



## FCC PART 15B

### TEST REPORT

For

### Electronics Technology (Dongguan) Company Limited

No.161, Xin Min Road, Tong Luo Wei Industrial Zone,  
Jin Xia, Chang An Town, Dong Guan, Guang Dong, China

**FCC ID: ZL9M72T2**

<b>Report Type:</b> Original Report	<b>Product Type:</b> MID
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<b>Report Number:</b> <u>RSZ110518001-00A</u>	
<b>Report Date:</b> <u>2011-08-26</u>	
<b>Reviewed By:</b> <u>EMC Engineer</u> <i>Merry Zhao</i> <i>merry. zhao</i>	
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**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. This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP\*, or any agency of the Federal Government.

\* 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

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### Product Description for Equipment under Test (EUT)

The *ELECTRONICS TECHNOLOGY (DONG GUAN) COMPANY LIMITED*'s product, model number: *M72T2 (FCC ID: ZL9M72T2)* ("EUT") in this report is a *MID*, which was measured approximately: 19.75 cm (L) x 14.2 cm (W) x 0.85 cm (H), rated input voltage: DC 5V adapter or 3.7V battery.

Adapter information:

Model: ZDA050150US

Input: AC 100-240V, 50/60Hz, 0.35 A

Output: DC 5.0 V, 1500 mA

*Note: The series product, model M72T2, M72C2 and M72J2 are electrically identical, the are just different in model names and appearance due to marketing purposes, and we select M72T2 for fully testing, which was explained in the attached declaration letter.*

*\* All measurement and test data in this report was gathered from production sample serial number: 1105093 (Assigned by applicant). The EUT was received on 2011-05-18.*

### Objective

This report is prepared on behalf of *ELECTRONICS TECHNOLOGY (DONG GUAN) COMPANY 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 EUT with FCC Part 15 Class B.

### Related Submittal(s)/Grant(s)

FCC Part 15.247 submission with FCC ID: ZL9M72T2

### 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 according to ANSI C63.4-2009.

### EUT Exercise Software

N/A

### Equipment Modifications

No modification was made to the unit tested.

### Host System Configuration List and Details

Manufacturer	Device Name	Model	Serial Number
DELL	Motherboard	OWC297	CN-OWC297-70821-566-02BR
DELL	Power	NPS-250KB D	CN-0H2678-17972-56E8NBM
Seagate	Hard Disk	ST340014A	5JXK3NAD
DELL	3.5' Floppy	N/A	CN-0N8893-69802-54Q-02OZ
Lite-ON	CD-Rom	LTN-489S	N/A
Intel	CPU	Celeron D-2533	N/A
ProMOS	Memory	V826632K24SATG-C0	0525-K1933700
Intel	Ethernet	PRO 10/100 VE	N/A

### Local Support Equipment List and Details

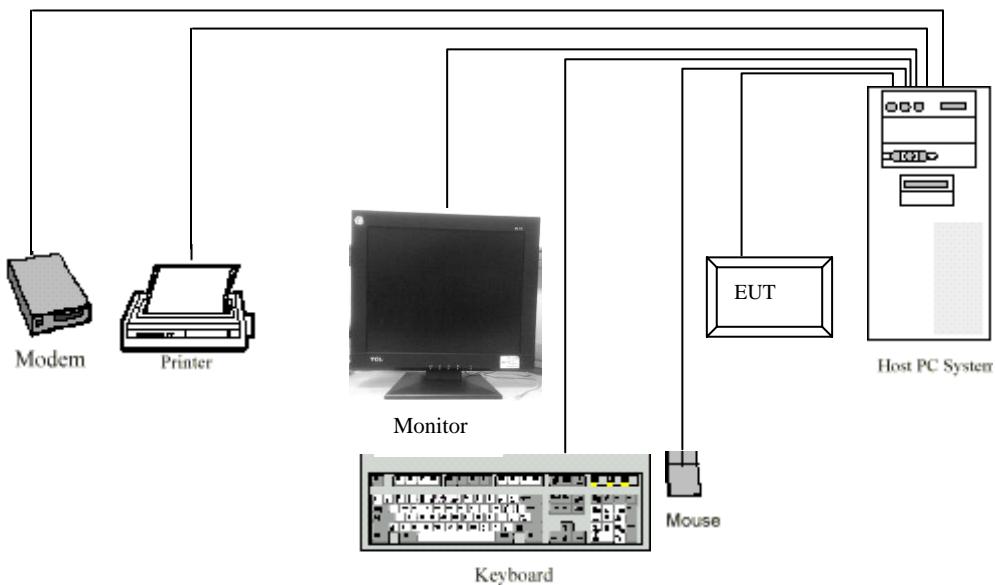
Manufacturer	Description	Model	Serial Number
DELL	PC	1#	N/A
DELL	Keyboard 2#	L100	CNORH656658907BL05DC
DELL	Mouse 2#	MOC5UO	G1900NKD
DELL	LCD 1#	E178WFPC	CN-OWY564-64180-7C4-2SQH
HP	Laser Jet5L	C3941A	JPTVOB2337
SAST	Modem	AEM-2100	0293

