

FCC PART 15B, CLASS B


MEASUREMENT AND TEST REPORT

For

QINGDAO UNIQUE PRODUCTS DEVELOP CO., LTD.

No.23, SiLiu North Road, High-Tech Industrial Zone,
Qingdao, Shandong, China

FCC ID: V9LUNIQUE-P11
Model Number: UN-FL

This Report Concerns: Original Report	Equipment Type: Unique Printer
Test Engineer: Jack Wu	
Report Number: RSH110922001	
Report Date: 2012-02-27	
Reviewed By: Lisa Zhu EMC Engineer	
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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.

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1 General Information

1.1 Product Description for Equipment Under Test (EUT)

The QINGDAO UNIQUE PRODUCTS DEVELOP CO., LTD's product, model number: **UN-FL** (FCC ID: **V9LUNIQUE-P11**) or the "EUT" as referred to in this report is the **Unique Printer**, which has the plastic enclosure. The highest operating frequency of printer is 11.0592 MHz.

1.2 Mechanical Description of EUT

The EUT is measured approximately 50 cm L x 40 cm W x 31.5 cm H.
Rated input voltage: DC 30V.

AC Adaptor:

Manufacture: GUANYUDA POWER SUPPLY CO., LTD

Model number: GM-300200

Input: 100-240V ~ 2.0A 50-60Hz

Output: 30V ----2.0A

**Note 1: The products, model UN-FL, UN-NA, UN-OT, UN-TS, UN-SO, UN-3D, UN-FT, UN-MU, they have same electrically, except they have different marketing purposes. So, we selected model UN-FL to fully test, please refer to the Declaration Letter provided by the manufacturer in Appendix A of this report.*

**Note 2: All measurement and test data in this report was gathered from production sample, serial number: 110902001, (Assigned by BACL), the item was received on 2011-09-22.*

1.3 EUT Photo



Model number: UN-FL

1.4 Objective

The following CLASS B report is prepared on behalf of **QINGDAO UNIQUE PRODUCTS DEVELOP CO., LTD**, in accordance with Part 2, Subpart J, and Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to demonstrate compliance with FCC Part 15 CLASS B limits.

1.5 Related Submittal(s)/Grant(s)

No Related Submittals.

1.6 Test Methodology

All measurements contained in this report are conducted with ANSI C63.4-2009, 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 is performed at BACL. The radiated testing is performed at an antenna-to-EUT distance of 3 Meters.

1.7 Test Facility

The test site used by BACL to collect test data is located in the Room 5040, HuiLongWan Plaza, No. 1, ShaWan Road, JinNiu District, ChengDu, China

Test site at BACL 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 July 31, 2009. 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.: 560332. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

2 System Test Configuration

2.1 Justification

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

2.2 EUT Exercise Software

N/A

2.3 Special Accessories

No special accessories were supplied by BACL.

2.4 Equipment Modifications

No modification to the EUT was made by BACL to make sure the EUT comply with applicable limits.

2.5 Equipment Under Test (EUT) General Description

Manufacturer	Description	Model Number	Serial Number	FCC ID
Qindao Unique Products Develop Co., Ltd.	Unique Printer	UN-FL	N/A	V9LUNIQUE-P11

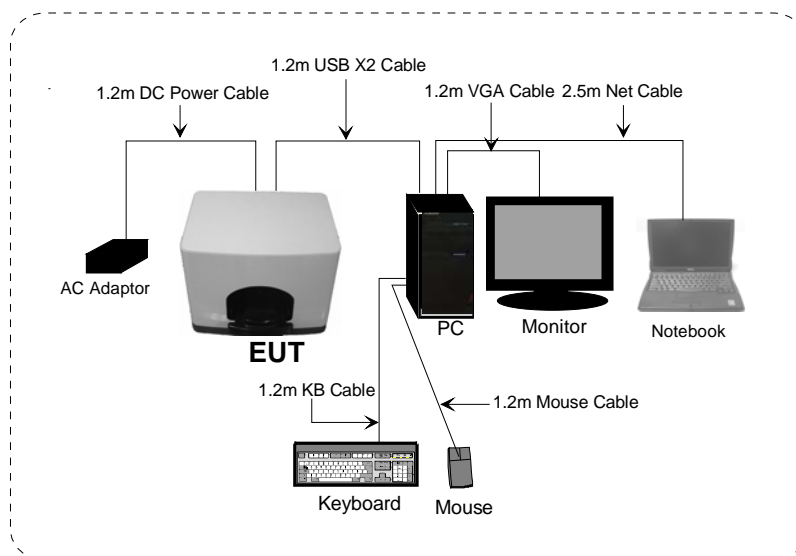
2.6 Local Support Equipment List and Details

