



FCC PART 15B, CLASS B

MEASUREMENT AND TEST REPORT

For

SALAZAR QUINTERO JOHN RICHARD

CRA 4 No 14 69 OF. 304 EDF. PLANETARIO CALI. COLOMBIA

FCC ID: A2VVS20

Report Type: Original Report	Product Type: GSM Mobile Phone
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Report Number: <u>RSZ111110001-00C</u>	
Report Date: <u>2011-12-22</u>	
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* This report contains data that are not covered by the NVLAP accreditation and are marked with an asterisk “★” (Rev.2)

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *SALAZAR QUINTERO JOHN RICHARD*'s product, model number: VS20 (FCC ID: A2VVS20) (the "EUT") in this report was a *Mobile Phone*, which was measured approximately: 103 mm (W) x 43.5 mm (D) x 14.5 mm (H), rated input voltage: DC 3.7V Lithium battery or DC 5.0V from adapter for charging. The highest EUT operating frequency is 80 MHz.

Adapter Information:

Manufacturer: shenzhen BaiJunDa Electronic CO., LTD.

Model: UB698

Input: 100-240V~50/60 Hz

Output: 5.0V 500mA

** All measurement and test data in this report was gathered from production sample serial number: 1111017 (Assigned by BACL, Shenzhen). The EUT was received on 2011-11-10.*

Objective

This report is prepared on behalf of *SALAZAR QUINTERO JOHN RICHARD* 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 EUT with FCC Part 15B, Class B.

Related Submittal(s)/Grant(s)

FCC Part 15.247 DSS, Part 22H&24E PCE submissions with FCC ID: A2VVS20

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 typical mode which is provided by manufacturer.

EUT Exercise Software

Winthraw.exercise software was provided by BACL

Equipment Modifications

No modification was made to the EUT tested.

Local Support Equipment List and Details

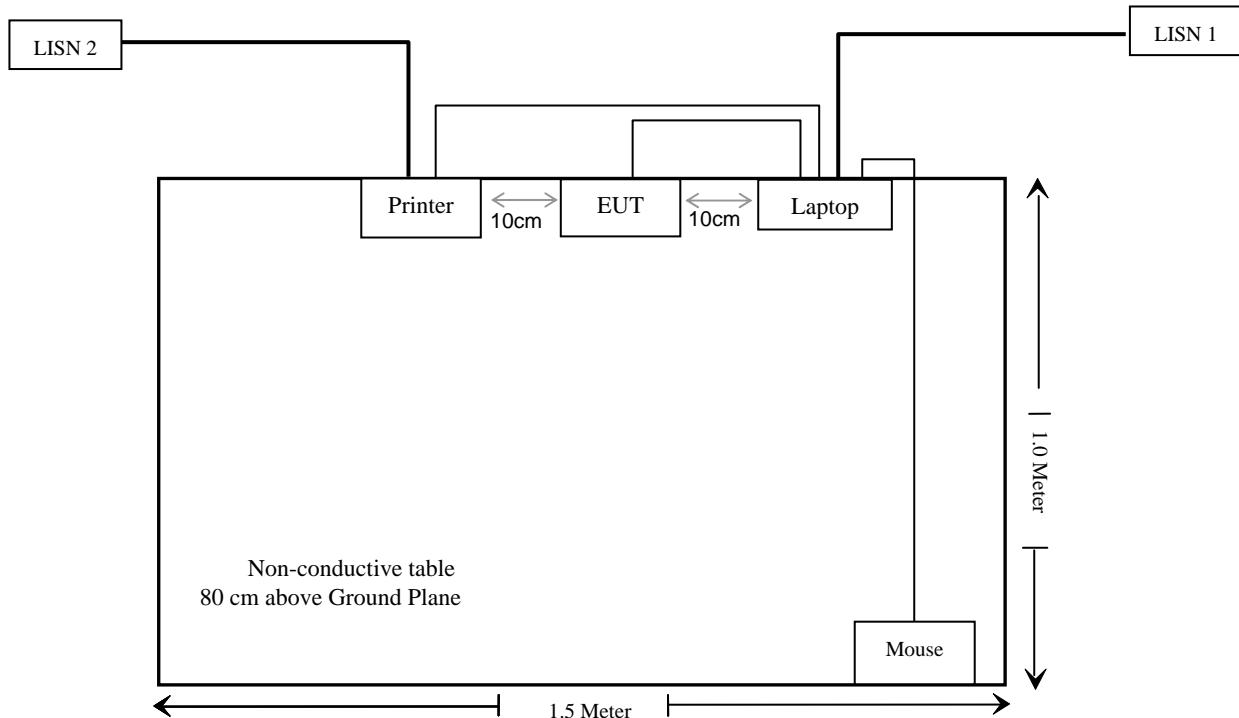
Manufacturer	Description	Model	Serial Number
DELL	Laptop	D600	85RF831
HP	Laser Jet5L	C3941A	JPTVOB2337
DELL	Mouse	MOC5UO	G1B0096D

