

FCC RF Test Report

APPLICANT : HTC Corporation
EQUIPMENT : Smartphone
MODEL NAME : PK76300
FCC ID : NM8PK76300
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Feb. 17, 2012 and completely tested on Mar. 16, 2012. 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.



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR221710B	Rev. 01	Initial issue of report	Mar. 23, 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	-
3.1	-	Gen 4.6.1	99% Bandwidth	-	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 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 8.70 dB at 0.774 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 8.74 dB at 2388.850 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

HTC Corporation

No. 23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan

1.2 Manufacturer

HTC Corporation

No. 23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Smartphone
Model Name	PK76300
Sample 1	EUT with LCM 1, Camera 1, Battery 1
Sample 2	EUT with LCM 2, Camera 2, Battery 2
FCC ID	NM8PK76300
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Number of Channels	11
Carrier Frequency of Each Channel	$2412+(n-1)*5$ MHz; $n=1\sim11$
Channel Spacing	5 MHz
Maximum Output Power to Antenna	802.11b : 18.37 dBm (0.0687 W) 802.11g : 17.61 dBm (0.0577 W) 802.11g/n (BW 20MHz) : 17.50 dBm (0.0562 W)
Duty Cycle	802.11b : 100.00% 802.11g : 94.21% 802.11g/n (BW 20MHz) : 93.78%
Antenna Type	PIFA Antenna with gain 2.00 dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH07-HY	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 D01 DTS Meas. Guidance v01
- ♦ ANSI C63.4-2003
- ♦ IC RSS-210 Issue 8
- ♦ IC RSS-Gen Issue 3

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.

1.6 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.	Bluetooth Base Station	R&S	CBT32	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	Bluetooth Earphone	Sony Ericsson	MW600	PY70DA2029	N/A	N/A
5.	Notebook	DELL	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2 Test Configuration of Equipment Under Test

2.1 Pre-Scanned RF Power

Preliminary tests were performed in different data rate as below table and the highest power data rates (11b, 11g, 11g/n (BW 20MHz), 11g/n (BW 40MHz) modes) were chosen for full test in the following sections to demonstrate compliance to the FCC limit line.

2.4GHz 802.11b mode				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	18.37	18.29	17.68	17.44

2.4GHz 802.11g mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	17.61	17.51	17.55	17.53	17.46	17.33	17.03	16.89

2.4GHz 802.11g/n (BW 20MHz) mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	17.50	17.49	17.43	17.39	17.15	16.85	16.80	16.67

2.2 Maximum Peak Conducted Output Power:

Band	2.4GHz 802.11b RF Power (dBm)			2.4GHz 802.11g RF Power (dBm)		
Channel	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462
Peak Power	18.20	18.02	18.37	17.26	17.25	17.61

Band	2.4GHz 802.11g/n (BW 20MHz) RF Peak Power (dBm)		
Channel	1	6	11
Frequency (MHz)	2412	2437	2462
Peak Power	16.94	17.08	17.50

Remark:The data rates of WLAN 802.11b/g/n were set in 1Mbps for 802.11b, 6Mbps for 802.11g, MCS0 for 802.11g/n (BW 20MHz), for all the test cases due to the highest RF output power.

2.3 Maximum Average Conducted Output Power:

Band	2.4GHz 802.11b RF Power (dBm)			2.4GHz 802.11g RF Power (dBm)		
Channel	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462
Average Power	15.75	15.58	15.83	11.29	11.08	11.63

Band	2.4GHz 802.11g/n (BW 20MHz) RF Peak Power (dBm)		
Channel	1	6	11
Frequency (MHz)	2412	2437	2462
Average Power	11.05	11.01	11.48

Remark:

1. The average power, which is used by the test method, AVG2, in DTS Meas. Guidance v01, is reporting only.
2. The EUT is programmed to transmit signals continuously.

2.4 Test Mode

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

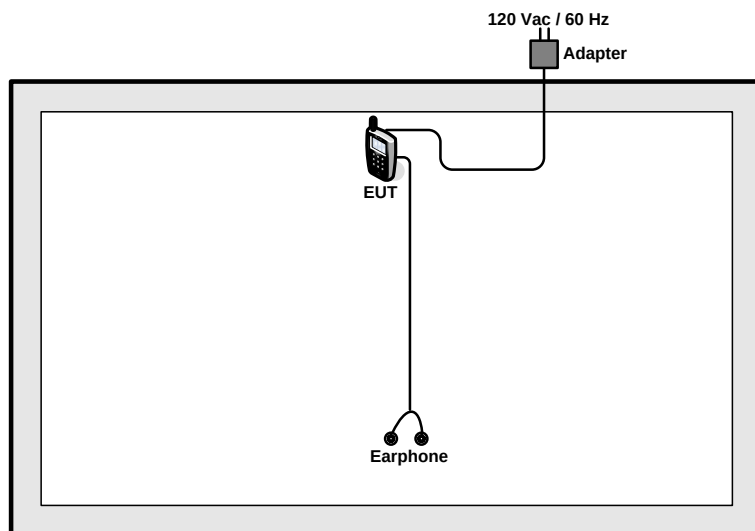
Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations, laptop / tablet modes.

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

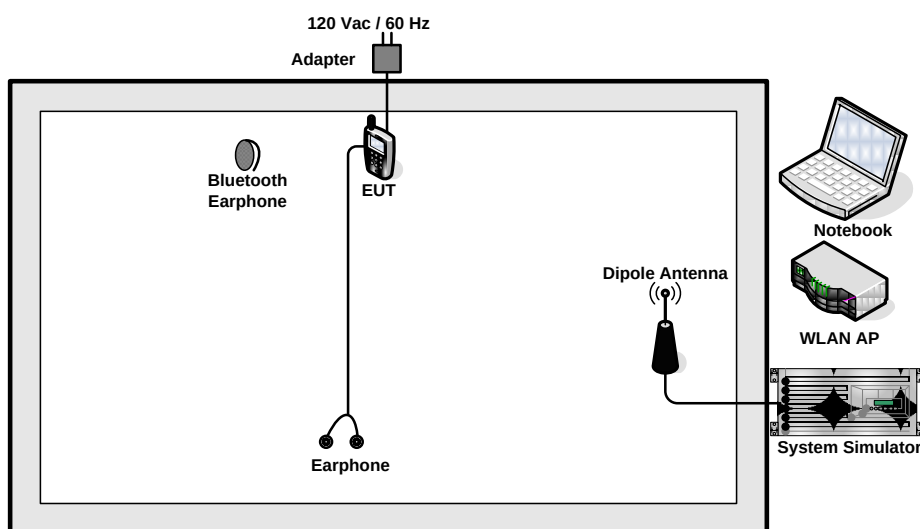
Test Cases	
Test Item	802.11b (Modulation : DSSS) 802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11g/n (BW 20M)_CH01_2412 MHz Mode 8: 802.11g/n (BW 20M)_CH06_2437 MHz Mode 9: 802.11g/n (BW 20M)_CH11_2462 MHz
Radiated TCs	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
AC Conducted Emission	Mode 1 : CDMA2000 BC1 Idle + Bluetooth Link + WLAN Link + MPEG4 + Earphone 2 + USB Cable 2 (Charging from Adapter 2) for Sample 1 Mode 2 : CDMA2000 BC1 Idle + Bluetooth Link + WLAN Link + MPEG4 + Earphone 2 + USB Cable 2 (Charging from Adapter 2) for Sample 2
Remark: 1. The worst case of conducted emission is mode 1; only the test data of it was reported. 2. All the Radiation tests were performance with USB Cable 1, Adapter 1, and Earphone 1. 3. All the cases of conducted and radiation were only for Sample 1.	

2.5 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.6 RF Utility

The programmed RF utility "HTC SSD Test Tool ==> WiFi Router" ==> "Remote 432X controller" 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.

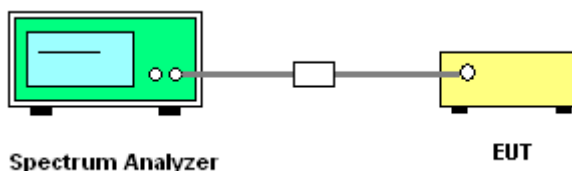
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 1-5% of the emission bandwidth (EBW). Set the Video bandwidth (VBW) $\geq 3 * RBW$. 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

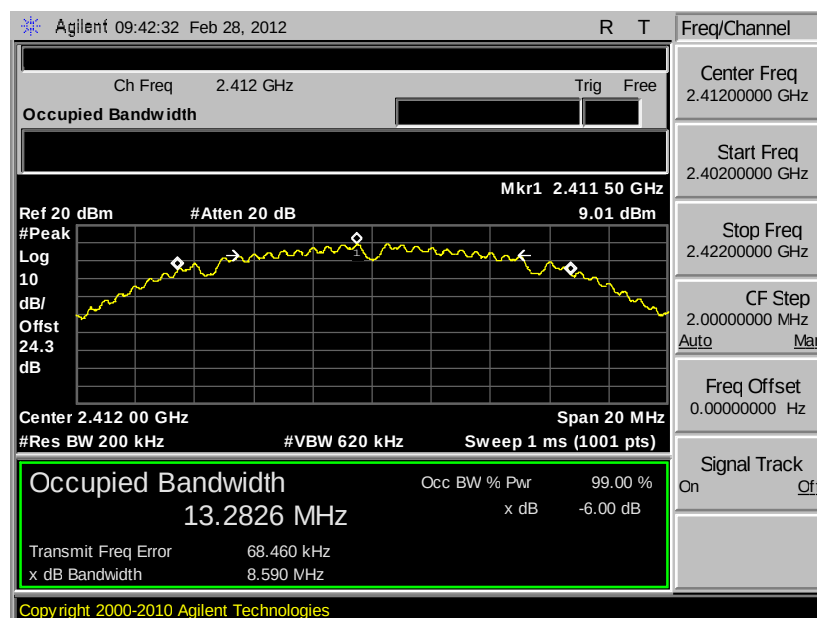


3.1.5 Test Result of 6dB Bandwidth

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

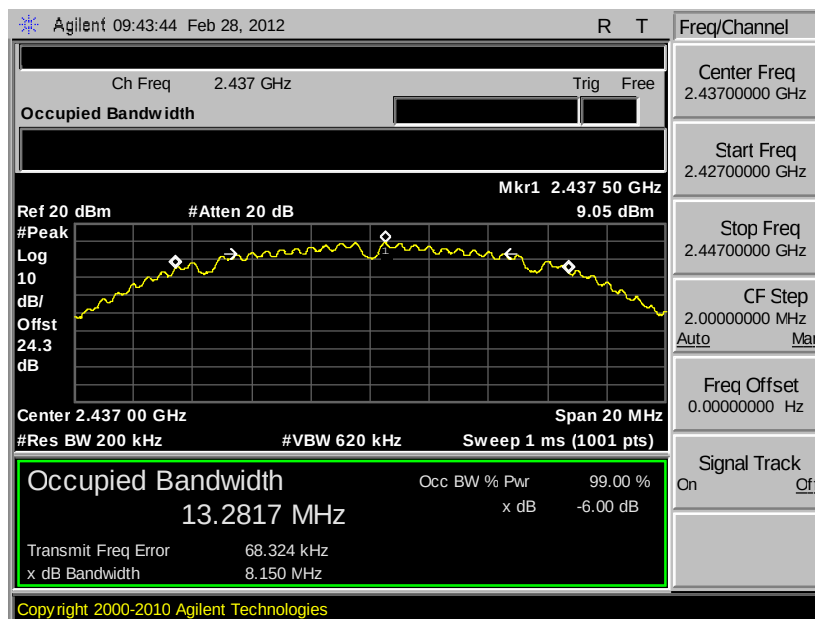
Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	8.590	0.5	Pass
06	2437	8.150	0.5	Pass
11	2462	8.153	0.5	Pass

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

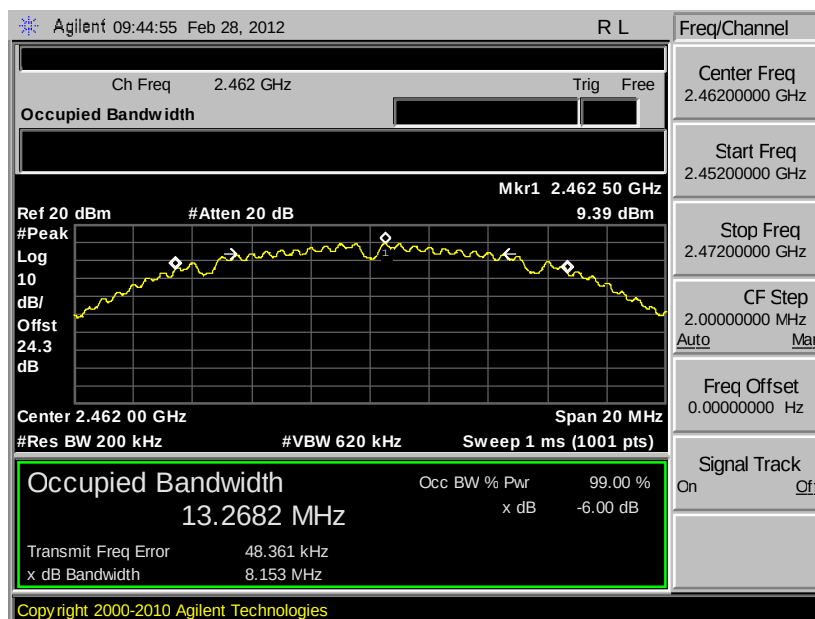




Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



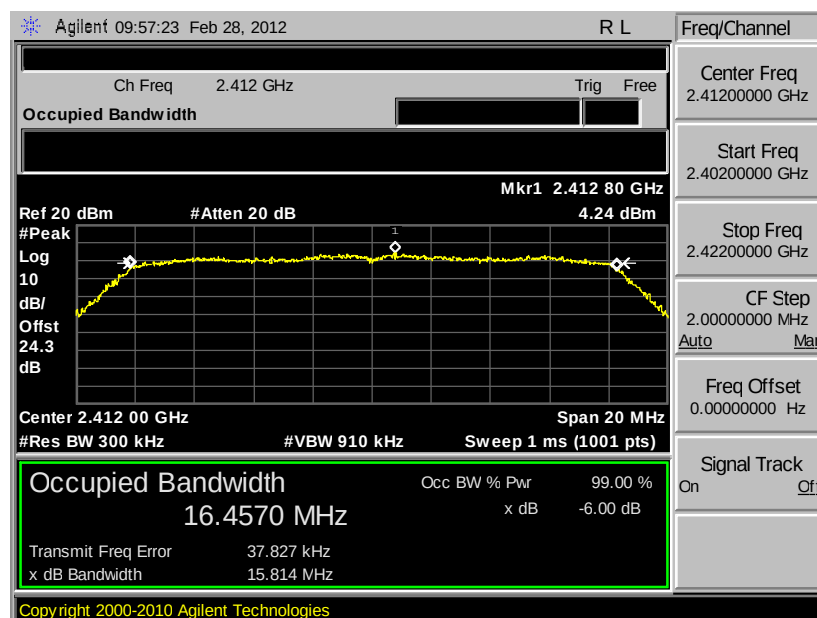
Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11



Test Mode :	Mode 4, 5, 6	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

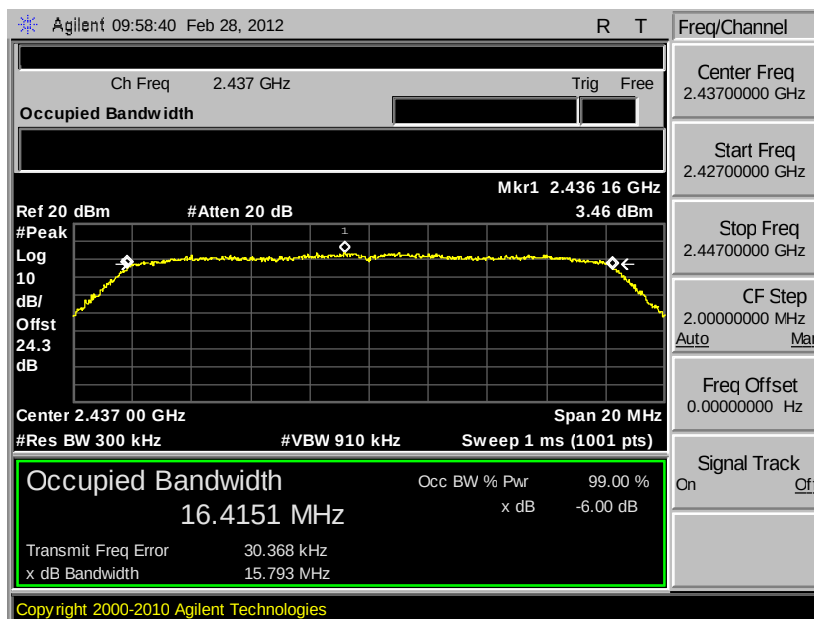
Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.814	0.5	Pass
06	2437	15.793	0.5	Pass
11	2462	15.760	0.5	Pass

