

AS/NZS CISPR 22: 2004 Class B
AS/NZS CISPR 24: 2002
TEST REPORT

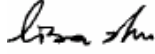
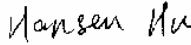

For

XIAMEN YEALINK NETWORK TECHNOLOGY CO., LTD.

7/F HuaLian Electronic BLDG., No.580 JiaHe Road, XiaMen, China

Model: USB-P1K

September 26, 2005

This Report Concerns: <input checked="" type="checkbox"/> Original Report	Equipment Type: USB PHONE
Test Engineer: Lisa Zhu  Hansen Hu 	
Report Number: RSZ05090701-9	
Test Date: September 6-22, 2005	
Reviewed By: Chris Zeng 	
Prepared By: Bay Area Compliance Lab Corp. (ShenZhen)	

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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The XIAMEN YEALINK NETWORK TECHNOLOGY CO., LTD. 's product, model USB-P1K or the "EUT" as referred to in this report was a USB Phone which measures approximately 12.0 cm L x 4.3 cm W x 2.4 cm H, rated input voltage: DC 5V.

** The test data gathered are from production sample, serial number: 0509009, provided by the manufacturer.*

Objective

The following test report is prepared on behalf of XIAMEN YEALINK NETWORK TECHNOLOGY CO., LTD. in accordance with AS/NZS CISPR 22: 2004 Class B and AS/NZS CISPR 24: 2002 rules.

The objective of the manufacturer is to determine compliance with AS/NZS CISPR 22: 2004 Class B and AS/NZS CISPR 24: 2002.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All measurements contained in this report were conducted with AS/NZS CISPR 16.1:2002, Specification for radio disturbance and immunity measuring apparatus and methods - Radio disturbance and immunity measuring apparatus. AS/NZS CISPR 16.2:2002, Specification for radio disturbance and immunity measuring apparatus and methods - Methods of measurement of disturbances and immunity

All radiated and conducted emissions measurement was performed at Bay Area Compliance Lab 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 Lab Corp. (ShenZhen) to collect radiated and conducted emission measurement data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone, ShenZhen, Guangdong 518038, P.R.China.

Test site at Bay Area Compliance Lab 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 November 04, 2004. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

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 Lab Corp. (ShenZhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0). The current scope of accreditations can be found at <http://ts.nist.gov/ts/htdocs/210/214/scopes/2007070.htm>

Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
Intel	Motherboard	D865GKD	11S19R1949ZJ1WCB46J1J4	DoC
IBM	Power	HIPRO-A2307F3T	11S49P2191ZJ1TAR47D1PG	DoC
IBM	Hard Disk	IC35L090AW207-0	VNVC32G3GGS52T	DoC
ALPS	3.5' Floppy	06P5226	11S06P5226ZJ1W25328053	DoC
Hitachi-LG	DVD-Rom	LTN-489S	B4F511412	DoC
Intel	Ethernet	PRO 10/100 VE	N/A	DoC
ProMOS	Memory	V826616J24SATG-C0	BD070964H	DoC
Intel	CPU	Pentium4 2800MHz	N/A	DoC

Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
IBM	PC	ThinkCentre A50	99Y5681	DoC
Logitech	Keyboard	Y-SM48	SY513U68933	DoC
Logitech	Mouse	M-SAW83A	HCA31707689	DoC
IBM	PC	ThinkCentre A50	99Y5681	DoC
HP	Laser Jet5L	C3941A	JPTVOB2337	DoC
SAST	Modem	AEM-2100	0293	DoC

External I/O Cable

Cable Description	Length (M)	From/Port	To
Shielded Detachable Keyboard Cable	1.50	Keyboard Port / Host	Keyboard
Shielded Detachable Mouse Cable	1.50	Mouse Port / Host	Mouse
Shielded Detachable Printer Cable	1.20	Parallel Port / Host	Printer
Shielded Detachable Serial Cable	1.20	Serial Port / Host	Modem
Shielded Detachable VGA Cable	1.50	VGA Port / Host	Monitor
Shielded Detachable USB Cable with two cores	2.00	EUT	PC

SYSTEM TEST CONFIGURATION

Justification

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

EUT Exercise Software

The EUT exercising program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The software offered by Bay Area Compliance Lab Corp. (ShenZhen) can exercise the EUT as data transferring between the EUT and the host.

Special Accessories

The special Accessories were supplied by Manufactures.

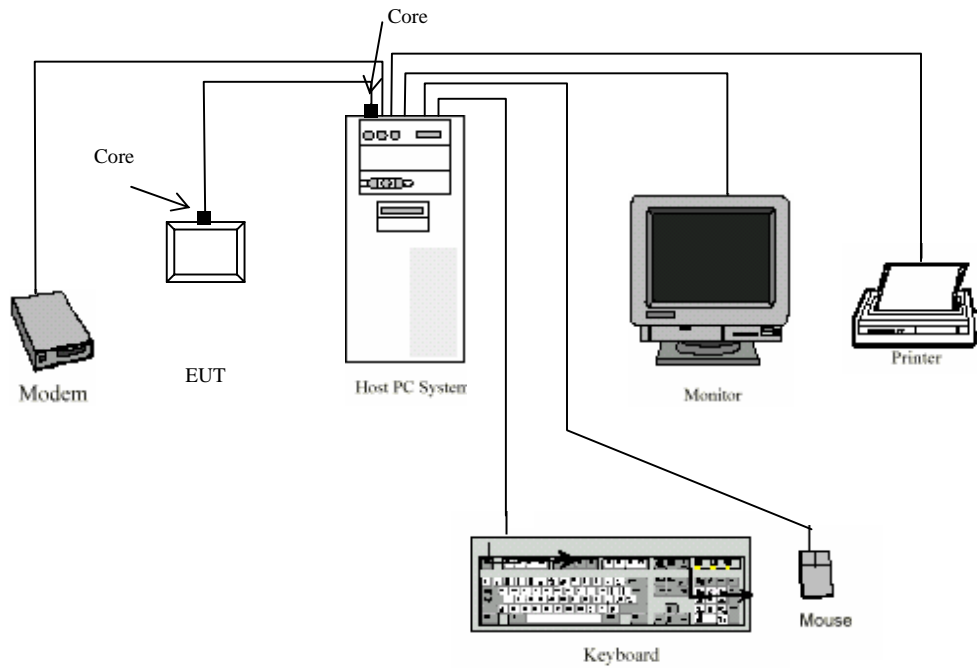
Block Diagram/Schematics

Please refer to the Exhibit C.

