



NVLAP LAB CODE 200707-0



FCC PART 15.249

MEASUREMENT AND TEST REPORT

For

Chongqing Jinshan Science & Technology (Group) Co., Ltd.

No.18, Nishang Road, LiangLu Industrial City, Yubei District,

Chongqing, P.R. of China

FCC ID: XE8CJSMER-II
Model: JS-MER-II

Report Type: Original Report	Product Type: Image Recorder
Test Engineer: Cookies Bu	<i>Cookies, Bu</i>
Report Number: RSC09052553	
Report Date: 2009-08-27	
Reviewed By: EMC Engineer	<i>Merry Zhao</i>
Prepared By: Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008	

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Shenzhen). This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP*, NIST, or any agency of the Federal Government.

* This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk “*”

TABLE OF CONTENTS

GENERAL INFORMATION	3
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	3
OBJECTIVE	4
RELATED SUBMITTAL(S)/GRANT(S).....	4
TEST METHODOLOGY	4
TEST FACILITY	4
SYSTEM TEST CONFIGURATION	5
JUSTIFICATION	5
EQUIPMENT MODIFICATIONS	5
CONFIGURATION OF TEST SETUP	5
BLOCK DIAGRAM OF TEST SETUP	5
SUMMARY OF TEST RESULTS	6
§15.203 - ANTENNA REQUIREMENT	7
APPLICABLE STANDARD	7
ANTENNA CONNECTOR CONSTRUCTION	7
§15.207 (A) - CONDUCTED EMISSIONS	8
APPLICABLE STANDARD	8
MEASUREMENT UNCERTAINTY	8
EUT SETUP	8
EMI TEST RECEIVER SETUP.....	9
TEST EQUIPMENT LIST AND DETAILS.....	9
TEST PROCEDURE	9
TEST RESULTS SUMMARY	9
TEST DATA	10
PLOT(S) OF TEST DATA	10
§15.205(A), §15.209(A), §15.249 & §15.109 - RADIATED EMISSIONS	12
APPLICABLE STANDARD	12
MEASUREMENT UNCERTAINTY	12
TEST EQUIPMENT SETUP	12
EUT SETUP	13
TEST EQUIPMENT LIST AND DETAILS.....	13
TEST PROCEDURE	14
CORRECTED AMPLITUDE & MARGIN CALCULATION	14
TEST RESULTS SUMMARY	14
TEST DATA	15
§15.249(D) – OUT OF BAND EMISSIONS	23
APPLICABLE STANDARD	23
TEST PROCEDURE	23
MEASUREMENT UNCERTAINTY	23
TEST EQUIPMENT SETUP	23
TEST EQUIPMENT LIST AND DETAILS.....	23
TEST DATA	24

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The Chongqing Jinshan Science & Technology (Group) Co., Ltd. 's product, model JS-MER- II (FCC ID: XE8CJSMER- II), or the "EUT" as referred to in this report is a *Image Recorder* which measures approximately 7.60 cm L x 10.6 cm W x 2.75 cm H, rated input voltage: DC 3.7V Battery

Product information:

Parameters	Specifications	
	Transmitting	Receiving
Modulation	GFSK	GFSK
Frequency Range	2410~2420 MHz, 2450~2468 MHz	
Transmission Power	≤ 0 dBm	

Transmission Channel (6CH)	Frequency (MHz)
1	2410
2	2412
3	2414
4	2416
5	2418
6	2420

Transmission Channel (10CH)	Frequency (MHz)
1	2450
2	2452
3	2454
4	2456
5	2458
6	2460
7	2462
8	2464
9	2466
10	2468

* All measurement and test data in this report was gathered from production sample serial number: 0905015 (Assigned by BAACL, Shenzhen). The EUT was received on 2009-05-25.

Objective

This Type approval report is prepared on behalf of *Chongqing Jinshan Science & Technology (Group) 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, 15.249 and 15.109 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 Laboratories 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 Laboratories 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 Laboratories 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 21, 2007. 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 Laboratories Corp. (Shenzhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



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

SYSTEM TEST CONFIGURATION

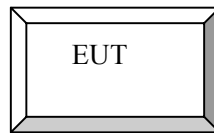
Justification

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

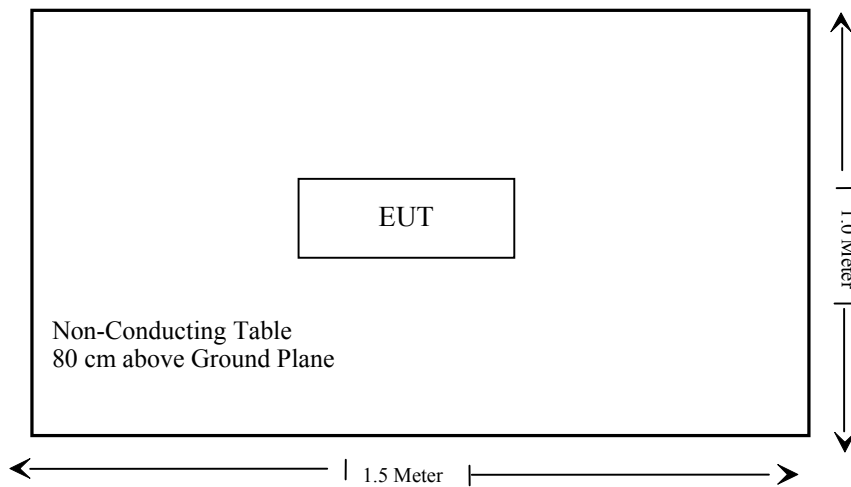
Equipment Modifications

No modifications were made to the unit tested.

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), §15.35, §15.109	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 has 14 integral antennas on PCB, which in accordance to section 15.203, is considered sufficient to comply with the provisions of this section.

Result: Compliant.

Please refer to the EUT photos.

