

FCC PART 15.249

EMI MEASUREMENT AND TEST REPORT

For

Messiah Entertainment, Inc.

Spring Arts Tower, 453 S. Spring St., Suite 618, Los Angeles, CA 90013, USA

FCC ID: SFD-M1983-B

October 20, 2005

This Report Concerns: <input checked="" type="checkbox"/> Original Report	Equipment Type: Transmitter, Remote Control
Test Engineer: <u>Jandy Su</u> 	
Report No.: <u>RSZ05100801</u>	
Test Date: <u>October 13-20, 2005</u>	
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Note: The test report is specially limited to the above company and this particular sample only. It may not be duplicated without prior written consent of Bay Area Compliance Lab Corp. (ShenZhen). This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the US Government.

TABLE OF CONTENTS

GENERAL INFORMATION.....	3
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	3
OBJECTIVE	3
RELATED SUBMITTAL(S)/GRANT(S).....	3
TEST METHODOLOGY	3
TEST FACILITY	3
LOCAL SUPPORT EQUIPMENT LIST AND DETAILS	4
EXTERNAL I/O CABLE	4
SYSTEM TEST CONFIGURATION.....	5
JUSTIFICATION	5
EQUIPMENT MODIFICATIONS	5
CONFIGURATION OF TEST SETUP	6
BLOCK DIAGRAM OF TEST SETUP	6
SUMMARY OF TEST RESULTS.....	7
§15.203 - ANTENNA APPLICATION	8
STANDARD APPLICABLE	8
§15.207 (A) - CONDUCTED EMISSION.....	9
MEASUREMENT UNCERTAINTY	9
EUT SETUP.....	9
EMI TEST RECEIVER SETUP	10
TEST EQUIPMENT LIST AND DETAILS.....	10
TEST PROCEDURE	10
TEST RESULTS SUMMARY	10
TEST DATA	11
PLOT(S) OF TEST DATA.....	11
§15.205 §15.209(A) §15.249(A) - RADIATED EMISSION.....	14
MEASUREMENT UNCERTAINTY	14
EUT SETUP.....	14
EMI TEST RECEIVER SETUP	14
TEST EQUIPMENT LIST AND DETAILS.....	15
TEST PROCEDURE	15
CORRECTED AMPLITUDE & MARGIN CALCULATION	15
TEST RESULTS SUMMARY	15
TEST DATA	16
§15.249(C) - BAND EDGES TESTING	18
STANDARD APPLICABLE	18
TEST PROCEDURE	18
TEST EQUIPMENT LIST AND DETAILS.....	18
TEST DATA	18

GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The Messiah Entertainment, Inc. 's product, model number: M1983 or the "EUT" as referred to in this report is a Transmitter, Remote Control and product name is NEX Generation Game Console. The EUT is measured approximately 14.2cm L x 3.0cm W x 5.8cm H. rated input voltage: DC 3V battery.

** The test data gathered are from production sample, serial number: JX0510170059 provided by the manufacturer, we received EUT on 2005-10-8.*

Objective

This Type approval report is prepared on behalf of *Coby Communications 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 15.209,15.203,15.205,15.207 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 Lab 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 Lab Corp. (ShenZhen) to collect radiated and conducted emission measurement data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone, ShenZhen, Guangdong 518038, P.R.China.

Test site at Bay Area Compliance Lab 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 Lab 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/ts/htdocs/210/214/scopes/2007070.htm>

Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
KONKA	TV	T14FA073	AQX337YY5029056	DoC

External I/O Cable

Cable Description	Length (M)	From/Port	To
Unshielded detachable AV Cable	1.50	EUT	TV