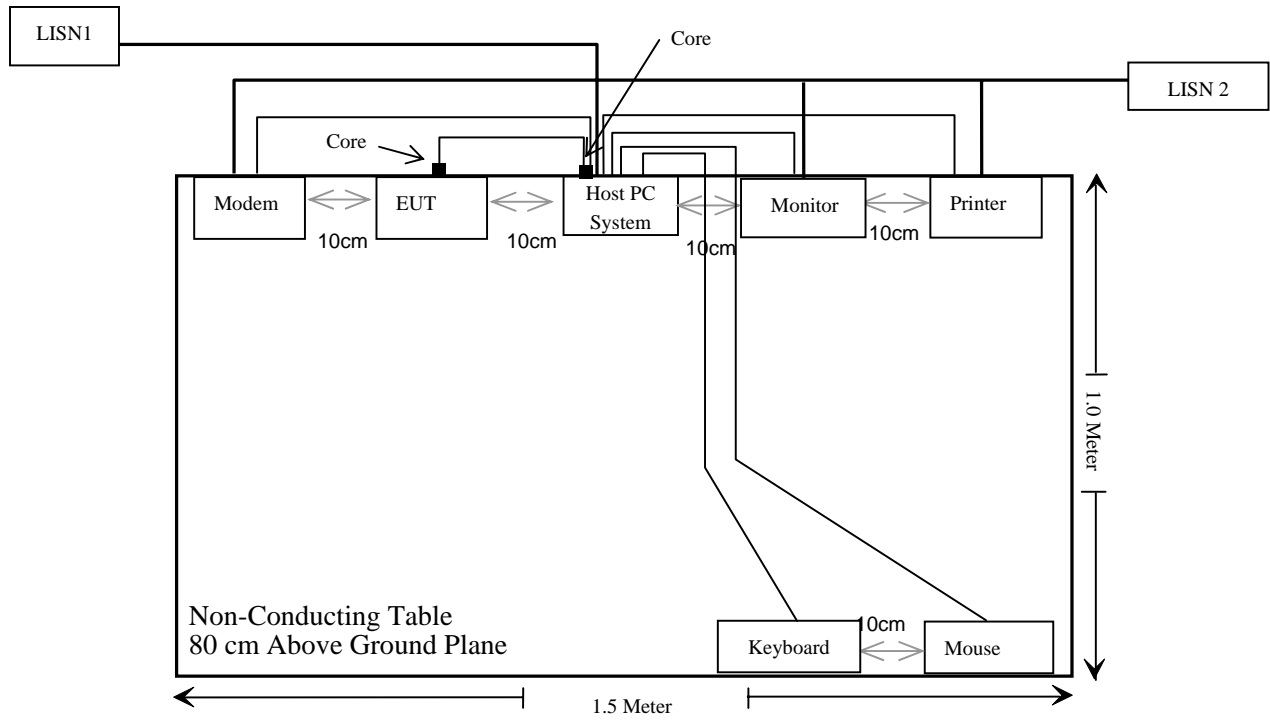
Equipment Modifications

Bay Area Compliance Lab Corp. (ShenZhen) has not done any modification on the EUT.

Configuration of Test Setup



Block Diagram of Test Setup



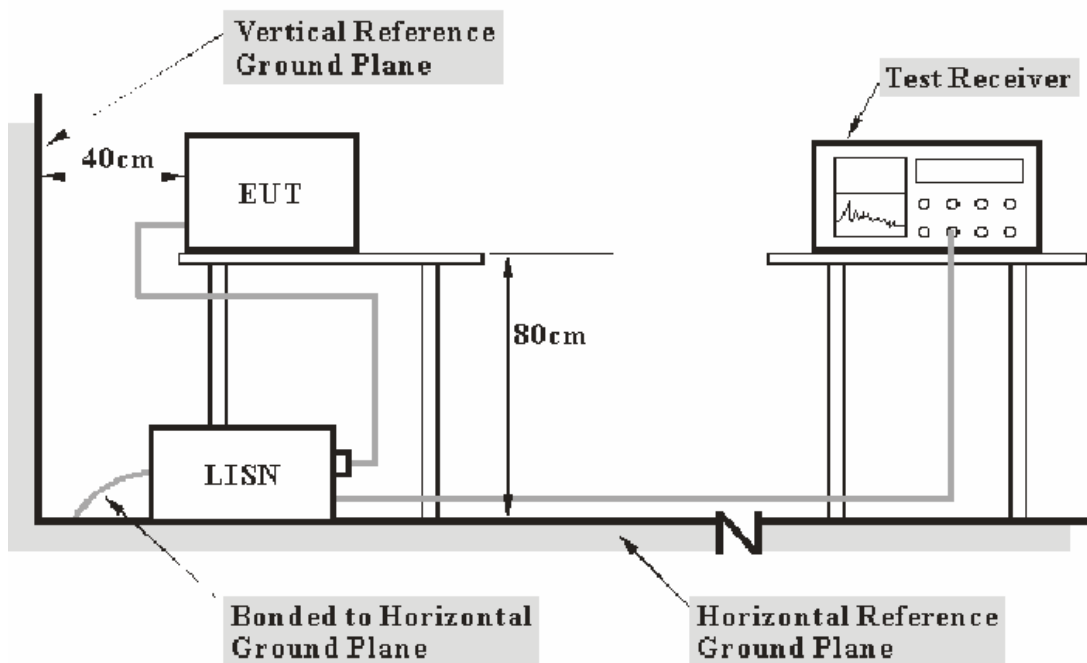
AS/NZS CISPR 22: 2004§5 -CONDUCTED DISTURBANCE AT MAINS TERMINALS AND TELECOMMUNICATION PORTS

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 Lab Corp. (ShenZhen) is ± 3.2 dB.

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 AS/NZS CISPR 16.1: 2002, AS/NZS CISPR 16.2: 2002 measurement procedure. The specification used was with the AS/NZS CISPR 22: 2004 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 240 VAC/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:

<i>Frequency Range</i>	<i>IF B/W</i>
150 kHz – 30 MHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Com-Power	L.I.S.N.	LI-200	12005	N/A	N/A
Com-Power	L.I.S.N.	LI-200	12008	N/A	N/A
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2005-1-26	2006-1-26
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2005-2-28	2006-2-28

* Com-Power’s LISN were used as the supporting equipment.

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

Test Procedure

During the conducted emission test, the host PC was connected to the outlet of the first LISN, the monitor and all other support equipment power cords were connected to the outlet of the second LISN.

Maximizing procedure were 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 AS/NZS CISPR 22: 2004 Class B, with the worst margin reading of:

-16.80 dB at 11.395 MHz in the Line conductor mode.

