

FCC PART 15.249



EMI MEASUREMENT AND TEST REPORT

For

Tongxiang Foyin Electronic Co., Ltd

6# Jiyun Road, Economical Development Zone, Tongxiang City,
Zhejiang 314500, China

FCC ID: VRH-FYS012WL

This Report Concerns: <input checked="" type="checkbox"/> Original Report		Equipment Type: 2.4G wireless Telecontrol Speaker System
Test Engineer:	Kidd Yang 	
Report No.:	RSH07101551	
Test Date:	2007-10-22 to 2007-10-26	
Report Date:	2007-11-01	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Tongxiang Foyin Electronic Co., Ltd's* product, model number: *FYS012WL* the "EUT" as referred to in this report is a *2.4G wireless Telecontrol Speaker System*, which measures approximately 14.0cmL x 7.0cmW x 11.0cmH, rated input voltage: DC 7.5V adapter.

Adapter Model: PK41-750500

Input: 120V AC 60Hz, Output: 7.5V DC 500mA

The series products, model FYS012WL, FYS020WL, FYS021WL, FYS022WL, FYS023WL, we select FYS012WL to test, the all model have same circuit diagram, PCB, only appearance have difference.

** The test data gathered are from production sample, serial number: 0710004 provided by the manufacturer, we receive the EUT on 2007-10-15.*

Objective

This Type approval report is prepared on behalf of *Tongxiang Foyin Electronic Co., Ltd* in accordance with Part 2, Subpart J, and Part 15, Subparts A, B and C of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.249 rules.

Related Submittal(s)/Grant(s)

No Related Submittals.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Laboratory Corp. (Shenzhen) to collect test data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratory Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 04, 2004. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratory Corp. (Shenzhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



NVLAP LAB CODE 200707-0

The current scope of accreditations can be found at
<http://ts.nist.gov/ts/htdocs/210/214/scopes/2007070.htm>.

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

Equipment Modifications

Bay Area Compliance Laboratory Corp. (Shenzhen) has not done any modification on the EUT.

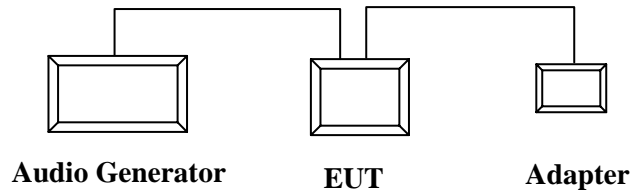
Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
Nanyang	Audio Generator	NY2201	T-S018	DoC

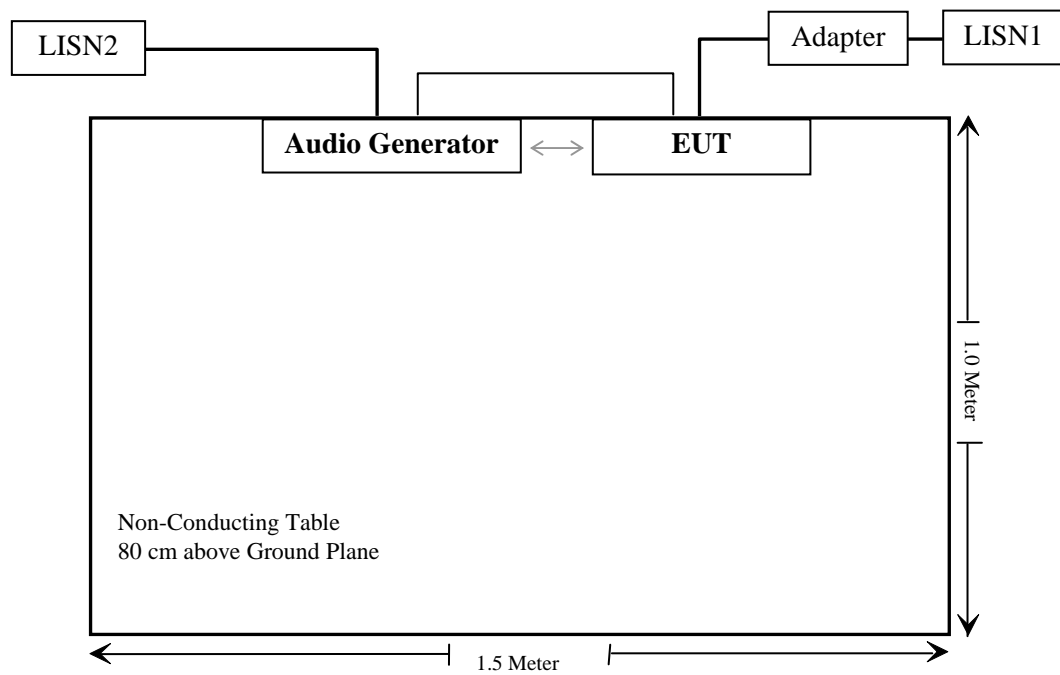
External I/O Cable

Cable Description	Length (M)	From/Port	To
Unshielded Detachable Adapter Cable	1.80	EUT	Adapter
Unshielded Detachable AV Cable	1.50	Audio Generator	EUT

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.203	Antenna Requirement	Compliant
§15.207(a)	Conduction Emissions	Compliant
§15.205(a), §15.209(a), 15.249(a), §15.249(c)	Radiated Emissions	Compliant
§15.249(d)	Out of Band Emissions	Compliant

§15.203 - ANTENNA REQUIREMENT

Applicable Standard

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.

Antenna Connector Construction

The EUT antenna is a permanently attached antenna, which in accordance to section 15.203, is considered sufficient to comply with the provisions of this section.

Result: Compliant.

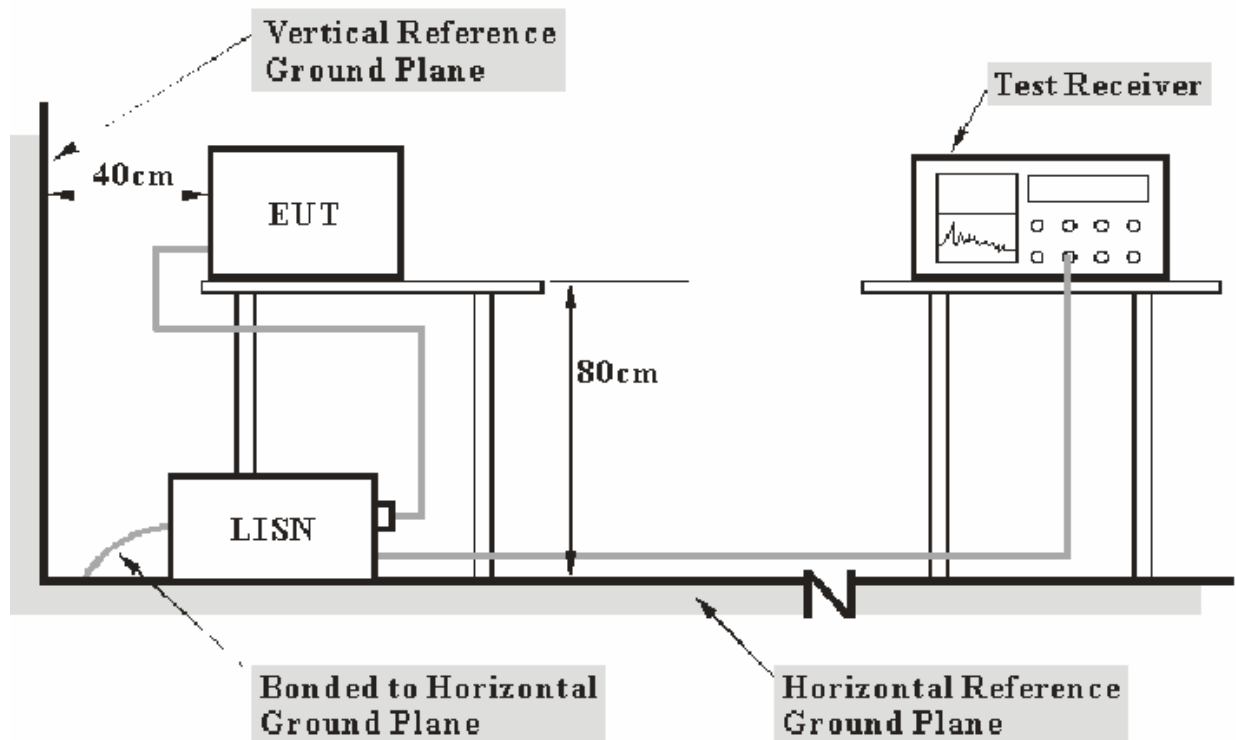
§15.207(a) - CONDUCTED EMISSIONS

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratory Corp. (Shenzhen) is ± 2.4 dB.