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

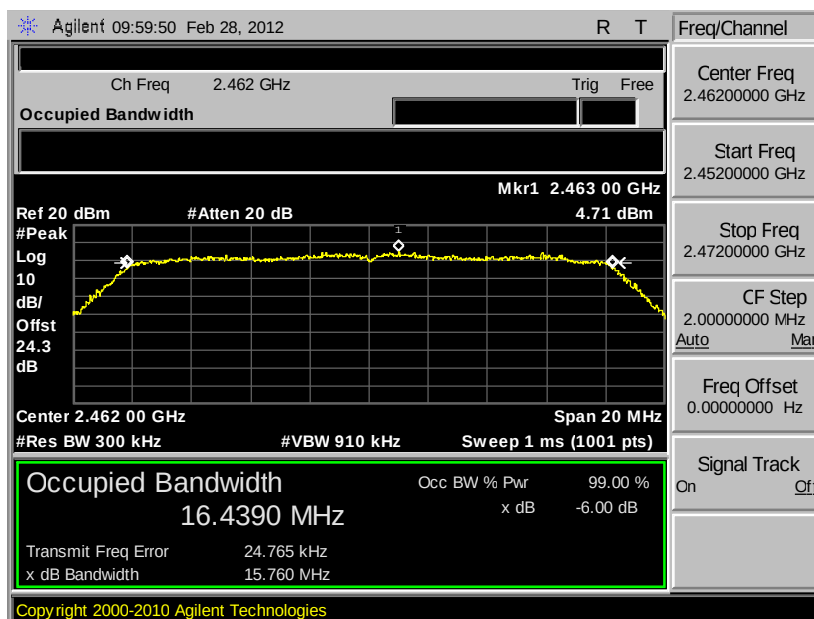




Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



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



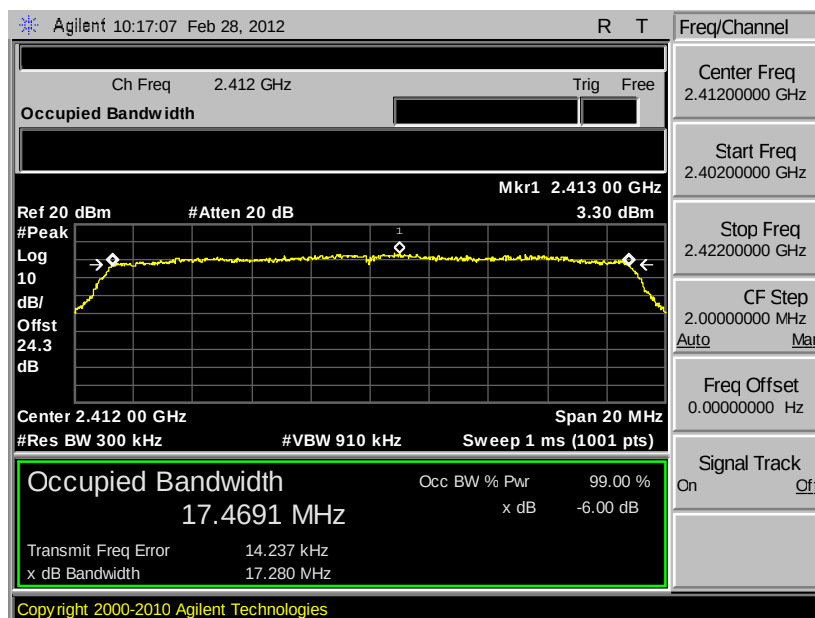


Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g/n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.280	0.5	Pass
06	2437	17.143	0.5	Pass
11	2462	17.323	0.5	Pass

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

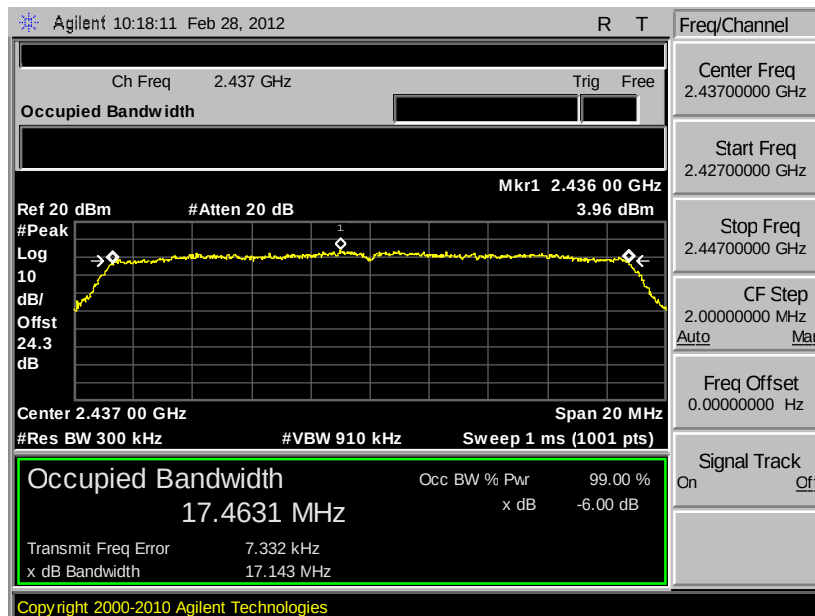
01





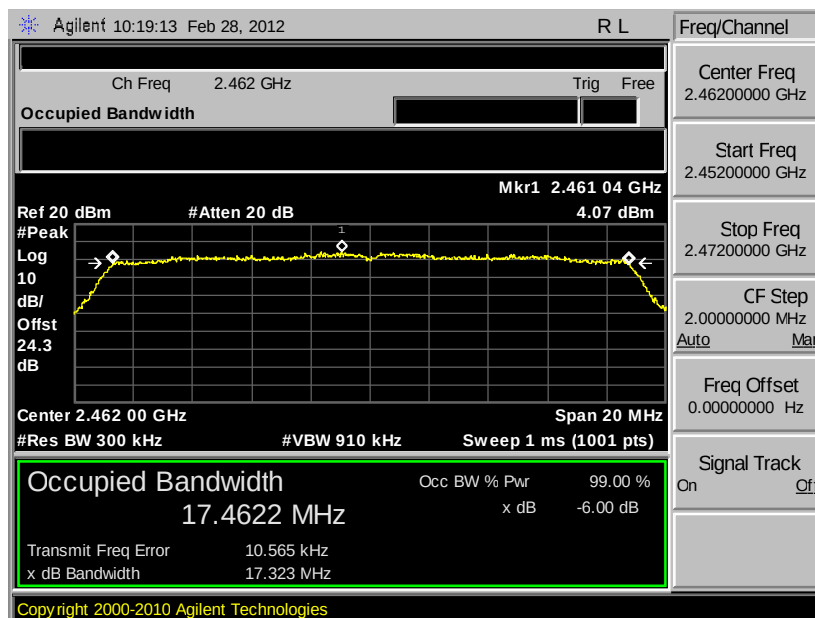
Mode 8 : 6 dB Bandwidth Plot on 802.11g/n(BW 20MHz) Channel

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.

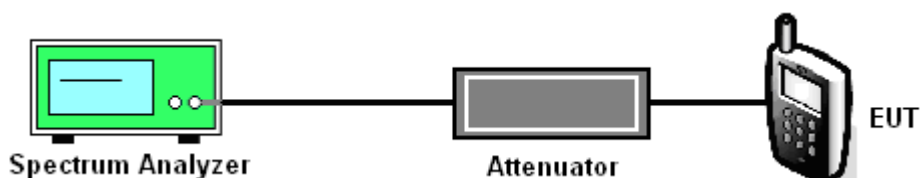
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure PK2 of FCC KDB No. 558074 DTS Meas. Guidance v01.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
3. The spectrum analyzer's settings are Resolution bandwidth (RBW) = 1MHz, Video bandwidth (VBW) = 3MHz, Peak Detector, auto sweep time, and the frequency span to a value that is 5-30 % greater than the EBW.
4. The spectrum analyzer's integrated band power measurement function is used to measure the peak power and the test results are demonstrated to compliance to the limit line as following plots.

3.2.4 Test Setup

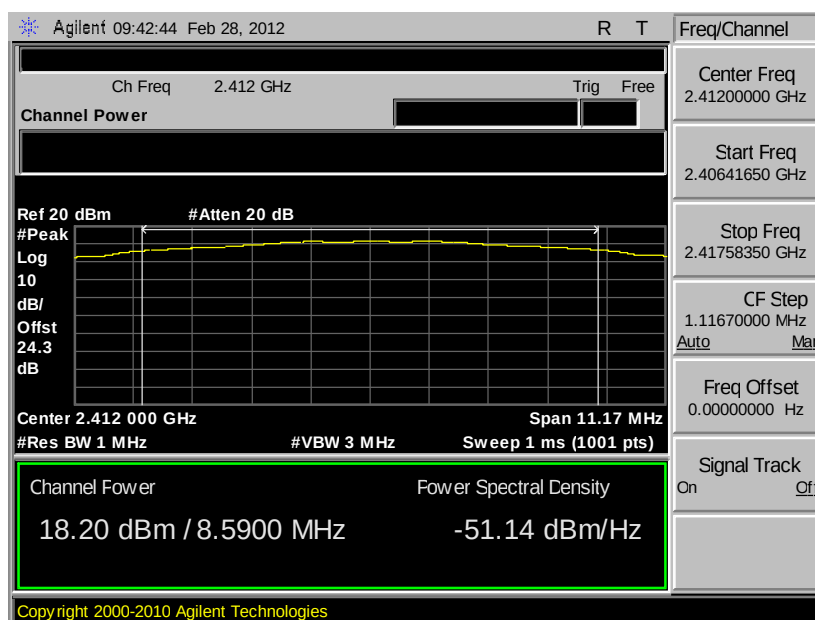


3.2.5 Test Result of Output Power

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

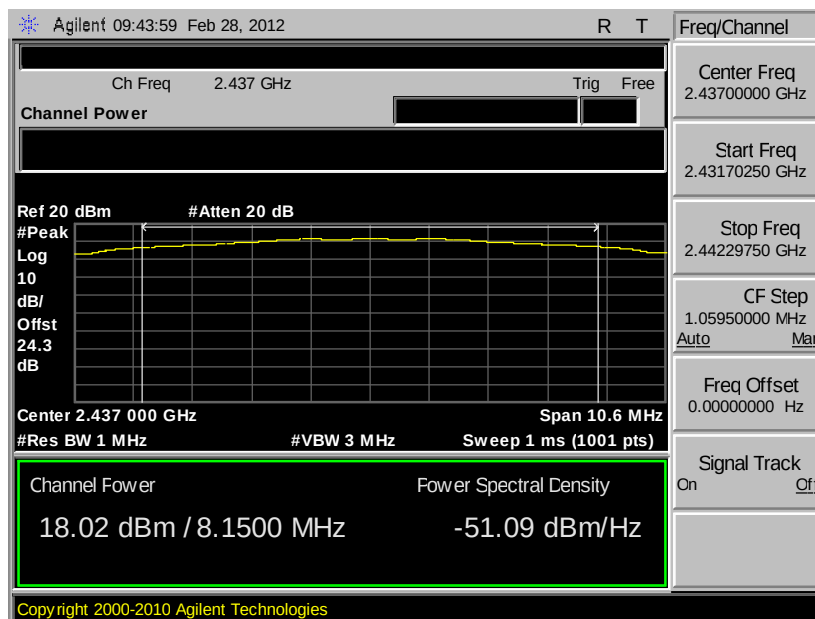
Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	18.20	30	Pass
06	2437	18.02	30	Pass
11	2462	18.37	30	Pass

Mode 1 : Output Power Plot on 802.11b Channel 01

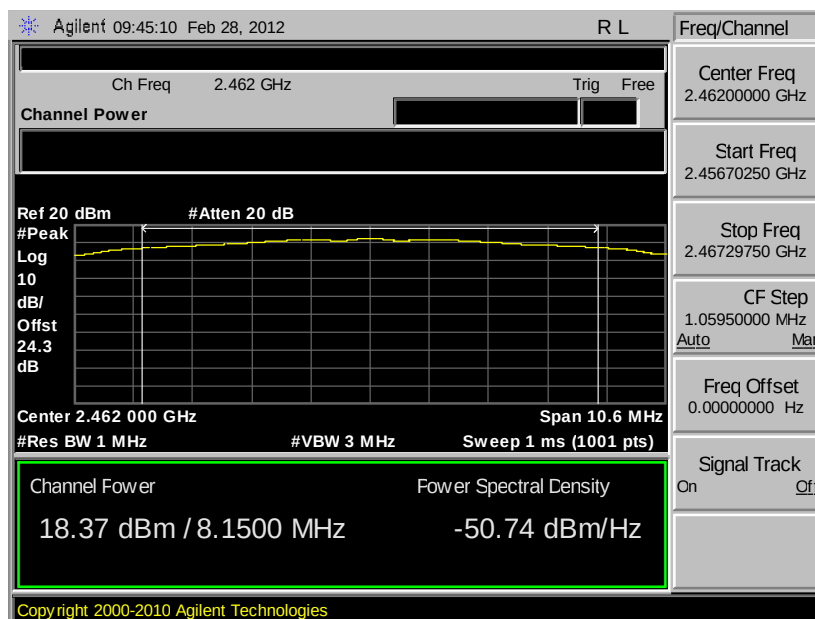




Mode 2 : Output Power Plot on 802.11b Channel 06

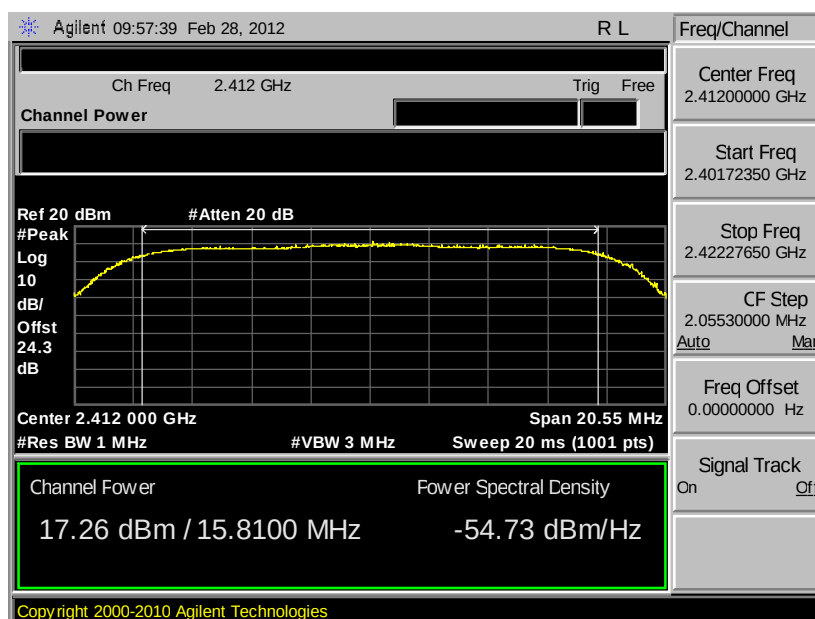


Mode 3 : Output Power Plot on 802.11b Channel 11



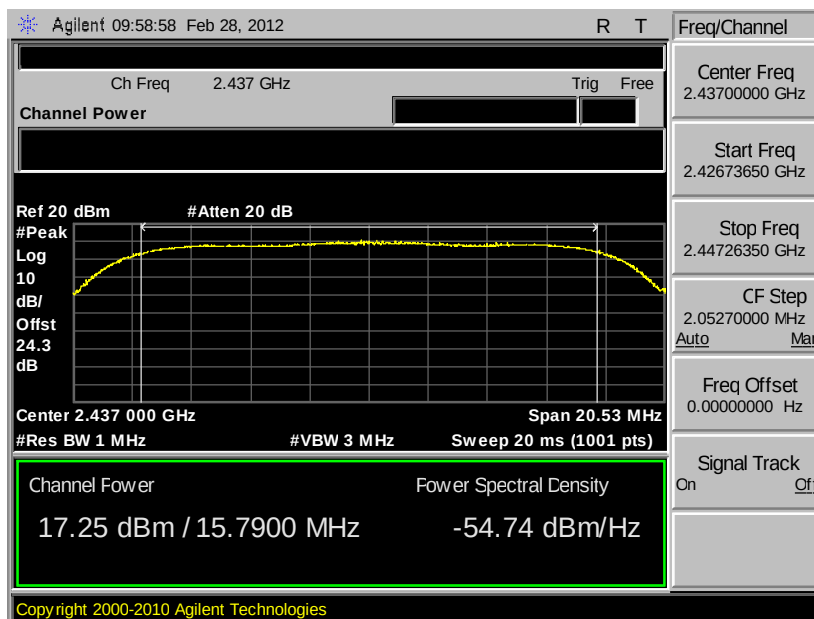
Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	17.26	30	Pass
06	2437	17.25	30	Pass
11	2462	17.61	30	Pass

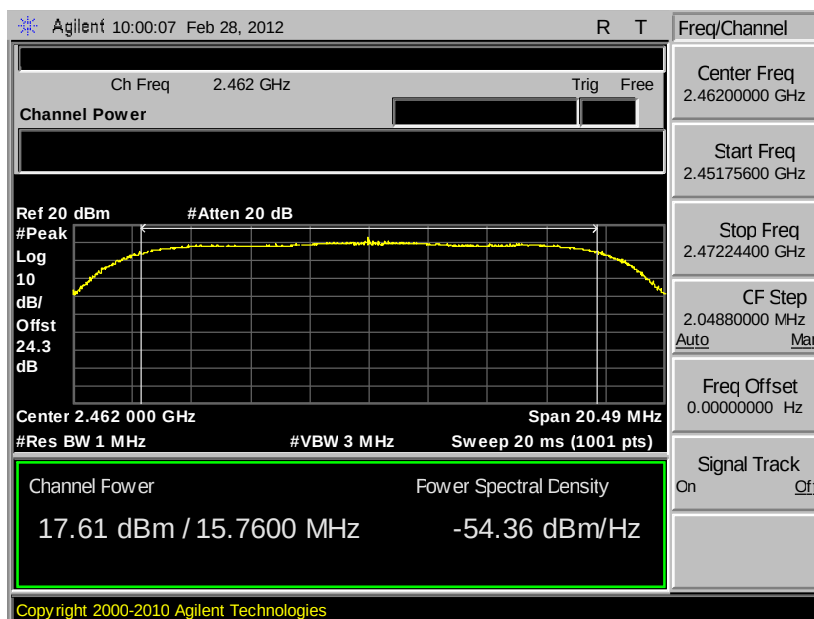
Mode 4 : Output Power Plot on 802.11g Channel 01