## External I/O Cable

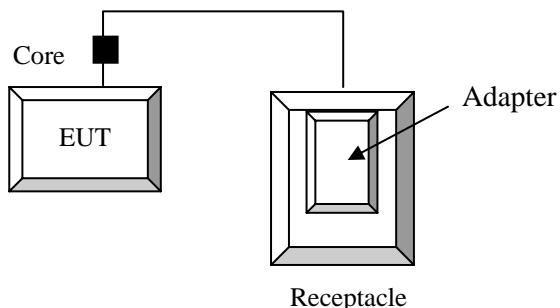
Cable Description	Length (m)	From/Port	To
Shielded Detachable K/B Cable	1.5	K/B Port/Host	K/B
Shielded Detachable Mouse Cable	1.5	Mouse Port/Host	Mouse
Shielded Detachable VGA Cable	1.5	VGA Port/Host	Monitor
Shielded Detachable Printer Cable	1.2	Parallel Port/Host	Printer
Shielded Detachable Serial Cable	1.2	Serial Port/Host	Modem
Unshielded Detachable USB Cable	1.05	EUT	PC
Unshielded Detachable DC Power Cable with a Core	1.8	Adapter	EUT

## Configuration of Test Setup

For downloading mode

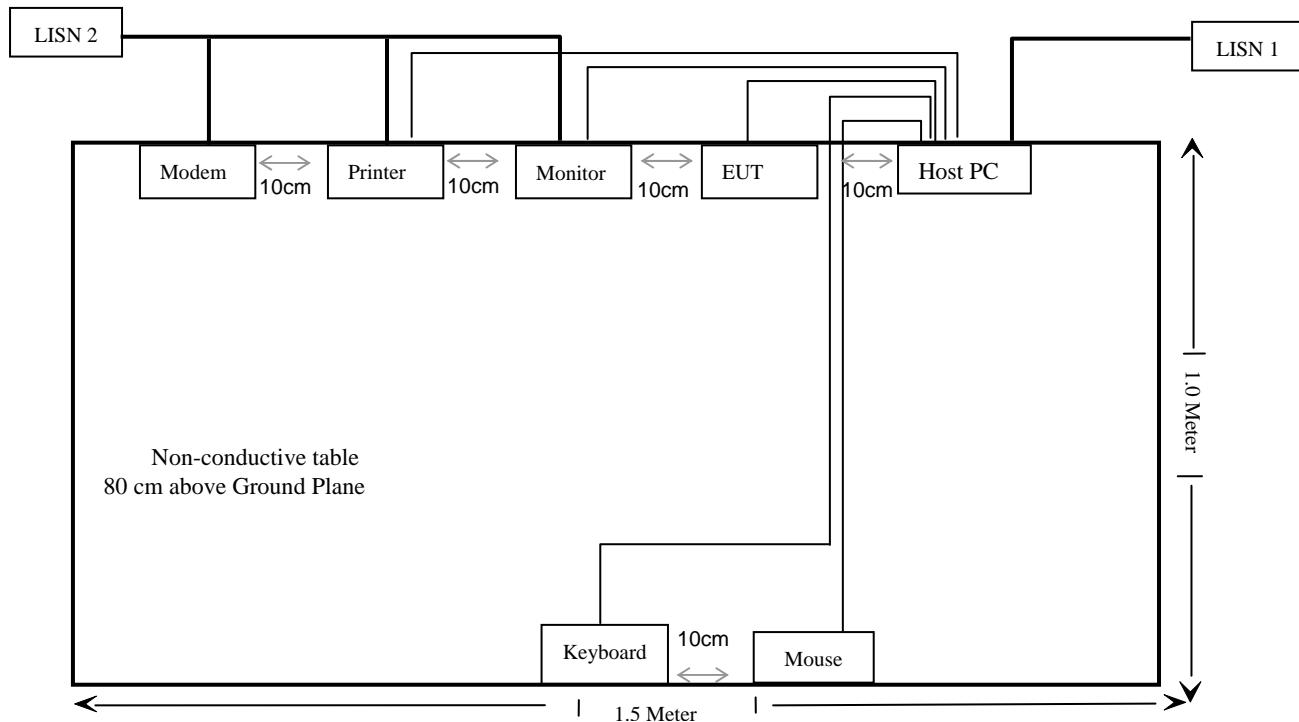


For Charging& multimedia mode

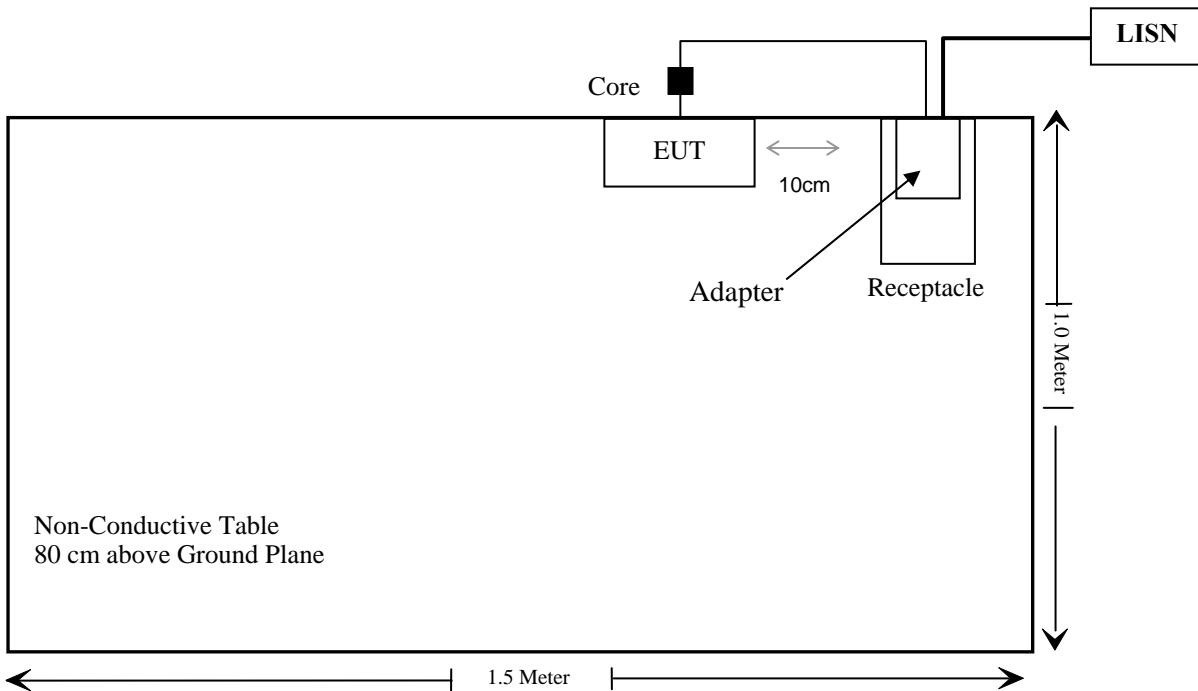