§15.207 (a) - CONDUCTED EMISSIONS

Applicable Standard

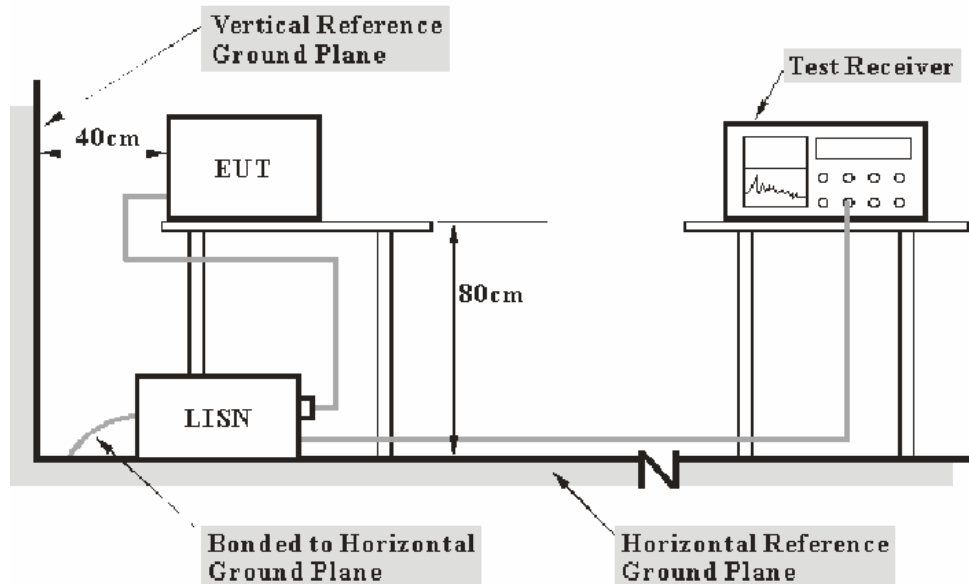
CFR47§15.207

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.

EMI Test Receiver Setup

The EMI 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>IF B/W</i>
150 kHz – 30 MHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2009-04-28	2010-04-27
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2009-04-28	2010-04-27

* **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

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 15.107, 15.249, and 15.207, with the worst margin reading of:

10.88 dB at 0.542 MHz in the **Line** conductor mode

Test Data**Environmental Conditions**

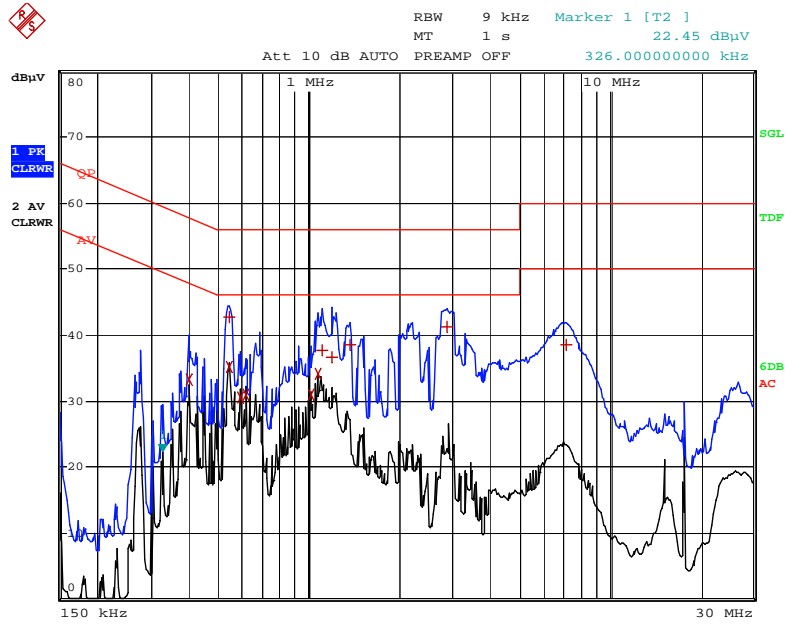
Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

* The testing was performed by Cookies Bu on 2009-08-27.

Line Conducted Emissions				FCC Part 15.207	
Frequency (MHz)	Amplitude (dB μ V)	Detector (QP/AV)	Conductor (Line/Neutral)	Limit (dB μ V)	Margin (dB)
0.542	35.12	AV	Line	46.00	10.88
0.538	34.37	AV	Neutral	46.00	11.63
1.07	34.08	AV	Line	46.00	11.92
0.542	42.73	QP	Neutral	56.00	13.27
0.542	42.63	QP	Line	56.00	13.37
0.398	33.22	AV	Line	47.88	14.66
2.866	41.34	QP	Line	56.00	14.66
1.022	31.05	AV	Line	46.00	14.95
2.998	41.00	QP	Neutral	56.00	15.00
0.614	30.97	AV	Line	46.00	15.03
0.59	30.53	AV	Line	46.00	15.47
1.07	30.53	AV	Neutral	46.00	15.47
1.374	38.63	QP	Line	56.00	17.37
1.202	28.52	AV	Neutral	46.00	17.48
2.206	38.01	QP	Neutral	56.00	17.99
1.106	37.73	QP	Line	56.00	18.27
1.358	37.68	QP	Neutral	56.00	18.32
0.614	27.57	AV	Neutral	46.00	18.43
1.094	36.95	QP	Neutral	56.00	19.05
0.398	28.63	AV	Neutral	47.88	19.25
1.19	36.68	QP	Line	56.00	19.32
1.198	36.65	QP	Neutral	56.00	19.35
7.162	38.56	QP	Line	60.00	21.44
0.274	29.39	AV	Neutral	51.00	21.61