External I/O Cable

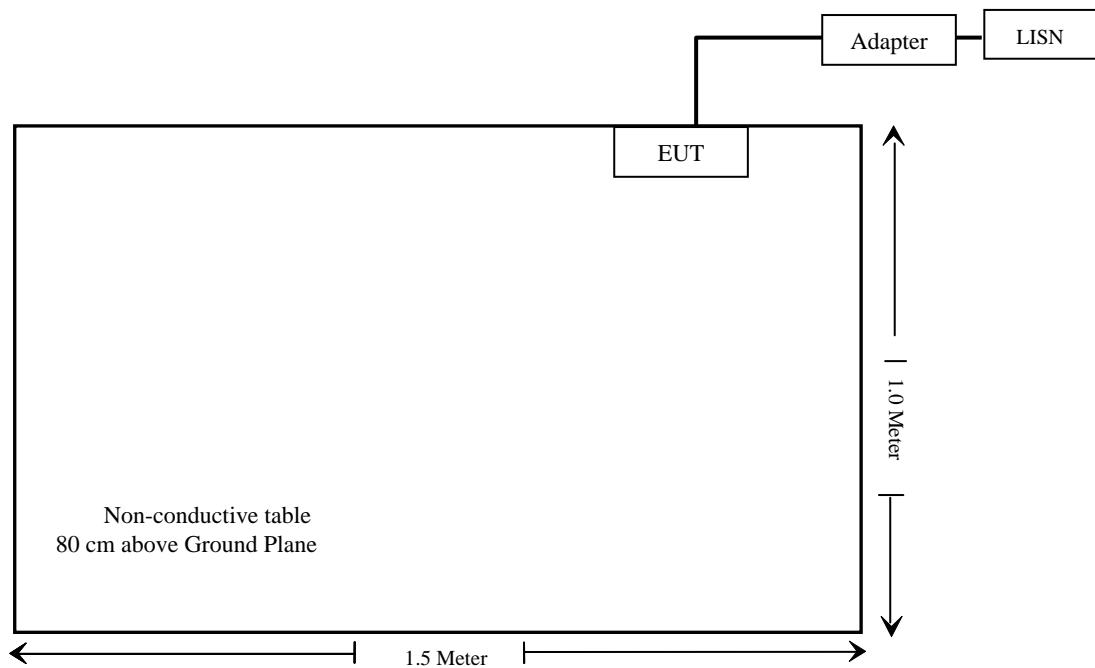
Cable Description	Length (m)	From/Port	To
Unshielded Detachable Mouse Cable	1.5	Laptop	Mouse
Shielded Detachable Printer Cable	1.8	Laptop	Printer
Unshielded Detachable USB Cable	1.2	EUT	Laptop