Manufacturer	Description	Model Number	Serial Number	FCC ID
GUANYUDA POWER SUPPLY CO., LTD	AC Adaptor	GM-300200	N/A	N/A
DELL	Notebook	PP01L	N/A	N/A
DELL	PC	DHP	2QG9T71	DOC
SAMSUNG	Monitor	710N	MJ17HCJY40102K	GH17LS
IBM	Keyboard	SK-8815	09161634	NO
IBM	Mouse	MO28UO	89P5088	NO

2.7 External I/O Cable

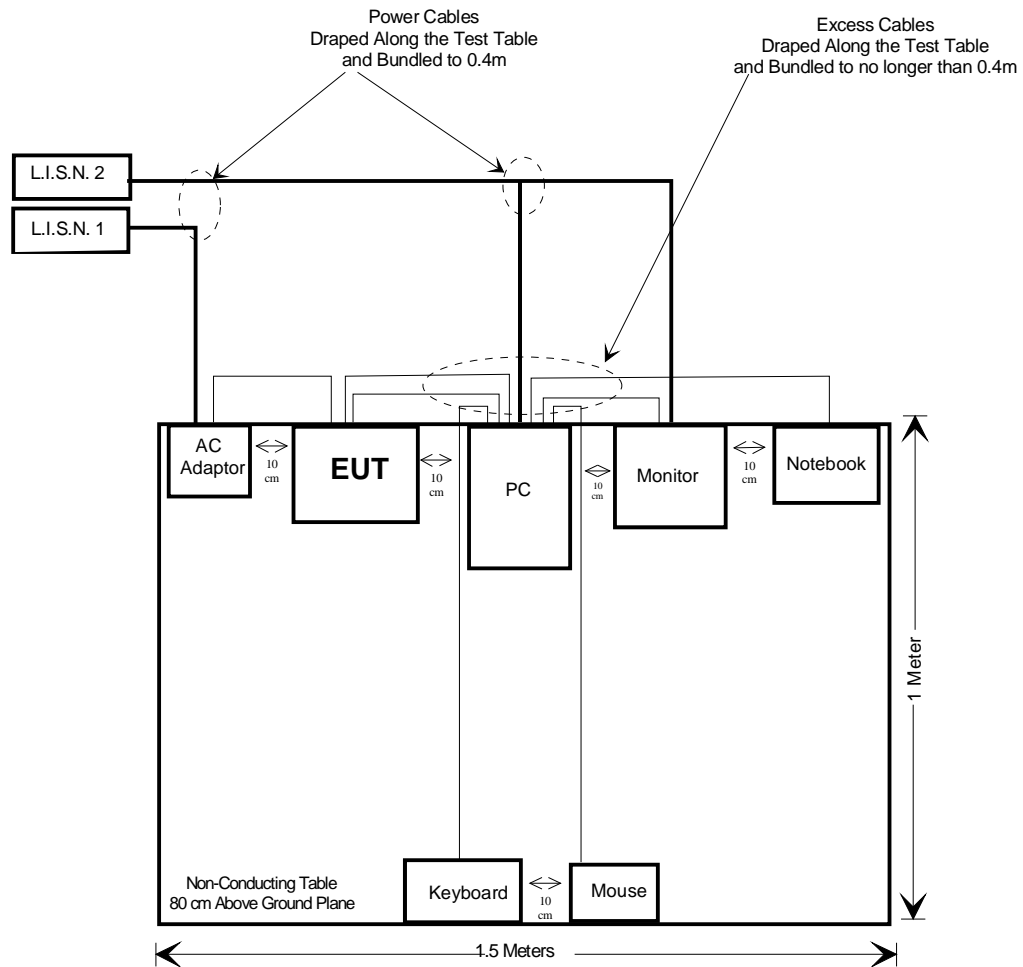
Cable Description	Length (M)	From	To
AC Power Cable	1.5	L.I.S.N. 1 or AC Power Socket	AC Adaptor
AC Power Cable	1.5	L.I.S.N.2 or AC Power Socket	PC
AC Power Cable	1.5	L.I.S.N.2 or AC Power Socket	Monitor
DC Power Cable	1.2	AC Adaptor	EUT
USB Cable x2	1.2	PC	EUT
VGA Cable	1.2	Monitor	PC
KB Cable	1.2	Keyboard	PC
Mouse Cable	1.2	Mouse	PC
Net Cable	2.5	PC	Notebook