Test Data

Environmental Conditions

Temperature:	28° C
Relative Humidity:	55%
ATM Pressure:	1000mbar

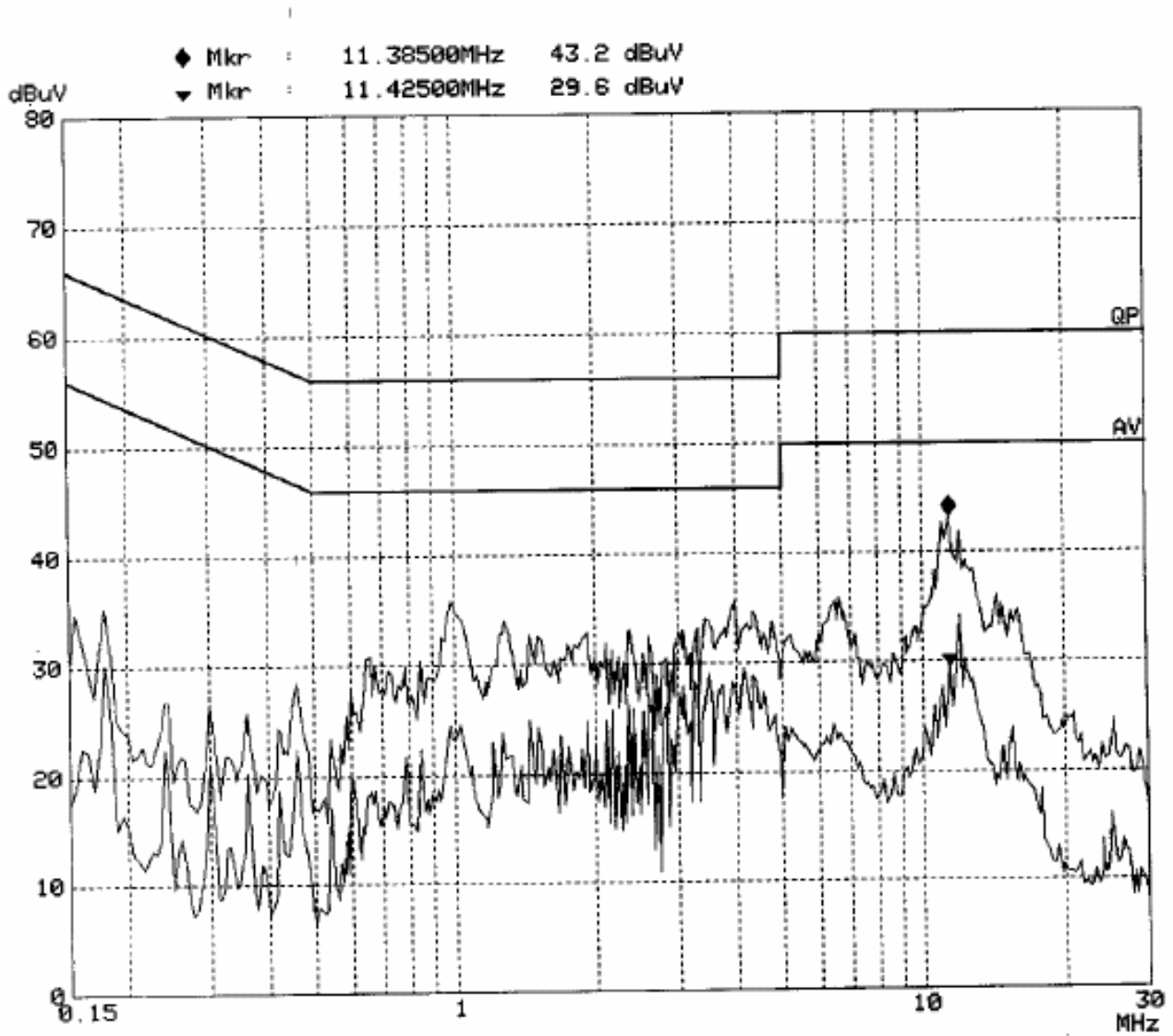
The testing was performed by Hansen Hu on 2005-9-12.

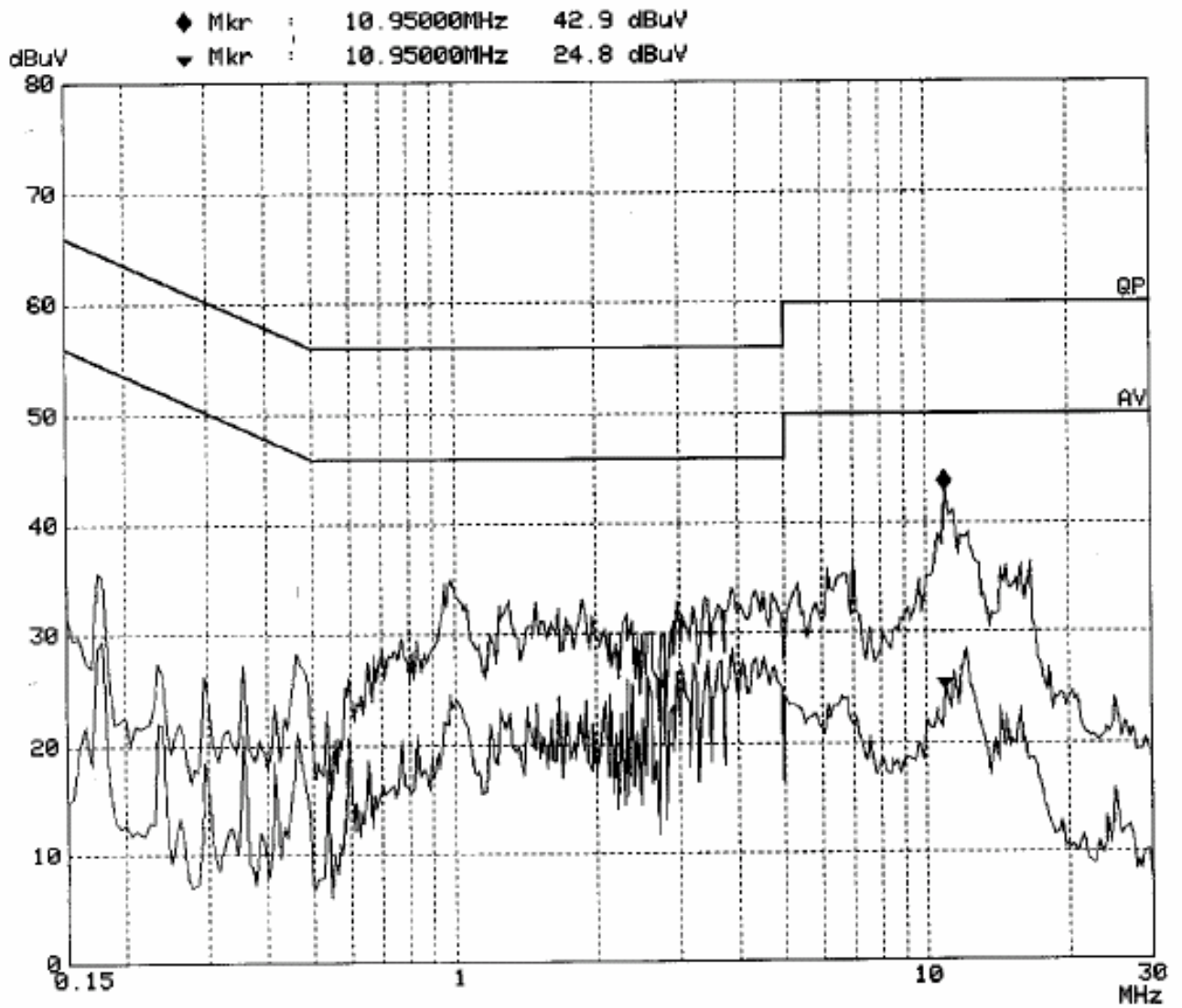
Test Mode: Running

LINE CONDUCTED EMISSIONS				AS/NZS CISPR 22: 2004 Class B	
Frequency MHz	Amplitude dBµV	Detector QP/AV	Phase Line/Neutral	Limit dBµV	Margin dB
11.395	43.20	QP	Line	60.00	-16.80
10.950	42.90	QP	Neutral	60.00	-17.10
3.870	28.70	AV	Neutral	46.00	-17.30
0.985	35.70	QP	Line	56.00	-20.30
11.395	29.60	AV	Line	50.00	-20.40
0.985	35.10	QP	Neutral	56.00	-20.90
1.275	34.50	QP	Line	56.00	-21.50
3.870	34.30	QP	Neutral	56.00	-21.70
0.985	23.80	AV	Line	46.00	-22.20
2.365	33.50	QP	Line	56.00	-22.50
0.985	23.50	AV	Neutral	46.00	-22.50
1.865	33.30	QP	Neutral	56.00	-22.70
7.005	36.80	QP	Neutral	60.00	-23.20
0.180	30.70	AV	Line	54.49	-23.79
6.630	36.20	QP	Line	60.00	-23.80
1.275	21.80	AV	Line	46.00	-24.20
10.950	24.90	AV	Neutral	50.00	-25.10
0.175	29.10	AV	Neutral	54.72	-25.62
1.865	19.70	AV	Neutral	46.00	-26.30
6.630	23.60	AV	Line	50.00	-26.40
7.005	21.40	AV	Neutral	50.00	-28.60
0.180	35.70	QP	Line	64.49	-28.79
0.175	35.90	QP	Neutral	64.72	-28.82
2.365	16.80	AV	Line	46.00	-29.20

Plot(s) of Test Data

Plot(s) of Test Data is presented hereinafter as reference.