Block Diagram of Test Setup

For Downloading mode



For Charging & Multimedia playing mode



SUMMARY OF TEST RESULTS

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

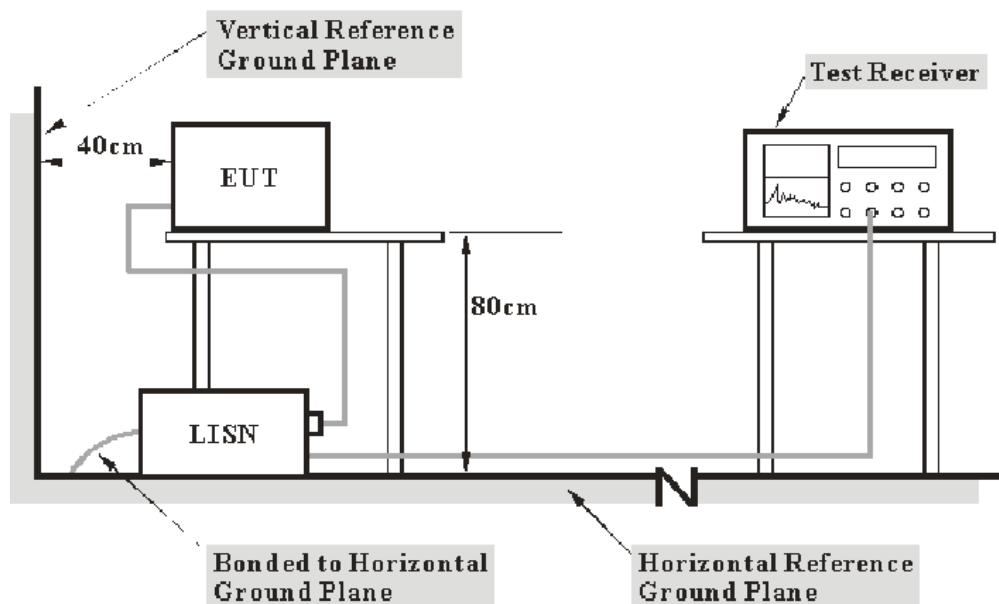
FCC §15.107 – AC LINE CONDUCTED EMISSIONS

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)

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 C63.4-2009 measurement procedure. The specification used was with the FCC Part 15.107 Class B limits.

The spacing between the peripherals was 10 cm.

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

For charging&Multimedia playing mode, the adapter of EUT 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 Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2011-03-03	2012-03-02
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2011-03-09	2012-03-08

* **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 Procedure

During the conducted emission test, for downloading mode, the Laptop was connected to the outlet of the first LISN, and the printer was connected to the outlet of the second LISN; For charging&multimedia playing mode, 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 15.107](#), with the worst margin reading of:

6.95 dB at 2.410 MHz in the **Neutral** conducted mode for charging & Multimedia playing mode

Test Data

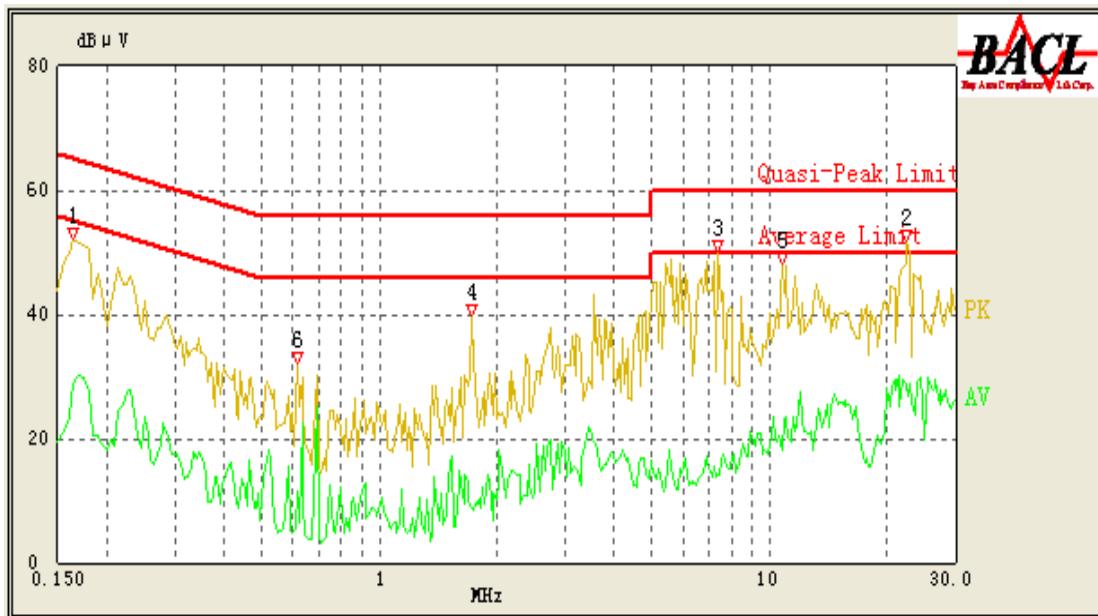
Environmental Conditions

Temperature:	25 °C
Relative Humidity:	48 %
ATM Pressure:	100.0 kPa

The testing was performed by Tiger Ye on 2011-12-01.

