TESTING
CNAS L2408

EN 55022:2010
EN 55024:2010
EN 61000-3-2:2006 + A1:2009 + A2:2009
EN 61000-3-3:2008

TEST REPORT

For

YEALINK (XIAMEN) NETWORK TECHNOLOGY CO., LTD.

4th-5th Floor, South Building, NO. 63 WangHai Road, 2nd Software Park, Xiamen, China

Model: EXP39

Report Type:	**Product Type:**
Amended Report	Yealink Expansion Module

Test Engineer:	Grace Xi
Report Number:	RSZ121211010-01A1
Report Date:	2012-12-18
Reviewed By:	Dick Zhang EMC Leader
Test Laboratory:	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

TABLE OF CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Issue
0	RSZ110725001-01	Original Report	2011-08-24
1	RSZ121211010-01A1	Amended Report	2012-12-18

Note:

This is an amended report application based on RSZ110725001-01, the details as below

Upgrading the standard version EN 55022:2006 + A1:2007, EN 55024:1998 + A1:2001 + A2:2003 to EN 55022:2010, EN 55024:2010;

Based on the above difference, it affects nothing, so all the test data and photos were copied from the original report RSZ110725001-01 that issued on 2011-08-24

GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *YEALINK (XIAMEN) NETWORK TECHNOLOGY CO., LTD.*'s product, model number: *EXP39* (or the "EUT") in this report is a *Yealink Expansion Module*, which was measured approximately: 13.5 cm (L) x 11 cm (W) x 4 cm (H), rated input voltage: DC 5V from adapter. The highest operating frequency of EUT is 32 MHz.

AC/DC Adapter information:
Model: OH-1048A0501200U2-VDE
Input: AC 100-240V, 50/60Hz, 250mA
Output: DC 5V, 1.2A

**All measurement and test data in this report was gathered from production sample serial number: 1212064 (Assigned by BACL, Shenzhen). The EUT was received on 2011-12-11.*

Objective

This test report is prepared on behalf of *YEALINK (XIAMEN) NETWORK TECHNOLOGY CO., LTD.* in accordance with EN 55022: Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement. EN 55024: Information technology equipment- Immunity characteristics – Limits and methods of measurement, EN 61000-3-2, Limits – Limits for harmonic current emissions (equipment input current up to and including 16 A per phase), and also in accordance with EN 61000-3-3, Limits Section 3; Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current<16A.

The objective of the manufacturer is to determine compliance with EN 55022, EN 55024, EN 61000-3-2 and EN 61000-3-3.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All measurements contained in this report were conducted with CISPR 16-1-1:2003, specification for radio disturbance and immunity measuring apparatus and methods P1-1: radio disturbance and immunity measuring apparatus measuring apparatus. CISPR 16-1-4:2004, Specification for radio disturbance and immunity measuring apparatus and methods-Part 1-4: Radio disturbance and immunity measuring apparatus -Ancillary equipment -Radiated disturbances. CISPR 16-2-1:2003, specification for radio disturbance and immunity measuring apparatus and methods P2-1: methods of measurement of disturbance and immunity conducted disturbance measurements. CISPR 16-2-3:2003 + A1:2005, specification for radio disturbance and immunity measuring apparatus and methods P2-3 methods of measurement of disturbances and immunity radiated disturbance measurements. CISPR 16-4-2:2003, Specification for radio disturbance and immunity measuring apparatus and methods-Part 4-2: Uncertainties, statistics and limit modeling-Uncertainty in EMC measurements

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 Meters.

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 China National Accreditation Service for Conformity Assessment (CNAS L2408).

SYSTEM TEST CONFIGURATION

Justification

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

Equipment Modifications

No modification was made to the EUT tested.

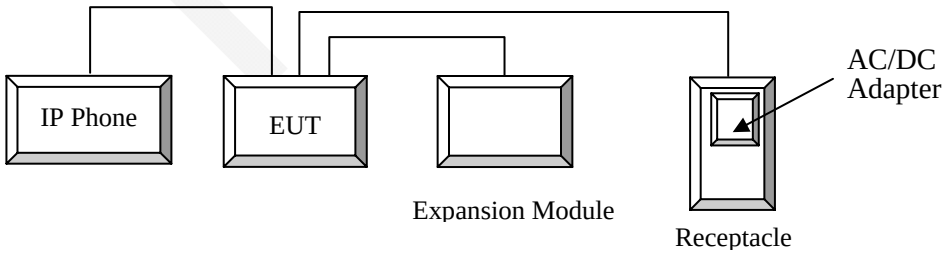
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
YEALINK	IP Phone	SIP-728	N/A
YEALINK	Yealink Expansion Module	EXP39	N/A

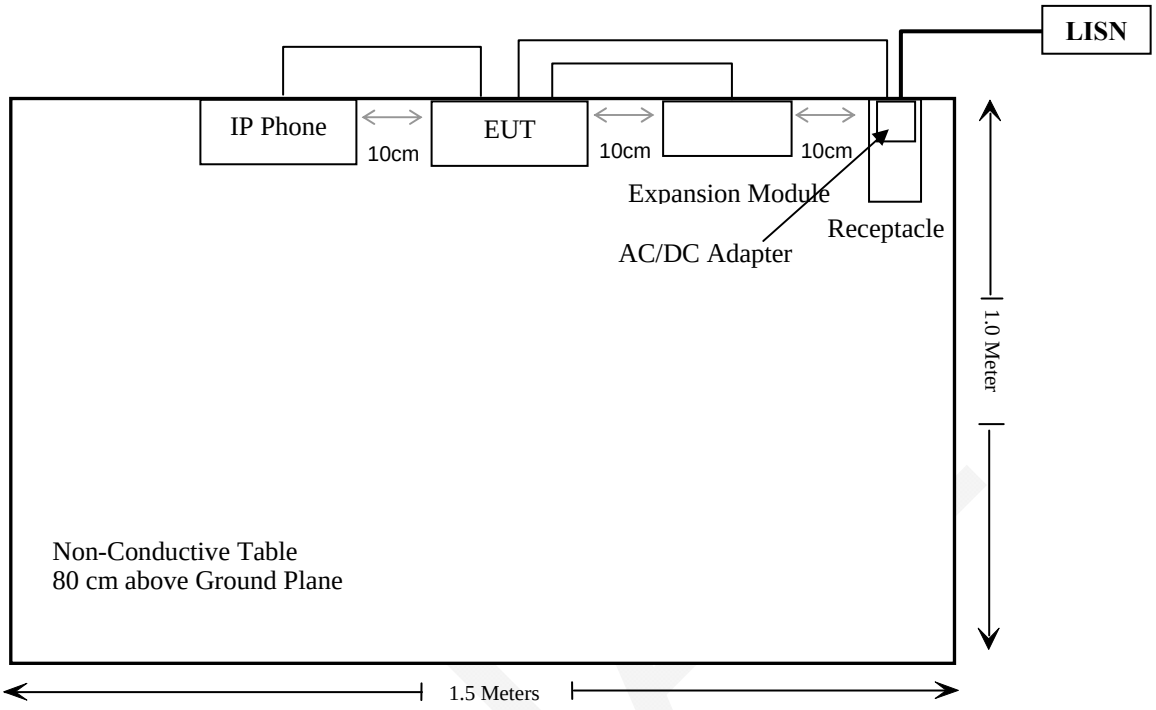
External I/O Cable

Cable Description	Length (m)	From/Port	To
Unshielded Detachable Connect Cable	0.5	EUT	IP Phone
Unshielded Detachable Connect Cable	0.5	EUT	Yealink Expansion Module
Unshielded Undetachable DC Power Cable	1.8	Adapter	IP Phone

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST REPORT

EN 55022

RULE	DESCRIPTION	RESULTS
§ 5.1	Conducted Disturbance at Mains Terminals	Compliance
§ 5.2	Conducted Disturbance at Telecommunication Port	N/A
§ 6	Radiated Disturbance	Compliance