2.8 Configuration of Test Setup

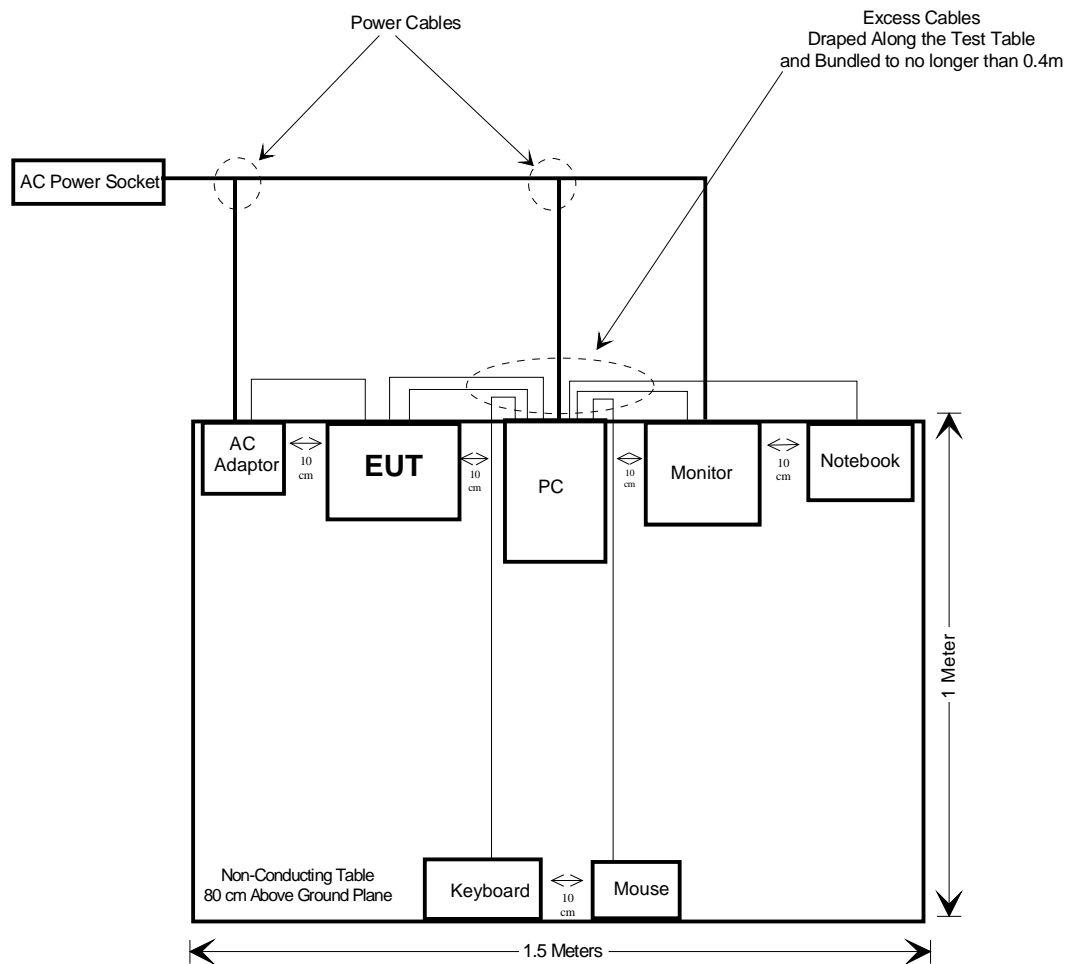


2.9 Block Diagram of Test Setup

Conducted Emission:



Radiated Emission:



3 Summary of Test Results

FCC Rules	Description	Result
§15.107	AC Line Conducted Emission	Compliance
§15.109	Spurious Radiated Emission	Compliance

4 FCC §15.107 – AC Line Conducted Emissions

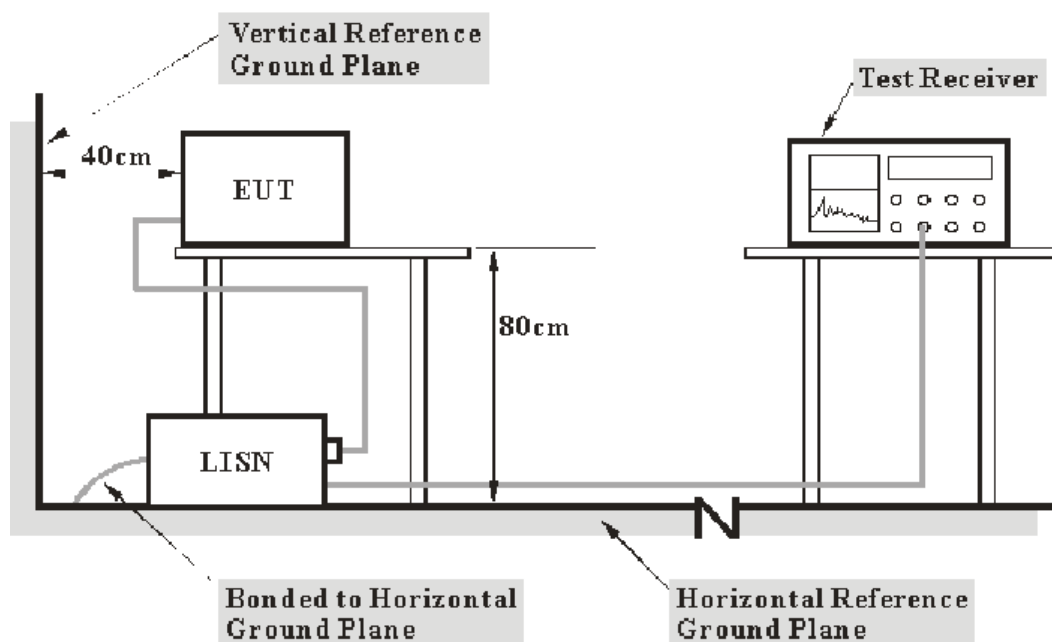
4.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMI. The factors contributing to uncertainties are EMI Test Receiver, cable loss, and L.I.S.N.

Based on NIS 81, the Treatment of Uncertainty in EMI Measurements, the best estimate of the uncertainty of any conducted emissions measurement at BACL is ± 2.4 dB.

4.2 EUT Setup

The measurement is performed at BACL, using the same setup per ANSI C63.4-2009 measurement procedure. The specification used is the FCC Part 15 Class B limits.



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 power cables and excess cables shall be folded at the cable center into a bundle no longer than 40 cm.

The spacing between the peripherals unit & EUT was 10 cm.

A DC 30V power source was provided to EUT through the AC adaptor which it was connected to the AC 120V, 60Hz power supply.

4.3 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 B/W</i>
150 kHz – 30 MHz	9 kHz

4.4 Test Procedure

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT is compliant with all installation combination.

All data are recorded in the Quasi-peak and Average detection mode. Quasi-peak readings are distinguished with a "QP". Average readings are distinguished with an "AV".

The EUT is in the normal operating mode during the final qualification test to represent the worst cases results.

4.5 Test Equipment List and Details

Manufacturer	Description	Model Number	Serial Number	Calibration Due Date
SOLAR	L.I.S.N.	9252-50-R-24BNC	984412	2012-06-30
ROHDE & SCHWARZ	EMI Test Receiver	ESCI	10028	2012-03-26
ROHDE & SCHWARZ	L.I.S.N.	ESH2-Z5	892107/021	2012-03-26

4.6 Test Environment Conditions

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

The testing was performed by Bruce Wu and Jack Wu.