SYSTEM TEST CONFIGURATION

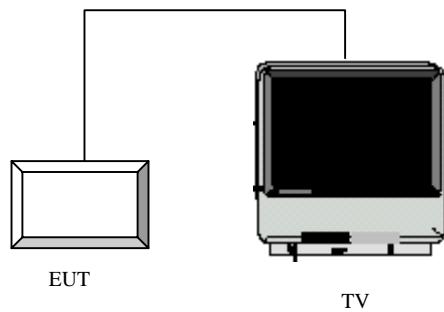
Justification

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

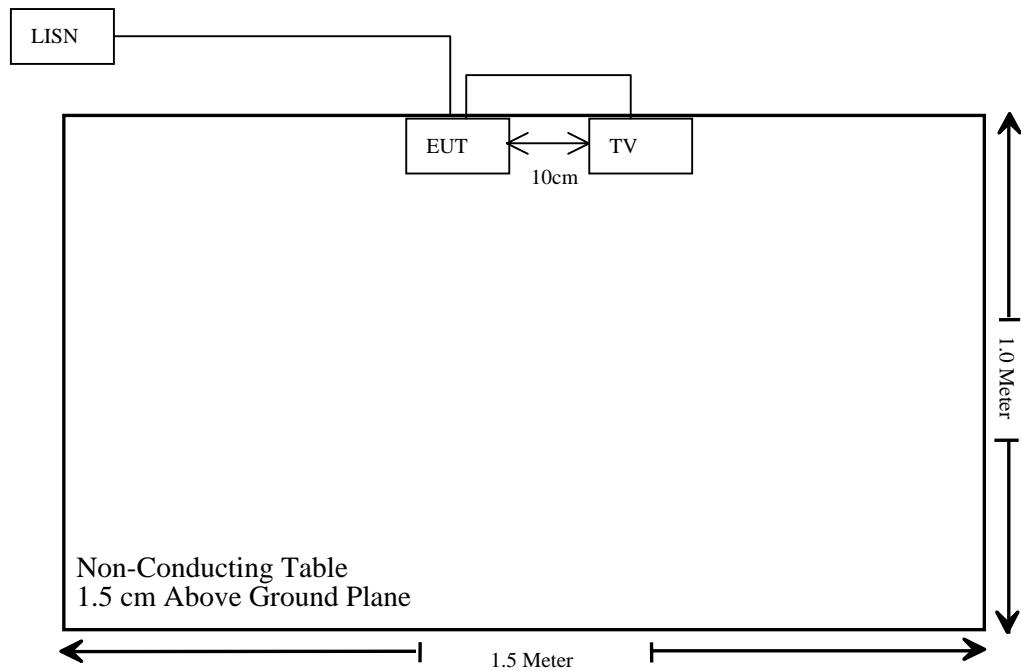
Equipment Modifications

Bay Area Compliance Lab Corp. (ShenZhen) has not done any modification on the 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
§15.205	Restricted Bands of Operation	Compliant
§15.207 (a)	Conducted Emission	Compliant
§15.209(a), §15.249(a)	Radiated Emission	Compliant*
§15.249(c)	Band Edge Testing	Compliant

* Within measurement uncertainty

§15.203 - ANTENNA APPLICATION

Standard Applicable

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. 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 provisions of this section.

This product has a permanent antenna, fulfill the requirement of this section.

Test Result: Pass

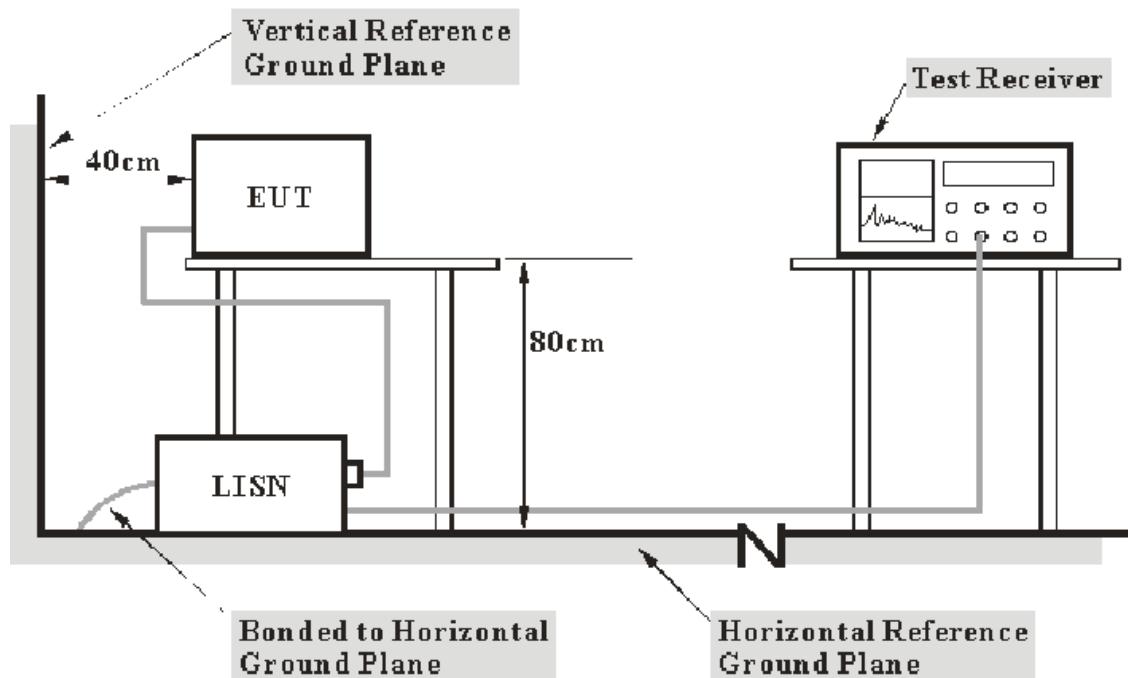
§15.207 (a) - CONDUCTED EMISSION

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 Lab Corp. (ShenZhen) is ± 3.2 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 test receiver was set with the following configurations:

<u>Frequency Range</u>	<u>IFBW</u>
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	12008	N/A	N/A
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2005-1-26	2006-1-26
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2005-2-28	2006-2-28

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

* **Statement of Traceability:** Bay Area Compliance Lab 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 15.207](#), with the worst margin reading of:

-6.30 dB at 28.640 MHz in the **Line** conductor mode.

Test Data

Environmental Conditions

Temperature:	28 °C
Relative Humidity:	37%
ATM Pressure:	1000mbar

The testing was performed by Jandy Su on 2005-10-20.

Test mode: Transmitting

LINE CONDUCTED EMISSIONS				FCC PART 15 .207	
Frequency MHz	Amplitude dB μ V	Detector QP/AV	Phase Line/Neutral	Limit dB μ V	Margin dB
28.640	43.70	AV	Line	50.00	-6.30
28.640	40.60	AV	Neutral	50.00	-9.40
17.940	47.90	QP	Line	60.00	-12.10
28.640	46.50	QP	Line	60.00	-13.50
25.060	36.50	AV	Line	50.00	-13.50
17.940	35.70	AV	Line	50.00	-14.30
23.270	35.10	AV	Line	50.00	-14.90
25.060	35.00	AV	Neutral	50.00	-15.00
23.270	34.00	AV	Neutral	50.00	-16.00
26.850	33.90	AV	Line	50.00	-16.10
28.640	43.50	QP	Neutral	60.00	-16.50
16.010	32.60	AV	Neutral	50.00	-17.40
16.010	40.80	QP	Neutral	60.00	-19.20
26.850	38.90	QP	Line	60.00	-21.10
23.270	38.50	QP	Line	60.00	-21.50
25.060	38.30	QP	Line	60.00	-21.70
25.060	37.80	QP	Neutral	60.00	-22.20
23.270	37.80	QP	Neutral	60.00	-22.20
0.550	31.70	QP	Line	56.00	-24.30
0.550	21.70	AV	Line	46.00	-24.30
0.590	30.60	QP	Neutral	56.00	-25.40
0.590	20.20	AV	Neutral	46.00	-25.80
3.580	17.60	AV	Neutral	46.00	-28.40
3.580	27.30	QP	Neutral	56.00	-28.70

Plot(s) of Test Data

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

Conducted EMISSION Test
FCC Part 15

EUT: Game Console M/N:M1983
Manuf: Messiah
Op Cond: Transmitting
Operator: Jandy
Test Spec: AC 120V/60HZ L
Comment: Temp:25
 Humi:55%
Date: 20. Oct 05 13:48

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	30M	5k	9k	PK+AV	20ms	AUTO LN	OFF