EN 55024

RULE	DESCRIPTION	RESULTS
§4.2.1	Electrostatic Discharge IEC 61000-4-2	Compliance
§4.2.2	Electrical Fast Transients IEC 61000-4-4	Compliance
§4.2.3.1	Continuous Radiated Disturbance IEC 61000-4-3	Compliance
§4.2.3.2	Continuous Conducted Disturbance IEC 61000-4-6	Compliance
§4.2.4	Power Frequency Magnetic Fields IEC 61000-4-8	Compliance
§4.2.5	Surges IEC 61000-4-5	Compliance
§4.2.6	Voltage Dips And Interruptions, IEC 61000-4-11	Compliance

EN 61000-3-2

RULE	DESCRIPTION	RESULTS
	Harmonic Current Emissions	Compliance

EN 61000-3-3

RULE	DESCRIPTION	RESULTS
	Voltage Fluctuation and Flicker	Compliance

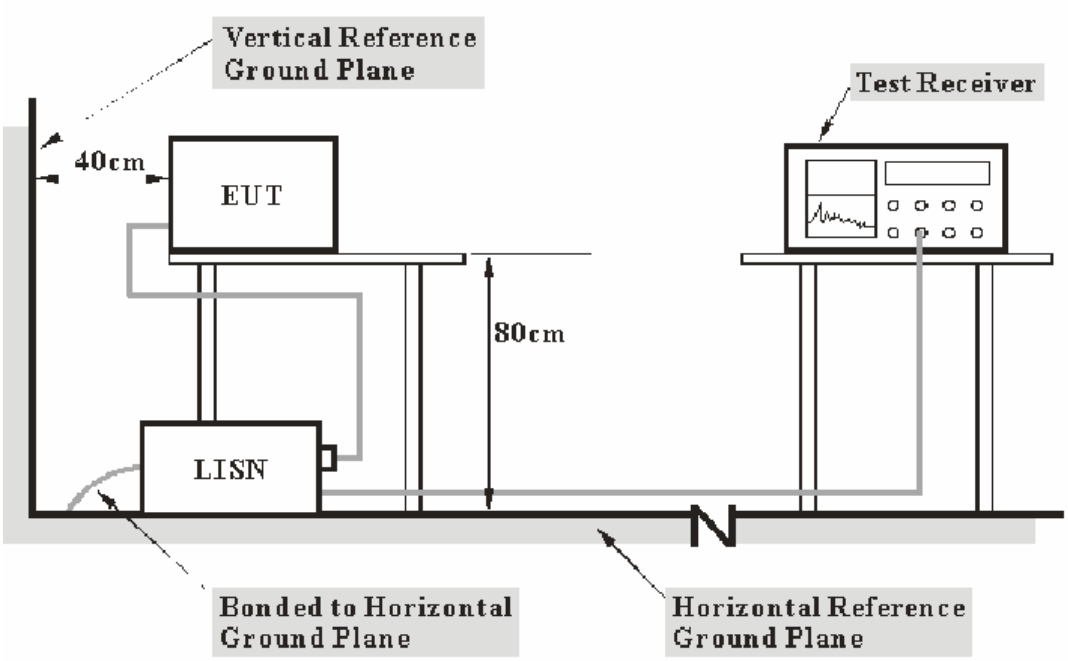
EN 55022 §5.1-CONDUCTED DISTURBANCE AT MAINS TERMINALS

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.

Test System 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 CISPR 16-2-1:2010 measurement procedure. The related limit was specified in the EN 55022 Class B.

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 AC/DC adapter was connected to an AC 230V/50 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:

Frequency Range	IF B/W
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. (Shenzhen) attests that all calibrations have been performed in accordance to CNAS requirements.

Test Procedure

During the conducted emission test, the AC/DC adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.

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 EN 55022 Class B, with the worst margin reading of:

6.91 dB at **4.980 MHz** in the **Neutral** conducted mode

Test Data

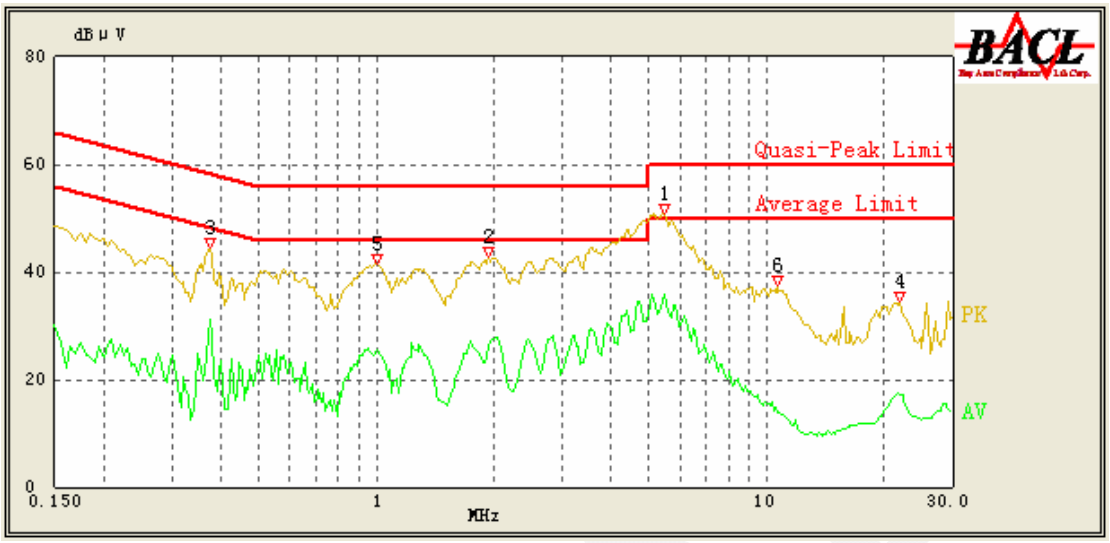
Environmental Conditions

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

The testing was performed by Grace Xi on 2011-08-18.

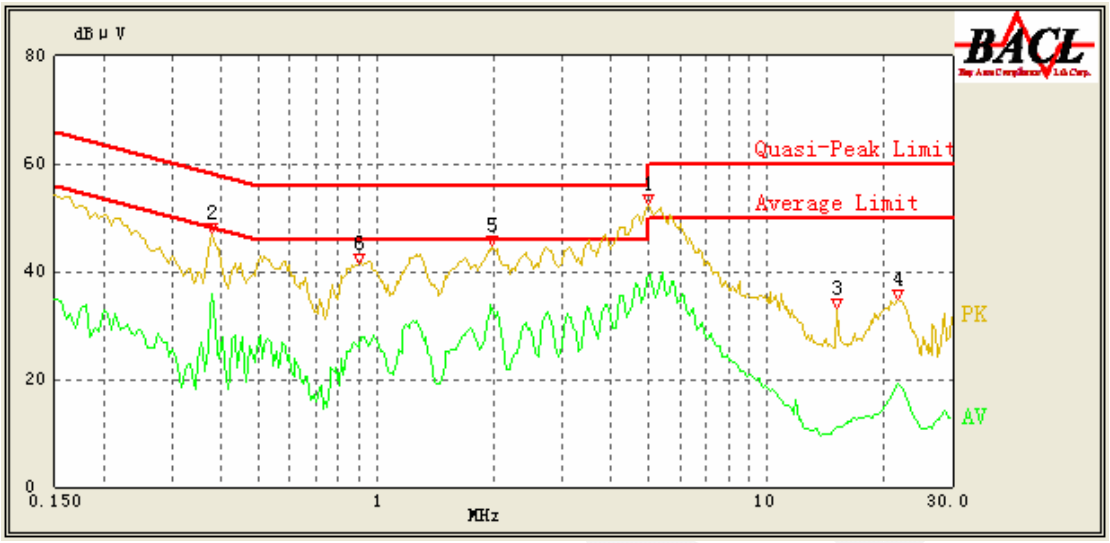
Test Mode: Running

AC 230V/50 Hz, Line:



Conducted Disturbance			EN 55022 Class B		
Frequency (MHz)	**Corrected Amplitude (dBµV)**	**Correction Factor (dB)**	**Limit (dBµV)**	**Margin (dB)**	**Detector (PK/Ave./QP)**
5.455	35.67	10.10	50.00	14.33	Ave.
5.480	44.86	10.10	60.00	15.14	QP
0.375	31.30	10.10	49.57	18.27	Ave.
1.010	37.60	10.10	56.00	18.40	QP
0.375	40.76	10.10	59.57	18.81	QP
1.940	26.28	10.10	46.00	19.72	Ave.
1.010	25.62	10.10	46.00	20.38	Ave.
1.945	35.39	10.10	56.00	20.61	QP
10.665	27.44	10.10	60.00	32.56	QP
21.910	17.16	10.10	50.00	32.84	Ave.
21.870	26.53	10.10	60.00	33.47	QP
10.605	14.83	10.10	50.00	35.17	Ave.