EUT Operation Mode: Downloading

AC 120V/60 Hz, Line



Frequency (MHz)	Corrected Amplitude (dB μ V)	Correction Factor (dB)	Limit (dB μ V)	Margin (dB)	Detector (PK/QP/Ave.)
22.450	46.02	11.88	60.00	13.98	QP
7.395	46.02	10.77	60.00	13.98	QP
0.165	46.02	10.23	65.57	19.55	QP
22.605	26.71	11.90	50.00	23.29	Ave.
0.615	30.19	10.23	56.00	25.81	QP
0.165	28.76	10.23	55.57	26.81	Ave.
10.780	30.19	11.03	60.00	29.81	QP
10.740	18.26	11.03	50.00	31.74	Ave.
0.615	11.48	10.23	46.00	34.52	Ave.
7.425	14.33	10.77	50.00	35.67	Ave.
1.735	8.63	10.31	46.00	37.37	Ave.
1.720	16.26	10.30	56.00	39.74	QP

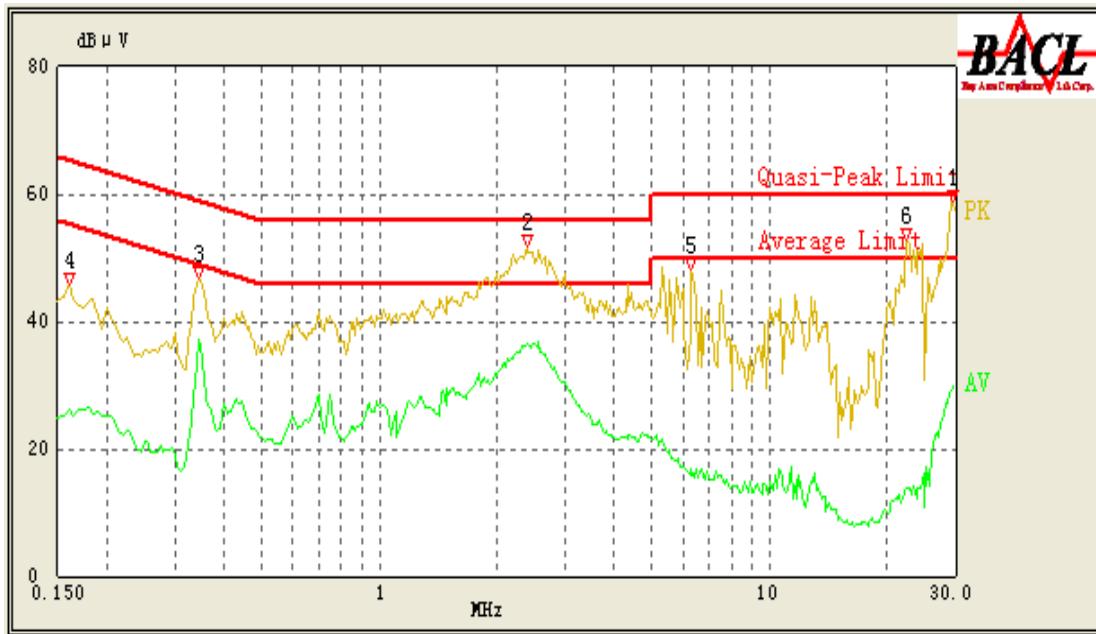
AC 120V/60 Hz, Neutral



Frequency (MHz)	Corrected Amplitude (dB μ V)	Correction Factor (dB)	Limit (dB μ V)	Margin (dB)	Detector (PK/QP/Ave.)
22.350	30.66	11.86	50.00	19.34	Ave.
0.165	45.90	10.23	65.57	19.67	QP
22.265	37.40	11.85	60.00	22.60	QP
0.165	31.61	10.23	55.57	23.96	Ave.
11.635	19.65	11.12	50.00	30.35	Ave.
0.625	14.96	10.23	46.00	31.04	Ave.
3.665	13.30	10.48	46.00	32.70	Ave.
0.620	22.92	10.23	56.00	33.08	QP
6.425	13.99	10.70	50.00	36.01	Ave.
11.710	21.22	11.12	60.00	38.78	QP
3.670	16.49	10.48	56.00	39.51	QP
6.425	17.40	10.70	60.00	42.60	QP

