Verification Of Conformity
On Behalf of
Hangzhou ShangLi Electronic Co., LTD

58kHz AM System Control-box

Model No.: SUNY8000B

Prepared for	:	Hangzhou ShangLi Electronic Co., LTD
Address	:	The 2nd Floor, Building 3, Le Su Science Park, No. 1526, Chunbo Road, Bingjiang District, Hangzhou, Zhejiang Province, China Tel: 0571-28181196 Fax: 0571-28181190
Prepared By	:	Anbotek Compliance Laboratory Limited
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Report Number	:	201303874F
Date of Test	:	Mar. 28~Apr. 25, 2013
Date of Report	:	Apr. 25, 2013

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TEST REPORT VERIFICATION

Applicant	:	Hangzhou ShangLi Electronic Co., LTD
Manufacturer	:	Hangzhou ShangLi Electronic Co., LTD
EUT	:	58kHz AM System Control-box
Model No.	:	SUNY8000B
Rating	:	AC 110/230V, 50/60Hz
Trade Mark	:	ShangLi

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart B 2011 & FCC / ANSI C63.4-2009

The device described above is tested by Anbotek Compliance Laboratory Limited To determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Anbotek Compliance Laboratory Limited Is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Anbotek Compliance Laboratory Limited

Date of Test : Mar. 28~Apr. 24, 2013

Prepared by : Rock zeng
(Engineer/ Rock Zeng)

Reviewer : Sally. zhang
(Project Manager/ Sally Zhang)

Approved & Authorized Signer : Tom. Chen
(Manager/ Tom Chen)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	58kHz AM System Control-box
Model Number	:	SUNY8000B
Test Power Supply	:	AC 120V, 60Hz
Applicant	:	Hangzhou ShangLi Electronic Co., LTD
Address	:	The 2nd Floor, Building 3, Le Su Science Park, No. 1526, Chunbo Road, Bingjiang District, Hangzhou, Zhejiang Province, China
Manufacturer	:	Hangzhou ShangLi Electronic Co., LTD
Address	:	The 2nd Floor, Building 3, Le Su Science Park, No. 1526, Chunbo Road, Bingjiang District, Hangzhou, Zhejiang Province, China
Date of receipt	:	Mar. 28, 2013
Date of Test	:	Mar. 28~Apr. 25, 2013
PC	:	Manufacturer: DELL M/N: OPTIPLEX 380 S/N: 1J63X2X CE , FCC: DOC
MONITOR	:	Manufacturer: DELL M/N: E170Sc S/N: CN-00V539-64180-055-0UPS CE , FCC: DOC
KEYBOARD	:	Manufacturer: DELL M/N: SK-8115 S/N: CN-0DJ313-71616-06C-02XN CE , FCC: DOC Cable: 1m, unshielded
MOUSE	:	Manufacturer: DELL M/N: M-UARDEL7 S/N: N/A CE , FCC: DOC Cable: 1m, unshielded

Printer	:	Manufacturer: Brother M/N: MFC-3360C S/N: N/A CE, FCC:DOC
Speaker	:	Manufacturer: Huirong M/N: APBT01 S/N: N/A CE, FCC
Alarm Apparatus	:	Manufacturer: Shangli M/N: JD-XCS11 S/N: N/A CE, FCC
Power Line	:	NON-SHIELDED, 1.5M
RS232 Cable	:	Non-Shielded, 1.5m
15 pin port Cable	:	Non-Shielded, 1.5m

1.2. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS - LAB Code: L3503
Anbotek Compliance Laboratory Limited., Laboratory has been assessed and in compliance with CNAS/CL01: 2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

FCC-Registration No.: 752021
Anbotek Compliance Laboratory Limited, EMC Laboratory has been registed and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 752021, August 20, 2010

IC-Registration No.: 8058A-1
Anbotek Compliance Laboratory Limited., EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 8058A-1, February 22, 2013

Test Location
All Emissions tests were performed
Anbotek Compliance Laboratory Limited. at 1/F, 1 /Build, SEC Industrial Park, No. 4 Qianhai Road, Nanshan District, Shenzhen, 518054, China

1.3. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.3dB
Conduction Uncertainty	:	Uc = 3.4dB

1.4. Test Summary

For the EUT described above. The standards used were FCC Part 15 Subpart B for Emissions.

Table 1 : Tests Carried Out Under FCC Part 15 Subpart B

Standard	Test Items	Status
FCC Part 15 Subpart B	Power Line Conducted Emission Test (150KHz To 30MHz)	√
FCC Part 15 Subpart B	Radiated Emission Test (30MHz To 1000MHz)	√

√ Indicates that the test is applicable

x Indicates that the test is not applicable

2. POWER LINE CONDUCTED MEASUREMENT

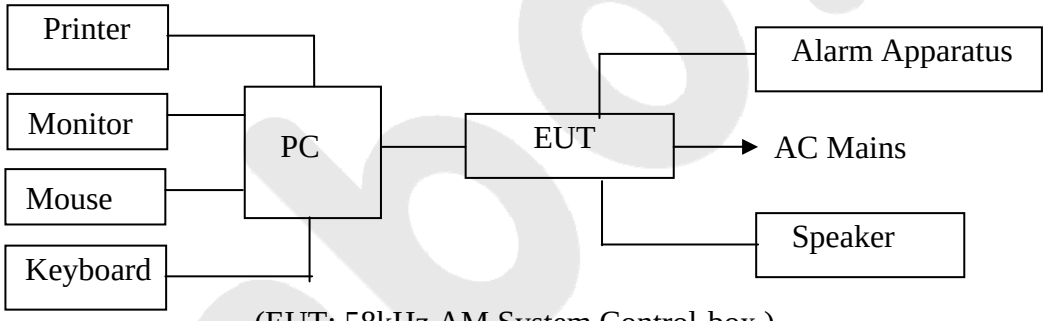
2.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Receiver	Rohde & Schwarz	ESCI	100627	Nov. 12, 2012	1 Year
2.	LISN	SchwarzBeck	NSLK 8126	8126377	May 19, 2012	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	May 19, 2012	1 Year
4.	EMI Test Software ES-K1	Rohde & Schwarz	N/A	N/A	N/A	N/A

