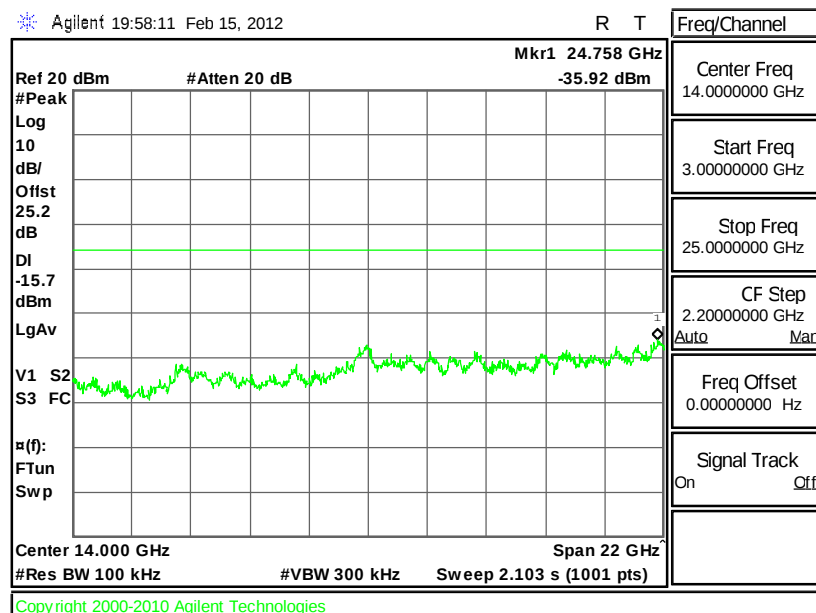


Test Mode :	Mode 3	Temperature :	23~25°C
Test Band :	802.11b	Relative Humidity :	57~59%
Test Channel :	11	Test Engineer :	Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

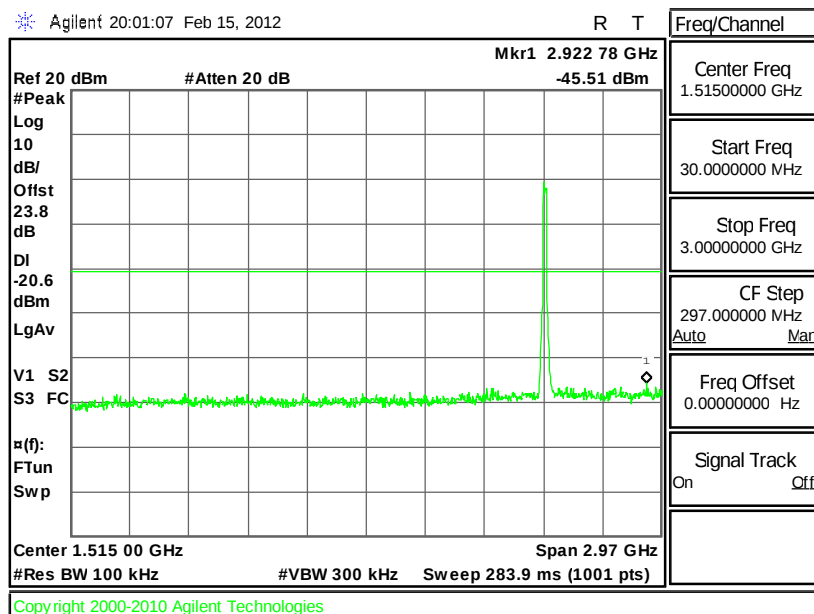


Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

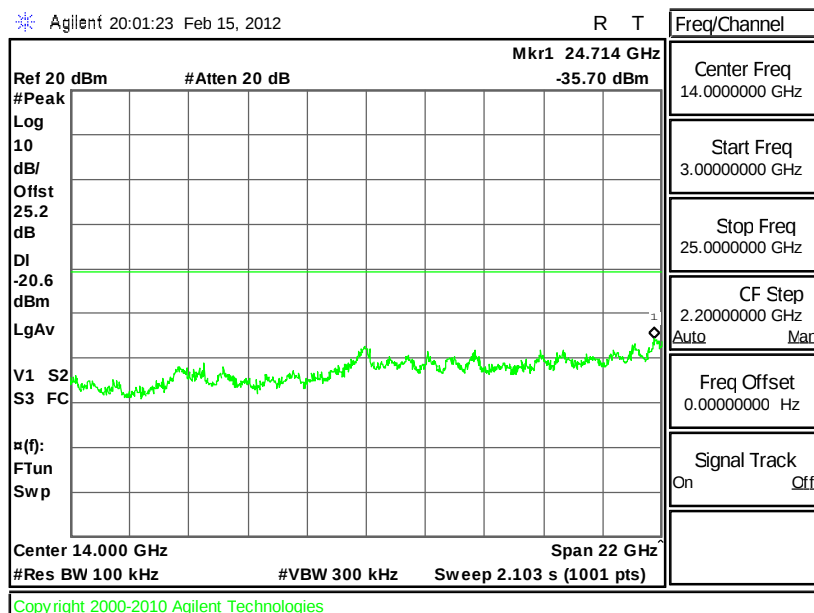


Test Mode :	Mode 4	Temperature :	23~25°C
Test Band :	802.11g	Relative Humidity :	57~59%
Test Channel :	01	Test Engineer :	Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

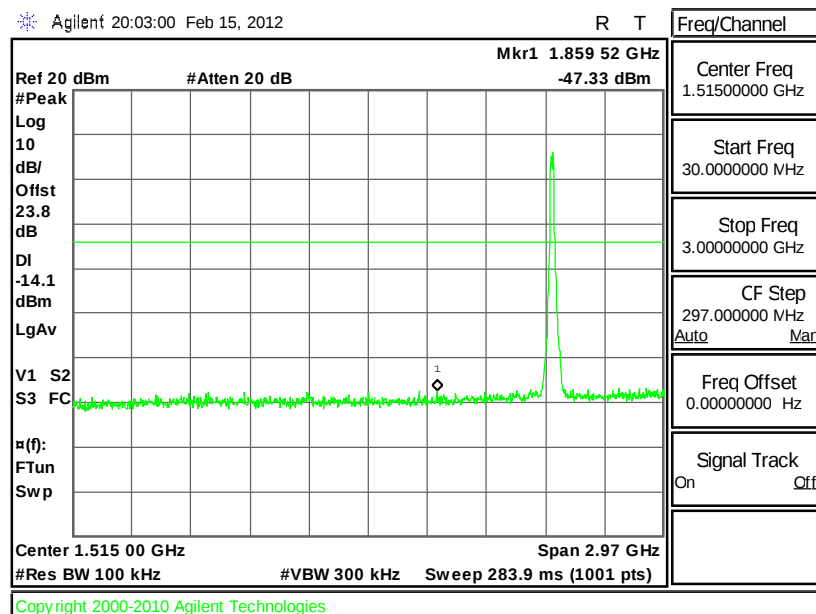


Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

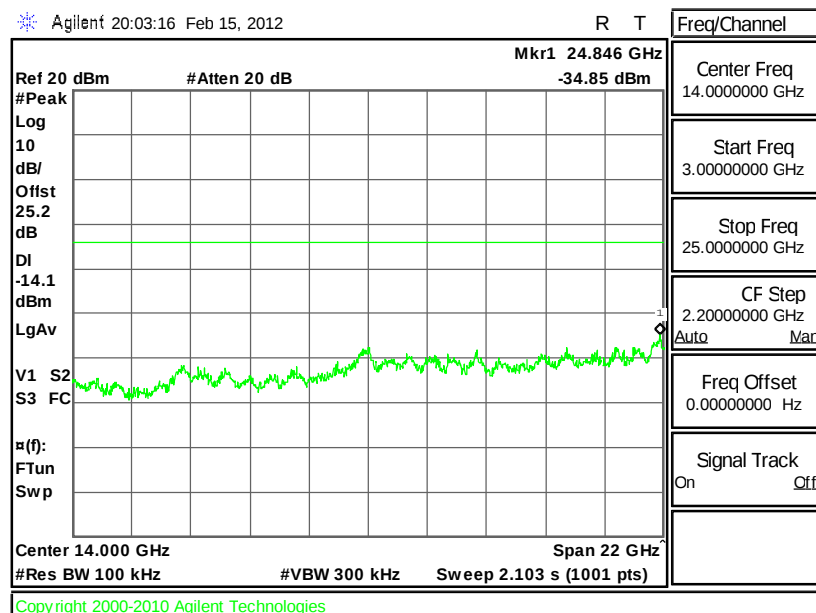


Test Mode :	Mode 5	Temperature :	23~25°C
Test Band :	802.11g	Relative Humidity :	57~59%
Test Channel :	06	Test Engineer :	Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

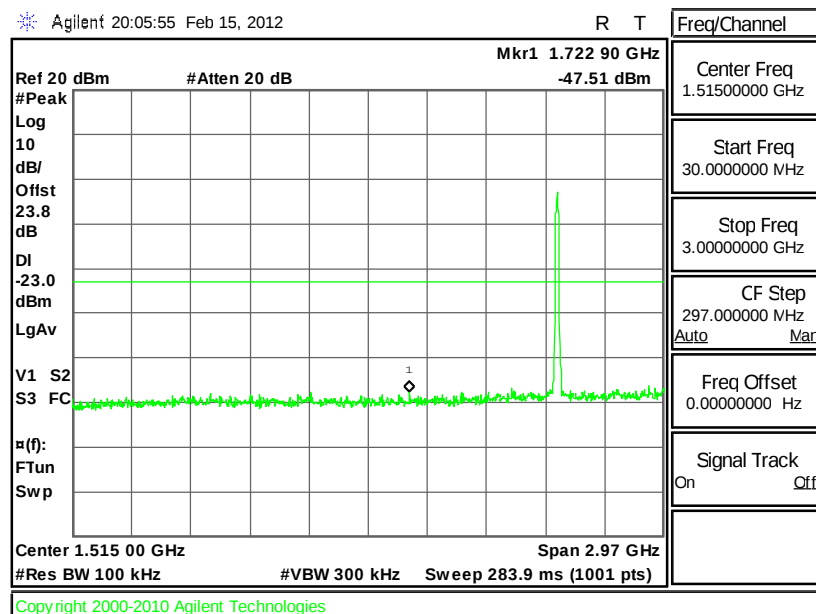


Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

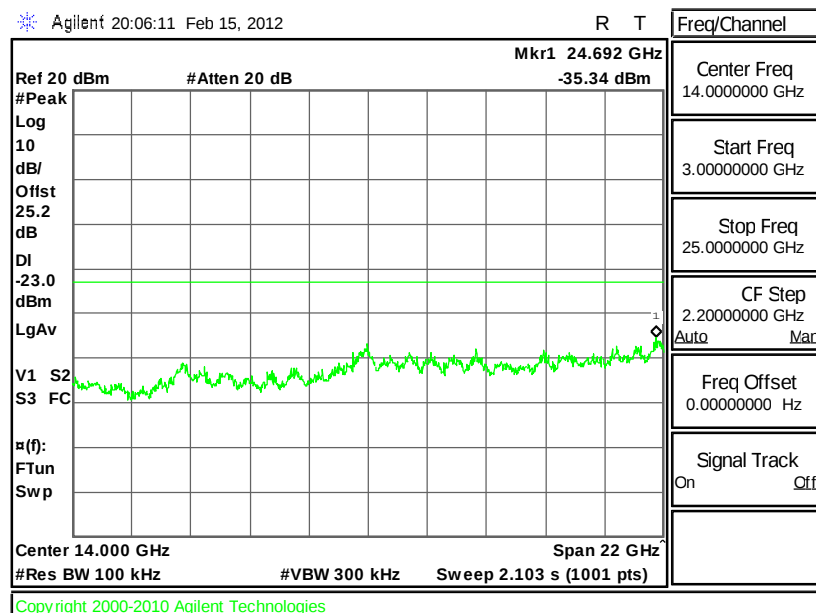


Test Mode :	Mode 6	Temperature :	23~25°C
Test Band :	802.11g	Relative Humidity :	57~59%
Test Channel :	11	Test Engineer :	Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

