

**FCC PART 15 CLASS B
MEASUREMENT AND TEST REPORT**

For

Xiamen Pinnacle Electrical Co.,Ltd.

4F Guang Xia Building, Torch High-Tech Zone, Xiamen, China

FCC ID: O89PD1X

Report Type: Original Report	Product Type: Waist Pager Display
Test Engineer: Leon Chen	leon chen
Report Number: R1XM120716052-00	
Report Date: 2012-08-08	
Reviewed By: Ivan Cao EMC Engineer	Ivan Cao
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 www.baclcorp.com.cn

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)

TABLE OF CONTENTS

GENERAL INFORMATION.....	3
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	3
OBJECTIVE	3
RELATED SUBMITTAL(S)/GRANT(S).....	3
TEST FACILITY	3
SYSTEM TEST CONFIGURATION	5
DESCRIPTION OF TEST CONFIGURATION	5
EUT EXERCISE SOFTWARE	5
EQUIPMENT MODIFICATIONS	5
SUPPORT EQUIPMENT LIST AND DETAILS	5
BLOCK DIAGRAM OF TEST SETUP	6
SUMMARY OF TEST RESULTS	7
FCC §15.107 – AC LINE CONDUCTED EMISSIONS.....	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	9
FCC §15.109 - RADIATED EMISSIONS	12
MEASUREMENT UNCERTAINTY	12
EUT SETUP	12
EMI TEST RECEIVER SETUP.....	12
TEST PROCEDURE	13
TEST EQUIPMENT LIST AND DETAILS.....	13
CORRECTED AMPLITUDE & MARGIN CALCULATION	13
TEST RESULTS SUMMARY	13
TEST DATA	14

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The Xiamen Pinnacle Electrical Co.,Ltd.'s product, model number: PD1X (FCC ID: O89PD1X) (the "EUT") in this report is a Waist Pager Display, which was measured approximately: 7.2 cm (L) x 4.3 cm (W) x 2.5 cm (H), rated input voltage: DC 5V from adapter and DC 3.7V from battery, The highest operating frequency is 8 MHz.

Adapter Information:

Model: P6050100 US

Input: AC 100-240V, 50/60Hz, 0.2A

Output: DC 5.0V, 1.0A

All measurement and test data in this report was gathered from production sample serial number: 120716052 (Assigned by BACL, Dongguan). The EUT was received on 2012-07-25.

Objective

This report is prepared on behalf of *Xiamen Pinnacle Electrical Co., Ltd.* 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)

No related submittal(s).

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) 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 February 02, 2012. 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.: 273710. 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

No EUT exercise software.

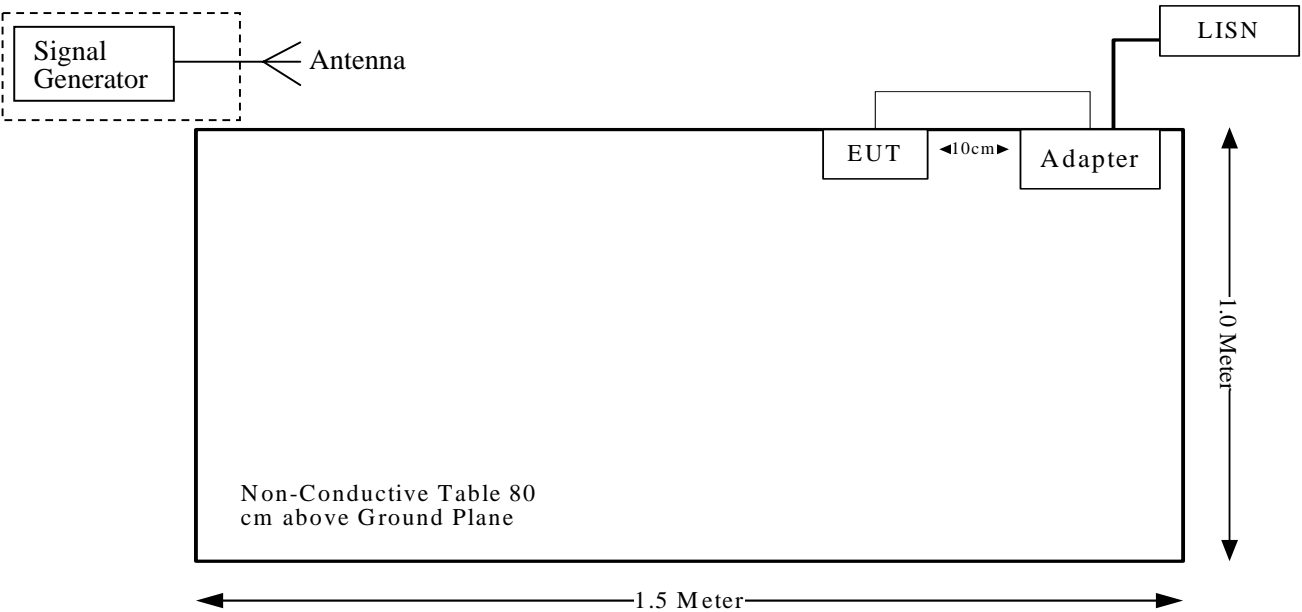
Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
HP	Signal Generator	8648A	3426A00831

