



FCC PART 15B, CLASS B

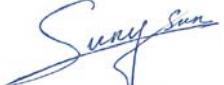
TEST REPORT

For

HONG KONG IPRO TECHNOLOGY CO., LIMITED

ROOM C1D, 6/F, WING HING INDUSTRIAL BUILDING,
14 HING YIP STREET, KWUN TONG, KOWLOON, HONG KONG

FCC ID: PQ4IPROI5230

Report Type: Original Report	Product Type: GSM Mobile Phone
	
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Report Number: <u>RSZ120829002-00A</u>	
Report Date: <u>2012-09-18</u>	
 Reviewed By: <u>EMC Engineer</u>	
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* This report may contain data that are not covered by the NVLAP accreditation and shall be marked with an asterisk “★”

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *HONG KONG IPRO TECHNOLOGY CO., LIMITED*'s product, model number: *I5230 (FCC ID: PQ4IPROI5230)* or the "EUT" in this report was a *GSM Mobile Phone*, which was measured approximately: 10.7 cm (L) x 5.8 cm (W) x 1.5 cm (H), rated input voltage: DC 3.7 V Li-ion battery or DC 5V charging from adapter. The highest Operating Frequency is 104 MHz.

Adapter Information: Travel Charger

Model: TC-01;

Input: AC 100-240V 50/60Hz 150mA;

Output: DC 5.0V 500mA.

** All measurement and test data in this report was gathered from production sample serial number: IPROI5230003003 (Assigned by BACL, Shenzhen). The EUT was received on 2012-08-29.*

Objective

This test report is prepared on behalf of *HONG KONG IPRO TECHNOLOGY CO., LIMITED* in accordance with Part 2-Subpart J, Part 15-Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to determine the compliance of the EUT with FCC Part 15 B.

Related Submittal(s)/Grant(s)

Part 22H/24E PCE and Part 15.247 DSS submissions with FCC ID: PQ4IPROI5230.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on 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 December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

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 an ISO/IEC 17025 accredited laboratory, and is accredited by 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

Description of Test Configuration

The system was configured for testing in a manufacturer testing fashion.

Test mode 1: Charging

Test mode 2: Downloading (data transmitting with computer)

EUT Exercise Software

N/A

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

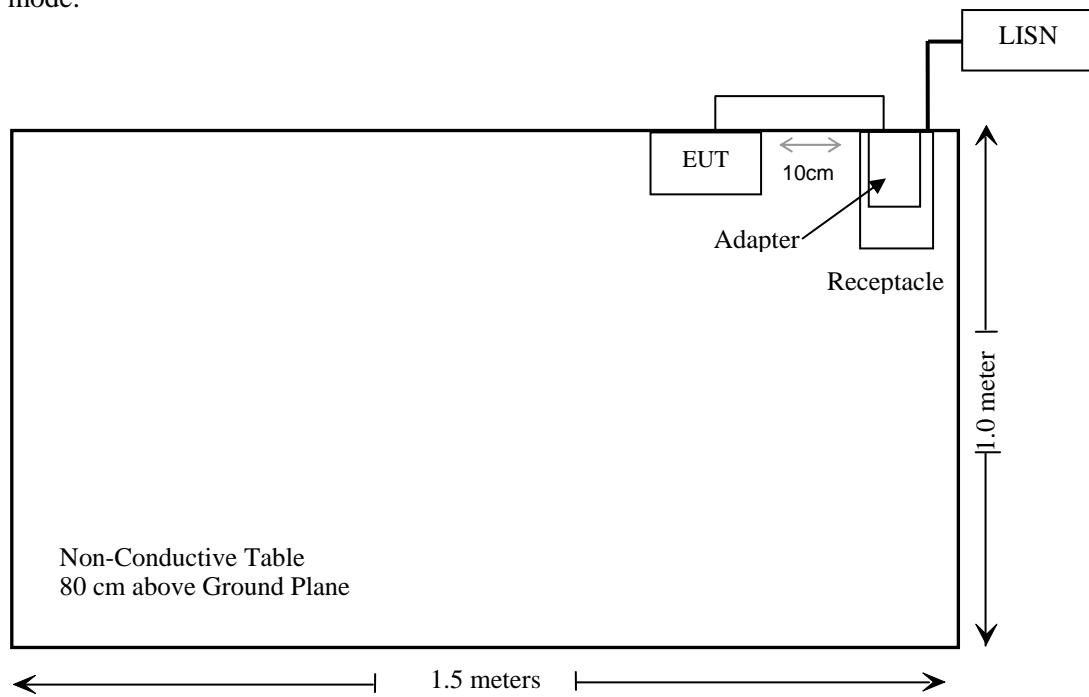
Manufacturer	Description	Model	Serial Number
DELL	PC	VOSTRO 220S	127BP2X
DELL	Keyboard	L100	CNORH656658907BL05DC
DELL	Mouse	MOC5UO	G1900NKD
DELL	LCD Monitor	E178WFPC	CN-OWY564-64180-7C4-2SQH
SAST	Modem	AEM-2100	0293