4.7 Summary of Test Results

According to the data in the following, the EUT complied with the FCC Part 15.107 for a Class B device, with the *worst* margin reading of:

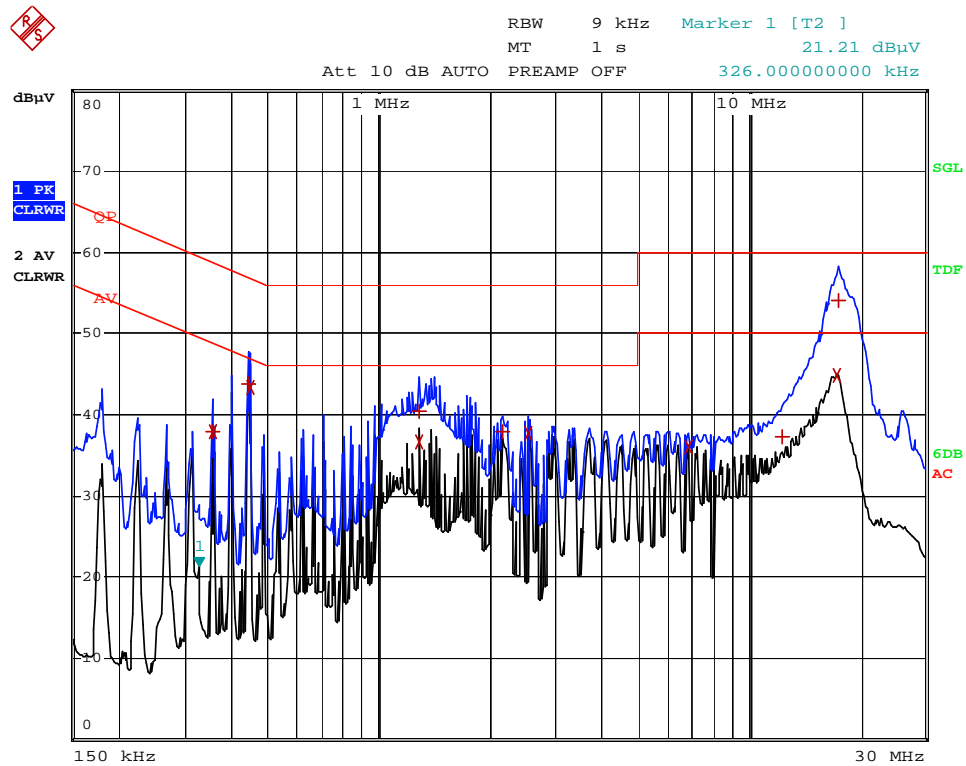
14.6 dB at 17.18 MHz in the **Neutral** conductor mode

4.8 Conducted Emission Test Data and Plots

Test mode: operating mode

Conducted Emissions				FCC Part 15.107, Class B	
Frequency (MHz)	Cord. Amplitude (dB μ V)	Detector (QP/Ave/Peak)	Conductor (Line/Neutral)	Limit (dB μ V)	Margin (dB)
17.18	45.4	Ave	Neutral	60	14.6
17.27	44.9	Ave	Line	60	15.2
17.49	54.2	QP	Line	73	18.8
17.45	54.1	QP	Neutral	73	18.9
1.02	38.6	Ave	Neutral	60	21.4
0.45	44.3	Ave	Neutral	66	21.7
2.53	37.8	Ave	Line	60	22.3
3.33	37.5	Ave	Neutral	60	22.5
0.45	43.3	Ave	Line	66	22.7
1.29	36.7	Ave	Line	60	23.4
6.08	36.6	Ave	Neutral	60	23.4
6.84	36.0	Ave	Line	60	24.0
0.35	38.8	Ave	Neutral	66	27.2
0.35	38.0	QP	Line	73	28.2
0.35	37.8	Ave	Line	66	28.2
1.33	42.9	QP	Neutral	73	30.1
1.29	40.5	QP	Line	73	32.5
0.45	44.7	QP	Neutral	79	34.3
2.13	38.5	QP	Neutral	73	34.5
12.16	38.3	QP	Neutral	73	34.7
2.17	37.9	QP	Line	73	35.1
0.44	43.8	QP	Line	79	35.2
12.30	37.3	QP	Line	73	35.8
0.36	37.1	QP	Neutral	79	41.9

