

FCC 47 CFR PART 15 SUBPART C

Product Type : Wireless Module

Applicant : Wyse Technology

Address : 3471 North First Street San Jose, CA 95134-1803 United States

Trade Name : WYSE

Model Number : 62230WL

Test Specification : FCC 47 CFR PART 15 SUBPART C: Oct., 2010
Canada RSS-210 ISSUE 8: Dec., 2010
Canada RSS-Gen ISSUE 3: Dec., 2010
ANSI C63.4-2009

Application Purpose : Class II Permissive Change

Issue Date : Aug. 17, 2011

Issue by

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Taiwan Accreditation Foundation accreditation number: 1330

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Revision History

Rev.	Issue Date	Revisions	Revised By
00	Aug. 17, 2011	Initial Issue	

Verification of Compliance

Issued Date: 08/17/2011

Product Type : Wireless Module
Applicant : Wyse Technology
Address : 3471 North First Street San Jose, CA 95134-1803 United States
Trade Name : WYSE
Model Number : 62230WL
FCC ID : DYD62230WL
EUT Rated Voltage : DC 3.3V
Test Voltage : 120 Vac / 60 Hz
Applicable Standard : FCC 47 CFR PART 15 SUBPART C: Oct., 2010
Canada RSS-210 ISSUE 8: Dec., 2010
Canada RSS-Gen ISSUE 3: Dec., 2010
ANSI C63.4-2009
Test Result : Complied
Application Purpose : Class II Permissive Change
Performing Lab. : A Test Lab Techno Corp.
No. 140-1, Changan Street, Bade City,
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Taiwan Accreditation Foundation accreditation number:
1330
<http://www.atl-lab.com.tw/e-index.htm>



The above equipment was tested by A Test Lab Techno Corp. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2009 and the energy emitted by the sample tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247 .
The test results of this report relate only to the tested sample identified in this report.

Approved By : 
(Manager) (Miller Lee)

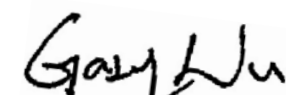
Reviewed By : 
(Testing Engineer) (Gary Wu)

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1 General Information

1.1 Summary of Test Result

Standard		Item	Result	Remark
15.247	RSS-GEN			
15.207	7.2.2	AC Power Conducted Emission	PASS	-----
-----	6	Receiver Radiated Emissions	PASS	-----
Standard		Item	Result	Remark
15.247	RSS-210			
15.247(c)	A8.5	Transmitter Radiated Emissions	PASS	-----
15.247(b)(1)	A8.4 (2)	Max. Output Power	N/A	Ref. original FCC ID: PD962230ANH report
15.247(a)(1)	A8.1 (1)	20dB RF Bandwidth	N/A	
15.247(a)(1)(iii)	A8.1 (2)	Carrier Frequency Separation	N/A	
15.247(a)(1)(iii)	A8.1 (4)	Number of Hopping	N/A	
15.247(a)(1)(iii)	A8.1 (4)	Time of Occupancy (Dwell Time)	N/A	
15.247(c)	A8.5	Out of Band Conducted Spurious Emission	N/A	
15.247(c)	A8.5	Band Edge Measurement	PASS	-----
15.203	-	Antenna Requirement	PASS	-----

The test results of this report relate only to the tested sample(s) identified in this report. Manufacturer or whom it may concern should recognize the pass or fail of the test result.

1.2 Measurement Uncertainty

Conducted Emission

The measurement uncertainty is evaluated as ± 2.24 dB.

Radiated Emission

The measurement uncertainty of 30 MHz - 1GHz is evaluated as ± 3.072 dB.

2 EUT Description

Product	:	Wireless Module			
Trade Name	:	WYSE			
Model Number	:	62230WL			
Applicant	:	Wyse Technology 3471 North First Street San Jose, CA 95134-1803 United States			
Manufacturer	:	Intel Corporation 100 Center Point Circle, Suite 200 Columbia, SC 29210			
FCC ID	:	DYD62230WL			
Frequency Range	:	2402 ~ 2480 MHz			
Modulation Type	:	GFSK for 1Mbps			
	:	$\pi/4$ -DQPSK for 2Mbps			
	:	8DPSK for 3Mbps			
Antenna Type	:	Dipole Type			
Antenna Gain	:	2 dBi			
RF Output Power (Conducted)	:	GFSK for 1Mbps	6.5	dBm /	0.004 W
	:	8DPSK for 3Mbps	4.6	dBm /	0.003 W
Host Used	:	WYSE, Zx0			
Host's AC adapter (1)	:	APD, NB-65B19 Input: 100-240Vac, 1.6A, 50-60Hz Output: 19Vdc, 3.42A Cable in: Non-Shielded, 1.7 m Cable out: Non-Shielded, 1.7 m with one core			
Host's AC adapter (2)	:	LITEON, PA-1650-68 Input: 100-240Vac, 50-60Hz, 2.0A Output: 19Vdc, 3.42A Cable in: Non-Shielded, 1.7 m Cable out: Non-Shielded, 1.7 m with one core			

3 Test Methodology

3.1. Mode of Operation

Decision of Test ATL has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Normal Operation Mode
Mode 2: GFSK Link Mode
Mode 3: 8DPSK Link Mode
Mode 4: Receiver Mode

The output power were set to test was followed original Intel test report, FCC ID: PD962230ANH.

Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

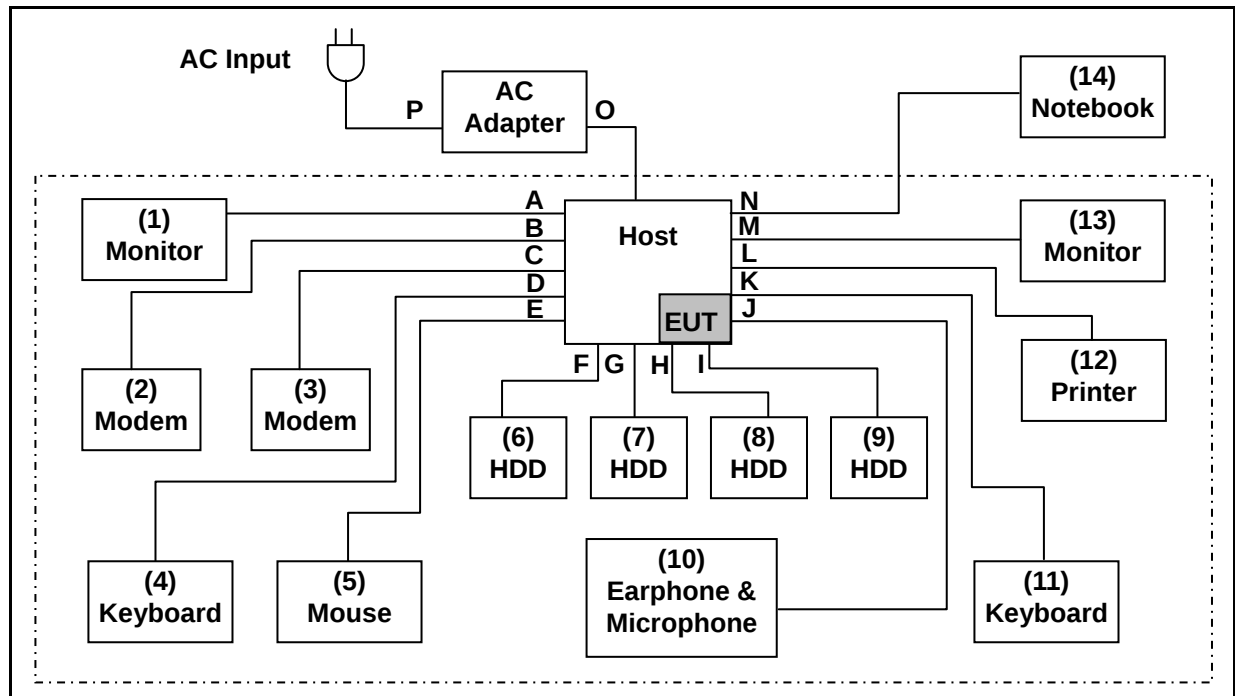
	Product	Manufacturer	Model Number	Serial Number	Power Cord
1.	Bluetooth Tester	R & S	CBT	100350	NA

3.2. EUT Exercise Software

1.	Setup the EUT and Bluetooth Tester (CBT) as shown on 3.3.
2.	Turn on the power of all equipment.
3.	EUT run test program.
4.	Open Bluetooth function link to CBT.

