FCC 47 CFR PART 18

TEST REPORT

FOR

SOUNDSPASLUMBERSCENTS

Model : SS-A450

Issued to

Shenzhen Great Power Innovation And Technology Enterprise Co.,Ltd.
Building E, Xinxulong Industrial Area, Kukeng Village, Guanlan Town,
Longhua New District, Shenzhen, Guangdong 518110 China

Issued by

WH Technology Corp.

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PHOTOS OF EUT

1. GENERAL INFORMATION

Applicant	:	**Shenzhen Great Power Innovation And Technology Enterprise Co.,Ltd.**
Address	:	**Building E, Xinxulong Industrial Area, Kukeng Village, Guanlan Town, Longhua New District, Shenzhen, Guangdong 518110 China**
Manufacturer	:	**Shenzhen Great Power Innovation And Technology Enterprise Co.,Ltd.**
Address	:	**Building E, Xinxulong Industrial Area, Kukeng Village, Guanlan Town, Longhua New District, Shenzhen, Guangdong 518110 China**
EUT	:	**SOUNDSPASLUMBERSCENTS**
Trade Mark:		**HoMedics**
Model Name	:	**SS-A450**
Model Differences	:	**N/A**
Operating frequency	:	**2.4MHz**

FCC part 18

Receipt Date : 27/06/2017 Final Test Date : 10/07/2017

Tested By: **Reviewed by:**

Jul. 10, 2017 Bell / Engineer Jul. 10, 2017
Date **Date**

Mike Lee / Manager
Designation Number: TW1083

1.1 DESCRIPTION OF THE TESTED SAMPLES

EUT

EUT Type	:	☑ Engineer Type
Condition when received	:	☑ Good
EUT Name	:	SOUNDSPASLUMBERSCENTS
Model Number	:	SS-A450
Receipt Date	:	Jun. 27, 2017
EUT Power Rating		☐AC Power ☐DC Power ☐DC V from PC ☑DC 24V from Adaptor AC 100-240V, 50/60Hz, 750mA MAX. Adapter Model: TPKB02400100-A0 Adapter Rating: AC 100-240V, 50/60Hz, 750mA max.
AC Power Cord Type	:	N/A
IO Port	:	N/A

1.2 SUMMARY OF TEST RESULT

Emission		
Test Standard	**Test Item**	**Test Result**
FCC Part 18	Conducted Emission	Pass
FCC Part 18	Radiated Emission	Pass

1.3 TEST METHODOLOGY

EUT SYSTEM OPERATION

1. The EUT was configured according to ANSI C63.4 – 2014 and MP-5 – 1986.
2. Photos of test configuration please refer to appendix 1.
3. Plug the EUT in.
4. Perform the EMC testing procedures, and measure the maximum emission noise.

1.4 DESCRIPTION OF THE SUPPORT EQUIPMENTS

Setup Diagram

See test photographs attached in appendix I for the actual connections between EUT and support equipment.

Support Equipment

Peripherals Devices:

OUTSIDE SUPPORT EQUIPMENT								
No.	Equipment	Model	Serial No.	FCC ID/ BSMI ID	Trade name	Data Cable	Power Cord	
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
EUT								
No.	Equipment	Model	Serial No.	FCC ID/ BSMI ID	Trade name	Data Cable	Power Cord	Manufacturer
1.	AC ADAPTER	TPKB02400100-A0	N/A	N/A	N/A	N/A	N/A	Shenzhen Great Power Innovation And Technology Enterprise Co.,Ltd.
2.	Atomize Board	JHB16-24	N/A	N/A	JYD®	N/A	N/A	HUNANJIYEDA ELECTONICS CO.LTD

Note: All the above equipment /cable were placed in worse case position to maximize emission signals during emission test

Grounding: Grounding was in accordance with the manufacturer's requirement and conditions for the intended use.

1.5 FEATURES OF EUT: PLEASE REFER TO USER MANUAL OR PRODUCT SPECIFICATION.

2. INSTRUMENT AND CALIBRATION

2.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in the report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

2.2 TEST AND MEASUREMENT EQUIPMENT

The following list contains measurement equipment used for testing. The equipment conforms to the requirement of CISPR 16-1, ANSI C63.2 and. Other required standards.

Calibration of all test and measurement, including any accessories that may effect such calibration, is checked frequently to ensure the accuracy. Adjustments are made and correction factors are applied in accordance with the instructions contained in the respective.

TABLE LIST OF TEST AND MEASUREMENT EQUIPMENT

Test Site	Instrument	Manufacturer	Model No.	S/N	Next Cal. Date	Cal. Interval
Conduction	Receiver	R&S	ESHS10	830223/008	Nov. 21, 2017	1 Year
	Spectrum Analyzer	ADVANTEST	R3261C	87120343	Mar. 16, 2018	1 Year
	RF Cable	MIYAZAKI & Anritsu	RG58A0 & MP59B	M79094	Apr. 06, 2018	1 Year
	L.I.S.N	Rolf Heine Hochfrequenztechnik	NNB-2/16z	98062	Jan. 14, 2018	1 Year
	EMI Test Receiver	R&S	EAHS-10	1093.4495.03	Mar. 19, 2018	1Year
	Click Analyzer	Schaffner	DIA1512C	5218	Jun. 14, 2018	1 Year
Radiation	Spectrum Analyzer	Nex1	NS-265	NO5044006	Aug. 03, 2017	1 Year
	Antenna	Schwarzbeck	VULB 9161	4077	Jan. 31, 2018	1 Year
	RF Cable	N/A	N/A	N/A	Jan. 16, 2018	1 Year
	Pre-Amp	Schaffner	CPA-9232	1012	Jan. 18, 2018	1 Year

※ Calibration interval of instruments listed above is one year

2.3 TEST PERFORMED

Conducted emissions were invested over the frequency range from 0.009 MHz to 30 MHz using a receiver which bandwidth is set at 200Hz from 0.009 MHz to 0.15 MHz and set at 9 kHz from 0.15 MHz to 30 MHz.

Radiated emissions were invested over the frequency range from 30 MHz to 1000 MHz using a receiver which bandwidth is set at 120 kHz. Radiated measurement was performed at distance that from an antenna to EUT is 3 meters.

2.4 APPENDIX

Appendix A: Measurement Procedure for Main Power Port Conducted Emissions

The measurements are performed in a WH lab's room; The EUT was placed on non-conductive 1.0 m x 1.5 m table, which is 0.8 meter above an earth-grounded.

Power to the EUT was provided through the LISN which has the Impedance (50 ohm/50 uH) vs. Frequency Characteristic in accordance with the standard. Powers to the LISNs were filtered to eliminate ambient signal interference and these filters were bonded to the ground plane. Peripheral equipment required to provide a functional system (support equipment) for EUT testing was powered from the second LISN through a ganged, metal power outlet box which is bonded to the ground plane at the LISN.

If the EUT is supplied with a flexible power cord, the power cord length in excess of the distance separating the EUT from the LISN shall be folded back and forth at the center of the lead so as to form a bundle not exceeding 40cm in length. If the EUT is provided with a permanently coiled power cord, bundling of the cord is not required. If the EUT is supplied without a power cord, the EUT shall be connected to the LISN by a power cord of the type specified by the manufacturer which shall not be longer than 1 meter. The excess power cord shall be bundled as described above. If a non-flexible power cord is provided with the EUT, it shall be cut to the length necessary to attach the EUT to the LISN and shall not be bundled.

