

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
UNINTENTIONAL RADIATOR CERTIFICATION TO
FCC PART 18 REQUIREMENT**

for

Self-ballasted lamp

M/N: EU-19W, EU-23W

FCC ID: XBSEU19-23W

Trade Name: Not Applicable

REPORT NO.: SZEE100201400232

Issue Date: Feb. 26, 2010

Prepared for

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TABLE OF CONTENTS

1.	CERTIFICATION INFORMATION	3
2.	SUMMARY OF TEST RESULTS.....	4
3.	TEST UNCERTAINTY	4
4.	GENERAL INFORMATION	4
4.1.	PRODUCT INFORMATION	4
4.2.	REPORT INFORMATION	4
4.3.	TEST SETUP CONFIGURATION	4
4.4.	SUPPORT EQUIPMENT	4
5.	FACILITIES AND ACCREDITATIONS.....	5
5.1.	TEST FACILITY	5
5.2.	TEST EQUIPMENT LIST	5
5.3.	LABORATORY ACCREDITATIONS AND LISTINGS.....	5
6.	TEST CONDITION.....	5
6.1.	TEST CONFIGURATION	5
6.2.	EUT OPERATION	5
7.	CONDUCTED EMISSIONS TEST	6
7.1.	LIMITS	6
7.2.	MEASUREMENT PROCEDURE	6
7.3.	BLOCK DIAGRAM OF TEST SETUP	6
7.4.	TEST RESULTS	6
8.	RADIATED EMISSION TEST	9
8.1.	LIMITS	9
8.2.	TEST PROCEDURE	9
8.3.	BLOCK DIAGRAM OF TEST SETUP	9
8.4.	TEST RESULTS	9
APPENDIX 1	PHOTOGRAPHS OF EUT	12
APPENDIX 2	EXTERNAL PHOTOGRAPHS OF EUT	13
APPENDIX 3	INTERNAL PHOTOGRAPHS OF EUT	14

(Note: N/A means not applicable)

1. CERTIFICATION INFORMATION

Applicant: Sunny World (HK) Limited
Rm 302~306, Hewlett Ctr, 54 Hoi Yuen Rd, Kwun Tong, Kowloon, HK

Manufacturer: Ningbo Zuoming Electronic Co., Ltd.
No. 709 Yangmuqi Road, Ningbo, Zhejiang 315040, P.R. China

Test Type: FCC Part 18 for Lighting Device (Certification)

Trade Name: Not Applicable

Product Name : Self-ballasted lamp

M/N: EU-19W, EU-23W

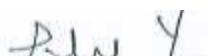
Report No.: SZEE100201400232

Date of Test: Feb. 01, 2010 to Feb. 08, 2010

The above equipment was tested by Centre Testing International (CTI). The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 18.

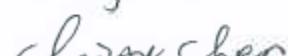
The test results of this report relate only to the tested sample identified in this report.

Prepared by :



Lily Yan

Inspected by :



Christy Chen

Approved by:



Jim Zhang



Date :

Feb. 26, 2010

2. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§18.307(c)	Conducted Emission	Compliant
§18.305(c)	Radiated Emission	Compliant

3. TEST UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Value
Conducted emission	3.2 dB
Radiated emission	4.6 dB

4. GENERAL INFORMATION

4.1. PRODUCT INFORMATION

Product name: Self-ballasted lamp
Model name: EU-19W, EU-23W
Trade name: Not Applicable
Technical data: AC 120V/60Hz
Function: Lighting
Operation Frequency: 50kHz

4.2. REPORT INFORMATION

Revised Report No.: SZEE100201400232

Original Report No.: SZEE090422400202

Revision information:

This report is the revision of the report SZEE090422400202 as the products have been revised by customer as below,

No.	Model	PCB' model	Original L2	Revised L2
1	EU-19W	4205T	1.4mH	1.2mH
2	EU-23W	4205T	1.2mH	1.0mH

4.3. TEST SETUP CONFIGURATION

See test photographs attached in APPENDIX 1 PHOTOGRAPHS OF TEST SETUP for the actual connections between EUT and support equipment.

4.4. SUPPORT EQUIPMENT

None.

5. FACILITIES AND ACCREDITATIONS

5.1. TEST FACILITY

The 3m Semi-Anechoic chamber test site and conducted measurement facility used to collect the radiated data is located on the address:

1F., Building C, Hongwei Industrial Zone 70 District., Baoan, Shenzhen, Guangdong, China. The Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003 requirements. The test site Registration Number: 510007.