Mode 5 : Output Power Plot on 802.11g Channel 06



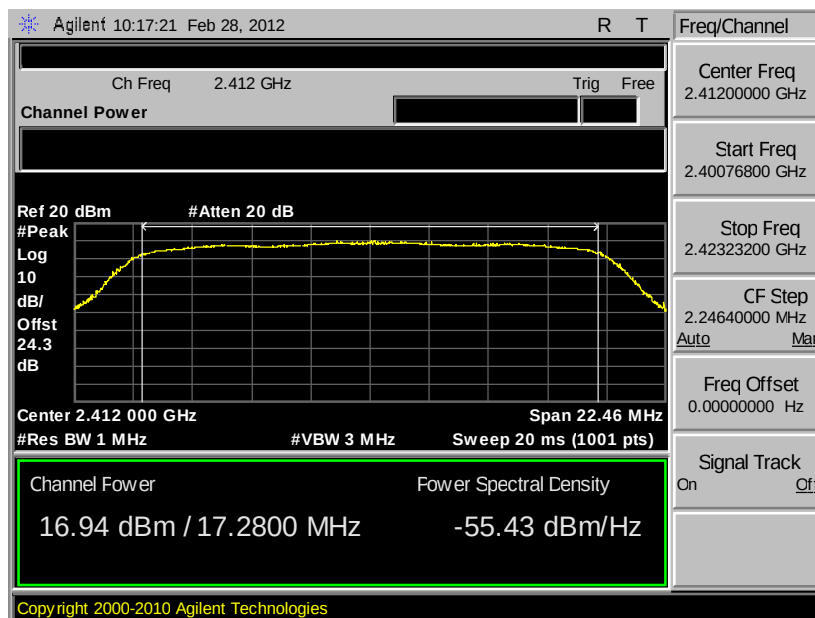
Mode 6 : Output Power Plot on 802.11g Channel 11





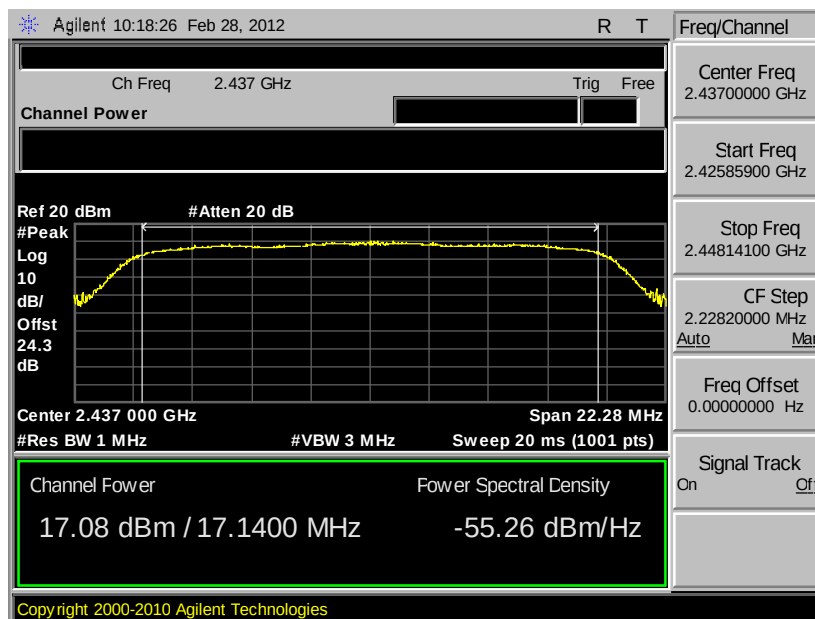
Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g/n (BW 20MHz) Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	16.94	30	Pass
06	2437	17.08	30	Pass
11	2462	17.50	30	Pass

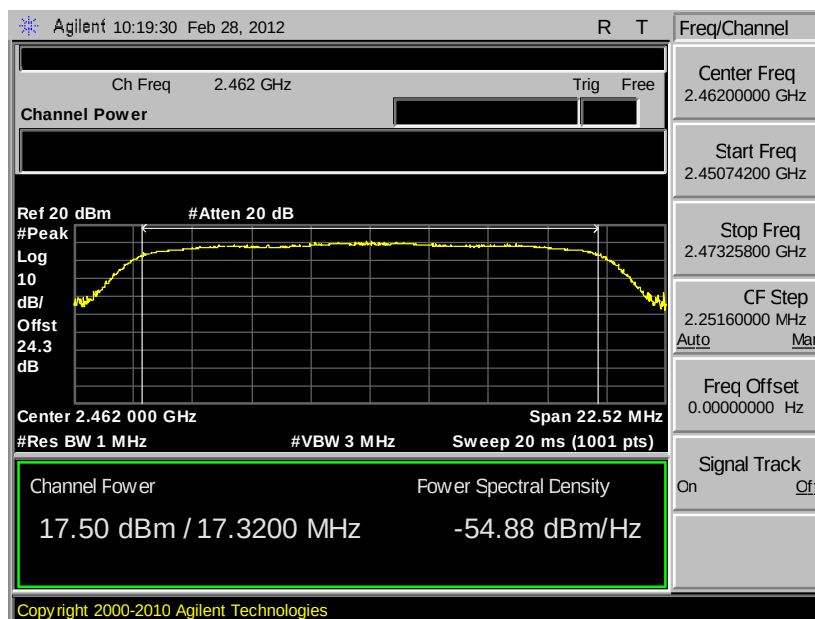
Mode 7: Output Power Plot on 802.11g/n (BW 20MHz) channel 01



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

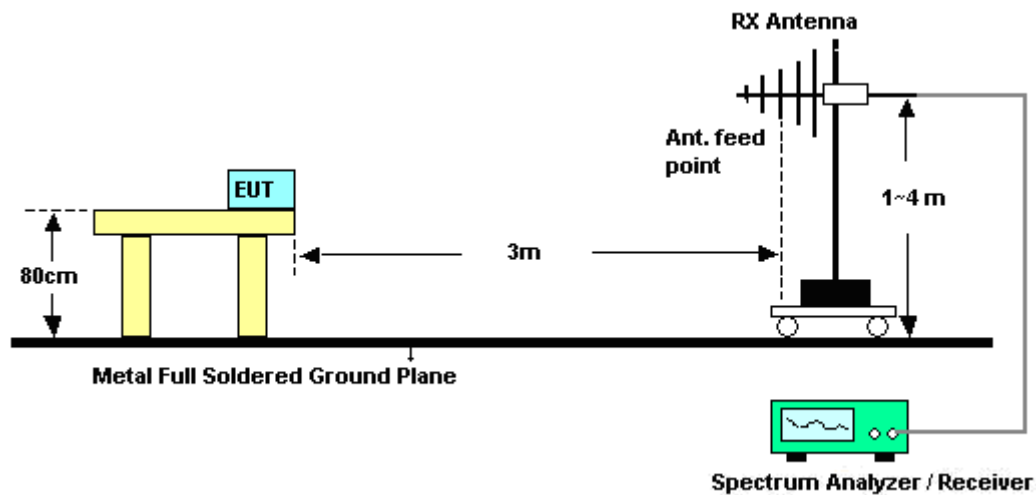
See list of measuring instruments of this test report.

3.3.3 Test Procedures

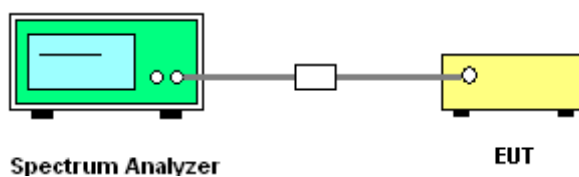
1. The testing follows the guidelines in ANSI C63.4-2003 and the Measurement Procedure of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
2. Conducted emission test: Set RBW = 100 KHz, Video bandwidth (VBW) $\geq$ RBW. Out of the authorized frequency band emissions must be at least 20 dB lower than the highest emission level within the authorized band as measured with a 100 KHz RBW. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
3. Radiated emission test: Apply to band edge emissions that falling on 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 measurement above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, then modify the unit for continuous operation. Use the settings in this paragraph to correct the reading level by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation per 15.35(b) and (c).

3.3.4 Test Setup

<Radiated Band Edges>



<Conducted Band Edges>



3.3.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	22~24℃
Test Band :	802.11b	Relative Humidity :	50~52%
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
2384.1	50.48	-23.52	74	46.38	32.03	6.03	33.96	144	30	Peak
2384.1	39.97	-14.03	54	35.87	32.03	6.03	33.96	144	30	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
2388.85	54.61	-19.39	74	50.48	32.06	6.03	33.96	126	343	Peak
2388.85	45.26	-8.74	54	41.13	32.06	6.03	33.96	126	343	Average

Test Mode :	Mode 3	Temperature :	22~24℃
Test Band :	802.11b	Relative Humidity :	50~52%
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
2488.22	50.11	-23.89	74	45.73	32.2	6.18	34	140	22	Peak
2488.22	38.73	-15.27	54	34.35	32.2	6.18	34	140	22	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
2488.98	52.26	-21.74	74	47.88	32.2	6.18	34	153	348	Peak
2488.98	43.22	-10.78	54	38.84	32.2	6.18	34	153	348	Average

Test Mode :	Mode 4	Temperature :	22~24℃
Test Band :	802.11g	Relative Humidity :	50~52%
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
2388.85	59.09	-14.91	74	54.96	32.06	6.03	33.96	170	27	Peak
2388.85	39.22	-14.78	54	35.09	32.06	6.03	33.96	170	27	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	63.43	-10.57	74	59.3	32.06	6.03	33.96	123	357	Peak
2389.42	43.13	-10.87	54	39	32.06	6.03	33.96	123	357	Average

Test Mode :	Mode 6	Temperature :	22~24℃
Test Band :	802.11g	Relative Humidity :	50~52%
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
2483.85	60.75	-13.25	74	56.39	32.18	6.18	34	111	81	Peak
2483.85	40.7	-13.3	54	36.34	32.18	6.18	34	111	81	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
2483.85	61.85	-12.15	74	57.49	32.18	6.18	34	152	353	Peak
2483.85	43.03	-10.97	54	38.67	32.18	6.18	34	152	353	Average

Test Mode :	Mode 7	Temperature :	22~24℃
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	50~52%
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
2389.61	61.96	-12.04	74	57.83	32.06	6.03	33.96	180	107	Peak
2389.61	41.3	-12.7	54	37.17	32.06	6.03	33.96	180	107	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
2389.99	62.96	-11.04	74	58.83	32.06	6.03	33.96	189	347	Peak
2389.99	42.44	-11.56	54	38.31	32.06	6.03	33.96	189	347	Average

Test Mode :	Mode 9	Temperature :	22~24℃
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	50~52%
Test Channel :	11	Test Engineer :	David Yang

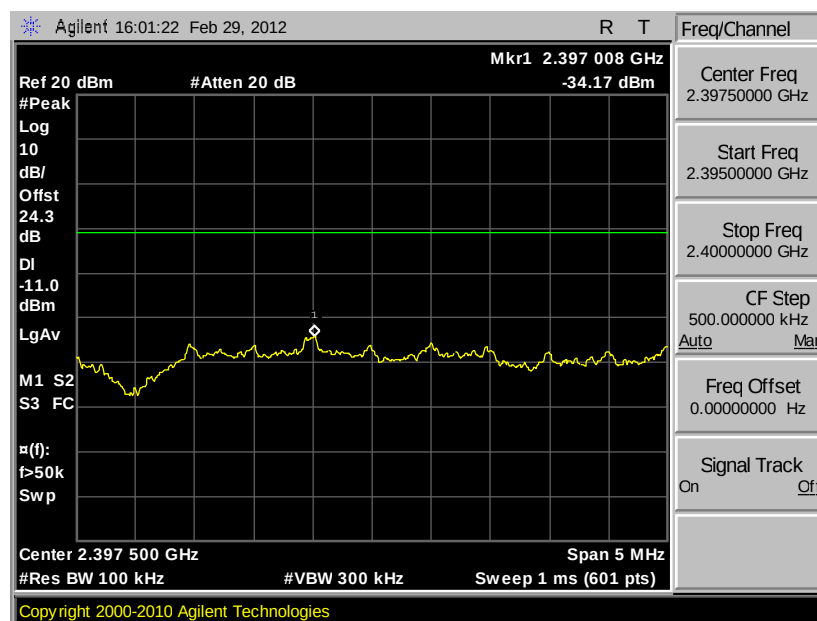
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.85	60.77	-13.23	74	56.41	32.18	6.18	34	139	25	Peak
2483.85	40.87	-13.13	54	36.51	32.18	6.18	34	139	25	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	59.46	-14.54	74	55.1	32.18	6.18	34	154	340	Peak
2483.66	42.01	-11.99	54	37.65	32.18	6.18	34	154	340	Average

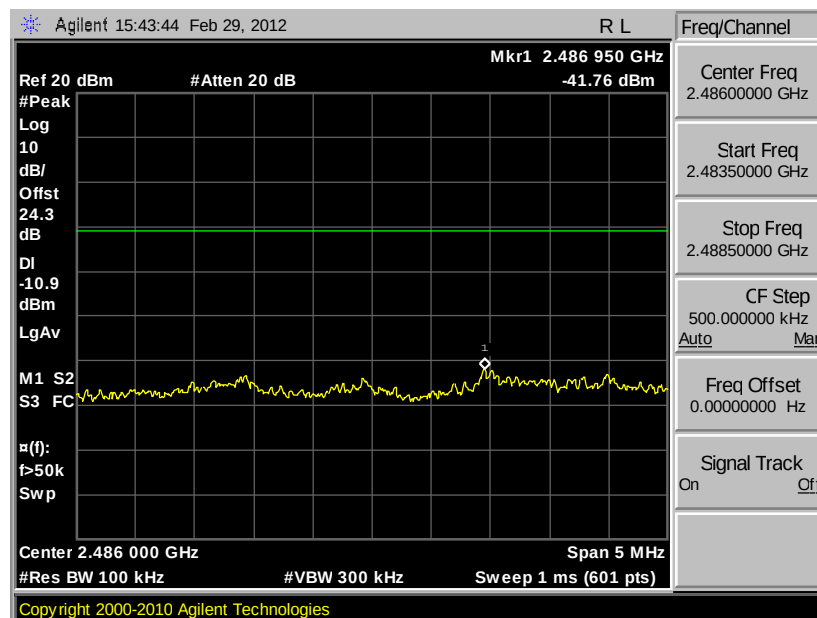
3.3.6 Test Plots of Conducted Band Edges

Test Mode :	Mode 1 and 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

Low Band Edge Plot on 802.11b Channel 01

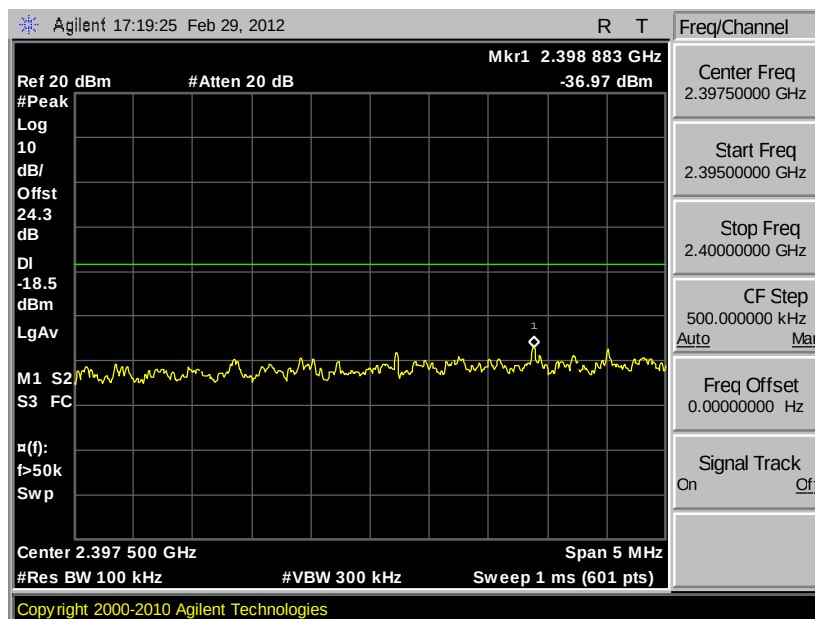
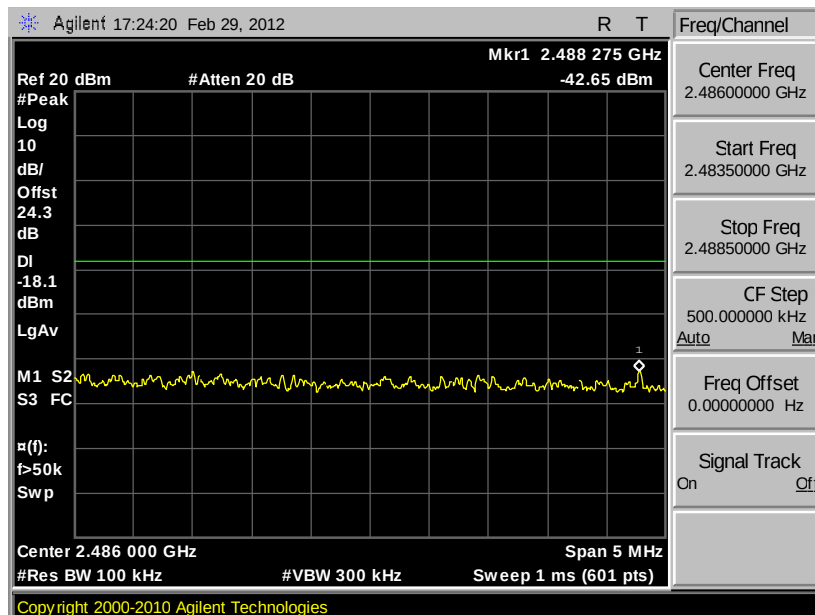