The interconnecting cables were arranged and moved to get the maximum measurement. Both the line of power cord, hot and neutral, was measured.

The highest emissions were analyzed in details by operating the spectrum analyzer in fixed tuned mode to determine the nature of the emissions and to provide information which could be useful in reducing their amplitude.

Appendix B: Test Procedure for Radiated Emissions

Preliminary Measurements in the Anechoic Chamber

The radiated emissions are initially measured in the anechoic chamber at a measurement distance of 3 meters. Desktop EUT are placed on a wooden stand 0.8 meter in height. The measurement antenna is 3 meters from the EUT. The test setup in anechoic chamber is the same as open site. The turntable rotated 360°. The antenna height is 1m. The primary objective of the radiated measurements in the anechoic chamber is to identify the frequency spectrum in the absence of the electromagnetic environment existing on the open test site. The frequencies can then be pre-selected on the open test site to obtain the corresponding amplitude. The initial scan is made with the spectrum analyzer in automatic sweep mode. The spectrum peaks are then measured manually to determine the exact frequencies.

Measurements on the Open Site or Chamber

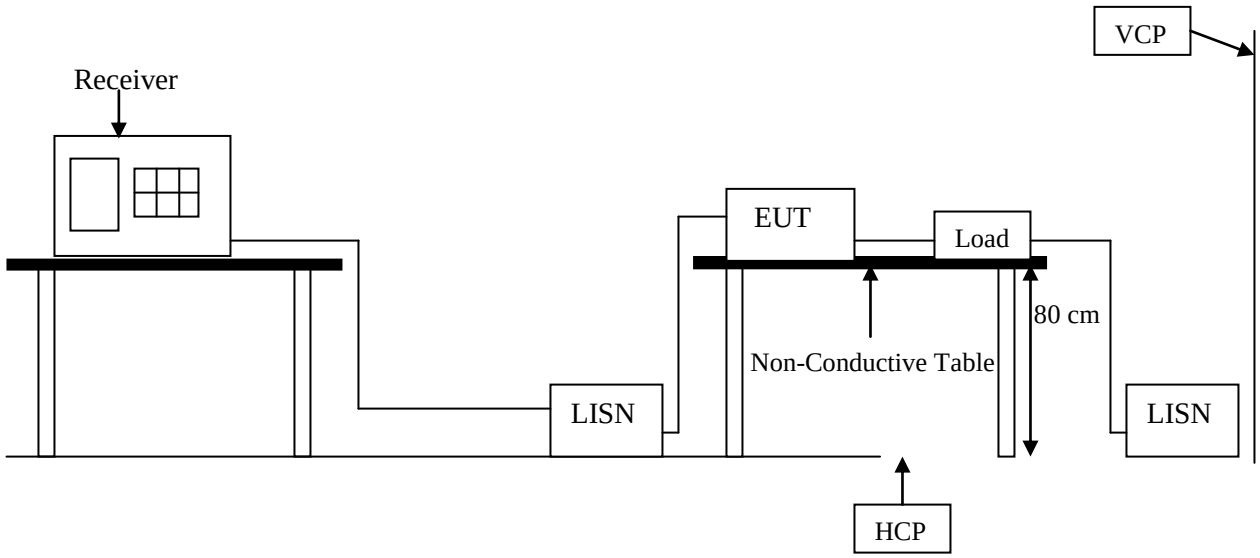
The radiated emissions test will then be repeated on the open site or chamber to measure the amplitudes accurately and without the multiple reflections existing in the shielded room. The EUT and support equipments are set up on the turntable. Desktop EUT are set up on a wooden stand 0.8 meter above the ground.

For the initial measurements, the receiving antenna is varied from 1-4 meter height and is changed in the vertical plane from vertical to horizontal polarization at each frequency. Both reading are recorded with the quasi-peak detector with 120 KHz bandwidth. For frequency between 30 MHz and 1000 MHz, the reading is recorded with peak detector or quasi-peak detector.

At the highest amplitudes observed, the EUT is rotated in the horizontal plane while changing the antenna polarization in the vertical plane to maximize the reading. The interconnecting cables were arranged and moved to get the maximum measurement. Once the maximum reading is obtained, the antenna elevation and polarization will be varied between specified limits to maximize the readings.

3. CONDUCTED EMISSION MEASUREMENT

3.1 TEST SET-UP (PLEASE REFER TO APPENDIX 1)



3.2 LIMIT

■All induction cooking ranges and ultrasonic equipment:

Frequency range (MHz)	Limit dB(uV)	
	Quasi-peak	Average
0.09-0.05	110	---
0.05-0.15	90-80*	---
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

Remark: ***** Decreases with the logarithm of the frequency.
In the above table, the tighter limit applies at the band edges.

☐ All other part 18 consumer devices:

Frequency range (MHz)	Limit dB(uV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

Remark: ***** Decreases with the logarithm of the frequency.
In the above table, the tighter limit applies at the band edges.

☐ RF lighting devices:

Frequency range (MHz)	Maximum RF line voltage measured with a 50 uH/50 ohm LISN(uV)
0.45-1.6	1000
1.6-30	3000
Consumer equipment	
0.45-2.51	250
2.51-3.0	3000
3.0-30	250

3.3 TEST PROCEDURE

The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). It provides a 50 ohm / 50 μH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50 ohm / 50 μH coupling impedance with 50 ohm termination. (Please refer to the block diagram of the test setup and photograph.)

Both sides of AC line are checked for the maximum conducted emission interference. In order to find the maximum emissions, the relating positions of equipment and all of the interference cables must be changed according to FCC regulation: The measurement procedure on conducted emission interference.

The resolution bandwidth of the field strength meter is set at 9 kHz

3.4 TEST SPECIFICATION

ANSI C63.4 – 2014 Section 5.2, 7.2, 7.3.