EUT Setup



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15 .207 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

<i>Frequency Range</i>	<i>IFBW</i>
150 kHz – 30 MHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Com-Power	L.I.S.N.	LI-200	12005	N/A	N/A
Com-Power	L.I.S.N.	LI-200	12208	N/A	N/A
Rohde & Schwarz	EMI Test Receiver	ESCS30	DE25330	2007-03-26	2008-03-26
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2007-03-26	2008-03-26

* Com-Power's LISN were used as the supporting equipment.

* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207(a), with the worst margin reading of:

Transmitting Mode (Low Channel): 24.00 dB at 0.6700 MHz in the **Neutral** conductor mode.
Transmitting Mode (Middle Channel): 22.90 dB at 15.1500 MHz in the **Neutral** conductor mode.
Transmitting Mode (High Channel): 23.30 dB at 0.6600 MHz in the **Neutral** conductor mode.

Test Data**Environmental Conditions**

Temperature:	25 ° C
Relative Humidity:	56%
ATM Pressure:	100.2 kPa

The testing was performed by Kidd Yang on 2007-10-25, 2007-10-26.

Test Mode: Transmitting (Low Channel)

Line Conducted Emissions				FCC PART 15.207	
Frequency (MHz)	Amplitude (dBμV)	Detector (QP/AV)	Phase (Live/Neutral)	Limit (dBμV)	Margin (dB)
0.6700	32.00	QP	Neutral	56.00	24.00
0.6300	31.60	QP	Live	56.00	24.40
0.3350	22.80	AV	Neutral	49.33	26.53
0.3350	30.90	QP	Neutral	59.33	28.43
14.1100	31.10	QP	Neutral	60.00	28.90
0.3350	19.90	AV	Live	49.33	29.43
0.2600	22.00	AV	Neutral	51.43	29.43
0.2600	31.50	QP	Neutral	61.43	29.93
0.3350	28.70	QP	Live	59.33	30.63
1.1250	24.90	QP	Live	56.00	31.10
1.1250	24.10	QP	Neutral	56.00	31.90
0.2400	29.90	QP	Live	62.10	32.20
0.6300	12.40	AV	Live	46.00	33.60
1.1250	11.70	AV	Neutral	46.00	34.30
1.1250	11.60	AV	Live	46.00	34.40
0.6750	11.20	AV	Neutral	46.00	34.80
19.2900	24.40	QP	Neutral	60.00	35.60
0.1750	28.10	QP	Live	64.72	36.62
8.9350	19.50	QP	Live	60.00	40.50
0.1750	13.50	AV	Live	54.72	41.22
0.2400	10.00	AV	Live	52.10	42.10
8.9700	7.40	AV	Live	50.00	42.60
19.2900	7.10	AV	Neutral	50.00	42.90
14.1750	6.50	AV	Neutral	50.00	43.50

Test Mode: Transmitting (Middle Channel)

Line Conducted Emissions				FCC PART 15.207	
Frequency (MHz)	Amplitude (dB μ V)	Detector (QP/AV)	Phase (Live/Neutral)	Limit (dB μ V)	Margin (dB)
15.1500	37.10	QP	Neutral	60.00	22.90
0.6800	32.80	QP	Neutral	56.00	23.20
0.6150	31.60	QP	Live	56.00	24.40
0.3350	23.90	AV	Neutral	49.33	25.43
0.3350	31.80	QP	Neutral	59.33	27.53
0.3350	20.80	AV	Live	49.33	28.53
0.2600	32.60	QP	Neutral	61.43	28.83
0.2600	22.40	AV	Neutral	51.43	29.03
0.3350	29.70	QP	Live	59.33	29.63
1.1250	24.50	QP	Neutral	56.00	31.50
0.6150	14.10	AV	Live	46.00	31.90
0.2400	29.40	QP	Live	62.10	32.70
0.6800	11.80	AV	Neutral	46.00	34.20
1.1150	21.70	QP	Live	56.00	34.30
1.1250	11.70	AV	Neutral	46.00	34.30
1.1200	9.80	AV	Live	46.00	36.20
19.8600	23.60	QP	Neutral	60.00	36.40
21.5000	11.90	AV	Live	50.00	38.10
8.7550	19.90	QP	Live	60.00	40.10
21.5000	18.80	QP	Live	60.00	41.20
0.2400	10.30	AV	Live	52.10	41.80
8.8500	8.00	AV	Live	50.00	42.00
19.8600	7.10	AV	Neutral	50.00	42.90
15.1500	6.50	AV	Neutral	50.00	43.50

Test Mode: Transmitting (High Channel)

Line Conducted Emissions				FCC PART 15.207	
Frequency (MHz)	Amplitude (dB μ V)	Detector (QP/AV)	Phase (Live/Neutral)	Limit (dB μ V)	Margin (dB)
0.6600	32.70	QP	Neutral	56.00	23.30
0.6500	31.50	QP	Live	56.00	24.50
0.4550	29.00	QP	Neutral	56.78	27.78
0.3350	20.90	AV	Live	49.33	28.43
18.0050	30.00	QP	Live	60.00	30.00
0.2600	30.90	QP	Neutral	61.43	30.53
0.4550	15.90	AV	Neutral	46.78	30.88
0.3350	28.40	QP	Live	59.33	30.93
0.2600	19.00	AV	Neutral	51.43	32.43
0.2450	29.20	QP	Live	61.92	32.72
1.0950	23.10	QP	Neutral	56.00	32.90
1.1250	22.50	QP	Live	56.00	33.50
0.6650	12.10	AV	Neutral	46.00	33.90
1.1250	11.60	AV	Live	46.00	34.40
0.6500	11.50	AV	Live	46.00	34.50
1.1000	10.00	AV	Neutral	46.00	36.00
21.5000	12.20	AV	Live	50.00	37.80
2.3400	17.50	QP	Neutral	56.00	38.50
8.9150	20.30	QP	Neutral	60.00	39.70
21.5000	19.70	QP	Live	60.00	40.30
2.3300	5.50	AV	Neutral	46.00	40.50
8.8800	7.10	AV	Neutral	50.00	42.90
18.0550	6.90	AV	Live	50.00	43.10
0.2450	7.90	AV	Live	51.92	44.02