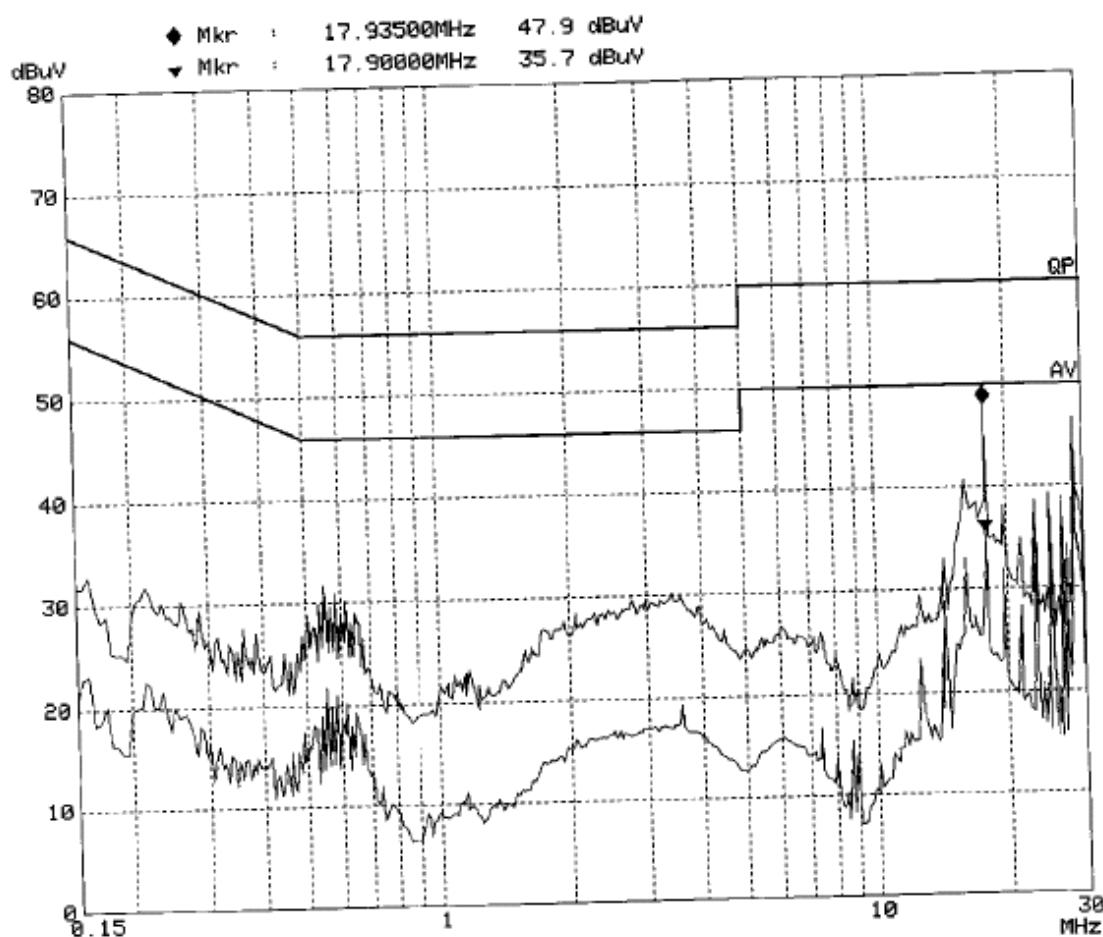
Transducer No.	Start	Stop	Name
1	9k	30M	FACTOR

Final Measurement: x QP / + AV

Meas Time: 1 s

Subranges: 25

Acc Margin: 6dB



**Conducted EMISSION Test
FCC Part 15**

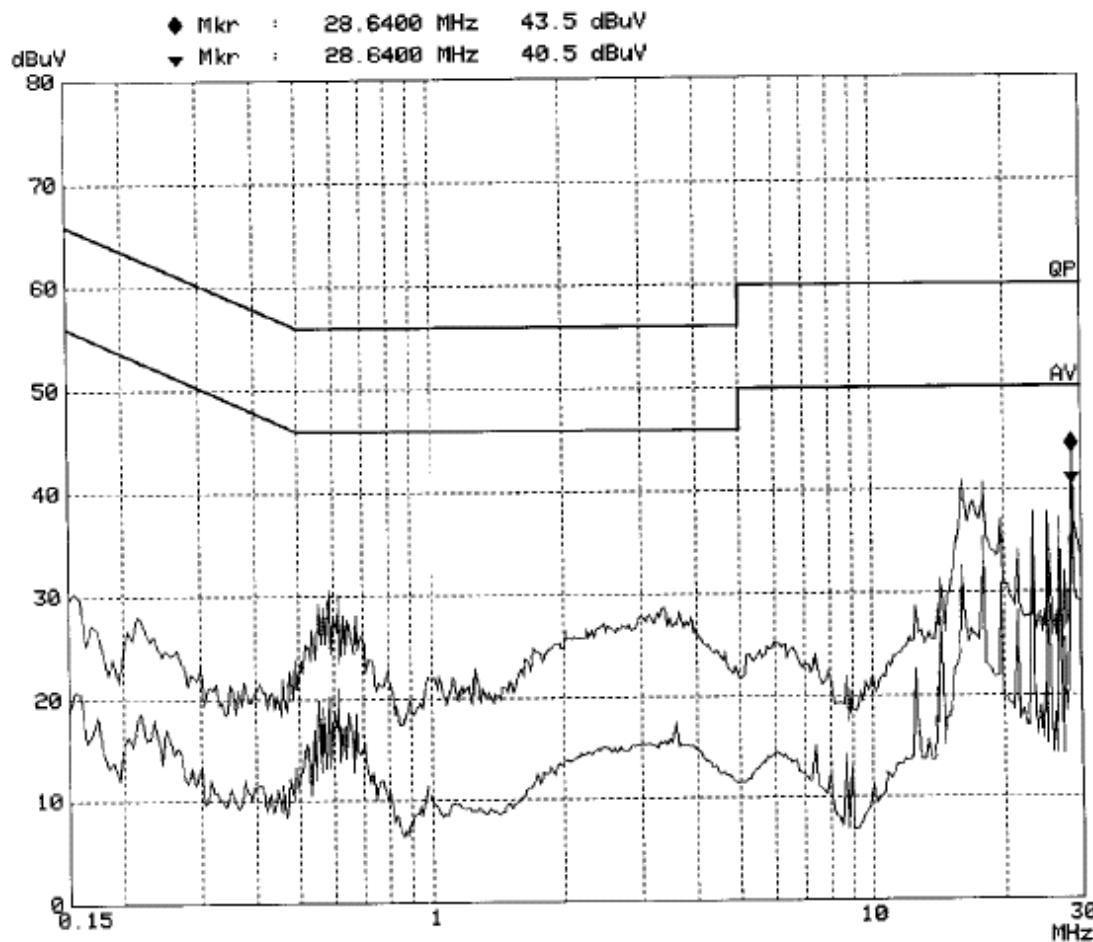
EUT: Game Console M/N:M1983
Manuf: Messiah
Op Cond: Transmitting
Operator: Jandy
Test Spec: AC 120V/60HZ N
Comment: Temp:25
 Humi:55%
Date: 20. Oct 05 13:31