3.5 RESULT: PASSED

EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

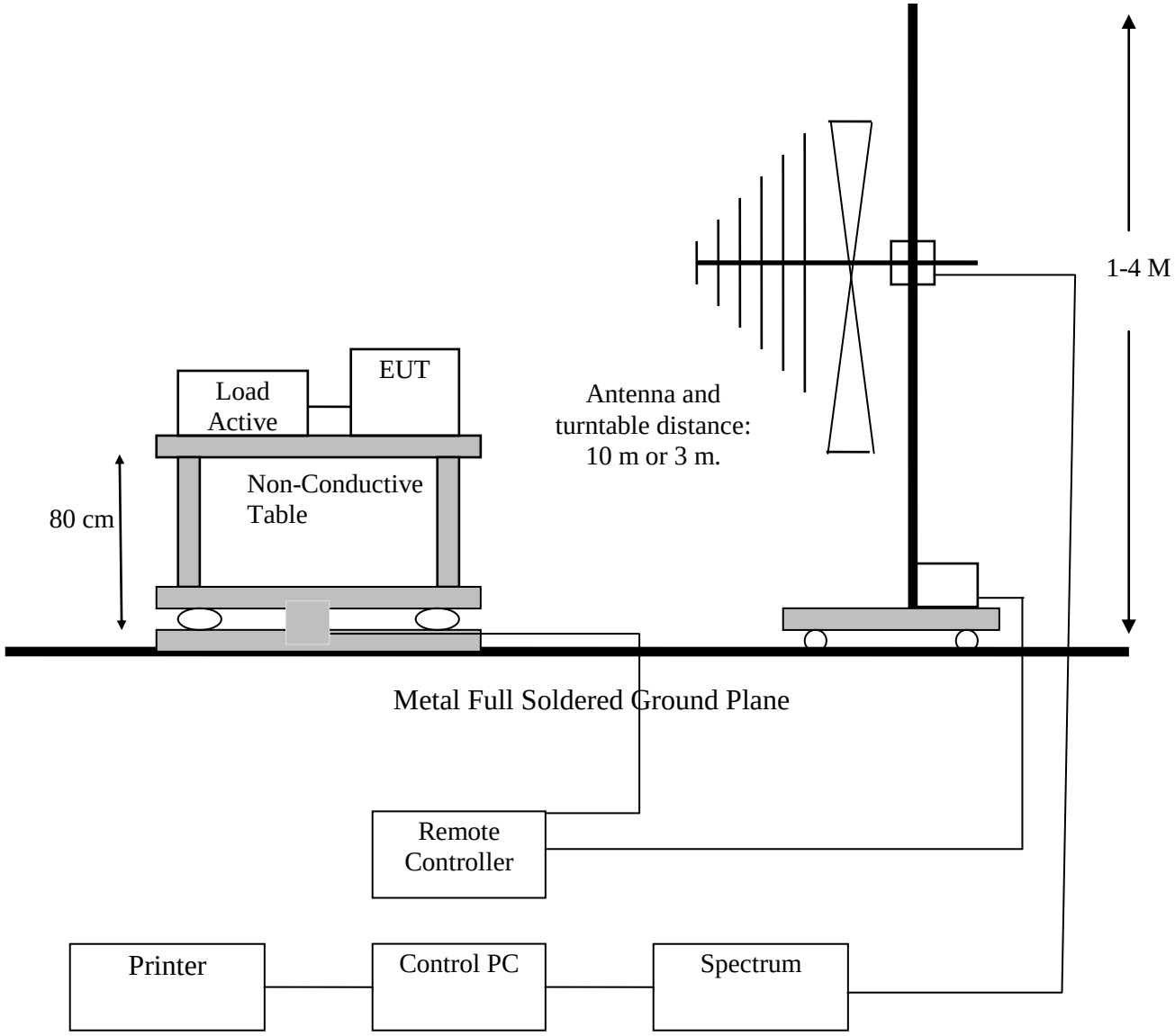
Frequency Range:	9 kHz—30 MHz
Resolution Bandwidth:	200 Hz (9kHz-150kHz) 9 kHz (150kHz-30MHz)

3.6 TEST DATA:

Please refer to appendix 2.

4. RADIATED EMISSION MEASUREMENT

4.1 TEST SETUP (PLEASE REFER TO APPENDIX 1)



4.2 LIMIT

■ Table 1

Equipment	Operating frequency	RF Power generated by equipment (watts	Field strength limit (uV/m)	Distance (meters)
□Any type unless otherwise specified (miscellaneous)	Any ISM frequency	Below 500 500 or more	25 25 x SQRT (power/500)	300 (1)300
	Any NON-ISM frequency	Below 500 500 or more	15 15 x SQRT (power/500)	300 (1)300
□ Industrial heaters and RF stabilized arc welders	On or below 5,725 MHz Above 5,725 MHz	Any Any	10 (2)	1600 (2)
□ Medical diathermy	Any ISM frequency Any non- ISM frequency	Any Any	25 15	300 300
■Ultrasonic	Below 490 kHz	Below 500 500 or more	2,400/F(kHz) 2,400/F(kHz)x SQRT(power/500)	300 (3)300
	490 to 1,600 kHz Above 1,600 kHz	Any Any	2,400/F(kHz) 15	30 30
□ Induction cooking ranges	Below 90 kHz On or above 90 kHz	Any Any	1,500 300	(4)30 (4)30

(1) Field strength may not exceed 10 μV/m at 1600 meters. Consumer equipment operating below 1000 MHz is not permitted the increase in field strength otherwise permitted here for power over 500 watts.
(2) Reduced to the greatest extent possible.
(3) Field strength may not exceed 10 μV/m at 1600 meters. Consumer equipment is not permitted the increase in field strength otherwise permitted here for over 500 watts.
(4) Induction cooking ranges manufactured prior to February 1, 1980, shall be subject to the field strength limits for miscellaneous ISM equipment.

Note : The field strength limit and distance shown in the following Table 2 are the conversion of the requirement in Table 1.

□ Table 2

Equipment	Operating frequency	RF Power generated by equipment (watts)	Field strength limit (dBuV/m)	Distance (meters)
Any type unless otherwise specified (miscellaneous)	Any ISM frequency	Below 500	57.5	10

☐ The for RF lighting devices field strength limits

Frequency (MHz)	Field strength limit at 30 meters (μV/m)
Non-consumer equipment:	
30-88	30
88-216	50
216-1000	70
Consumer equipment:	
30-88	10
88-216	15
216-1000	20

Notes:

1. The tighter limit shall apply at the boundary between two frequency ranges.

4.3 TEST PROCEDURE

The EUT and its simulators are placed on turn table, non-conductive and wooden table, which is 0.8 meter above ground. The turn table rotates 360 degree to determine the position of the maximum emission level. For the frequency range is below 1 GHz, the EUT was positioned such that distance from antenna to the EUT is 10 meters.

For the frequency range is below 1 GHz, the antenna is moved up and down between 1 meter to 4 meter to receive the maximum emission level.

Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission, all of the interference cables must be manipulated according to CISPR regulation: the test procedure of the radiated emission measurement.

The bandwidth set on the field strength is 120 KHz when the frequency range is below 1GHz.

4.4 TEST SPECIFICATION

ANSI C63.4 – 2014 Section 5.4, 5.5, 8.1, 8.3.

4.5 RESULT: PASSED

4.6 TEST DATA:

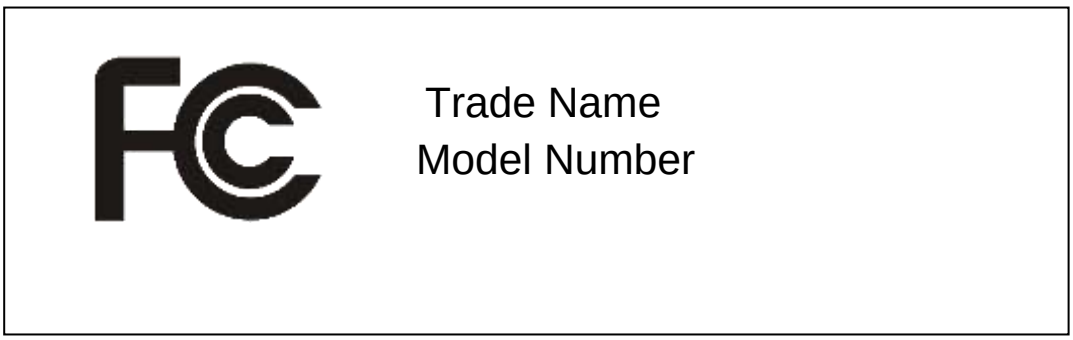
Please refer to appendix 2.