High Band Edge Plot on 802.11b Channel 11



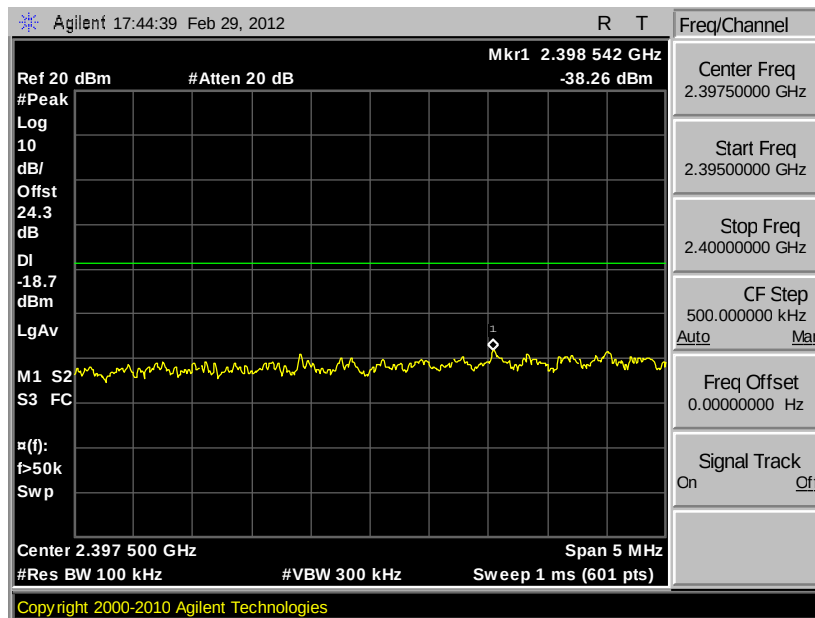
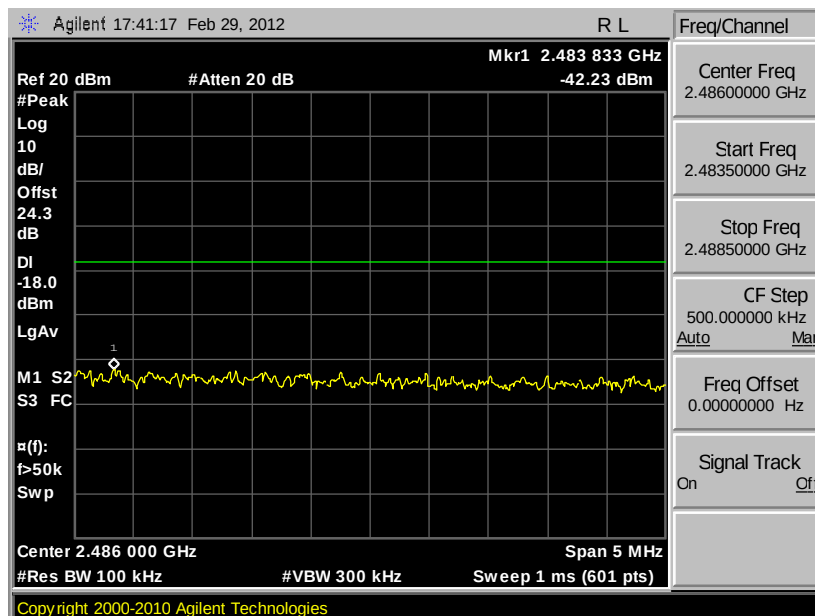


Test Mode :	Mode 4 and 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

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 :	24~26°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

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.

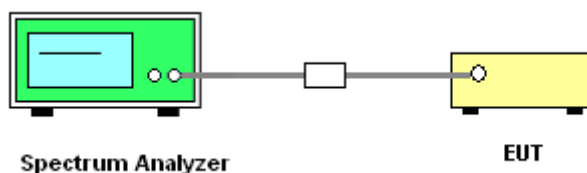
3.4.2 Measuring Instruments

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. The path loss was compensated to the results for each measurement.
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

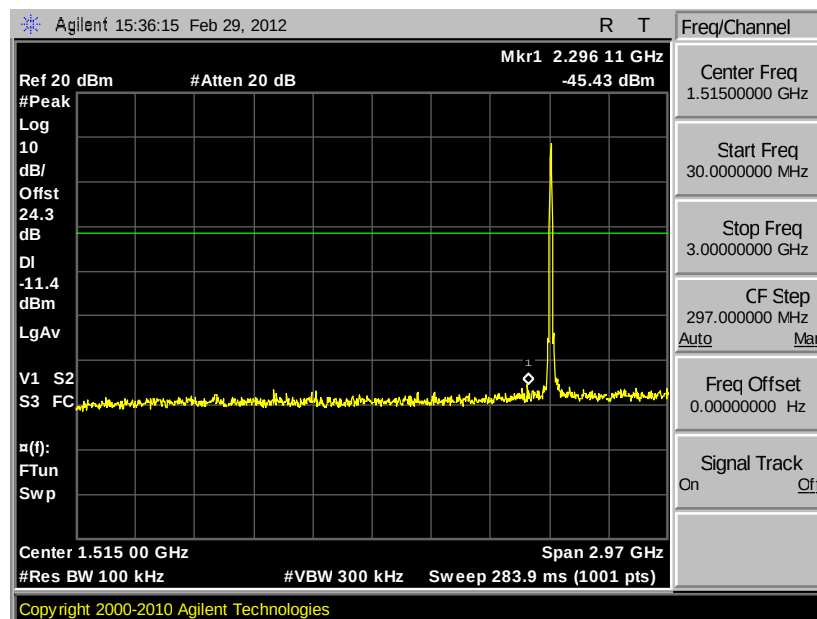




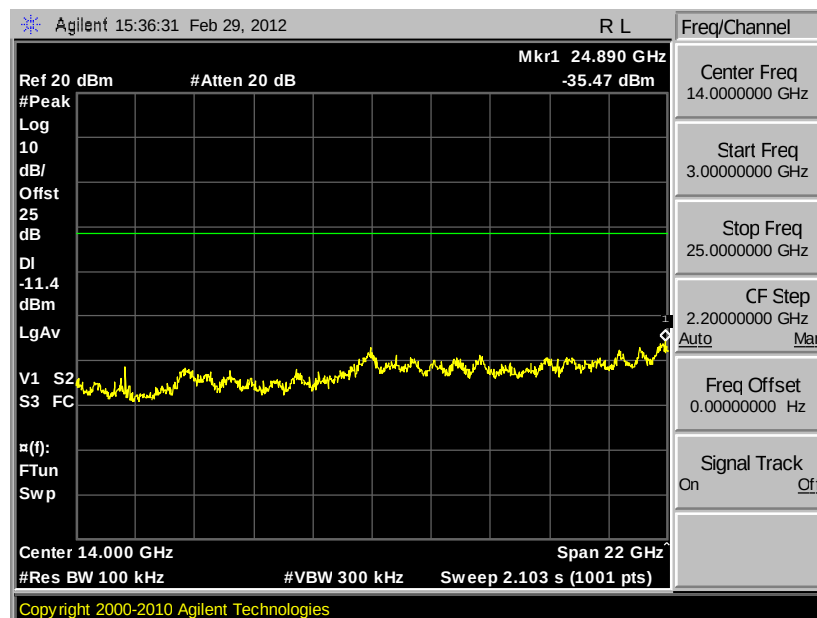
3.4.5 Test Plots of Spurious Emission

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

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

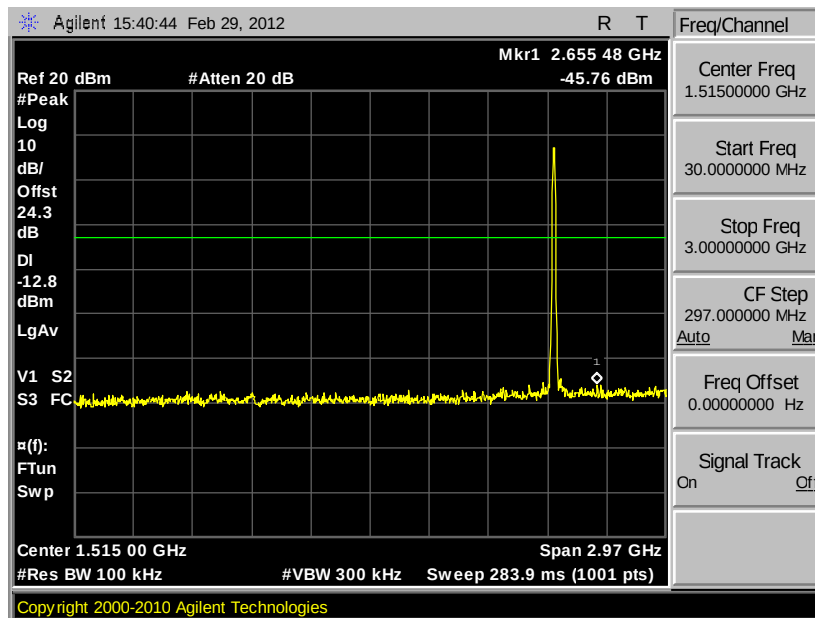
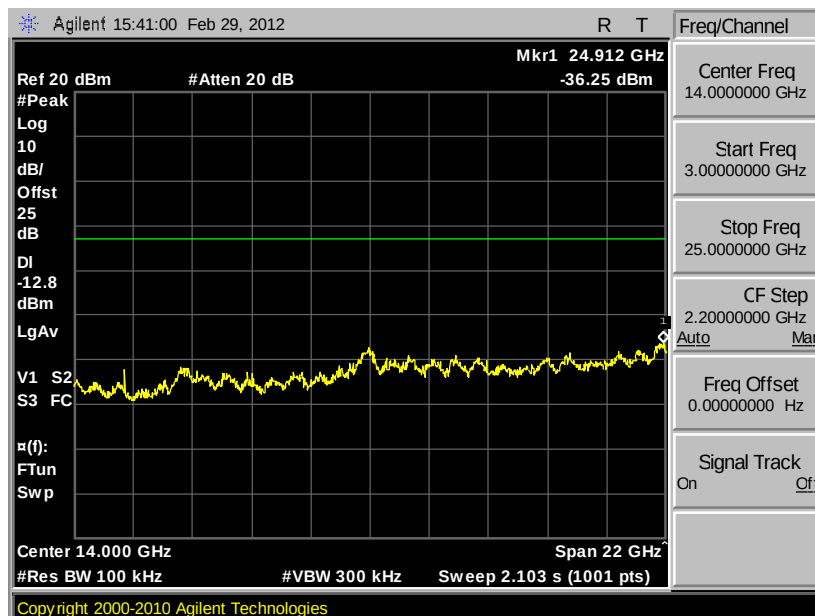


Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



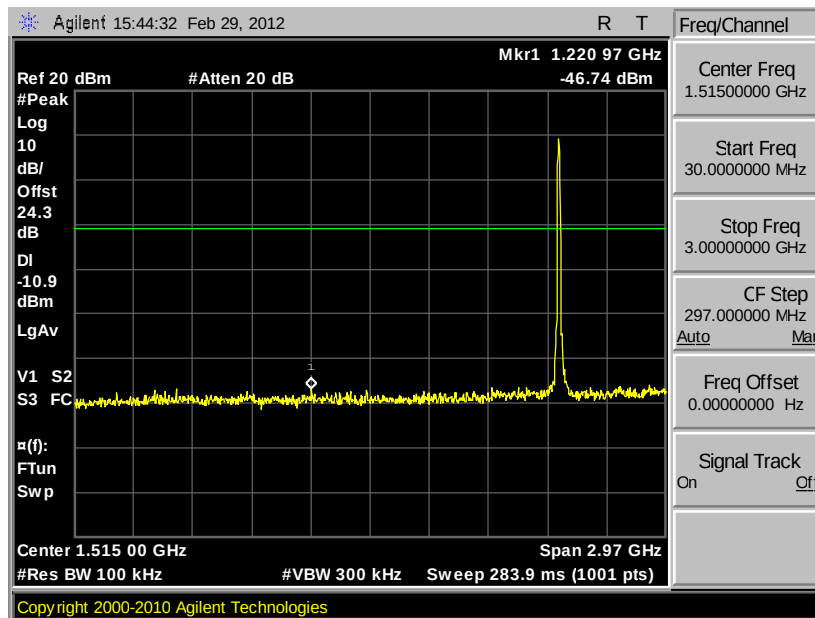
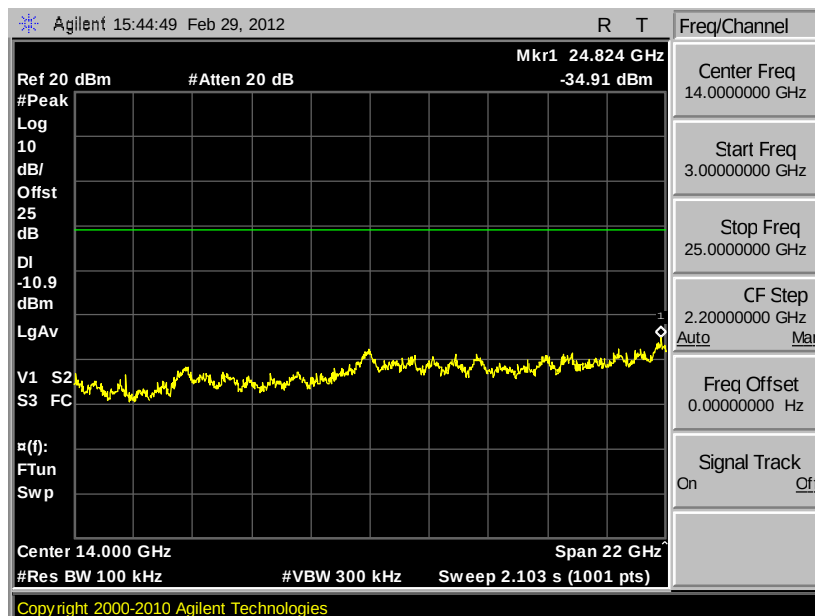


Test Mode :	Mode 2	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz**

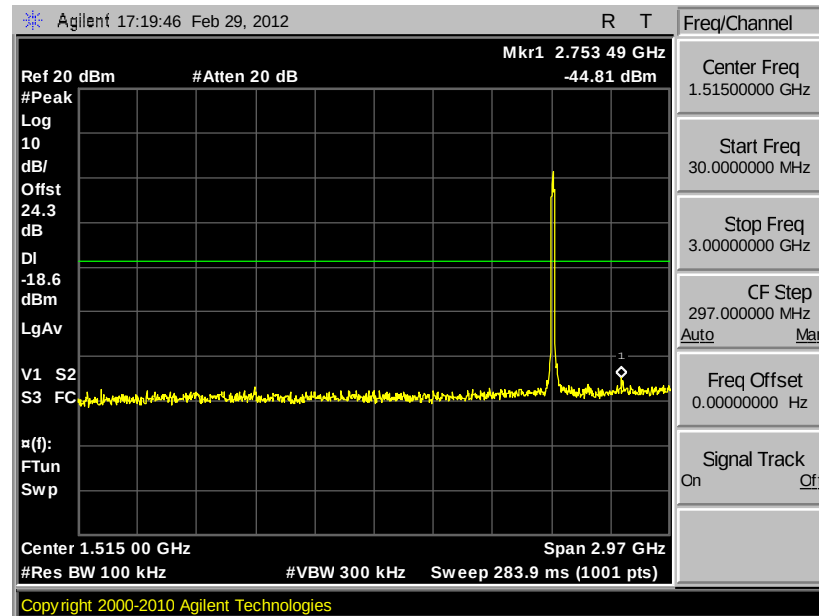
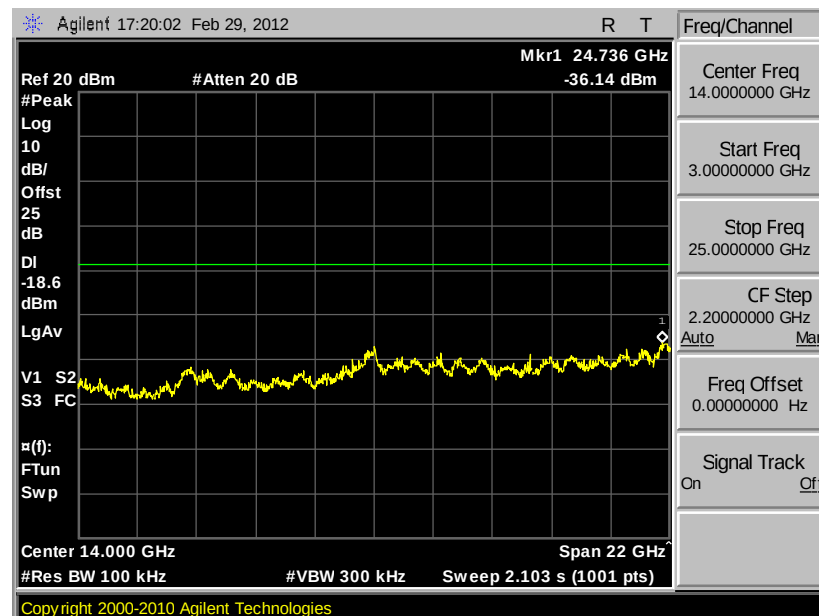