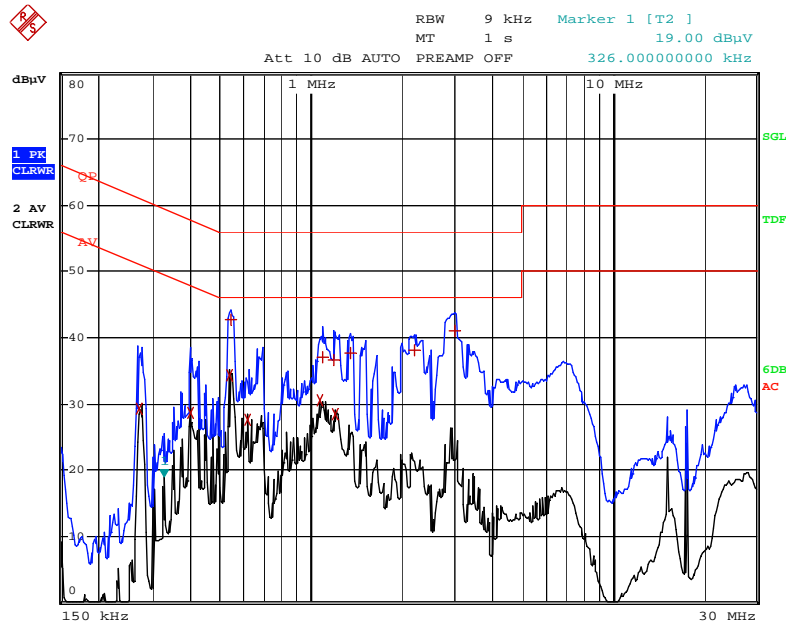
Plot(s) of Test Data

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



JS-MER-II-L

Date: 27.AUG.2009 10:14:42



JS-MER-II-N

Date: 27.AUG.2009 10:18:39

§15.205(a), §15.209(a), §15.249 & §15.109 - 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 Laboratories Corp. (Shenzhen) is ± 4.0 dB.

Test Equipment Setup

The spectrum analyzer or receiver is set as:

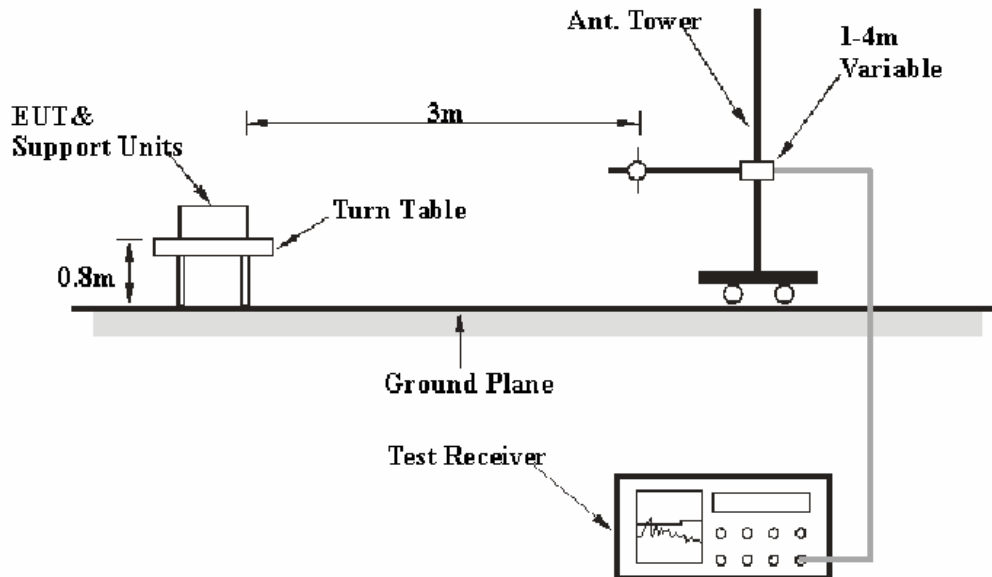
Below 1000 MHz:

Quasi-Peak: RBW = 100 kHz / VBW = 300 kHz / Sweep = Auto

Above 1000 MHz:

Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto
Average: RBW = 1MHz / VBW = 10 Hz / 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, FCC 15.249 and FCC 15.109 limits.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447E	1937A01046	2008-11-15	2009-11-15
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2008-10-16	2009-10-16
Sunol Sciences	Bilog Antenna	JB1	A040904-2	2009-04-12	2010-04-12
HP	Amplifier	8449B	3008A00277	2008-09-29	2009-09-29
Sunol Sciences	Horn Antenna	DRH-118	A052604	2008-09-25	2009-09-25
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2008-08-28	2009-08-27

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

Test Procedure

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:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

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

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Results Summary

According to the data in the following table, the EUT complied with the FCC Part 15.209&FCC Part 15.109 & 15.249, with the worst margin reading of:

Charging Mode: **20.10 dB** at **956.3539 MHz** in the **Vertical** polarization

Frequency range between2410-2420 MHz

Below 1 GHz:

Transmitting Mode: **10.6 dB** at **181.270075 MHz**, in the **Horizontal** polarization.

Receiving Mode: **13.6 dB** at **113.056250 MHz**, in the **Horizontal** polarization.

Above 1 GHz:

Transmitting Mode: **5.33 dB** at **7230 MHz** in the **Vertical** polarization, Low Channel (2410MHz)

Transmitting Mode: **6.20 dB** at **7260 MHz** in the **Vertical** polarization, High channel (2420MHz)

Receiving Mode: **5.07 dB** at **6705.12 MHz** in the **Vertical** polarization

Frequency range between 2450-2468 MHz**Below 1 GHz:**

Transmitting Mode: **8.2 dB** at **168.187225 MHz** in the **Horizontal** polarization.
Receiving Mode: **13.6 dB** at **113.056250 MHz** in the **Horizontal** polarization.