120 V/60 Hz, Line



Date: 26.SEP.2011 11:33:41

RBW 9 kHz MT 1 s 21.36 dBμV
 Att 10 dB AUTO PREAMP OFF 326.00000000 kHz

dBμV

1 PK
CLRWR

2 AV
CLRWR

1 MHz 10 MHz

150 kHz 30 MHz

SGL

TDF

6DB

AC

Date: 26.SEP.2011 11:37:59

5 FCC §15.109 – Spurious Radiated Emissions

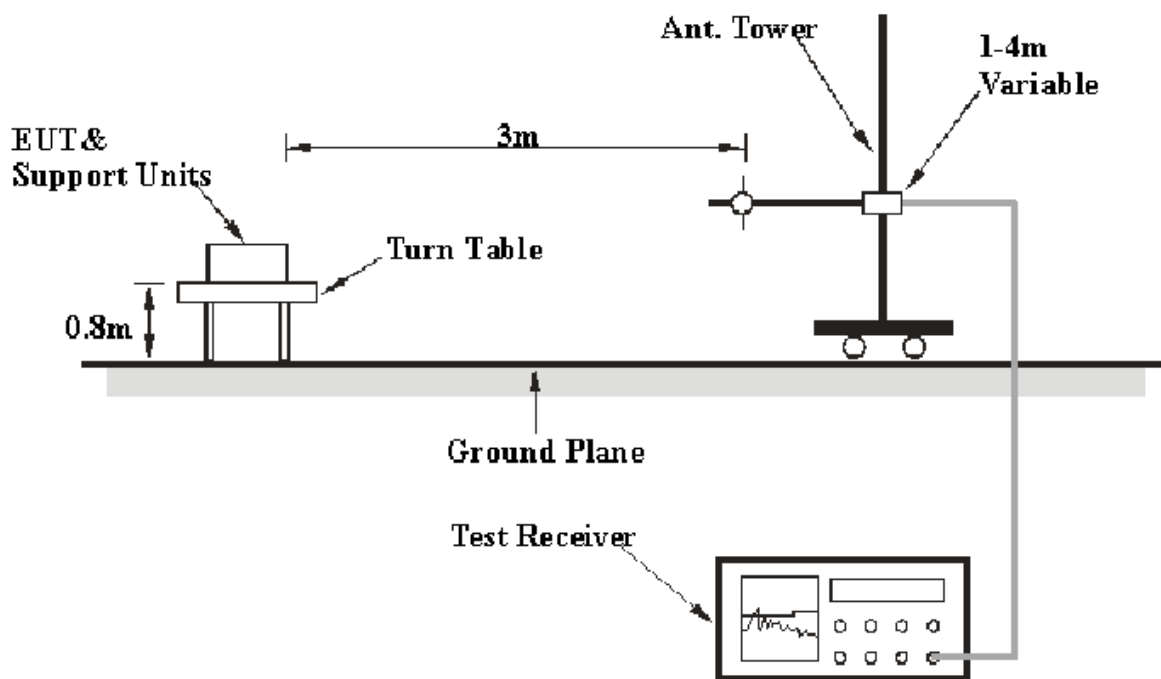
5.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMI. The factors contributing to uncertainties are EMI Test Receiver, 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 EMI Measurements, the best estimate of the uncertainty of a radiation emissions measurement at BACL is ± 4.0 dB.

5.2 EUT Setup

The radiated emission tests are performed at BACL, using the setup in accordance with the ANSI C63.4-2009. The specification used is the FCC Part 15.109 Class B limits.



The excess cables shall be folded at the cable center into a bundle no longer than 40 cm.

The spacing between the peripherals unit & EUT was 10 cm.

A DC 30V power source was provided to EUT through the AC adaptor which it was connected to the AC 120V, 60Hz power supply.

5.3 EMI Test Receiver Setup

The system was investigated from 30 MHz to 1 GHz.

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

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

5.4 Test Procedure

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

All data were recorded in the quasi-peak detection mode.

The EUT was in the normal operating mode during the final qualification test to represent the worst case results.