2.2. Block Diagram of Test Setup

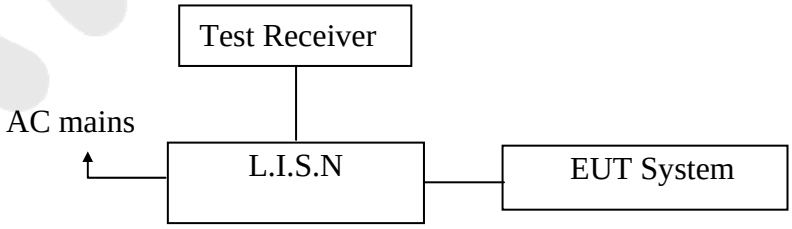
2.2.1. Block diagram of connection between the EUT and simulators



(EUT: 58kHz AM System Control-box)

Note: The Notebook is only used for software upgrading.

2.2.2 Block diagram of conducted measurement test



2.3. Power Line Conducted Emission Measurement Limits (FCC Part 15 Class B)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

2.4. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

EUT : 58kHz AM System Control-box
Model Number : SUNY8000B
Applicant : Hangzhou ShangLi Electronic Co., LTD

2.5. Operating Condition of EUT

2.5.1. Setup the EUT and simulator as shown as Section 2.2.
2.5.2. Turn on the power of all equipment.
2.5.3. Let the EUT work in test mode (ON) and measure it.

2.6. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.4-2009 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

The test result are reported on Section 2.7.

2.7. Power Line Conducted Emission Measurement Results

PASS.

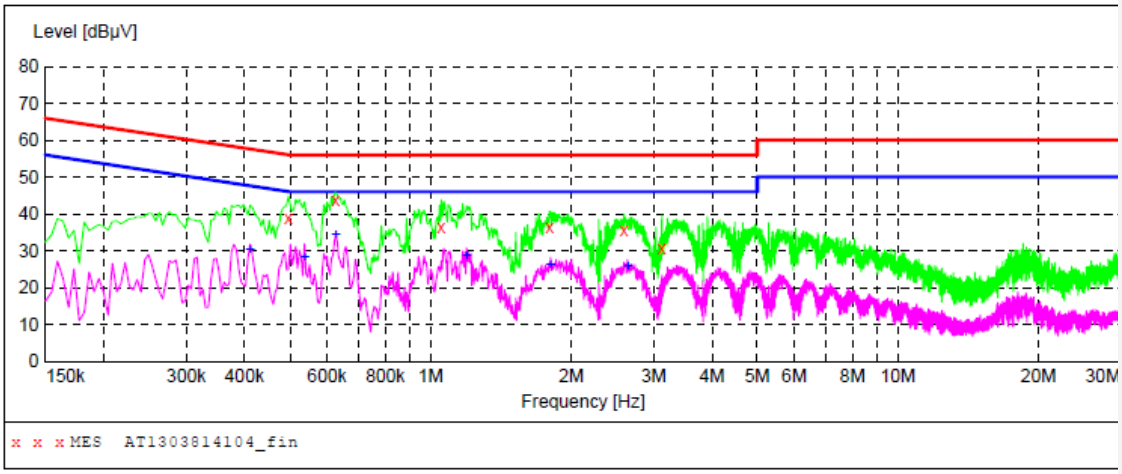
The frequency range from 150KHz to 30 MHz is investigated.

The test curves are shown in the following pages.

CONDUCTED EMISSION TEST DATA

EUT:	58kHz AM System Control-box	M/N:SUNY8000B
Operating Condition:	ON	
Test Site:	1# Shielded Room	
Operator:	Finley Li	
Test Specification:	AC 120V, 60Hz	
Comment:	L	
	Tem:25℃ Hum:50%	

SCAN TABLE: "Voltage(150K~30M)FIN"
Short Description: 150K-30M Disturbance Voltages



MEASUREMENT RESULT: "AT1303814104_fin"

4/22/2013 11:04PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.496500	38.90	20.1	56	17.2	QP	L1	GND
0.627000	43.70	20.1	56	12.3	QP	L1	GND
1.054000	36.60	20.2	56	19.4	QP	L1	GND
1.796500	36.60	20.3	56	19.4	QP	L1	GND
2.593000	35.60	20.4	56	20.4	QP	L1	GND
3.124000	30.80	20.4	56	25.2	QP	L1	GND

MEASUREMENT RESULT: "AT1303814104_fin2"