Above 1 GHz:

Transmitting Mode: **8.96 dB** at **7250 MHz** in the **Horizontal** polarization, Low Channel (2450MHz)
Transmitting Mode: **6.62 dB** at **7374 MHz** in the **Horizontal** polarization, Middle Channel (2458MHz)
Transmitting Mode: **6.72 dB** at **7404 MHz** in the **Horizontal** polarization, High channel (2468MHz)

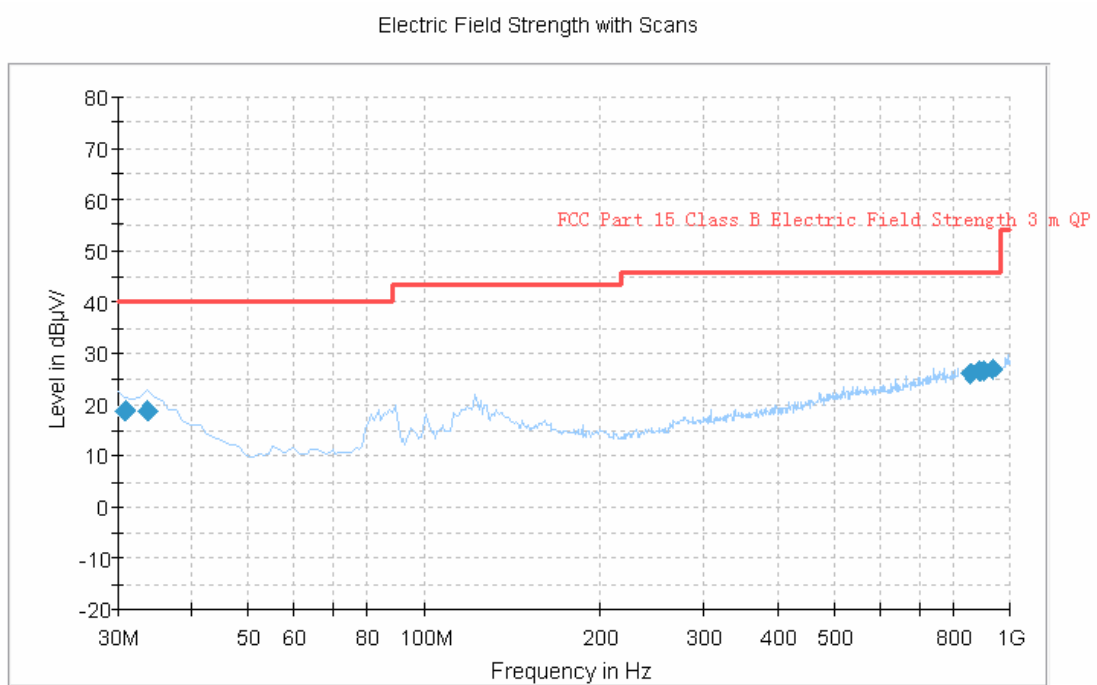
Receiving Mode **10.54 dB** at **6810.20 MHz** in the **Horizontal** polarization

Test Data**Environmental Conditions**

Temperature:	25 ° C
Relative Humidity:	56%
ATM Pressure:	100.0 kPa

The testing was performed by Cookies Bu on 2009-06-11.

Test Mode: Charging



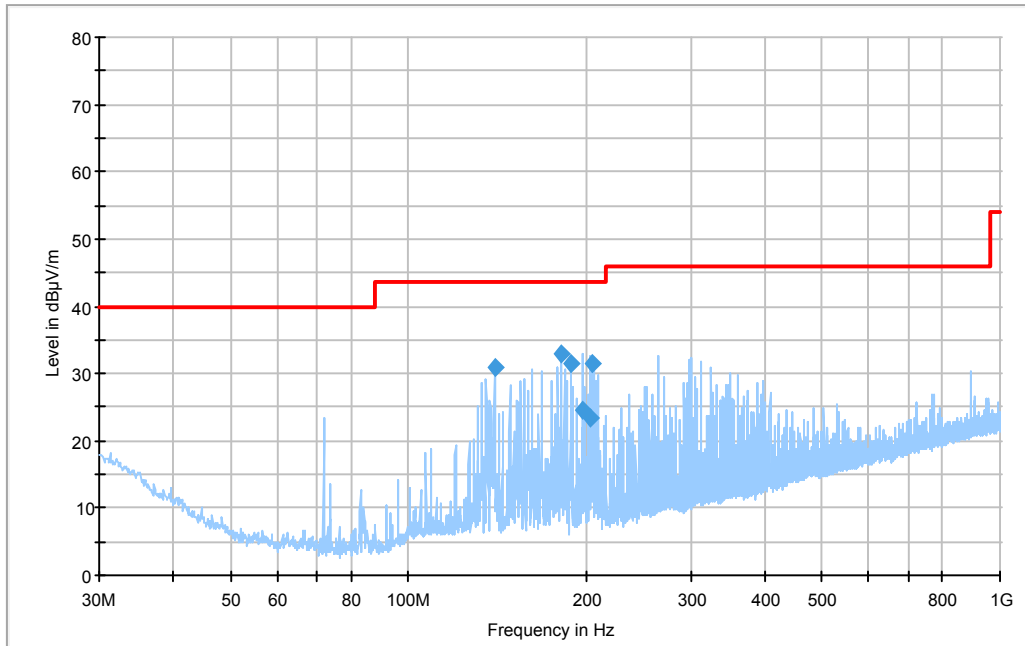
Frequency (MHz)	Corrected Amplitude (dBµV/m)	Test Antenna		Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
		Height (cm)	Polarity (H/V)				
956.353900	25.9	113.0	V	292.0	0.5	46.00	20.10
922.390300	25.5	375.0	H	309.0	0.1	46.00	20.50
910.740600	24.7	163.0	V	265.0	0.1	46.00	21.30
30.045950	18.5	100.0	V	38.0	-6.7	40.00	21.50
33.893500	18.3	100.0	V	12.0	-9.2	40.00	21.70
871.912700	24.3	150.0	H	301.0	-0.4	46.00	21.70

Note: The EUT doesn't work in charging mode.