5.2. TEST EQUIPMENT LIST

Instrumentation: The following list contains equipments used at CTI for testing.

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

Equipment used during the tests:

3M Semi-anechoic Chamber - RE Test				
Equipment	Manufacturer	Model	Serial No.	Due Date
Spectrum Analyzer	Agilent	E4443A	MY46185649	01/25/2011
Biconilog Antenna	A.H.System	SAS-521-2	487	06/05/2010
Multi device Controller	ETS-LINGREN	2090	00057230	01/25/2011

Shielding Room No. 1 - CE Test				
Equipment	Manufacturer	Model	Serial No.	Due Date
Receiver	R&S	ESCI	100435	08/25/2010
LISN	R&S	ENV216	100098	08/25/2010

5.3. LABORATORY ACCREDITATIONS AND LISTINGS

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC/EN 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

6. TEST CONDITION

6.1. TEST CONFIGURATION

The device was configured for testing in a typical fashion (as a customer would normally use it). During the tests, the EUT and the supported equipments were installed to meet FCC requirement and operated in a manner which tends to maximize its emission level in a typical application.

6.2. EUT OPERATION

EUT was tested according to the following operation modes provided by the specifications given by the manufacturer, and reported the worst emissions.

7. CONDUCTED EMISSIONS TEST

7.1. LIMITS

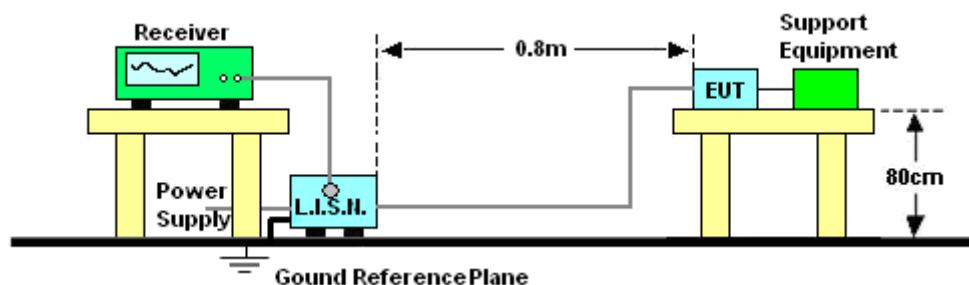
According to section 18.307(c), Conducted Emission limits as following:

Frequency (MHz)	Maximum RF Line Voltage	
	Q.P. (dBuV)	
0.45-2.51	48	
2.51-3.0	69.5	
3.0-30	48	

7.2. MEASUREMENT PROCEDURE

- The EUT was placed on a non-conductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
- The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from EUT in all power lines in the full band.
- For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

7.3. BLOCK DIAGRAM OF TEST SETUP



7.4. TEST RESULTS

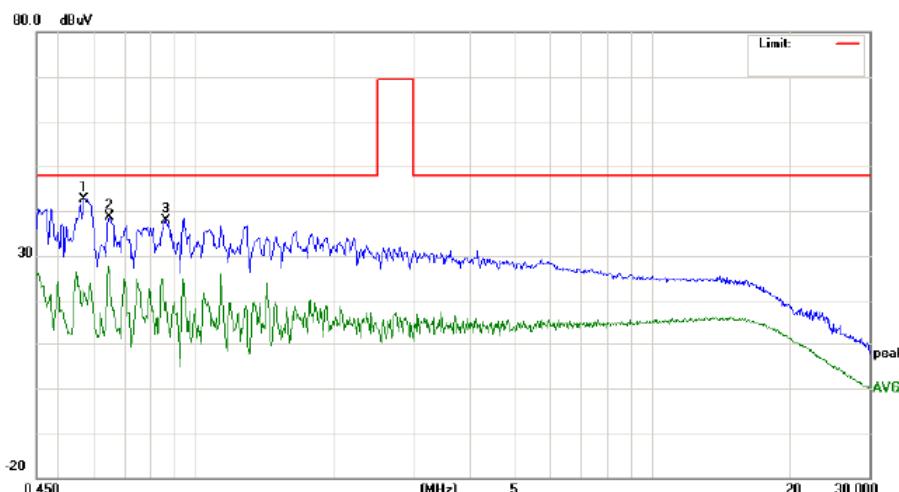
Correct Factor = Cable loss + Antenna Factor
 Measurement = Reading level + Factor
 Margin = Reading in reference to limit
 “---” = The emission level complied with the limits, with sufficient margin, so no further recheck.