External I/O Cable

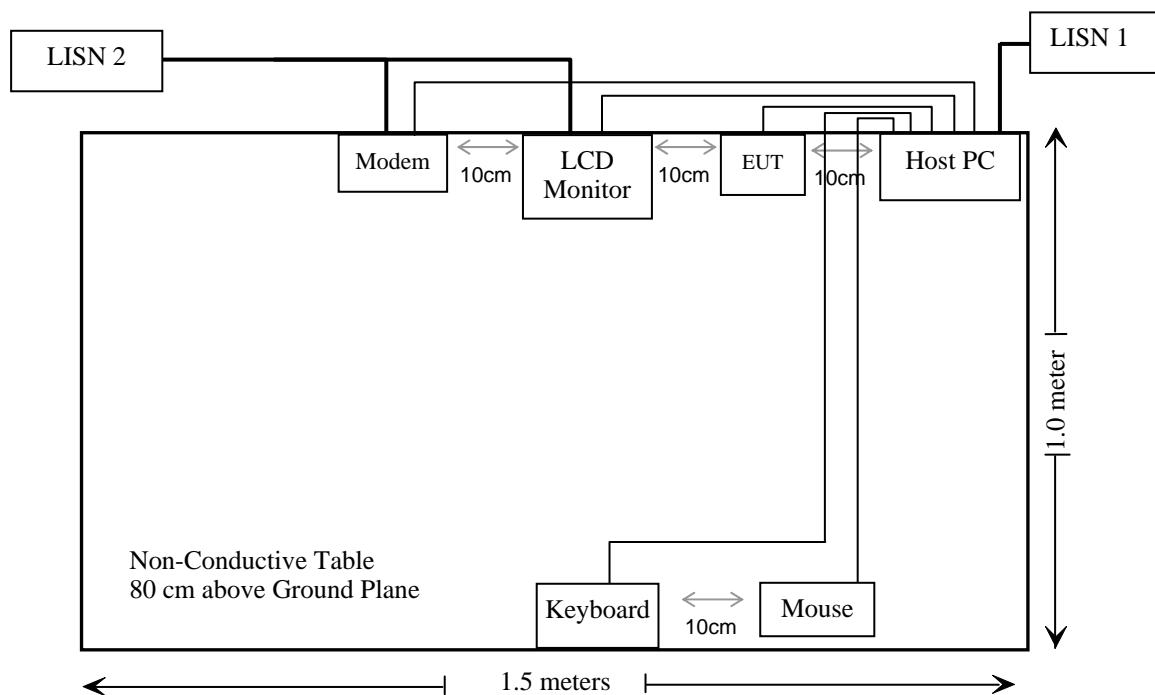
Cable Description	Length (m)	From/Port	To
Shielded Detachable USB Cable	1.5	Host PC	Mouse
Shielded Detachable Serial Cable	1.2	Host PC	Modem
Shielded Detachable K/B Cable	1.5	Host PC	Keyboard
Shielded Detachable VGA Cable	1.5	Host PC	LCD Monitor
Unshielded Detachable USB Cable	1.0	EUT	Host PC

Block Diagram of Test Setup

Charging mode:



Downloading mode:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	AC Line Conducted Emissions	Compliance
§15.109	Radiated Spurious Emissions	Compliance