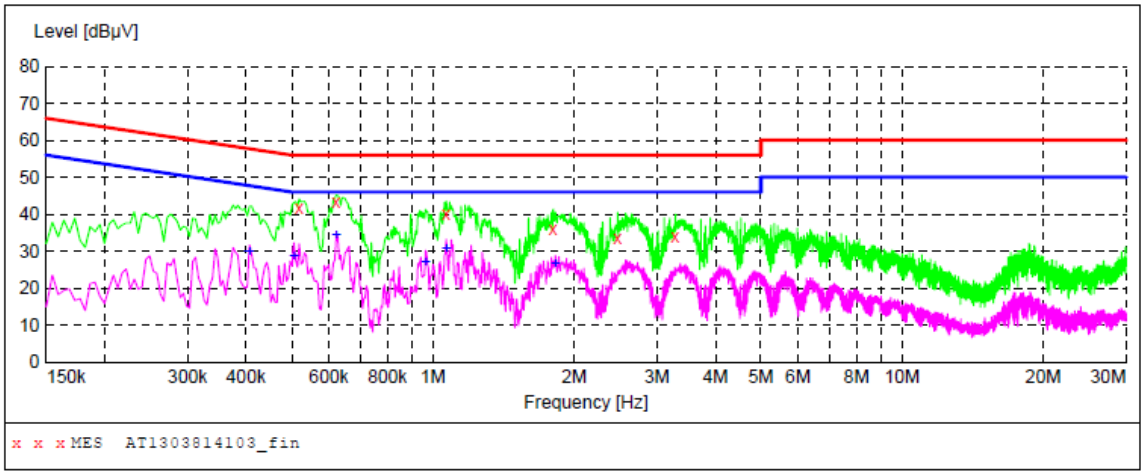
4/22/2013 11:04PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.411000	30.40	20.1	48	17.2	AV	L1	GND
0.537000	28.20	20.1	46	17.8	AV	L1	GND
0.627000	34.50	20.1	46	11.5	AV	L1	GND
1.193500	28.70	20.2	46	17.3	AV	L1	GND
1.805500	26.30	20.3	46	19.7	AV	L1	GND
2.638000	25.60	20.4	46	20.4	AV	L1	GND

CONDUCTED EMISSION TEST DATA

EUT:	58kHz AM System Control-box	M/N:SUNY8000B
Operating Condition:	ON	
Test Site:	1# Shielded Room	
Operator:	Finley Li	
Test Specification:	AC 120V, 60Hz	
Comment:	N	
	Tem:25℃ Hum:50%	

SCAN TABLE: "Voltage(150K~30M)FIN"
Short Description: 150K-30M Disturbance Voltages



MEASUREMENT RESULT: "AT1303814103_fin"

4/22/2013 11:00PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.519000	41.60	20.1	56	14.4	QP	N	GND
0.622500	43.50	20.1	56	12.5	QP	N	GND
1.067500	40.30	20.2	56	15.7	QP	N	GND
1.805500	36.10	20.3	56	19.9	QP	N	GND
2.476000	33.40	20.3	56	22.6	QP	N	GND
3.286000	33.80	20.4	56	22.2	QP	N	GND

MEASUREMENT RESULT: "AT1303814103_fin2"

4/22/2013 11:00PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.406500	29.70	20.1	48	18.0	AV	N	GND
0.505500	28.70	20.1	46	17.3	AV	N	GND
0.622500	34.20	20.1	46	11.8	AV	N	GND
0.964500	27.20	20.2	46	18.8	AV	N	GND
1.067500	30.70	20.2	46	15.3	AV	N	GND
1.823500	26.80	20.3	46	19.2	AV	N	GND

3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

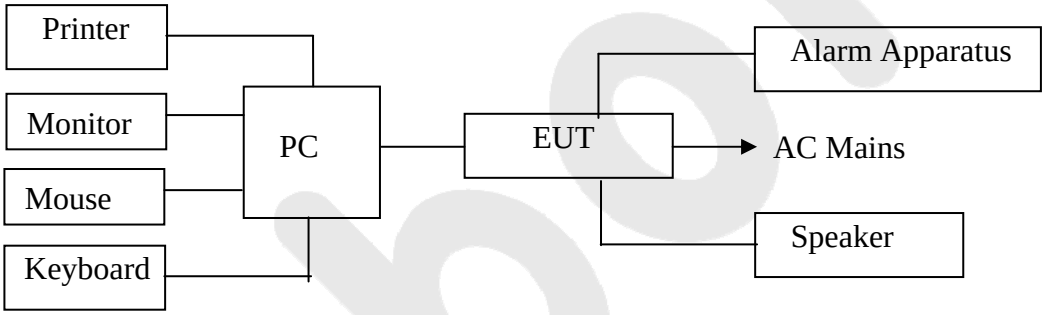
The following test equipments are used during the radiated emission measurement:

3.1.1. For Anechoic Chamber

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
7	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Nov. 12, 2012	1 Year
8	Trilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	May 17, 2012	1 Year
9	Pre-amplifier	Compliance Direction	PAP-0203	22008	May 19, 2012	1 Year
10	EMI Test Software	SHURPLE	N/A	N/A	N/A	N/A