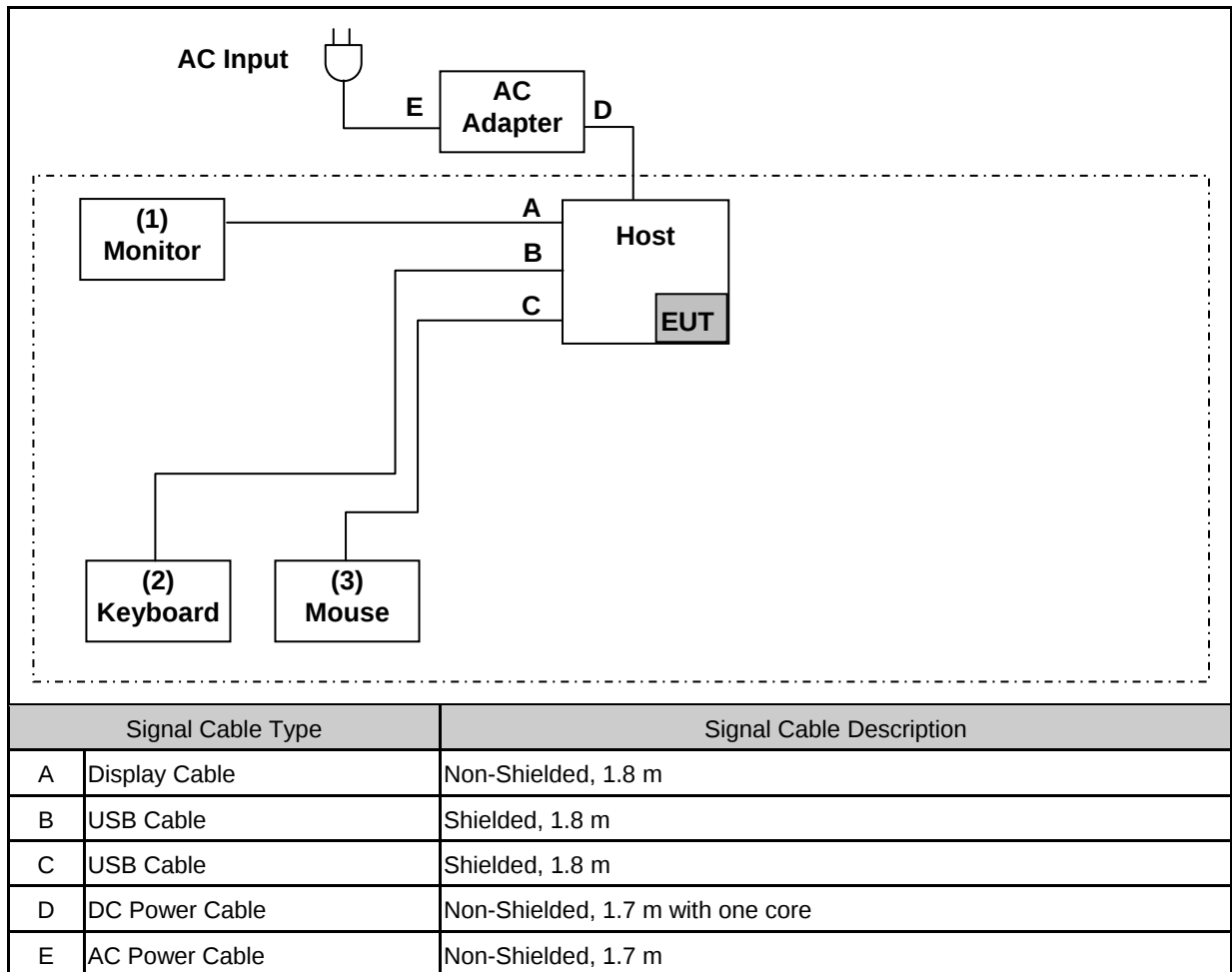
3.3. Configuration of Test System Details

Conducted Emission



Signal Cable Type		Signal Cable Description
A	Display Cable	Non-Shielded, 1.8 m
B	RS-232 Cable	Shielded, 1.8 m
C	RS-232 Cable	Shielded, 1.8 m
D	USB Cable	Shielded, 1.8 m
E	USB Cable	Shielded, 1.8 m
F	USB Cable	Shielded, 2.0 m
G	USB Cable	Shielded, 2.0 m
H	USB Cable	Shielded, 1.5 m with one core
I	USB Cable	Shielded, 1.5 m with one core
J	Earphone & Microphone Cable	Non-Shielded, 1.8 m
K	PS/2 Cable	Shielded, 1.8 m
L	Printer Cable	Shielded, 1.5 m
M	DVI Cable	Shielded, 1.8 m with two cores
N	LAN Cable	Non-Shielded, 3.0 m
O	DC Power Cable	Non-Shielded, 1.7 m with one core
P	AC Power Cable	Non-Shielded, 1.7 m

Radiated Emission



3.4. Test Site Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	26
Humidity (%RH)	25-75	60
Barometric pressure (mbar)	860-1060	950

4 Conducted Emission Measurement

4.1. Limit

Frequency (MHz)	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

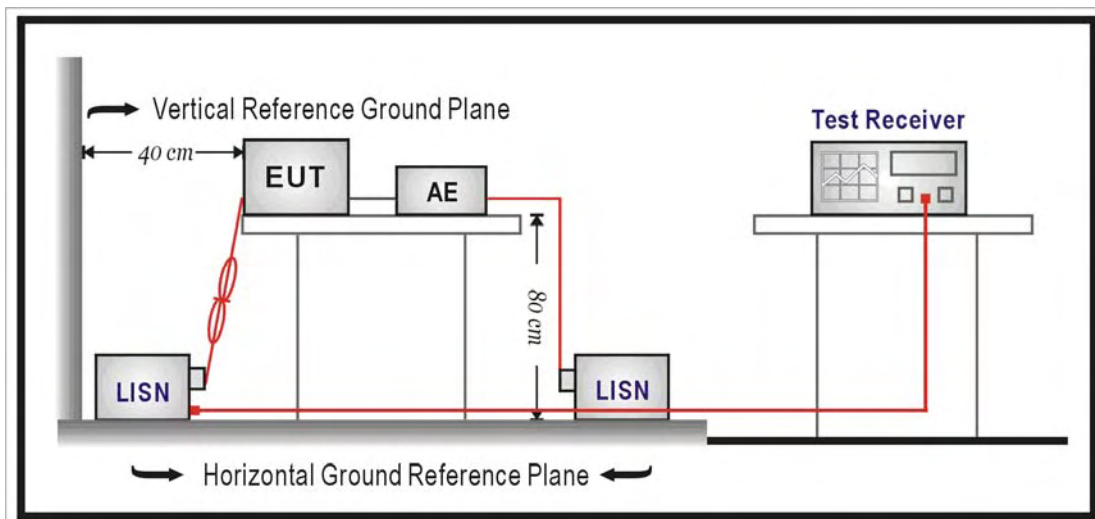
4.2. Test Instruments

Describe	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Test Receiver	R&S	ESCI	100367	06/30/2011	(1)
LISN	R&S	ENV216	101040	03/04/2011	(1)
LISN	R&S	ENV216	101041	03/04/2011	(1)
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

4.3. Test Setup



4.4. Test Procedure

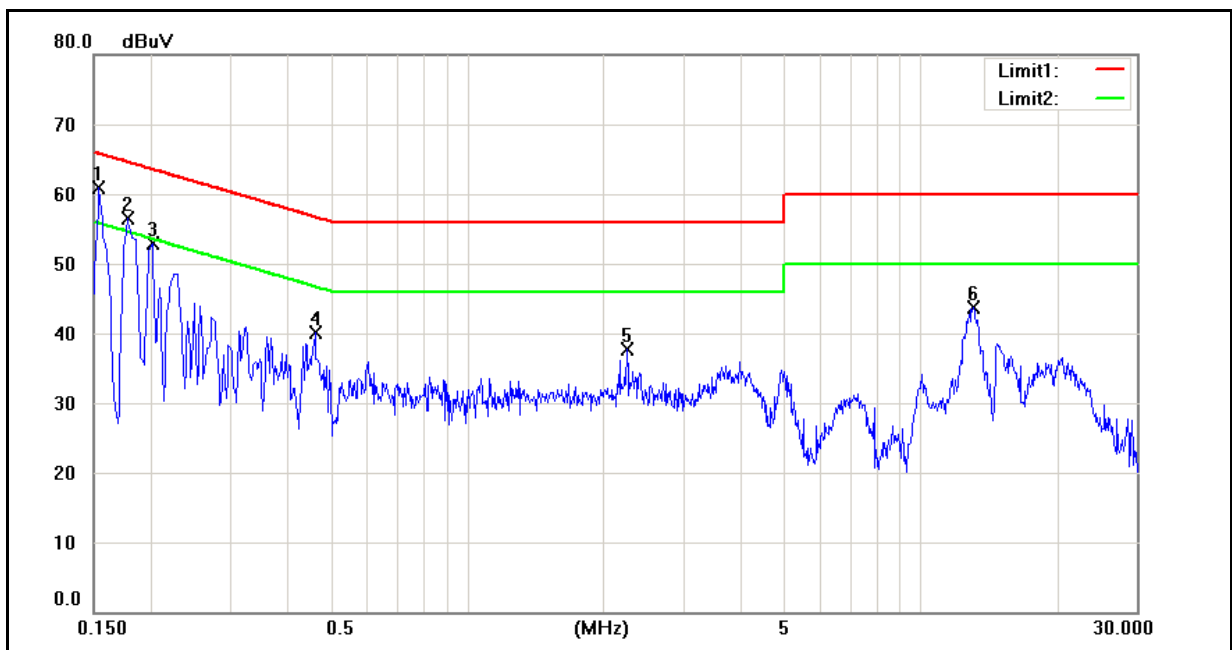
The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3162/2 SH Line Impedance Stabilization Networks (LISN). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 4.1.