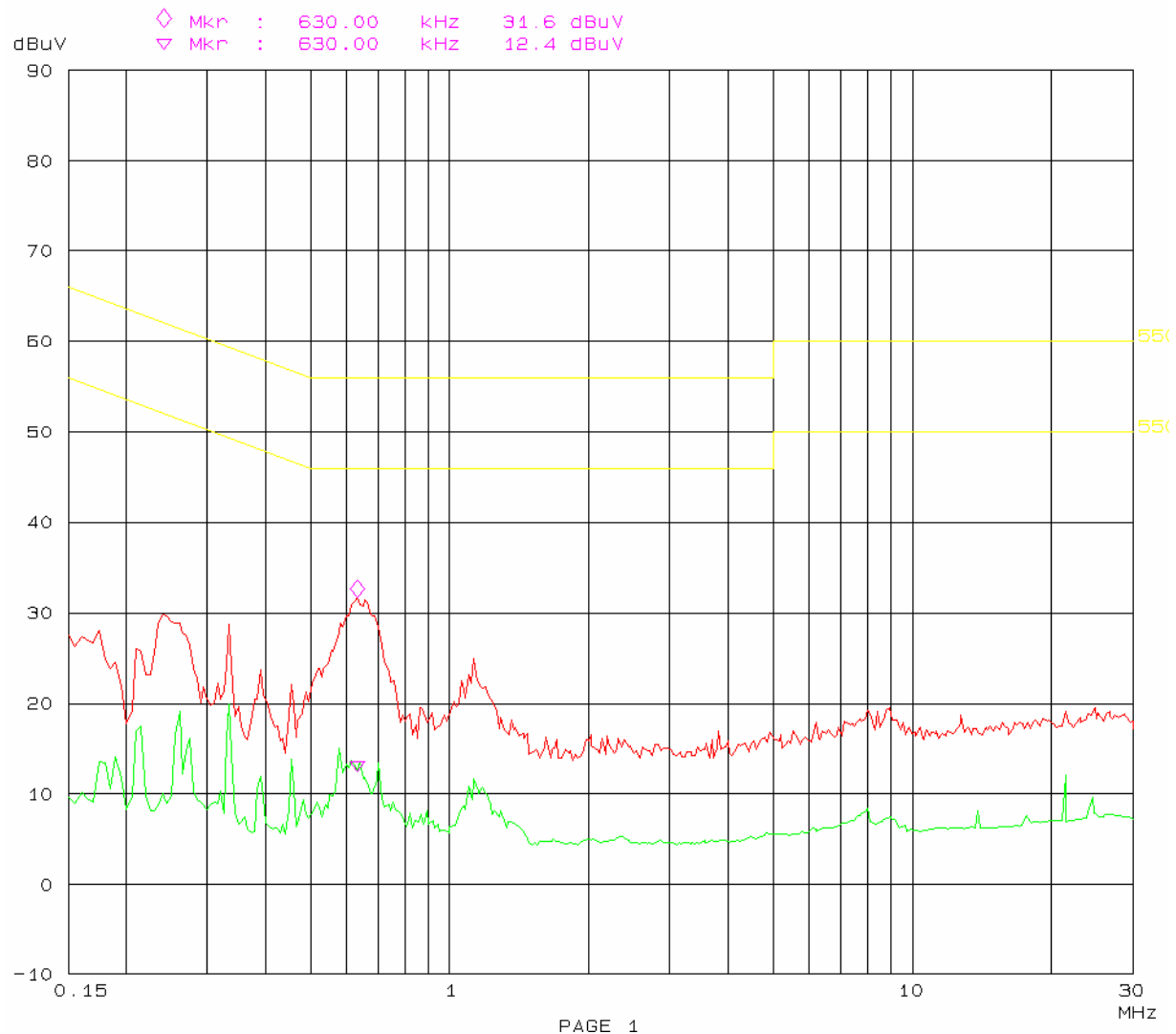
Plot(s) of Test Data

Plot(s) of Test Data is presented hereinafter as reference.

Conducted Emission Test
FCC Part15 Class B

26. Oct 07 19: 41

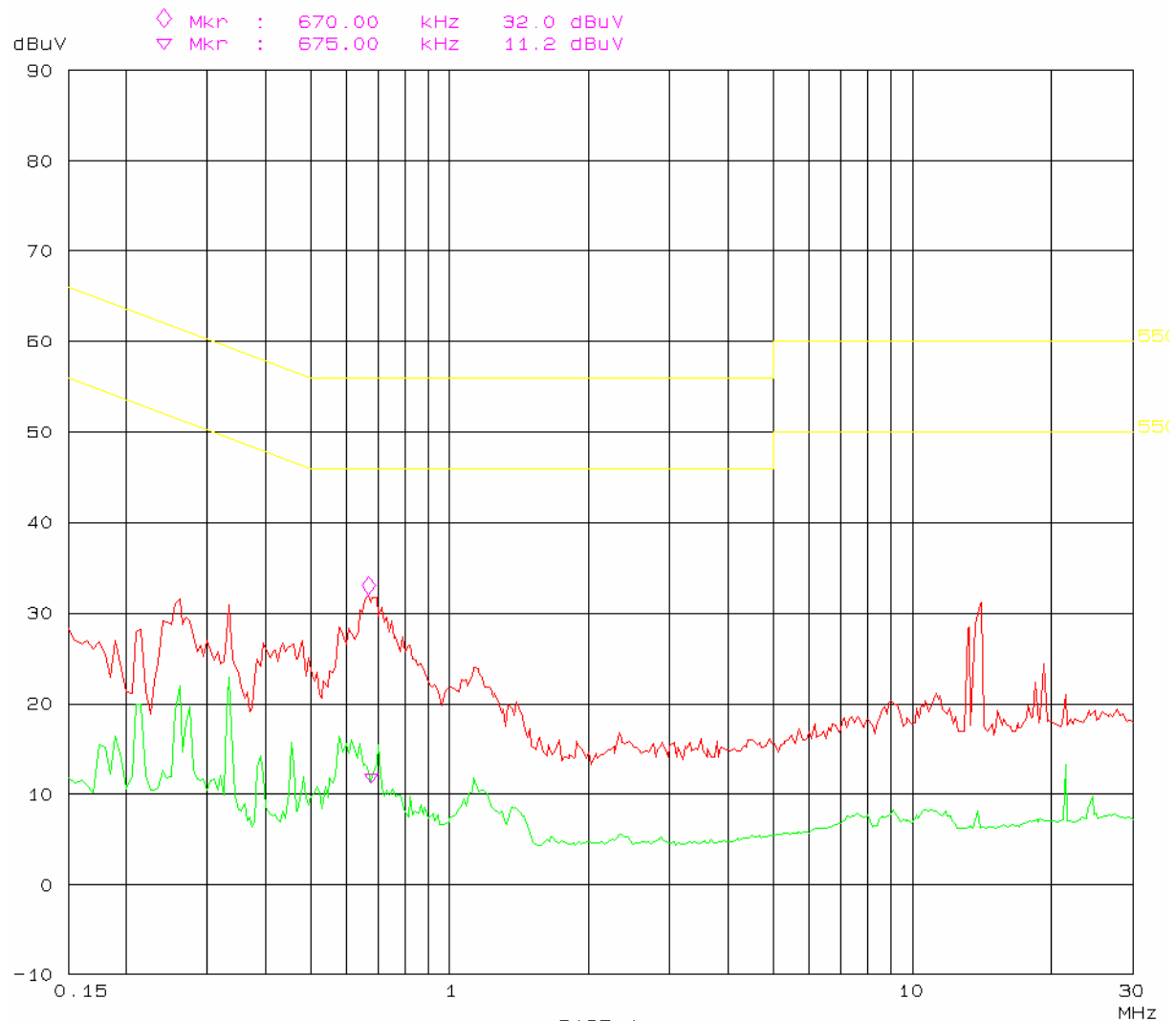
EUT: 2.4G Wireless Telecontrol Speaker system
Manuf: Tongxiang Foyin
Op Cond: Transmitting (Low Channel)
Operator: Kidd
Test Spec: AC 120V/60Hz L
Comment: temp: 27 Humi 51%