## Block Diagram of Test Setup

For downloading mode



For Charging& multimedia mode



**SUMMARY OF TEST RESULTS**

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

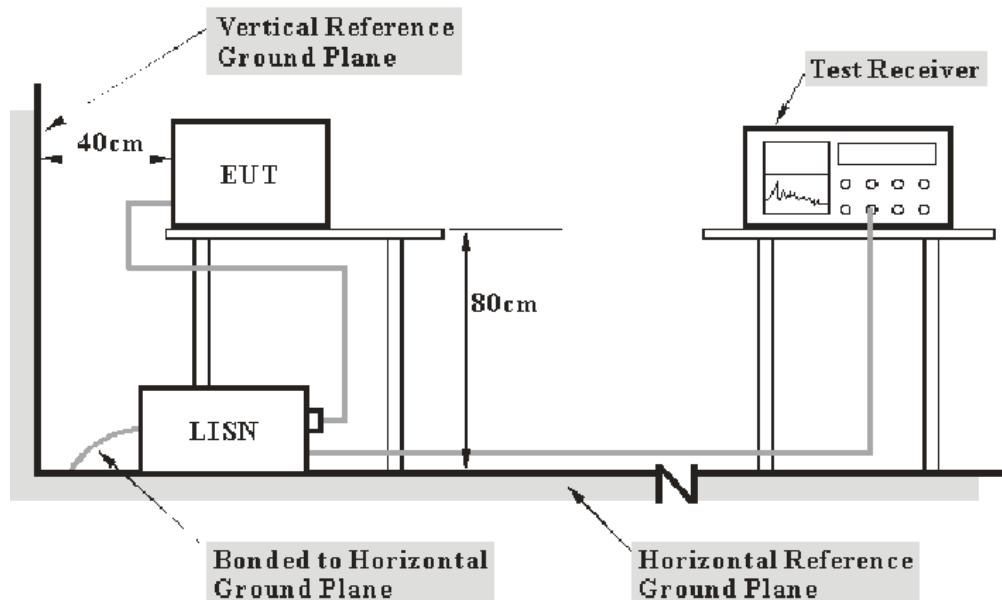
## FCC §15.107 – AC LINE CONDUCTED EMISSIONS

### 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 NIS 81, 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  $\pm 2.4$  dB.(k=2, 95% level of confidence)

### 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.

The host PC was connected to a 120 VAC/60 Hz power source for downloading mode and the adapter was connected to a 120 VAC/60 Hz power source for charging & multimedia mode