According to FCC PART 18 §18.307(f): For ultrasonic equipment, compliance with the conducted limits shall preclude the need to show compliance with the field strength limits below 30 MHz unless requested by the Commission.

5. MEASUREMENT UNCERTAINTY

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30. MHz	LINE/NEUTRAL	1.78 dB
Radiated Emission	30 MHz ~ 1,000 MHz	Horizontal	3.59 dB
		Vertical	3.89 dB
	1,000 MHz ~ 18GHz	Horizontal	5.00 dB
	1,000 MHz ~ 18GHz	Vertical	4.64 dB

SAMPLE OF FCC DOC LABEL

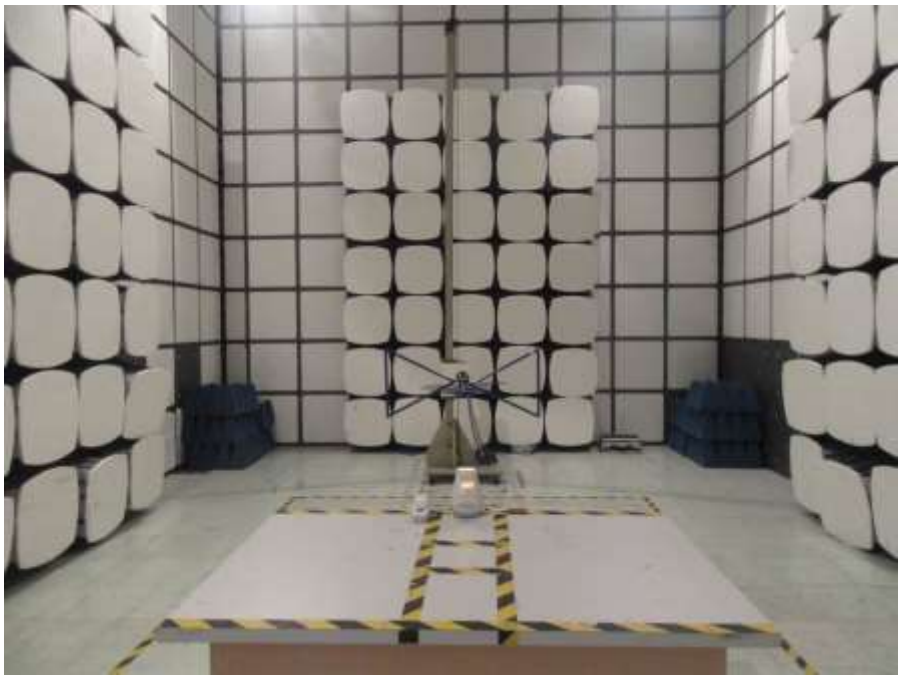


APPENDIX 1
PHOTOS OF TEST CONFIGURATION

Photograph –Conducted Emission Test Setup

PHOTOS OF TEST CONFIGURATION

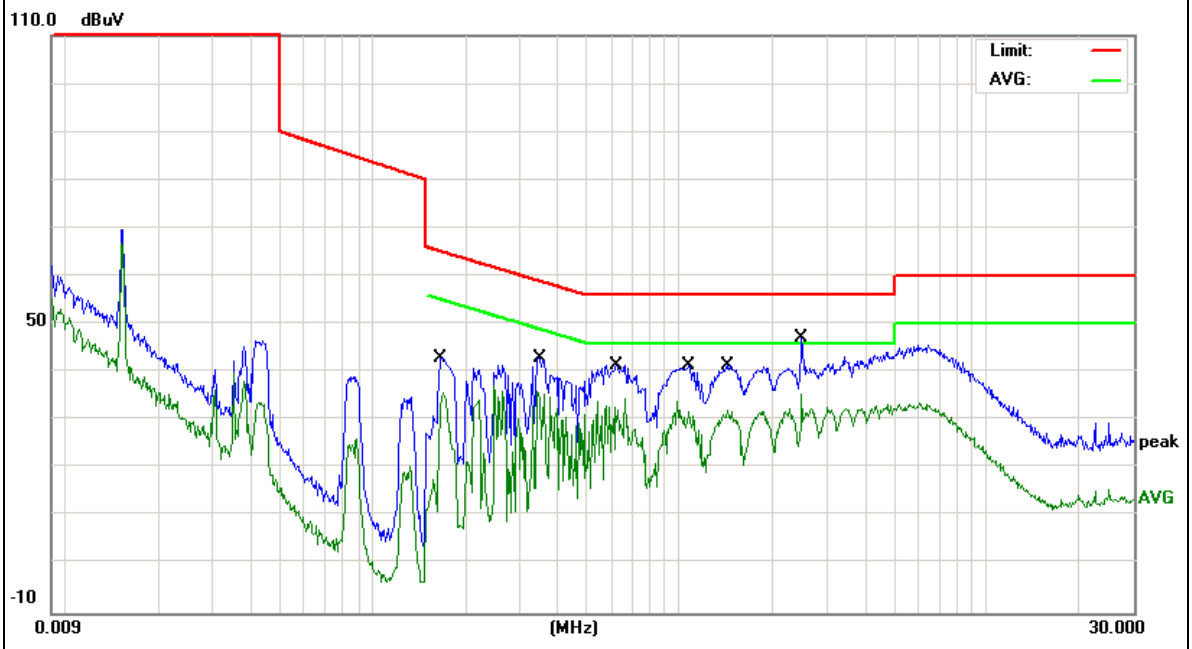
Photograph –Radiated Emission Test Setup