3.2. Block Diagram of Test Setup

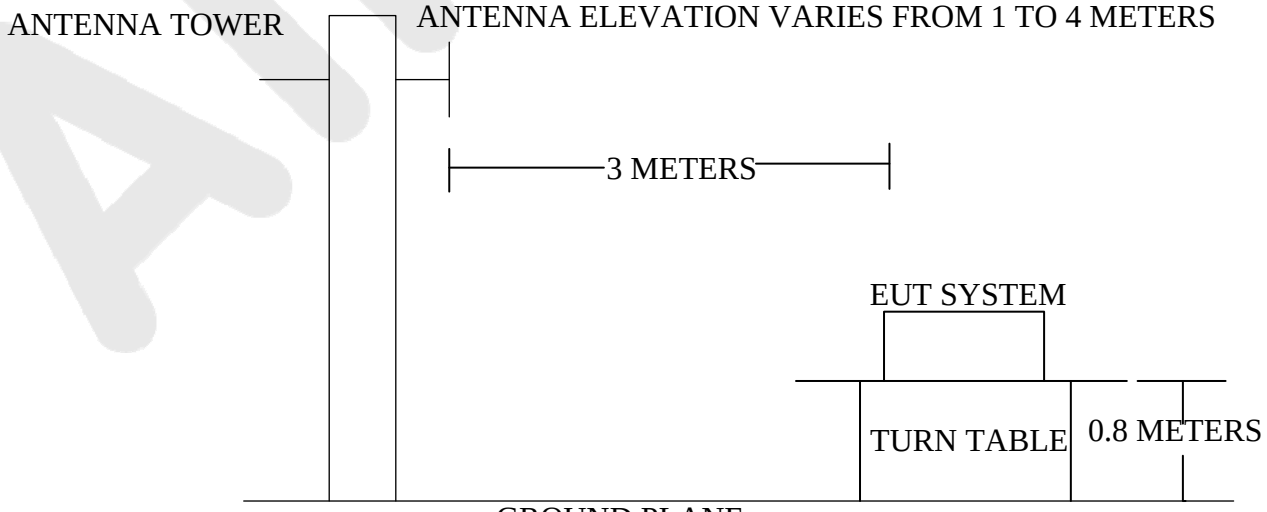
3.2.1. Block diagram of connection between the EUT and simulators



(EUT: 58kHz AM System Control-box)

Note: The Notebook is only used for software upgrading.

3.2.2. Anechoic Chamber Test Setup Diagram



(EUT: 58kHz AM System Control-box)

3.3. Radiated Emission Limit (Subpart B Class B)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30~88	3	100	40.0
88~216	3	150	43.5
216~960	3	200	46.0
960~1000	3	500	54.0

Remark： (1) Emission level (dB)μV = 20 log Emission level μV/m
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

3.4. EUT Configuration on Measurement

The following equipments are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

EUT	:	58kHz AM System Control-box
Model Number	:	SUNY8000B
Applicant	:	Hangzhou ShangLi Electronic Co., LTD

3.5. Operating Condition of EUT

3.5.1. Setup the EUT as shown in Section 3.2.

3.5.2. Let the EUT work in test mode (ON) and measure it.

3.6. Test Procedure

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (Trilog Broadband Antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2009 on radiated emission measurement.

The bandwidth of the EMI test receiver (ESCI) is set at 120kHz.

The frequency range from 30MHz to 1000MHz is checked.

The test mode (ON) is tested in chamber and the test results are listed in Section 3.7.

3.7. Radiated Emission Measurement Results

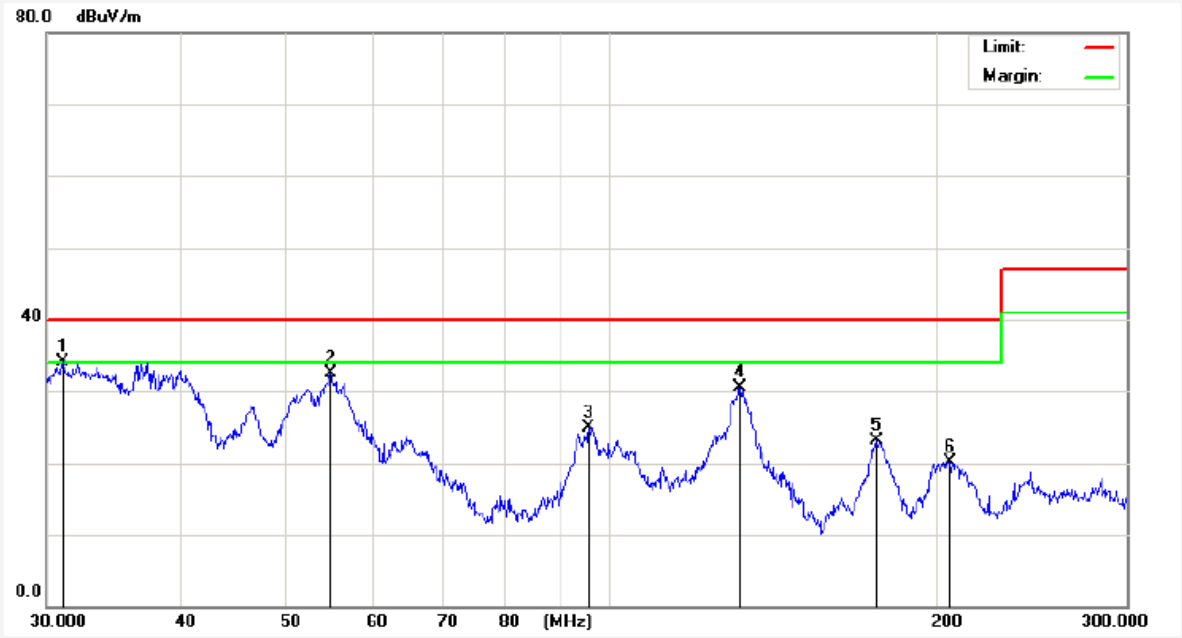
PASS.