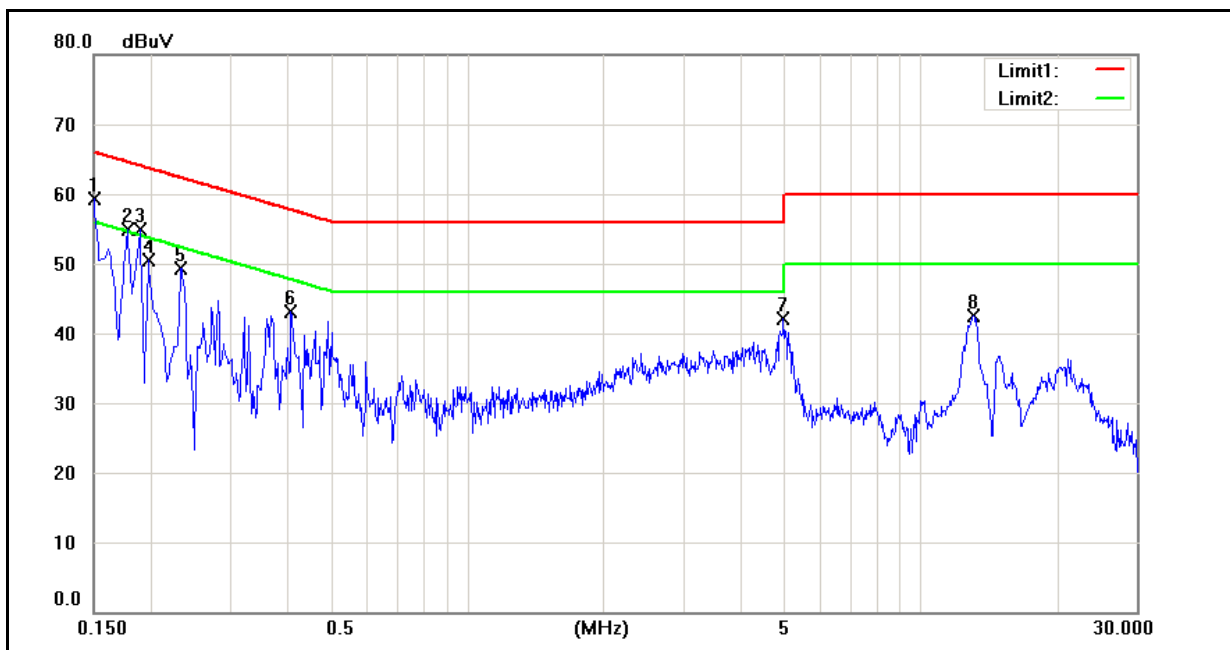
4.5. Test Result

Standard:	FCC Part 15C	Line:	L1
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Model Number:	62230WL	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 1	Date:	07/18/2011
		Test By:	Gary Wu
Description:			



No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1540	47.45	25.22	10.07	57.52	35.29	65.78	55.78	-8.26	-20.49	Pass
2	0.1780	43.57	25.36	10.06	53.63	35.42	64.58	54.58	-10.95	-19.16	Pass
3	0.2020	39.80	19.61	10.05	49.85	29.66	63.53	53.53	-13.68	-23.87	Pass
4	0.4620	26.79	19.26	9.95	36.74	29.21	56.66	46.66	-19.92	-17.45	Pass
5	2.2500	22.95	16.33	9.71	32.66	26.04	56.00	46.00	-23.34	-19.96	Pass
6	13.1100	29.57	22.43	10.28	39.85	32.71	60.00	50.00	-20.15	-17.29	Pass

Standard:	FCC Part 15C	Line:	N
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Model Number:	62230WL	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 1	Date:	07/18/2011
		Test By:	Gary Wu
Description:			



No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1500	47.84	27.87	10.15	57.99	38.02	66.00	56.00	-8.01	-17.98	Pass
2	0.1780	42.75	22.20	10.14	52.89	32.34	64.58	54.58	-11.69	-22.24	Pass
3	0.1900	41.69	23.50	10.14	51.83	33.64	64.04	54.04	-12.21	-20.40	Pass
4	0.1980	39.44	19.48	10.13	49.57	29.61	63.69	53.69	-14.12	-24.08	Pass
5	0.2340	35.64	20.03	10.12	45.76	30.15	62.31	52.31	-16.55	-22.16	Pass
6	0.4100	28.55	19.74	10.05	38.60	29.79	57.65	47.65	-19.05	-17.86	Pass
7	4.9940	25.82	17.23	9.87	35.69	27.10	56.00	46.00	-20.31	-18.90	Pass
8	13.0980	27.79	20.51	10.34	38.13	30.85	60.00	50.00	-21.87	-19.15	Pass

5 Radiated Emission Measurement

5.1. Limit

Frequency Range (MHz)	Peak (dBuV)
30 to 88	39
88 to 216	43.5
216 to 960	46.4
Above 960	49.5

5.2. Test Instruments

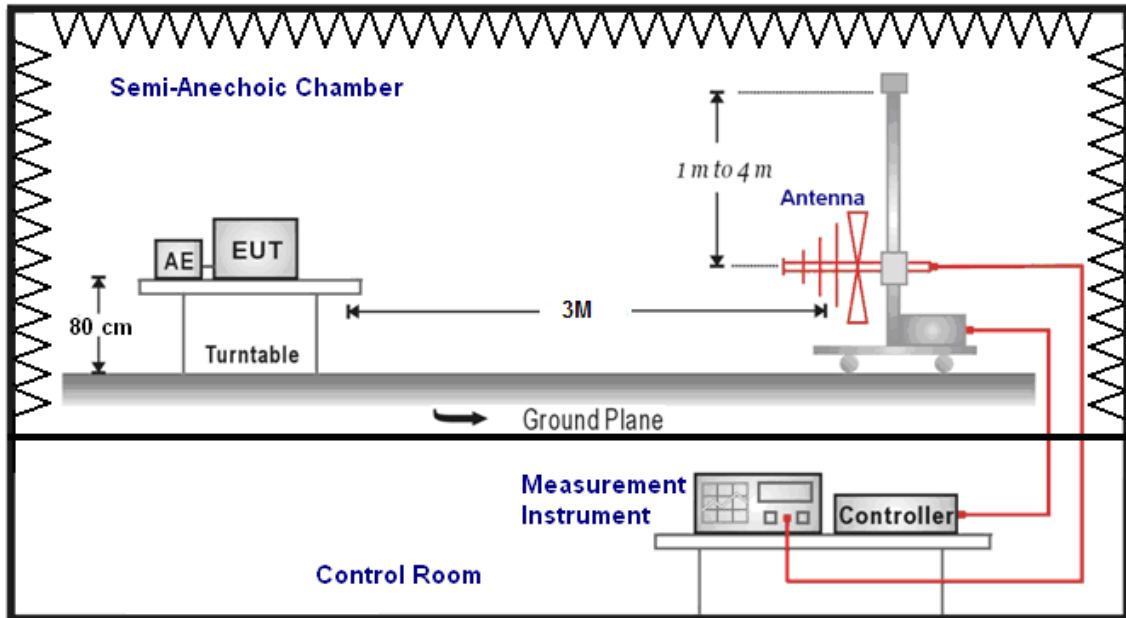
3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/18/2011	(2)
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/18/2011	(1)
Pre Amplifier	Agilent	8449B	3008A02237	02/23/2011	(1)
Pre Amplifier	Agilent	8447D	2944A10961	02/23/2011	(1)
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	07/29/2011	(1)
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/29/2011	(1)
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	06/28/2011	(1)
Test Site	ATL	TE01	888001	12/24/2010	(1)

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

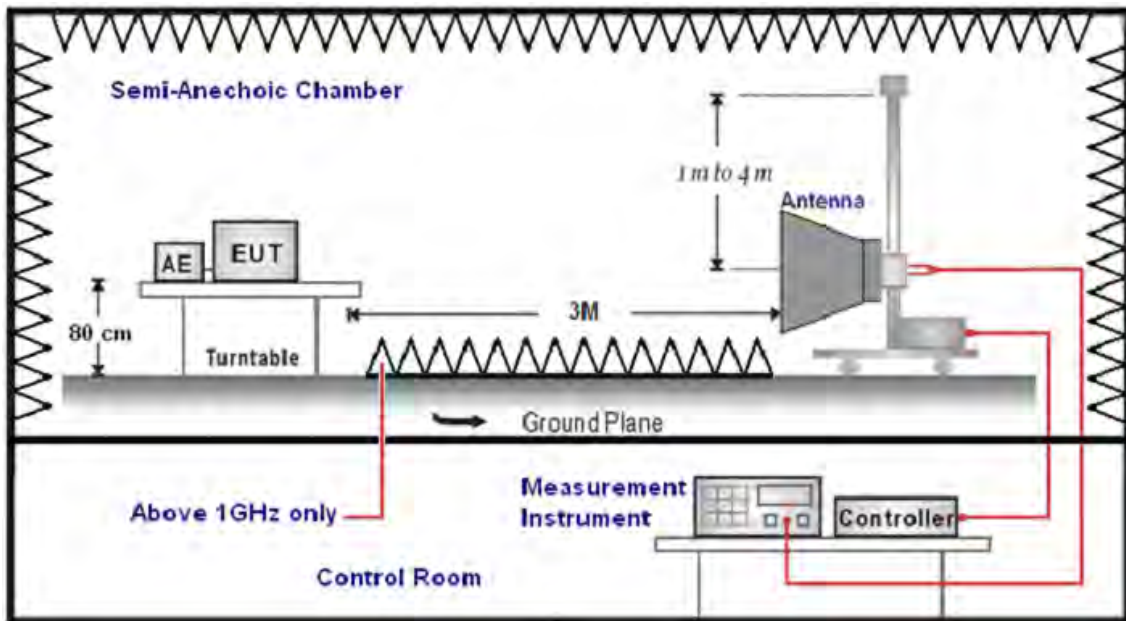
NOTE: N.C.R. = No Calibration Request.