AC 230V/50 Hz, Neutral:



Conducted Disturbance			EN 55022 Class B		
Frequency (MHz)	Corrected Amplitude (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/Ave./QP)
4.980	39.09	10.10	46.00	6.91	Ave.
4.985	46.69	10.10	56.00	9.31	QP
1.960	33.80	10.10	46.00	12.20	Ave.
0.380	35.95	10.10	49.43	13.48	Ave.
1.985	41.33	10.10	56.00	14.67	QP
0.380	43.63	10.10	59.43	15.80	QP
0.900	37.40	10.10	56.00	18.60	QP
0.905	25.95	10.10	46.00	20.05	Ave.
21.770	19.07	10.10	50.00	30.93	Ave.
21.815	28.71	10.10	60.00	31.29	QP
15.150	11.03	10.10	50.00	38.97	Ave.
15.215	18.60	10.10	60.00	41.40	QP

Note:
1) Corrected Amplitude = Reading + Correction Factor
2) Correction Factor =LISN/ISN VDF (Voltage Division Factor) + Cable Loss + Pulse Limiter Attenuation
The corrected factor has been input into the transducer of the test software.
3) Margin = Limit – Corrected Amplitude

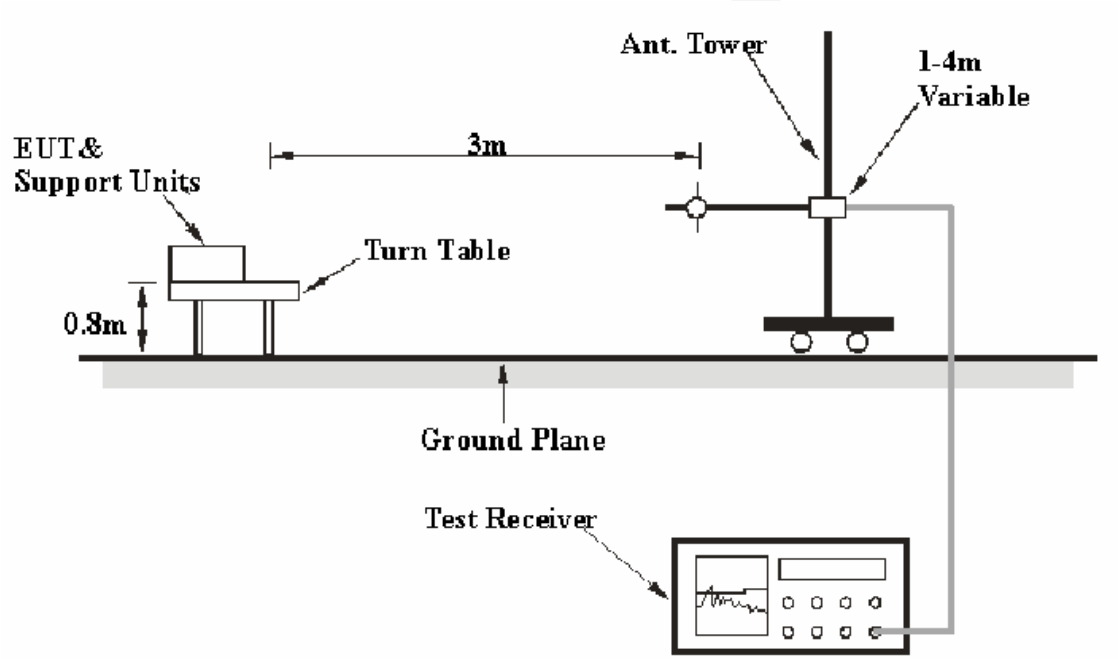
EN 55022 §6-RADIATED DISTURBANCE

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), and the uncertainty will not be taken into consideration for all the test data recorded in the report.

Test System Setup



The radiated emission tests were performed in the 3 meters chamber A test site, using the setup accordance with the CISPR16-1-4:2010, CISPR 16-2-3:2010. The limit was specified in EN 55022 Class B.

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 AC/DC adapter was connected to a 230 VAC/50 Hz power source.

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:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP

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	2010-11-11	2011-11-10
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-07-05	2012-07-04

*** Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to CNAS requirements.

Test Procedure

During the radiated emissions, the AC/DC adapter was connected to the AC floor outlet.

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

The data was recorded in the Quasi-peak detection mode for below 1 GHz.

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:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - 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 for Class B. The equation for margin calculation is as follows:

Margin = Limit –Corrected Amplitude.

Test Results Summary

According to the data in the following table, the EUT complied with the EN 55022 Class B, with the worst margin reading of:

2.4 dB at **374.990500 MHz** in the **Horizontal** polarization

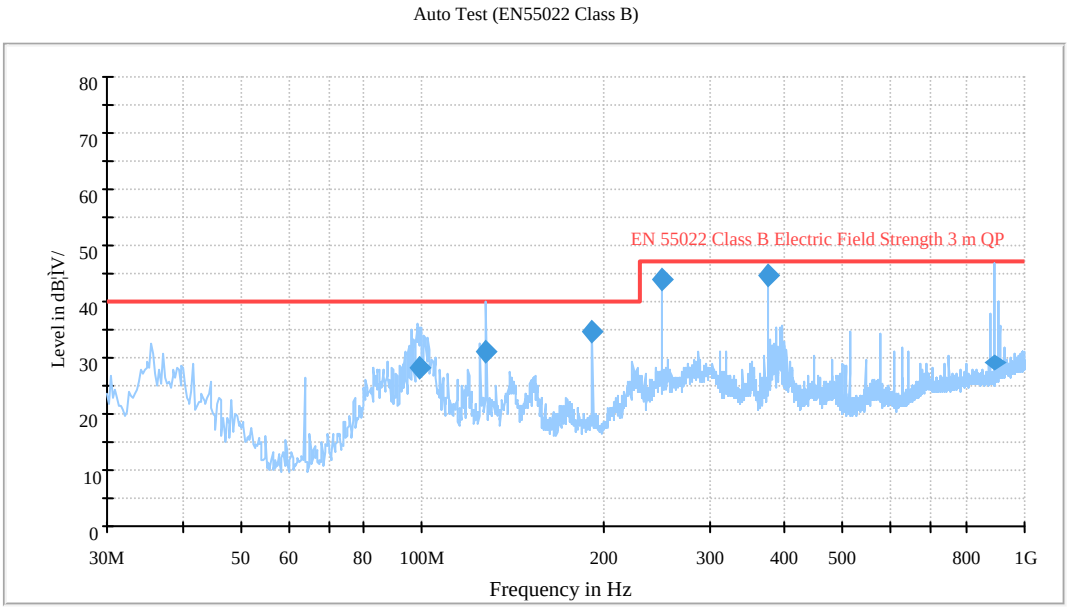
Test Data

Environmental Conditions

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

The testing was performed by Grace Xi on 2011-08-18.