Test Mode :	Mode 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz**

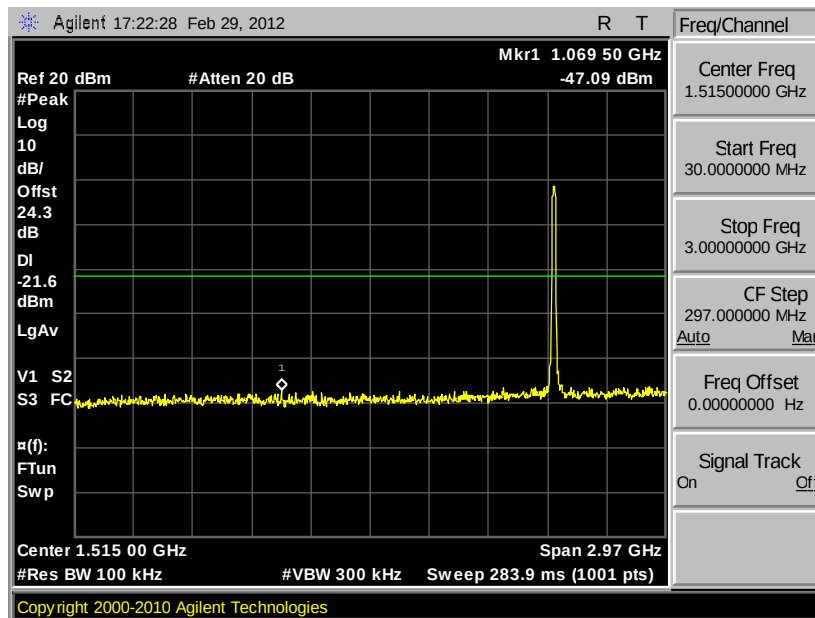
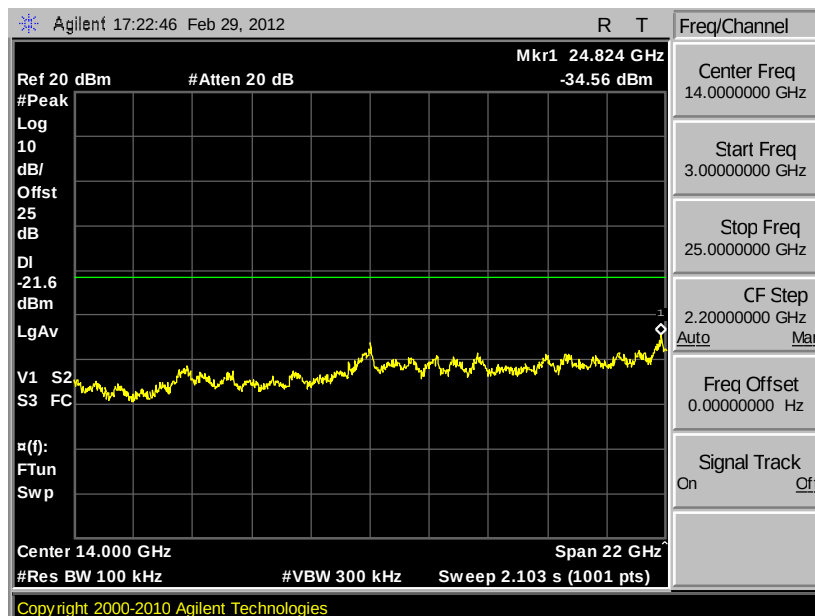


Test Mode :	Mode 4	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz**

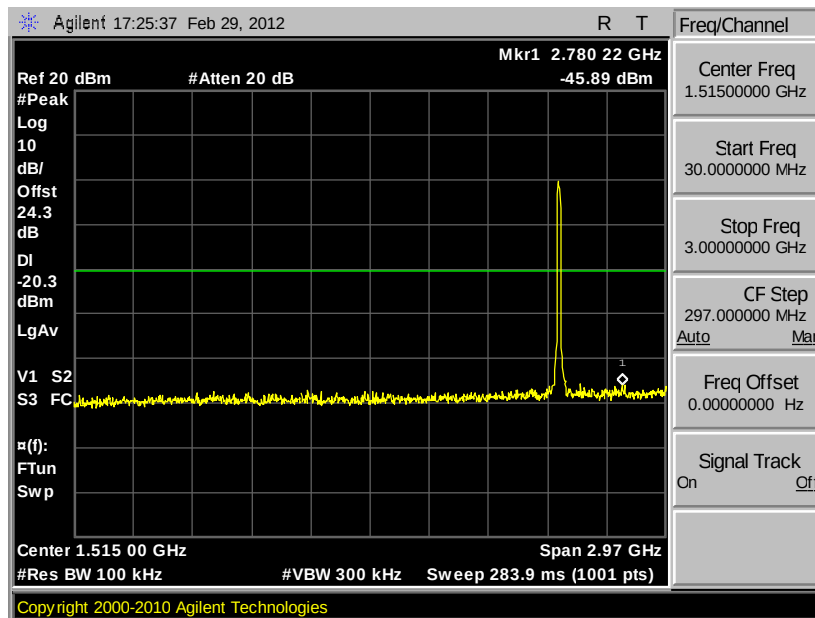
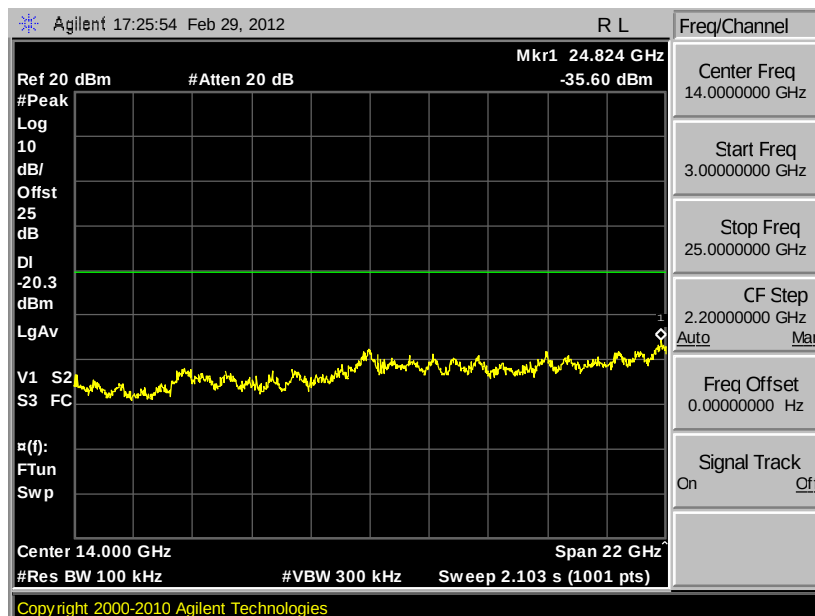


Test Mode :	Mode 5	Temperature :	24~26
Test Band :	802.11g	Relative Humidity :	50~53
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz**

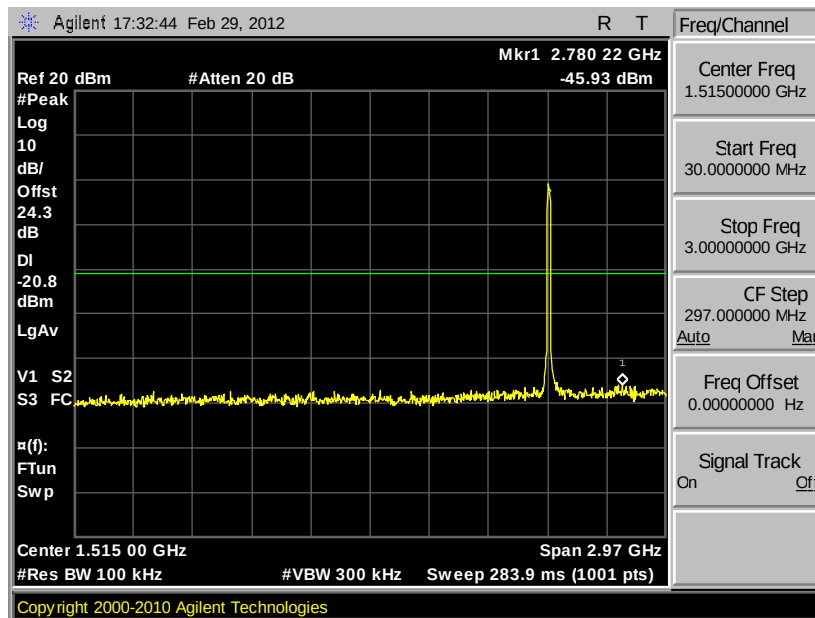
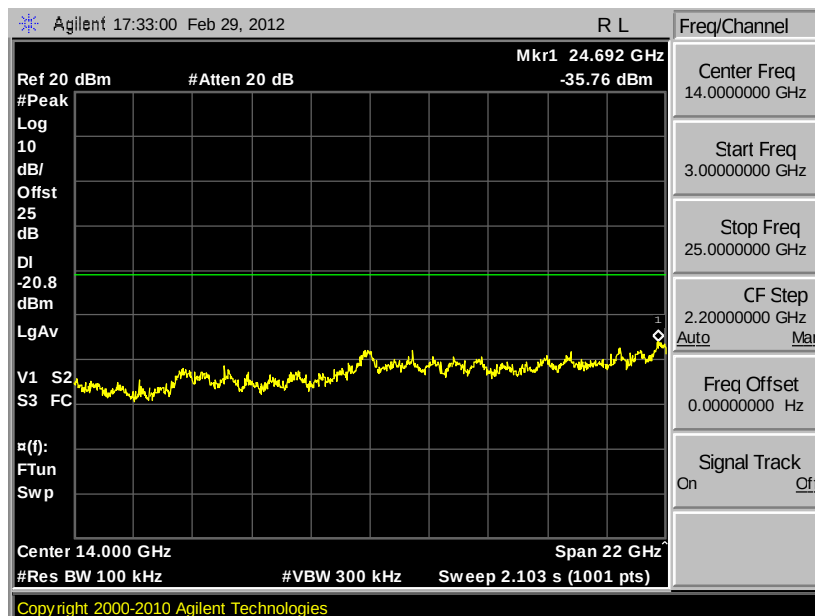


Test Mode :	Mode 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz**

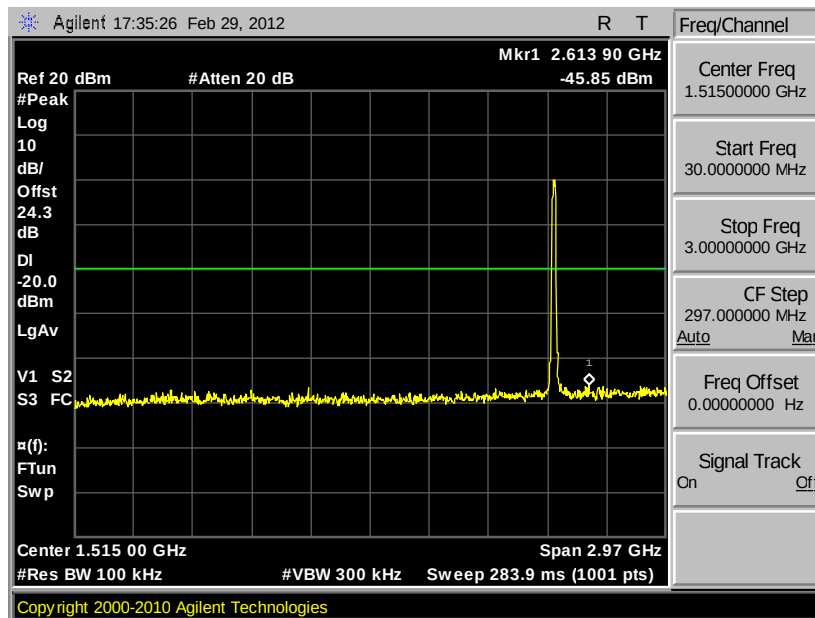
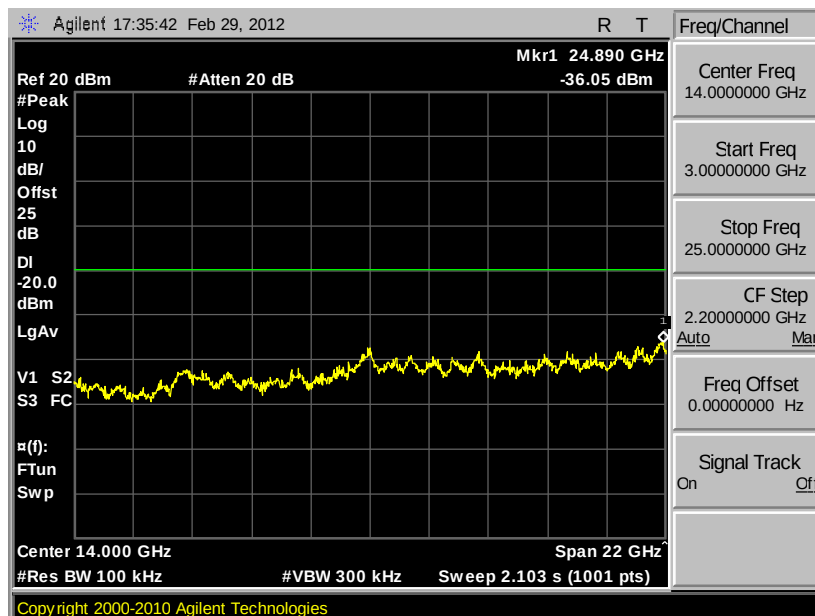


Test Mode :	Mode 7	Temperature :	24~26°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz**

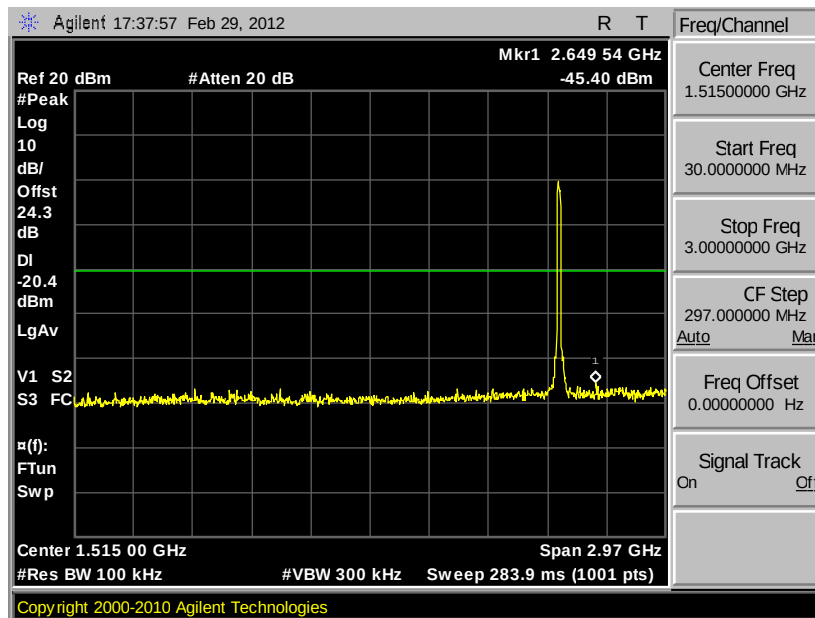
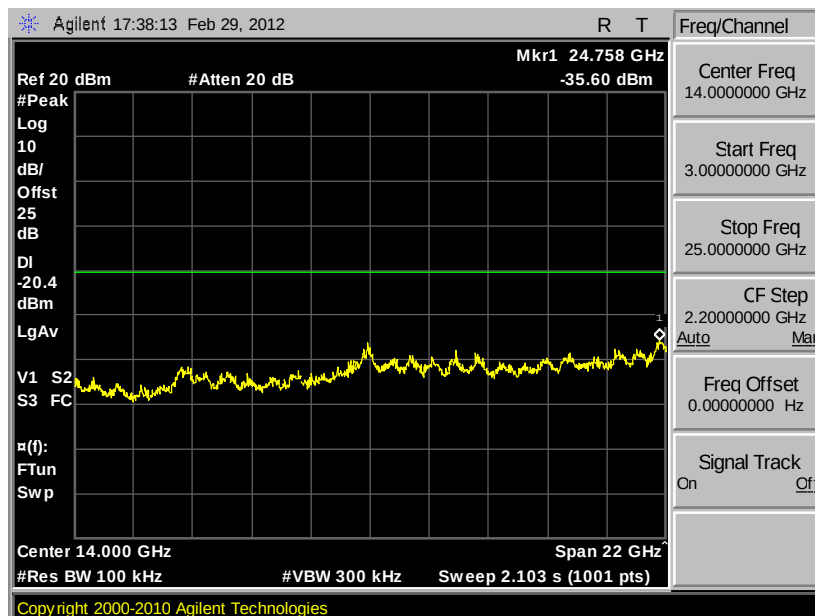


Test Mode :	Mode 8	Temperature :	24~26°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz**



Test Mode :	Mode 9	Temperature :	24~26°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Pinkston Tu

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.