## 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:

<b><u>Frequency Range</u></b>	<b><u>IF B/W</u></b>
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 host PC was connected to the outlet of the first LISN and printer, modem, monitor and other relevant support equipments were connected to the outlet of second LISN; For charging&multimedia 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:

**10.48 dB at 0.235 MHz** in the **Line** conducted mode for downloading mode

## Test Data

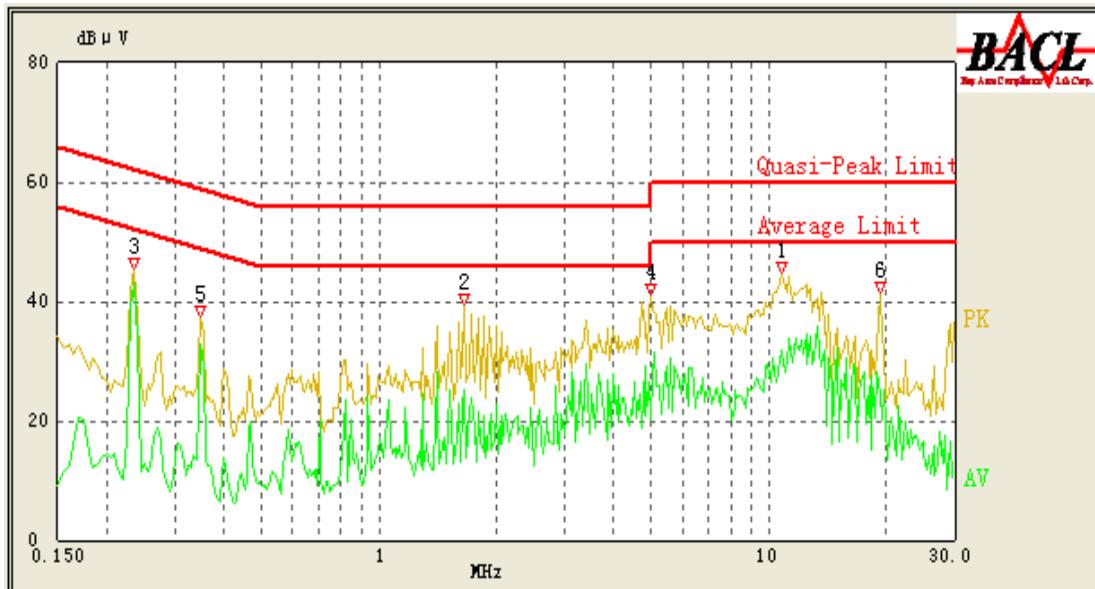
### Environmental Conditions

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	48 %
<b>ATM Pressure:</b>	100.0 kPa