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	30M	5k	9k	PK+AV	20ms	AUTO LN	OFF
Transducer No.	Start	Stop	Name				
1	9k	30M	FACTOR				

Final Measurement: x QP / + AV

Meas Time: 1 s
Subranges: 25
Acc Margin: 6dB



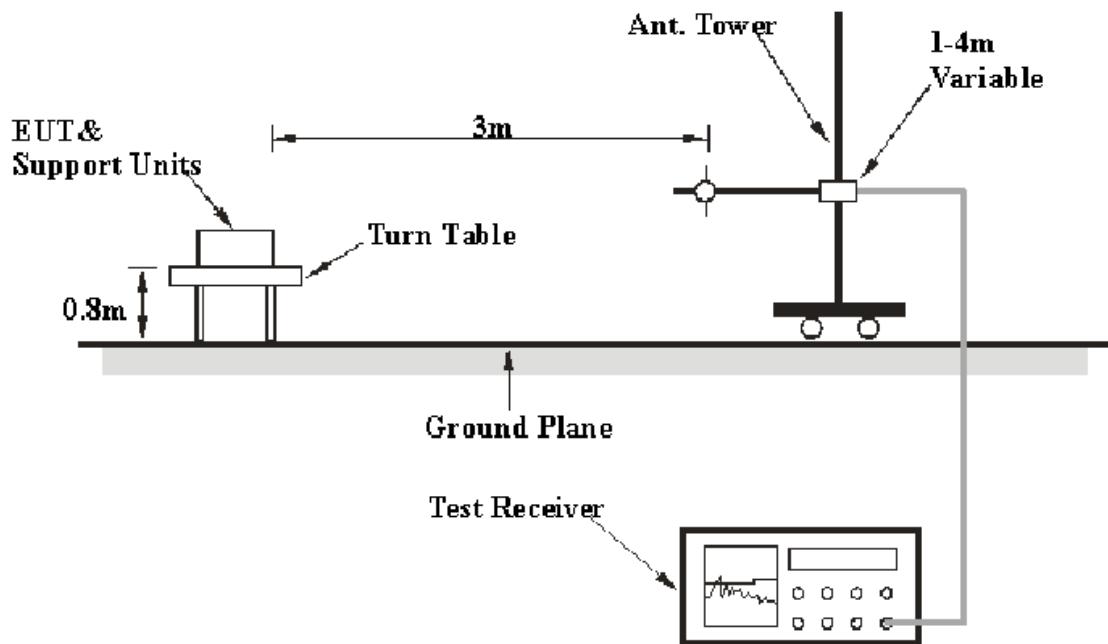
§15.205 §15.209(a) §15.249(a) - RADIATED EMISSION

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 Lab Corp. (ShenZhen) is ± 4.4 dB.

EUT Setup



The radiated emission tests were performed in the 3-meter 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.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 2500 MHz.

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

<u>Frequency Range</u>	<u>RBW</u>	<u>Video B/W</u>
30 – 1000 MHz	100 kHz	300 kHz
1000 MHz – 2500 MHz	1MHz	3 MHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447D	2944A09795	2005-8-17	2006-8-17
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2005-8-17	2006-8-17
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2005-4-28	2006-4-28

* **Statement of Traceability:** Bay Area Compliance Lab 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.

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

Corrected Amplitude & Margin Calculation

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

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

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 limit. The equation for margin calculation is as follows:

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

Test Results Summary

According to the data in the following table, the EUT complied with the [FCC Part 15.249](#), with the worst margin reading of:

1 GHz-25 GHz, Low channel: **-2.0 dB** at **4864.66 MHz** in the **Vertical** polarization.
 1 GHz-25 GHz, High channel: **-2.3 dB** at **4882.66 MHz** in the **Vertical** polarization.