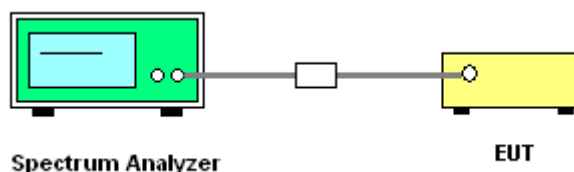
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The testing follows Measurement Procedure PKPSD of 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. The path loss was compensated to the results for each measurement.
3. Record the measurement data derived from spectrum analyzer.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 KHz. Video bandwidth (VBW) $\geq$ 300 KHz In order to make an accurate measurement, set the span to 5-30% greater than Emission Bandwidth (EBW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
6. 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 $BWCF = 10\log(3\text{ kHz}/100\text{ kHz}) = -15.2\text{ dB}$.

3.5.4 Test Setup



3.5.5 Test Result of Power Spectral Density

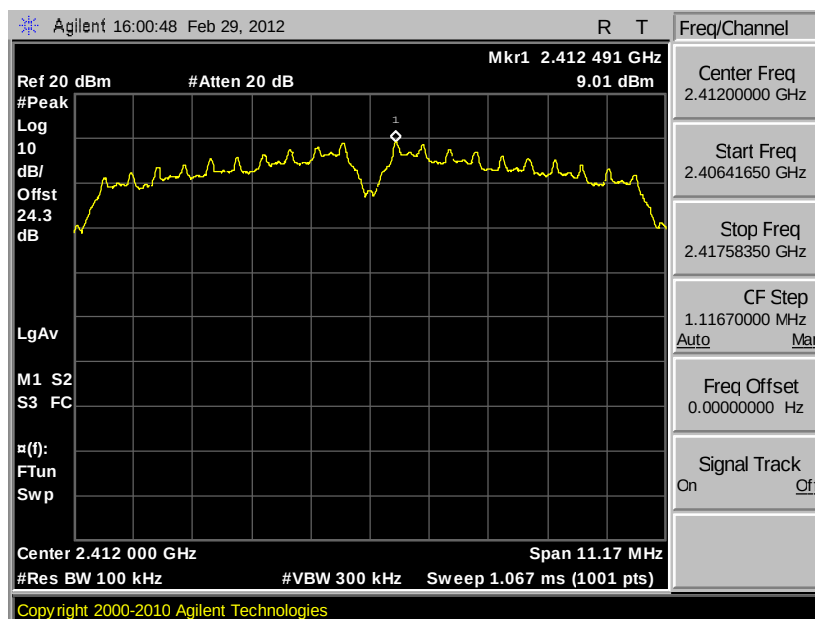
Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	9.01	-6.19	8	Pass
06	2437	9.09	-6.11	8	Pass
11	2462	9.08	-6.12	8	Pass

Note:

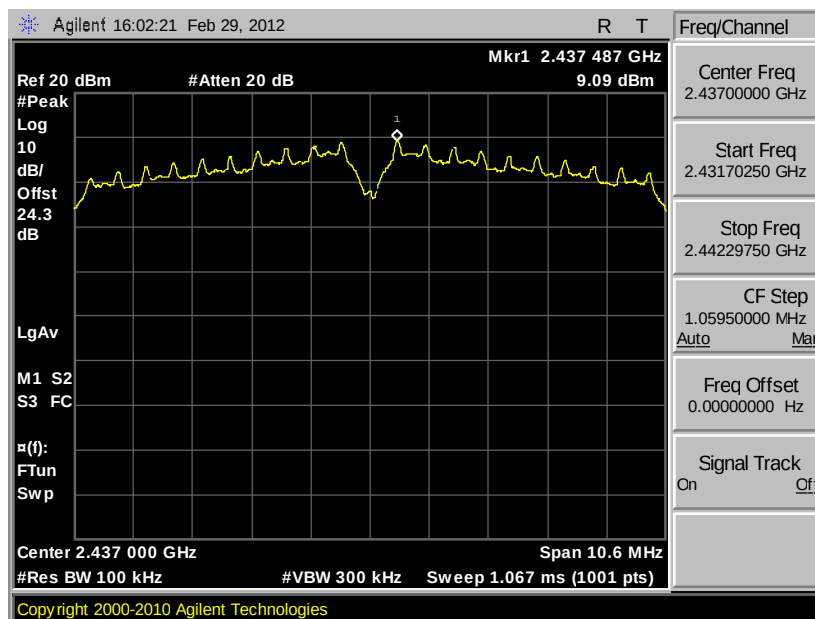
1. Measured power density (dBm) has offset with cable loss.
2. $BWCF (dB) = 10 \log (3k/100k) = -15.2 \text{ dB}$
3. $\text{Power Density/ 3kHz (dBm)} = \text{Measured power density/ 100KHz (dBm)} + BWCF (dB)$

Mode 1 : PSD Plot on 802.11b Channel 01

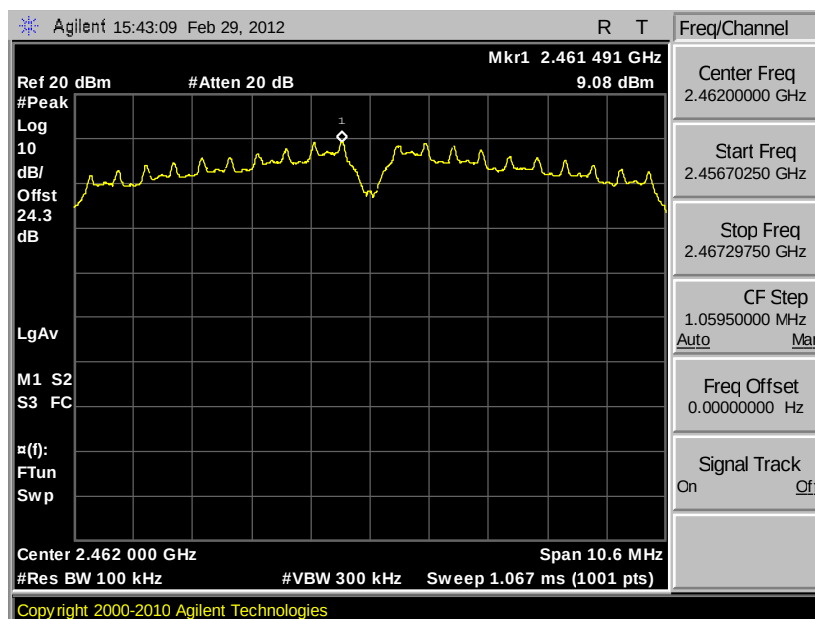




Mode 2 : PSD Plot on 802.11b Channel 06



Mode 3 : PSD Plot on 802.11b Channel 11

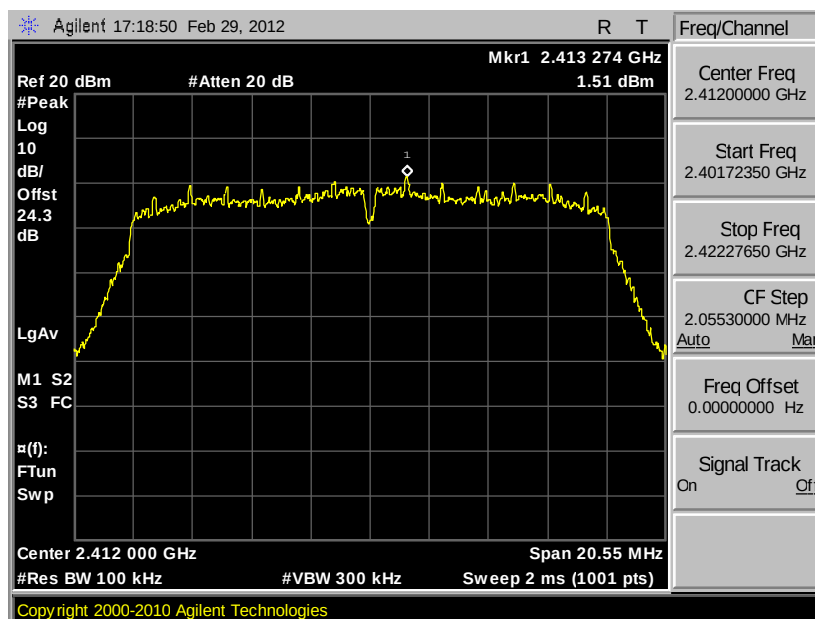


Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	1.51	-13.69	8	Pass
06	2437	1.21	-13.99	8	Pass
11	2462	1.86	-13.34	8	Pass

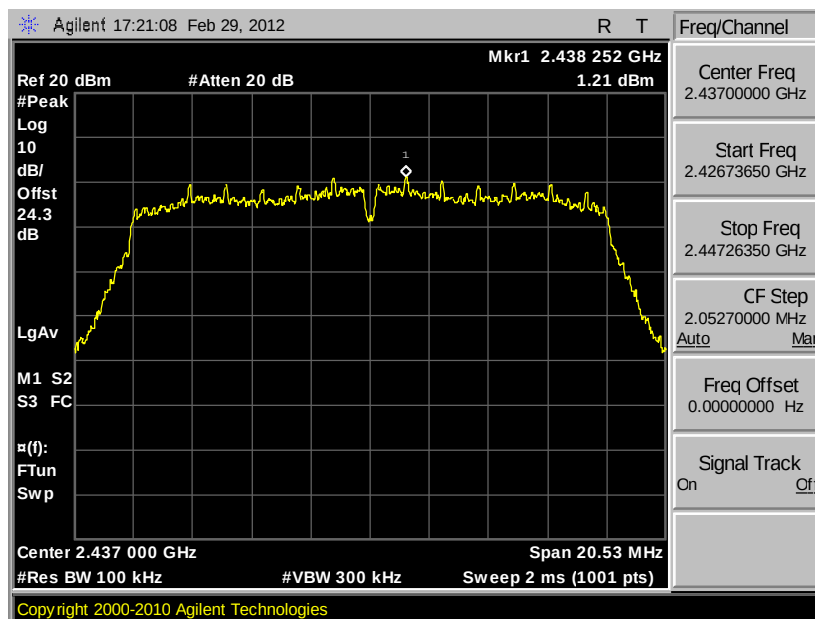
Note:

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

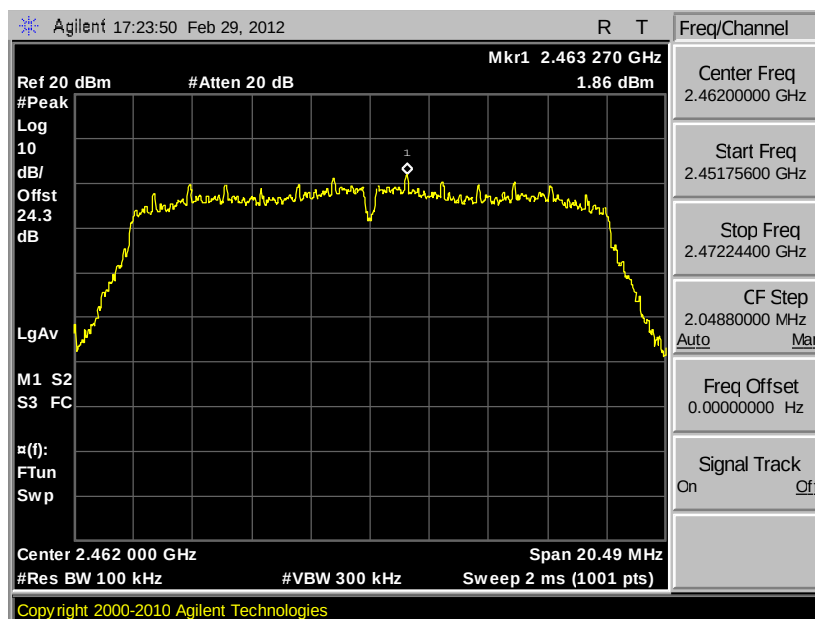
Mode 4 : PSD Plot on 802.11g Channel 01




Mode 5 : PSD Plot on 802.11g Channel 06



Mode 6 : PSD Plot on 802.11g Channel 11

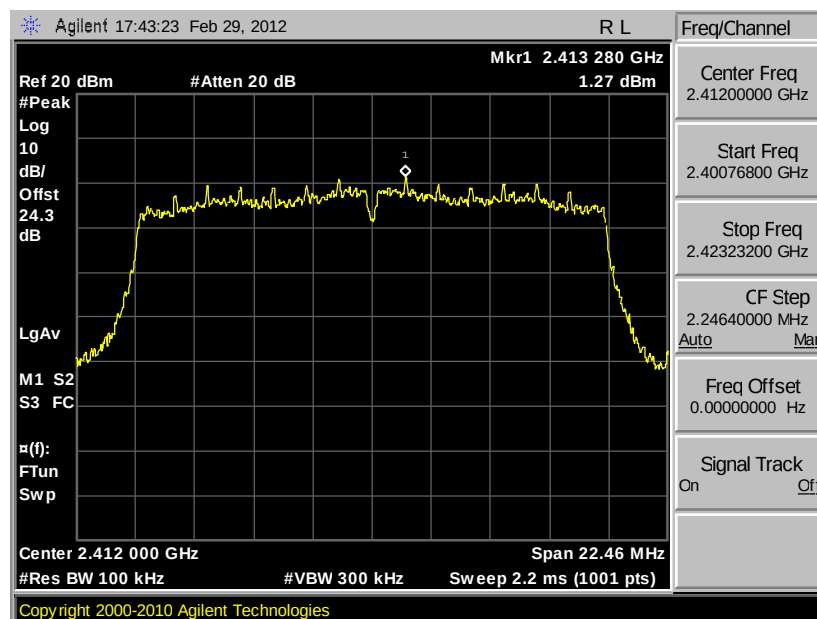


Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g/n (BW 20MHz) Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	1.27	-13.93	8	Pass
06	2437	1.68	-13.52	8	Pass
11	2462	1.98	-13.22	8	Pass

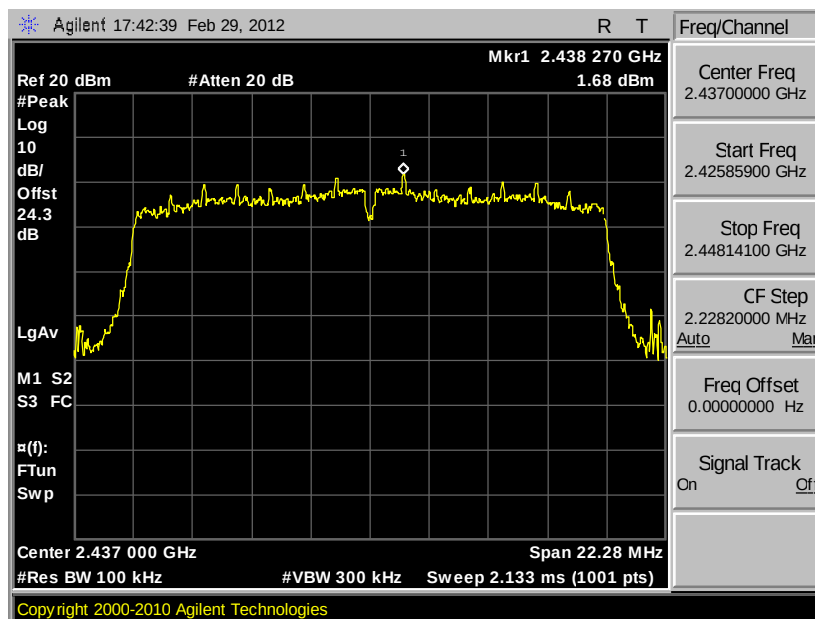
Note:

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

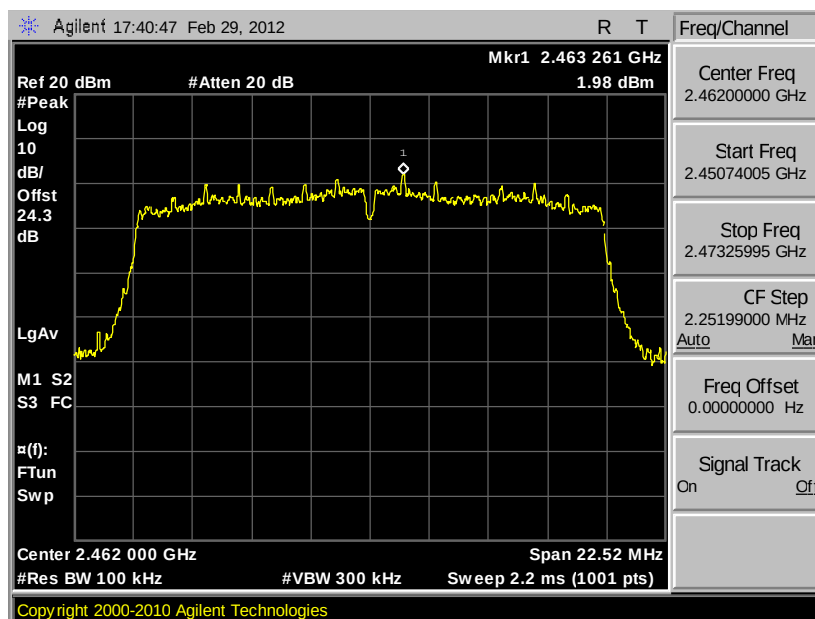
Mode 7 : PSD Plot on 802.11g/n (BW 20MHz) Channel 01




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.