*The testing was performed by Jimmy Xiao on 2011-06-30.*

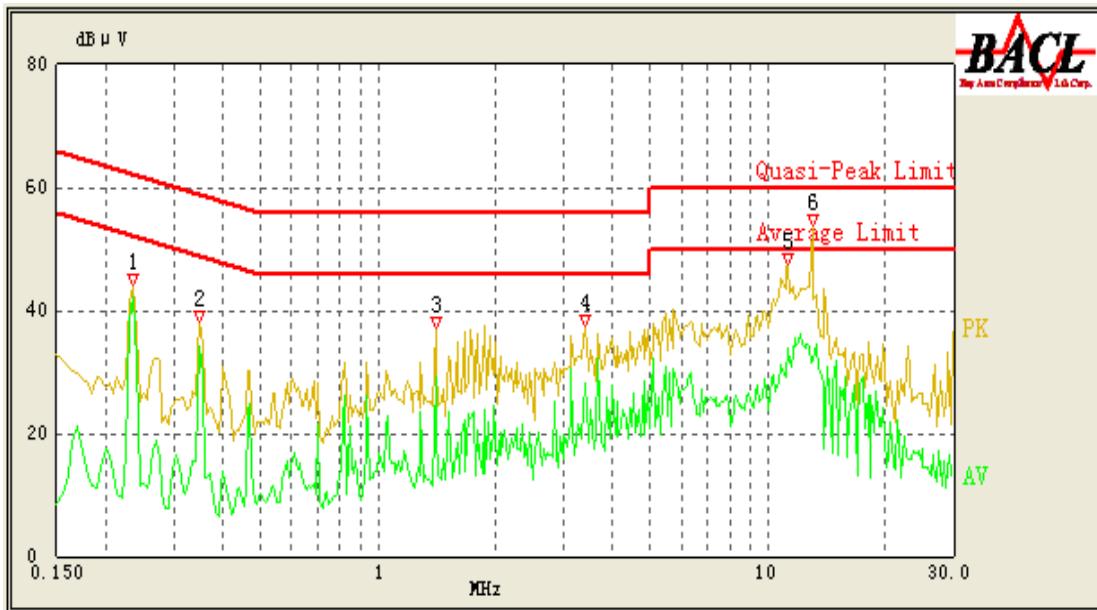
EUT operation mode: Downloading

**AC 120V/60 Hz, Line**



Conducted Emissions FCC Part 15.107, Class B					
Frequency (MHz)	Corrected Amplitude (dB $\mu$ V)	Correction Factor (dB)	Limit (dB $\mu$ V)	Margin (dB)	Detector (PK/ QP/Ave.)
0.235	43.09	10.10	53.57	10.48	Ave.
0.350	32.96	10.10	50.29	17.33	Ave.
10.745	31.89	10.20	50.00	18.11	Ave.
0.235	43.76	10.10	63.57	19.81	QP
1.660	25.23	10.13	46.00	20.77	Ave.
10.800	37.60	10.20	60.00	22.40	QP
1.660	33.53	10.13	56.00	22.47	QP
0.350	36.12	10.10	60.29	24.17	QP
19.255	24.52	10.20	50.00	25.48	Ave.
4.990	20.08	10.20	46.00	25.92	Ave.
19.265	29.35	10.20	60.00	30.65	QP
4.955	24.36	10.20	56.00	31.64	QP

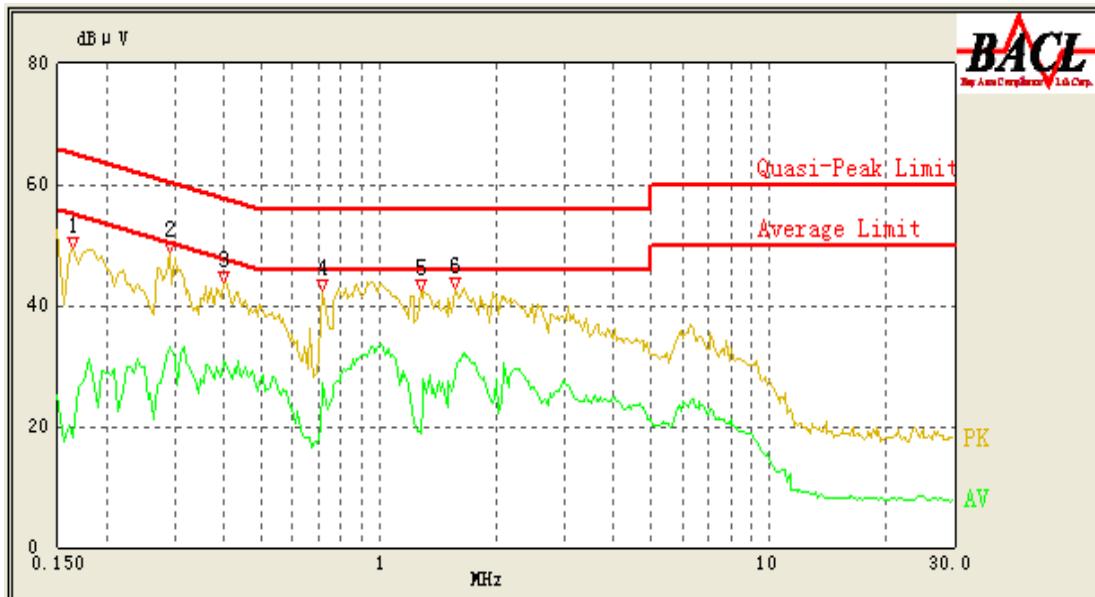
## AC 120V/60 Hz, Neutral



Conducted Emissions FCC Part 15.107, Class B					
Frequency (MHz)	Corrected Amplitude (dB $\mu$ V)	Correction Factor (dB)	Limit (dB $\mu$ V)	Margin (dB)	Detector (PK/ QP/Ave.)
0.235	42.25	10.10	53.57	11.32	Ave.
0.350	34.24	10.10	50.29	16.05	Ave.
11.265	33.56	10.20	50.00	16.44	Ave.
1.405	29.02	10.12	46.00	16.98	Ave.
3.400	28.07	10.16	46.00	17.93	Ave.
12.900	31.40	10.20	50.00	18.60	Ave.
0.235	43.96	10.10	63.57	19.61	QP
11.270	39.21	10.20	60.00	20.79	QP
1.405	34.24	10.12	56.00	21.76	QP
3.395	31.93	10.16	56.00	24.07	QP
0.350	35.92	10.10	60.29	24.37	QP
13.005	34.74	10.20	60.00	25.26	QP