5.3. Setup

Below 1GHz



Above 1GHz



5.4. Test Procedure

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter. The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to transmit continuously & Measurements spectrum range from 30 MHz to 26.5 GHz is investigated.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on three orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Biconilog Antenna (model VULB9163) at 3 Meter and the SCHWARZBECK Double Ridged Guide Antenna (model BBHA9120D&9170) was used in frequencies 1 – 26.5 GHz at a distance of 1 meter. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20dB/decade).

For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts pre meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro volts per meter (dBuV/m).

The actual field intensity in referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

(1) $\text{Amplitude (dBuV/m)} = \text{FI (dBuV)} + \text{AF (dBuV)} + \text{CL (dBuV)} - \text{Gain (dB)}$

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

(2) $\text{Actual Amplitude (dBuV/m)} = \text{Amplitude (dBuV)} - \text{Dis(dB)}$

The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:

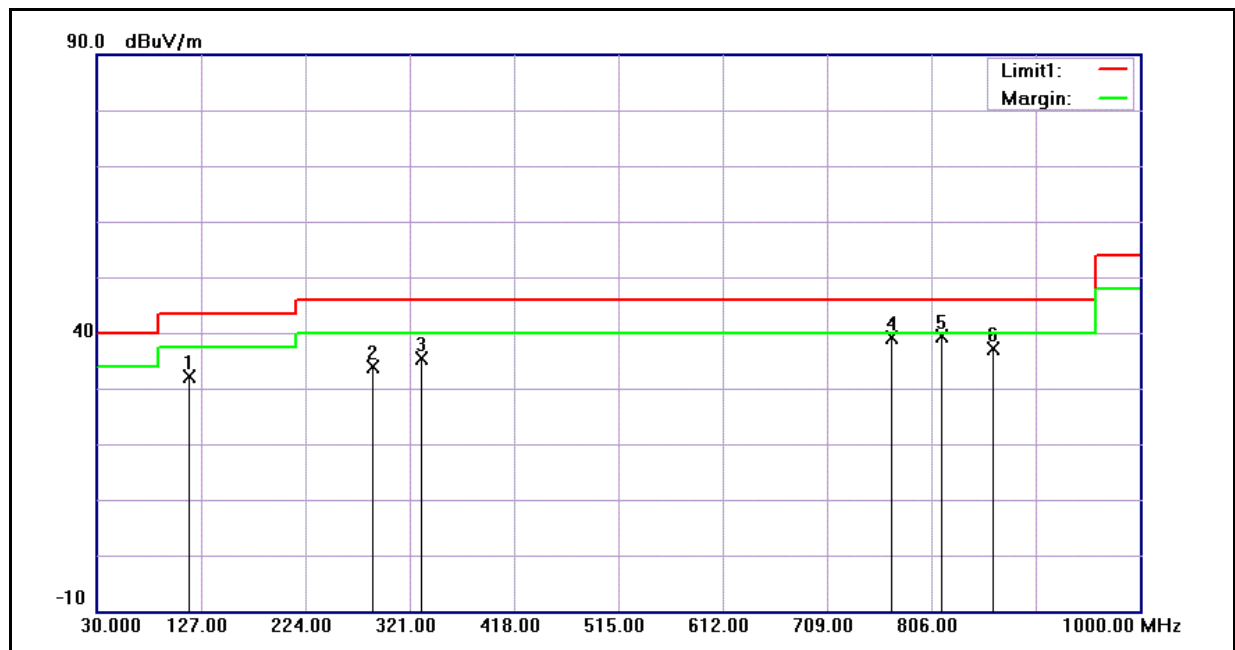
(a) For fundamental frequency : Transmitter Output < +30dBm

(b) For spurious frequency : Spurious emission limits = fundamental emission limit /10

5.5. Test Result

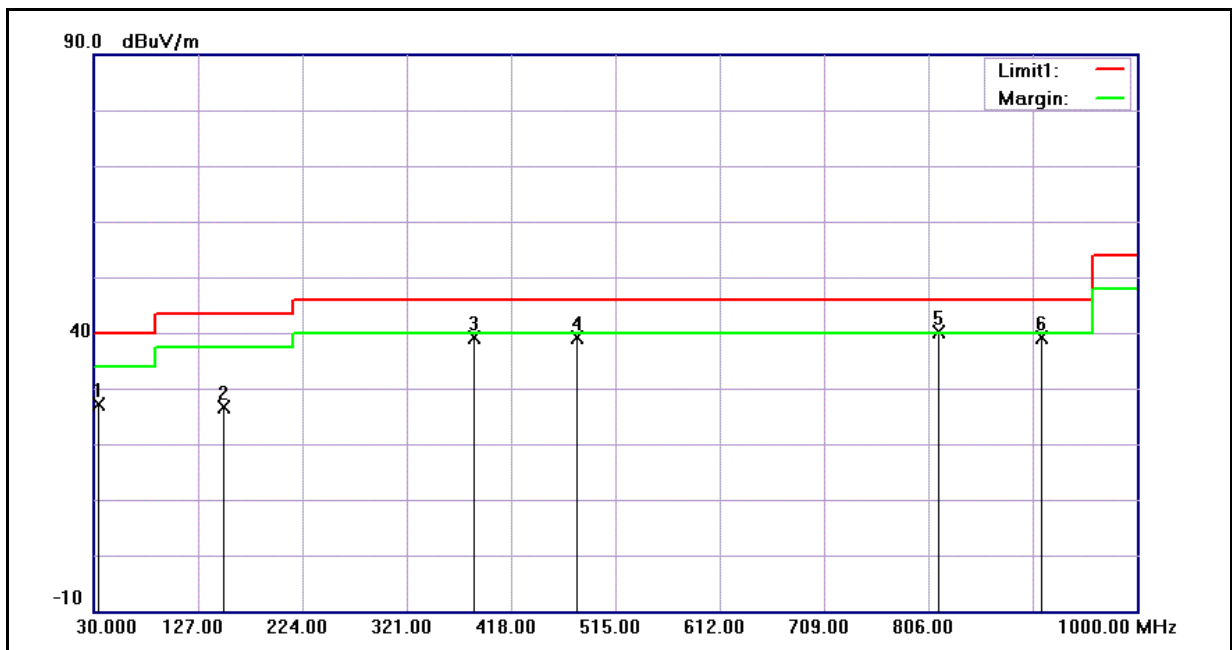
Below 1GHz

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	62230WL	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/092011
Ant.Polar.:	Horizontal	Test By:	Gary Wu



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	115.5000	47.15	-15.05	32.10	43.50	-11.40	QP
2	288.0000	44.65	-10.85	33.80	46.00	-12.20	QP
3	332.0000	44.74	-9.24	35.50	46.00	-10.50	QP
4	770.0000	41.06	-1.86	39.20	46.00	-6.80	QP
5	816.0000	40.60	-1.20	39.40	46.00	-6.60	QP
6	864.0000	37.75	-0.65	37.10	46.00	-8.90	QP

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	62230WL	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/092011
Ant.Polar.:	Vertical	Test By:	Gary Wu



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	35.5000	40.14	-13.04	27.10	40.00	-12.90	QP
2	150.5000	43.42	-16.72	26.70	43.50	-16.80	QP
3	384.0000	47.57	-8.47	39.10	46.00	-6.90	QP
4	480.0000	46.42	-7.22	39.20	46.00	-6.80	QP
5	816.0000	41.40	-1.20	40.20	46.00	-5.80	QP
6	912.0000	38.78	0.42	39.20	46.00	-6.80	QP

Above 1GHz

Standard:	FCC Part 15C			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	62230WL			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Mode:	Mode 2			Date:	08/09/2011		
Frequency:	2402 MHz			Test By:	Gary Wu		
Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
1693.000	47.02	-2.88	44.14	74.00	-29.86	peak	H
3184.000	42.21	2.70	44.91	74.00	-29.09	peak	H
6000.000	41.81	10.76	52.57	74.00	-21.43	peak	H
6000.000	39.53	10.76	50.29	54.00	-3.71	AVG	H
1546.000	49.60	-3.39	46.21	74.00	-27.79	peak	V
3198.000	48.75	2.74	51.49	74.00	-22.51	peak	V
6000.000	45.15	10.76	55.91	74.00	-18.09	peak	V
6000.000	40.53	10.76	51.29	54.00	-2.71	AVG	V

Standard:	FCC Part 15C			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	62230WL			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Mode:	Mode 2			Date:	08/09/2011		
Frequency:	2441 MHz			Test By:	Gary Wu		
Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
1693.000	46.58	-2.88	43.70	74.00	-30.30	peak	H
3198.000	41.99	2.74	44.73	74.00	-29.27	peak	H
6000.000	43.13	10.76	53.89	74.00	-20.11	peak	H
6000.000	39.39	10.76	50.15	54.00	-3.85	AVG	H
1546.000	49.93	-3.39	46.54	74.00	-27.46	peak	V
3191.000	48.66	2.72	51.38	74.00	-22.62	peak	V
6000.000	44.79	10.76	55.55	74.00	-18.45	peak	V
6000.000	40.50	10.76	51.26	54.00	-2.74	AVG	V