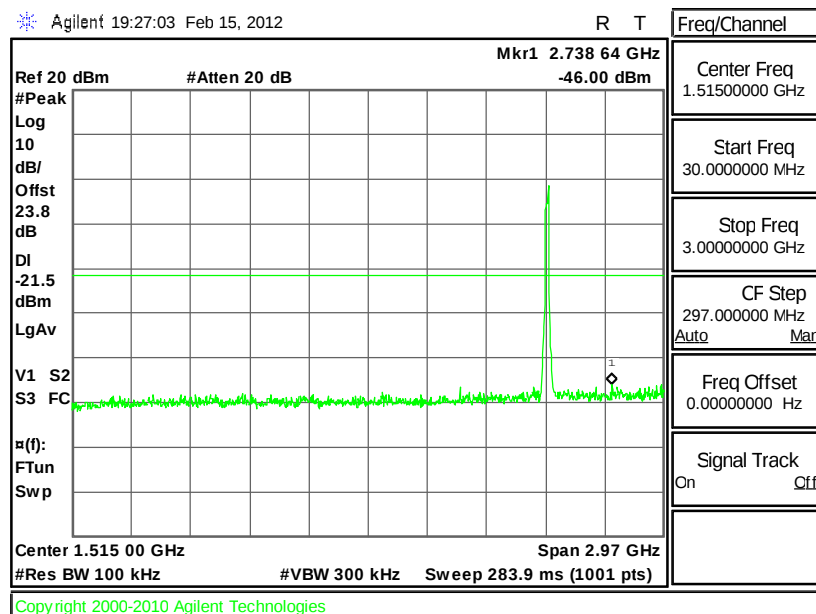


Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

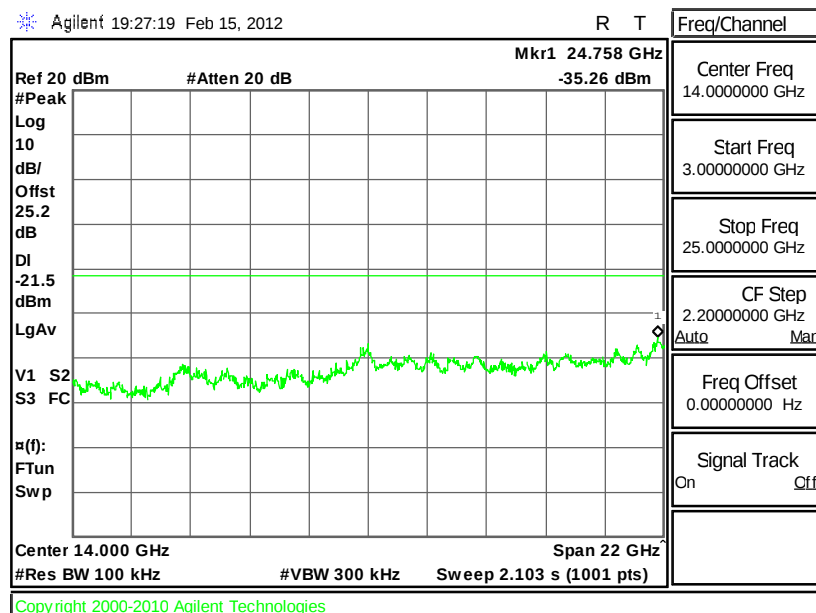


Test Mode :	Mode 7	Temperature :	23~25°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	57~59%
Test Channel :	01	Test Engineer :	Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

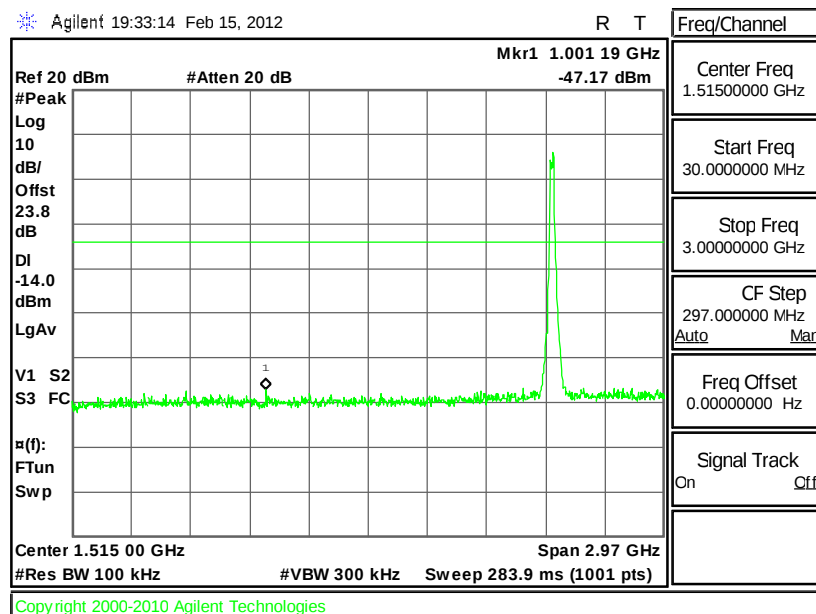


Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

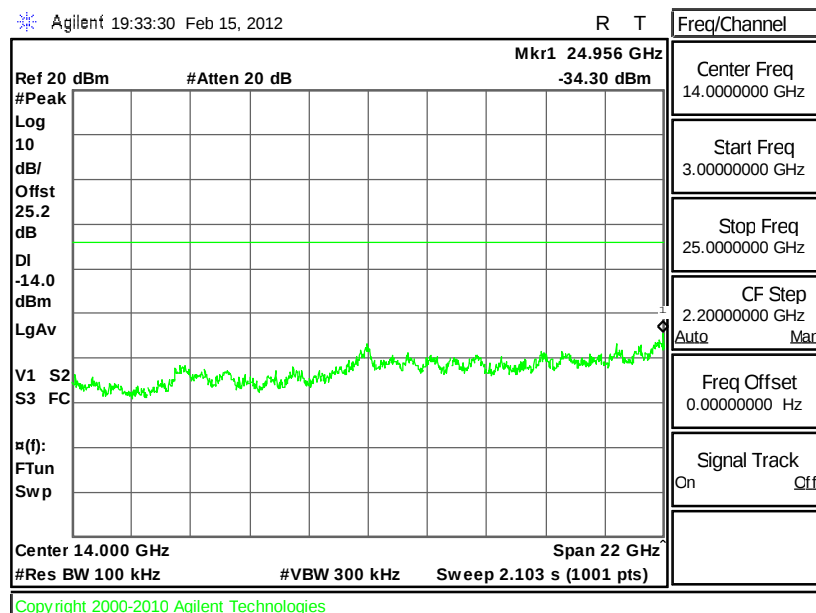


Test Mode :	Mode 8	Temperature :	23~25°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	57~59%
Test Channel :	06	Test Engineer :	Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

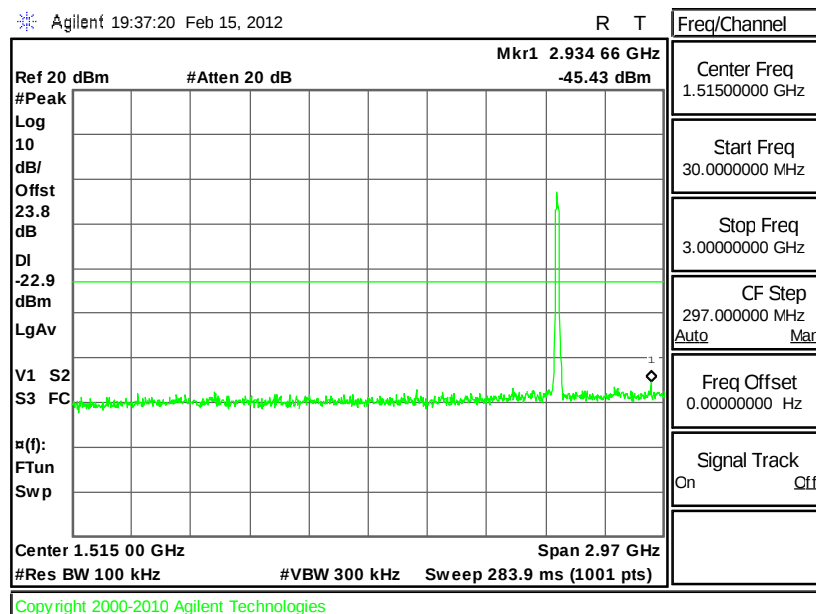


Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

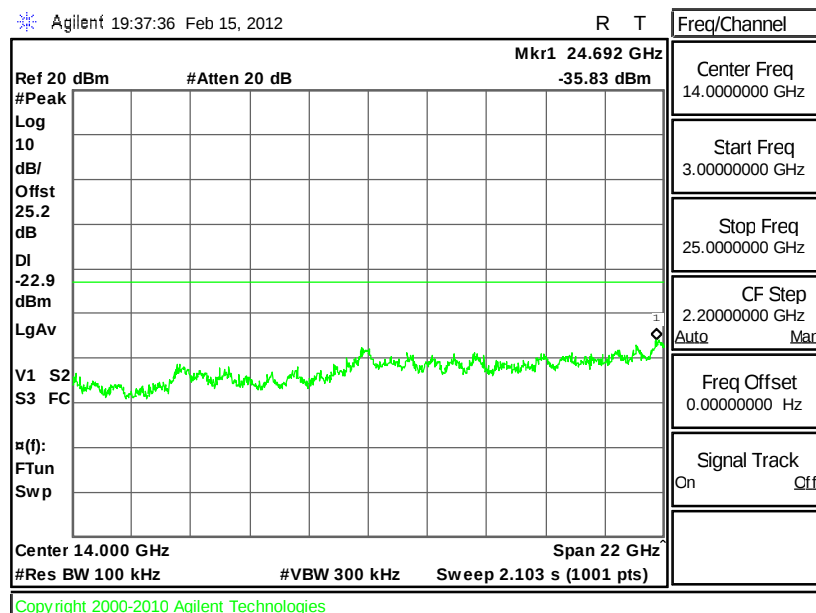


Test Mode :	Mode 9	Temperature :	23~25°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	57~59%
Test Channel :	11	Test Engineer :	Alan Liu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



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.