Frequency Range: 2410-2420 MHz

Test Mode: Transmitting

Below 1 GHz:



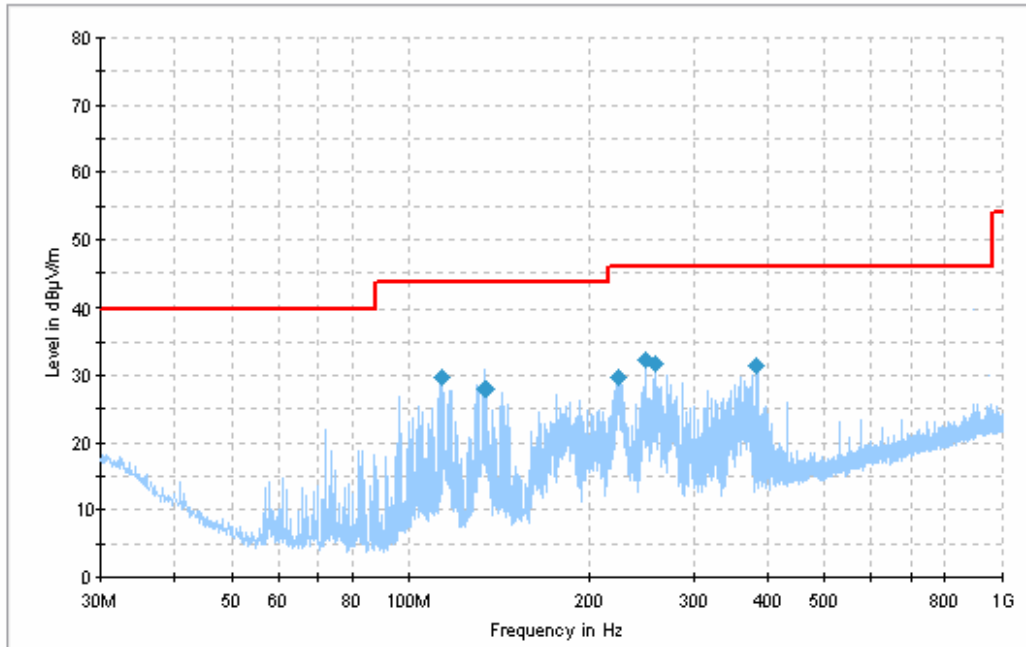
Frequency (MHz)	Corrected Amplitude (dBµV/m)	Test Antenna		Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
		Height (cm)	Polarity (H/V)				
181.270075	32.9	117.0	H	101.0	-17.3	43.5	10.6
187.820025	31.5	128.0	H	100.0	-18.0	43.5	12.0
205.305250	31.5	146.0	H	83.0	-17.1	43.5	12.0
139.796350	30.9	118.0	H	210.0	-18.7	43.5	12.6
196.560225	24.5	111.0	H	0.0	-17.3	43.5	19.0
203.113000	23.5	111.0	H	0.0	-17.0	43.5	20.0

Above 1 GHz:

Frequency (MHz)	S.A. Reading (dB μ V/m)	Detector (PK/AV)	Turntable Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dB μ V/m)	FCC 15.249/15.209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dB μ V/m)	Margin (dB)	Comment
Low Channel (2410 MHz)												
7230	35.15	AV	187	1.5	V	38.00	9.12	33.60	48.67	54	5.33	harmonic
7230	31.10	AV	305	1.2	H	39.20	9.12	33.60	45.82	54	8.18	harmonic
4820	32.02	AV	245	1.5	H	36.30	7.56	33.70	42.18	54	11.82	harmonic
7230	48.65	PK	187	1.5	V	38.00	9.12	33.60	62.17	74	11.83	harmonic
4820	32.6	AV	96	1.7	V	35.00	7.56	33.70	41.46	54	12.54	harmonic
7230	44.56	PK	305	1.2	H	39.20	9.12	33.60	59.28	74	14.72	harmonic
2410	94.18	PK	222	1.8	V	30.30	7.90	33.90	98.48	114	15.52	Fund.
4820	47.44	PK	245	1.5	H	36.30	7.56	33.70	57.6	74	16.4	harmonic
4820	48.51	PK	96	1.7	V	35.00	7.56	33.70	57.37	74	16.63	harmonic
2410	72.14	AV	222	1.4	V	30.30	7.90	33.90	76.44	94	17.56	Fund.
2410	90.69	PK	267	1.9	H	30.90	7.90	33.90	95.59	114	18.41	Fund.
2410	68.2	AV	267	1.9	H	30.90	7.90	33.90	73.1	94	20.90	Fund.
2387.77	43.73	PK	245	1.5	H	30.00	6.51	33.90	46.34	74	27.66	Spurious
2387.77	32.21	AV	245	1.5	H	30.00	6.51	33.90	34.82	54	19.18	Spurious
2356.70	43.83	PK	145	1.0	V	30.30	7.90	33.90	48.13	74	25.87	Spurious
2356.70	32.35	AV	145	1.0	V	30.30	7.90	33.90	36.65	54	17.35	Spurious
High Channel (2420 MHz)												
7260	34.28	AV	136	1.5	V	38.00	9.12	33.60	47.8	54	6.20	harmonic
7260	30.67	AV	186	1.5	H	39.20	9.12	33.60	45.39	54	8.61	harmonic
4840	31.86	AV	18	1.3	H	36.30	7.56	33.70	42.02	54	11.98	harmonic
7260	45.98	PK	186	1.5	H	39.20	9.12	33.60	60.7	74	13.30	harmonic
7260	47.07	PK	136	1.5	V	38.00	9.12	33.60	60.59	74	13.41	harmonic
4840	31.03	AV	88	1.0	V	35.00	7.56	33.70	39.89	54	14.11	harmonic
4840	46.76	PK	18	1.3	H	36.30	7.56	33.70	56.92	74	17.08	harmonic
4840	46.87	PK	88	1.0	V	35.00	7.56	33.70	55.73	74	18.27	harmonic
2420	88.21	PK	235	1.1	H	30.90	7.90	33.90	93.11	114	20.89	Fund.
2420	88.70	PK	226	1.4	V	30.30	7.90	33.90	93	114	21.00	Fund.
2420	67.15	AV	235	1.1	H	30.90	7.90	33.90	72.05	94	21.95	Fund.
2420	66.53	AV	226	1.4	V	30.30	7.90	33.90	70.83	94	23.17	Fund.
2489.71	43.00	PK	89	1.3	H	31.50	7.90	33.90	48.5	74	25.5	Spurious
2489.71	32.15	AV	89	1.3	H	31.50	7.90	33.90	37.65	54	16.35	Spurious
2496.62	43.08	PK	117	1.0	V	30.90	7.90	33.90	47.98	74	26.02	Spurious
2496.62	32.25	AV	117	1.0	V	30.90	7.90	33.90	37.15	54	16.85	Spurious