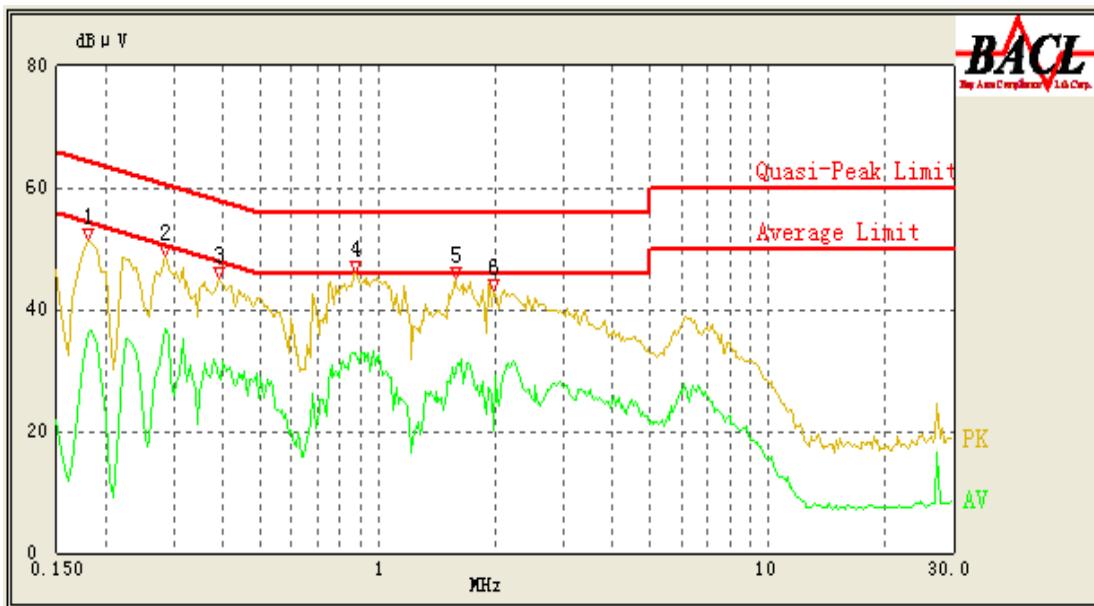
EUT operation mode: Charging & Multimedia

AC 120V/60 Hz, Line



Conducted Emissions FCC Part 15.107, Class B					
Frequency (MHz)	Corrected Amplitude (dB $\mu$ V)	Correction Factor (dB)	Limit (dB $\mu$ V)	Margin (dB)	Detector (PK/ QP/Ave.)
1.580	30.66	10.12	46.00	15.34	Ave.
0.400	30.92	10.10	48.86	17.94	Ave.
0.290	33.18	10.10	52.00	18.82	Ave.
0.715	27.01	10.10	46.00	18.99	Ave.
0.715	35.45	10.10	56.00	20.55	QP
1.575	35.38	10.12	56.00	20.62	QP
0.400	38.00	10.10	58.86	20.86	QP
0.290	39.08	10.10	62.00	22.92	QP
0.165	42.17	10.10	65.57	23.40	QP
1.280	31.64	10.12	56.00	24.36	QP
1.280	18.70	10.12	46.00	27.30	Ave.
0.165	18.29	10.10	55.57	37.28	Ave.

## AC 120V/60 Hz, Neutral



Conducted Emissions FCC Part 15.107, Class B					
Frequency (MHz)	Corrected Amplitude (dB $\mu$ V)	Correction Factor (dB)	Limit (dB $\mu$ V)	Margin (dB)	Detector (PK/ QP/Ave.)
0.875	32.89	10.11	46.00	13.11	Ave.
0.285	36.81	10.10	52.14	15.33	Ave.
2.000	29.29	10.13	46.00	16.71	Ave.
1.565	28.90	10.12	46.00	17.10	Ave.
0.875	38.43	10.11	56.00	17.57	QP
1.585	37.60	10.12	56.00	18.40	QP
0.180	36.09	10.10	55.14	19.05	Ave.
0.390	39.51	10.10	59.14	19.63	QP
0.285	42.43	10.10	62.14	19.71	QP
0.390	28.81	10.10	49.14	20.33	Ave.
0.180	42.61	10.10	65.14	22.53	QP
1.990	29.72	10.13	56.00	26.28	QP

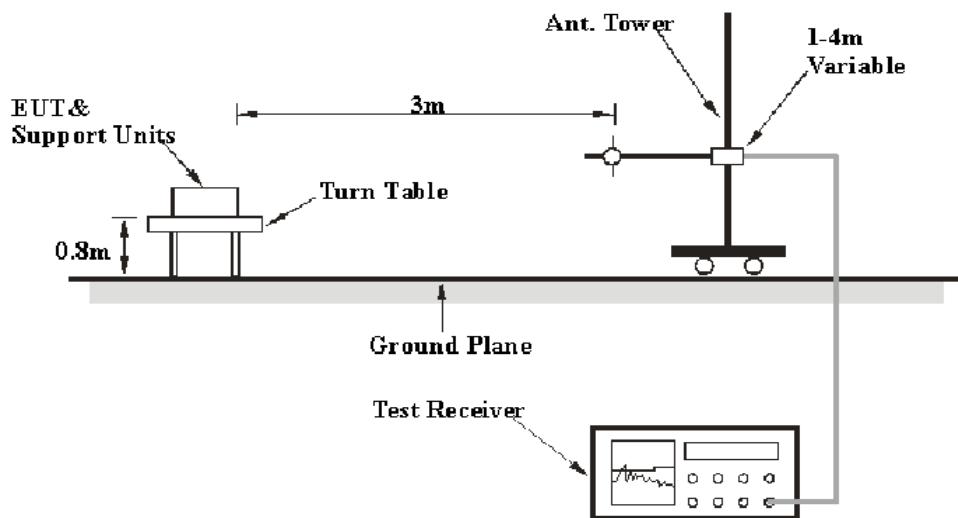
## FCC §15.109 - RADIATED SPURIOUS EMISSIONS