APPENDIX 2
TEST DATA

Test Data –Conducted Emission

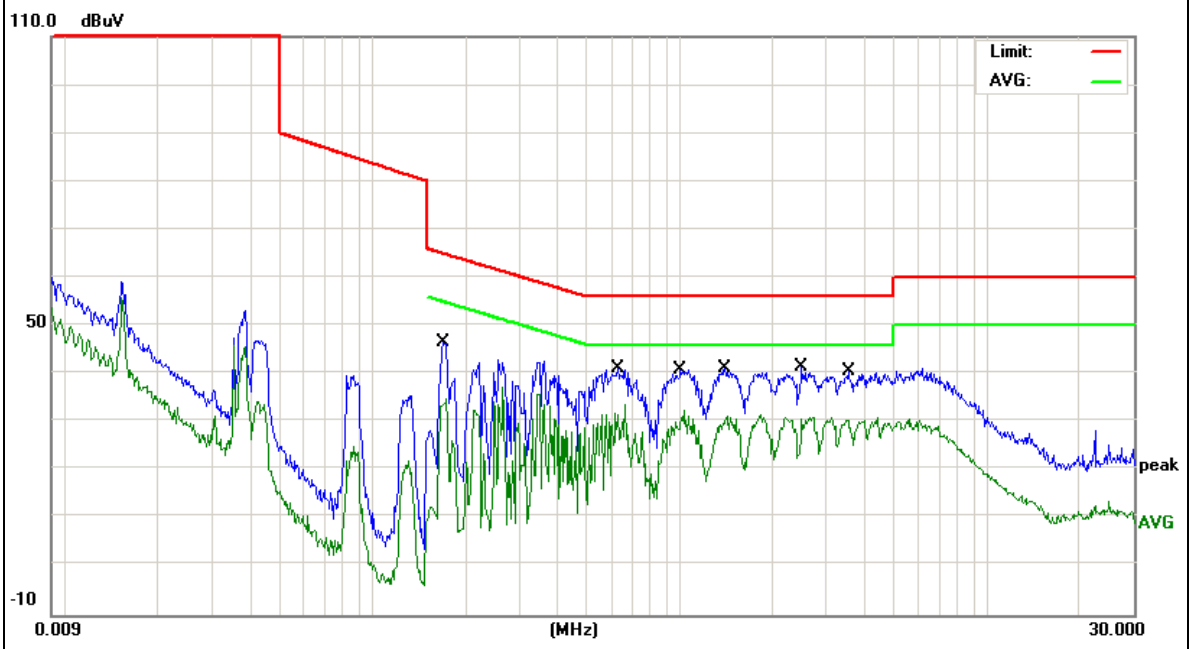
Phase: L – Working + Full Load mode



Remark: Factor = LISN Factor + Cable Loss+ Pulse limiter Factor.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1660	33.36	9.70	43.06	65.15	-22.09	QP	
2		0.1660	25.97	9.70	35.67	55.15	-19.48	AVG	
3		0.3500	33.24	9.70	42.94	58.96	-16.02	QP	
4		0.3500	26.37	9.70	36.07	48.96	-12.89	AVG	
5		0.6260	31.77	9.71	41.48	56.00	-14.52	QP	
6		0.6260	24.89	9.71	34.60	46.00	-11.40	AVG	
7		1.0740	31.54	9.81	41.35	56.00	-14.65	QP	
8		1.0740	21.96	9.81	31.77	46.00	-14.23	AVG	
9		1.4260	31.55	9.78	41.33	56.00	-14.67	QP	
10		1.4260	22.47	9.78	32.25	46.00	-13.75	AVG	
11	*	2.4980	37.38	9.84	47.22	56.00	-8.78	QP	
12		2.4980	25.58	9.84	35.42	46.00	-10.58	AVG	

Phase: N - Working + Full Load mode

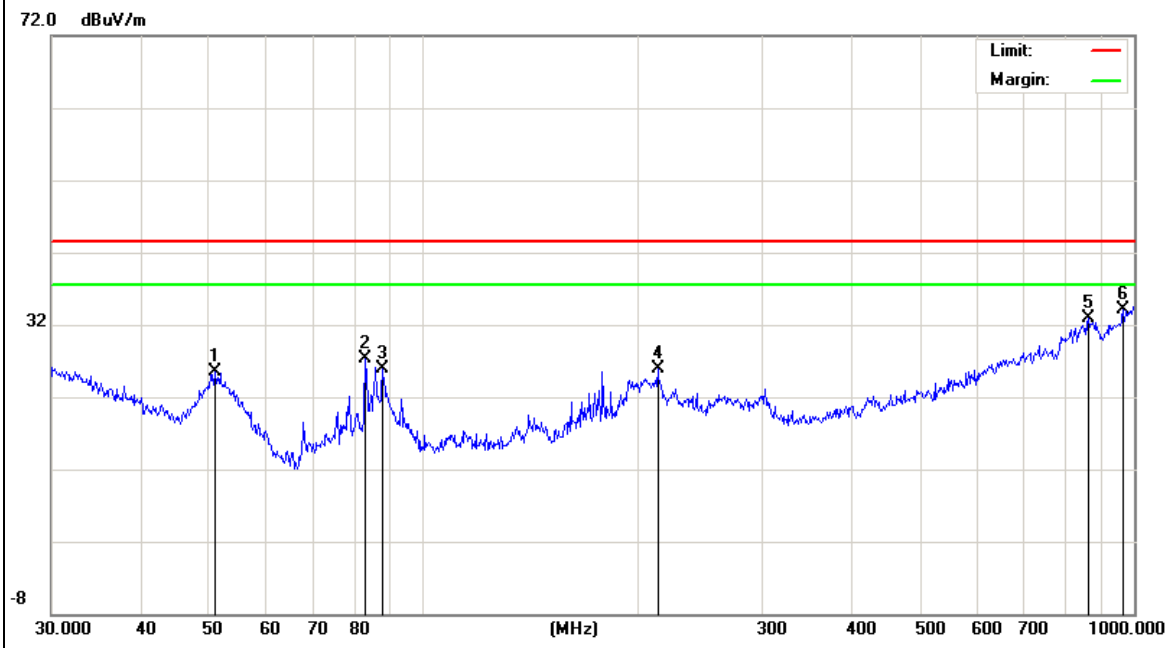


Remark: Factor = LISN Factor + Cable Loss+ Pulse limiter Factor.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1700	36.70	9.80	46.50	64.96	-18.46	QP	
2		0.1700	25.14	9.80	34.94	54.96	-20.02	AVG	
3		0.6300	31.36	9.81	41.17	56.00	-14.83	QP	
4		0.6300	22.05	9.81	31.86	46.00	-14.14	AVG	
5		1.0100	31.09	9.82	40.91	56.00	-15.09	QP	
6	*	1.0100	22.74	9.82	32.56	46.00	-13.44	AVG	
7		1.3980	31.24	9.82	41.06	56.00	-14.94	QP	
8		1.3980	21.46	9.82	31.28	46.00	-14.72	AVG	
9		2.4940	31.53	9.84	41.37	56.00	-14.63	QP	
10		2.4940	21.17	9.84	31.01	46.00	-14.99	AVG	
11		3.5260	30.60	9.86	40.46	56.00	-15.54	QP	
12		3.5260	20.59	9.86	30.45	46.00	-15.55	AVG	

Test Data –Radiated Emission

Phase: Horizontal – Working + Full Load mode



Remark: Factor = LISN Factor + Cable Loss+ Pulse limiter Factor.