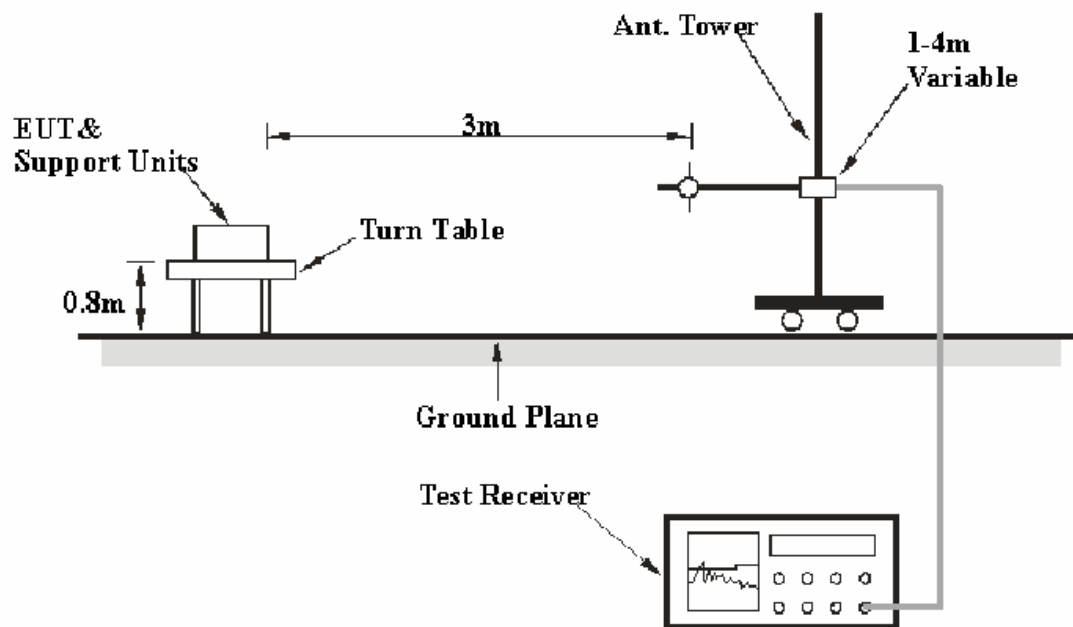
AS/NZS CISPR 22: 2004§6 -RADIATED DISTURBANCE

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 NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Lab Corp. (ShenZhen) is ± 4.4 dB.

EUT Setup



The setup of EUT is according with per AS/NZS CISPR 16.1:2002, AS/NZS CISPR 16.2:2002 measurement procedure. The specification used was with the AS/NZS CISPR 22: 2004 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 240 VAC/50 Hz power source.

Test Receiver Setup

The system was investigated from 30 MHz to 1000 MHz.

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

<i>Frequency Range</i>	<i>R B/W</i>	<i>Video B/W</i>	<i>IF B/W</i>
30 – 1000 MHz	100 kHz	300 kHz	120 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447E	1937A01046	2005-8-17	2006-8-17
Rohde & Schwarz	Test Receiver	ESCI	100035	2005-8-17	2006-8-17
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2005-4-28	2006-4-28

* **Statement of Traceability:** Bay Area Compliance Lab 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, the host PC and all support equipment power cords were connected to the AC floor outlet.

Maximizing procedure was performed on the six (6) highest emissions in the described configurations.

All data was recorded in the Quasi-peak detection mode.

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:

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

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:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Limit}$$

Test Results Summary

According to the data in the following table, the EUT complied with the AS/NZS CISPR 22: 2004 Class B, with the worst margin reading of:

-1.0 dB at 122.83 MHz in the Horizontal polarization.

Test Data

Environmental Conditions

Temperature:	29° C
Relative Humidity:	56%
ATM Pressure:	1000mbar

The testing was performed by Lisa Zhu on 2005-9-21.

Test Mode: Running

INDICATED		TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	AS/NZS CISPR 22: 2004 Class B		
Frequency	Meter Reading		Angle	Height	Polar	Antenna Loss	Cable Loss		Amp.	Corr. Ampl.	Limit
MHz	dB	Degree	Meter	H/ V	dB	dB	dB	dBμV/m	dBμV/m	dB	
122.83	52.4	45	1.2	H	14.0	1.1	28.5	39.0	40	-1.0	QP
114.51	54.2	180	1.2	V	12.2	1.0	28.5	38.9	40	-1.1	QP
147.4	52.7	60	1.2	H	13.4	1.1	28.5	38.7	40	-1.3	QP
155.91	53.0	270	1.0	H	12.8	1.1	28.4	38.5	40	-1.5	QP
171.99	53.2	45	1.2	H	12.3	1.2	28.2	38.5	40	-1.5	QP
221.39	53.5	90	1.2	H	11.5	1.3	27.8	38.5	40	-1.5	QP
130.84	51.2	45	1.0	H	14.5	1.1	28.5	38.3	40	-1.7	QP
110.57	53.4	90	1.0	V	12.2	1.0	28.5	38.1	40	-1.9	QP
36.77	48.6	45	1.2	V	17.7	0.6	28.8	38.1	40	-1.9	QP
102.36	55.6	60	1.2	V	9.6	1.0	28.5	37.7	40	-2.3	QP
106.76	54.1	60	1.0	V	11.0	1.0	28.5	37.6	40	-2.4	QP
94.09	57.1	60	1.0	V	7.7	0.9	28.6	37.1	40	-2.9	PK

Plot(s) of Test Data

Plot(s) of Test Data is presented hereinafter as reference.