The test curves are shown in the following pages.

Job No.:	**AT1303814I**	**Polarization:**	**Horizontal**
Standard:	**(RE)FCC PART15 B _3m**	**Power Source:**	**AC 120V, 60Hz**
Test item:	**Radiation Test**	**Date:**	**2013/04/23**
Temp.(C)/Hum.(%RH):	**24.3(C)/55%RH**	**Time:**	**11:41:25**
EUT:	**58kHz AM System Control-box**	**Test By:**	**Jimly Chen**
Model:	**SUNY8000B**	**Distance:**	**3m**
Note:	**ON**		

No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	36.6378	47.42	-13.01	34.41	40.00	-5.59	QP	100	360	
2	52.0141	47.45	-14.71	32.74	40.00	-7.26	QP	100	0	
3	78.9080	49.93	-20.11	29.82	40.00	-10.18	peak			
4	106.4440	46.75	-15.68	31.07	40.00	-8.93	peak			
5	131.8625	50.76	-17.94	32.82	40.00	-7.18	QP	100	360	
6	205.6465	45.24	-15.65	29.59	40.00	-10.41	peak			

Job No.:	**AT1303814I**	**Polarization:**	**Vertical**
Standard:	**(RE)FCC PART15 B _3m**	**Power Source:**	**AC 120V, 60Hz**
Test item:	**Radiation Test**	**Date:**	**2013/04/23**
Temp.(C)/Hum.(%RH):	**24.3(C)/55%RH**	**Time:**	**11:45:06**
EUT:	**58kHz AM System Control-box**	**Test By:**	**Jimly Chen**
Model:	**SUNY8000B**	**Distance:**	**3m**
Note:	**ON**		

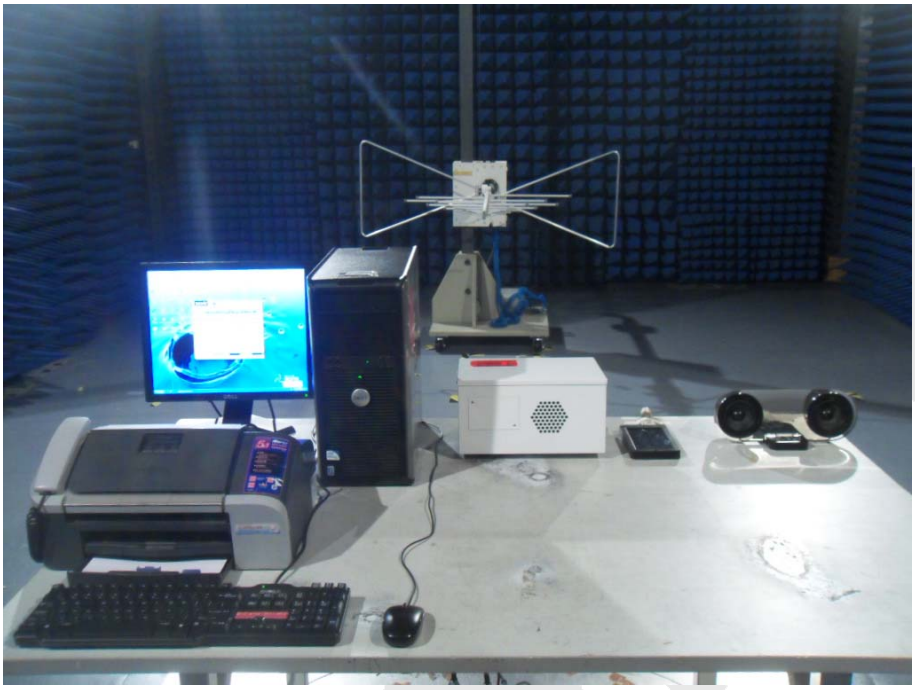


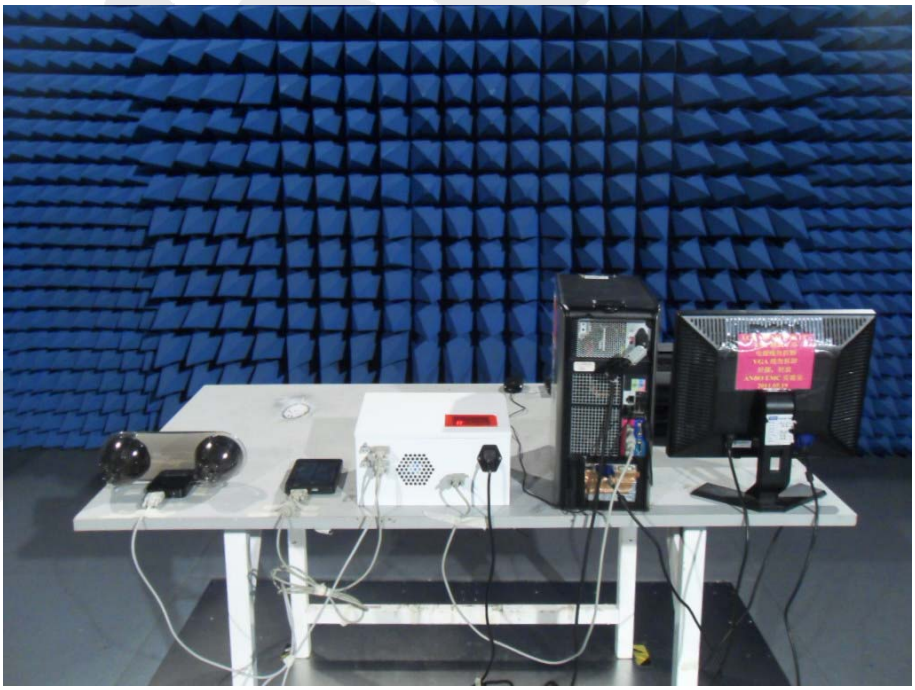
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	31.0543	50.41	-16.39	34.02	40.00	-5.98	peak			
2	54.9694	47.36	-14.93	32.43	40.00	-7.57	peak			
3	95.3062	45.98	-21.00	24.98	40.00	-15.02	peak			
4	131.5592	53.48	-22.92	30.56	40.00	-9.44	peak			
5	176.2468	45.19	-22.12	23.07	40.00	-16.93	peak			
6	206.1205	40.81	-20.64	20.17	40.00	-19.83	peak			