Test Mode: Running



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna height (cm)	Antenna Polarity	Turntable position (degree)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
374.990500	44.6	100.0	H	180.0	-10.5	47.0	2.4
249.992000	44.1	127.0	H	346.0	-13.5	47.0	2.9
191.999000	34.6	179.0	H	14.0	-14.7	40.0	5.4
127.998000	30.9	197.0	H	3.0	-12.5	40.0	9.1
99.045500	28.2	313.0	H	28.0	-14.9	40.0	11.8
891.130000	28.0	233.0	H	32.0	-1.2	47.0	19.0

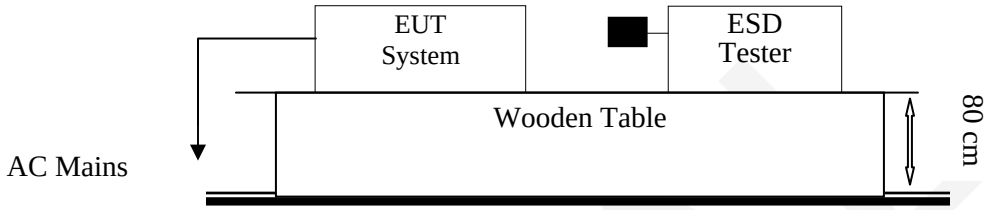
Note:
Corrected Amplitude = Corrected Factor + Reading
Corrected Factor=Antenna factor + cable loss – amplifier factor
Margin = Limit - Corrected Amplitude

EN 55024 §4.2.1-ELECTROSTATIC DISCHARGES (IEC 61000-4-2)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	ESD Tester	Dito	302105	2010-10-27	2011-10-26

Test System Setup



Remark: ■ is the tip of the electrode

IEC 61000-4-2 specifies that a tabletop EUT shall be placed on a non-conducting table which is 80 centimeters above a ground reference plane and that floor mounted equipment shall be placed on a insulating support approximately 10 centimeters above a ground plane. During the tests, the EUT is positioned over a ground reference plane in conformance with this requirement.

For tabletop equipment, a 1.5 by 1.0-meter metal sheet (HCP) is placed on the table and connected to the ground plane via a metal strap with two 470 k Ohms resistors in series. The EUT and attached cables are isolated from this metal sheet by *0.5-millimeter* thick insulating material. A Vertical Coupling Plane (VCP) grounded on the ground plane through the same configuration as in the HCP is used.

Test Standard

EN 55024:2010 (IEC 61000-4-2:2008)
Test level 3 for Air Discharge at ±8 kV
Test level 2 for Contact Discharge at ±4 kV

Test Level

Level	Test Voltage Contact Discharge (±kV)	Test Voltage Air Discharge (±kV)
1.	2	2
2.	4	4
3.	6	8
4.	8	15
X.	Special	Special

Performance criterion: B

Test Procedure

Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

Contact Discharge:

All the procedure shall be same as Section 8.3.1 of IEC 61000-4-2, except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

Indirect discharge for horizontal coupling plane

At least 20 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1 m from the EUT and with the discharge electrode touching the coupling plane.

Indirect discharge for vertical coupling plane

At least 20 single discharges shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m × 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

Test Data and Setup Photo

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Grace Xi on 2011-08-17.

.

Test Mode: Running

Table 1: Electrostatic Discharge Immunity (Air Discharge)

IEC 61000-4-2 Test Points Location	Test Levels							
	-2 kV	+2 kV	-4 kV	+4 kV	-8 kV	+8 kV	-15 kV	+15 kV
Enclosure Slot (10 points)	A	A	A	A	A	A	/	/
Surface (10 points)	A	A	A	A	A	A	/	/
Key (20 points)	A	A	A	A	A	A	/	/
Ext in port (1 point)	A	A	A	A	B	B	/	/
Ext out port (1 point)	A	A	A	A	B	B	/	/
Power port (1 point)	A	A	A	A	B	B	/	/

Table 2: Electrostatic Discharge Immunity (Direct Contact)

IEC 61000-4-2 Test Points Location	Test Levels							
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV
Screws (2points)	A	A	A	A	/	/	/	/

Table 3: Electrostatic Discharge Immunity (Indirect Contact HCP)

IEC 61000-4-2 Test Points Location	Test Levels							
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV
Front Side	A	A	A	A	/	/	/	/
Back Side	A	A	A	A	/	/	/	/
Left Side	A	A	A	A	/	/	/	/
Right Side	A	A	A	A	/	/	/	/

Table 4: Electrostatic Discharge Immunity (Indirect Contact VCP)

IEC 61000-4-2 Test Points Location	Test Levels							
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV
Front Side	A	A	A	A	/	/	/	/
Back Side	A	A	A	A	/	/	/	/
Left Side	A	A	A	A	/	/	/	/
Right Side	A	A	A	A	/	/	/	/

Air Discharge

Indirect Contact

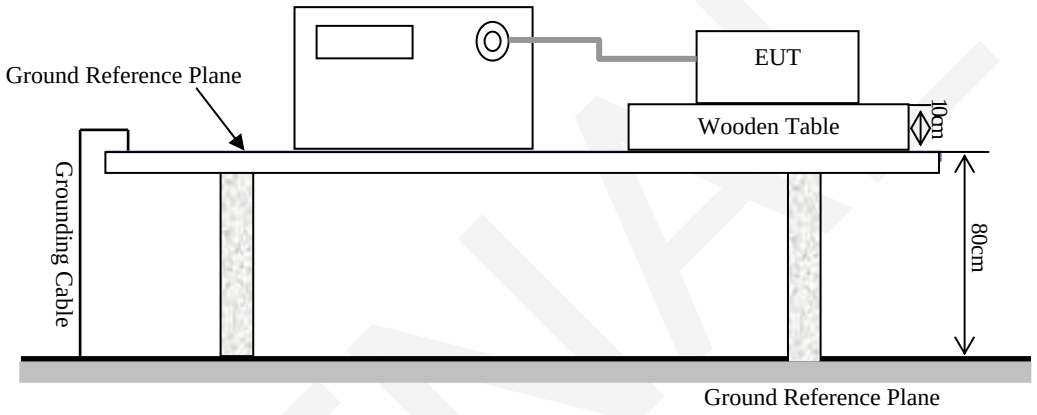
Test Setup Photos

EN 55024 §4.2.2-ELECTRICAL FAST TRANSIENTS (IEC 61000-4-4)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	Ultra Compact Generator	UCS500-N5	V0939105172	2011-07-04	2012-07-03
EM Test	Auto-transformer	MV2616	V0939105173	2011-07-04	2012-07-03
EM Test	EFT Clamp	N/A	300886	2011-07-04	2012-07-03

Test System Setup



Test Standard

EN 55024:2010 (IEC 61000-4-4:2004)
AC mains: Test level 2 at 1 kV

Test Level

Open Circuit Output Test Voltage ±10%		
Level	**On Power Supply Lines**	**On I/O (Input/Output) Signal data and control lines**
1	0.5 kV	0.25 kV
2	1 kV	0.5 kV
3	2 kV	1 kV
4	4 kV	2 kV
X	Special	Special

Performance Criterion: B

Test Procedure

The EUT was arranged for Power Line Coupling and for I/O Line Coupling through a capacitive clamp, where applicable. (Note: The I/O coupling test using a capacitive clamp is performed on the I/O interface cables that are longer in length than 3 meters.) A metal ground plane 2.4 meter by 2.0 meter was placed between the floor and the table and is connected to the earth by a 2.0 meter ground rod. The ground rod is connected to the test facility's electrical earth.

Test Data and Setup Photo

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Grace Xi on 2011-07-30.