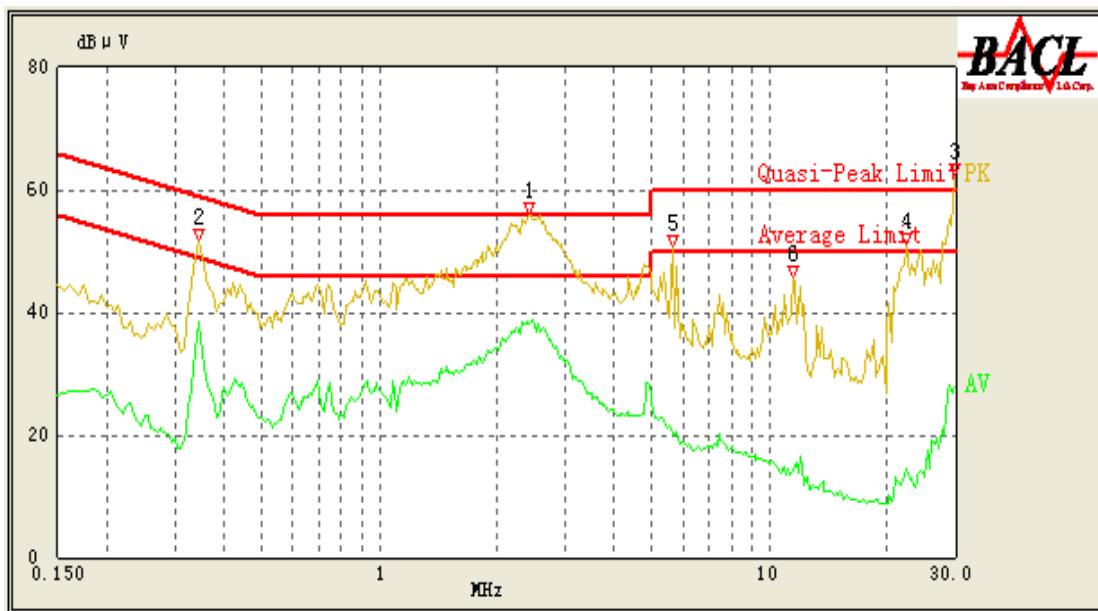
EUT Operation Mode: Charging & multimedia playing

AC 120V/60 Hz, Line



Frequency (MHz)	Corrected Amplitude (dB μ V)	Correction Factor (dB)	Limit (dB μ V)	Margin (dB)	Detector (PK/QP/Ave.)
2.385	36.38	10.36	46.00	9.62	Ave.
2.385	45.39	10.36	56.00	10.61	QP
0.345	37.30	10.23	50.43	13.13	Ave.
0.345	43.09	10.23	60.43	17.34	QP
29.235	29.15	13.09	50.00	20.85	Ave.
0.160	37.12	10.23	65.71	28.59	QP
29.520	30.42	13.14	60.00	29.58	QP
0.160	26.11	10.23	55.71	29.60	Ave.
6.310	16.81	10.69	50.00	33.19	Ave.
6.310	24.06	10.69	60.00	35.94	QP
22.445	13.71	11.88	50.00	36.29	Ave.
22.495	22.48	11.88	60.00	37.52	QP

AC 120V/60 Hz, Neutral



Frequency (MHz)	Corrected Amplitude (dB μ V)	Correction Factor (dB)	Limit (dB μ V)	Margin (dB)	Detector (PK/QP/Ave.)
2.410	49.05	10.37	56.00	6.95	QP
2.390	38.64	10.37	46.00	7.36	Ave.
0.345	38.65	10.23	50.43	11.78	Ave.
0.345	47.71	10.23	60.43	12.72	QP
29.725	28.01	13.18	50.00	21.99	Ave.
29.725	37.14	13.18	60.00	22.86	QP
22.535	37.14	11.89	60.00	22.86	QP
5.620	21.13	10.64	50.00	28.87	Ave.
5.640	30.39	10.65	60.00	29.61	QP
22.535	14.65	11.89	50.00	35.35	Ave.
11.505	14.11	11.10	50.00	35.89	Ave.
11.505	21.76	11.10	60.00	38.24	QP