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

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

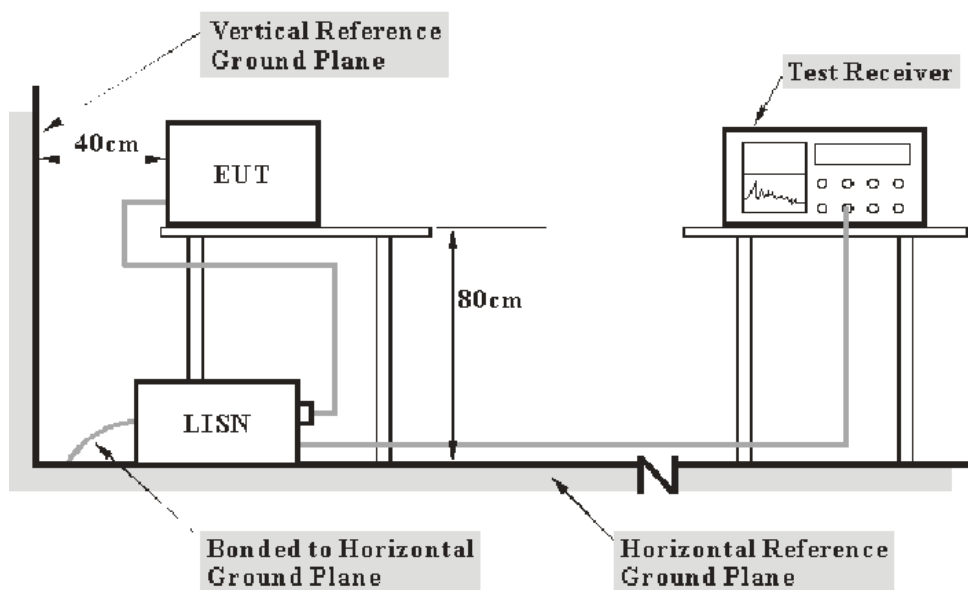
FCC §15.107 – AC LINE CONDUCTED EMISSIONS

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. (Dongguan) 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.

The adapter 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:

<i>Frequency Range</i>	<i>IF BW</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	ESCS 30	830245/006	2011-10-08	2012-10-07
Rohde & Schwarz	LISN	ESH3-Z5	843331/015	2011-10-08	2012-10-07

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

Test Procedure

During the conducted emission test, 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:

21.86 dB at 0.395 MHz in the Neutral line

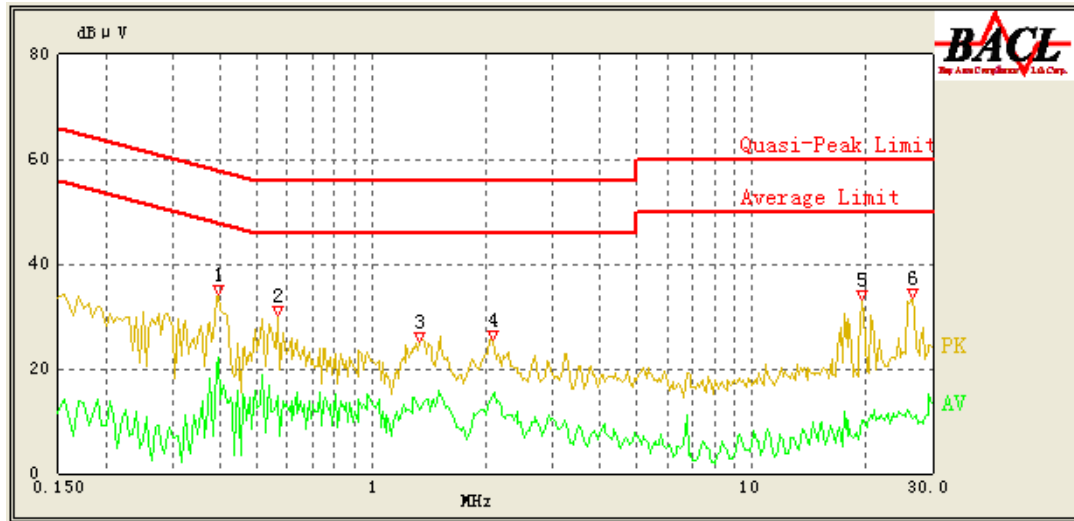
Test Data

Environmental Conditions

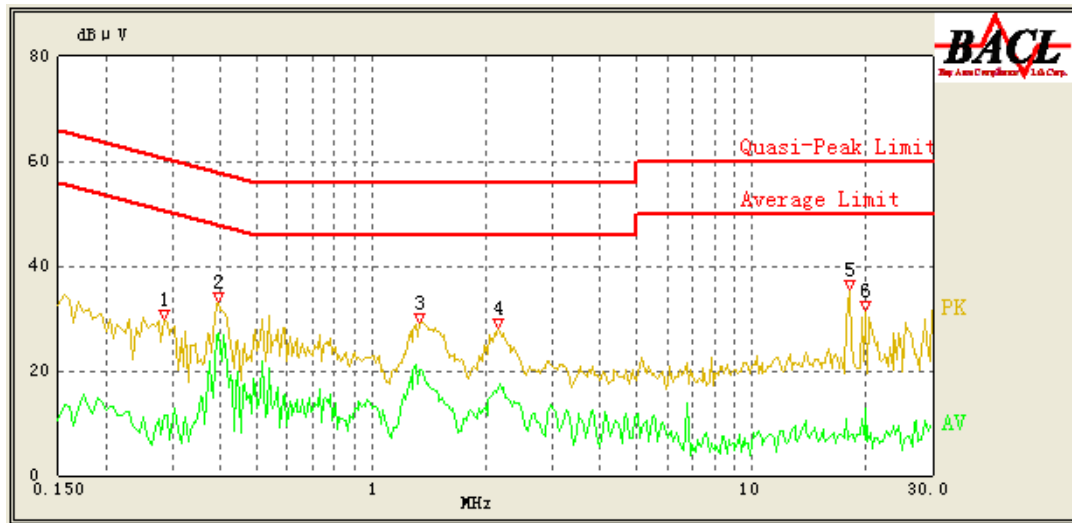
Temperature:	25 ° C
Relative Humidity:	48 %
ATM Pressure:	100.0 kPa

The testing was performed by Leon Chen on 2012-07-31.

Test Mode: Receiving & Charging

120 V, 60 Hz, Line:

Frequency (MHz)	Corrected Result (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/QP/Ave.)
0.395	22.12	0.42	49.00	26.88	Ave.
0.395	31.39	0.42	59.00	27.61	QP
0.565	14.98	0.43	46.00	31.02	Ave.
2.085	14.70	0.48	46.00	31.30	Ave.
0.565	23.14	0.43	56.00	32.86	QP
1.335	12.28	0.46	46.00	33.72	Ave.
2.085	20.29	0.48	56.00	35.71	QP
1.340	18.16	0.46	56.00	37.84	QP
26.450	10.60	2.29	50.00	39.40	Ave.
19.585	10.19	1.68	50.00	39.81	Ave.
19.475	15.72	1.67	60.00	44.28	QP
26.450	15.58	2.29	60.00	44.42	QP

120V, 60 Hz, Neutral:

Frequency (MHz)	Corrected Result (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/QP/Ave.)
0.395	27.14	0.42	49.00	21.86	Ave.
1.335	20.19	0.46	46.00	25.81	Ave.
18.095	32.67	1.54	60.00	27.33	QP
19.970	30.27	1.72	60.00	27.73	QP
0.395	31.07	0.42	59.00	27.93	QP
2.175	17.36	0.48	46.00	28.64	Ave.
1.335	26.45	0.46	56.00	29.55	QP
2.155	23.58	0.48	56.00	32.42	QP
0.285	26.51	0.42	62.14	35.63	QP
19.970	12.76	1.72	50.00	37.24	Ave.
0.285	11.48	0.42	52.14	40.66	Ave.
17.930	6.99	1.53	50.00	43.01	Ave.