.Test Mode: Running

IEC 61000-4-4 Test Points		Test Levels (kV)							
		+0. 5	-0. 5	+1.0	-1.0	+2.0	-2.0	+4.0	-4.0
AC mains power input ports	L1	A	A	A	A	/	/	/	/
	L2	A	A	A	A	/	/	/	/
	Earth	/	/	/	/	/	/	/	/
	L1+L2	A	A	A	A	/	/	/	/
	L1 + Earth	/	/	/	/	/	/	/	/
	L2 + Earth	/	/	/	/	/	/	/	/
	L1+L2+Earth	/	/	/	/	/	/	/	/

Test Setup Photo

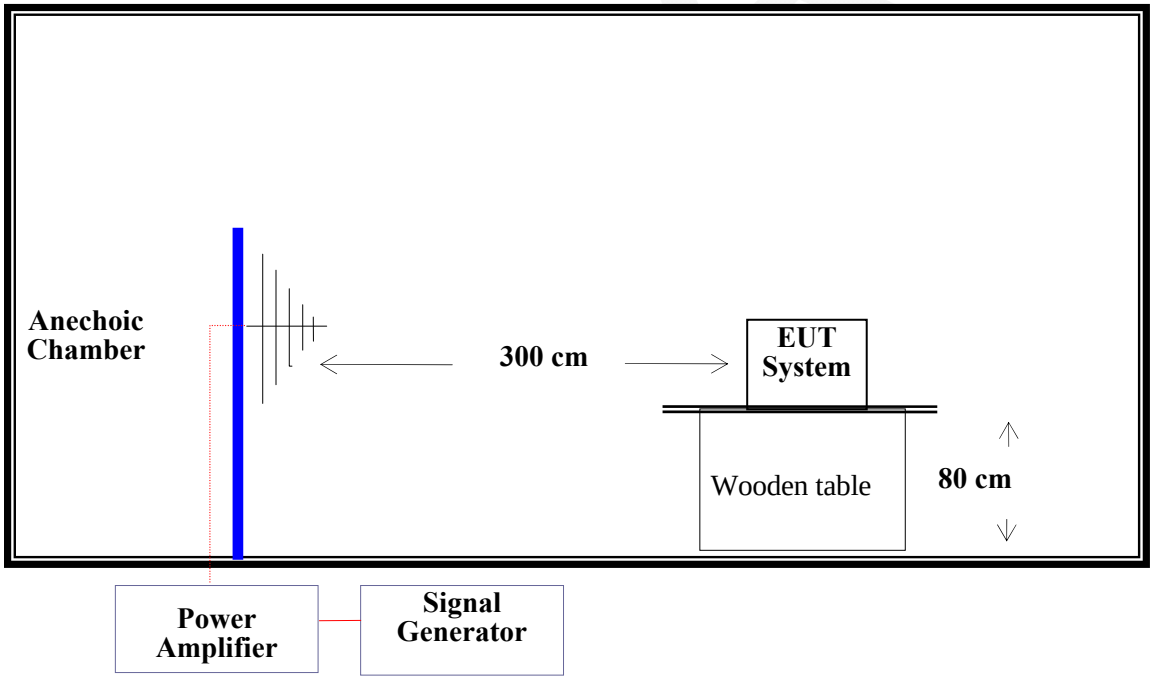
EN 55024 §4.2.3.1-CONTINUOUS RADIATED DISTURBANCES (IEC 61000-4-3)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Amplifier Research	Amplifier	200W1000/M2	15893	2011-01-14	2012-01-14
Amplifier Research	Field Meter	FM5004	302149	2011-03-31	2012-03-30
ETS-LINDGREN	Sensor	HI-6005	N/A	2011-03-31	2012-03-30
HP	Signal Generator	HP8657A	2849U00982	2010-10-28	2011-10-27
Amplifier Research	Biconilog Antenna	AT1080	301902	N/A	N/A

*** Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to CNAS requirements.

Test System Setup



Test Standard

EN 55024:2010 (IEC 61000-4-3: 2006 + A1:2007 + A2:2010)
Test level 2 at 3V / m

Test Level

Level	Field Strength V/m
1.	1
2.	3
3.	10
X.	Special

Performance Criterion: A

Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above the ground. The EUT is set 3 meters away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarizations of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually.
In order to judge the EUT performance, a CCD camera and Laptop, telephones are used to monitor the EUT and the sound pressure level.

All the scanning conditions are as follows:

	Condition of Test	Remarks
1.	Field Strength	3 V/m (Test level 2)
2.	Radiated Signal	AM 80%, 1 kHz Modulation
3.	Scanning Frequency	80 – 1000 MHz
4.	Sweeping time of radiated	0.0015decade/s
5.	Dwell Time	1Sec.

Test Data and Setup Photo

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Grace Xi on 2011-08-01.

Test Mode: Running

Frequency Range (MHz)	Front Side (3 V/m)		Rear Side (3 V/m)		Left Side (3 V/m)		Right Side (3 V/m)	
	VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
80-1000	A	A	A	A	A	A	A	A

Test Setup Photo

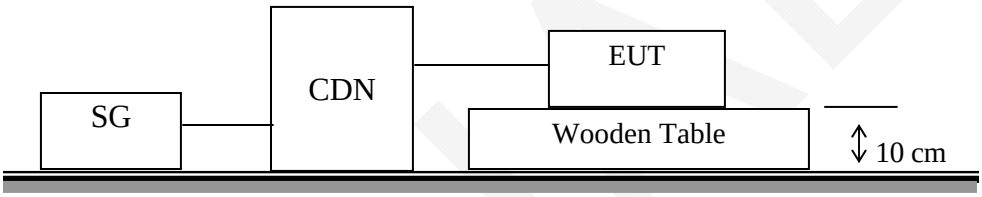
EN 55024 §4.2.3.2-CONTINUOUS CONDUCTED DISTURBANCES (IEC 61000-4-6)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM	CDN	M3	1201-05	2011-03-09	2012-03-08
EM Test	C/S Tester	CWS500	303277	2010-11-03	2011-11-02
EM Test	Attenuator	6dB	303282	2010-11-15	2011-11-14

*** Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to CNAS requirements.

Test Setup



Test Standard

EN 55024:2010 (IEC 61000-4-6:2008)
Test level 2 at 3 V r.m.s. (unmodulated), 0.15 MHz ~ 80 MHz,

Test Level

Level	Voltage Level (r.m.s.) (V)
1	1
2	3
3	10
X	Special

Performance Criterion: A

Test Procedure

1) Let the EUT work in test mode and test it.
2) The EUT are placed on an insulating support 0.1 m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3 m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
3) The disturbance signal described below is injected to EUT through CDN.
4) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
5) The frequency range is swept from 150 kHz to 80 MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1 kHz sine wave.
6) The rate of sweep shall not exceed 1.5*10-3decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
7) Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

Test Data and Setup Photo

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Grace Xi on 2011-08-01.

.

Test Mode: Running

Test Ports: AC mains power input port
Modulation: Amplitude 80%, 1 kHz sine wave
Test level: 3V r.m.s, unmodulated.

Level	Voltage Level (r.m.s.) U_0	Pass	Fail
1	1	/	/
2	3	A	/
3	10	/	/
X	Special	/	/

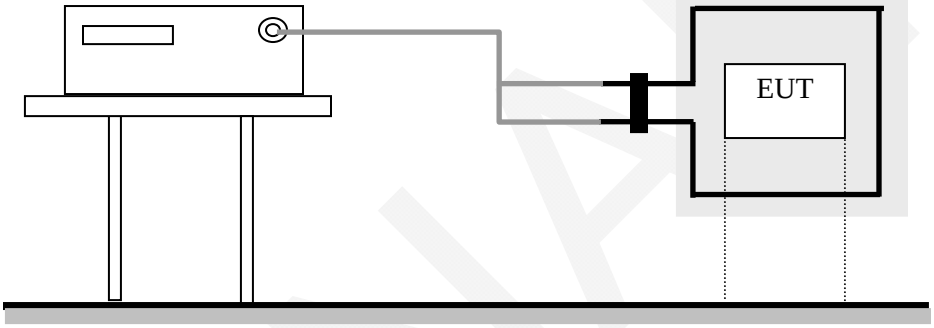
Test Setup Photo

EN 55024 §4.2.4-POWER FREQUENCY MAGNETIC FIELDS (IEC 61000-4-8)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	Ultra Compact Generator	UCS500-N5	V0939105172	2011-07-04	2012-07-03
EM Test	Auto-transformer	MV2616	V0939105173	2011-07-04	2012-07-03
EM Test	Current Transformer	MC2630	0309-59	2011-03-09	2012-03-08
EM Test	Loop Antenna	MS100	0809-05	2011-03-09	2012-03-08

Test Setup



Test Standard

EN 55024:2010 (IEC 61000-4-8:2009)
Test level 1 at 1A/m

Test Level

Level	Magnetic Field Strength A/m
1	1
2	3
3	10
4	30
5	100
X.	Special

Performance criterion: A

Test Procedure

The EUT shall be subjected to the test magnetic field by using the induction coil of standard dimensions (1 m*1 m). The induction coil shall then be rotated by 90° in order to expose the EUT to the test field with different orientations.