EUT : EU-19W
Power : AC 120V/60Hz
Temperature : 24°C

Mode : Normal
Humidity : 53%

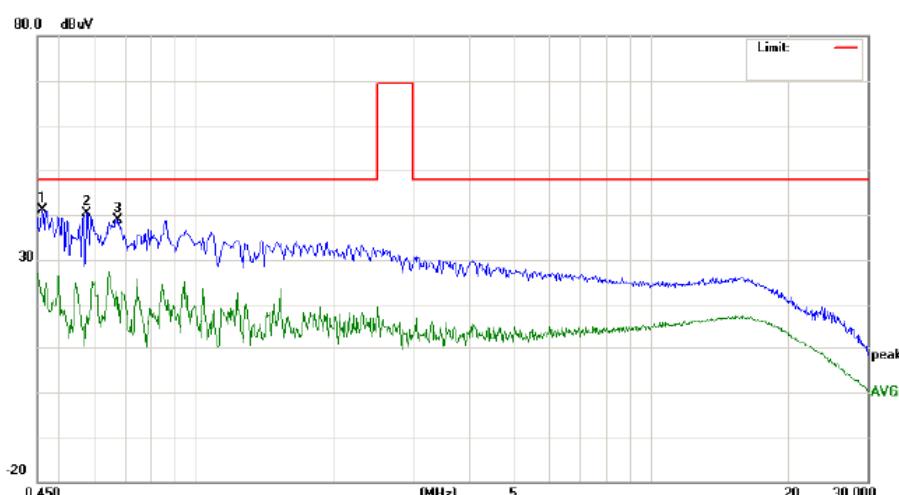
L Line:

No.	Freq.	Reading_Level (dBuV)		Correct Factor		Measurement (dBuV)		Limit (dBuV)		Margin (dB)		
		MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	P/F
1	0.5740	32.72		12.24	9.99	42.71		22.23	48.00		-5.29	P
2	0.6500	28.58		16.50	9.96	38.54		26.46	48.00		-9.46	P
3	0.8660	28.04		9.84	9.89	37.93		19.73	48.00		-10.07	P



N Line:

No.	Freq.	Reading_Level (dBuV)		Correct Factor		Measurement (dBuV)		Limit (dBuV)		Margin (dB)		
		MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	P/F
1	0.4620	31.02		12.55	10.00	41.02		22.55	48.00		-6.98	P
2	0.5780	30.38		7.48	9.98	40.36		17.46	48.00		-7.64	P
3	0.6780	28.95		11.74	9.95	38.90		21.69	48.00		-9.10	P