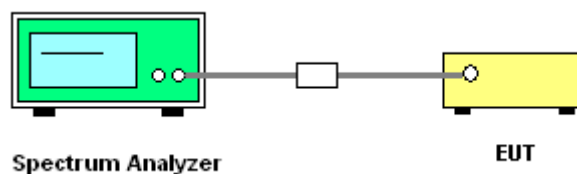
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The test follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Recorded the measured data offset with path loss from spectrum analyzer.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 KHz. Video bandwidth (VBW) = 300 KHz In order to make an accurate measurement, set the span to 5-30% greater than Emission Bandwidth (EBW)
5. Scale the observed power level to an equivalent value in 3 KHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(3\text{ KHz}/100\text{ KHz}) = -15.2\text{ dB}$, and the final result in following tables are demonstrated compliance to the limit.

3.5.4 Test Setup



3.5.5 Test Result of Power Spectral Density

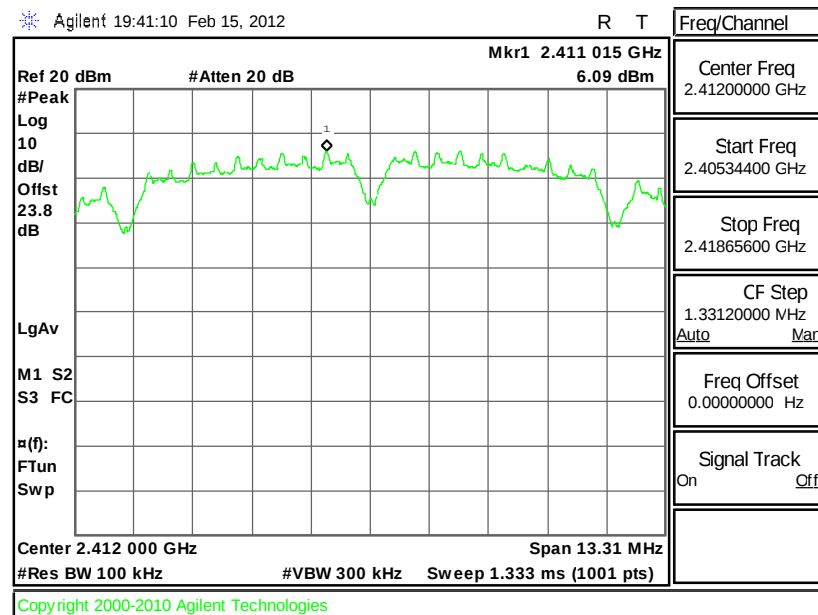
Test Mode :	Mode 1, 2, 3	Temperature :	23~25℃
Test Engineer :	Alan Liu	Relative Humidity :	57~59%

Channel	Frequency (MHz)	802.11b Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	6.09	-9.11	8	Pass
06	2437	7.58	-7.62	8	Pass
11	2462	4.49	-10.71	8	Pass

Note:

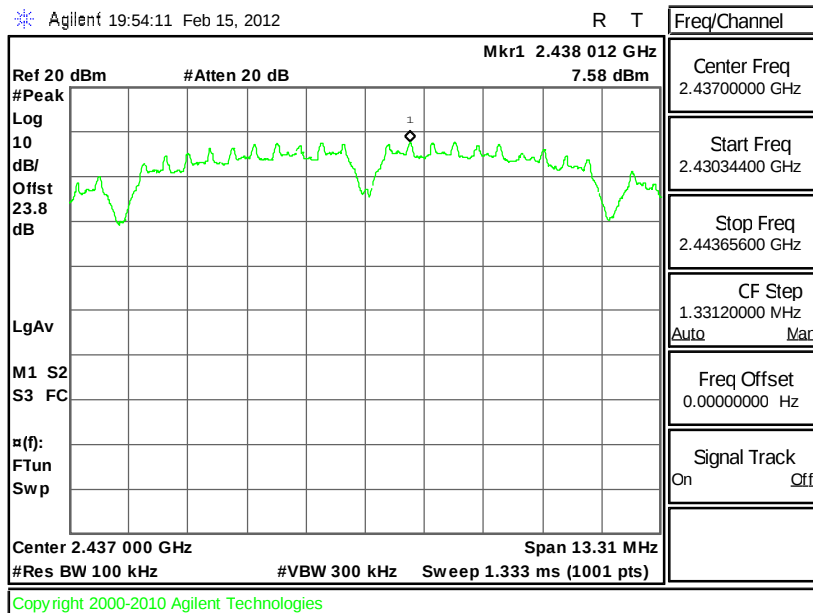
1. Measured power density (dBm) has offset with cable loss.
2. BWCF (dB) = $10 \log (3K/100K) = -15.2 \text{ dB}$
3. Power Density/ 3KHz (dBm)= Measured power density/ 100KHz (dBm) + BWCF (dB)

Mode 1 : PSD Plot on 802.11b Channel 01

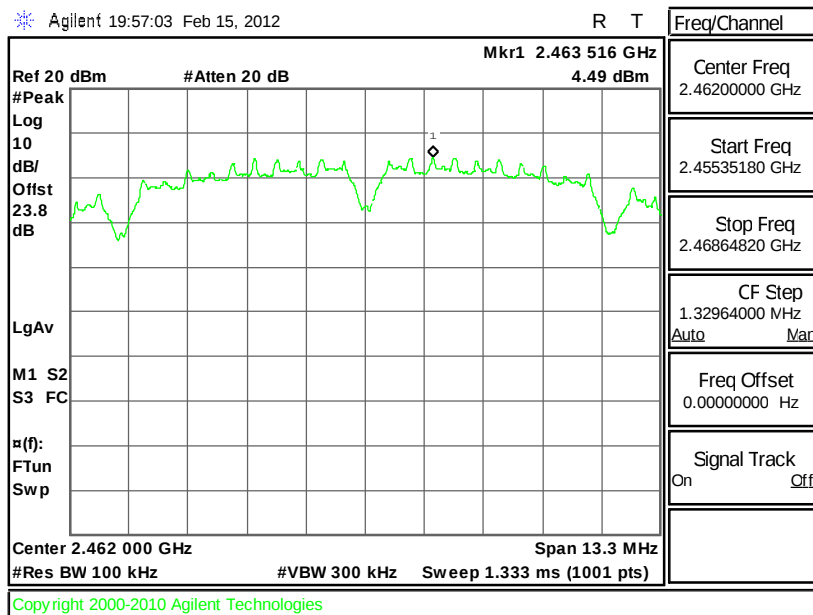


Note : Hereinafter, the PSD are correlated with the cable loss and the BWCF.

Mode 2 : PSD Plot on 802.11b Channel 06



Mode 3 : PSD Plot on 802.11b Channel 11



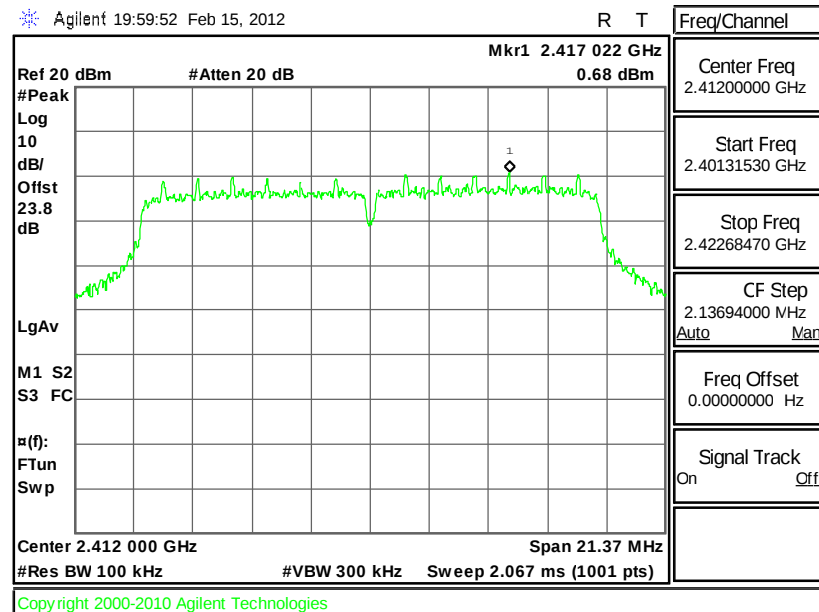
Test Mode :	Mode 4, 5, 6	Temperature :	23~25℃
Test Engineer :	Alan Liu	Relative Humidity :	57~59%

Channel	Frequency (MHz)	802.11g Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	0.68	-14.52	8	Pass
06	2437	6.48	-8.72	8	Pass
11	2462	-2.83	-18.03	8	Pass

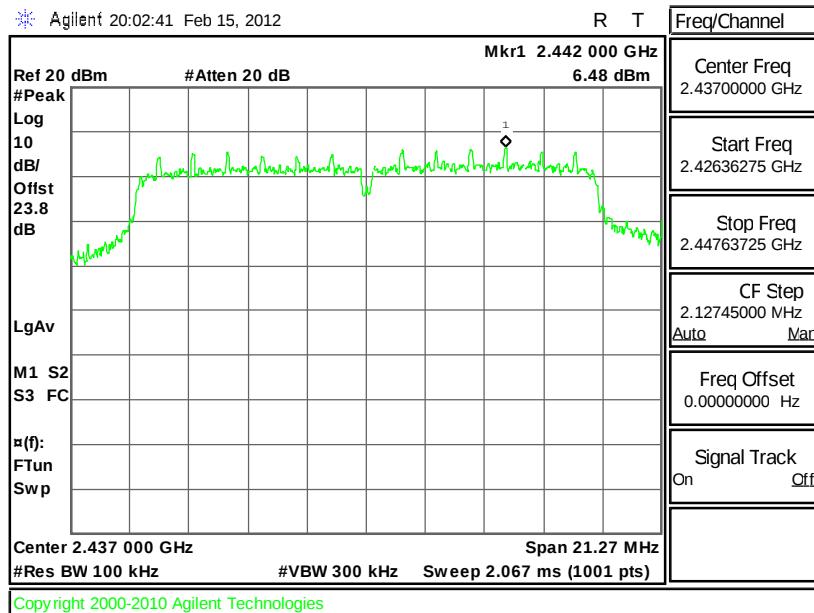
Note:

1. Measured power density (dBm) has offset with cable loss.
2. $BWCF (dB) = 10 \log (3K/100K) = -15.2 \text{ dB}$
3. $\text{Power Density/ 3KHz (dBm)} = \text{Measured power density/ 100KHz (dBm)} + BWCF (dB)$