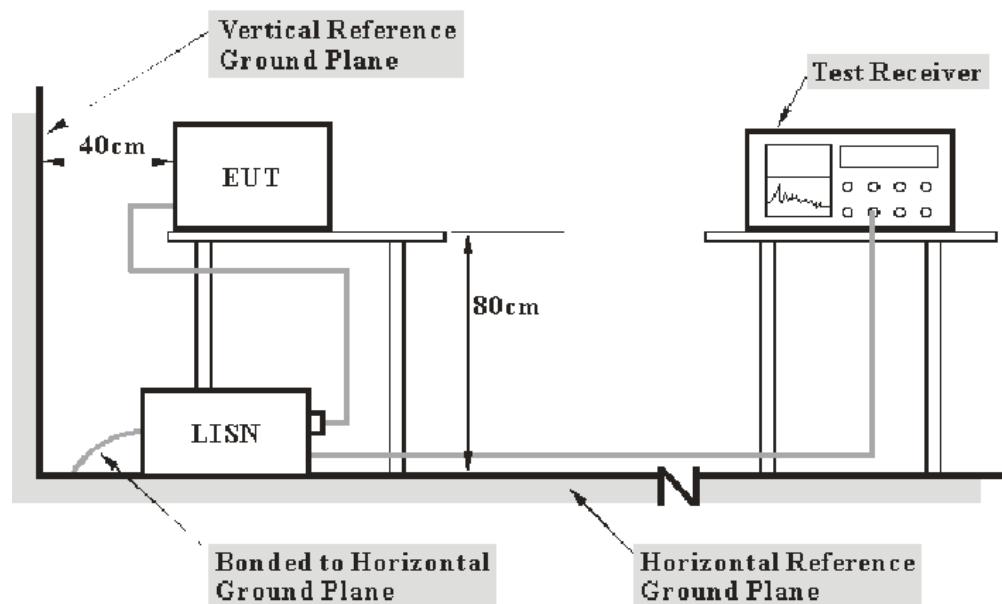
FCC §15.107 – AC LINE CONDUCTED EMISSIONS

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 CISPR 16-4-2, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is 2.4 dB.(k=2, 95% level of confidence), and the uncertainty will not be taken into consideration for all the test data recorded in the report.

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMIN) 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 C63.4-2009 measurement procedure. The specification used was with the FCC Part 15.107 Class B limits.

The spacing between the peripherals was 10 cm.

For charging mode, the adapter was connected to a 120 VAC/60 Hz power source.

For downloading mode, the host PC was connected to a 120 VAC/60 Hz power source.

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:

<u>Frequency Range</u>	<u>IF B/W</u>
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, for charging mode, the adaptor was connected to the outlet of LISN; for downloading mode, the host PC was connected to the outlet of the first LISN, and the other relevant equipments were connected to the second 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 Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	100176	2011-11-24	2012-11-23
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2011-11-17	2012-11-16
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	Pulse limiter	ESH3Z2	DE25985	2012-07-08	2013-07-07
BACL	CE Test software	BACL-CE	V1.0	-	-

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

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.107, with the worst margin reading of:

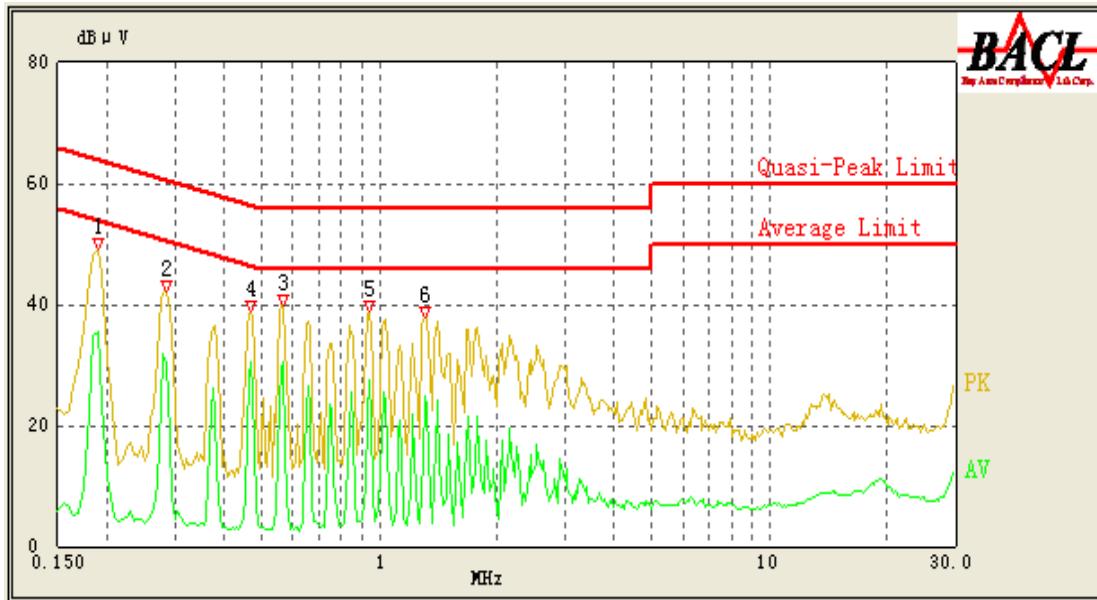
9.28 dB at 9.255 MHz in the Line conducted mode