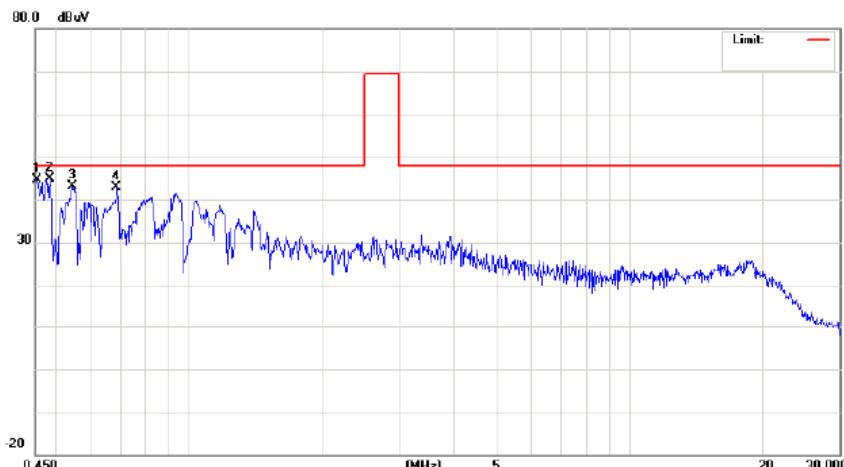


EUT : EU-23W
Power : AC 120V/60Hz
Temperature : 24°C

Mode : Normal
Humidity : 53%

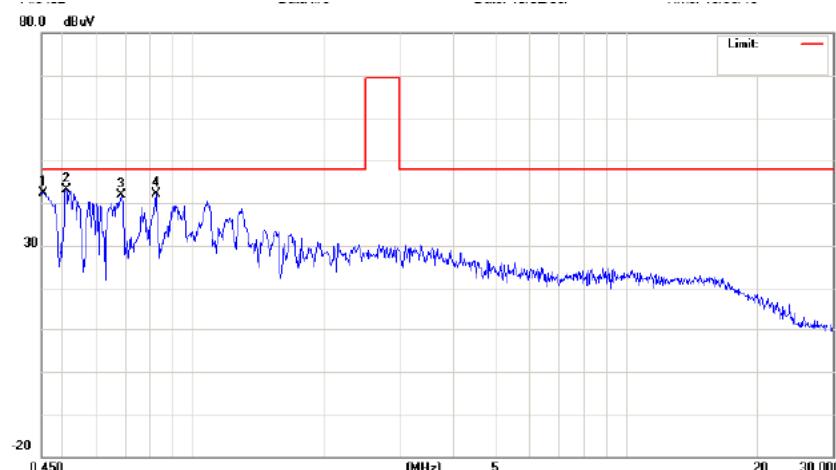
L Line:

No.	Freq.	Reading_Level (dBuV)			Correct Factor		Measurement (dBuV)			Limit (dBuV)		Margin (dB)		
		MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F
1	0.4540	34.70	31.79	19.17	10.00	44.70	41.79	29.17	48.00			-6.21		P
2	0.4860	34.79	31.46	10.50	10.01	44.80	41.47	20.51	48.00			-6.53		P
3	0.5460	33.20	29.52	16.27	10.00	43.20	39.52	26.27	48.00			-8.48		P
4	0.6900	32.95	30.22	13.80	9.95	42.90	40.17	23.75	48.00			-7.83		P



N Line:

No.	Freq.	Reading_Level (dBuV)			Correct Factor		Measurement (dBuV)			Limit (dBuV)		Margin (dB)		
		MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F
1	0.4540	32.41	31.21	17.44	10.00	42.41	41.21	27.44	48.00			-6.79		P
2	0.5140	33.12	31.14	18.23	10.01	43.13	41.15	28.24	48.00			-6.85		P
3	0.6900	31.93	29.99	10.96	9.95	41.88	39.94	20.91	48.00			-8.06		P
4	0.8260	32.26	30.19	10.30	9.91	42.17	40.10	20.21	48.00			-7.90		P



8. RADIATED EMISSION TEST

8.1. LIMITS

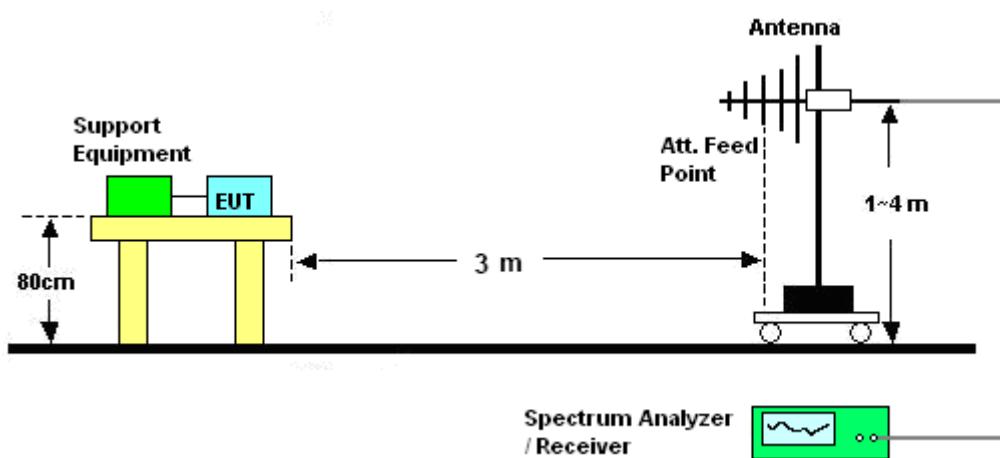
According to section 18.305(c), Radiated Emission limits as following:

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m Q.P.)
30-88	3	40.0
88-216	3	43.5
216-1000	3	46.0

8.2. TEST PROCEDURE

- The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3-meter chamber, and 3 meters away from the antenna mounted on a variable-height tower.
- Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW in 30 MHz ~ 1 GHz. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied from 1 m to 4 m above the ground in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- For each frequency whose maximum record was higher or close to limit, measure its QP value: scan the antenna from 1 meter to 4 meters and rotate the turntable from 0 to 360 degrees to find the height and degree where EUT radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum QP value.