Test Data and Setup Photo

Environmental Conditions

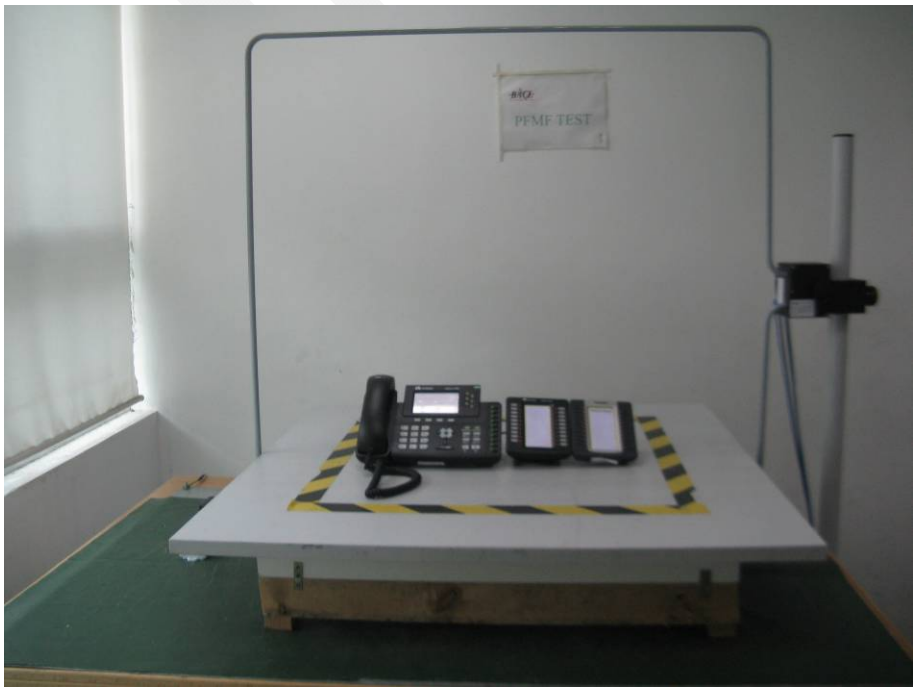
Temperature:	25 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Grace Xi on 2011-07-30.

.

Test Mode: Running

Level	Magnetic Field Strength A/m	X (Horizontal)	Y (Vertical)	Z (Special)
1	1	A	A	A
2	3	/	/	/
3	10	/	/	/
4	30	/	/	/
5	100	/	/	/
X	Special	/	/	/



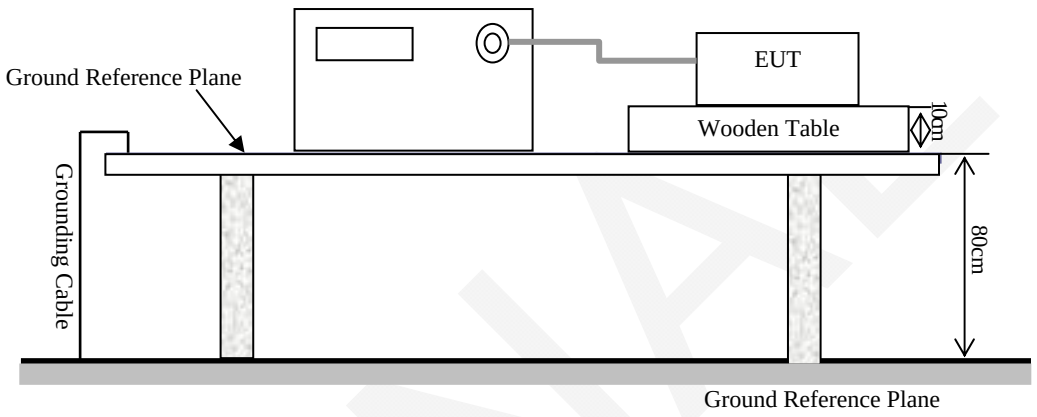
Test Setup Photo

EN 55024 §4.2.5-SURGES (IEC 61000-4-5)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	Ultra Compact Generator	UCS500-N5	V0939105172	2011-07-04	2012-07-03
EM Test	Auto-transformer	MV2616	V0939105173	2011-07-04	2012-07-03

Test System Setup



Test Standard

EN 55024:2010 (IEC 61000-4-5:2005)
AC Mains: L-N: Test level 2 at 1 kV

Test Level

Level	Open Circuit Output Test Voltage ±10%
1	0.5 kV
2	1 kV
3	2 kV
4	4 kV
X	Special

Performance criterion: B

Test Procedure

1) For line to line coupling mode, provide a 0.5 kV 1.2/50us voltage surge (at open-circuit condition).
2) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
3) Different phase angles are done individually.
4) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

Test Data and Setup Photo

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Grace Xi on 2011-07-30.

.

Test Mode: Running

Table 1: AC mains power input port

Level	Voltage	Poll	Path	Pass	Fail
1	0.5kV	±	L-N	A	/
2	1kV	±	L-N	A	/
3	2kV	±	L-N, L-PE, N-PE	/	/
4	4kV	±	L-N, L-PE, N-PE	/	/

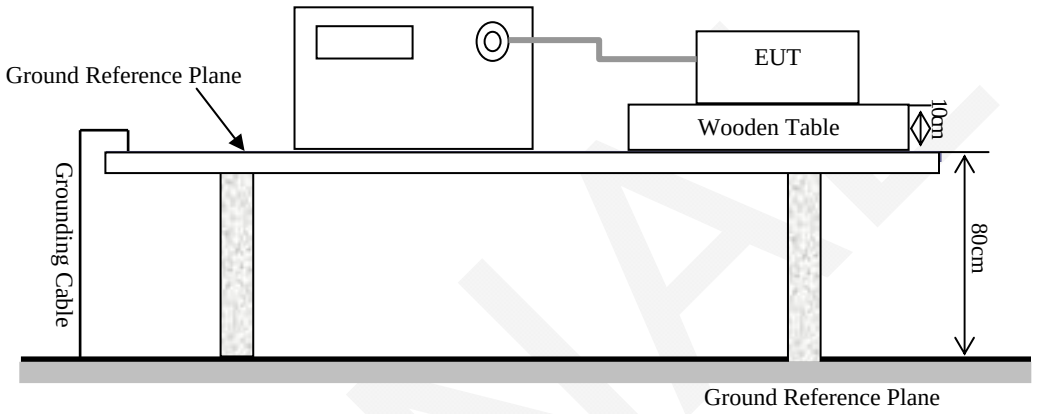
Test Setup Photo

EN 55024 §4.2.6-VOLTAGE DIPS AND INTERRUPTIONS (IEC 61000-4-11)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	Ultra Compact Generator	UCS500-N5	V0939105172	2011-07-04	2012-07-03
EM Test	Auto-transformer	MV2616	V0939105173	2011-07-04	2012-07-03

Test Setup



Test Standard

EN 55024:2010 (IEC 61000-4-11:2004)
Test levels and Performance Criterion

Test Level

Test Level	Voltage dip and short interruptions %UT	Duration (Periods)	Performance Criterion
1	>95	0.5	B
2	30	25	C
3	>95	250	C

Test Procedure

1) The interruption is introduced at selected phase angles with specified duration.
2) Record any degradation of performance.