Test Data

Environmental Conditions

Temperature:	28 °C
Relative Humidity:	37%
ATM Pressure:	1000mbar

The testing was performed by Jandy Su on 2005-10-13

Test mode: Transmitting

INDICATED		TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC PART 15.249			
Frequency	Meter Reading		Angle	Height	Polar	Antenna Loss	Cable Loss	Amplifier Gain	Corr. Ampl.	Limit	Margin	PK/AV
MHz	dB μ V/m	Degree	Meter	H/V	dB	dB	dB	dB μ V/m	dB μ V/m	dB	dB	
1GHz – 25GHz, Low Channel												
4864.66	48.43	180	1.2	V	31.2	4.9	32.5	52.0	54	-2.0*	AV (Harmonics)	
4864.66	46.20	180	1.2	H	31.2	4.9	32.5	49.8	54	-4.2	AV (Harmonics)	
9729.32	46.92	60	1.0	H	33.1	7.0	38.4	48.7	54	-5.3	AV (Harmonics)	
2432.33	83.83	45	1.2	H	29.4	3.4	30.0	86.6	94	-7.4	AV (Fundamental)	
9729.32	44.72	60	1.0	V	33.1	7.0	38.4	46.5	54	-7.5	AV (Harmonics)	
7296.99	42.80	45	1.2	H	32.4	6.0	37.2	44.0	54	-10.0	AV (Harmonics)	
7296.99	41.69	45	1.0	V	32.4	6.0	37.2	42.9	54	-11.1	AV (Harmonics)	
2432.33	79.61	45	1.0	V	29.4	3.4	30.0	82.4	94	-11.6	AV (Fundamental)	
4864.66	54.90	180	1.2	V	31.2	4.9	32.5	58.5	74	-15.5	PK (Harmonics)	
4864.66	54.23	180	1.2	H	31.2	4.9	32.5	57.8	74	-16.2	PK (Harmonics)	
7296.99	54.22	45	1.2	H	32.4	6.0	37.2	55.4	74	-18.6	PK (Harmonics)	
9729.32	53.66	60	1.0	H	33.1	7.0	38.4	55.4	74	-18.6	PK (Harmonics)	
9729.32	51.22	60	1.0	V	33.1	7.0	38.4	53.0	74	-21.0	PK (Harmonics)	
2432.33	88.60	45	1.2	H	29.4	3.4	30.0	91.4	114	-22.7	PK (Fundamental)	
7296.99	49.02	45	1.0	V	32.4	6.0	37.2	50.2	74	-23.8	PK (Harmonics)	
2432.33	81.00	45	1.0	V	29.4	3.4	30.0	83.8	114	-30.2	PK (Fundamental)	

* Measurement within uncertainty

Continues

INDICATED		TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC PART 15.249		
Frequency	Meter Reading	Angle	Height	Polar	Antenna Loss	Cable Loss	Amplifier Gain	Corr. Ampl.	Limit	Margin	PK/AV
MHz	dB μ V/m	Degree	Meter	H/V	dB	dB	dB	dB μ V/m	dB μ V/m	dB	dB
1GHz – 25GHz, High Channel											
4882.66	48.12	180	1.2	V	31.2	4.9	32.5	51.7	54	-2.3*	AV (Harmonics)
9765.32	47.88	60	1.0	V	33.1	7.0	38.4	49.6	54	-4.4	AV (Harmonics)
4882.66	45.94	180	1.2	H	31.2	4.9	32.5	49.6	54	-4.5	AV (Harmonics)
2441.33	85.70	45	1.1	H	29.4	3.4	30.0	88.5	94	-5.6	AV (Fundamental)
2441.33	80.27	45	1.0	V	29.4	3.4	30.0	83.0	94	-11.0	AV (Fundamental)
7323.99	41.08	45	1.0	V	32.4	6.0	37.2	42.3	54	-11.8	AV (Harmonics)
7323.99	40.42	45	1.2	H	32.4	6.0	37.2	41.6	54	-12.4	AV (Harmonics)
4882.66	57.30	180	1.2	V	31.2	4.9	32.5	60.9	74	-13.1	PK (Harmonics)
4882.66	52.83	180	1.1	H	31.2	4.9	32.5	56.4	74	-17.6	PK (Harmonics)
7323.99	53.00	45	1.1	H	32.4	6.0	37.2	54.2	74	-19.8	PK (Harmonics)
2441.33	89.74	45	1.1	H	29.4	3.4	30.0	92.5	114	-21.5	PK (Fundamental)
9765.32	48.88	60	1.0	V	33.1	7.0	38.4	50.6	74	-23.4	PK (Harmonics)
7323.99	48.24	45	1.0	V	32.4	6.0	37.2	49.4	74	-24.6	PK (Harmonics)
9765.32	27.01	60	1.0	H	33.1	7.0	38.4	28.8	54	-25.2	AV (Harmonics)
2441.33	84.32	45	1.0	V	29.4	3.4	30.0	87.1	114	-26.9	PK (Fundamental)
9765.32	40.81	60	1.0	H	33.1	7.0	38.4	42.6	74	-31.4	PK (Harmonics)