8.3. BLOCK DIAGRAM OF TEST SETUP



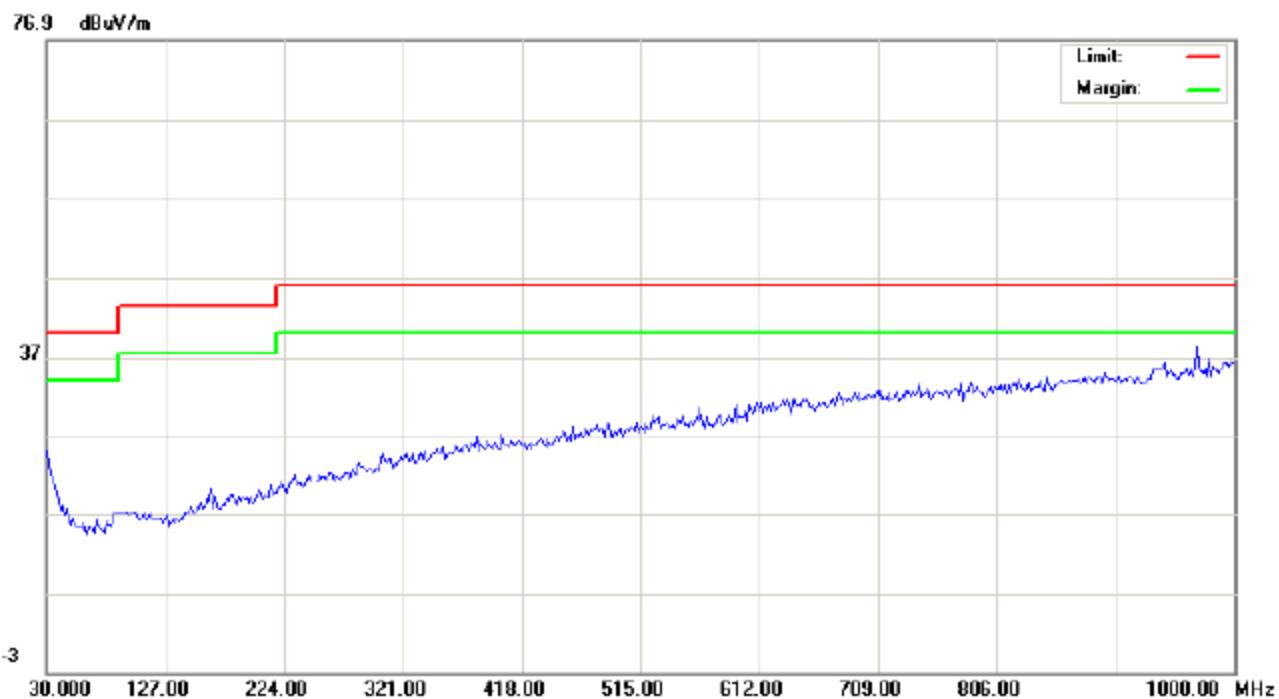
8.4. TEST RESULTS

Correct Factor = Cable loss + Antenna Factor
 Measurement = Reading level + Factor
 Margin = Reading in reference to limit
 “---” = The emission level complied with the limits, with sufficient margin, so no further recheck.