### 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 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  $\pm 4.0$  dB. (k=2, 95% level of confidence)

### EUT Setup



The radiated emission tests were performed in the 3 meters chamber B 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.

The host PC was connected to a 120 VAC/60 Hz power source for downloading mode and the adapter was connected to a 120 VAC/60 Hz power source for charging&multimedia mode

### EMI Test Receiver Setup

The system was investigated from 30 MHz to 5000 MHz.

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

Frequency Range	RBW	VBW	Detector
30 MHz – 1000 MHz	100 kHz	300 kHz	QP
1000 MHz – 5000 MHz	1 MHz	3 MHz	Peak
1000 MHz – 5000 MHz	1 MHz	10Hz	Ave

## Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447D	2944A09795	2010-08-02	2011-08-01
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2010-11-11	2011-11-10
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2010-07-05	2011-07-04
Mini-Circuits	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
Sunol Sciences	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2010-07-08	2011-07-07

\* **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

For the radiated emissions test, for downloading mode, the host PC was connected to the outlet of the first LISN and printer, modem, monitor and other relevant support equipments were connected to the outlet of second LISN; For charging&multimedia mode, the adapter was connected to the outlet of the LISN.

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, and peak and average for above 1 GHz.

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

**1.6 dB at 58.927750 MHz in the Horizontal polarization for downloading mode**

## Test Data

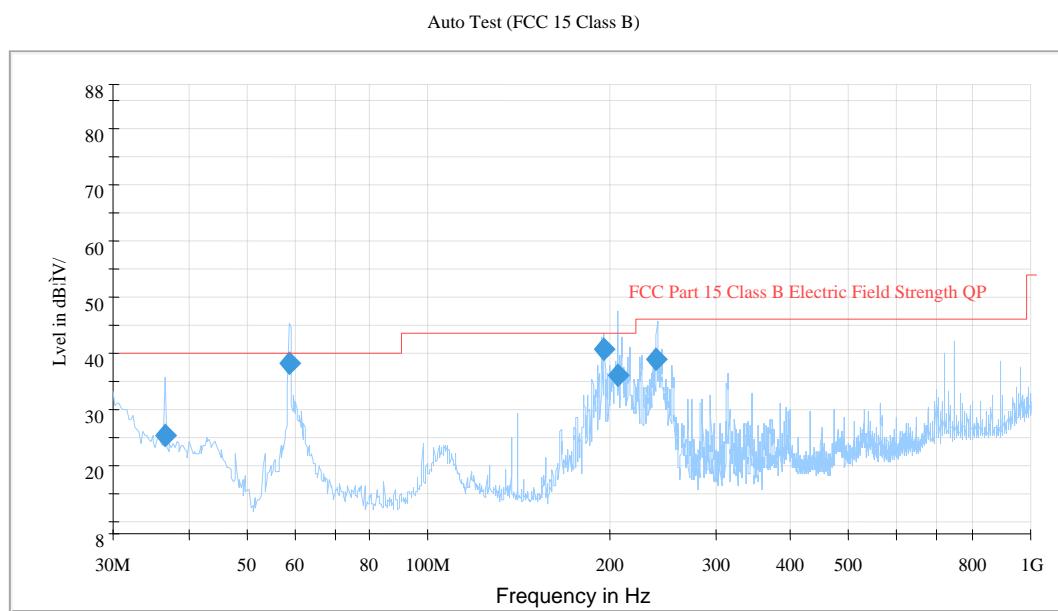
### Environmental Conditions

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

The testing was performed by Jimmy Xiao on 2011-06-29.