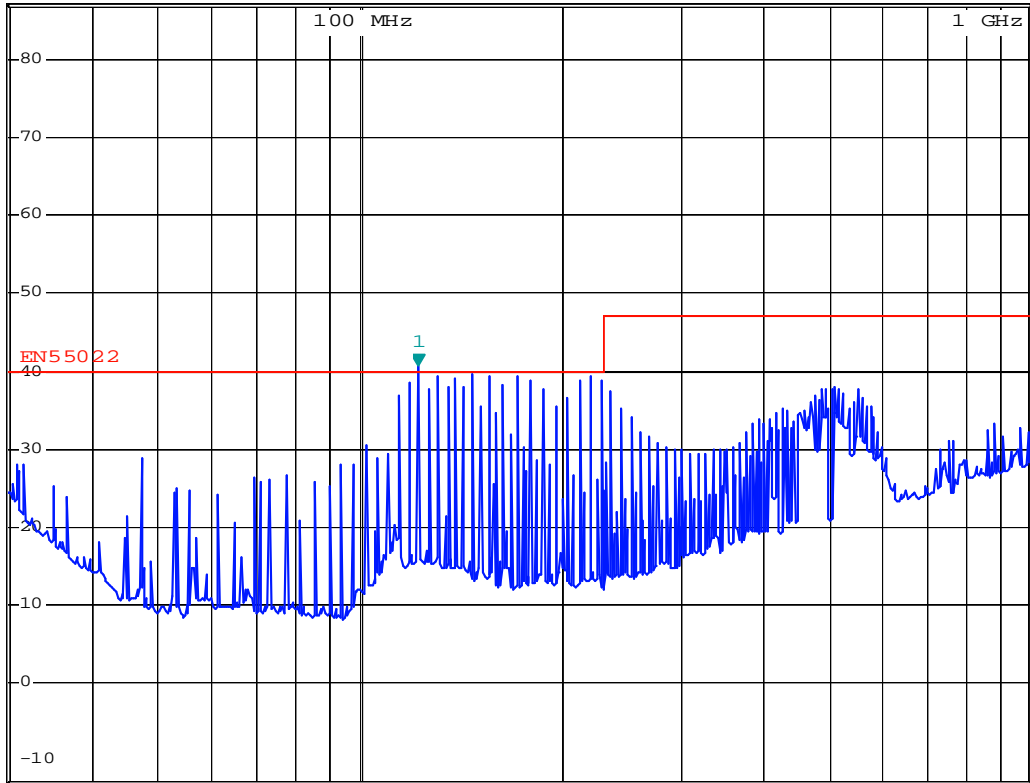


* RBW 100 kHz Marker 1 [T1]
* VBW 300 kHz 40.54 dBμV
* SWT 300 ms 122.833976174 MHz

Ref 87 dBμV

* Att 10 dB

1 PK
MAXH



Start 30 MHz

Stop 1 GHz

YEALINK USB PHONE USB-P1K Running (Horizontal)

Date: 22.SEP.2005 11:30:07

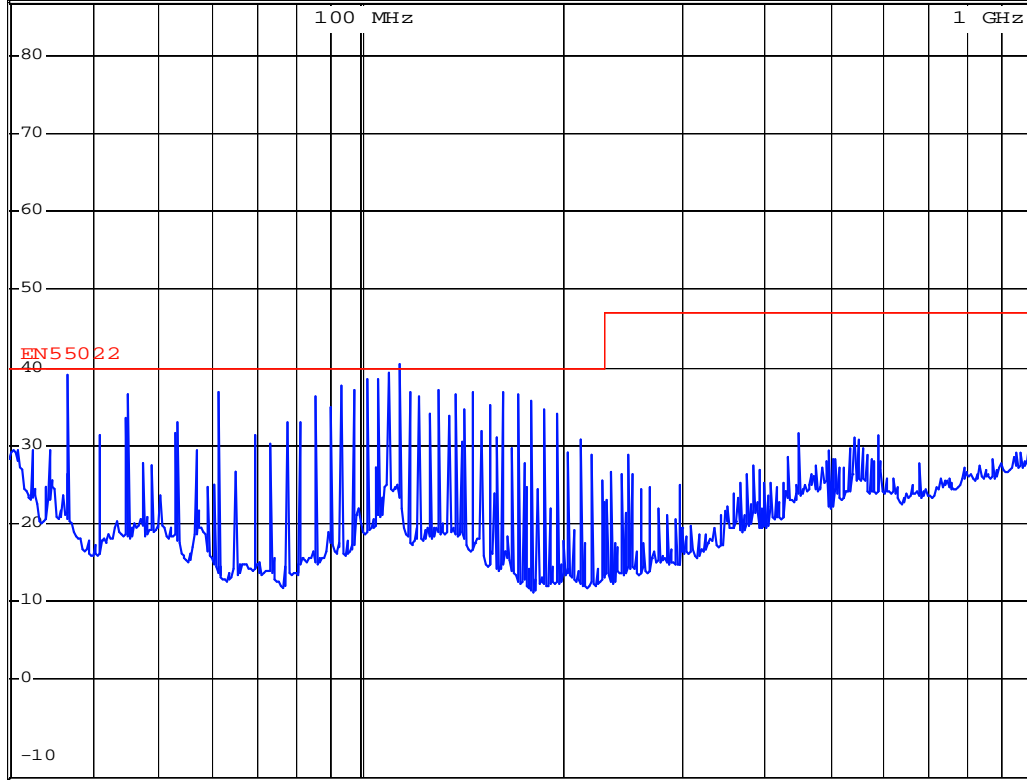


* RBW 100 kHz
* VBW 300 kHz
* SWT 300 ms

Ref 87 dBμV

* Att 10 dB

1 PK
MAXH



Center 173.2050808 MHz

Span 970 MHz

YEALINK USB PHONE USB-P1K Running (Vertical)

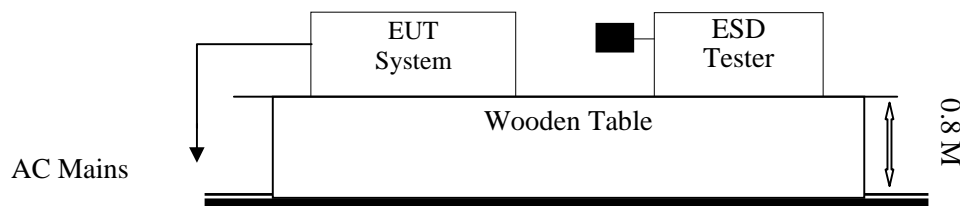
Date: 22.SEP.2005 11:44:51

AS/NZS CISPR 24: 2002§4.2-ELECTROSTATIC DISCHARGES (EN 61000-4-2)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	ESD Tester	Dito	302105	2005-2-28	2006-2-28

Test System Setup



Remark: ■ is the tip of the electrode

EN 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

AS/NZS CISPR 24: 2002/(EN 61000-4-2: 1995+A1: 1998+A2: 2001)

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 surfaces. 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 EN 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 discharge shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 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:	60%
ATM Pressure:	1000mbar

The testing was performed by Lisa Zhu on 2005-9-15.

Test Mode: Running

Table 1: Electrostatic Discharge Immunity (Air Discharge)

EN 61000-4-2 Test Points	Test Levels									
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	-15 kV	+15 kV
Screen 4 Points	A	A	A	A	A	A	A	A	/	/
Keys 10 Points	A	A	A	A	A	A	A	A	/	/
LED 1 Points	A	A	A	A	A	A	A	A	/	/
Slots 10 Points	A	A	A	A	A	A	A	A	/	/

Table 2: Electrostatic Discharge Immunity (Direct Contact)

EN 61000-4-2 Test Points	Test Levels									
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	-15 kV	+15 kV
/	/	/	/	/	/	/	/	/	/	/

Table 3: Electrostatic Discharge Immunity (Indirect Contact HCP)

EN 61000-4-2 Test Points	Test Levels									
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	-15 kV	+15 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)

EN 61000-4-2 Test Points	Test Levels									
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	-15 kV	+15 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	/	/	/	/	/	/