EUT : EU-19W
Power : AC 120V/60Hz
Temperature : 24 °C

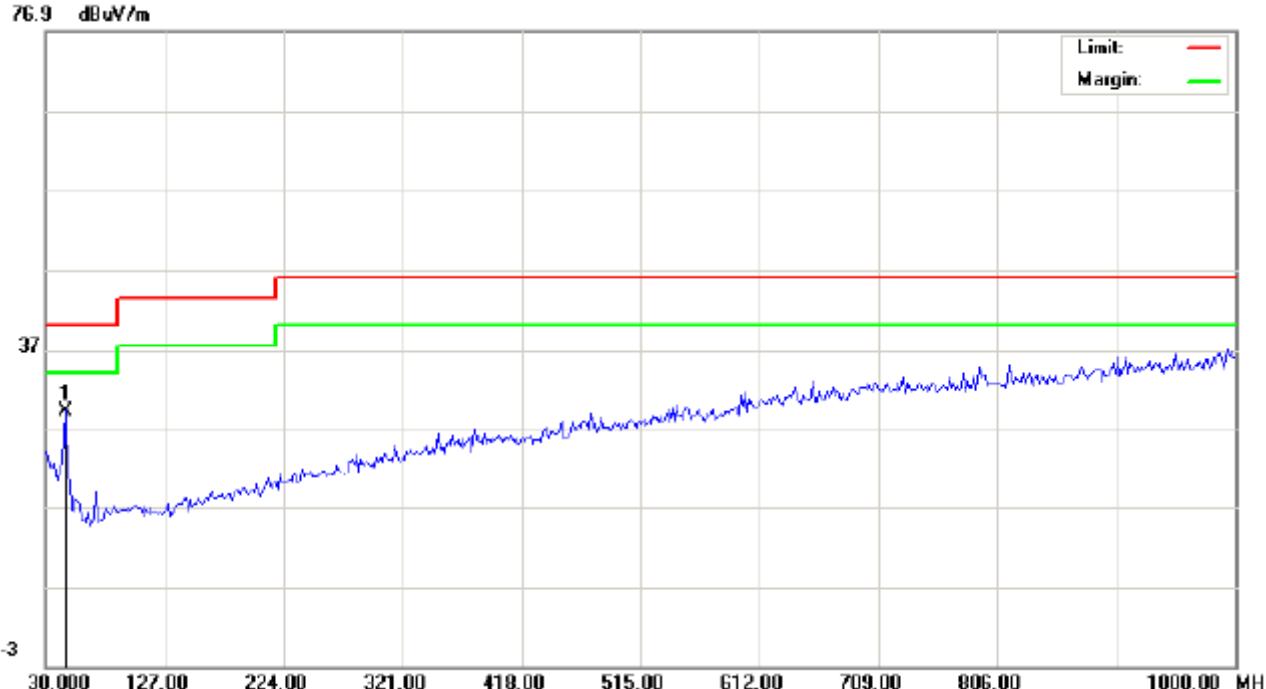
Mode : Normal
Humidity : 53%

H:



V:

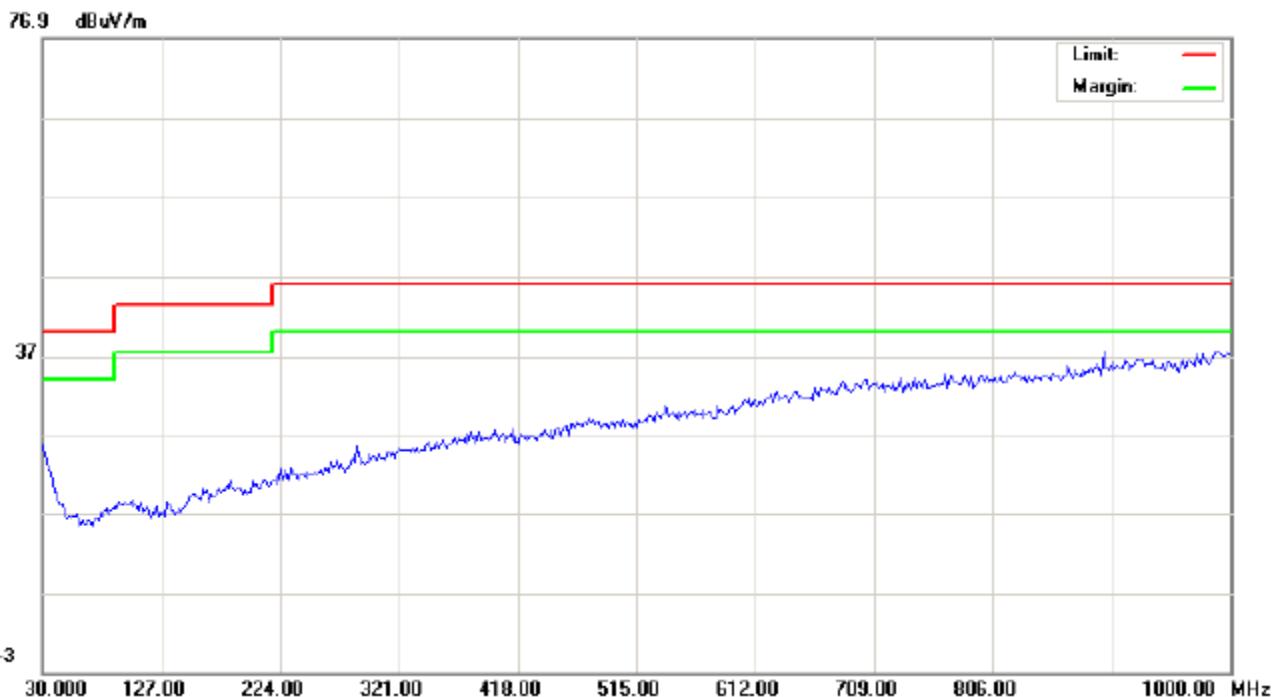
No.	Freq.	Reading Level (dBuV)			Correct Factor			Measurement (dBuV/m)			Limit (dBuV/m)			Margin (dB)		
		MHz	Peak	QP	Avg	dB	peak	QP	Avg	QP	Avg	QP	Avg	P/F		
1	46.1667	19.21				10.09	29.30			40.00		-10.70		P		