4. PHOTOGRAPH

4.1. Photo of Power Line Conducted Emission Test

4.2. Photo of Radiated Emission Test





APPENDIX I
(Photos of EUT)

Figure 1
The EUT- Front View

Figure 2
The EUT- Back View

Figure 3
The EUT- Port View

Figure 4
The EUT- Inside View

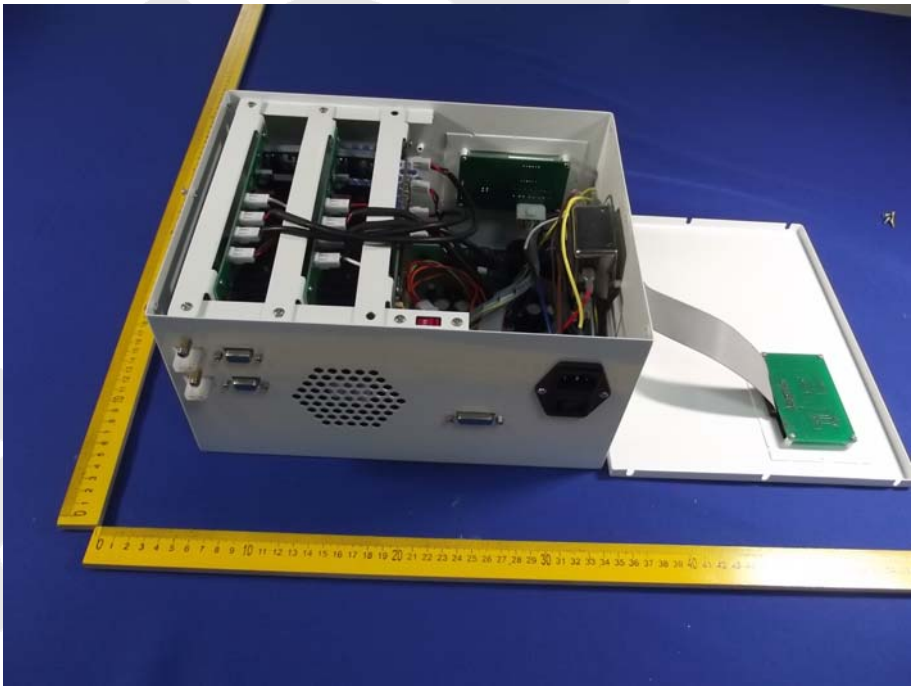


Figure 5
PCB Of The EUT-Front View

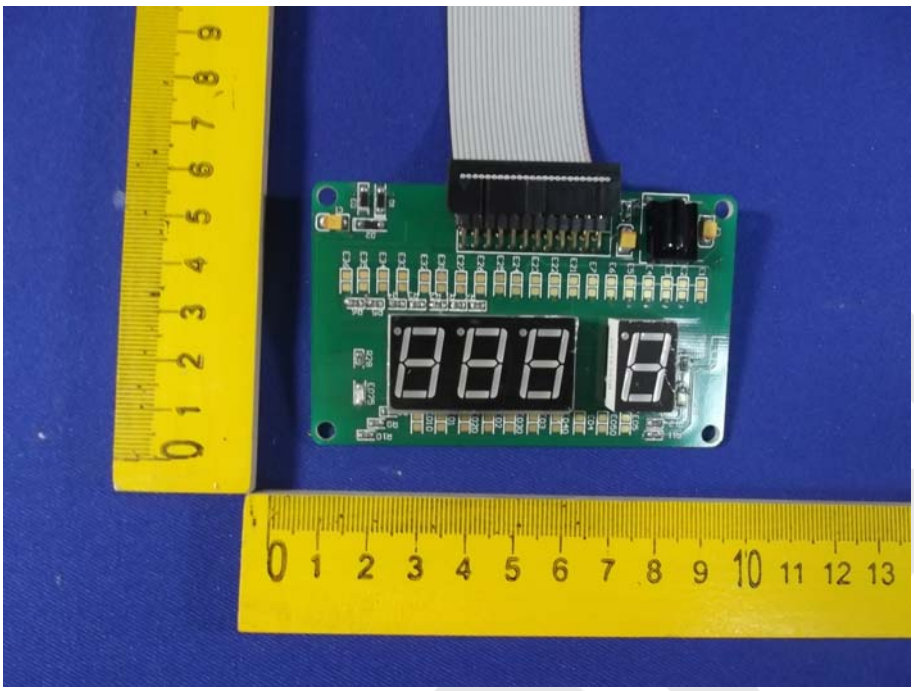


Figure 6
PCB Of The EUT-Back View

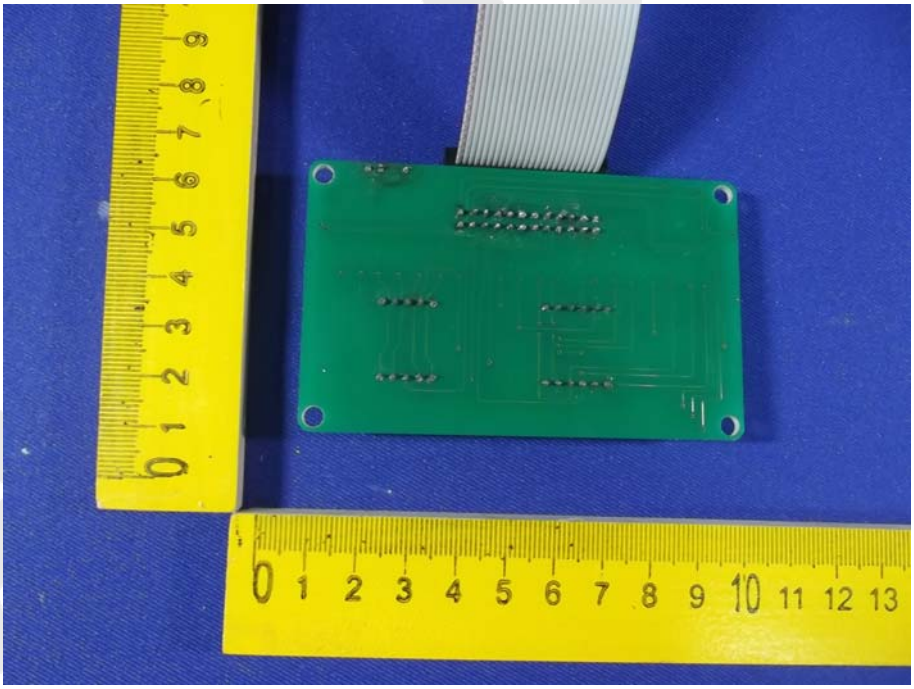


Figure 7
PCB Of The EUT-Front View

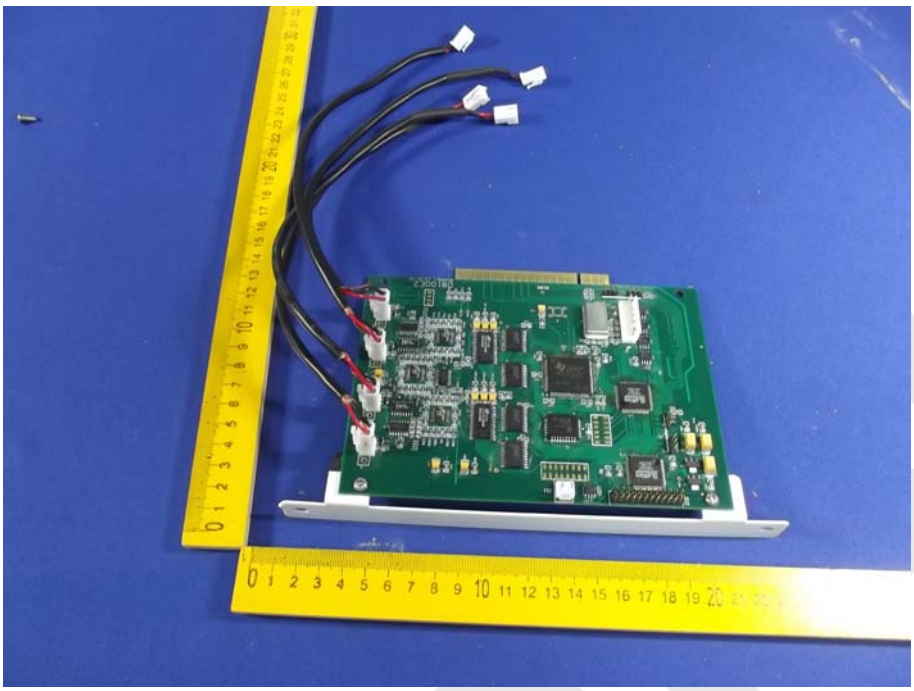