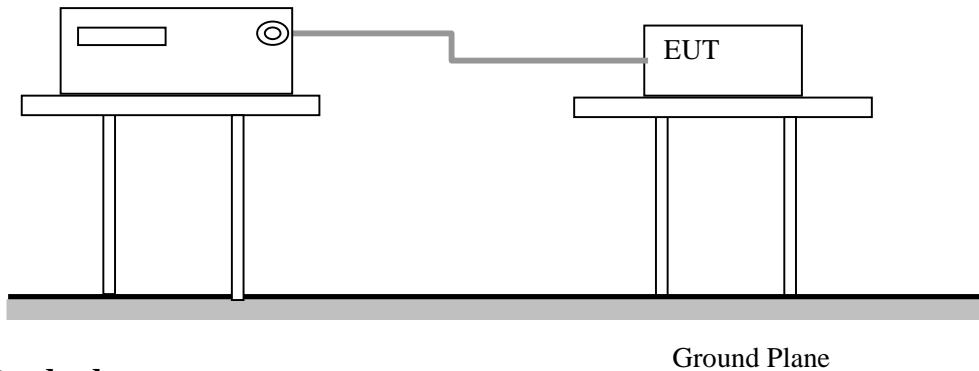


AS/NZS CISPR 24: 2002§4.2-ELECTRICAL FAST TRANSIENTS (EN 61000-4-4)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	Ultra Compact Generator	UCS 500-M	303279	2005-2-28	2006-2-28
EM Test	Auto Transformer	MV2616	0403-16	2005-2-28	2006-2-28

Test System Setup



Test Standard

AS/NZS CISPR 24: 2002/(EN 61000-4-4: 2004)
 Test level 2 at 1 kV

Test Level

Level	Open Circuit Output Test Voltage $\pm 10\%$	
	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:	27 ° C
Relative Humidity:	55%
ATM Pressure:	990mbar

The testing was performed by Lisa Zhu on 2005-9-9.

Test Mode: Running

EN 61000-4-4 Test Points		Test Levels (kV)							
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0	+4.0	-4.0
Power Supply Power Line of EUT	L1	B	B	B	B	/	/	/	/
	L2	B	B	B	B	/	/	/	/
	Earth	B	B	B	B	/	/	/	/
	L1+L2	B	B	B	B	/	/	/	/
	L1 + Earth	B	B	B	B	/	/	/	/
	L2 + Earth	B	B	B	B	/	/	/	/
	L1+L2+Earth	B	B	B	B	/	/	/	/
Signal Ports		/	/	/	/	/	/	/	/



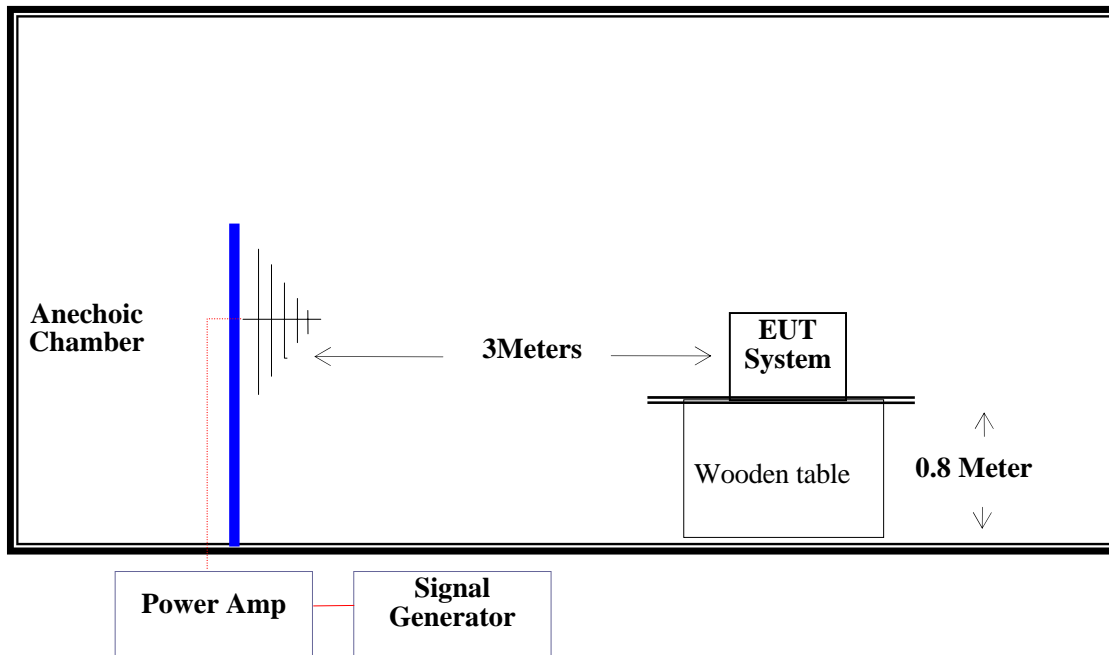
AS/NZS CISPR 24: 2002§4.2.3.1-CONTINUOUS RADIATED DISTURBANCES (EN 61000-4-3)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Amplifier Research	Sensor	FP5000	301825	2005-4-26	2006-4-26
Amplifier Research	Field Meter	FM5004	302149	2005-4-26	2006-4-26
Amplifier Research	Amplifier	150W1000	302657	2005-8-17	2006-8-17
HP	Signal Generator	HP8657A	2849U00982	2005-2-28	2006-2-28
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2005 -4-28	2006-4-28

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

Test System Setup



Test Standard

AS/NZS CISPR 24: 2002 (EN 61000-4-3: 2002)
 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 polarization 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 is used to monitor the EUT. All the scanning conditions are as follows :

Condition of Test	Remarks
-----	-----
1. Fielded Strength	3 V/m (Test level 2)
2. Radiated Signal	Modulated AM 1 kHz 80% 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:	980mbar

The testing was performed by Lisa Zhu on 2005-9-14.

Test Mode: Running

Frequency Range (MHz)	Front (3 V/m)		Rear (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



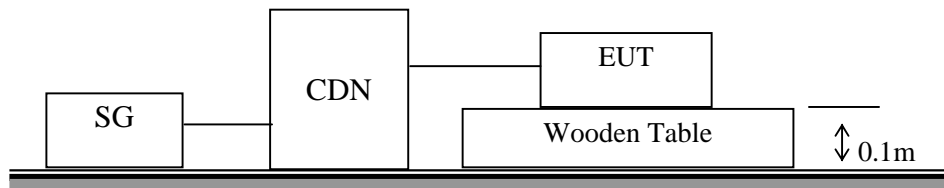
AS/NZS CISPR 24: 2002§4.2.3.2-CONTINUOUS CONDUCTED DISTURBANCES (EN 61000-4-6)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM	CDN	M3	303288	2005-2-28	2006-2-28
EM	CDN	T2	303287	2005-2-28	2006-2-28
EM	CDN	T8RJ45	303286	2005-2-28	2006-2-28
EM Test	C/S Tester	CWS500	303277	2005-2-28	2006-2-28
EM Test	Attenuator	6dB	303282	2005-8-17	2006-8-17
EM Test	Attenuator	6dB	303283	2005-8-17	2006-8-17
FCC	Bulk Current Injection Probe	F-120-9A	303284	2005-2-28	2006-2-28

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

Test Setup



Test Standard

AS/NZS CISPR 24: 2002 (EN 61000-4-6: 2001)
 Test level 2 at 3 V (r.m.s.), 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 1KHz sine wave.
- 6) The rate of sweep shall not exceed 1.5×10^{-3} decades/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:	60%
ATM Pressure:	1000mbar

The testing was performed by Lisa Zhu on 2005-9-9.