Conducted Emission Test
FCC Part15 Class B

26. Oct 07 20:28

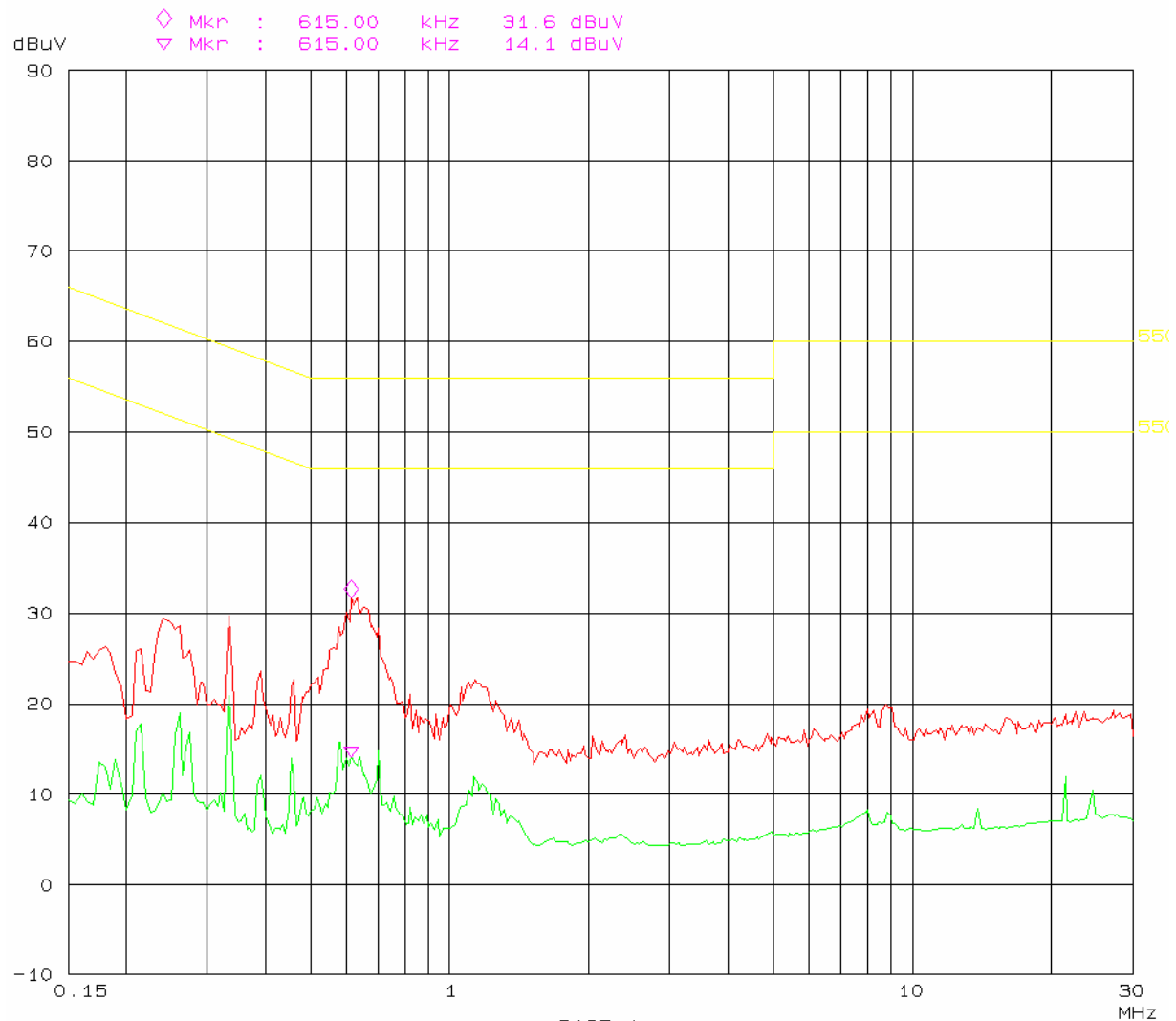
EUT: 2.4G Wireless Telecontrol Speaker system
Manuf: Tongxiang Foyin
Op Cond: Transmitting (Low Channel)
Operator: Kidd
Test Spec: AC 120V/60Hz N
Comment: temp: 27 Humi 51%



Conducted Emission Test
FCC Part15 Class B

26. Oct 07 22:08

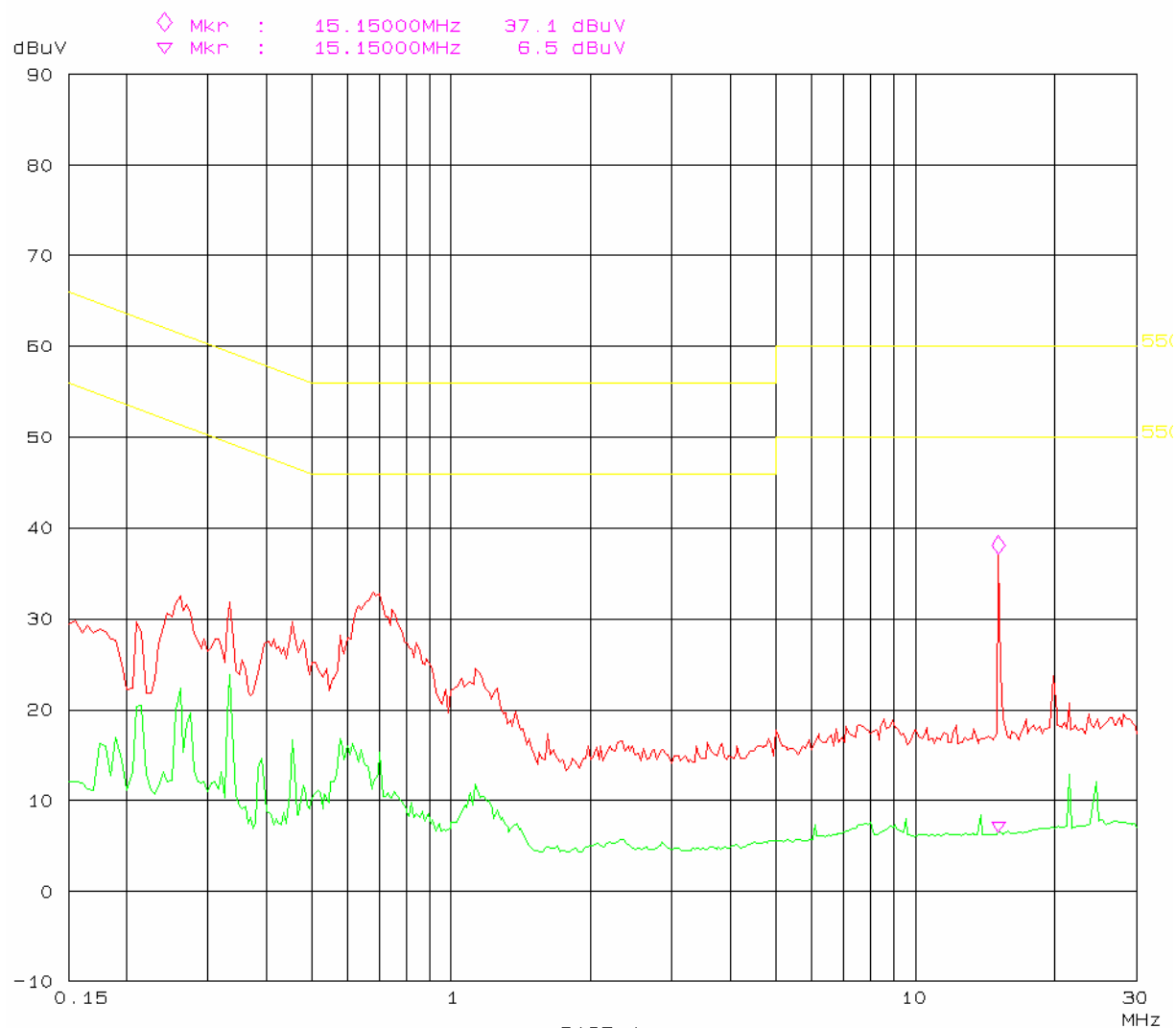
EUT: 2.4G Wireless Telecontrol Speaker system
Manuf: Tongxiang Foyin
Op Cond: Transmitting (Middle Channel)
Operator: Kidd
Test Spec: AC 120V/60Hz L
Comment: temp: 27 Humi 51%