Standard:	FCC Part 15C			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	62230WL			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Mode:	Mode 2			Date:	08/09/2011		
Frequency:	2480 MHz			Test By:	Gary Wu		
Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
1693.000	47.51	-2.88	44.63	74.00	-29.37	peak	H
3198.000	43.16	2.74	45.90	74.00	-28.10	peak	H
6000.000	43.22	10.76	53.98	74.00	-20.02	peak	H
6000.000	39.79	10.76	50.55	54.00	-3.45	AVG	H
2127.000	50.50	-1.28	49.22	74.00	-24.78	peak	V
3198.000	48.74	2.74	51.48	74.00	-22.52	peak	V
6000.000	44.46	10.76	55.22	74.00	-18.78	peak	V
6000.000	40.88	10.76	51.64	54.00	-2.36	AVG	V

Standard:	FCC Part 15C			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	62230WL			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Mode:	Mode 3			Date:	08/09/2011		
Frequency:	2402 MHz			Test By:	Gary Wu		
Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
1329.000	51.11	-4.51	46.60	74.00	-27.40	peak	H
3198.000	42.09	2.74	44.83	74.00	-29.17	peak	H
6000.000	42.45	10.76	53.21	74.00	-20.79	peak	H
6000.000	39.43	10.76	50.19	54.00	-3.81	AVG	H
1546.000	49.37	-3.39	45.98	74.00	-28.02	peak	V
3198.000	46.63	2.74	49.37	74.00	-24.63	peak	V
6000.000	44.46	10.76	55.22	74.00	-18.78	peak	V
6000.000	41.04	10.76	51.80	54.00	-2.20	AVG	V

Standard:		FCC Part 15C		Test Distance:		3m	
Test item:		Radiated Emission		Power:		AC 120V/60Hz	
Model Number:		62230WL		Temp.(°C)/Hum.(%RH):		26(°C)/60%RH	
Mode:		Mode 3		Date:		08/09/2011	
Frequency:		2441 MHz		Test By:		Gary Wu	
Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
1077.000	48.53	-5.94	42.59	74.00	-31.41	peak	H
2491.000	41.22	0.19	41.41	74.00	-32.59	peak	H
6000.000	42.60	10.76	53.36	74.00	-20.64	peak	H
6000.000	39.25	10.76	50.01	54.00	-3.99	AVG	H
3079.000	44.90	2.48	47.38	74.00	-26.62	peak	V
3191.000	48.59	2.72	51.31	74.00	-22.69	peak	V
6000.000	43.20	10.76	53.96	74.00	-20.04	peak	V
6000.000	40.60	10.76	51.36	54.00	-2.64	AVG	V

Standard:	FCC Part 15C			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	62230WL			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Mode:	Mode 3			Date:	08/09/2011		
Frequency:	2480 MHz			Test By:	Gary Wu		
Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
1693.000	47.84	-2.88	44.96	74.00	-29.04	peak	H
3198.000	42.42	2.74	45.16	74.00	-28.84	peak	H
6000.000	42.98	10.76	53.74	74.00	-20.26	peak	H
6000.000	39.45	10.76	50.21	54.00	-3.79	AVG	H
1546.000	49.44	-3.39	46.05	74.00	-27.95	peak	V
3191.000	47.69	2.72	50.41	74.00	-23.59	peak	V
6000.000	43.00	10.76	53.76	74.00	-20.24	peak	V
6000.000	40.24	10.76	51.00	54.00	-3.00	AVG	V

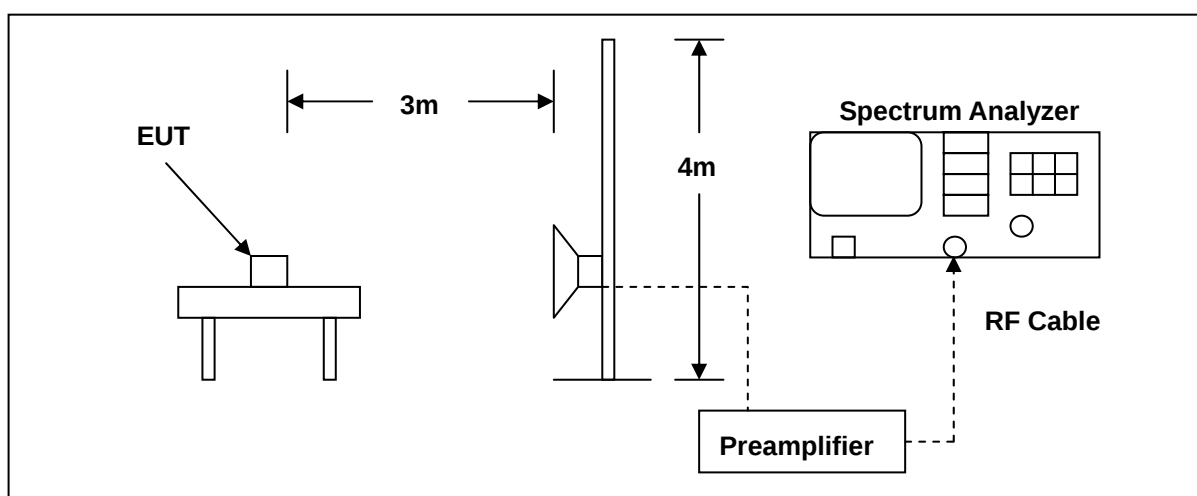
Standard:		FCC Part 15C			Test Distance:		3m	
Test item:		Radiated Emission			Power:		AC 120V/60Hz	
Model Number:		62230WL			Temp.(°C)/Hum.(%RH):		26(°C)/60%RH	
Mode:		Mode 4			Date:		08/09/2011	
Frequency:		2441 MHz			Test By:		Gary Wu	
Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Peak Limit (dBuV/m)	AVG. Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
1693.000	47.09	-2.88	44.21	74.00	54.00	-29.79	peak	H
3198.000	42.62	2.74	45.36	74.00	54.00	-28.64	peak	H
6000.000	42.17	10.76	52.93	74.00	54.00	-21.07	peak	H
6000.000	39.06	10.76	49.82	54.00	34.00	-4.18	AVG	H
1182.000	51.54	-5.34	46.20	74.00	54.00	-27.80	peak	V
1546.000	49.54	-3.39	46.15	74.00	54.00	-27.85	peak	V
6000.000	42.37	10.76	53.13	74.00	54.00	-20.87	peak	V
6000.000	39.80	10.76	50.56	54.00	34.00	-3.44	AVG	V

6 Band Edges Measurement

6.1. Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

6.2. Test Setup



6.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4408B	MY45107753	07/07/2011	(1)
Pre Amplifier	Agilent	8449B	3008A02237	02/23/2011	(1)
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	9120D	9120D-550	06/29/2011	(1)
Test Site	ATL	TE01	888001	12/24/2010	(1)

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

6.4. Test Procedure

The emissions on the harmonics frequencies, the limits, and the margin of compliance are presented. These tests were made when the transmitter was in full radiated power. The additional test was performed to show compliance with the requirement at the band-edge frequency 2483.5 MHz and up to 2500 MHz and at 2390.0 MHz.

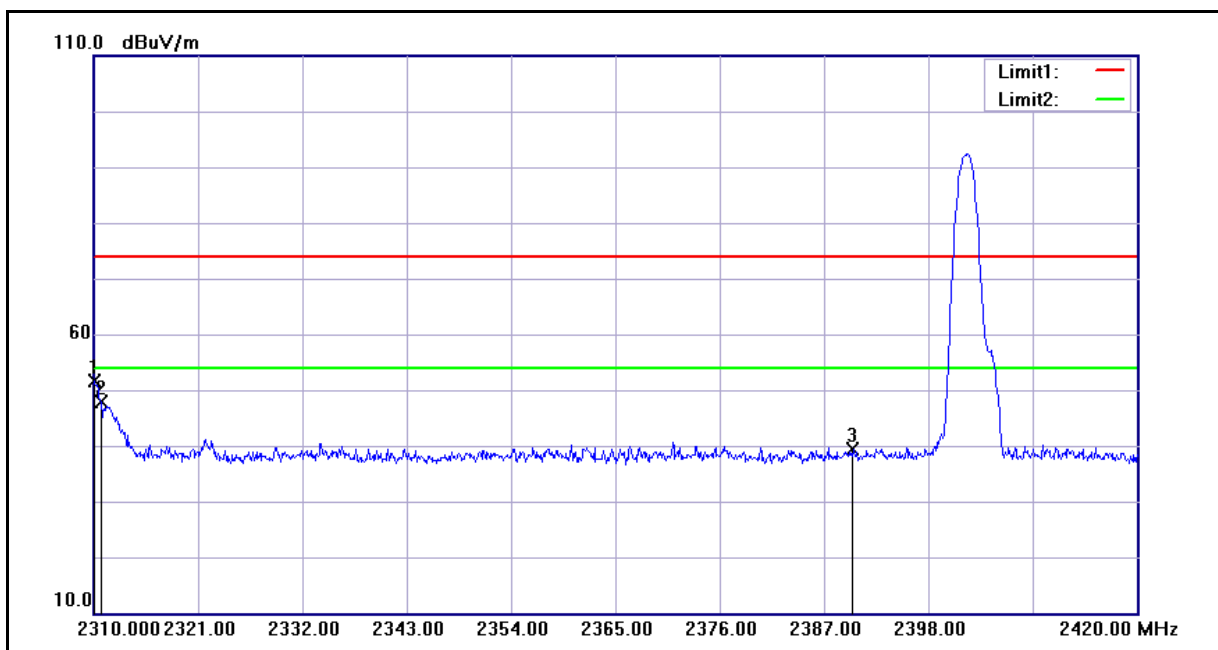
The transmitter was configured with the worst case antenna and setup to transmit at the highest channel. Then the field strength was measured at 2483.5 MHz.