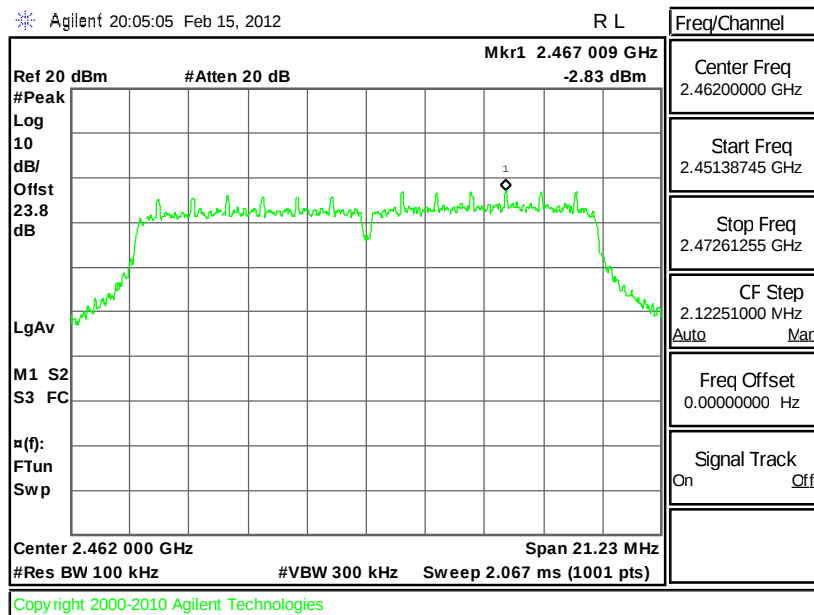
Mode 4 : PSD Plot on 802.11g Channel 01



Mode 5 : PSD Plot on 802.11g Channel 06



Mode 6 : PSD Plot on 802.11g Channel 11



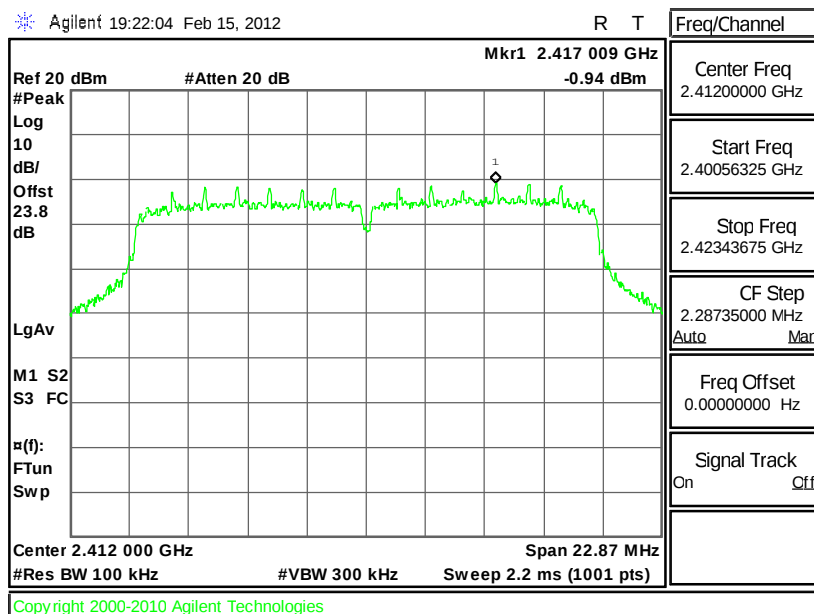
Test Mode :	Mode 7, 8, 9	Temperature :	23~25℃
Test Engineer :	Alan Liu	Relative Humidity :	57~59%

Channel	Frequency (MHz)	802.11g/n (BW 20MHz) Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	-0.94	-16.14	8	Pass
06	2437	6.75	-8.45	8	Pass
11	2462	-2.20	-17.40	8	Pass

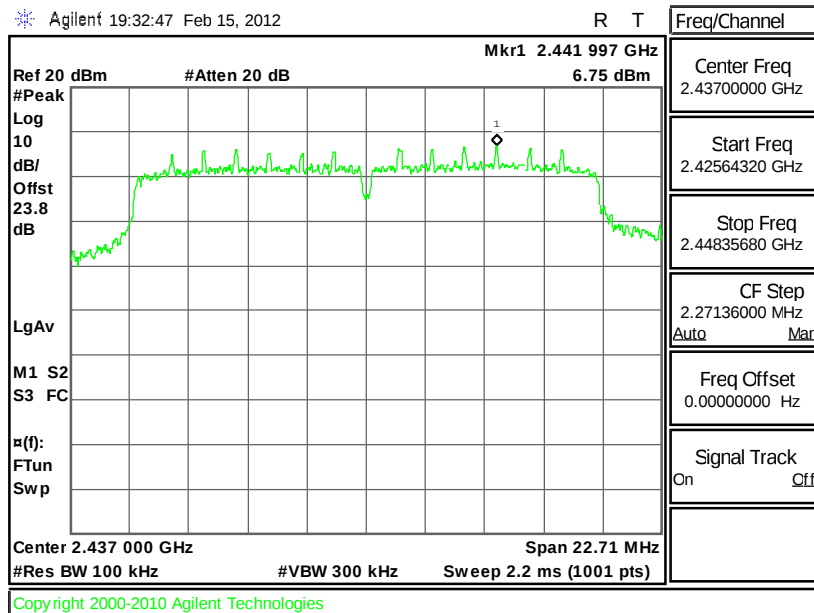
Note:

1. Measured power density (dBm) has offset with cable loss.
2. $BWCF (dB) = 10 \log (3k/100k) = -15.2 \text{ dB}$
3. $\text{Power Density/ 3KHz (dBm)} = \text{Measured power density/ 100KHz (dBm)} + BWCF (dB)$

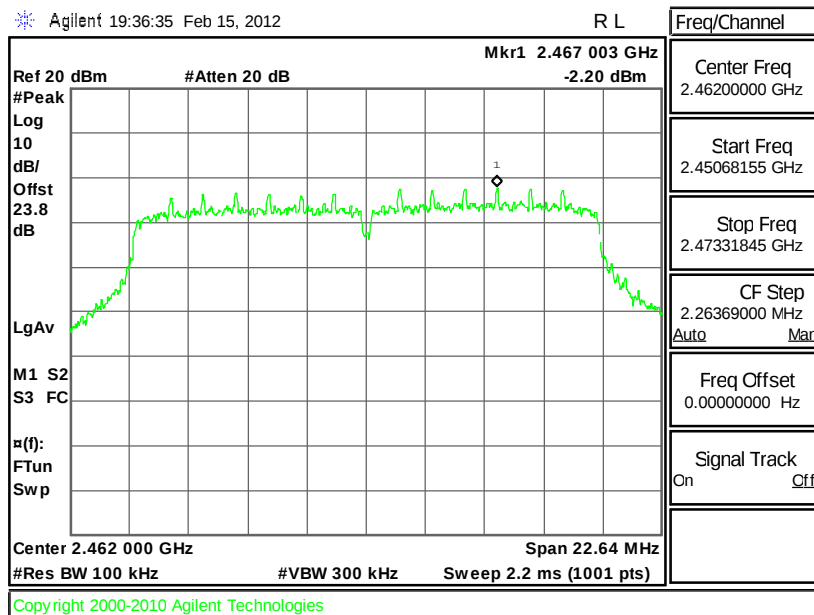
Mode 7 : PSD Plot on 802.11g/n (BW 20MHz) Channel 01



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



Mode 9 : PSD Plot on 802.11g/n (BW 20MHz) Channel 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.

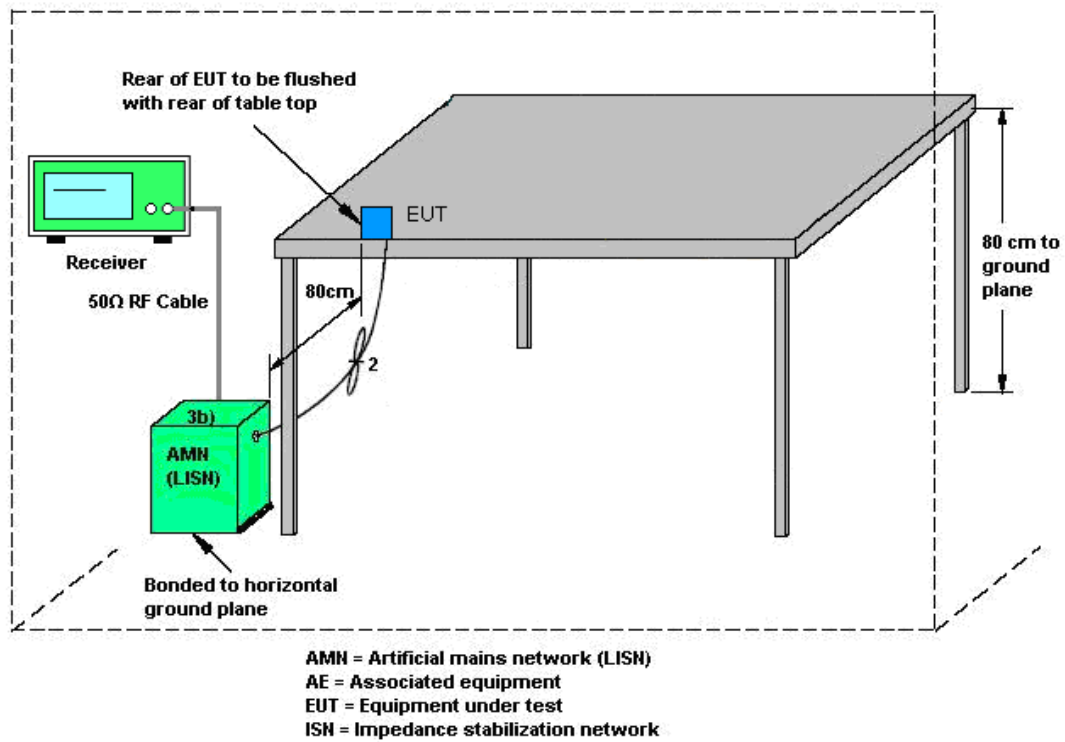
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