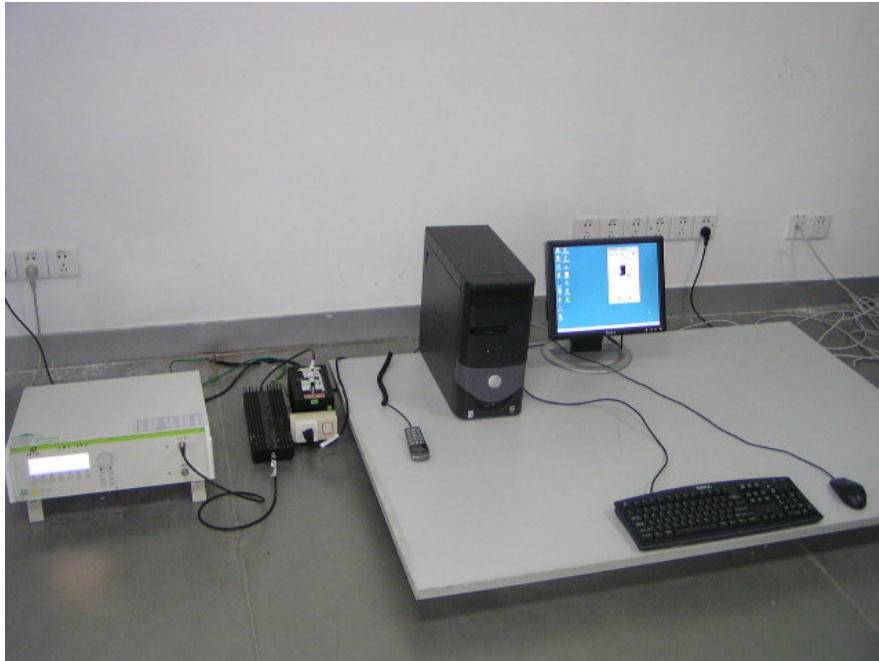
Test Ports: Power Supply(AC 230 V/50 Hz)

Modulation: Amplitude 80%, 1 kHz sinewave

Test level: 3V r.m.s.

Test Mode: Running

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

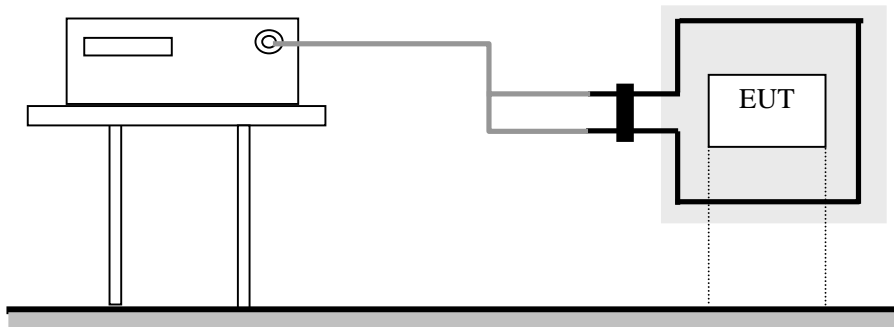


**AS/NZS CISPR 24: 2002§4.2.4-POWER-FREQUENCY MAGNETIC FIELDS
(EN 61000-4-8)**

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	Auto Transformer	MV2616	0403-16	2005-2-28	2006-2-28
EM Test	Current Transformer	MC 2630	301873	2005-2-28	2006-2-28
EM Test	Ultra Compact Generator	UCS 500-M	303279	2005-2-28	2006-2-28
EM Test	Loop Antenna	MS100	303298	2005-2-28	2006-2-28

Test System Setup



Test Standard

AS/NZS CISPR 24: 2002 (EN 61000-4-8: 1993+A1: 2001)
Test level 1 at 1 A/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

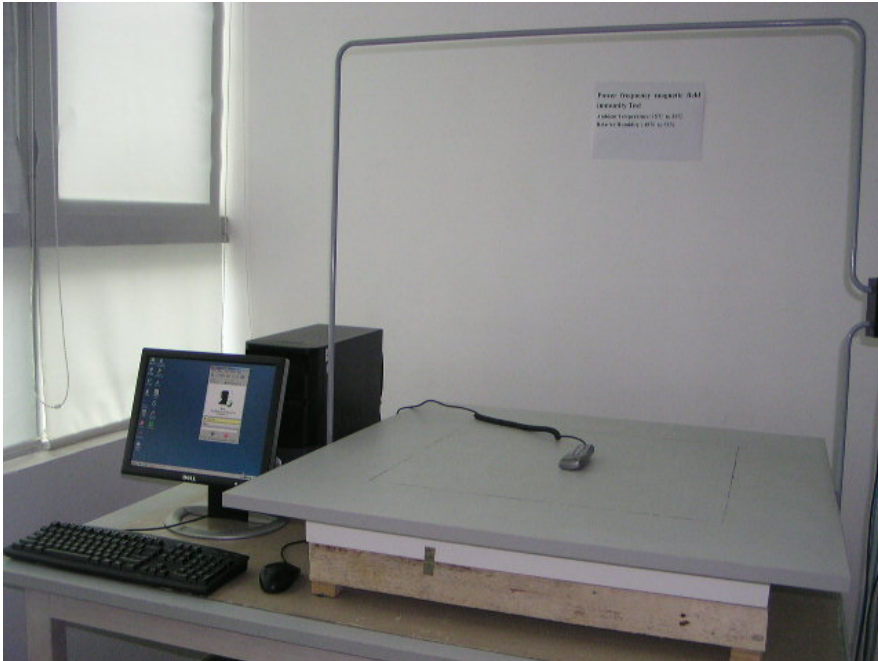
Environmental Conditions

Temperature:	26° C
Relative Humidity:	54%
ATM Pressure:	1010mbar

The testing was performed by Lisa Zhu on 2005-9-9.

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	/	/	/

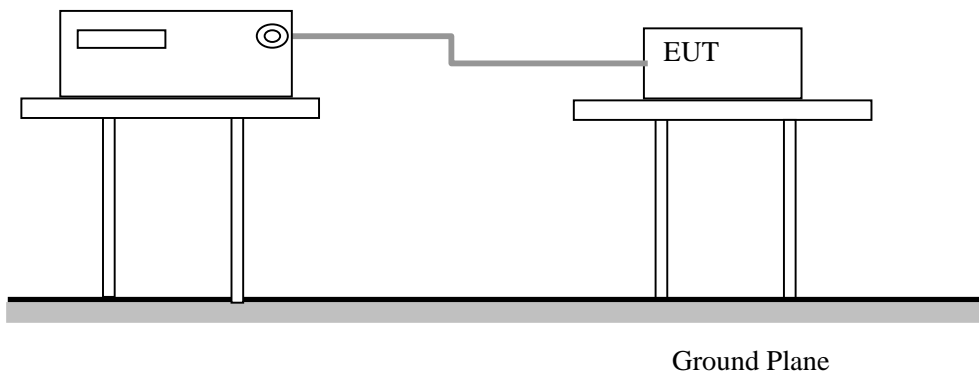


AS/NZS CISPR 24: 2002§4.2.5-SURGES (EN 61000-4-5)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	Ultra Compact Generator	UCS500-M	303279	2005-2-28	2006-2-28
EM Test	Auto-transformer	MV2616	0403-16	N/A	N/A

Test System Setup



Test Standard

AS/NZS CISPR 24: 2002 (EN 61000-4-5: 1995+A1: 2001)
 L-N: Test level 2 at 1 kV

Test Level

Level	Open Circuit Output Test Voltage $\pm 10\%$	
	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

- 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:	980mbar

The testing was performed by Lisa Zhu on 2005-9-9.