FCC §15.109 - RADIATED EMISSIONS

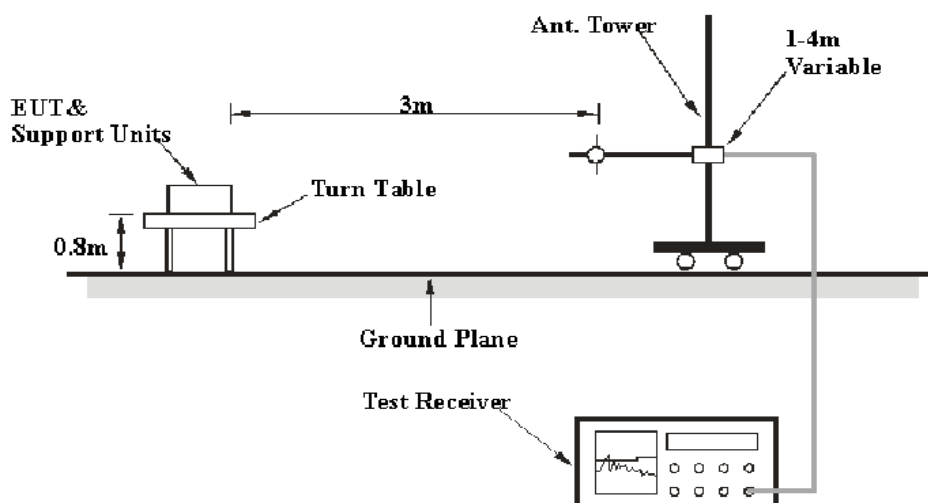
Measurement Uncertainty

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. (Dongguan) is ± 4.0 dB. ($k=2$, 95% level of confidence)

EUT Setup

Below 1GHz:



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.

The adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The system was investigated from 30 MHz to above 1GHz.

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

<i>Frequency</i>	<i>RBW</i>	<i>VBW</i>	<i>Detection</i>
30 MHz-1 GHz	100 kHz	300 kHz	Quasi-peak

Test Procedure

During the radiated emissions test, the EUT was connected to AC floor outlet

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all Install 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
R&S	EMI Test Reciever	ESCI	100224	2011-11-11	2012-11-10
Sunol Sciences	Hybrid Antennas	JB3	A060611-1	2011-09-06	2012-09-05
HP	Pre-amplifier	8447E	2434A02181	2011-10-08	2012-10-07

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp (Dongguan) 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 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:

9.60 dB at 41.6400 MHz in the Vertical polarization

Test Data**Environmental Conditions**

Temperature:	26 °C
Relative Humidity:	60 %
ATM Pressure:	100.0 kPa

The testing was performed by Leon Chen on 2012-07-31.

Test Mode: Receiving & Charging

Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Comment
30.0000	18.70	QP	1.70	20.40	40.00	19.60	H
140.5800	28.88	QP	-6.78	22.10	43.50	21.40	H
474.2600	24.48	QP	-1.38	23.10	46.00	22.90	H
452.9200	24.73	QP	-2.03	22.70	46.00	23.30	H
162.8900	26.50	QP	-7.30	19.20	43.50	24.30	H
175.5000	27.29	QP	-8.39	18.90	43.50	24.60	H
41.6400	37.76	QP	-7.36	30.40	40.00	9.60	V
30.9700	28.88	QP	0.92	29.80	40.00	10.20	V
56.1900	35.48	QP	-12.98	22.50	40.00	17.50	V
124.0900	28.06	QP	-5.76	22.30	43.50	21.20	V
452.9200	26.63	QP	-2.03	24.60	46.00	21.40	V
90.1400	33.44	QP	-12.34	21.10	43.50	22.40	V

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