5.5 Corrected Amplitude & Margin Calculation

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

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

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 7 dB μ V/m below the maximum limit for FCC Part 15 Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{FCC Part 15 Class B Limit} - \text{Corr. Ampl.}$$

5.6 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Due Date
HP	Pre-amplifier	8447E	1937A01046	2011-11-15
Rohde & Schwarz	EMI Test Receiver	ESCI	10028	2011-10-16
Sunol Sciences	Broadband Antenna	JB3	A040904-2	2011-08-14

5.7 Test Environment Conditions

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

The testing was performed by Bruce Wu and Jack Wu.

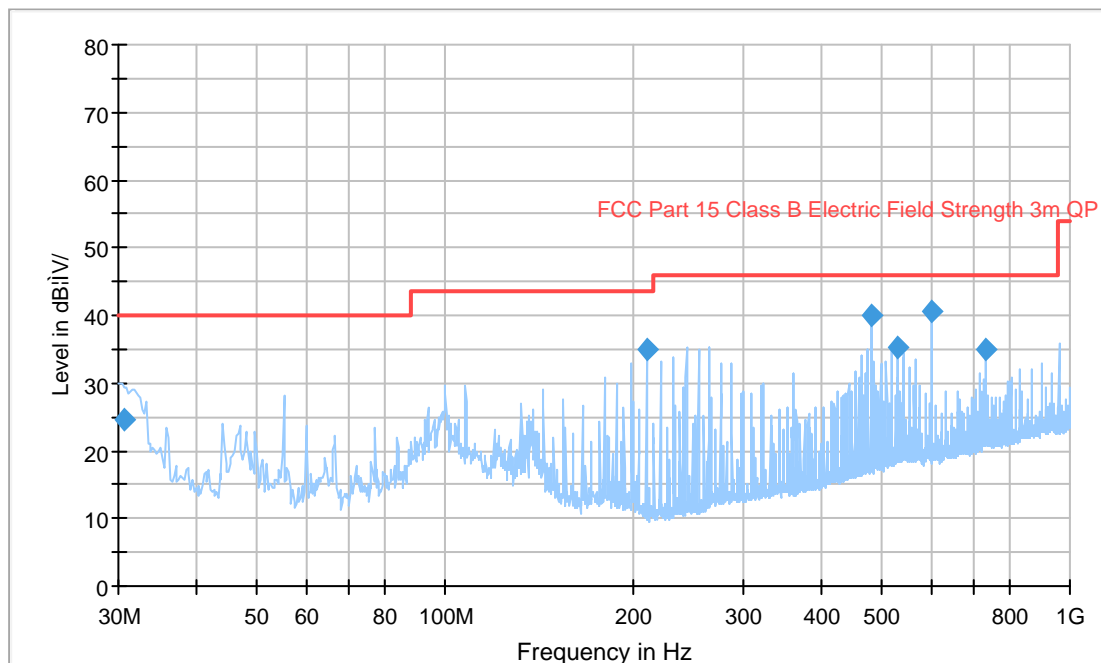
5.8 Summary of Test Results

According to the data in the following, the EUT complied with the FCC Part 15.109, Class B standards, and had the worst margin of:

5.3 dB at 600.057488 MHz in the **Horizontal** polarization for Normal Operating Mode,
30 MHz to 1000 MHz, 3 meters

5.9 Radiated Emission Test Data and Plots

Electric Field Strength with Scans



Frequency (MHz)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBμV/m)	Margin (dB)
600.057488	40.7	319.0	H	186.0	-5.8	47.0	5.3
480.031992	40.1	175.0	H	349.0	-7.4	47.0	5.9
210.130210	34.8	125.0	H	332.0	-14.7	47.0	8.7
530.858975	35.2	175.0	H	47.0	-6.6	40.0	10.8
733.286662	34.9	122.0	H	324.0	-3.2	40.0	11.1
30.732504	24.5	100.0	V	329.0	-7.2	47.0	15.5

6 FCC Labeling Requirements

6.1 FCC ID Label Requirements

As per FCC §2.925,

(a) Each equipment covered in an application for equipment authorization shall bear a nameplate or label listing the following:

- (1) FCC Identifier consisting of the two elements in the exact order specified in §2.926. The FCC Identifier shall be preceded by the term FCC ID in capital letters on a single line, and shall be of a type size large enough to be legible without the aid of magnification.