Test Mode: Receiving (Worst Case)

Below 1 GHz:



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Test Antenna		Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
		Height (cm)	Polarity (H/V)				
113.056250	29.9	200.0	H	196.0	-3.9	43.5	13.6
248.977500	32.2	304.0	H	245.0	-3.6	46.0	13.8
257.950000	31.8	112.0	V	163.0	-3.5	46.0	14.2
384.413750	31.5	109.0	H	88.0	-3.6	46.0	14.5
133.993375	28.2	112.0	H	255.0	-18.7	43.5	15.3
224.000000	29.8	215.0	H	133.0	-3.9	46.0	16.2

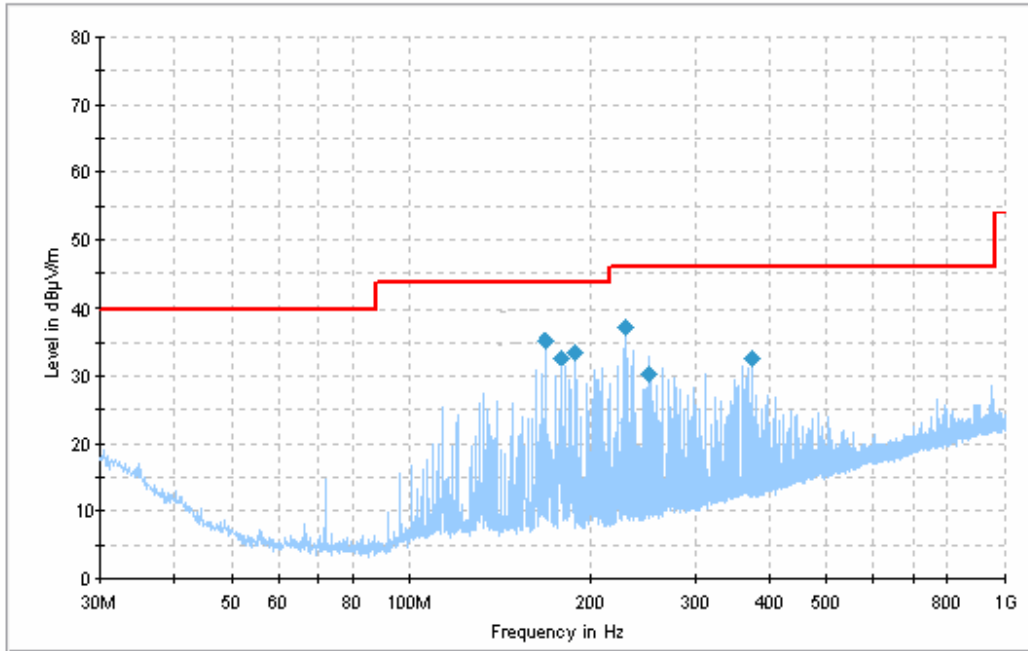
Above 1 GHz:

Frequency (MHz)	S.A. Reading (dBµV/m)	Detector (PK/AV)	Turntable Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	FCC 15.109		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	Comment
6705.12	35.21	AV	122	1.0	V	37.8	9.52	33.6	48.93	54	5.07	spurious
5959.02	36.10	AV	87	1.5	H	36.0	8.01	33.6	46.51	54	7.49	spurious
6705.12	47.05	PK	122	1.0	V	37.8	9.52	33.6	59.77	74	14.23	spurious
1865.70	39.02	AV	68	1.8	H	28.3	5.99	34.2	39.11	54	14.89	spurious
5959.02	46.48	PK	87	1.5	H	36.0	8.01	33.6	56.89	74	17.11	spurious
1162.20	39.35	AV	326	1.5	V	25.10	5.10	34.8	34.75	54	19.25	spurious
1865.70	47.36	PK	68	1.8	H	28.3	5.99	34.2	47.45	74	26.55	spurious
1162.20	47.50	PK	326	1.5	V	25.10	5.10	34.8	42.90	74	31.10	spurious

Frequency Range: 2450-2468 MHz

Test Mode: Transmitting

Below 1 GHz:



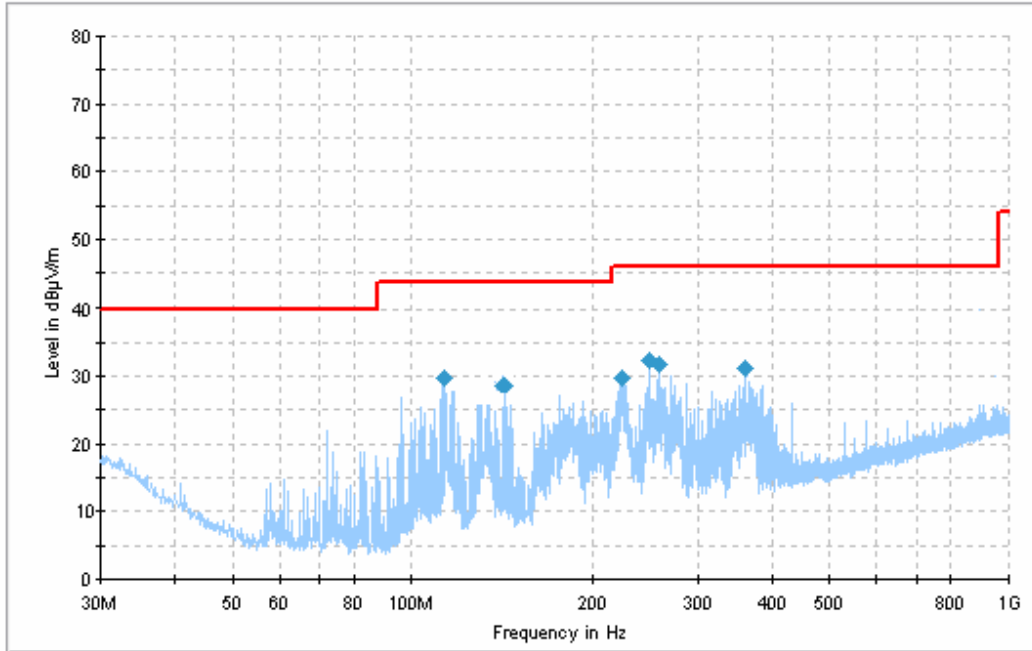
Frequency (MHz)	Corrected Amplitude (dBµV/m)	Test Antenna		Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
		Height (cm)	Polarity (H/V)				
168.187225	35.3	124.0	H	0.0	-17.9	43.5	8.2
229.355325	37.3	153.0	H	105.0	-16.6	46.0	8.7
187.867500	33.5	111.0	H	0.0	-3.6	43.5	10.0
179.016252	31.5	126.0	H	0.0	-3.6	43.5	12.0
373.500000	32.5	114.0	H	291.0	-3.5	46.0	13.5
251.160000	30.2	111.0	H	0.0	-3.6	46.0	15.8

Above 1GHz:

Frequency (MHz)	S.A. Reading (dB μ V/m)	Detector (PK/AV)	Turntable Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dB μ V/m)	FCC 15.249/15.209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dB μ V/m)	Margin (dB)	Comment
Low Channel (2450 MHz)												
7250.00	30.32	AV	114	1.5	H	39.20	9.12	33.60	45.04	54	8.96	harmonic
7350.00	31.36	AV	324	1.5	V	38.00	9.12	33.60	44.88	54	9.12	harmonic
4900.00	33.12	AV	96	1.3	H	36.30	7.56	33.70	43.28	54	10.72	harmonic
4900.00	34.02	AV	155	1.2	V	35.00	7.56	33.70	42.88	54	11.12	harmonic
7250.00	44.63	PK	114	1.5	H	39.20	9.12	33.60	59.35	74	14.65	harmonic
7350.00	44.95	PK	324	1.5	V	38.00	9.12	33.60	58.47	74	15.53	harmonic
4900.00	48.25	PK	96	1.3	H	36.30	7.56	33.70	58.41	74	15.59	harmonic
4900.00	47.63	PK	155	1.2	V	35.00	7.56	33.70	56.49	74	17.51	harmonic
2450.00	91.38	PK	257	1.5	V	30.30	7.90	33.90	95.68	114	18.32	Fund.
2450.00	90.01	PK	205	1.5	H	30.90	7.90	33.90	94.91	114	19.09	Fund.
2450.00	68.45	AV	205	1.5	H	30.90	7.90	33.90	73.35	94	20.65	Fund.
2450.00	66.83	AV	257	1.5	V	30.30	7.90	33.90	71.13	94	22.87	Fund.
2373.48	42.24	PK	336	1.5	H	30.90	7.90	33.90	47.14	74	26.86	Spurious
2373.48	31.12	AV	336	1.5	H	30.90	7.90	33.90	36.02	54	17.98	Spurious
2331.26	43.37	PK	95	1.0	V	30.90	7.90	33.90	48.27	74	25.73	Spurious
2331.26	32.03	AV	95	1.0	V	30.90	7.90	33.90	36.93	54	17.07	Spurious
Middle channel (2458 MHz)												
7374.00	32.66	AV	317	1.8	H	39.20	9.12	33.6	47.38	54	6.62	harmonic
7374.00	33.14	AV	260	1.5	V	38.00	9.12	33.6	46.66	54	7.34	harmonic
4916.00	34.24	AV	360	1.5	H	36.30	7.56	33.7	44.40	54	9.60	harmonic
4916.00	34.13	AV	90	1.3	V	35.00	7.56	33.7	42.99	54	11.01	harmonic
7374.00	47.71	PK	317	1.8	H	39.20	9.12	33.6	62.43	74	11.57	harmonic
7374.00	48.01	PK	260	1.5	V	38.00	9.12	33.6	61.53	74	12.47	harmonic
4916.00	51.96	PK	90	1.3	V	35.00	7.56	33.7	60.82	74	13.18	harmonic
4916.00	49.28	PK	360	1.5	H	36.30	7.56	33.7	59.44	74	14.56	harmonic
2458.00	91.23	PK	273	1.7	V	30.30	7.90	33.9	95.53	114	18.47	Fund.
2458.00	88.99	PK	20	1.4	H	30.90	7.90	33.9	93.89	114	20.11	Fund.
2458.00	67.36	AV	20	1.4	H	30.90	7.90	33.9	72.26	94	21.74	Fund.
2458.00	66.59	AV	273	1.7	V	30.30	7.90	33.9	70.89	94	23.11	Fund.
High channel (2468 MHz)												
7404.00	32.31	AV	187	1.4	H	39.40	9.17	33.6	47.28	54	6.72	harmonic
7404.00	33.43	AV	332	1.5	V	38.10	9.17	33.6	47.10	54	6.90	harmonic
7404.00	50.36	PK	332	1.5	V	38.10	9.17	33.6	64.03	74	9.97	harmonic
7404.00	48.84	PK	187	1.4	H	39.40	9.17	33.6	63.81	74	10.19	harmonic
4936.00	32.89	AV	78	1.5	H	36.60	7.95	33.7	43.74	54	10.26	harmonic
4936.00	33.86	AV	261	1.4	V	35.40	7.95	33.7	43.51	54	10.49	harmonic
4936.00	51.70	PK	261	1.4	V	35.40	7.95	33.7	61.35	74	12.65	harmonic
4936.00	47.94	PK	78	1.5	H	36.60	7.95	33.7	58.79	74	15.21	harmonic
2468.00	88.97	PK	287	1.6	V	30.30	7.90	33.9	93.27	114	20.73	Fund.
2468.00	86.78	PK	2	1.6	H	30.90	7.90	33.9	91.68	114	22.32	Fund.
2468.00	65.26	AV	2	1.6	H	30.90	7.90	33.9	70.16	94	23.84	Fund.
2468.00	64.19	AV	287	1.6	V	30.30	7.90	33.9	68.49	94	25.51	Fund.
2497.57	43.85	PK	156	1.2	H	30.00	6.51	33.90	46.46	74	27.54	Spurious
2497.57	31.85	AV	156	1.2	H	30.00	6.51	33.90	34.46	54	19.54	Spurious
2492.50	44.82	PK	227	1.0	V	30.30	7.90	33.90	49.12	74	24.88	Spurious
2492.50	32.27	AV	227	1.0	V	30.30	7.90	33.90	36.57	54	17.43	Spurious