Note: The Spurious Emission below 1 GHz Compliance with FCC 15.209 and FCC 15.205 Limit.

* Measurement within uncertainty

§15.249(c) - BAND EDGES TESTING

Standard Applicable

Requirements: FCC 15.249 (c), the emission power at the START and STOP frequencies shall be at least 50 dB below the level of the fundamental or to the general radiated emission limits in FCC 15.209, whichever is the lesser attenuation.

Test Procedure

With the EUT's antenna attached, the EUT's radiated emission power was received by the test antenna which was connected to the spectrum analyzer with the START and STOP frequencies set to the EUT's operation band.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447D	2944A09795	2005-8-17	2006-8-17
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2005-8-17	2006-8-17
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2005-4-28	2006-4-28

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

Test Data

Environmental Conditions

Temperature:	20 °C
Relative Humidity:	55%
ATM Pressure:	1000mbar

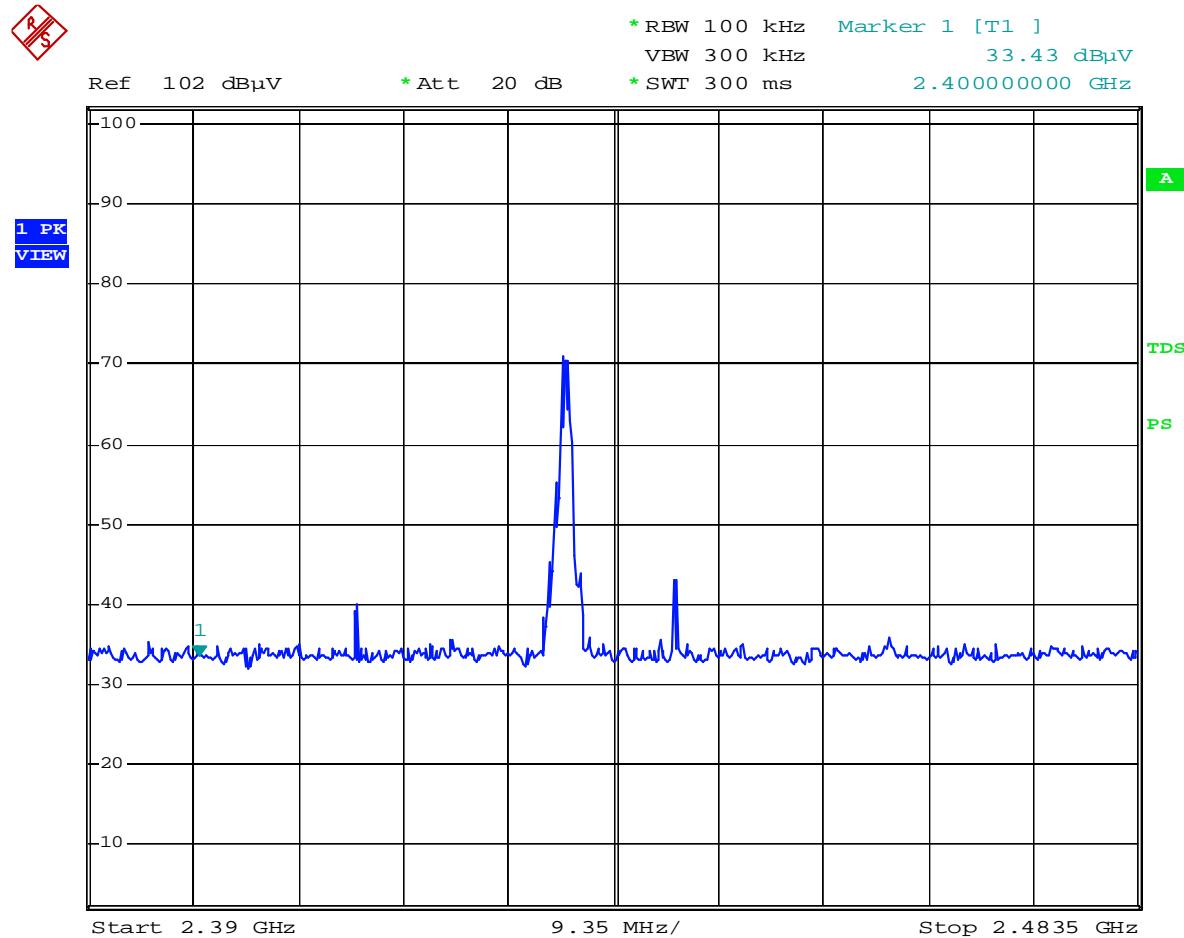
The testing was performed by Jandy Su on 2005-10-13