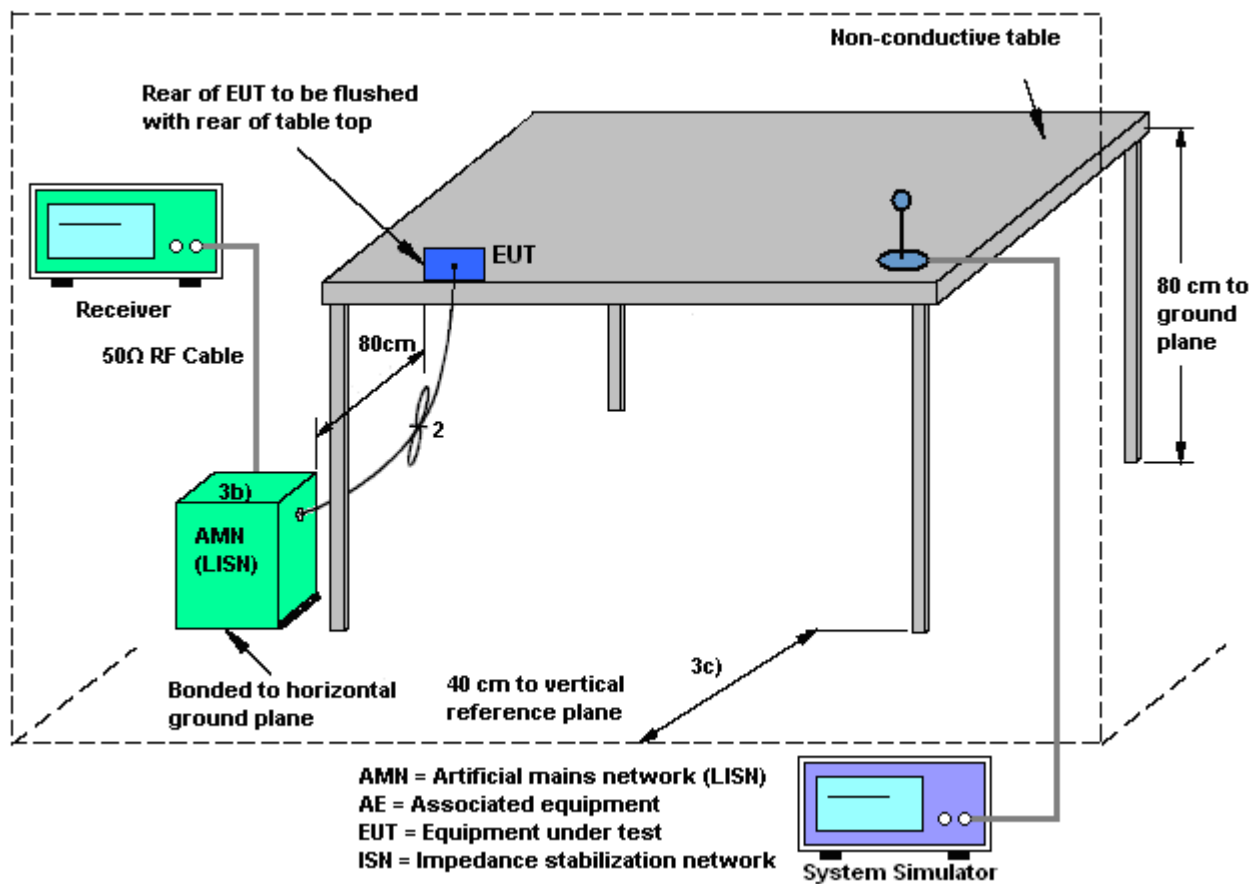
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

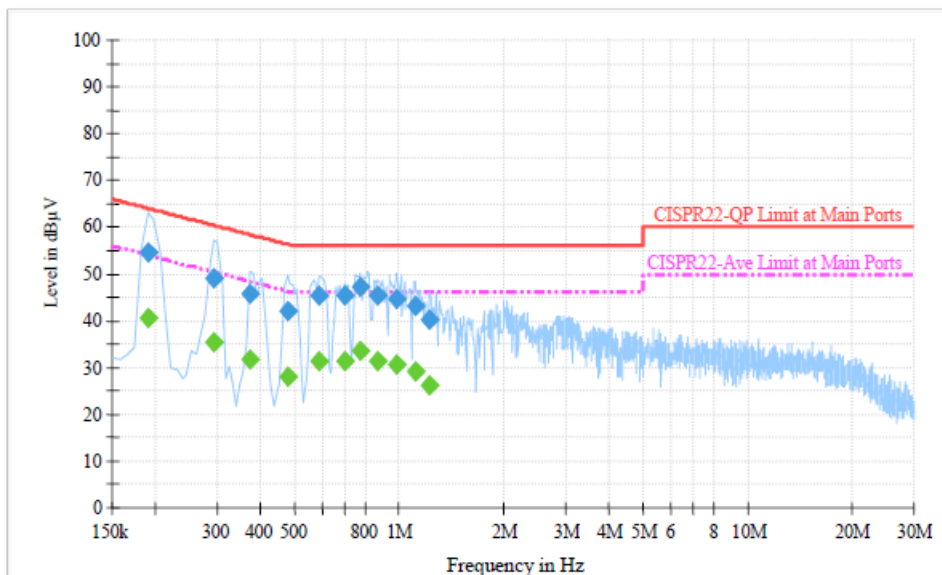
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network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

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

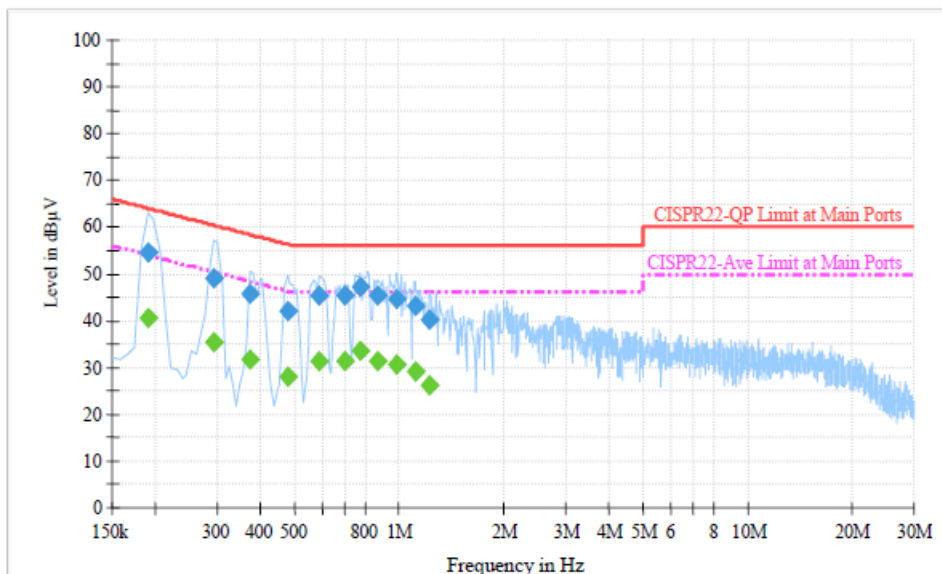
Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	CDMA2000 BC1 Idle + Bluetooth Link + WLAN Link + MPEG4 + Earphone 2 + USB Cable 2 (Charging from Adapter 2) for Sample 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : QuasiPeak

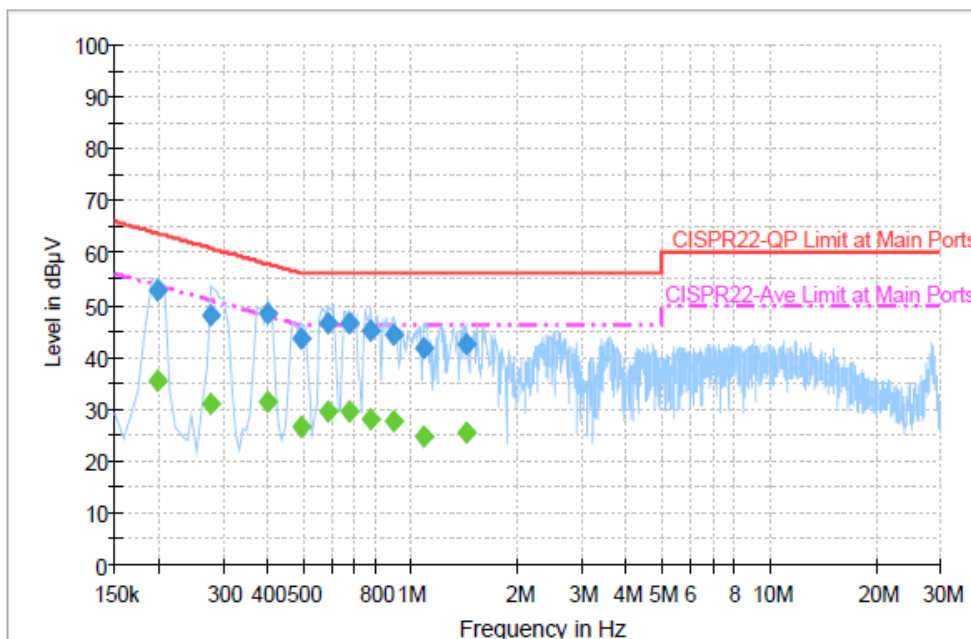
Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.190000	54.6	Off	L1	19.4	9.4	64.0
0.294000	49.3	Off	L1	19.3	11.1	60.4
0.374000	45.8	Off	L1	19.4	12.6	58.4
0.478000	42.1	Off	L1	19.4	14.3	56.4
0.590000	45.4	Off	L1	19.3	10.6	56.0
0.702000	45.5	Off	L1	19.5	10.5	56.0
0.774000	47.3	Off	L1	19.4	8.7	56.0
0.870000	45.4	Off	L1	19.4	10.6	56.0
0.982000	44.8	Off	L1	19.4	11.2	56.0
1.110000	43.2	Off	L1	19.3	12.8	56.0
1.222000	40.3	Off	L1	19.4	15.7	56.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	CDMA2000 BC1 Idle + Bluetooth Link + WLAN Link + MPEG4 + Earphone 2 + USB Cable 2 (Charging from Adapter 2) for Sample 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		


Final Result : Average

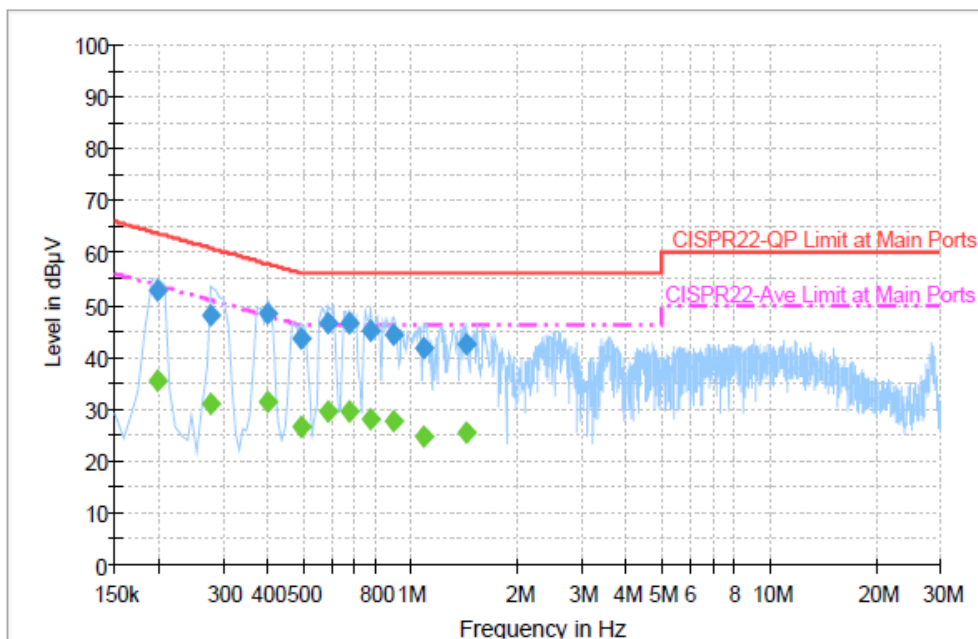
Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190000	40.7	Off	L1	19.4	13.3	54.0
0.294000	35.3	Off	L1	19.3	15.1	50.4
0.374000	31.7	Off	L1	19.4	16.7	48.4
0.478000	28.0	Off	L1	19.4	18.4	46.4
0.590000	31.3	Off	L1	19.3	14.7	46.0
0.702000	31.5	Off	L1	19.5	14.5	46.0
0.774000	33.4	Off	L1	19.4	12.6	46.0
0.870000	31.5	Off	L1	19.4	14.5	46.0
0.982000	30.7	Off	L1	19.4	15.3	46.0
1.110000	29.2	Off	L1	19.3	16.8	46.0
1.222000	26.2	Off	L1	19.4	19.8	46.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	CDMA2000 BC1 Idle + Bluetooth Link + WLAN Link + MPEG4 + Earphone 2 + USB Cable 2 (Charging from Adapter 2) for Sample 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		


Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.198000	52.7	Off	N	19.3	11.0	63.7
0.278000	48.1	Off	N	19.3	12.8	60.9
0.398000	48.5	Off	N	19.4	9.4	57.9
0.494000	43.4	Off	N	19.3	12.7	56.1
0.590000	46.6	Off	N	19.3	9.4	56.0
0.678000	46.6	Off	N	19.5	9.4	56.0
0.774000	45.2	Off	N	19.4	10.8	56.0
0.902000	44.4	Off	N	19.4	11.6	56.0
1.086000	41.6	Off	N	19.4	14.4	56.0
1.430000	42.6	Off	N	19.4	13.4	56.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	CDMA2000 BC1 Idle + Bluetooth Link + WLAN Link + MPEG4 + Earphone 2 + USB Cable 2 (Charging from Adapter 2) for Sample 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		


Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.198000	35.6	Off	N	19.3	18.1	53.7
0.278000	31.0	Off	N	19.3	19.9	50.9
0.398000	31.4	Off	N	19.4	16.5	47.9
0.494000	26.5	Off	N	19.3	19.6	46.1
0.590000	29.7	Off	N	19.3	16.3	46.0
0.678000	29.5	Off	N	19.5	16.5	46.0
0.774000	28.1	Off	N	19.4	17.9	46.0
0.902000	27.5	Off	N	19.4	18.5	46.0
1.086000	24.6	Off	N	19.4	21.4	46.0
1.430000	25.5	Off	N	19.4	20.5	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

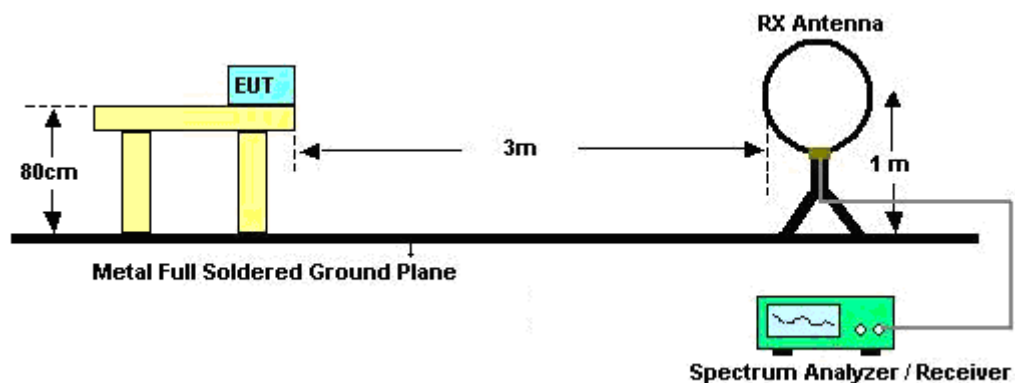
See list of measuring instruments of this test report.

3.7.3 Test Procedures

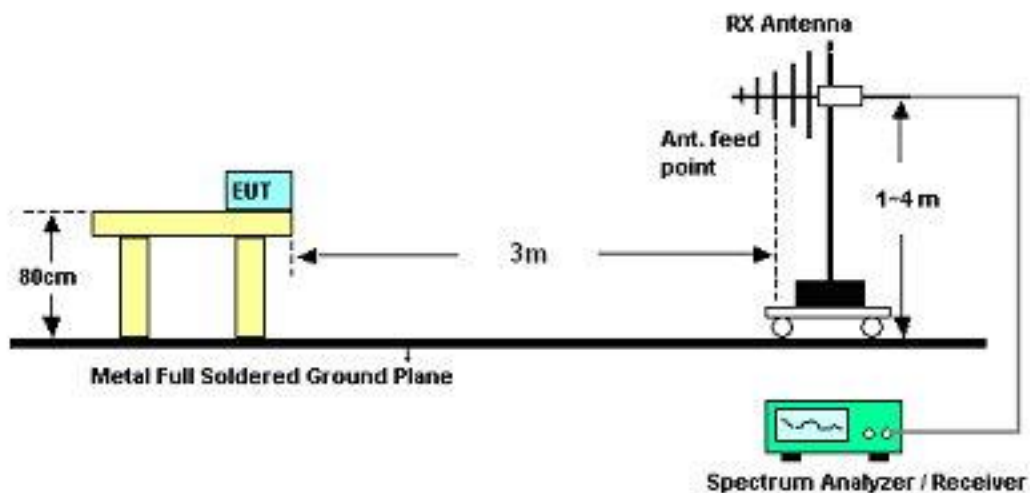
- Use the following spectrum analyzer settings:
 - Span shall wide enough to fully capture the emission being measured;
 - Set RBW = 1 MHz for $f \geq 1$ GHz, 100 KHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - Measurement above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB per decade from 3m to 1m.
Distance extrapolation factor = $20 \log (\text{specific distance [3m]} / \text{test distance [1m]})$ (dB)
- Maximize the emission by rotating the EUT for three orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines in ANSI C63.4-2003.