Example: FCC ID: XXX123

Where: XXX—Grantee Code, 123—Equipment Product Code

As per FCC §15.19,

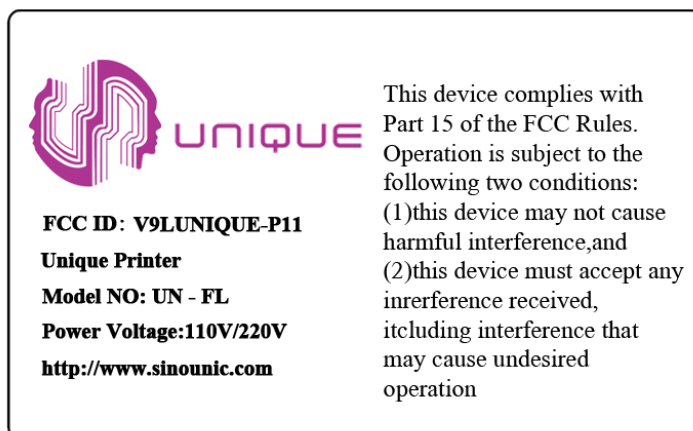
(a) In addition to the requirements in part 2 of this chapter, a device subject to certification, or verification shall be labeled as follows:

(3) All other devices shall bear the following statement in a conspicuous location on the device:
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

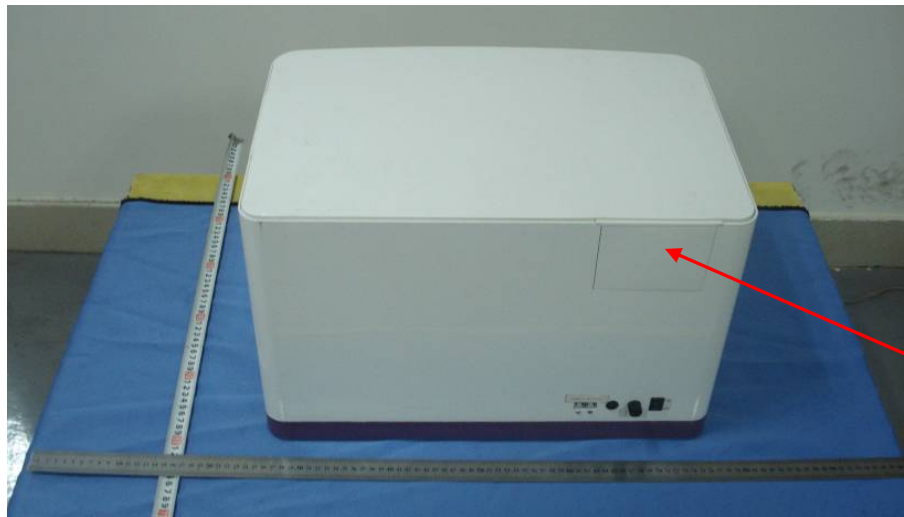
(4) Where a device is constructed in two or more sections connected by wires and marketed together, the statement specified above is required to be affixed only to the main control unit. If the EUT is integrated within another device then a label affixed to the host shall also state, "Contains FCC ID: XXXXXX"

(5) When the device is so small or for such use that it is not practicable to place the statement specified under paragraph (a) of this section on it, the information required by this paragraph shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed. However, the FCC identifier or the unique identifier, as appropriate, must be displayed on the device.

6.2 FCC ID Label Contents



6.3 FCC ID Label Location



Label here

Appendix A – Product Similarity Declaration



QINGDAO UNIQUE PRODUCTS DEVELOP CO., LTD

Company Address: No.23, SiLiu North Road, High-Tech Industrial Zone, Qingdao, China
Tel: 0532-80682167
Fax: 0532-80682165

Product Similarity Declaration

To Whom It May Concern,

We, QINGDAO UNIQUE PRODUCTS DEVELOP CO., LTD, hereby declare that our Talking flower printer, Model Number: UN-NA; UN-OT; UN-TS; UN-SO; UN-3D; UN-FT; UN-MU is electrically identical with the Model Number: UN-FL that was certified by BACL. * UN-NA; UN-OT; UN-TS; UN-SO; UN-3D; UN-FT; UN-MU and UN-FL are named differently due to marketing purposes.

Please contact me if you have any question.

Signature: *Yangkun*

Print Name: Yang Kun

Title: Manager

Date: 2012-02-22

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