The transmitter was then configured with the worst case antenna and setup to transmit at the lowest channel. Then the field strength was measured at 2390.0 MHz. These tests were performed at 4 different bit rates.

For measurements the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

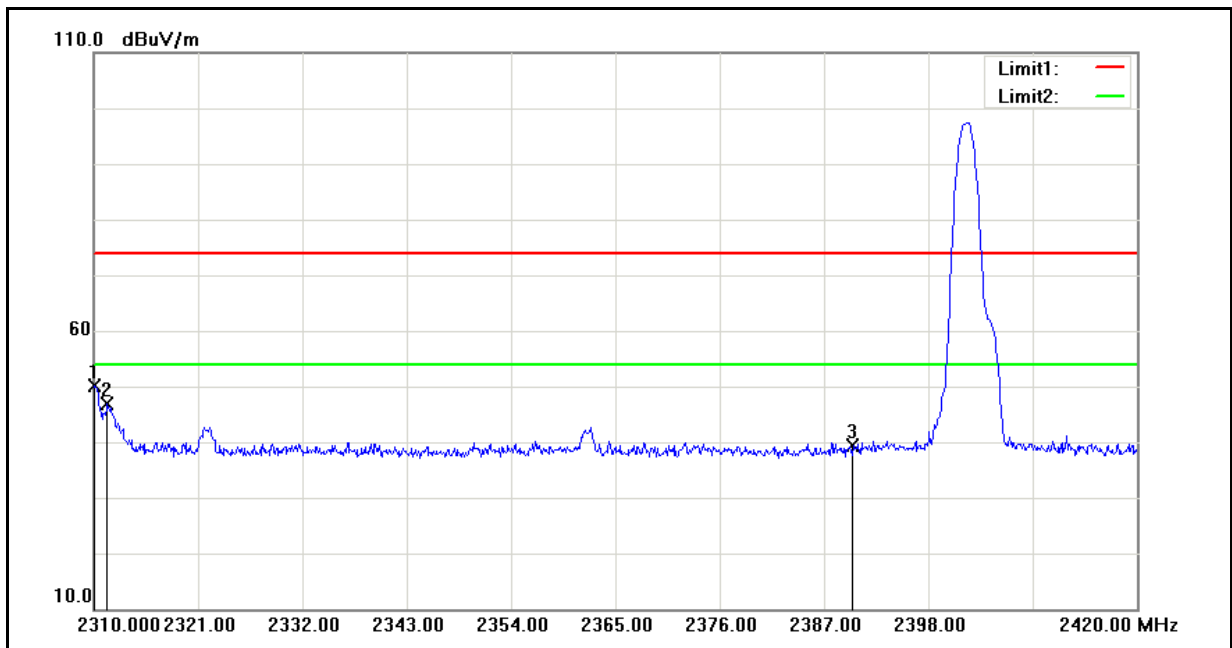
6.5. Test Result

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	62230WL	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/09/2011
Frequency:	2402 MHz	Test By:	Gary Wu
Ant.Polar.:	Horizontal		



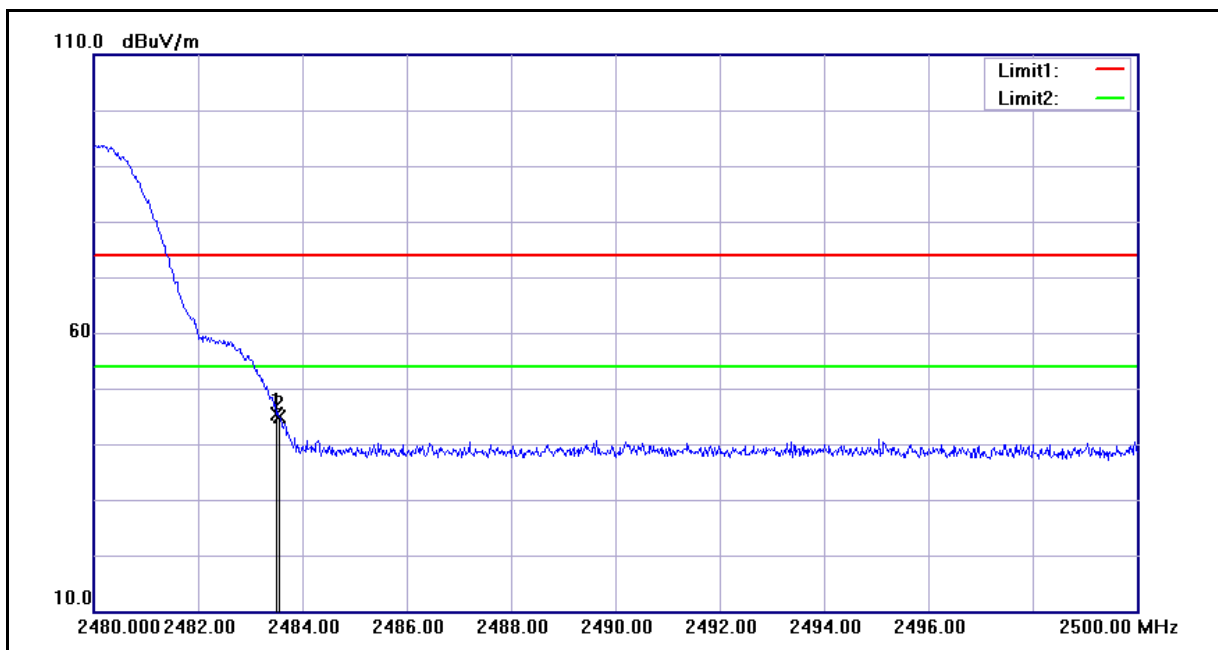
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	52.13	-0.54	51.59	74.00	-22.41	peak
2	2310.770	48.31	-0.54	47.77	74.00	-26.23	peak
3	2390.000	39.59	-0.22	39.37	74.00	-34.63	peak

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	62230WL	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/09/2011
Frequency:	2402 MHz	Test By:	Gary Wu
Ant.Polar.:	Vertical		



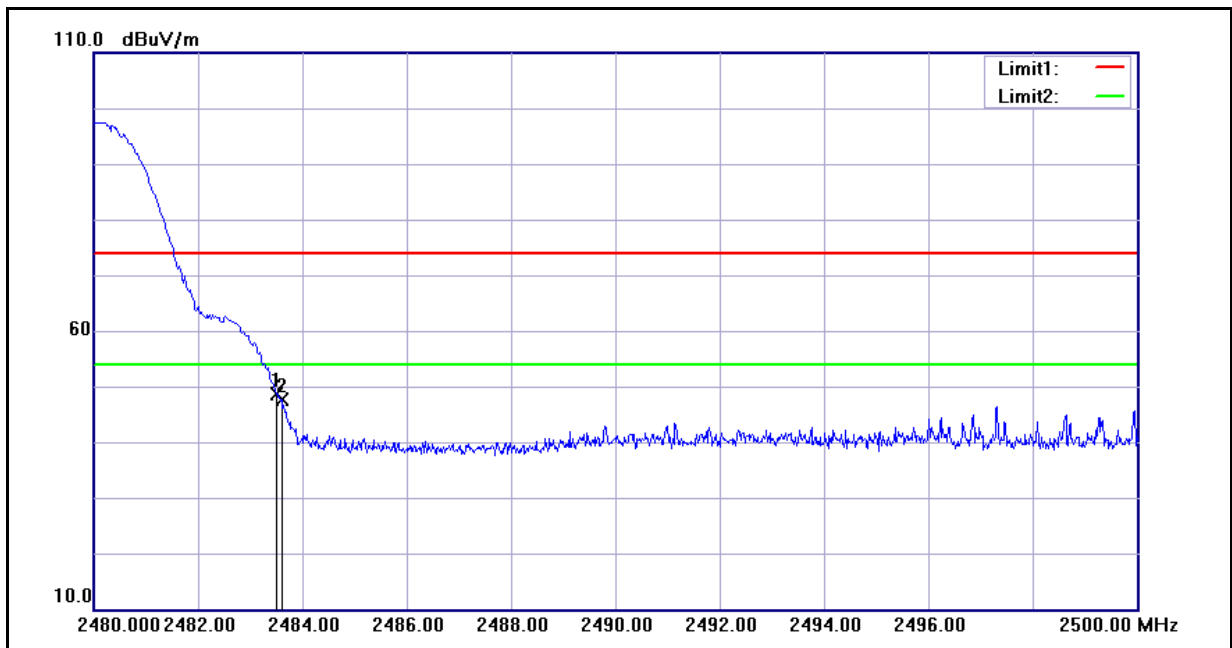
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	50.73	-0.54	50.19	74.00	-23.81	peak
2	2311.430	47.41	-0.53	46.88	74.00	-27.12	peak
3	2390.000	39.55	-0.22	39.33	74.00	-34.67	peak