Conducted Emission Test
FCC Part15 Class B

26. Oct 07 20:44

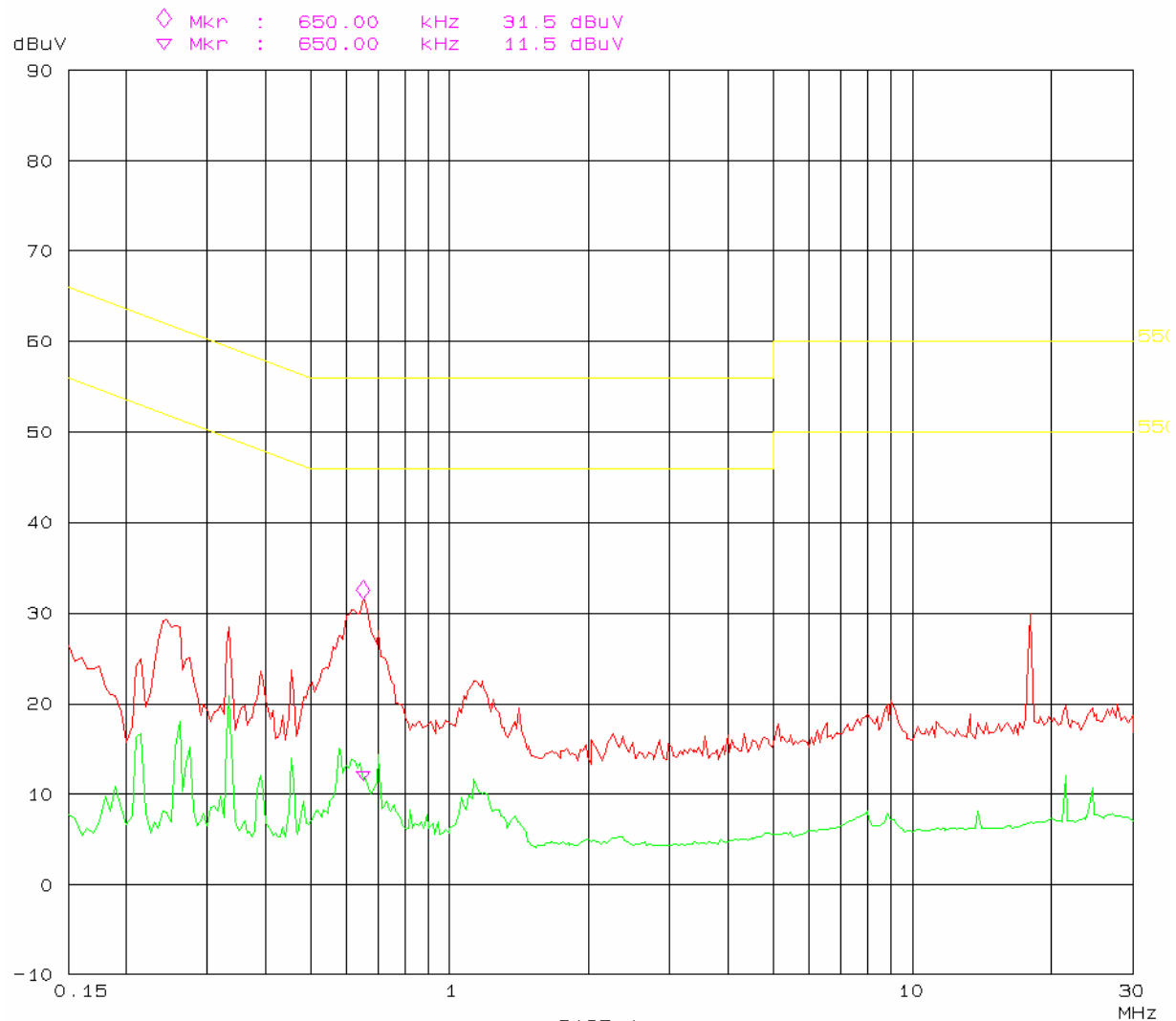
EUT: 2.4G Wireless Telecontrol Speaker system
Manuf: Tongxiang Foyin
Op Cond: Transmitting (Middle Channel)
Operator: Kidd
Test Spec: AC 120V/60Hz N
Comment: temp:27 Humi 51%



Conducted Emission Test
FCC Part15 Class B

26. Oct 07 22:27

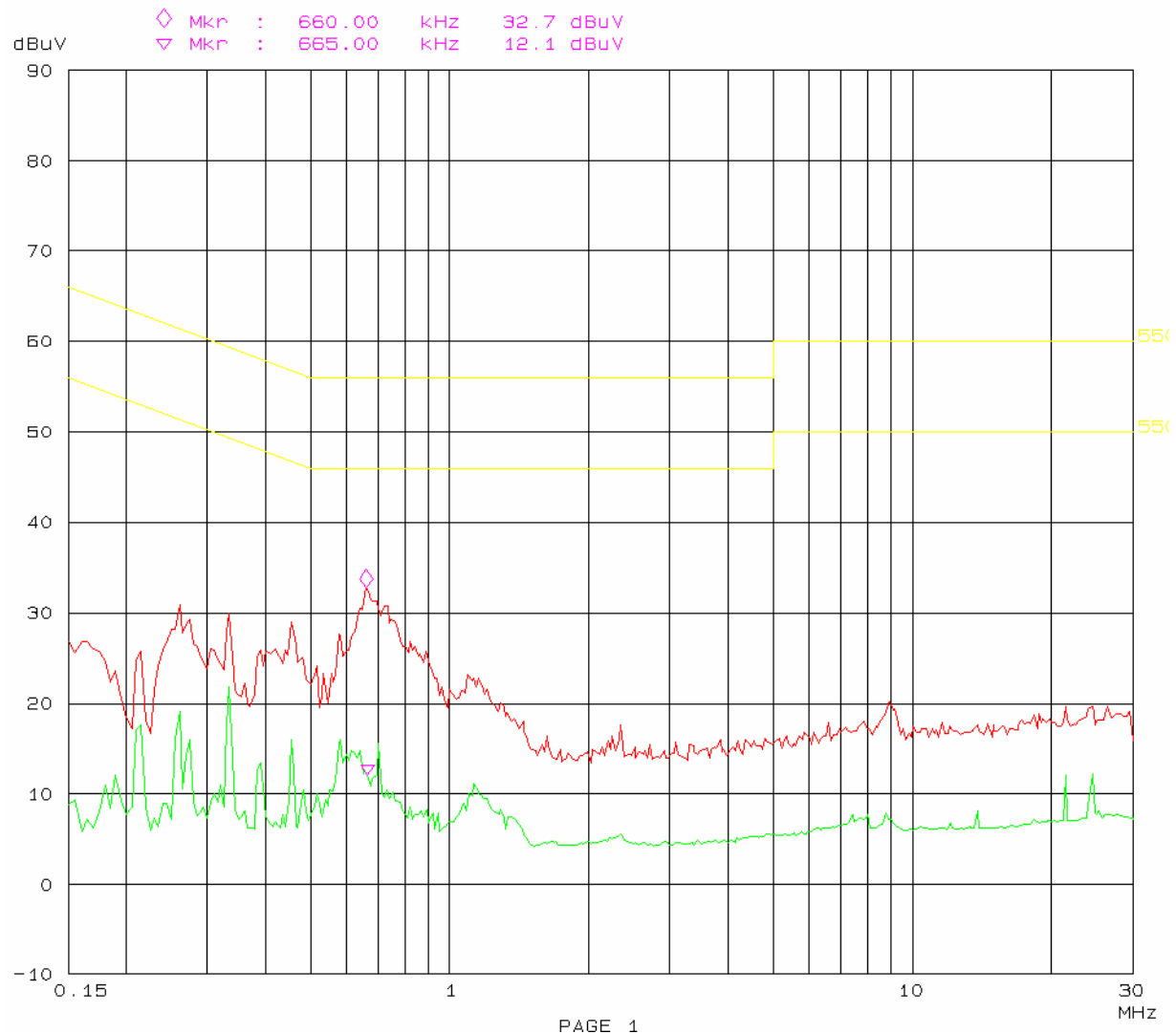
EUT: 2.4G Wireless Telecontrol Speaker system
Manuf: Tongxiang Foyin
Op Cond: Transmitting (High Channel)
Operator: Kidd
Test Spec: AC 120V/60Hz L
Comment: temp: 27 Humi 51%



Conducted Emission Test
FCC part 15 CLASS B

26. Oct 07 22:43

EUT: 2.4G Wireless Telecontrol Speaker system
Manuf: Tongxiang Foyin
Op Cond: Transmitting (High Channel)
Operator: Kidd
Test Spec: AC 120V/60Hz N
Comment: temp: 27 Humi 51%



§15.205(a) §15.209(a) §15.249(a) §15.249(d) - RADIATED EMISSIONS**Applicable Standard**

As per §15.249 (a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

As per §15.249 (c), Field strength limits are specified at a distance of 3 meters.

(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratory Corp. (Shenzhen) is ± 4.0 dB.