Test Mode: Receiving (Worst Case)

Below 1 GHz:



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Test Antenna		Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
		Height (cm)	Polarity (H/V)				
113.056250	29.9	200.0	H	196.0	-3.9	43.5	13.6
248.977500	32.2	304.0	H	245.0	-3.6	46.0	13.8
257.950000	31.8	112.0	V	163.0	-3.5	46.0	14.2
148.268975	27.3	124.0	H	255.0	-18.7	43.5	16.2
224.000000	29.8	215.0	H	133.0	-3.9	46.0	16.2
368.234903	29.5	112.0	H	88.0	-3.6	46.0	16.5

Above 1 GHz:

Frequency (MHz)	S.A. Reading (dBµV/m)	Detector (PK/AV)	Turntable Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	FCC 15.109		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBµV/m)	Margin (dB)	Comment
6810.20	33.05	AV	218	1.5	H	36.0	8.01	33.6	43.46	54	10.54	spurious
3170.31	32.21	AV	75	1.0	V	31.4	8.09	33.8	37.90	54	16.10	spurious
6810.20	46.89	PK	218	1.5	H	36.0	8.01	33.6	57.30	74	16.70	spurious
1862.50	33.15	AV	336	1.0	H	28.3	5.99	34.2	33.24	54	20.76	spurious
3170.31	45.32	PK	75	1.0	V	31.4	8.09	33.8	51.01	74	22.99	spurious
1008.35	34.42	AV	167	1.5	V	23.8	4.78	35.0	28.00	54	26.00	spurious
1862.50	46.33	PK	336	1.0	H	28.3	5.99	34.2	46.42	74	27.58	spurious
1008.35	47.66	PK	167	1.5	V	23.8	4.78	35.0	41.24	74	32.76	spurious

§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

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 at the band edge. The receiving antenna should be changed the polarization both of horizontal and vertical.

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

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 Laboratories Corp. (Shenzhen) is ± 4.0 dB.

Test Equipment Setup

The spectrum analyzer or receiver is set as:

Above 1000MHz:

Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto
Average: RBW = 1MHz / VBW = 10 Hz / Sweep = Auto

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2008-11-07	2009-11-06
HP	Amplifier	8447E	1937A01046	2008-08-02	2009-08-02
Sunol Sciences	Horn Antenna	DRH-118	A052604	2008-09-25	2009-09-25

* **Statement of Traceability:** Bay Area Compliance Laboratories 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 Cookies Bu on 2009-06-12.

Test Result: Compliant

Please refer to the following table.

Test Mode: Transmitting (Frequency Range: 2410-2420 MHz)

Frequency (MHz)	S.A. Reading (dBuV/m)	Detector (PK/AV)	Direction Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBuV/m)	FCC Part 15.249/209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBuV/m)	Margin (dB)	Remarks
Out of left side band (2390 ~ 2400 MHz)												
2396.505	35.19	PK	125	1.0	H	30.70	7.90	33.90	39.89	74	34.11	/
2399.108	40.95	PK	145	1.0	V	30.30	7.90	33.90	45.25	74	28.75	/
Out of right side band (2483.5 ~ 2500 MHz)												
2489.710	35.00	PK	75	1.3	H	31.50	7.90	33.90	40.50	74	33.50	/
2496.720	37.51	PK	156	1.0	V	30.90	7.90	33.90	42.41	74	31.59	/

Test Mode: Transmitting (Frequency Range: 2450-2468 MHz)

Frequency (MHz)	S.A. Reading (dBuV/m)	Detector (PK/AV)	Direction Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBuV/m)	FCC Part 15.249/209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBuV/m)	Margin (dB)	Remarks
Out of left side band (2390 ~ 2400 MHz)												
2395.432	34.16	PK	150	1.0	H	30.70	7.90	33.90	38.86	74	35.14	/
2397.316	37.57	PK	143	1.0	V	30.30	7.90	33.90	41.87	74	32.13	/
Out of right side band (2483.5 ~ 2500 MHz)												
2497.581	35.06	PK	356	1.2	H	30.00	6.51	33.90	37.67	74	36.33	/
2492.580	37.82	PK	.187	1.0	V	30.30	7.90	33.90	42.12	74	31.88	/

Note: The table is the worst case result:

The peak radiated emission level is below the AV limit 54 dBuV/m at 3 meters.

******* END OF REPORT *******