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	62230WL	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/09/2011
Frequency:	2480 MHz	Test By:	Gary Wu
Ant.Polar.:	Horizontal		



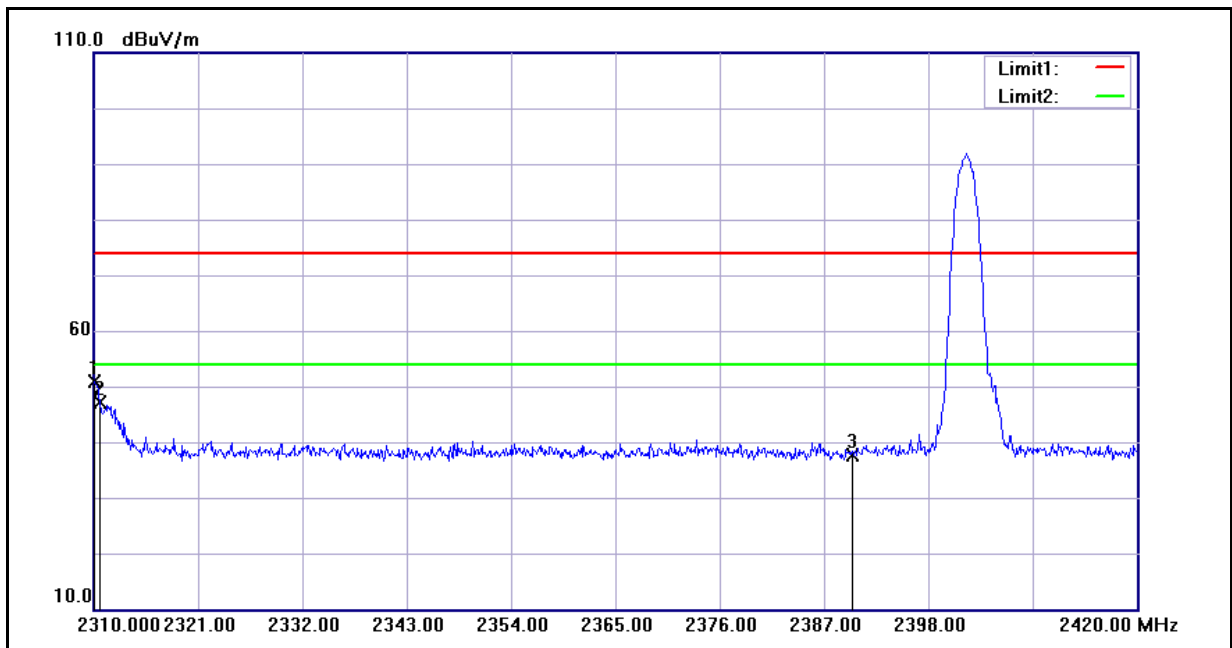
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	45.29	0.16	45.45	74.00	-28.55	peak
2	2483.560	44.75	0.16	44.91	74.00	-29.09	peak

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	62230WL	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	08/09/2011
Frequency:	2480 MHz	Test By:	Gary Wu
Ant.Polar.:	Vertical		



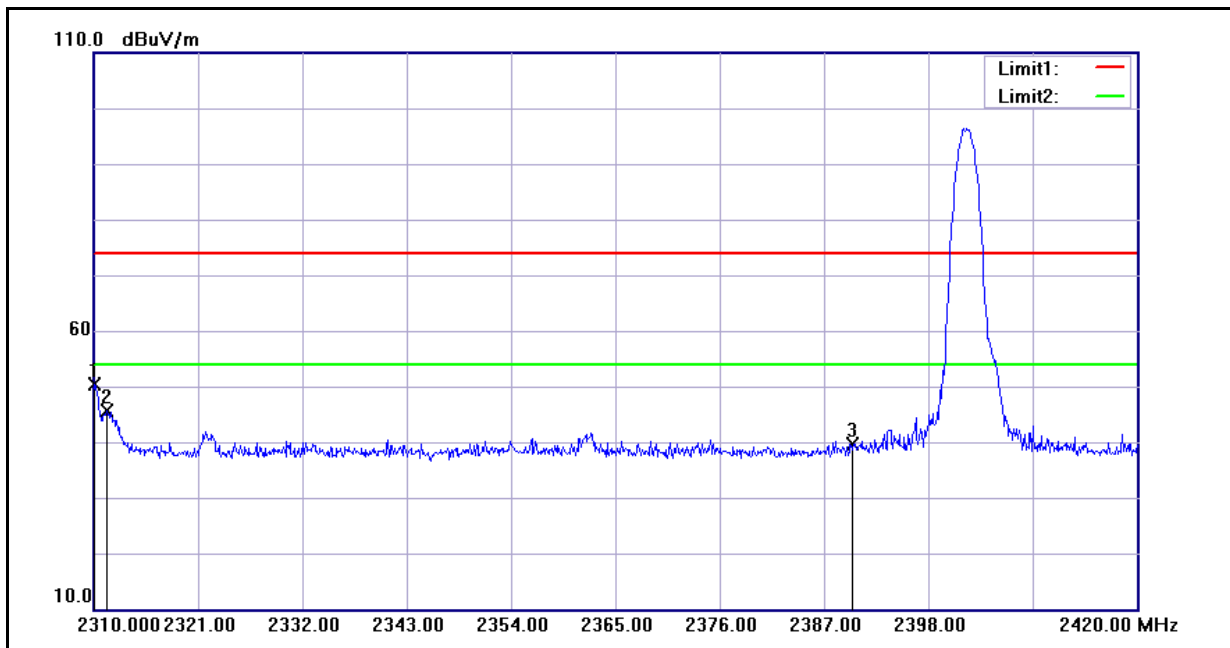
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	48.57	0.16	48.73	74.00	-25.27	peak
2	2483.600	47.46	0.16	47.62	74.00	-26.38	peak

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	62230WL	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/09/2011
Frequency:	2402 MHz	Test By:	Gary Wu
Ant.Polar.:	Horizontal		



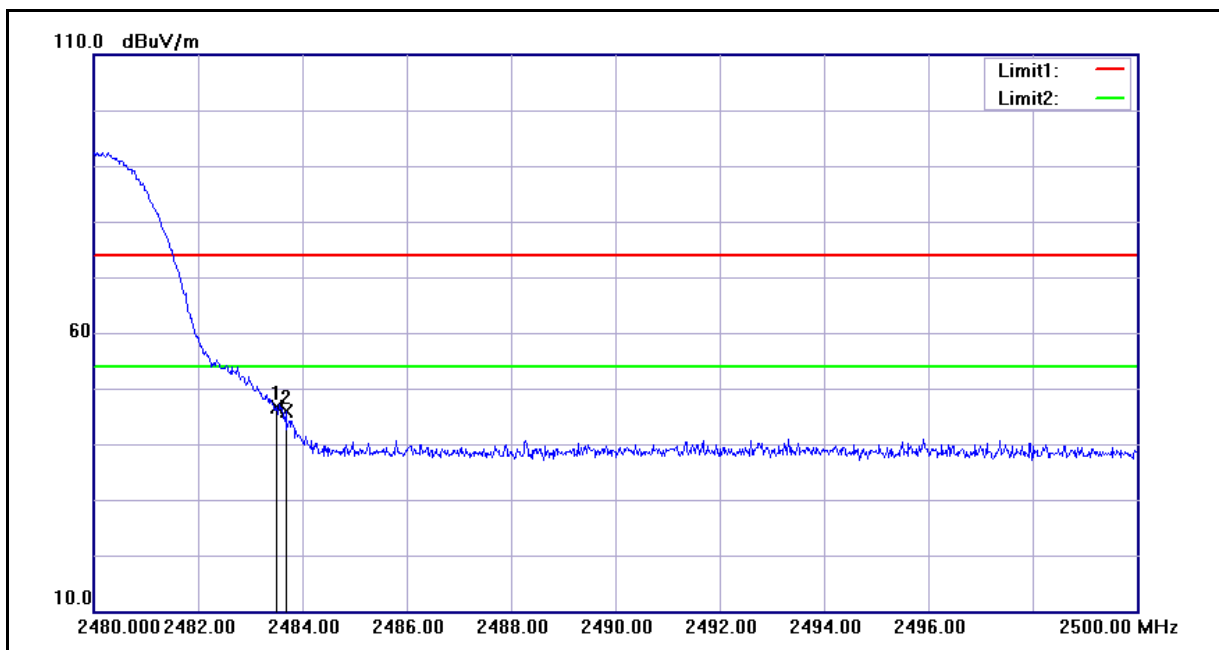
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	51.40	-0.54	50.86	74.00	-23.14	peak
2	2310.660	47.72	-0.54	47.18	74.00	-26.82	peak
3	2390.000	37.92	-0.22	37.70	74.00	-36.30	peak

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	62230WL	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/09/2011
Frequency:	2402 MHz	Test By:	Gary Wu
Ant.Polar.:	Vertical		