The result has been complied with the 15.249(c), see the following plot:

Frequency (MHz)	Emission (dBuV/m)	Limit (dBuV/m)
2400.0	33.43	54
2438.5	34.55	54

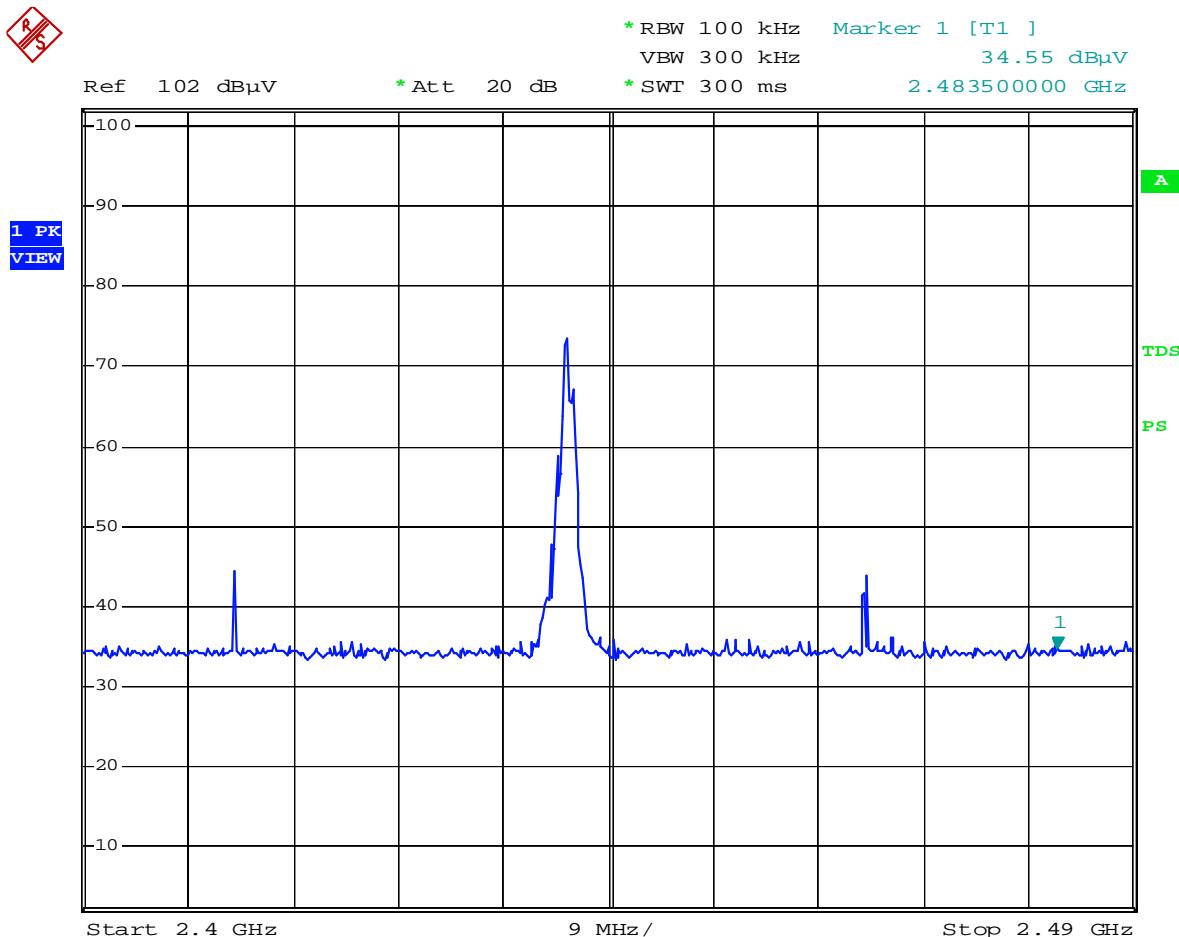
Test Result: Pass

Low Channel



Bandedge Low Channel

High Channel



Bandedge High Channel