Test Data

Environmental Conditions

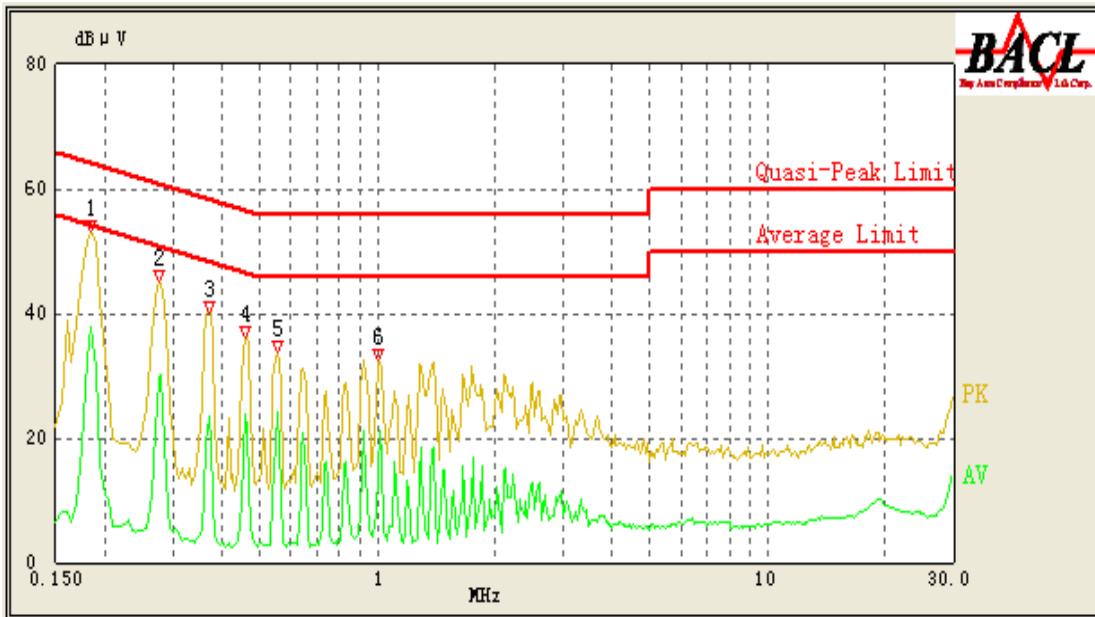
Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Jimmy Xiao on 2012-08-31.

*EUT Operation Mode: Charging***AC 120V/60 Hz, Line**

Frequency (MHz)	Corrected Amplitude (dB μ V)	Correction Factor (dB)	Limit (dB μ V)	Margin (dB)	Detector (PK/Ave./QP)
0.565	30.55	10.24	46.00	15.45	AV
0.470	30.47	10.26	46.86	16.39	AV
0.940	27.59	10.18	46.00	18.41	AV
0.190	35.46	10.27	54.86	19.40	AV
0.190	44.57	10.27	64.86	20.29	QP
0.565	35.51	10.24	56.00	20.49	QP
1.310	24.76	10.18	46.00	21.24	AV
0.285	30.47	10.26	52.14	21.67	AV
0.470	34.35	10.26	56.86	22.51	QP
0.945	33.10	10.18	56.00	22.90	QP
1.315	32.48	10.18	56.00	23.52	QP
0.285	38.12	10.26	62.14	24.02	QP