Figure 8
PCB Of The EUT-Back View

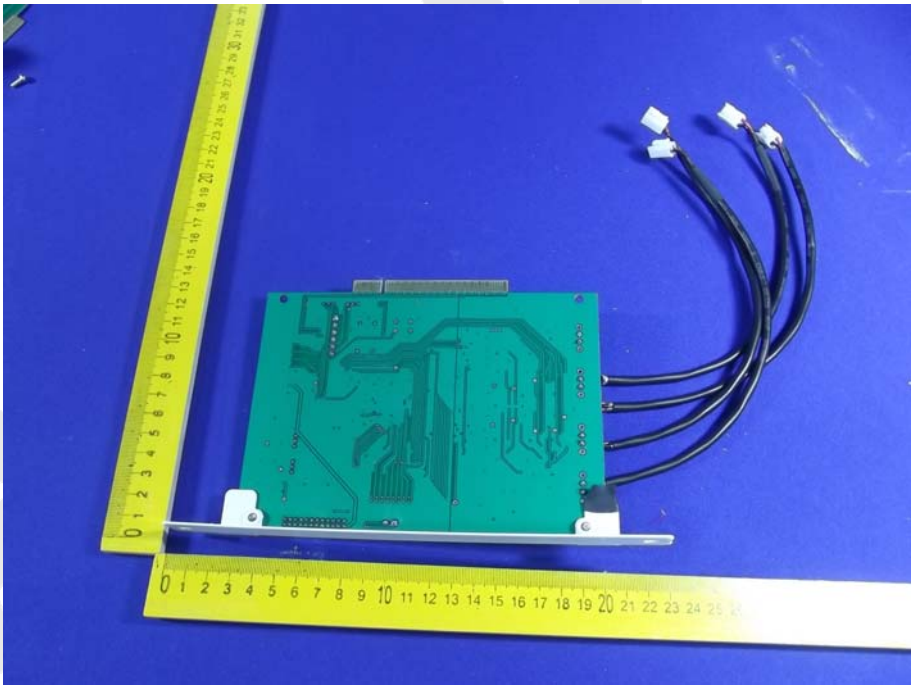


Figure 9
PCB Of The EUT-Front View

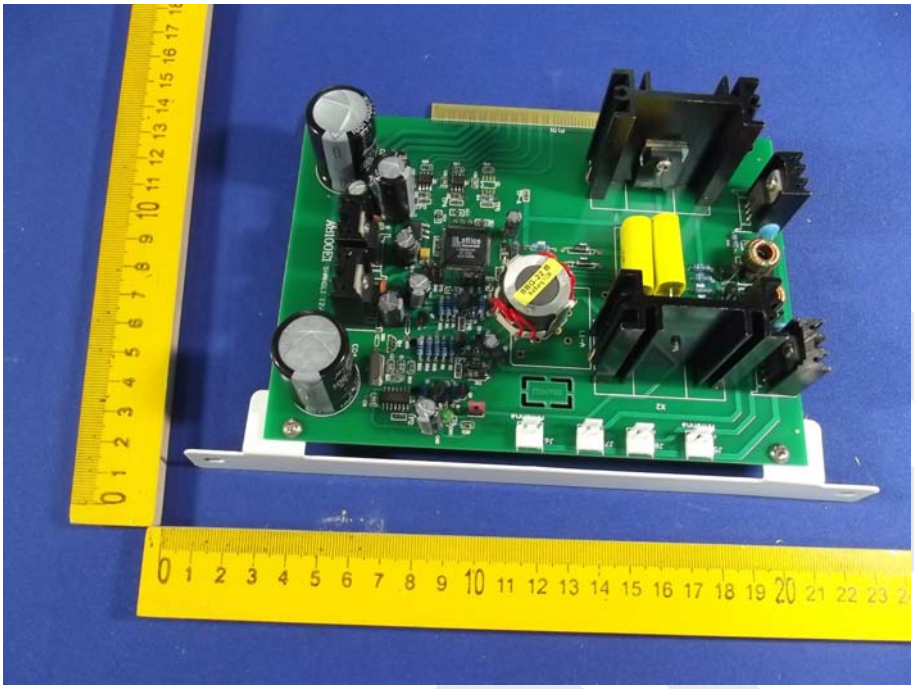


Figure 10
PCB Of The EUT-Back View

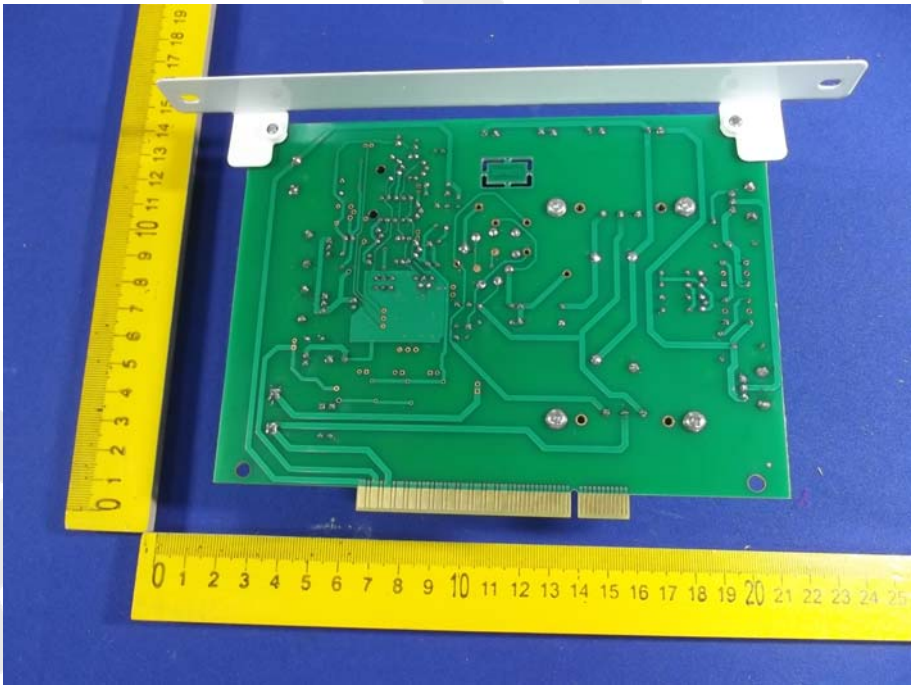


Figure 11
PCB Of The EUT-Front View