### 1) Below 1 GHz

EUT operation mode: Downloading



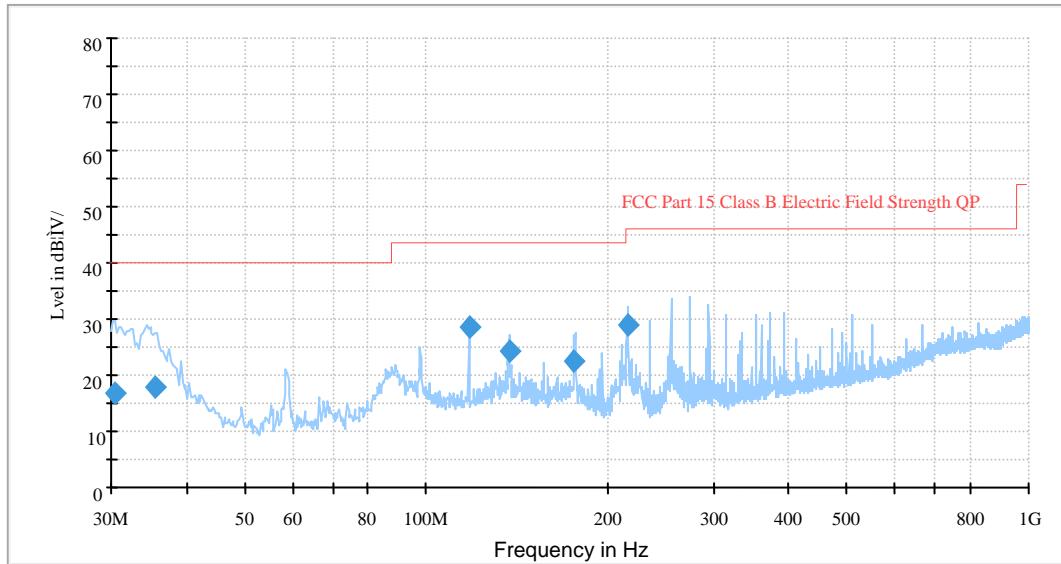
Frequency (MHz)	Corrected Amplitude (dB $\mu$ V/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (degree)	Correction Factor (dB)	Limit (dB $\mu$ V/m)	Margin (dB)
58.927750	38.4	400.0	H	2.0	-18.5	40.0	1.6*
195.943250	39.1	194.0	H	352.0	-14.5	43.5	4.4
239.558250	39.2	298.0	H	58.0	-13.7	46.0	6.8
206.098750	36.3	213.0	H	5.0	-14.2	43.5	7.2
36.581750	25.6	309.0	V	145.0	-9.9	40.0	14.4

Note: \*Within measurement uncertainty!

The data which below the limit 20 dB was not recorded.

**EUT operation mode: Charging & multimedia**

Auto Test (FCC 15 Class B)



Frequency (MHz)	Corrected Amplitude (dB $\mu$ V/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable position (degree)	Correction Factor (dB)	Limit (dB $\mu$ V/m)	Margin (dB)
117.815000	28.5	270.0	H	288.0	-12.6	43.5	15.0
216.175500	28.9	143.0	H	42.0	-14.1	46.0	17.1
137.784750	24.2	187.0	H	275.0	-13.0	43.5	19.3
176.518500	22.6	197.0	H	262.0	-15.2	43.5	20.9
35.377250	17.9	121.0	V	3.0	-9.1	40.0	22.1
30.381088	16.7	301.0	V	83.0	-5.7	40.0	23.3

**2) Above 1 GHz**

EUT operation mode: Downloading (worst case)

Frequency (MHz)	S.A. Reading (dBuV)	Detector (PK/QP/Ave)	Direction Degree	Test Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)
				Height (m)	Polar (H/V)	Factor (dB/m)					
4887.7	33.12	Ave.	270	1.9	V	36.3	4.36	26.75	47.03	54	6.97
4977.9	28.70	Ave.	240	1.1	H	36.5	4.38	26.75	42.83	54	11.17
4887.7	45.16	PK	270	1.9	V	36.3	4.36	26.75	59.07	74	14.93
4977.9	41.15	PK	240	1.1	H	36.5	4.38	26.75	55.28	74	18.72
1991.9	27.71	Ave.	150	1.4	H	29.6	2.87	26.82	33.36	54	20.64
1490.9	30.64	Ave.	310	2.1	V	26.3	2.24	26.42	32.76	54	21.24
1991.9	41.11	PK	150	1.4	H	29.6	2.87	26.82	46.76	74	27.24
1490.9	43.08	PK	310	2.1	V	26.3	2.24	26.42	45.2	74	28.8

## **PRODUCT SIMILARITY DECLARATION LETTER**

### **ELECTRONICS TECHNOLOGY (DONG GUAN) COMPANY LIMITED**

No.161, Xin Min Road, Tong Luo Wei Industrial Zone, Jin Xia, Chang An Town, Dong Guan City, Guang Dong Province, China

Tel: 0755-86335557 Fax: 0755-86335566

Date: 2011-07-01

#### **Product Similarity Declaration**

To Whom It May Concern,

We, ELECTRONICS TECHNOLOGY (DONG GUAN) COMPANY LIMITED hereby declare that our MID, Model Number: M72C2, M72J2 are electrically identical with the M72T2 that was certified by BACL. They are just different in appearance and model names, due to marketing purposes.

Please contact me if you have any question.

Signature:

Xiaona liu  
Quality Manager

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