Test Mode: Running

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

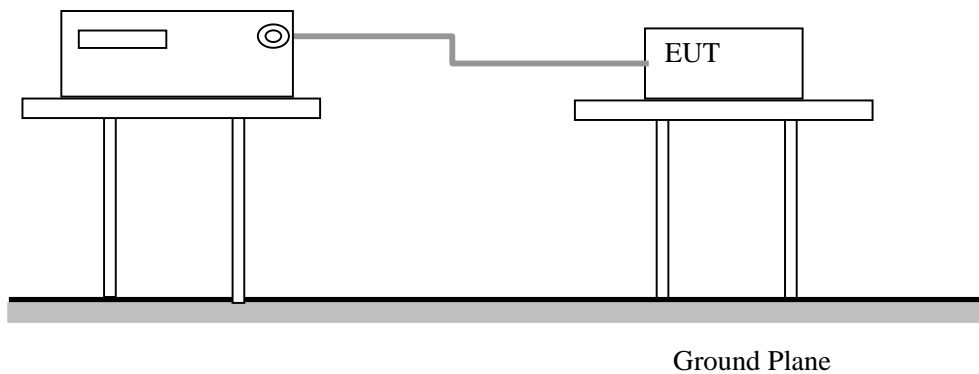


AS/NZS CISPR 24: 2002§4.2.6-VOLTAGE DIPS AND INTERRUPTIONS (EN 61000-4-11)

Test Equipment

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EM Test	Ultra Compact Generator	UCS500-M	303279	2005-2-28	2006-2-28
EM Test	Auto-transformer	MV2616	0403-16	N/A	N/A

Test Setup



Test Standard

AS/NZS CISPR 24: 2002 (EN 61000-4-11: 2004)
 Test levels and Performance Criterion

Test Level

Test Level %U _T	Voltage dip and short interruptions %U _T	Duration (in period)
0	>95	0.5
70	30	25
0	>95	250

Performance criterion: C & B

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:	60%
ATM Pressure:	1000mbar

The testing was performed by Lisa Zhu on 2005-9-9.

Test Mode: Running

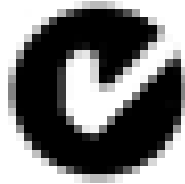
Voltage Tips/Interruptions Test

Level	U2	td	Phase Angle	N	Pass	Fail
1	>95%	10ms	0/90/180/270	3	A	/
2	30%	500ms	0/90/180/270	3	C	/
3	>95%	5000ms	0/90/180/270	3	C	/



EXHIBIT A - PRODUCT LABELING

Proposed Label Format



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

Location of Label on EUT

Label Location



Product Manual

A sample of the product manual is presented in Exhibit E of this report as reference.

EXHIBIT B - EUT PHOTOGRAPHS

EUT-Front View



EUT-Rear View



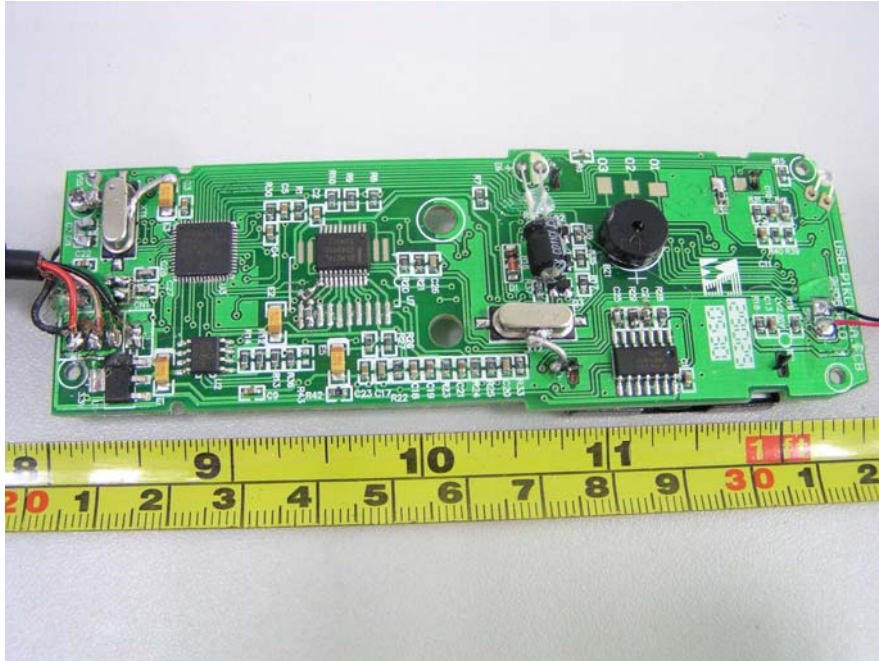
EUT-Uncovered View



EUT-Inside View



EUT- PCB Front View



EUT- PCB Rear View

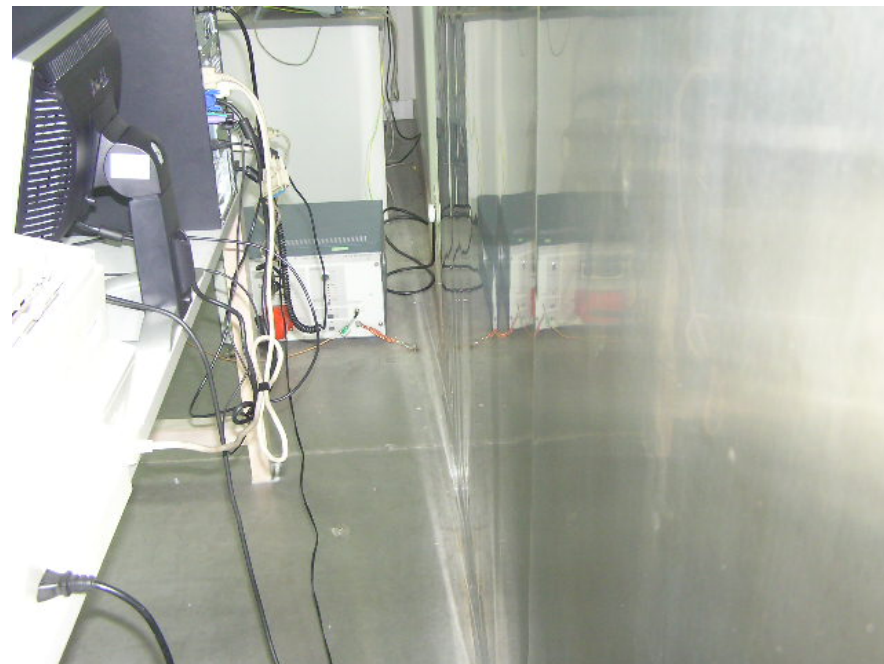


EXHIBIT C - TEST SETUP PHOTOGRAPHS

Conducted Disturbance at Mains Terminals - Front View



Conducted Disturbance at Mains Terminals - Side View



Radiated Disturbance - Front View



Radiated Disturbance - Rear View



EXHIBIT D –Schematics/Parts List

Not Available at Time of Test

EXHIBIT E – User Manual

Not Available at Time of Test