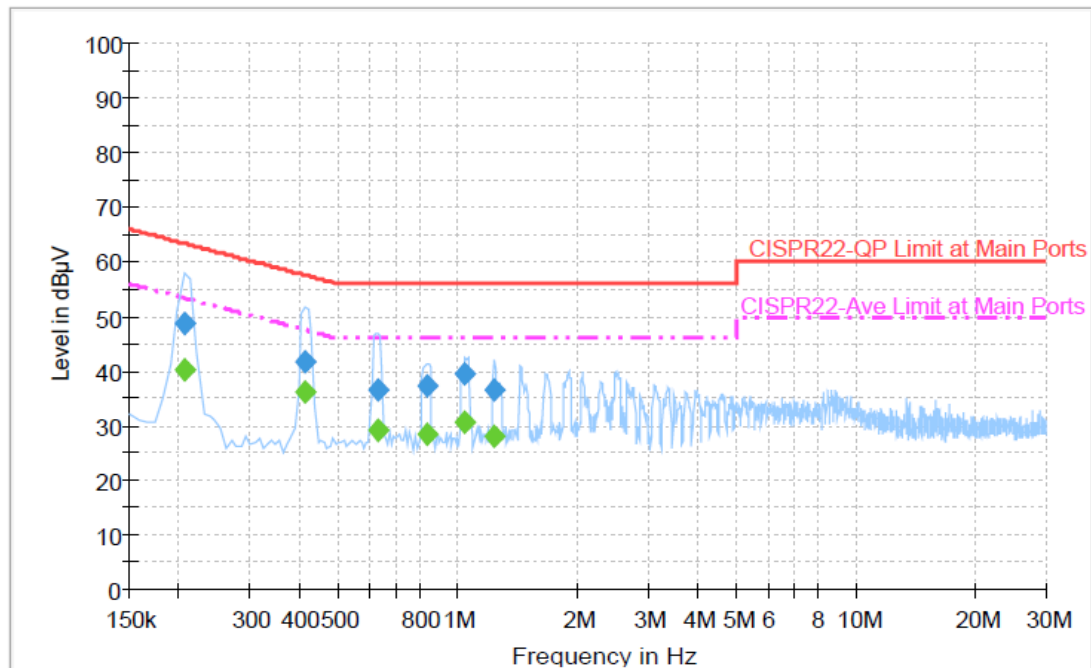
6. The testing follows the guidelines in ANSI C63.4-2003.
7. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
8. Connect EUT to the power mains through a line impedance stabilization network (LISN).
9. All the support units are connecting to the other LISN.
10. The LISN provides 50 ohm coupling impedance for the measuring instrument.
11. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
12. Both sides of AC line were checked for maximum conducted interference.
13. The frequency range from 150 kHz to 30 MHz was searched.
14. 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 :	EUT + WLAN Tx + Adapter + Earphone		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



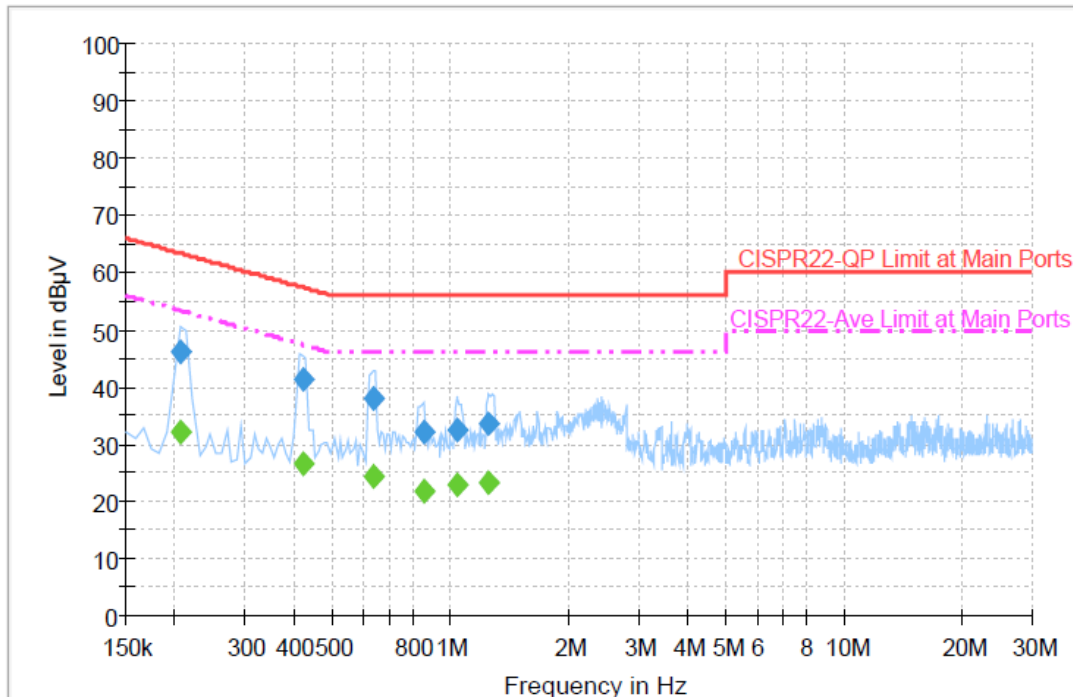
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.206000	48.7	Off	L1	19.3	14.7	63.4
0.414000	41.6	Off	L1	19.4	16.0	57.6
0.630000	36.7	Off	L1	19.4	19.3	56.0
0.838000	37.3	Off	L1	19.5	18.7	56.0
1.046000	39.5	Off	L1	19.4	16.5	56.0
1.238000	36.7	Off	L1	19.4	19.3	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.206000	40.4	Off	L1	19.3	13.0	53.4
0.414000	36.0	Off	L1	19.4	11.6	47.6
0.630000	29.2	Off	L1	19.4	16.8	46.0
0.838000	28.3	Off	L1	19.5	17.7	46.0
1.046000	30.5	Off	L1	19.4	15.5	46.0
1.238000	28.0	Off	L1	19.4	18.0	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 :	EUT + WLAN Tx + Adapter + Earphone		
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)
0.206000	46.3	Off	N	19.3	17.1	63.4
0.422000	41.2	Off	N	19.4	16.2	57.4
0.638000	37.9	Off	N	19.4	18.1	56.0
0.854000	32.1	Off	N	19.5	23.9	56.0
1.038000	32.6	Off	N	19.4	23.4	56.0
1.254000	33.6	Off	N	19.5	22.4	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.206000	32.0	Off	N	19.3	21.4	53.4
0.422000	26.7	Off	N	19.4	20.7	47.4
0.638000	24.3	Off	N	19.4	21.7	46.0
0.854000	21.6	Off	N	19.5	24.4	46.0
1.038000	22.9	Off	N	19.4	23.1	46.0
1.254000	23.4	Off	N	19.5	22.6	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

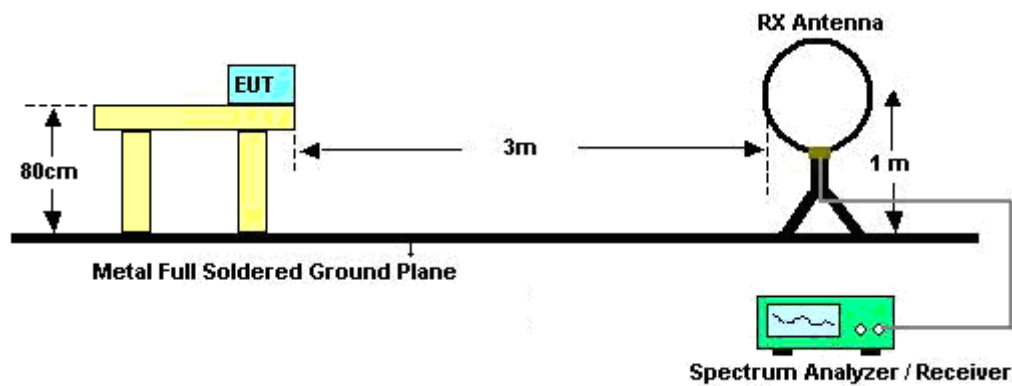
See list of measuring instruments of this test report.

3.7.3 Test Procedures

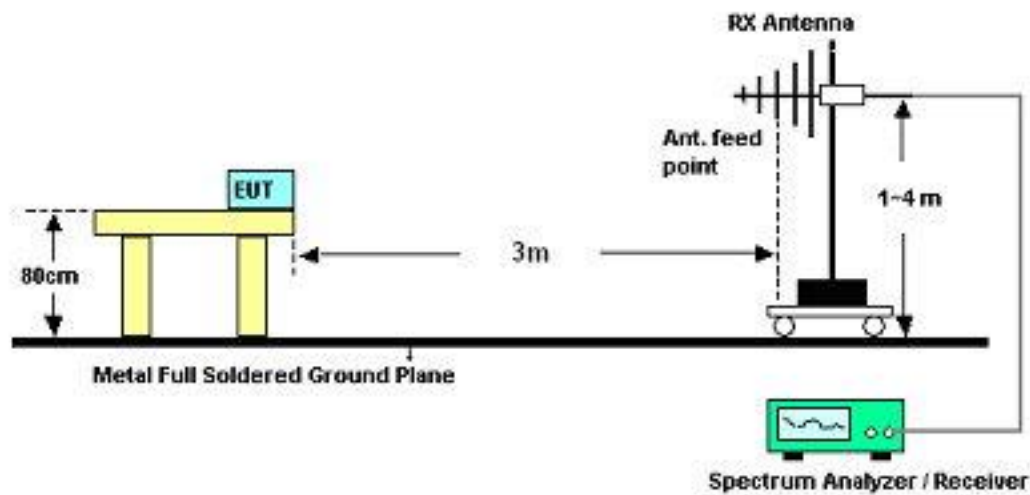
1. The testing follows the guidelines in FCC KDB Publication No. 558074 D01 DTS Meas Guidance v01.
2. Use the following spectrum analyzer settings:
 - (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = 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

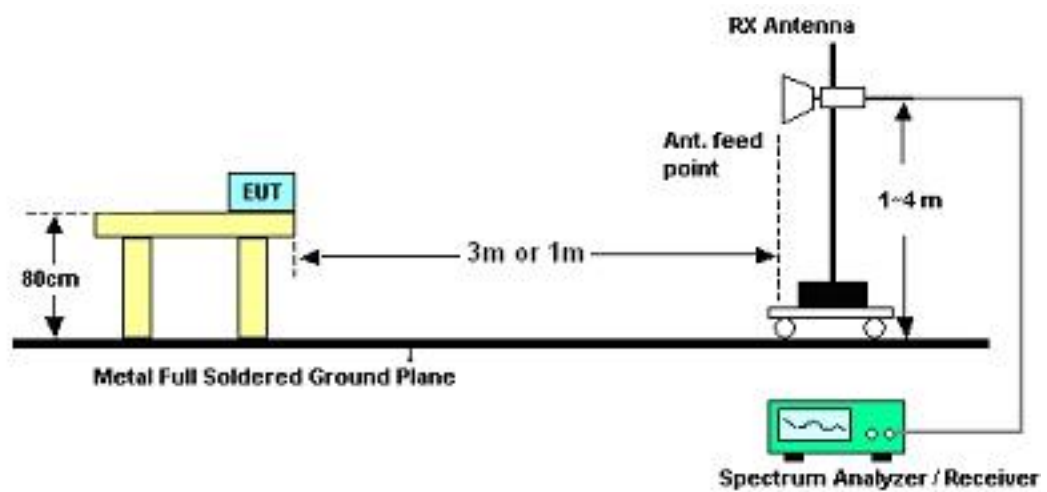
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

The low frequency, which started from 9 KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

3.7.6 Test Result of Radiated Emission (30 MHz ~ 10th Harmonic)

<Antenna 1>

Test Mode :	Mode 1	Temperature :	19~21℃
Test Channel :	01	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3213 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 106.78 dBuV/m - 20dB = 86.78 dBuV/m.		