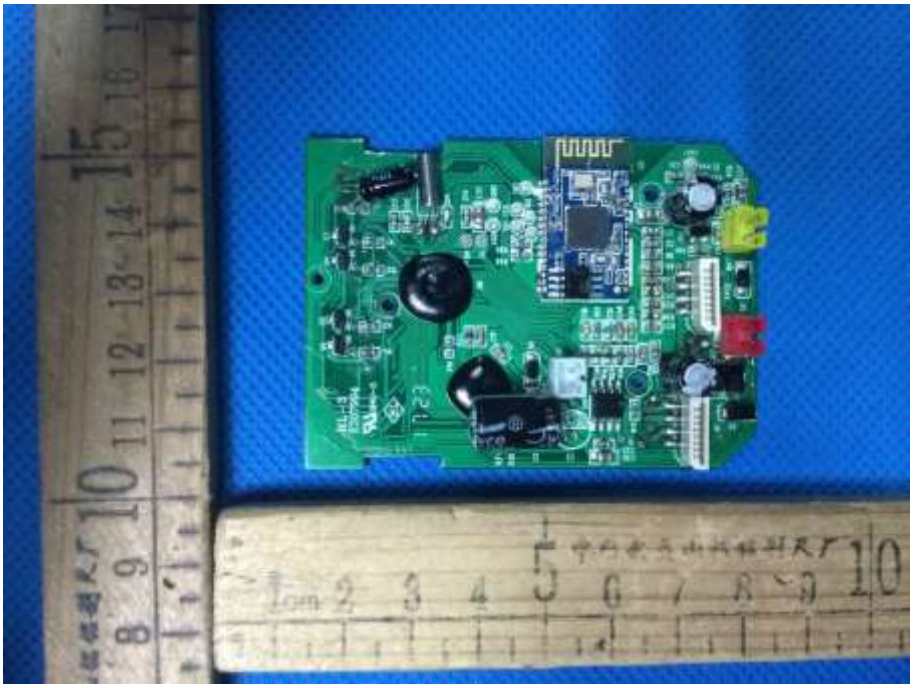
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		50.9420	12.19	13.30	25.49	43.50	-18.01	QP			
2		82.9385	16.29	11.01	27.30	43.50	-16.20	QP			
3		87.7248	14.26	11.68	25.94	43.50	-17.56	QP			
4		213.7634	12.59	13.30	25.89	43.50	-17.61	QP			
5		863.0561	6.98	25.93	32.91	43.50	-10.59	QP			
6	*	965.5421	7.00	27.10	34.10	43.50	-9.40	QP			

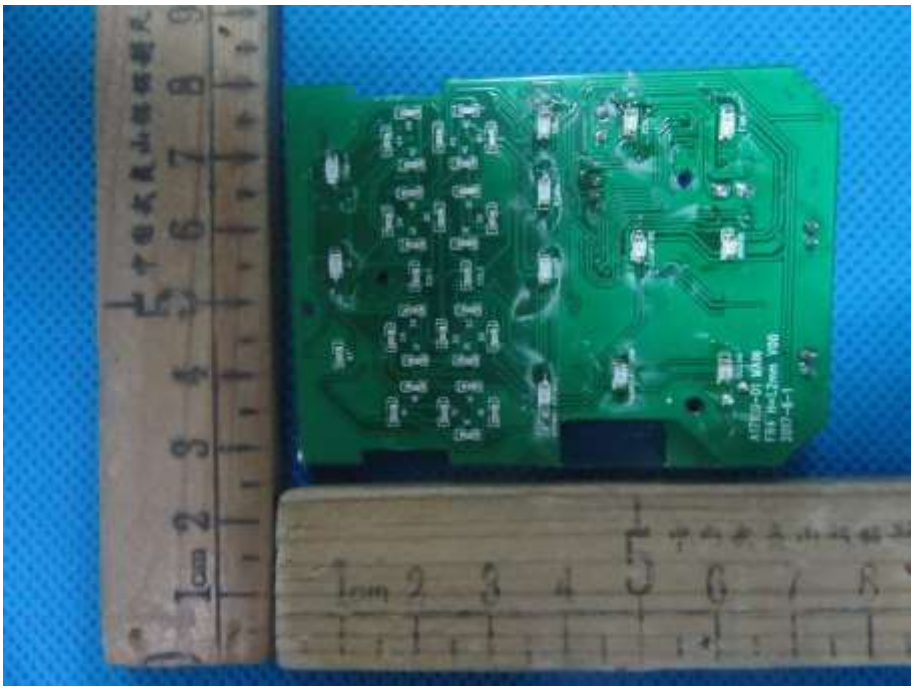
Phase: Vertical - Working + Full Load mode

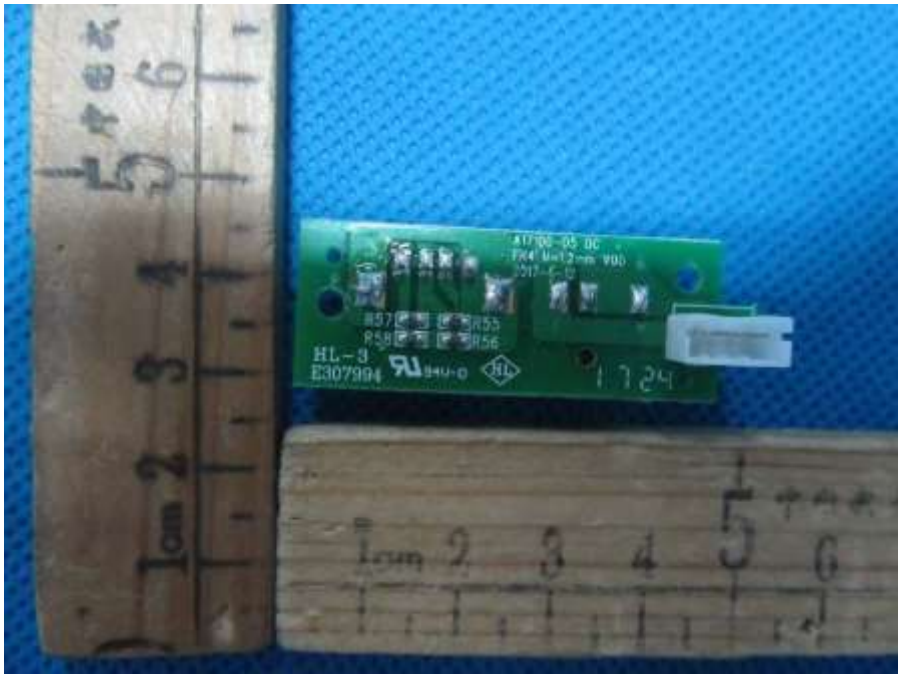
Remark: Factor = LISN Factor + Cable Loss+ Pulse limiter Factor.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		47.9939	20.06	13.38	33.44	43.50	-10.06	QP			
2		55.6094	22.13	12.22	34.35	43.50	-9.15	QP			
3		89.9047	21.18	11.77	32.95	43.50	-10.55	QP			
4		112.9196	23.33	10.12	33.45	43.50	-10.05	QP			
5		202.8104	20.29	13.84	34.13	43.50	-9.37	QP			
6	*	893.8567	14.17	24.51	38.68	43.50	-4.82	QP			