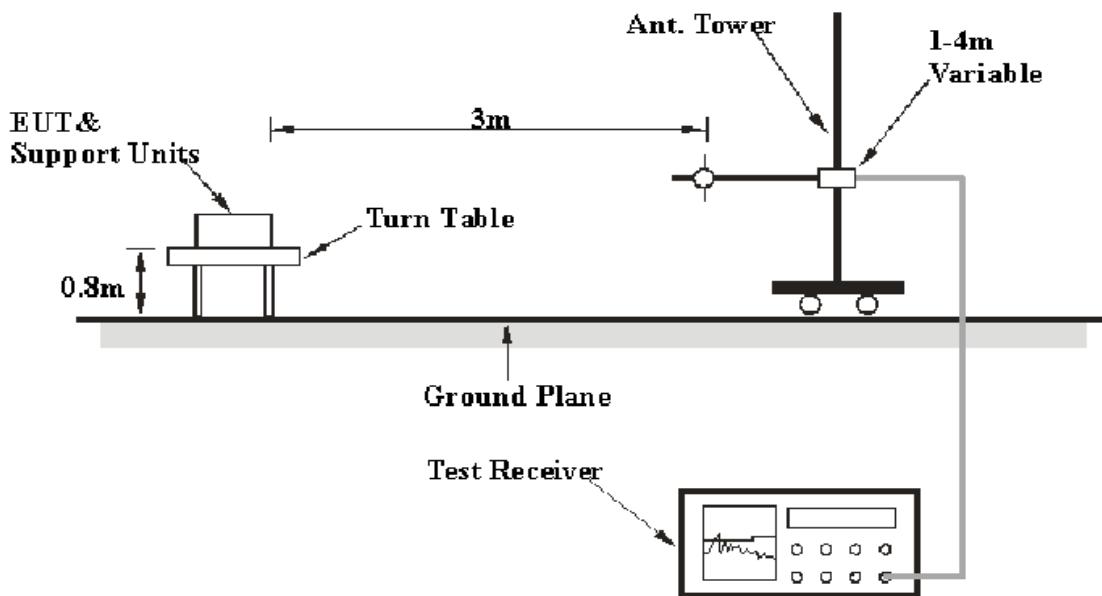
FCC §15.109 - RADIATED EMISSIONS

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 best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is ± 4.0 dB. ($k=2$, 95% level of confidence)

EUT Setup



The radiated emission tests were performed in the 3 meters 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 10 cm.

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

For Multimedia playing mode, the EUT was powered by battery connecting with earphone.

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:

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

Test Procedure

During the radiated emissions test, for downloading mode, the Laptop and the printer were connected to AC floor outlet; For multimedia playing mode, the EUT was powered by battery connecting with earphone.

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 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	2011-08-02	2012-08-02
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2011-11-11	2012-11-10
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-07-05	2012-07-04

* **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 Loss and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

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

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 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:

5.5 dB at 30.001750 MHz in the Vertical polarization

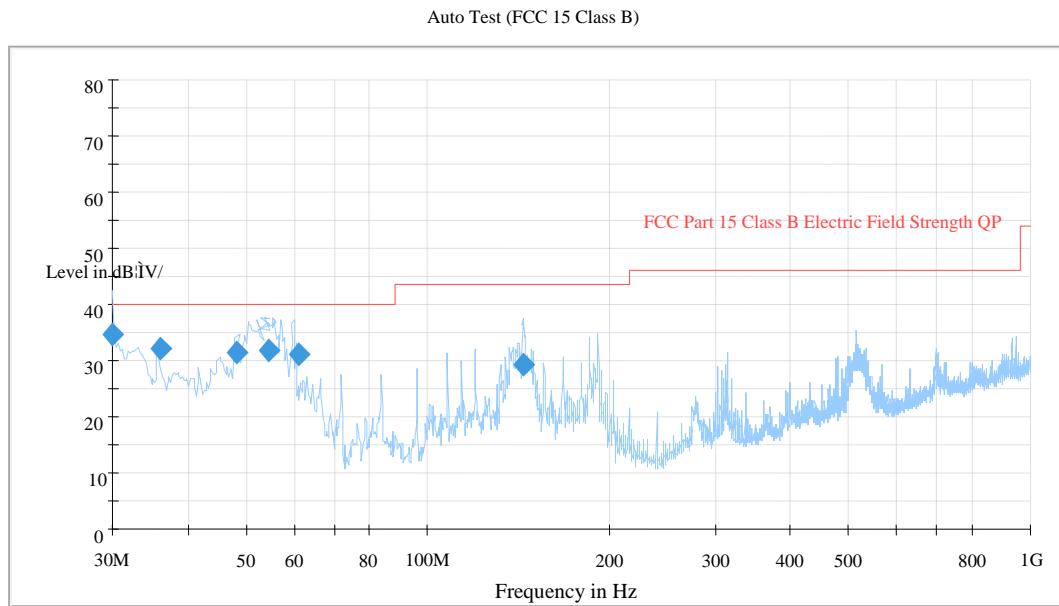
Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	48 %
ATM Pressure:	100.0 kPa