Test Data and Setup Photo

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Grace Xi on 2011-07-30.

Test Mode: Running

Level	U2 (% Reduction)	Td(Periods)	Phase Angle	N	Pass	Fail
1	>95	0.5	0/90/180/270	3	A	/
2	30	25	0/90/180/270	3	B	/
3	>95	250	0/90/180/270	3	B	/

Test Setup Photo

EN 61000-3-2-HARMONIC CURRENT EMISSIONS

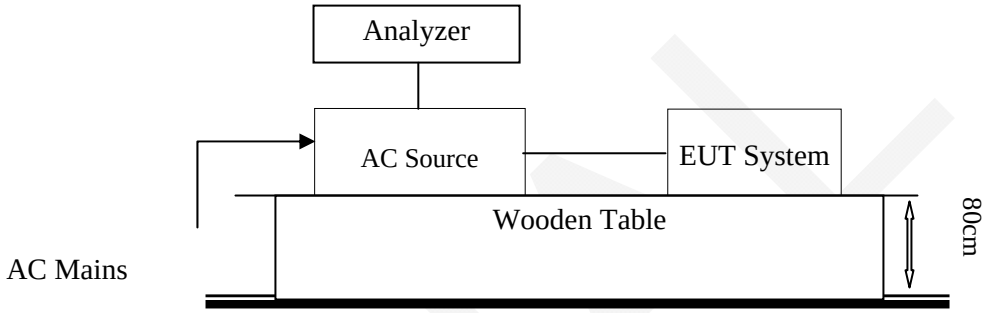
According to EN 61000-3-2:2006 + A1:2009 + A2:2009 section 7: Equipment with a rated power of 75 W or less, other than discharge lighting equipment, are not included in this standard.

EN 61000-3-3- VOLTAGE FLUCTUATION AND FLICKER

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	Harmonic/Flicker Analyzer	DPA 500N	V0939105176	2010-11-11	2011-11-10
EM Test	AC Source	ACS500	1101-02	2011-03-25	2012-03-24

Test System Setup



Test Standard

EN 61000-3-3:2008

Flicker Test Limits：

The limits shall be applicable to voltage fluctuations and flicker at the supply terminals of the equipment under test, measured or calculated according to clause 4 under test conditions described in clause 6 and annex A. Tests made to prove compliance with the limits are considered to be type tests.
The following limits apply:
– the value of Pst shall not be greater than 1,0;
– the value of Plt shall not be greater than 0,65;
– the value of d(t) during a voltage change shall not exceed 3,3 % for more than 500 ms;
– the relative steady-state voltage change, dc, shall not exceed 3,3 %;
– the maximum relative voltage change dmax, shall not exceed
a) 4 % without additional conditions;
b) 6 % for equipment which is:

– switched manually, or
– switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.

Note: The cycling frequency will be further limited by the Pst and Plt limit. For example: a dmax of 6 % producing a rectangular voltage change characteristic twice per hour will give a Plt of about 0,65.

c) 7 % for equipment which is
– attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
– switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.

In the case of equipment having several separately controlled circuits in accordance with 6.6, limits b) and c) shall apply only if there is delayed or manual restart after a power supply interruption; for all equipment with automatic switching which is energized immediately on restoration of supply after a power supply interruption, limits a) shall apply; for all equipment with manual switching, limits b) or c) shall apply depending on the rate of switching. Pst and Plt requirements shall not be applied to voltage changes caused by manual switching. The limits shall not be applied to voltage changes associated with emergency switching or emergency interruptions.

Test Data and Setup Photo

Environmental Conditions

Temperature:	25°C
Relative Humidity:	50 %
ATM Pressure:	100.0 kPa

Date of test:	11:51 30 Jul. 2011
Tester:	Grace Xi
Standard used:	EN/IEC 61000-3-3 Flicker
Short time (Pst):	10 min
Observation time:	10 min (1 Flicker measurement)
Flicker meter:	230V / 50Hz
Customer:	YEALINK (XIAMEN) NETWORK TECHNOLOGY CO., LTD.
E. U. T.:	Yealink Expansion Module
Model:	EXP39
Test Mode:	Running

Maximum Flicker results

	EUT values	Limit	Result
Pst	0.028	1.00	PASS
Plt	0.028	0.65	PASS
dc [%]	0.013	3.30	PASS
dmax [%]	0.058	4.00	PASS
dt [s]	0.000	0.50	PASS

Test Setup Photo

EXHIBIT A - PRODUCT LABELING

Label Specification

Specification: Text is Black or white in color and is left justified. Labels are printed in indelible ink on permanent adhesive backing and shall be affixed at a conspicuous location on the EUT or silk-screened onto the EUT.