PHOTOS OF EUT



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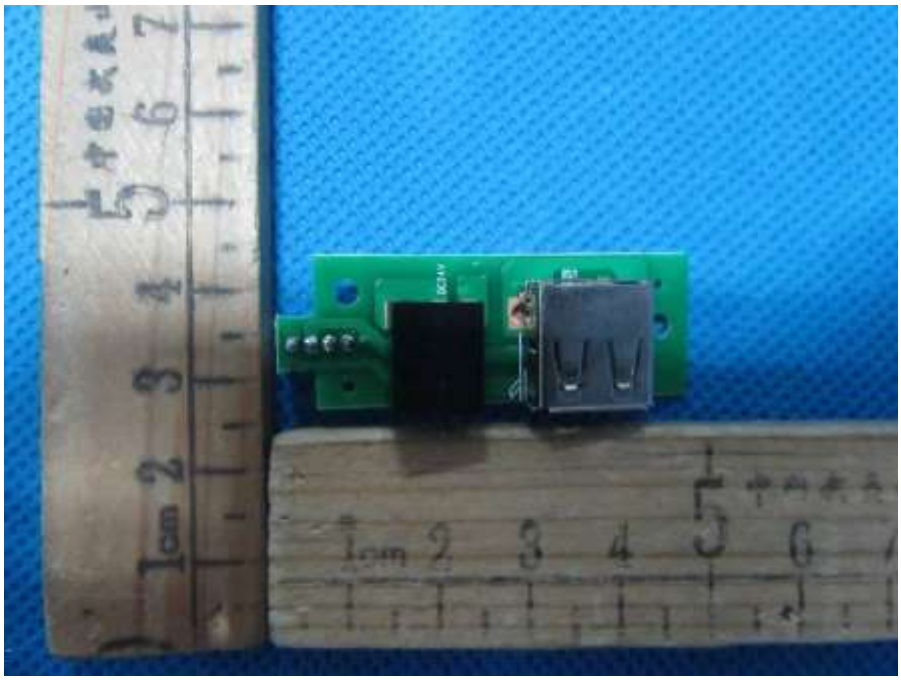