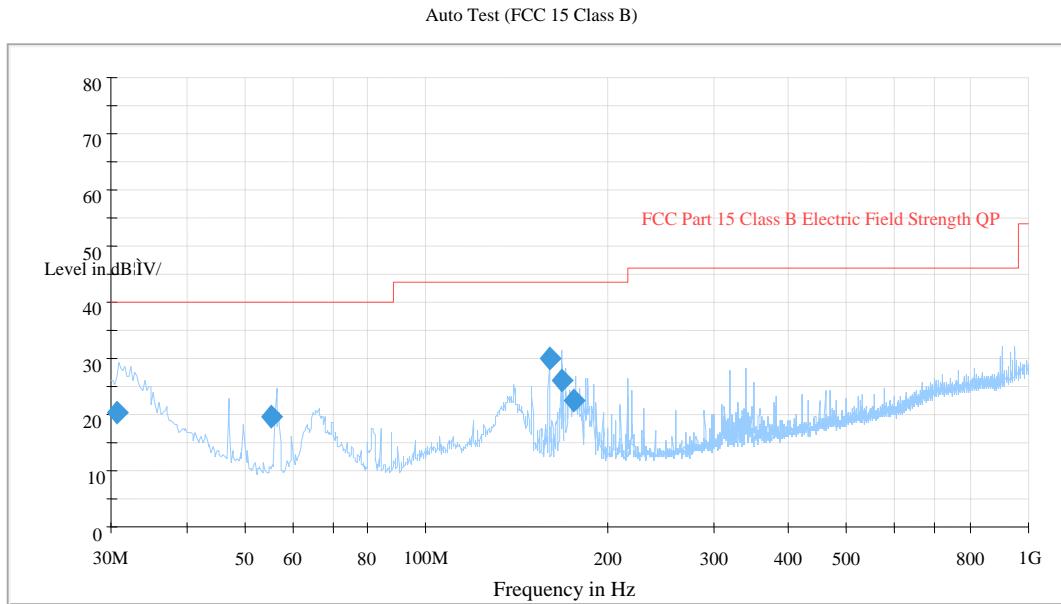
The testing was performed by Tiger Ye on 2011-12-01.

EUT Operation Mode: Downloading



Frequency (MHz)	Corrected Amplitude (dB μ V/m)	Test Antenna		Turntable Position (degree)	Correction Factor (dB)	Limit (dB μ V/m)	Margin (dB)
		Height (cm)	Polarity (H/V)				
30.001750	34.5	104.0	V	180.0	-5.4	40.0	5.5
36.015000	30.6	104.0	V	214.0	-9.5	40.0	9.4
53.500500	30.3	208.0	V	0.0	-17.8	40.0	9.7
47.965500	29.8	104.0	V	331.0	-16.4	40.0	10.2
59.987000	29.6	107.0	V	198.0	-18.7	40.0	10.4
144.152750	29.4	389.0	V	228.0	-13.5	43.5	14.1

EUT Operation Mode: Multimedia playing



Frequency (MHz)	Corrected Amplitude (dB μ V/m)	Test Antenna		Turntable Position (degree)	Correction Factor (dB)	Limit (dB μ V/m)	Margin (dB)
		Height (cm)	Polarity (H/V)				
159.976250	30.1	211.0	H	77.0	-14.3	43.5	13.4
168.385000	25.9	100.0	V	296.0	-14.8	43.5	17.6
30.611750	20.3	173.0	V	0.0	-5.8	40.0	19.7
176.461500	22.5	100.0	V	7.0	-15.2	43.5	21.0
56.112750	18.3	400.0	H	26.0	-18.2	40.0	21.7

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