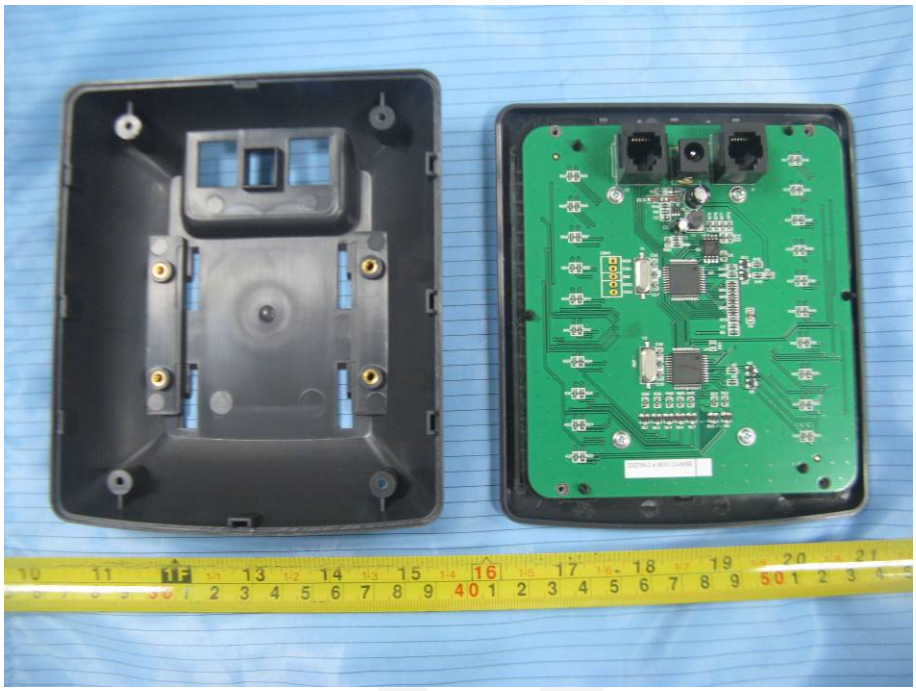
Label Location on EUT

EXHIBIT B - EUT PHOTOGRAPHS

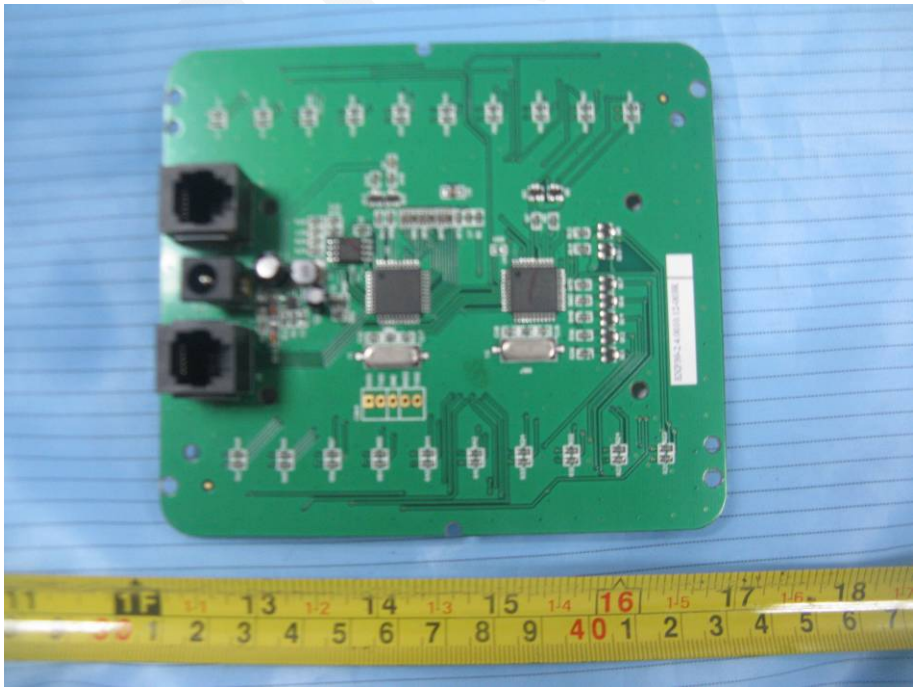
EUT – Front View

EUT – Rear View

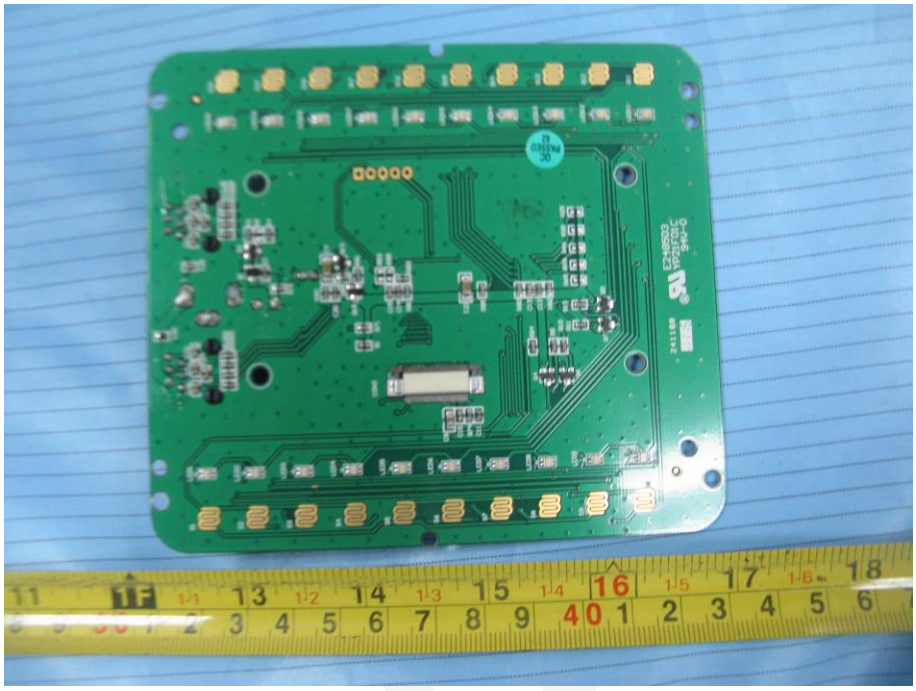
EUT – Cover off View



EUT – Main Board Top View

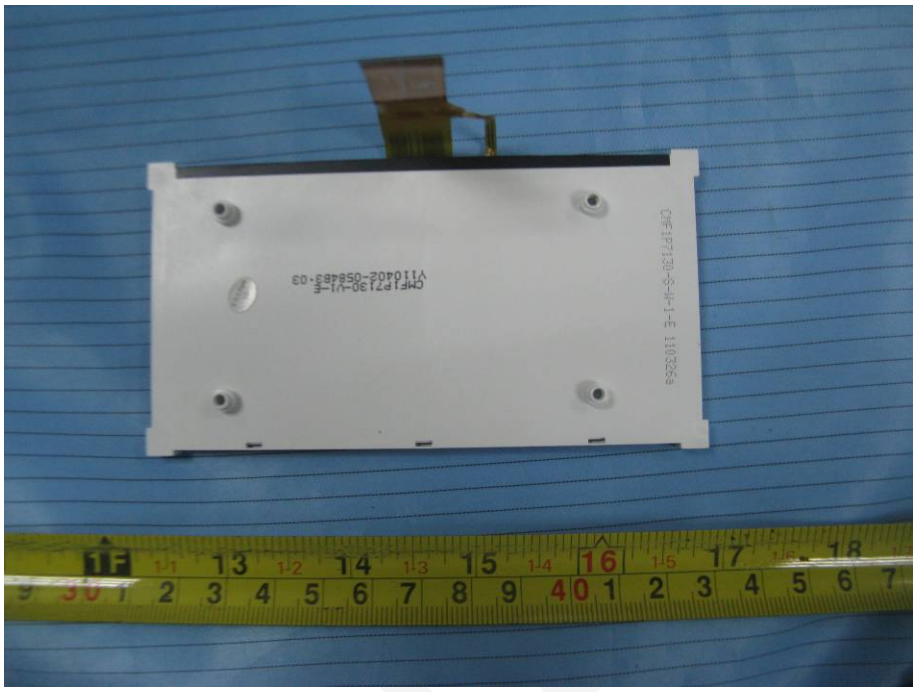


EUT – Main Board Bottom View



EUT – LCD Screen Top View

EUT – LCD Screen Top View



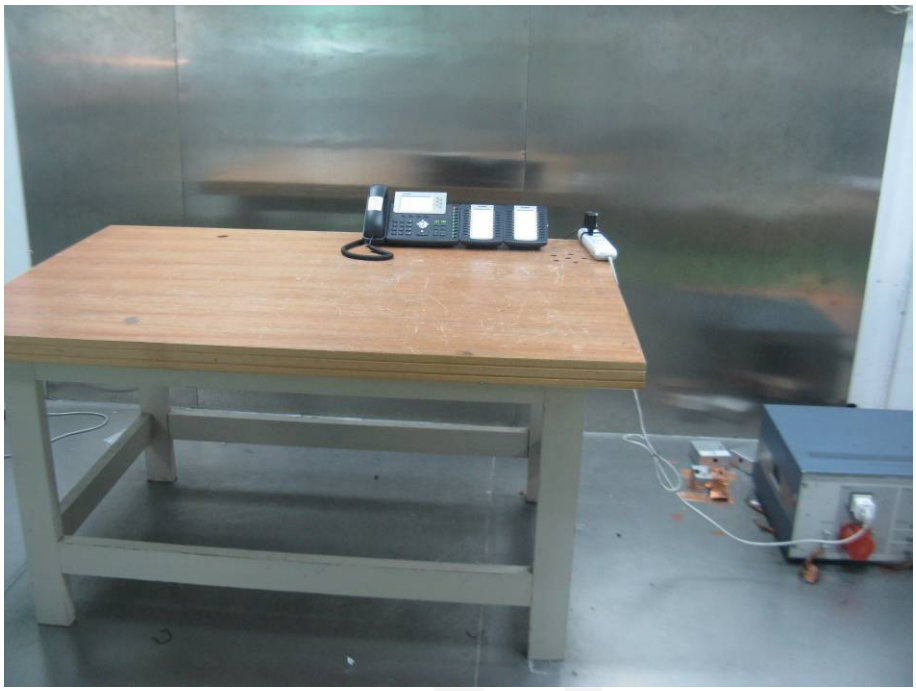
EUT – Label View

EUT – Adapter View

EUT – Adapter Label View

EXHIBIT C - TEST SETUP PHOTOGRAPHS

Conducted Disturbance - Front View



Conducted Disturbance - Side View

Radiated Disturbance - Front View

Radiated Disturbance - Rear View

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