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	56.14	-17.86	74	52.01	32.06	6.03	33.96	100	260	Peak
2386.57	48.25	-5.75	54	44.12	32.06	6.03	33.96	100	260	Average
2412	106.78	-	-	102.6	32.08	6.07	33.97	100	260	Peak
2412	102.44	-	-	98.26	32.08	6.07	33.97	100	260	Average
2484	37.82	-16.18	54	33.46	32.18	6.18	34	100	260	Average
2484	50.87	-23.13	74	46.51	32.18	6.18	34	100	260	Peak
3213	43.79	-42.99	86.78	62.71	32.74	7.19	58.85	100	0	Peak
4824	46.88	-27.12	74	62.77	34.1	9.12	59.11	100	0	Peak

Test Mode :	Mode 1	Temperature :	19~21℃
Test Channel :	01	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3213 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

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	55.04	-18.96	74	50.91	32.06	6.03	33.96	134	10	Peak
2385.81	49.08	-4.92	54	44.95	32.06	6.03	33.96	134	10	Average
2412	107.05	-	-	102.87	32.08	6.07	33.97	134	10	Peak
2412	102.98	-	-	98.8	32.08	6.07	33.97	134	10	Average
2500	39.63	-14.37	54	35.25	32.2	6.18	34	134	10	Average
2500	52.21	-21.79	74	47.83	32.2	6.18	34	134	10	Peak
3213	40.55	-46.5	87.05	59.47	32.74	7.19	58.85	100	0	Peak
4824	47.66	-26.34	74	63.55	34.1	9.12	59.11	100	0	Peak

Test Mode :	Mode 2	Temperature :	19~21℃
Test Channel :	06	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.62	19.35	-20.65	40	31.7	18.56	0.55	31.46	-	-	Peak
162.57	25.31	-18.19	43.5	45.39	10.22	1.22	31.52	100	25	Peak
234.93	24.31	-21.69	46	42.72	11.52	1.5	31.43	-	-	Peak
346.2	21.55	-24.45	46	36.34	14.56	1.94	31.29	-	-	Peak
533.8	22.4	-23.6	46	32.23	18.66	2.52	31.01	-	-	Peak
995.8	25.38	-28.62	54	27.91	24.54	3.51	30.58	-	-	Peak
2390	46.44	-27.56	74	42.31	32.06	6.03	33.96	100	252	Peak
2390	35.5	-18.5	54	31.37	32.06	6.03	33.96	100	252	Average
2437	108.91	-	-	104.68	32.1	6.11	33.98	100	252	Peak
2437	104.75	-	-	100.49	32.13	6.11	33.98	100	252	Average
2486	49.9	-24.1	74	45.54	32.18	6.18	34	100	252	Peak
2486	40.39	-13.61	54	36.03	32.18	6.18	34	100	252	Average
4874	48.14	-25.86	74	63.94	34.1	9.14	59.04	100	0	Peak

Test Mode :	Mode 2	Temperature :	19~21℃
Test Channel :	06	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal 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
66.18	20.73	-19.27	40	45.24	6.22	0.81	31.54	-	-	Peak
115.86	26.23	-17.27	43.5	45.37	11.34	1.08	31.56	100	81	Peak
295.41	22.54	-23.46	46	38.88	13.25	1.74	31.33	-	-	Peak
335.7	21.47	-24.53	46	36.63	14.27	1.87	31.3	-	-	Peak
794.2	23.55	-22.45	46	29.09	22.01	3.13	30.68	-	-	Peak
965	25.57	-28.43	54	28.58	24.08	3.48	30.57	-	-	Peak
2390	46.94	-27.06	74	42.81	32.06	6.03	33.96	133	8	Peak
2390	35.21	-18.79	54	31.08	32.06	6.03	33.96	133	8	Average
2437	109.65	-	-	105.39	32.13	6.11	33.98	133	8	Peak
2437	105.54	-	-	101.28	32.13	6.11	33.98	133	8	Average
2484	53.44	-20.56	74	49.08	32.18	6.18	34	133	8	Peak
2484	43.67	-10.33	54	39.31	32.18	6.18	34	133	8	Average
4874	48.25	-25.75	74	64.06	34.1	9.13	59.04	100	0	Peak
7311	44.19	-29.81	74	56.56	35.7	10.06	58.13	100	0	Peak

Test Mode :	Mode 3	Temperature :	19~21℃
Test Channel :	11	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored 2. 3282 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

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	45.5	-28.5	74	41.37	32.06	6.03	33.96	100	252	Peak
2388	33.49	-20.51	54	29.36	32.06	6.03	33.96	100	252	Average
2462	100.57	-	-	96.27	32.15	6.14	33.99	100	252	Average
2462	104.72	-	-	100.42	32.15	6.14	33.99	100	252	Peak
2485.37	58.69	-15.31	74	54.33	32.18	6.18	34	100	252	Peak
2485.37	49.22	-4.78	54	44.86	32.18	6.18	34	100	252	Average
3282	41.86	-42.86	84.72	60.66	32.76	7.34	58.9	100	0	Peak
4924	43.92	-30.08	74	59.63	34.1	9.15	58.96	100	0	Peak

Test Mode :	Mode 3	Temperature :	19~21℃
Test Channel :	11	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored 2. 3282 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	45.36	-28.64	74	41.23	32.06	6.03	33.96	102	6	Peak
2390	33.5	-20.5	54	29.37	32.06	6.03	33.96	102	6	Average
2462	100.9	-	-	96.6	32.15	6.14	33.99	102	6	Average
2462	104.82	-	-	100.52	32.15	6.14	33.99	102	6	Peak
2484.61	59.96	-14.04	74	55.6	32.18	6.18	34	102	6	Peak
2484.61	50.97	-3.03	54	46.61	32.18	6.18	34	102	6	Average
3282	38.9	-45.92	84.82	57.7	32.76	7.34	58.9	100	0	Peak
4924	42.41	-31.59	74	58.12	34.1	9.15	58.96	100	0	Peak

Test Mode :	Mode 4	Temperature :	19~21℃
Test Channel :	01	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3213 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

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	69.79	-4.21	74	65.66	32.06	6.03	33.96	100	258	Peak
2389.99	49.46	-4.54	54	45.33	32.06	6.03	33.96	100	258	Average
2412	105.12	-	-	100.94	32.08	6.07	33.97	100	258	Peak
2412	93.58	-	-	89.4	32.08	6.07	33.97	100	258	Average
2494	37.87	-16.13	54	33.49	32.2	6.18	34	100	258	Average
2494	49.86	-24.14	74	45.48	32.2	6.18	34	100	258	Peak
3213	44.23	-40.89	85.12	63.15	32.74	7.19	58.85	100	0	Peak
4824	42.64	-31.36	74	58.53	34.1	9.12	59.11	100	0	Peak

Test Mode :	Mode 4	Temperature :	19~21℃
Test Channel :	01	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3213 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

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	71.61	-2.39	74	67.48	32.06	6.03	33.96	106	14	Peak
2389.99	50.64	-3.36	54	46.51	32.06	6.03	33.96	106	14	Average
2412	105.47	-	-	101.27	32.1	6.07	33.97	106	14	Peak
2412	94.46	-	-	90.28	32.08	6.07	33.97	106	14	Average
2494	38.98	-15.02	54	34.6	32.2	6.18	34	106	14	Average
2494	51.7	-22.3	74	47.32	32.2	6.18	34	106	14	Peak
3213	40.51	-44.96	85.47	59.43	32.74	7.19	58.85	100	0	Peak
4824	43.02	-30.98	74	58.91	34.1	9.12	59.11	100	0	Peak

Test Mode :	Mode 5	Temperature :	19~21℃
Test Channel :	06	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	19.42	-20.58	40	31.77	18.56	0.55	31.46	100	37	Peak
119.37	13.4	-30.1	43.5	32.25	11.61	1.1	31.56	-	-	Peak
255.45	16.37	-29.63	46	33.56	12.67	1.56	31.42	-	-	Peak
533.8	20.41	-25.59	46	30.24	18.66	2.52	31.01	-	-	Peak
788.6	23.06	-22.94	46	28.69	21.93	3.12	30.68	-	-	Peak
995.8	25.51	-28.49	54	28.04	24.54	3.51	30.58	-	-	Peak
2390	63.58	-10.42	74	59.45	32.06	6.03	33.96	100	261	Peak
2390	41.38	-12.62	54	37.25	32.06	6.03	33.96	100	261	Average
2437	110.45	-	-	106.22	32.1	6.11	33.98	100	261	Peak
2437	99.27	-	-	95.01	32.13	6.11	33.98	100	261	Average
2484	69.3	-4.7	74	64.94	32.18	6.18	34	100	261	Peak
2484	48.92	-5.08	54	44.56	32.18	6.18	34	100	261	Average
4874	45.34	-28.66	74	61.14	34.1	9.14	59.04	100	0	Peak
7311	50.4	-23.6	74	62.77	35.7	10.06	58.13	100	0	Peak

Test Mode :	Mode 5	Temperature :	19~21℃
Test Channel :	06	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	21	-19	40	32.64	19.28	0.54	31.46	100	76	Peak
147.18	20.37	-23.13	43.5	39.47	11.25	1.21	31.56	-	-	Peak
255.18	21.07	-24.93	46	38.26	12.67	1.56	31.42	-	-	Peak
338.5	20.41	-25.59	46	35.48	14.35	1.88	31.3	-	-	Peak
806.1	23.8	-22.2	46	29.17	22.16	3.16	30.69	-	-	Peak
979	26.48	-27.52	54	29.29	24.28	3.49	30.58	-	-	Peak
2390	62.99	-11.01	74	58.86	32.06	6.03	33.96	134	10	Peak
2390	40.96	-13.04	54	36.83	32.06	6.03	33.96	134	10	Average
2437	111.88	-	-	107.62	32.13	6.11	33.98	134	10	Peak
2437	100.8	-	-	96.54	32.13	6.11	33.98	134	10	Average
2484	71.23	-2.77	74	66.87	32.18	6.18	34	134	10	Peak
2484	50.12	-3.88	54	45.76	32.18	6.18	34	134	10	Average
4874	45.49	-28.51	74	61.3	34.1	9.13	59.04	100	0	Peak
7311	50.38	-23.62	74	62.75	35.7	10.06	58.13	100	0	Peak

Test Mode :	Mode 6	Temperature :	19~21℃
Test Channel :	11	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored 2. 3282 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

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
2374	46.05	-27.95	74	41.98	32.03	5.99	33.95	100	261	Peak
2374	33.56	-20.44	54	29.49	32.03	5.99	33.95	100	261	Average
2462	90.87	-	-	86.57	32.15	6.14	33.99	100	261	Average
2462	102.41	-	-	98.11	32.15	6.14	33.99	100	261	Peak
2483.5	70.35	-3.65	74	65.99	32.18	6.18	34	100	261	Peak
2483.5	45.76	-8.24	54	41.4	32.18	6.18	34	100	261	Average
3282	42.67	-39.74	82.41	61.47	32.76	7.34	58.9	100	0	Peak
4924	42.79	-31.21	74	58.5	34.1	9.15	58.96	100	0	Peak