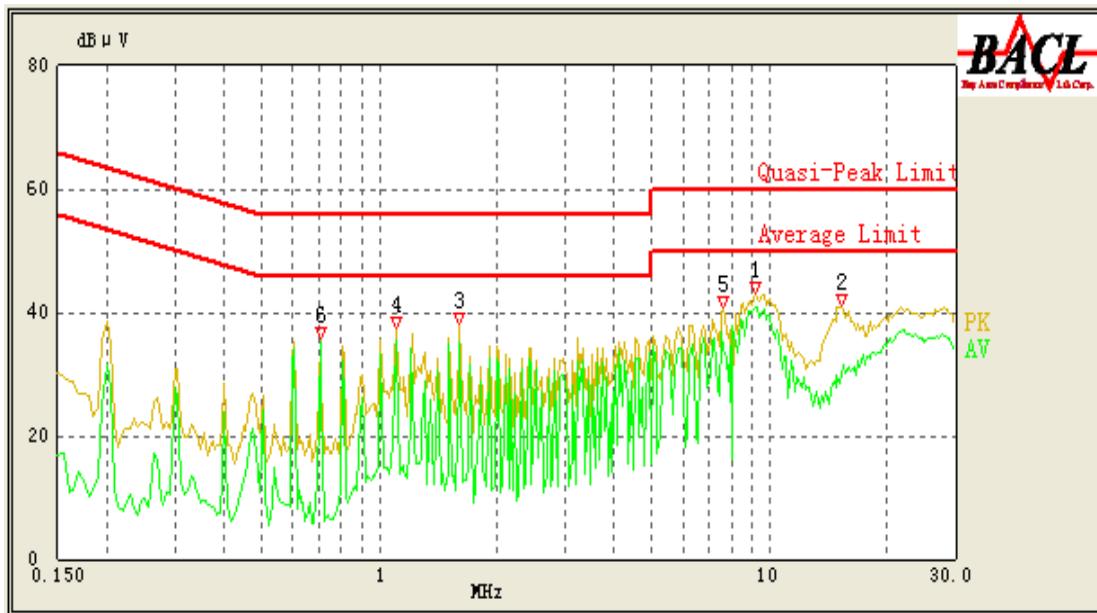
AC 120V/60 Hz, Neutral



Frequency (MHz)	Corrected Amplitude (dB μ V)	Correction Factor (dB)	Limit (dB μ V)	Margin (dB)	Detector (PK/Ave./QP)
0.185	37.81	10.24	55.00	17.19	Ave.
0.185	45.43	10.24	65.00	19.57	QP
0.555	24.02	10.23	46.00	21.98	Ave.
0.275	29.61	10.25	52.43	22.82	Ave.
0.460	23.98	10.25	47.14	23.16	Ave.
0.275	38.84	10.25	62.43	23.59	QP
0.370	34.82	10.25	59.71	24.89	QP
1.015	21.01	10.17	46.00	24.99	Ave.
0.370	23.64	10.25	49.71	26.07	Ave.
0.460	30.51	10.25	57.14	26.63	QP
0.555	29.12	10.23	56.00	26.88	QP
1.005	23.37	10.17	56.00	32.63	QP