Test Equipment Setup

The spectrum analyzer or receiver is set as:

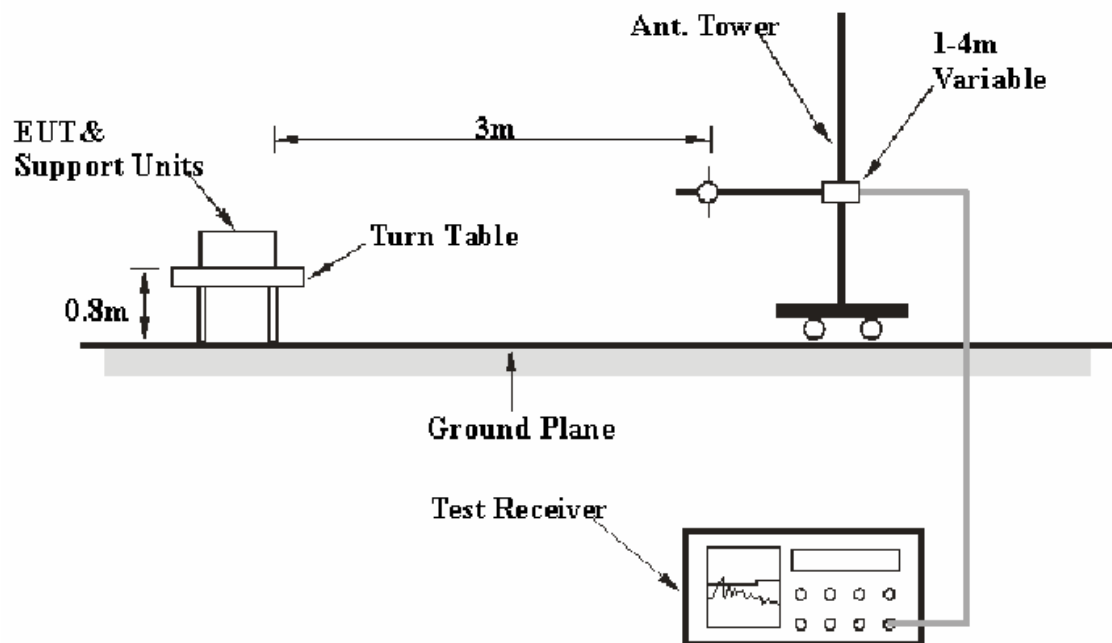
Below 1000MHz:

$$\text{RBW} = 100 \text{ kHz} / \text{VBW} = 300 \text{ kHz} / \text{Sweep} = \text{Auto}$$

Above 1000MHz:

- (1) Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto
- (2) Average: RBW = 1MHz / VBW = 10Hz / Sweep = Auto

EUT Setup



The radiated emission and out of band emission tests were performed in the 3 meters chamber B, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15.209 and FCC 15.249 limits.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2007-09-29	2008-09-29
HP	Amplifier	8447E	1937A01046	2006-11-15	2007-11-15
Sunol Sciences	Bilog Antenna	JB1	A040904-2	2006-08-14	2007-08-14
HP	Amplifier	8449B	3008A00277	2007-09-29	2008-09-29
Sunol Sciences	Horn Antenna	DRH-118	A052604	2007-07-20	2008-07-20
Agilent	Spectrum Analyzer	8564E	3943A01781	2006-11-22	2007-11-22

*** Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

For the radiated emissions test, the EUT, and all support equipment power cords was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 mete, and the EUT is placed on a turntable, which is 0.8 meter above ground plane, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna should be changed the polarization both of horizontal and vertical.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the maximum limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corr. Ampl.}$$

Test Results Summary

According to the data in the following table, the EUT complied with the FCC Part 15.209 & 15.249, with the worst margin reading of:

30 -1000MHz:

Transmitting Mode (Low Channel): 12.9 dB at 837.981125 MHz in the Vertical polarization.
Transmitting Mode (Middle Channel): 12.1 dB at 603.091000 MHz in the Vertical polarization.
Transmitting Mode (High Channel): 12.4 dB at 64.116750 MHz in the Vertical polarization.

Above 1GHz:

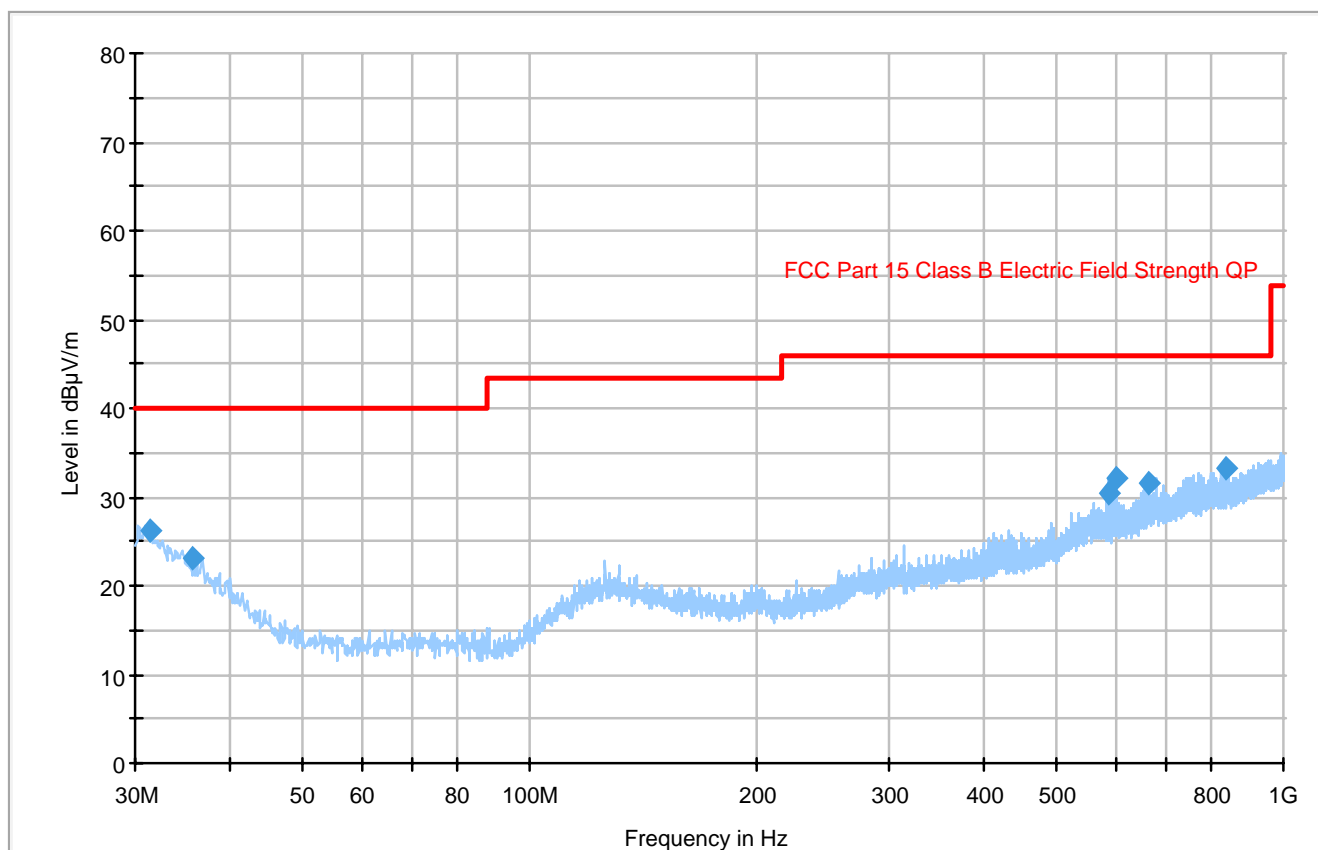
Transmitting Mode (Low Channel): 2.96 dB at 4804 MHz in the Vertical polarization.
Transmitting Mode (Middle Channel): 7.41 dB at 9872 MHz in the Horizontal polarization.
Transmitting Mode (High Channel): 7.43 dB at 9920 MHz in the Vertical polarization.