Test Mode :	Mode 6	Temperature :	19~21℃
Test Channel :	11	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal 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
2390	45.38	-28.62	74	41.25	32.06	6.03	33.96	133	11	Peak
2390	33.41	-20.59	54	29.28	32.06	6.03	33.96	133	11	Average
2462	91.92	-	-	87.62	32.15	6.14	33.99	133	11	Average
2462	102.52	-	-	98.22	32.15	6.14	33.99	133	11	Peak
2483.66	71.57	-2.43	74	67.21	32.18	6.18	34	133	11	Peak
2483.66	47.15	-6.85	54	42.79	32.18	6.18	34	133	11	Average
4924	43.01	-30.99	74	58.72	34.1	9.15	58.96	100	0	Peak

Test Mode :	Mode 7	Temperature :	19~21℃
Test Channel :	01	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	68.2	-5.8	74	64.07	32.06	6.03	33.96	100	257	Peak
2389.99	47.55	-6.45	54	43.42	32.06	6.03	33.96	100	257	Average
2412	102.86	-	-	98.66	32.1	6.07	33.97	100	257	Peak
2412	91.52	-	-	87.34	32.08	6.07	33.97	100	257	Average
2492	36.19	-17.81	54	31.81	32.2	6.18	34	100	257	Average
2492	48.92	-25.08	74	44.54	32.2	6.18	34	100	257	Peak

Test Mode :	Mode 7	Temperature :	19~21℃
Test Channel :	01	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.42	71.5	-2.5	74	67.37	32.06	6.03	33.96	108	14	Peak
2389.42	51.18	-2.82	54	47.05	32.06	6.03	33.96	108	14	Average
2412	104	-	-	99.8	32.1	6.07	33.97	108	14	Peak
2412	93.13	-	-	88.95	32.08	6.07	33.97	108	14	Average
2494	37.2	-16.8	54	32.82	32.2	6.18	34	108	14	Average
2494	50.32	-23.68	74	45.94	32.2	6.18	34	108	14	Peak

Test Mode :	Mode 8	Temperature :	19~21℃
Test Channel :	06	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	64.09	-9.91	74	59.96	32.06	6.03	33.96	100	260	Peak
2390	40.18	-13.82	54	36.05	32.06	6.03	33.96	100	260	Average
2437	109.63	-	-	105.37	32.13	6.11	33.98	100	260	Peak
2437	98.24	-	-	93.98	32.13	6.11	33.98	100	260	Average
2484	68.86	-5.14	74	64.5	32.18	6.18	34	100	260	Peak
2484	47.13	-6.87	54	42.77	32.18	6.18	34	100	260	Average

Test Mode :	Mode 8	Temperature :	19~21℃
Test Channel :	06	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	62.68	-11.32	74	58.55	32.06	6.03	33.96	135	12	Peak
2390	39.82	-14.18	54	35.69	32.06	6.03	33.96	135	12	Average
2437	110.92	-	-	106.66	32.13	6.11	33.98	135	12	Peak
2437	99.46	-	-	95.2	32.13	6.11	33.98	135	12	Average
2484	71.28	-2.72	74	66.92	32.18	6.18	34	135	12	Peak
2484	48.81	-5.19	54	44.45	32.18	6.18	34	135	12	Average

Test Mode :	Mode 9	Temperature :	19~21℃
Test Channel :	11	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2380	45.76	-28.24	74	41.66	32.03	6.03	33.96	100	253	Peak
2380	33.36	-20.64	54	29.26	32.03	6.03	33.96	100	253	Average
2462	101.14	-	-	96.84	32.15	6.14	33.99	100	253	Peak
2462	90	-	-	85.7	32.15	6.14	33.99	100	253	Average
2483.5	67.69	-6.31	74	63.33	32.18	6.18	34	100	253	Peak
2483.5	44.46	-9.54	54	40.1	32.18	6.18	34	100	253	Average

Test Mode :	Mode 9	Temperature :	19~21℃
Test Channel :	11	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	45.07	-28.93	74	40.94	32.06	6.03	33.96	133	13	Peak
2390	33.19	-20.81	54	29.06	32.06	6.03	33.96	133	13	Average
2462	90.78	-	-	86.48	32.15	6.14	33.99	133	13	Average
2462	101.29	-	-	96.99	32.15	6.14	33.99	133	13	Peak
2483.5	71.69	-2.31	74	67.33	32.18	6.18	34	133	13	Peak
2483.5	48.12	-5.88	54	43.76	32.18	6.18	34	133	13	Average

<Antenna 2>

Test Mode :	Mode 10	Temperature :	19~21℃
Test Channel :	01	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal 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
2385.81	57.18	-16.82	74	53.05	32.06	6.03	33.96	102	253	Peak
2385.81	51.19	-2.81	54	47.06	32.06	6.03	33.96	102	253	Average
2412	109.31	-	-	105.13	32.08	6.07	33.97	102	253	Peak
2412	105.3	-	-	101.12	32.08	6.07	33.97	102	253	Average
2484	37.27	-16.73	54	32.91	32.18	6.18	34	102	253	Average
2484	49.41	-24.59	74	45.05	32.18	6.18	34	102	253	Peak
4824	42.46	-31.54	74	58.35	34.1	9.12	59.11	100	0	Peak

Test Mode :	Mode 10	Temperature :	19~21℃
Test Channel :	01	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal 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
2387.33	52.95	-21.05	74	48.82	32.06	6.03	33.96	100	350	Peak
2387.33	46.11	-7.89	54	41.98	32.06	6.03	33.96	100	350	Average
2412	104.17	-	-	99.99	32.08	6.07	33.97	100	350	Peak
2412	100.63	-	-	96.45	32.08	6.07	33.97	100	350	Average
2484	36.22	-17.78	54	31.86	32.18	6.18	34	100	350	Average
2484	49.05	-24.95	74	44.69	32.18	6.18	34	100	350	Peak
4824	44.18	-29.82	74	60.07	34.1	9.12	59.11	100	0	Peak

Test Mode :	Mode 11	Temperature :	19~21℃
Test Channel :	06	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal 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
52.14	22.85	-17.15	40	45.98	7.7	0.71	31.54	105	192	Peak
99.66	20.67	-22.83	43.5	41.42	9.8	0.99	31.54	-	-	Peak
149.61	20.8	-22.7	43.5	39.93	11.22	1.21	31.56	-	-	Peak
318.9	21.05	-24.95	46	36.74	13.82	1.81	31.32	-	-	Peak
399.4	19.85	-26.15	46	32.89	16	2.14	31.18	-	-	Peak
747.3	22.6	-23.4	46	28.96	21.3	3.05	30.71	-	-	Peak
2390	48.18	-25.82	74	44.05	32.06	6.03	33.96	100	253	Peak
2390	36.04	-17.96	54	31.91	32.06	6.03	33.96	100	253	Average
2437	110.39	-	-	106.16	32.1	6.11	33.98	100	253	Peak
2437	106.56	-	-	102.3	32.13	6.11	33.98	100	253	Average
2484	50.58	-23.42	74	46.22	32.18	6.18	34	100	253	Peak
2484	39.07	-14.93	54	34.71	32.18	6.18	34	100	253	Average
4874	49.27	-24.73	74	65.07	34.1	9.14	59.04	100	0	Peak

Test Mode :	Mode 11	Temperature :	19~21℃
Test Channel :	06	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal 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
54.3	31.42	-8.58	40	54.95	7.3	0.72	31.55	116	187	Peak
91.02	22.84	-20.66	43.5	44.69	8.72	0.95	31.52	-	-	Peak
204.42	21.5	-22	43.5	42.2	9.44	1.34	31.48	-	-	Peak
449.8	19.43	-26.57	46	31.18	17.05	2.3	31.1	-	-	Peak
531.7	19.81	-26.19	46	29.68	18.63	2.51	31.01	-	-	Peak
646.5	22.69	-23.31	46	30.56	20.17	2.83	30.87	-	-	Peak
2390	46.63	-27.37	74	42.5	32.06	6.03	33.96	169	144	Peak
2390	35.15	-18.85	54	31.02	32.06	6.03	33.96	169	144	Average
2437	108.21	-	-	103.95	32.13	6.11	33.98	169	144	Peak
2437	104.39	-	-	100.13	32.13	6.11	33.98	169	144	Average
2484	50.42	-23.58	74	46.06	32.18	6.18	34	169	144	Peak
2484	38.42	-15.58	54	34.06	32.18	6.18	34	169	144	Average
4874	45.9	-28.1	74	61.71	34.1	9.13	59.04	100	0	Peak
7311	45.54	-28.46	74	57.91	35.7	10.06	58.13	100	0	Peak

Test Mode :	Mode 12	Temperature :	19~21℃
Test Channel :	11	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal 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
2348	45.61	-28.39	74	41.62	31.98	5.95	33.94	125	255	Peak
2348	33.88	-20.12	54	29.89	31.98	5.95	33.94	125	255	Average
2462	107.98	-	-	103.68	32.15	6.14	33.99	125	255	Peak
2462	104.05	-	-	99.75	32.15	6.14	33.99	125	255	Average
2483.5	58.11	-15.89	74	53.75	32.18	6.18	34	125	255	Peak
2483.5	50.59	-3.41	54	46.23	32.18	6.18	34	125	255	Average
4924	43.55	-30.45	74	59.26	34.1	9.15	58.96	100	0	Peak

Test Mode :	Mode 12	Temperature :	19~21℃
Test Channel :	11	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal 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
2372	44.82	-29.18	74	40.75	32.03	5.99	33.95	100	155	Peak
2372	33.37	-20.63	54	29.3	32.03	5.99	33.95	100	155	Average
2462	103.93	-	-	99.63	32.15	6.14	33.99	100	155	Peak
2462	100.15	-	-	95.85	32.15	6.14	33.99	100	155	Average
2483.5	52.27	-21.73	74	47.91	32.18	6.18	34	100	155	Peak
2483.5	44.45	-9.55	54	40.09	32.18	6.18	34	100	155	Average

Test Mode :	Mode 13	Temperature :	19~21℃
Test Channel :	01	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal 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
2389.99	71.23	-2.77	74	67.1	32.06	6.03	33.96	100	260	Peak
2389.99	50.43	-3.57	54	46.3	32.06	6.03	33.96	100	260	Average
2412	107.79	-	-	103.61	32.08	6.07	33.97	100	260	Peak
2412	96.37	-	-	92.19	32.08	6.07	33.97	100	260	Average
2486	37.91	-16.09	54	33.55	32.18	6.18	34	100	260	Average
2486	50.67	-23.33	74	46.31	32.18	6.18	34	100	260	Peak

Test Mode :	Mode 13	Temperature :	19~21℃
Test Channel :	01	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal 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
2389.99	68.25	-5.75	74	64.12	32.06	6.03	33.96	172	151	Peak
2389.99	47.63	-6.37	54	43.5	32.06	6.03	33.96	172	151	Average
2412	104.82	-	-	100.62	32.1	6.07	33.97	172	151	Peak
2412	94.01	-	-	89.83	32.08	6.07	33.97	172	151	Average
2486	36.44	-17.56	54	32.08	32.18	6.18	34	172	151	Average
2486	49.53	-24.47	74	45.17	32.18	6.18	34	172	151	Peak