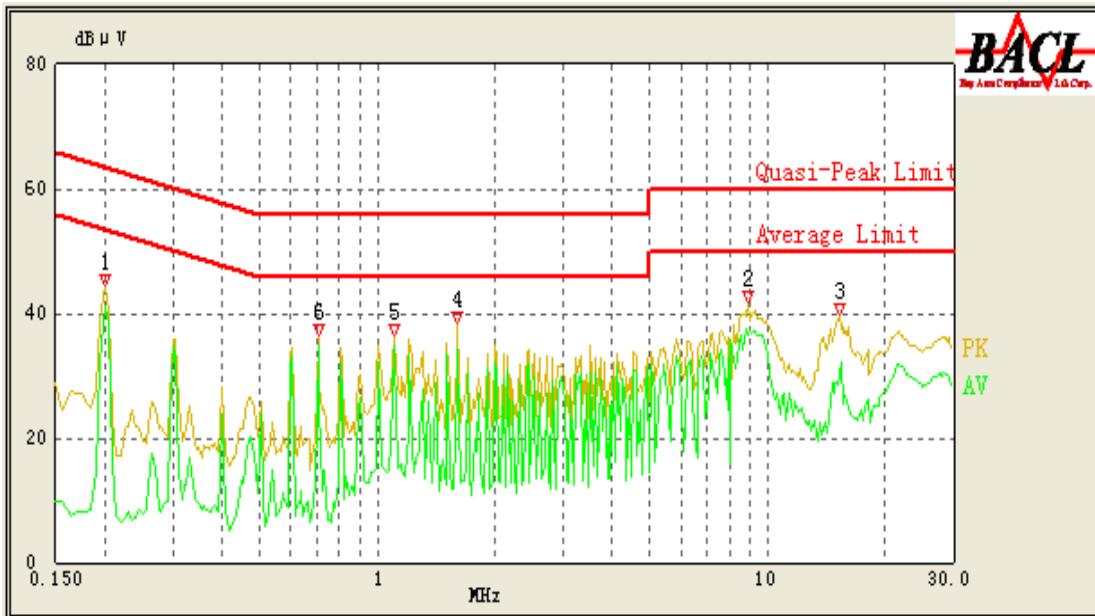
EUT Operation Mode: Downloading (data transmitting with Computer)

AC 120V/60 Hz, Line



Frequency (MHz)	Corrected Amplitude (dB μ V)	Correction Factor (dB)	Limit (dB μ V)	Margin (dB)	Detector (PK/Ave./QP)
9.255	40.72	10.46	50.00	9.28	Ave.
1.105	35.47	10.17	46.00	10.53	Ave.
0.705	35.07	10.22	46.00	10.93	Ave.
1.610	35.05	10.19	46.00	10.95	Ave.
7.645	34.30	10.40	50.00	15.70	Ave.
9.250	42.19	10.46	60.00	17.81	QP
15.410	31.45	11.44	50.00	18.55	Ave.
1.105	35.85	10.17	56.00	20.15	QP
0.705	35.75	10.22	56.00	20.25	QP
1.610	35.73	10.19	56.00	20.27	QP
7.645	37.13	10.40	60.00	22.87	QP
15.300	36.81	11.41	60.00	23.19	QP

AC 120V/60 Hz, Neutral



Frequency (MHz)	Corrected Amplitude (dB μ V)	Correction Factor (dB)	Limit (dB μ V)	Margin (dB)	Detector (PK/Ave./QP)
0.705	34.82	10.21	46.00	11.18	Ave.
1.105	34.75	10.17	46.00	11.25	Ave.
1.610	34.16	10.19	46.00	11.84	Ave.
0.200	41.18	10.24	54.57	13.39	Ave.
8.955	36.50	10.45	50.00	13.50	Ave.
8.955	40.08	10.45	60.00	19.92	QP
1.105	35.61	10.17	56.00	20.39	QP
0.705	35.61	10.21	56.00	20.39	QP
1.610	34.62	10.19	56.00	21.38	QP
15.135	28.54	11.28	50.00	21.46	AV
0.200	42.27	10.24	64.57	22.30	QP
15.235	35.03	11.30	60.00	24.97	QP