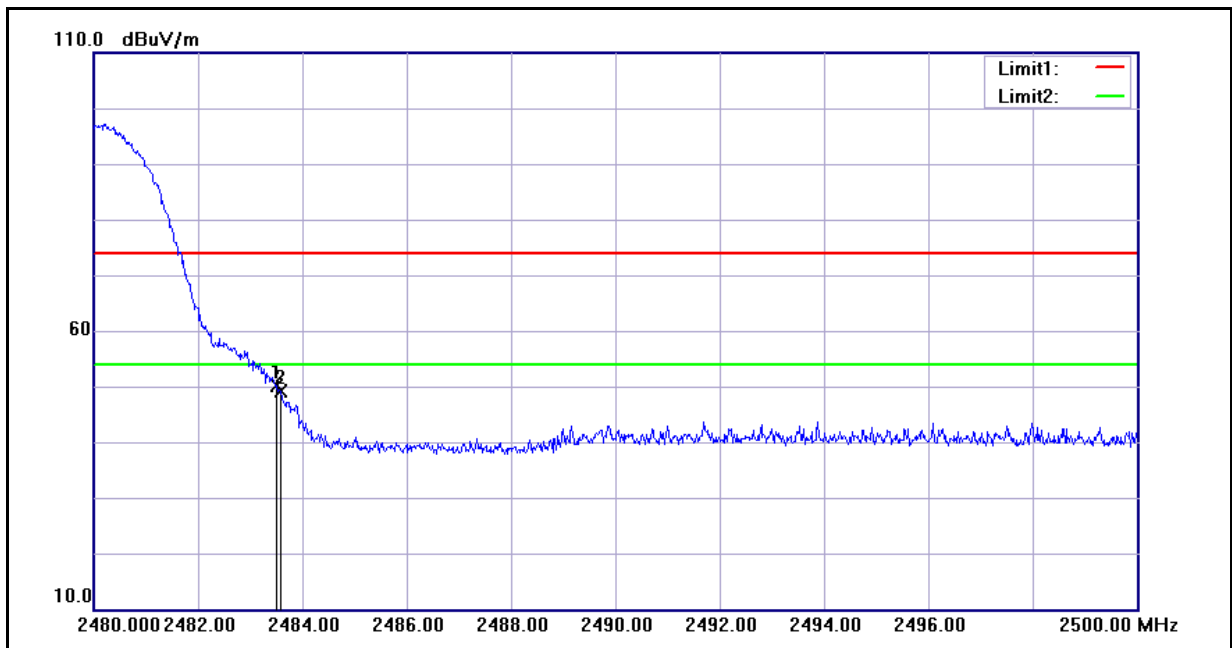
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.110	50.93	-0.54	50.39	74.00	-23.61	peak
2	2311.430	46.20	-0.53	45.67	74.00	-28.33	peak
3	2390.000	39.83	-0.22	39.61	74.00	-34.39	peak

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	62230WL	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/09/2011
Frequency:	2480 MHz	Test By:	Gary Wu
Ant.Polar.:	Horizontal		



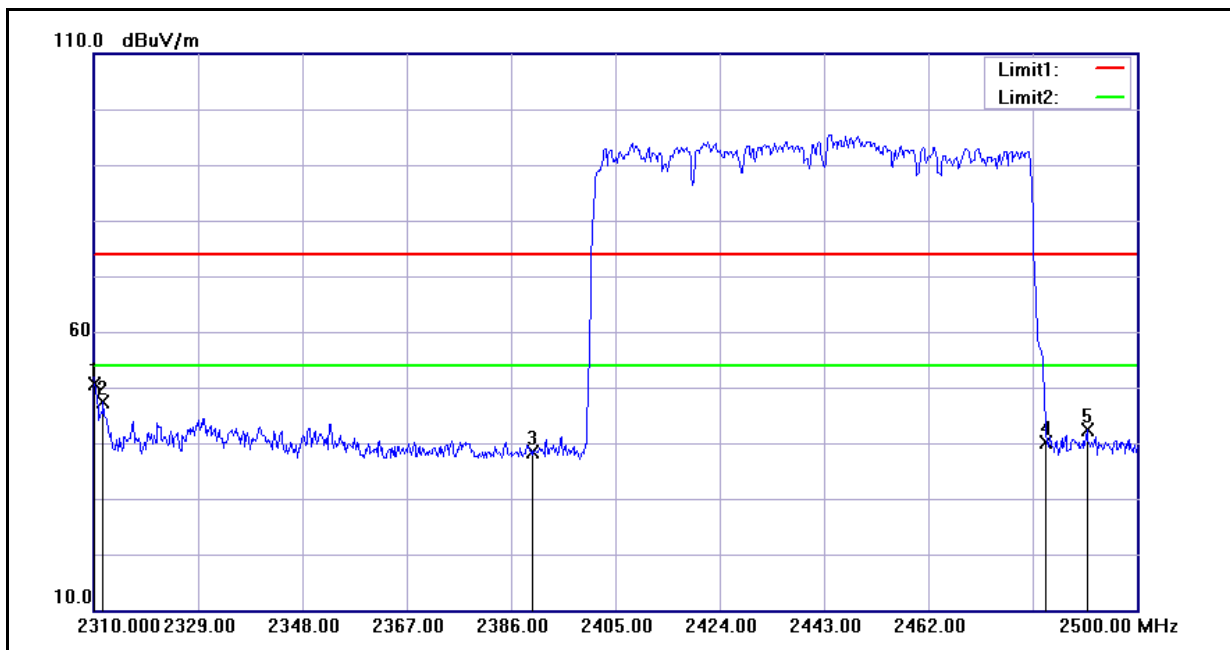
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	46.54	0.16	46.70	74.00	-27.30	peak
2	2483.680	45.73	0.16	45.89	74.00	-28.11	peak

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	62230WL	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	08/09/2011
Frequency:	2480 MHz	Test By:	Gary Wu
Ant.Polar.:	Vertical		



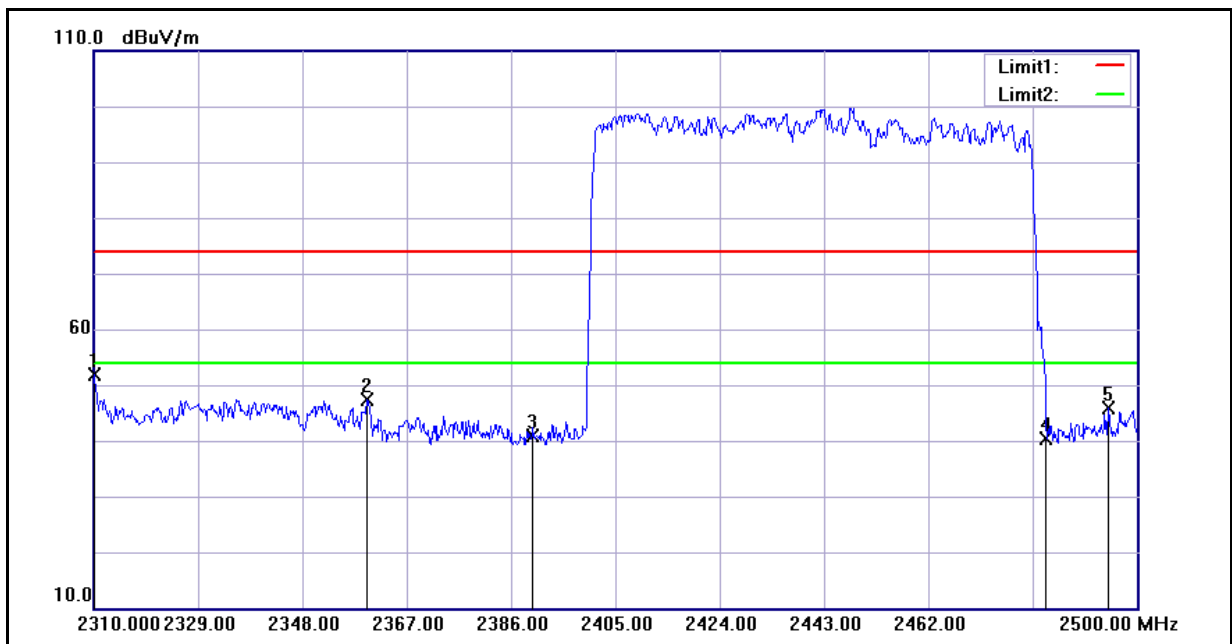
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	49.96	0.16	50.12	74.00	-23.88	peak
2	2483.580	49.07	0.16	49.23	74.00	-24.77	peak

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	62230WL	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Hopping	Date:	08/09/2011
Ant.Polar.:	Horizontal	Test By:	Gary Wu



No.	Frequency (MHz)	Reading (dBUV)	Correct Factor(dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Remark
1	2310.190	51.24	-0.54	50.70	74.00	-23.30	peak
2	2311.710	47.94	-0.53	47.41	74.00	-26.59	peak
3	2390.000	38.48	-0.22	38.26	74.00	-35.74	peak
4	2483.500	40.07	0.16	40.23	74.00	-33.77	peak
5	2490.880	42.14	0.19	42.33	74.00	-31.67	peak

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	62230WL	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Hopping	Date:	08/09/2011
Ant.Polar.:	Horizontal	Test By:	Gary Wu



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	52.31	-0.54	51.77	74.00	-22.23	peak
2	2359.780	47.81	-0.33	47.48	74.00	-26.52	peak
3	2390.000	41.13	-0.22	40.91	74.00	-33.09	peak
4	2483.500	40.12	0.16	40.28	74.00	-33.72	peak
5	2494.870	45.78	0.21	45.99	74.00	-28.01	peak

7 Antenna Measurement

7.1. Limit

For intentional device, according to 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And According to 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

7.2. Antenna Connector Construction

The antenna used in this product is **Dipole antenna**. And the maximum Gain of this antenna is only **2 dBi**.