3.7.4 Test Setup

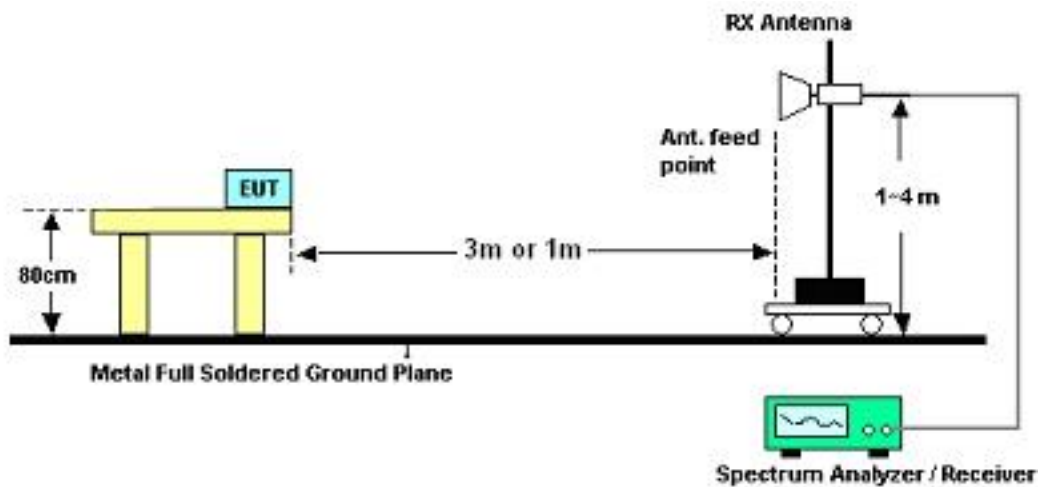
For radiated emissions below 30MHz



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)

Test Mode :	Mode 1	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	50~52%
Test Engineer :	David Yang	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 7236 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 104.65 dBuV/m - 20dB = 84.65 dBuV/m.		

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
30	21.08	-18.92	40	32.01	20	0.53	31.46	-	-	Peak
156.09	21.58	-21.92	43.5	41.12	10.78	1.22	31.54	-	-	Peak
212.25	24.61	-18.89	43.5	44.73	9.98	1.37	31.47	116	301	Peak
307	22.01	-23.99	46	38.04	13.51	1.79	31.33	-	-	Peak
561.8	20.28	-25.72	46	29.53	19.14	2.58	30.97	-	-	Peak
808.9	23.2	-22.8	46	28.54	22.19	3.16	30.69	-	-	Peak
2384.1	50.48	-23.52	74	46.38	32.03	6.03	33.96	144	30	Peak
2384.1	39.97	-14.03	54	35.87	32.03	6.03	33.96	144	30	Average
2412	104.65	-	-	100.47	32.08	6.07	33.97	144	30	Peak
2412	100.71	-	-	96.53	32.08	6.07	33.97	144	30	Average
2486	34.18	-19.82	54	29.82	32.18	6.18	34	144	30	Average
2486	45.95	-28.05	74	41.59	32.18	6.18	34	144	30	Peak
4824	49.11	-24.89	74	65	34.1	9.12	59.11	100	0	Peak
7236	46.88	-37.77	84.65	59.26	35.7	10.03	58.11	100	0	Peak

Test Mode :	Mode 1	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	50~52%
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
30	22.4	-17.6	40	33.33	20	0.53	31.46	103	221	Peak
101.82	21.61	-21.89	43.5	42.17	9.98	1	31.54	-	-	Peak
155.82	21.98	-21.52	43.5	41.52	10.78	1.22	31.54	-	-	Peak
304.9	19.92	-26.08	46	36.04	13.43	1.78	31.33	-	-	Peak
512.1	19.64	-26.36	46	29.92	18.3	2.47	31.05	-	-	Peak
775.3	23.17	-22.83	46	29.04	21.72	3.1	30.69	-	-	Peak
2388.85	54.61	-19.39	74	50.48	32.06	6.03	33.96	126	343	Peak
2388.85	45.26	-8.74	54	41.13	32.06	6.03	33.96	126	343	Average
2412	107.14	-	-	102.96	32.08	6.07	33.97	126	343	Peak
2412	103.16	-	-	98.98	32.08	6.07	33.97	126	343	Average
2486	35.41	-18.59	54	31.05	32.18	6.18	34	126	343	Average
2486	47.54	-26.46	74	43.18	32.18	6.18	34	126	343	Peak
4824	47.23	-26.77	74	63.12	34.1	9.12	59.11	100	0	Peak

Test Mode :	Mode 2	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	50~52%
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
2380	46.03	-27.97	74	41.93	32.03	6.03	33.96	142	30	Peak
2380	34.46	-19.54	54	30.36	32.03	6.03	33.96	142	30	Average
2437	104.02	-	-	99.76	32.13	6.11	33.98	142	30	Peak
2437	100.2	-	-	95.94	32.13	6.11	33.98	142	30	Average
2486	48.47	-25.53	74	44.11	32.18	6.18	34	142	30	Peak
2486	38.07	-15.93	54	33.71	32.18	6.18	34	142	30	Average
4874	48.67	-25.33	74	64.48	34.1	9.13	59.04	100	0	Peak

Test Mode :	Mode 2	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	50~52%
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
2382	49.06	-24.94	74	44.96	32.03	6.03	33.96	124	342	Peak
2382	37.12	-16.88	54	33.02	32.03	6.03	33.96	124	342	Average
2437	102.6	-	-	98.34	32.13	6.11	33.98	124	342	Average
2437	106.57	-	-	102.31	32.13	6.11	33.98	124	342	Peak
2486	50.32	-23.68	74	45.96	32.18	6.18	34	124	342	Peak
2486	39.5	-14.5	54	35.14	32.18	6.18	34	124	342	Average
4874	48.29	-25.71	74	64.1	34.1	9.13	59.04	100	0	Peak

Test Mode :	Mode 3	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	50~52%
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	46.06	-27.94	74	41.96	32.03	6.03	33.96	140	22	Peak
2382	33.71	-20.29	54	29.61	32.03	6.03	33.96	140	22	Average
2462	101.16	-	-	96.86	32.15	6.14	33.99	140	22	Average
2462	105.06	-	-	100.76	32.15	6.14	33.99	140	22	Peak
2488.22	50.11	-23.89	74	45.73	32.2	6.18	34	140	22	Peak
2488.22	38.73	-15.27	54	34.35	32.2	6.18	34	140	22	Average
4924	50.45	-23.55	74	66.16	34.1	9.15	58.96	100	0	Peak
7386	44.22	-29.78	74	56.59	35.7	10.1	58.17	100	0	Peak

Test Mode :	Mode 3	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	50~52%
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
2388	46.84	-27.16	74	42.71	32.06	6.03	33.96	153	348	Peak
2388	35.29	-18.71	54	31.16	32.06	6.03	33.96	153	348	Average
2462	103.78	-	-	99.48	32.15	6.14	33.99	153	348	Average
2462	107.28	-	-	102.98	32.15	6.14	33.99	153	348	Peak
2488.98	52.26	-21.74	74	47.88	32.2	6.18	34	153	348	Peak
2488.98	43.22	-10.78	54	38.84	32.2	6.18	34	153	348	Average
4924	48.93	-25.07	74	64.64	34.1	9.15	58.96	100	0	Peak

Test Mode :	Mode 4	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	50~52%
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
2388.85	59.09	-14.91	74	54.96	32.06	6.03	33.96	170	27	Peak
2388.85	39.22	-14.78	54	35.09	32.06	6.03	33.96	170	27	Average
2412	102.86	-	-	98.68	32.08	6.07	33.97	170	27	Peak
2412	90.04	-	-	85.86	32.08	6.07	33.97	170	27	Average
2486	34.06	-19.94	54	29.7	32.18	6.18	34	170	27	Average
2486	46.81	-27.19	74	42.45	32.18	6.18	34	170	27	Peak
4824	43.88	-30.12	74	59.77	34.1	9.12	59.11	100	0	Peak

Test Mode :	Mode 4	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	50~52%
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	63.43	-10.57	74	59.3	32.06	6.03	33.96	123	357	Peak
2389.42	43.13	-10.87	54	39	32.06	6.03	33.96	123	357	Average
2412	104.35	-	-	100.17	32.08	6.07	33.97	123	357	Peak
2412	91.28	-	-	87.1	32.08	6.07	33.97	123	357	Average
2484	34.62	-19.38	54	30.26	32.18	6.18	34	123	357	Average
2484	46.66	-27.34	74	42.3	32.18	6.18	34	123	357	Peak

Test Mode :	Mode 5	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	50~52%
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
2388	46.34	-27.66	74	42.21	32.06	6.03	33.96	111	31	Peak
2388	34.53	-19.47	54	30.4	32.06	6.03	33.96	111	31	Average
2437	102.87	-	-	98.64	32.1	6.11	33.98	111	31	Peak
2437	89.69	-	-	85.43	32.13	6.11	33.98	111	31	Average
2484	48.43	-25.57	74	44.07	32.18	6.18	34	111	31	Peak
2484	35.28	-18.72	54	30.92	32.18	6.18	34	111	31	Average
4874	44.6	-29.4	74	60.4	34.1	9.14	59.04	100	0	Peak

Test Mode :	Mode 5	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	50~52%
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
2388	49.07	-24.93	74	44.94	32.06	6.03	33.96	122	355	Peak
2388	36	-18	54	31.87	32.06	6.03	33.96	122	355	Average
2437	104.11	-	-	99.85	32.13	6.11	33.98	122	355	Peak
2437	91.12	-	-	86.86	32.13	6.11	33.98	122	355	Average
2484	48.97	-25.03	74	44.61	32.18	6.18	34	122	355	Peak
2484	36.73	-17.27	54	32.37	32.18	6.18	34	122	355	Average
4874	43.24	-30.76	74	59.04	34.1	9.14	59.04	100	0	Peak

Test Mode :	Mode 6	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	50~52%
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
2388	46.48	-27.52	74	42.35	32.06	6.03	33.96	111	81	Peak
2388	33.83	-20.17	54	29.7	32.06	6.03	33.96	111	81	Average
2462	90.39	-	-	86.09	32.15	6.14	33.99	111	81	Average
2462	103.71	-	-	99.41	32.15	6.14	33.99	111	81	Peak
2483.85	60.75	-13.25	74	56.39	32.18	6.18	34	111	81	Peak
2483.85	40.7	-13.3	54	36.34	32.18	6.18	34	111	81	Average
4924	45.87	-28.13	74	61.58	34.1	9.15	58.96	100	0	Peak

Test Mode :	Mode 6	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	50~52%
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
2380	46.58	-27.42	74	42.48	32.03	6.03	33.96	152	353	Peak
2380	34.89	-19.11	54	30.79	32.03	6.03	33.96	152	353	Average
2462	92.78	-	-	88.48	32.15	6.14	33.99	152	353	Average
2462	105.62	-	-	101.32	32.15	6.14	33.99	152	353	Peak
2483.85	61.85	-12.15	74	57.49	32.18	6.18	34	152	353	Peak
2483.85	43.03	-10.97	54	38.67	32.18	6.18	34	152	353	Average
4924	43.38	-30.62	74	59.13	34.1	9.14	58.99	100	0	Peak

Test Mode :	Mode 7	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	50~52%
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
2389.61	61.96	-12.04	74	57.83	32.06	6.03	33.96	180	107	Peak
2389.61	41.3	-12.7	54	37.17	32.06	6.03	33.96	180	107	Average
2412	102.08	-	-	97.9	32.08	6.07	33.97	180	107	Peak
2412	89.13	-	-	84.95	32.08	6.07	33.97	180	107	Average
2484	33.44	-20.56	54	29.08	32.18	6.18	34	180	107	Average
2484	45.84	-28.16	74	41.48	32.18	6.18	34	180	107	Peak
4824	44.1	-29.9	74	59.99	34.1	9.12	59.11	100	0	Peak

Test Mode :	Mode 7	Temperature :	22~24℃
Test Channel :	01	Relative Humidity :	50~52%
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
2389.99	62.96	-11.04	74	58.83	32.06	6.03	33.96	189	347	Peak
2389.99	42.44	-11.56	54	38.31	32.06	6.03	33.96	189	347	Average
2412	103.47	-	-	99.29	32.08	6.07	33.97	189	347	Peak
2412	90.44	-	-	86.26	32.08	6.07	33.97	189	347	Average
2484	33.97	-20.03	54	29.61	32.18	6.18	34	189	347	Average
2484	46.77	-27.23	74	42.41	32.18	6.18	34	189	347	Peak

Test Mode :	Mode 8	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	50~52%
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	47.69	-26.31	74	43.56	32.06	6.03	33.96	178	95	Peak
2390	35.04	-18.96	54	30.91	32.06	6.03	33.96	178	95	Average
2437	101.1	-	-	96.84	32.13	6.11	33.98	178	95	Peak
2437	88.36	-	-	84.1	32.13	6.11	33.98	178	95	Average
2484	48.42	-25.58	74	44.06	32.18	6.18	34	178	95	Peak
2484	34.98	-19.02	54	30.62	32.18	6.18	34	178	95	Average
4874	43.65	-30.35	74	59.45	34.1	9.14	59.04	100	0	Peak

Test Mode :	Mode 8	Temperature :	22~24℃
Test Channel :	06	Relative Humidity :	50~52%
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	48.75	-25.25	74	44.62	32.06	6.03	33.96	124	344	Peak
2390	35.47	-18.53	54	31.34	32.06	6.03	33.96	124	344	Average
2437	103.56	-	-	99.3	32.13	6.11	33.98	124	344	Peak
2437	90.59	-	-	86.33	32.13	6.11	33.98	124	344	Average
2484	49.06	-24.94	74	44.7	32.18	6.18	34	124	344	Peak
2484	36.08	-17.92	54	31.72	32.18	6.18	34	124	344	Average

Test Mode :	Mode 9	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	50~52%
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
2388	46.35	-27.65	74	42.22	32.06	6.03	33.96	139	25	Peak
2388	33.62	-20.38	54	29.49	32.06	6.03	33.96	139	25	Average
2462	88.78	-	-	84.48	32.15	6.14	33.99	139	25	Average
2462	102.23	-	-	97.93	32.15	6.14	33.99	139	25	Peak
2483.85	60.77	-13.23	74	56.41	32.18	6.18	34	139	25	Peak
2483.85	40.87	-13.13	54	36.51	32.18	6.18	34	139	25	Average

Test Mode :	Mode 9	Temperature :	22~24℃
Test Channel :	11	Relative Humidity :	50~52%
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
2388	46.87	-27.13	74	42.74	32.06	6.03	33.96	154	340	Peak
2388	34.61	-19.39	54	30.48	32.06	6.03	33.96	154	340	Average
2462	91.28	-	-	86.98	32.15	6.14	33.99	154	340	Average
2462	103.84	-	-	99.54	32.15	6.14	33.99	154	340	Peak
2483.66	59.46	-14.54	74	55.1	32.18	6.18	34	154	340	Peak
2483.66	42.01	-11.99	54	37.65	32.18	6.18	34	154	340	Average

3.8 Antenna Requirements

3.8.1 Standard Applicable

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

3.8.2 Antenna Connected Construction

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

3.8.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 13, 2011	Feb. 28, 2012 ~ Feb. 29, 2012	Jun. 12, 2012	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Oct. 27, 2011	Mar. 05, 2012	Oct. 26, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	Mar. 05, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	Mar. 05, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000 W	N/A	N/A	N/A	Mar. 05, 2012	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	117995	N/A	Jul. 28, 2011	Mar. 05, 2012	Jul. 27, 2012	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 22, 2011	Mar. 16, 2012	Oct. 21, 2012	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 06, 2011	Mar. 16, 2012	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	Mar. 16, 2012	Aug. 09, 2012	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz ~ 26.5GHz	Dec. 05, 2011	Mar. 16, 2012	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10 ~ 1000MHz 32dB GAIN	Mar 29, 2011	Mar. 16, 2012	Mar 28, 2012	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz ~ 7GHz	Aug. 22, 2011	Mar. 16, 2012	Aug. 21, 2012	Radiation (03CH07-HY)
Pre Amplifier	EMCI	EMC051845	SN980048	1GHz ~ 18GHz	Jul. 18, 2011	Mar. 16, 2012	Jul. 17, 2012	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Mar. 16, 2012	Jul. 28, 2012	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

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

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

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

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

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

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