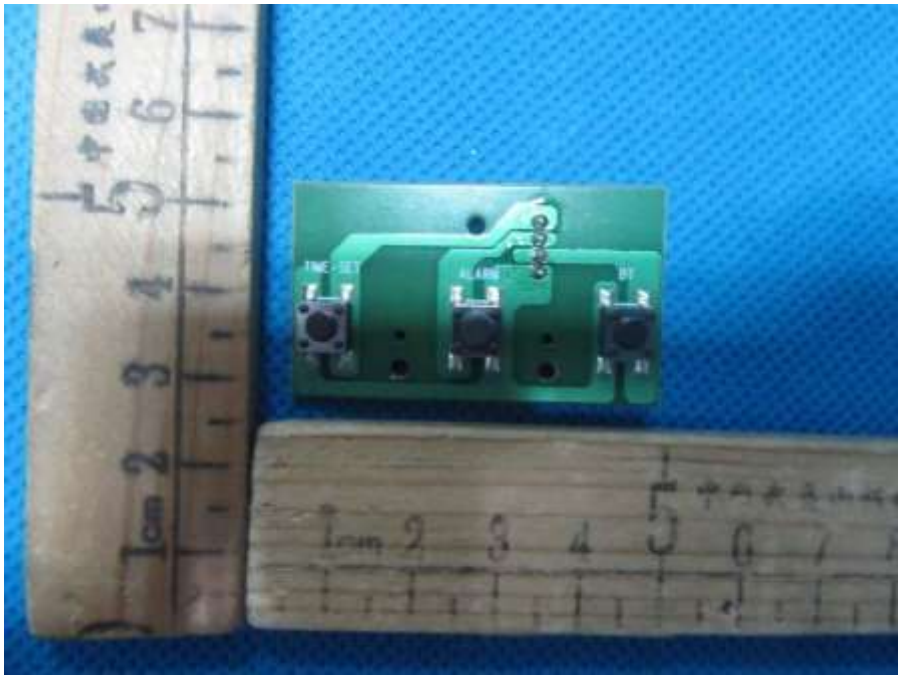

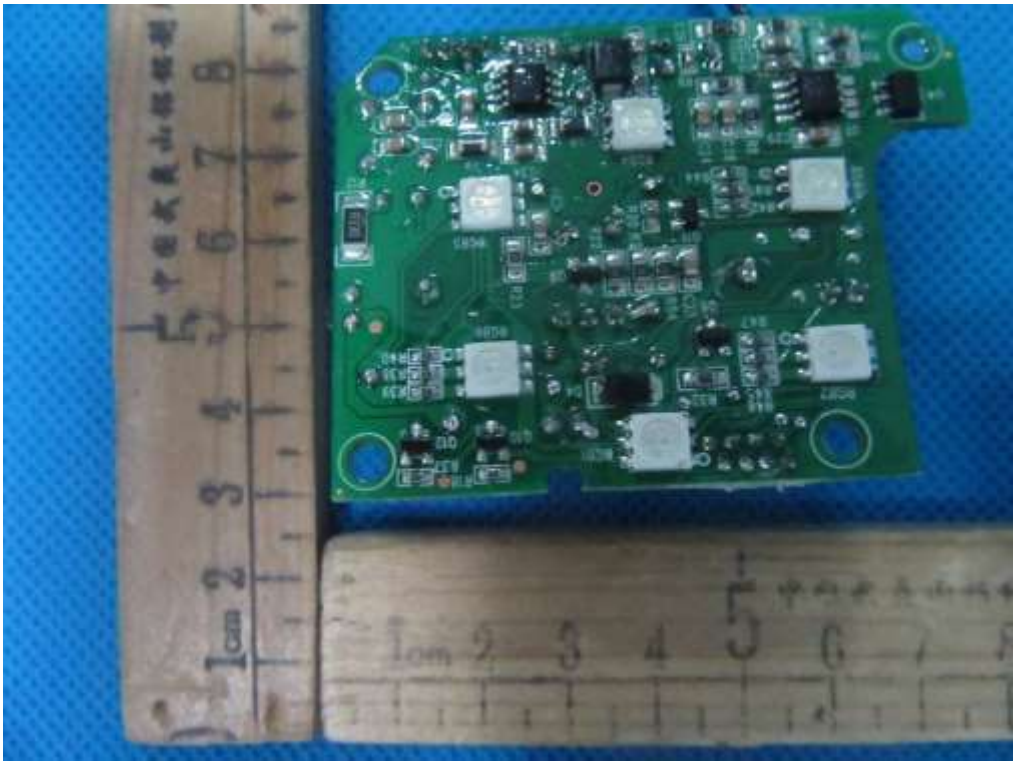

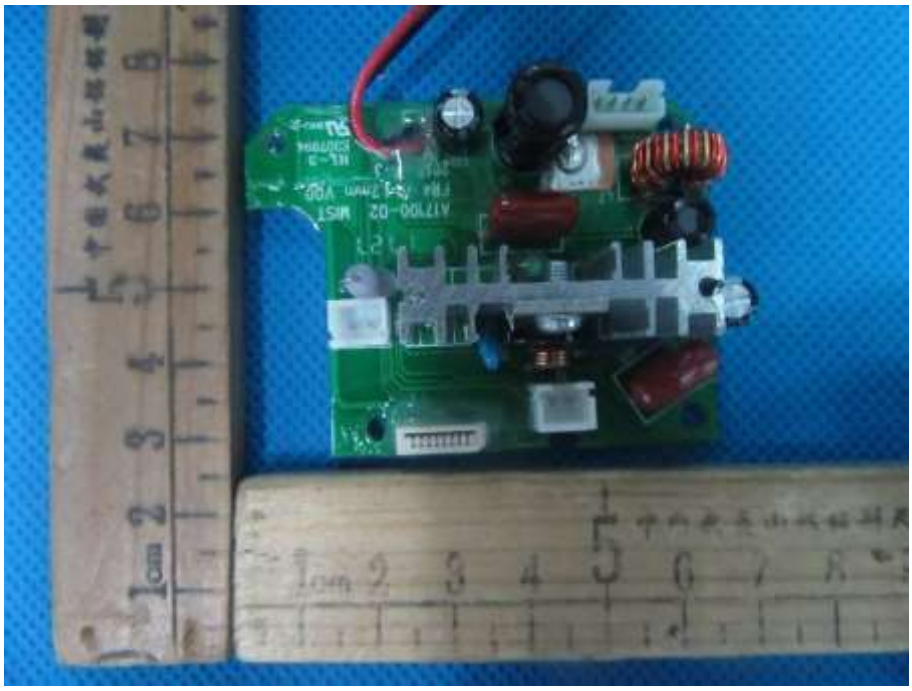

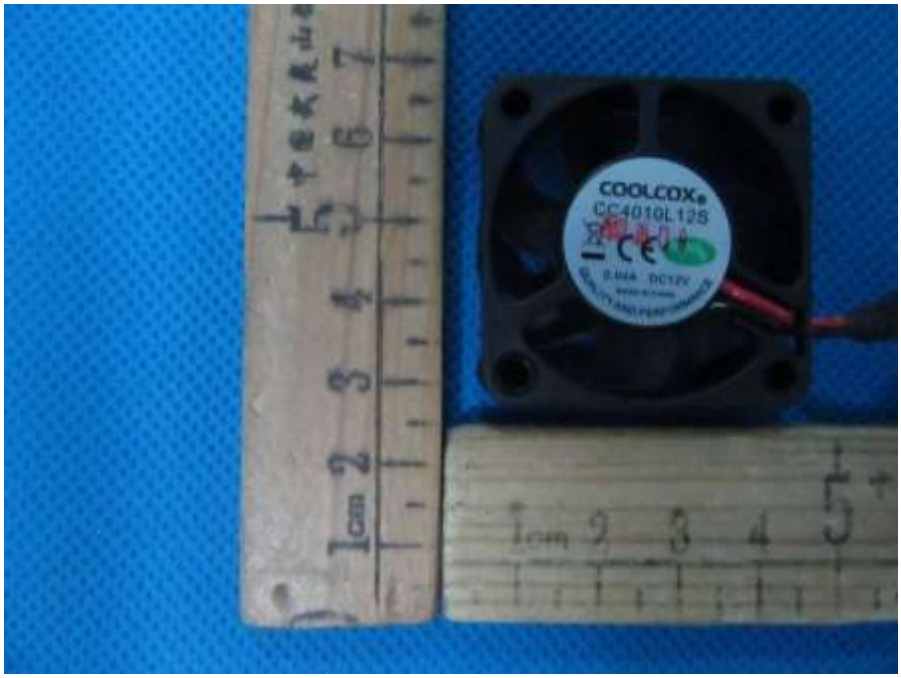
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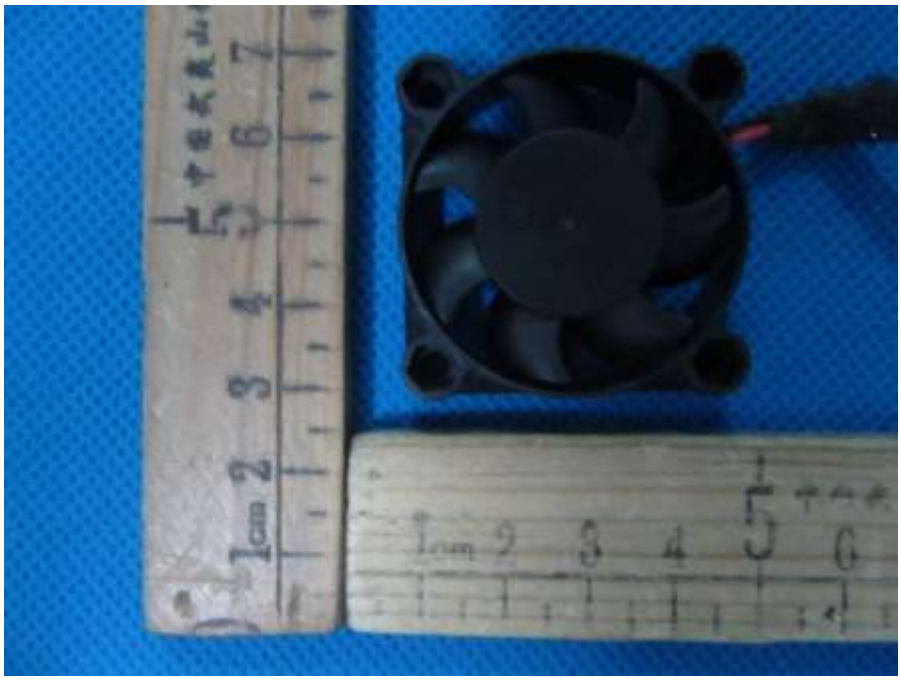

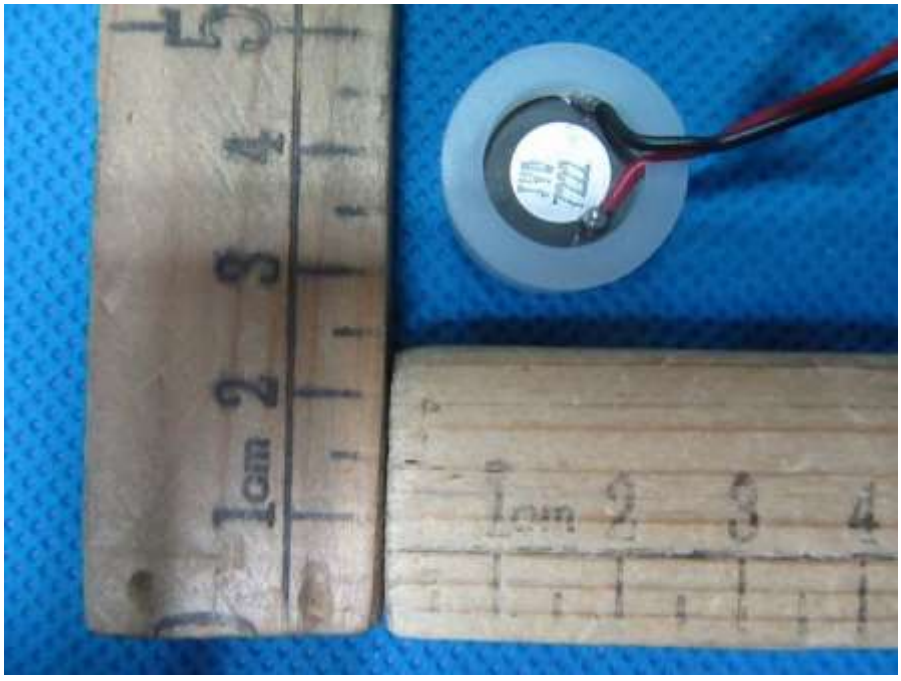


4ΩW


CR2032L
3V LITHIUM BATTERY


HoMEDICS
AC ADAPTER
MODEL: TPWB02400100-A0
PP-ADPESSA450
INPUT 100-240VAC,50/60Hz 750mA MAX
OUTPUT 24VDC,1.0A
LISTED
LITE POWER SUPPLY
E348485
4HS1
2417
MADE IN CHINA