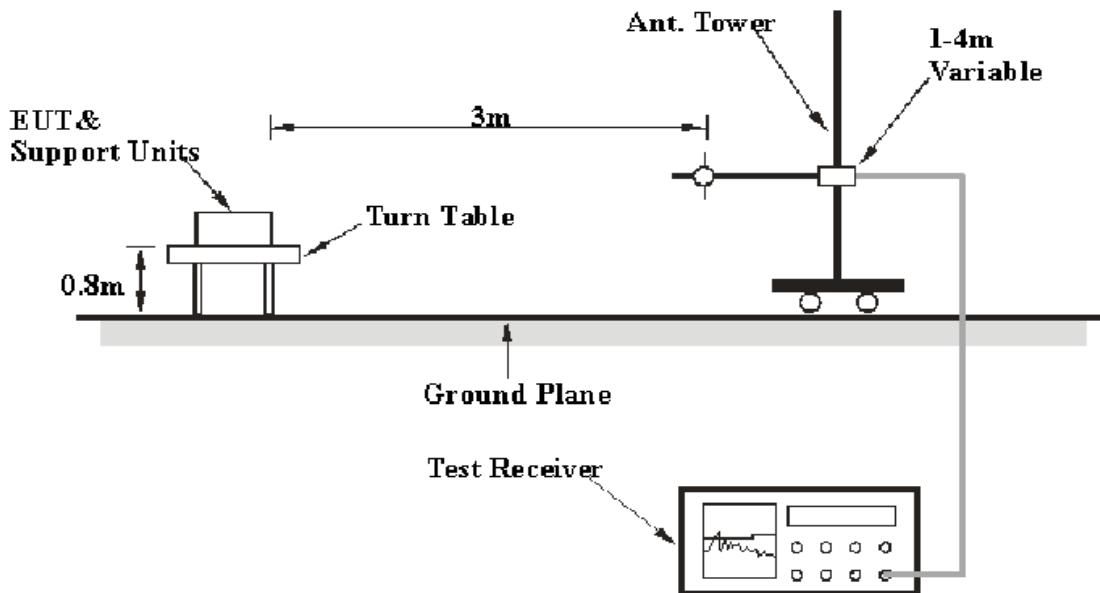
FCC §15.109 - RADIATED SPURIOUS EMISSIONS

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, 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 CISPR 16-4-2, the Treatment of Uncertainty in EMC Measurements, the estimation of the uncertainty of radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is 4.0 dB. (k=2, 95% level of confidence), and the uncertainty will not be taken into consideration for all the test data recorded in the report.

EUT Setup



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC Part 15.109 Class B 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 10cm.

For charging mode, the adapter was connected to a 120 VAC/60 Hz power source.

For downloading mode, the host PC was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 1000 MHz.

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

Frequency	RB/W	VB/W	IF B/W	Detection
30 MHz-1 GHz	100 kHz	300 kHz	120 kHz	Quasi-peak

Test Procedure

For the radiated emissions test, the host PC and relevant equipments were connected to AC floor outlet for downloading mode.

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

All the data was recorded in the Quasi-peak detection mode from 30 MHz to 1 GHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447E	1937A01046	2011-11-24	2012-11-23
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2011-11-17	2012-11-16
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2012-11-27
R&S	Auto test Software	EMC32	V6.30	-	-

* **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.

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 7 dB 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 §15.109 Class B, with the worst margin reading of:

3.4 dB at 156.01 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 Jimmy Xiao on 2012-09-05.

EUT Operation Mode: Charging

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna			Cable Loss (dB)	Amp. Gain (dB)	Cord. Amp. (dB μ V/m)	FCC Part 15B	
	Reading (dB μ V/m)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dB μ V/m)	Margin (dB)
156.01	54.02	QP	228.0	2.5	H	12.3	0.28	26.50	40.1	43.5	3.4*
42.1	48.94	QP	79.0	1.1	V	12.4	0.26	26.50	35.1	40.0	4.9
53.91	53.64	QP	0.0	1.1	V	7.3	0.26	26.50	34.7	40.0	5.3
288.1	50.24	QP	202.0	1.5	V	13.1	0.36	26.50	37.2	46.0	8.8
168.1	49.00	QP	241.0	2.4	H	11.8	0.30	26.50	34.6	43.5	8.9
144.11	45.73	QP	0.0	1.1	V	12.9	0.27	26.50	32.4	43.5	11.1

*Within measurement uncertainty.

EUT Operation Mode: Downloading (data transmits with Computer)

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna			Cable Loss (dB)	Amp. Gain (dB)	Cord. Amp. (dB μ V/m)	FCC Part 15B	
	Reading (dB μ V/m)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dB μ V/m)	Margin (dB)
30.6	37.94	QP	125	1.1	V	21.5	0.26	26.50	33.2	40.0	6.8
36.8	34.34	QP	115	1.1	V	15.3	0.26	26.50	23.4	40.0	16.6
48.7	38.04	QP	51	1.1	V	8.9	0.26	26.50	20.7	40.0	19.3
54.4	39.14	QP	50	1.1	V	7.3	0.26	26.50	20.2	40.0	19.8

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