Test Data

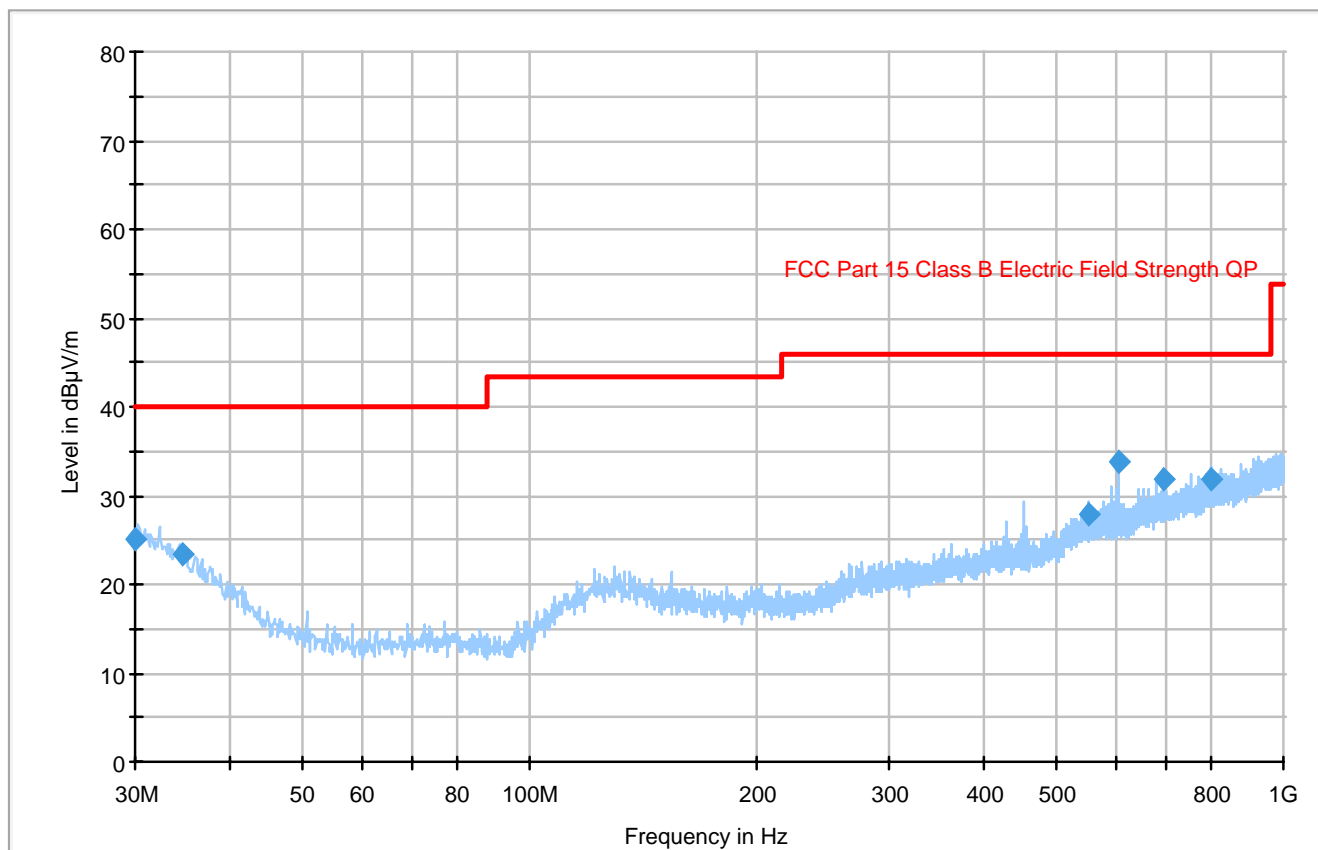
Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	56%
ATM Pressure:	100.2 kPa

The testing was performed by Kidd Yang on 2007-10-22.

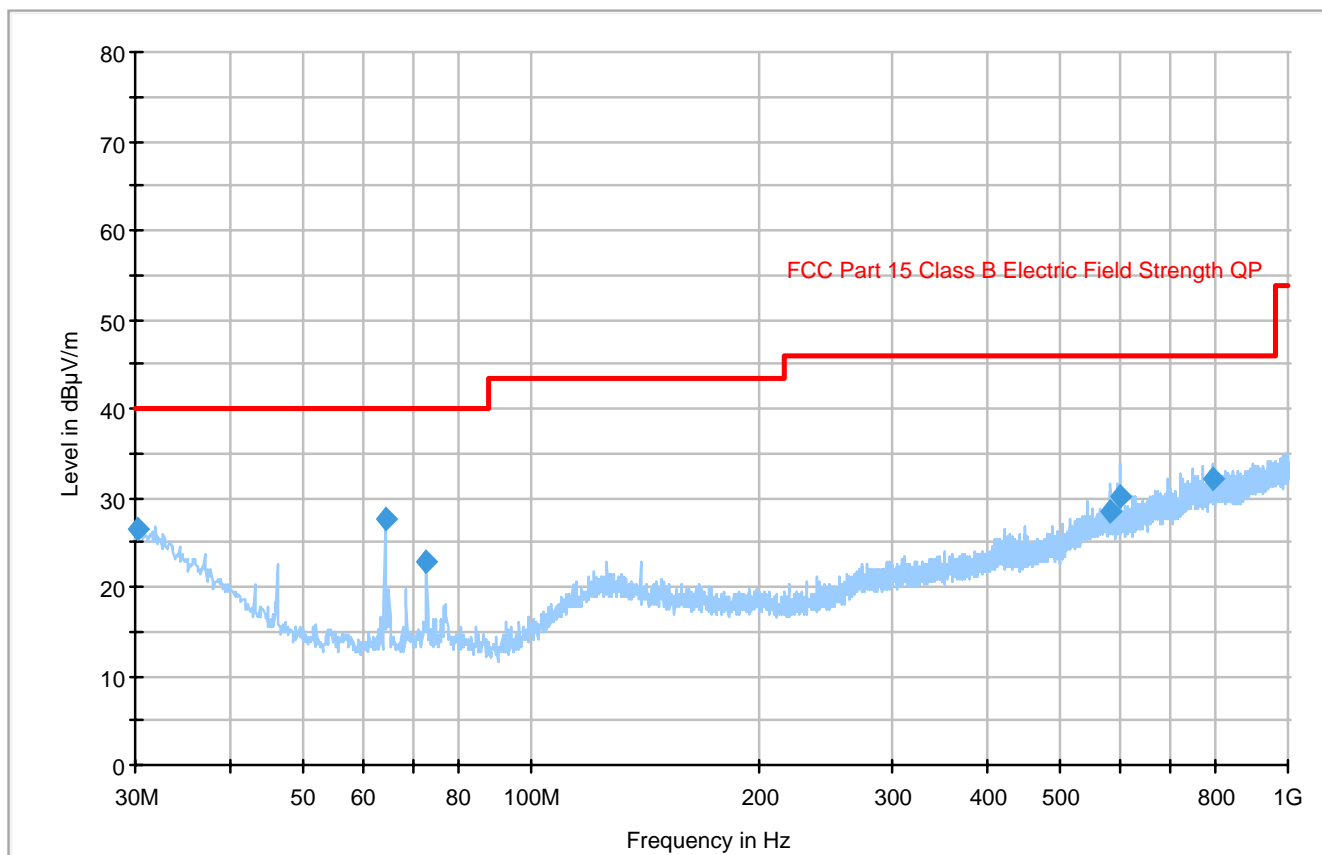
30-1000 MHz:*Test Mode: Transmitting (Low Channel)*

Frequency (MHz)	Quasi-Peak (dBμV/m)	Antenna Height (cm)	Polarity (H/V)	Turntable Position (deg)	Corr. (dB)	Limit (dBμV/m)	Margin (dB)
837.981125	33.1	209.0	V	237.0	-0.3	46.0	12.9
31.368298	26.3	288.0	V	169.0	-5.3	40.0	13.7
599.221875	32.1	196.0	H	0.0	-4.2	46.0	13.9
663.652314	31.6	237.0	V	162.0	1.9	46.0	14.4
585.780000	30.4	101.0	V	13.0	-4.2	46.0	15.6
35.631750	23.1	236.0	H	59.0	-8.3	40.0	16.9

Test Mode: Transmitting (Middle Channel)

Frequency (MHz)	Quasi-Peak (dBμV/m)	Antenna Height (cm)	Polarity (H/V)	Turntable Position (deg)	Corr. (dB)	Limit (dBμV/m)	Margin (dB)
603.091000	33.9	102.0	V	0.0	-4.2	46.0	12.1
801.849000	31.9	120.0	H	67.0	-0.7	46.0	14.1
691.037125	31.7	214.0	H	244.0	1.8	46.0	14.3
30.109778	25.2	389.0	H	139.0	-4.4	40.0	14.8
34.716500	23.4	382.0	V	0.0	-7.6	40.0	16.6
552.567625	27.8	128.0	V	204.0	-4.5	46.0	18.2

Test Mode: Transmitting (High Channel)