Test Mode :	Mode 14	Temperature :	19~21℃
Test Channel :	06	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
48.9	27.07	-12.93	40	49.02	8.9	0.68	31.53	109	177	Peak
150.69	21.4	-22.1	43.5	40.55	11.2	1.21	31.56	-	-	Peak
250.05	31.14	-14.86	46	48.42	12.6	1.53	31.41	-	-	Peak
300	24.04	-21.96	46	40.3	13.3	1.77	31.33	-	-	Peak
338.5	21.94	-24.06	46	37.01	14.35	1.88	31.3	-	-	Peak
648.6	21.98	-24.02	46	29.82	20.19	2.84	30.87	-	-	Peak
2388	65.67	-8.33	74	61.54	32.06	6.03	33.96	100	256	Peak
2388	43.16	-10.84	54	39.03	32.06	6.03	33.96	100	256	Average
2437	113.74	-	-	109.48	32.13	6.11	33.98	100	256	Peak
2437	102.65	-	-	98.39	32.13	6.11	33.98	100	256	Average
2484	66.4	-7.6	74	62.04	32.18	6.18	34	100	256	Peak
2484	48.71	-5.29	54	44.35	32.18	6.18	34	100	256	Average
4874	47.77	-26.23	74	63.57	34.1	9.14	59.04	100	0	Peak

Test Mode :	Mode 14	Temperature :	19~21℃
Test Channel :	06	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal 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	25.95	-14.05	40	49.48	7.3	0.72	31.55	116	143	Peak
93.45	23.95	-19.55	43.5	45.56	8.96	0.96	31.53	-	-	Peak
209.82	24.58	-18.92	43.5	44.92	9.77	1.36	31.47	-	-	Peak
335.7	20.08	-25.92	46	35.24	14.27	1.87	31.3	-	-	Peak
500.2	19.57	-26.43	46	30.09	18.1	2.45	31.07	-	-	Peak
680.1	21.78	-24.22	46	29.28	20.44	2.9	30.84	-	-	Peak
2388	63.99	-10.01	74	59.86	32.06	6.03	33.96	172	155	Peak
2388	41.06	-12.94	54	36.93	32.06	6.03	33.96	172	155	Average
2437	110.43	-	-	106.17	32.13	6.11	33.98	172	155	Peak
2437	99.14	-	-	94.88	32.13	6.11	33.98	172	155	Average
2484	66.82	-7.18	74	62.46	32.18	6.18	34	172	155	Peak
2484	47.87	-6.13	54	43.51	32.18	6.18	34	172	155	Average
7311	50.63	-23.37	74	63	35.7	10.07	58.14	100	0	Peak

Test Mode :	Mode 15	Temperature :	19~21℃
Test Channel :	11	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal 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
2388	46.85	-27.15	74	42.72	32.06	6.03	33.96	100	257	Peak
2388	34.97	-19.03	54	30.84	32.06	6.03	33.96	100	257	Average
2462	95.18	-	-	90.88	32.15	6.14	33.99	100	257	Average
2462	107.08	-	-	102.78	32.15	6.14	33.99	100	257	Peak
2483.5	71.82	-2.18	74	67.46	32.18	6.18	34	100	257	Peak
2483.5	48.91	-5.09	54	44.55	32.18	6.18	34	100	257	Average

Test Mode :	Mode 15	Temperature :	19~21℃
Test Channel :	11	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal 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
2372	46.76	-27.24	74	42.69	32.03	5.99	33.95	169	152	Peak
2372	33.99	-20.01	54	29.92	32.03	5.99	33.95	169	152	Average
2462	91.93	-	-	87.63	32.15	6.14	33.99	169	152	Average
2462	103.67	-	-	99.37	32.15	6.14	33.99	169	152	Peak
2483.5	70.09	-3.91	74	65.73	32.18	6.18	34	169	152	Peak
2483.5	46.94	-7.06	54	42.58	32.18	6.18	34	169	152	Average

Test Mode :	Mode 16	Temperature :	19~21℃
Test Channel :	01	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3213 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	70.67	-3.33	74	66.54	32.06	6.03	33.96	100	243	Peak
2389.99	51.38	-2.62	54	47.25	32.06	6.03	33.96	100	243	Average
2412	106.48	-	-	102.3	32.08	6.07	33.97	100	243	Peak
2412	94.81	-	-	90.63	32.08	6.07	33.97	100	243	Average
2484	36.59	-17.41	54	32.23	32.18	6.18	34	100	243	Average
2484	48.83	-25.17	74	44.47	32.18	6.18	34	100	243	Peak
3213	42.79	-43.69	86.48	61.71	32.74	7.19	58.85	100	0	Peak

Test Mode :	Mode 16	Temperature :	19~21℃
Test Channel :	01	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3213 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.42	66.91	-7.09	74	62.78	32.06	6.03	33.96	101	351	Peak
2389.42	48.18	-5.82	54	44.05	32.06	6.03	33.96	101	351	Average
2412	102.31	-	-	98.11	32.1	6.07	33.97	101	351	Peak
2412	91.13	-	-	86.95	32.08	6.07	33.97	101	351	Average
2486	35.09	-18.91	54	30.73	32.18	6.18	34	101	351	Average
2486	47.76	-26.24	74	43.4	32.18	6.18	34	101	351	Peak
3213	41.22	-41.09	82.31	60.14	32.74	7.19	58.85	100	0	Peak

Test Mode :	Mode 17	Temperature :	19~21℃
Test Channel :	06	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3246 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
120.45	22.39	-21.11	43.5	41.15	11.7	1.1	31.56	-	-	Peak
162.57	25.31	-18.19	43.5	45.39	10.22	1.22	31.52	110	207	Peak
234.93	24.31	-21.69	46	42.72	11.52	1.5	31.43	-	-	Peak
346.2	21.55	-24.45	46	36.34	14.56	1.94	31.29	-	-	Peak
533.8	22.4	-23.6	46	32.23	18.66	2.52	31.01	-	-	Peak
752.2	22.31	-23.69	46	28.56	21.39	3.06	30.7	-	-	Peak
2390	68.32	-5.68	74	64.19	32.06	6.03	33.96	100	255	Peak
2390	47.28	-6.72	54	43.15	32.06	6.03	33.96	100	255	Average
2437	112.79	-	-	108.53	32.13	6.11	33.98	100	255	Peak
2437	101.85	-	-	97.59	32.13	6.11	33.98	100	255	Average
2484	69.33	-4.67	74	64.97	32.18	6.18	34	100	255	Peak
2484	47.47	-6.53	54	43.11	32.18	6.18	34	100	255	Average
3246	41.59	-51.2	92.79	60.42	32.75	7.29	58.87	100	0	Peak
7311	43.57	-30.43	74	55.95	35.7	10.06	58.14	100	0	Peak

Test Mode :	Mode 17	Temperature :	19~21℃
Test Channel :	06	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3246 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
66.18	20.73	-19.27	40	45.24	6.22	0.81	31.54	-	-	Peak
115.86	26.23	-17.27	43.5	45.37	11.34	1.08	31.56	105	119	Peak
157.17	22.82	-20.68	43.5	42.42	10.71	1.22	31.53	-	-	Peak
335.7	21.47	-24.53	46	36.63	14.27	1.87	31.3	-	-	Peak
724.9	22.1	-23.9	46	28.9	20.96	3	30.76	-	-	Peak
915.3	24.73	-21.27	46	28.68	23.33	3.38	30.66	-	-	Peak
2390	62.6	-11.4	74	58.47	32.06	6.03	33.96	100	349	Peak
2390	42.23	-11.77	54	38.1	32.06	6.03	33.96	100	349	Average
2437	107.66	-	-	103.4	32.13	6.11	33.98	100	349	Peak
2437	97.26	-	-	93	32.13	6.11	33.98	100	349	Average
2484	64.27	-9.73	74	59.91	32.18	6.18	34	100	349	Peak
2484	44.55	-9.45	54	40.19	32.18	6.18	34	100	349	Average
3246	39.42	-48.24	87.66	58.25	32.75	7.29	58.87	100	0	Peak
7311	47.7	-26.3	74	60.08	35.7	10.06	58.14	100	0	Peak

Test Mode :	Mode 18	Temperature :	19~21℃
Test Channel :	11	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2382	45.42	-28.58	74	41.32	32.03	6.03	33.96	125	251	Peak
2382	27.49	-26.51	54	23.39	32.03	6.03	33.96	125	251	Average
2462	93.35	-	-	89.05	32.15	6.14	33.99	125	251	Average
2462	104.2	-	-	99.9	32.15	6.14	33.99	125	251	Peak
2483.66	69.82	-4.18	74	65.46	32.18	6.18	34	125	251	Peak
2483.66	46.63	-7.37	54	42.27	32.18	6.18	34	125	251	Average

Test Mode :	Mode 18	Temperature :	19~21℃
Test Channel :	11	Relative Humidity :	54~56%
Test Engineer :	David Yang	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2382	44.76	-29.24	74	40.66	32.03	6.03	33.96	100	344	Peak
2382	33.37	-20.63	54	29.27	32.03	6.03	33.96	100	344	Average
2462	98.39	-	-	94.09	32.15	6.14	33.99	100	344	Peak
2462	88.07	-	-	83.77	32.15	6.14	33.99	100	344	Average
2483.66	60.09	-13.91	74	55.73	32.18	6.18	34	100	344	Peak
2483.66	40.87	-13.13	54	36.51	32.18	6.18	34	100	344	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 Fixed Internal 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	Test Date	Due Date	Remark
Spectrum Analyzer	Agilent	E4446A	MY50180136	3Hz~44GHz	Apr. 03, 2011	Feb. 14, 2012 ~ Feb. 15, 2012	Apr. 02, 2012	Conducted (TH02-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 22, 2011	Jan. 20, 2012 ~ Mar. 03, 2012	Oct. 21, 2012	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 06, 2011	Jan. 20, 2012 ~ Mar. 03, 2012	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	Jan. 20, 2012 ~ Mar. 03, 2012	Aug. 09, 2012	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 05, 2011	Jan. 20, 2012 ~ Mar. 03, 2012	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 29, 2011	Jan. 20, 2012 ~ Mar. 03, 2012	Mar. 28, 2012	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Jan. 20, 2012 ~ Mar. 03, 2012	Aug. 21, 2012	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-00101800-30-10P	159088	1GHz ~ 18GHz	Feb. 21, 2011	Jan. 20, 2012 ~ Mar. 03, 2012	Feb. 20, 2012	Radiation (03CH07-HY)
Pre Amplifier	EMCI	EMC051845	SN980048	1GHz ~ 18GHz	Jul. 18, 2011	Jan. 20, 2012 ~ Mar. 03, 2012	Jul. 17, 2012	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jan. 20, 2012 ~ Mar. 03, 2012	Jul. 28, 2012	Radiation (03CH07-HY)
EMI Test Receiver	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Jan. 20, 2012	Aug. 21, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz~30MHz	Dec. 09, 2011	Jan. 20, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz~30MHz	Dec. 06, 2011	Jan. 20, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Jan. 20, 2012	N/A	Conduction (CO05-HY)

5 Uncertainty of Evaluation

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

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

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

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

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

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