Frequency (MHz)	Quasi-Peak (dBμV/m)	Antenna Height (cm)	Polarity (H/V)	Turntable Position (deg)	Corr. (dB)	Limit (dBμV/m)	Margin (dB)
64.116750	27.6	373.0	V	109.0	-17.3	40.0	12.4
30.127420	26.4	192.0	H	209.0	-4.4	40.0	13.6
798.133375	32.2	199.0	H	58.0	-0.8	46.0	13.8
599.674500	30.2	172.0	V	0.0	-4.2	46.0	15.8
72.680000	22.7	273.0	H	122.0	1.8	40.0	17.3
584.051750	28.4	101.0	V	117.0	-4.2	46.0	17.6

Above 1GHz:

Frequency (MHz)	Meter Reading (dBuV)	Detector PK/QP/AV	Direction Degree	Height (m)	Polar H / V	Antenna Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Corrected Amp. (dBuV/m)	FCC Part 15.209 & 15.249		
										Limit (dBuV/m)	Margin (dB)	Comment
Low Channel (2402MHz)												
4804	44.40	AV	180	1.6	V	35.4	4.64	33.4	51.04	54	2.96	Harmonic
4804	43.6	AV	270	1.6	H	36.6	4.64	33.4	51.44	54	2.56	Harmonic
7202	37.31	AV	263	1.8	V	37.7	4.51	33.7	45.82	54	8.18	Harmonic
9603	34.61	AV	149	1.8	H	41.1	5.35	34.1	46.96	54	7.04	Harmonic
9603	34.50	AV	360	1.6	V	39.9	5.35	34.1	45.65	54	8.35	Harmonic
7202	35.60	AV	268	1.6	H	39.2	4.51	33.7	45.61	54	8.39	Harmonic
2402	85.67	AV	45	1	V	30.6	3.61	35	84.88	94	9.12	Fund.
4804	58.01	PK	250	1	V	35.4	4.64	33.4	64.65	74	9.35	Harmonic
2402	84.17	AV	263	1.4	H	30.6	3.61	35	83.38	94	10.62	Fund.
7202	53.10	PK	268	1.6	V	37.7	4.51	33.7	61.61	74	12.39	Harmonic
2402	102.30	PK	18	1.6	V	30.6	3.61	35	101.51	114	12.49	Fund.
9603	49.02	PK	358	1.3	V	39.9	5.35	34.1	60.17	74	13.83	Harmonic
4804	54.26	PK	49	1.2	H	36.6	4.64	33.4	62.1	74	11.9	Harmonic
9603	46.33	PK	230	1.8	H	41.1	5.35	34.1	58.68	74	15.32	Harmonic
7202	47.93	PK	168	1.6	H	39.2	4.51	33.7	57.94	74	16.06	Harmonic
2402	95.4	PK	20	1.2	H	30.6	3.61	35	94.61	114	19.39	Fund.

Frequency (MHz)	Meter Reading (dBuV)	Detector PK/QP/AV	Direction Degree	Height (m)	Polar H / V	Antenna Factor (dB/m)	Cable Loss (dB)	Pre- Amplifier Gain (dB)	Corrected Amplitude (dBuV/m)	FCC Part 15.209 & 15.249		
										Limit (dBuV/m)	Margin (dB)	Comment
Middle Channel (2468MHz)												
9872	33.42	AV	270	1.6	H	41.5	5.77	34.1	46.59	54	7.41	Harmonic
9872	33.46	AV	180	1.6	V	40.4	5.77	34.1	45.53	54	8.47	Harmonic
2468	86.21	AV	45	1.0	V	30.6	3.61	35.0	85.42	94	8.58	Fund.
7404	35.07	AV	261	1.0	H	39.0	4.51	33.7	44.88	54	9.12	Harmonic
9872	50.17	PK	49	1.2	H	41.5	5.77	34.1	63.34	74	10.66	Harmonic
7404	34.57	AV	90	1.2	V	37.7	4.51	33.7	43.08	54	10.92	Harmonic
4936	35.90	AV	180	1.6	V	35.4	4.64	33.4	42.54	54	11.46	Harmonic
2468	103.32	PK	18	1.6	V	30.6	3.61	35.0	102.53	114	11.47	Fund.
7404	52.50	PK	180	1.3	H	39.0	4.51	33.7	62.31	74	11.69	Harmonic
2468	82.83	AV	263	1.4	H	30.6	3.61	35.0	82.04	94	11.96	Fund.
4936	33.23	AV	270	1.6	H	36.6	4.64	33.4	41.07	54	12.93	Harmonic
7404	52.5	PK	180	1.0	V	37.7	4.51	33.7	61.01	74	12.99	Harmonic
9872	48.83	PK	250	1.0	V	40.4	5.77	34.1	60.9	74	13.1	Harmonic
4936	48.30	PK	49	1.2	H	36.6	4.64	33.4	56.14	74	17.86	Harmonic
4936	49.33	PK	250	1.0	V	35.4	4.64	33.4	55.97	74	18.03	Harmonic
2468	96.50	PK	20	1.2	H	30.6	3.61	35.0	95.71	114	18.29	Fund.

Frequency (MHz)	Meter Reading (dBuV)	Detector PK/QP/AV	Direction Degree	Height (m)	Polar H / V	Antenna Factor (dB/m)	Cable Loss (dB)	Pre- Amplifier Gain (dB)	Corrected Amplitude (dBuV/m)	FCC Part 15.209 & 15.249		
										Limit (dBuV/m)	Margin (dB)	Comment
High Channel (2480MHz)												
2480	87.8	AV	45	1.0	V	30.6	3.61	35.0	87.01	94	6.99	Fund.
9920	33.40	AV	360	1.6	V	41.5	5.77	34.1	46.57	54	7.43	Harmonic
9920	33.57	AV	149	1.8	H	40.4	5.77	34.1	45.64	54	8.36	Harmonic
7440	35.57	AV	263	1.8	V	39.0	4.75	33.7	45.62	54	8.38	Harmonic
7440	35.57	AV	268	1.6	H	37.7	4.75	33.7	44.32	54	9.68	Harmonic
4960	34.90	AV	180	1.6	V	36.6	4.55	33.4	42.65	54	11.35	Harmonic
2480	103.30	PK	18	1.6	V	30.6	3.61	35.0	102.51	114	11.49	Fund.
4960	35.57	AV	270	1.6	H	35.4	4.55	33.4	42.12	54	11.88	Harmonic
2480	81.7	AV	263	1.4	H	30.6	3.61	35.0	80.91	94	13.09	Fund.
2480	96.86	PK	20	1.2	H	30.6	3.61	35.0	96.07	114	17.93	Fund.
4960	47.90	PK	250	1.0	V	36.6	4.55	33.4	55.65	74	18.35	Harmonic
9920	41.20	PK	358	1.3	V	41.5	5.77	34.1	54.37	74	19.63	Harmonic
4960	47.57	PK	49	1.2	H	35.4	4.55	33.4	54.12	74	19.88	Harmonic
9920	41.53	PK	230	1.8	H	40.4	5.77	34.1	53.6	74	20.4	Harmonic
7440	43.2	PK	268	1.6	V	39.0	4.75	33.7	53.25	74	20.75	Harmonic
7440	43.03	PK	168	1.6	H	37.7	4.75	33.7	51.78	74	22.22	Harmonic

Note: Fund. - Fundamental

§15.249(d) – OUT OF BAND EMISSIONS

Applicable Standard

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set the RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including the specified frequencies of band edges.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2007-09-29	2008-09-29
HP	Amplifier	8449B	3008A00277	2007-09-29	2008-09-29
Sunol Sciences	Horn Antenna	DRH-118	A052604	2007-07-20	2008-07-20

* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) Corp. attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	56%
ATM Pressure:	100.2 kPa

The testing was performed by Kidd Yang on 2007-10-22.

Test Mode: Transmitting

Test Result: Compliant.

Frequency (MHz)	Reading (dBuV/m)	Antenna Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Corrected Amplitude (dBuV/m)	Limit (dBuV)	Margin (dB)
2399.9	45.34	27.4	3.61	35.0	41.35	54	12.65
2483.6	47.41	27.4	3.61	35.0	43.42	54	10.58

******* End of Report *******