EUT : EU-23W
Power : AC 120V/60Hz
Temperature : 24°C

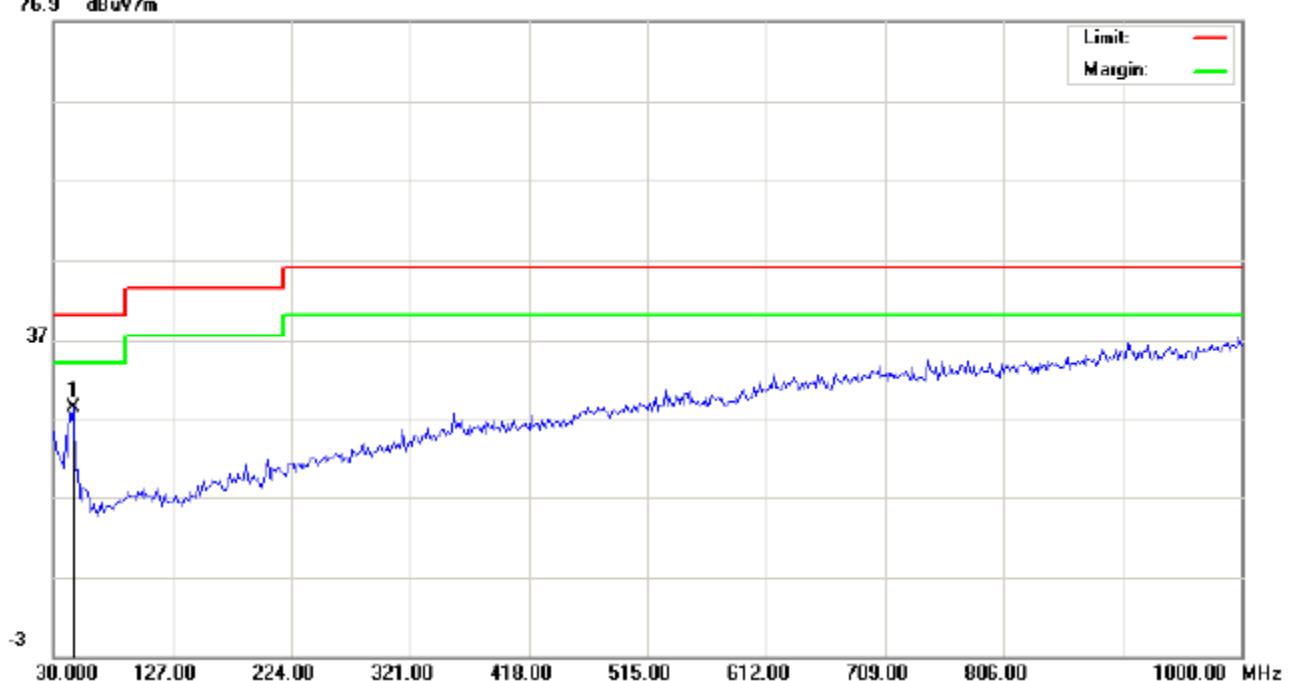
Mode : Normal
Humidity : 53%

H:



V:

No.	Freq.	Reading_Level (dBuV)			Correct Factor			Measurement (dBuV/m)			Limit (dBuV/m)			Margin (dB)		
		MHz	Peak	QP	Avg	dB	peak	QP	Avg	QP	Avg	QP	Avg	P/F		
1	46.1667	18.24				10.09	28.33					40.00		-11.67		P

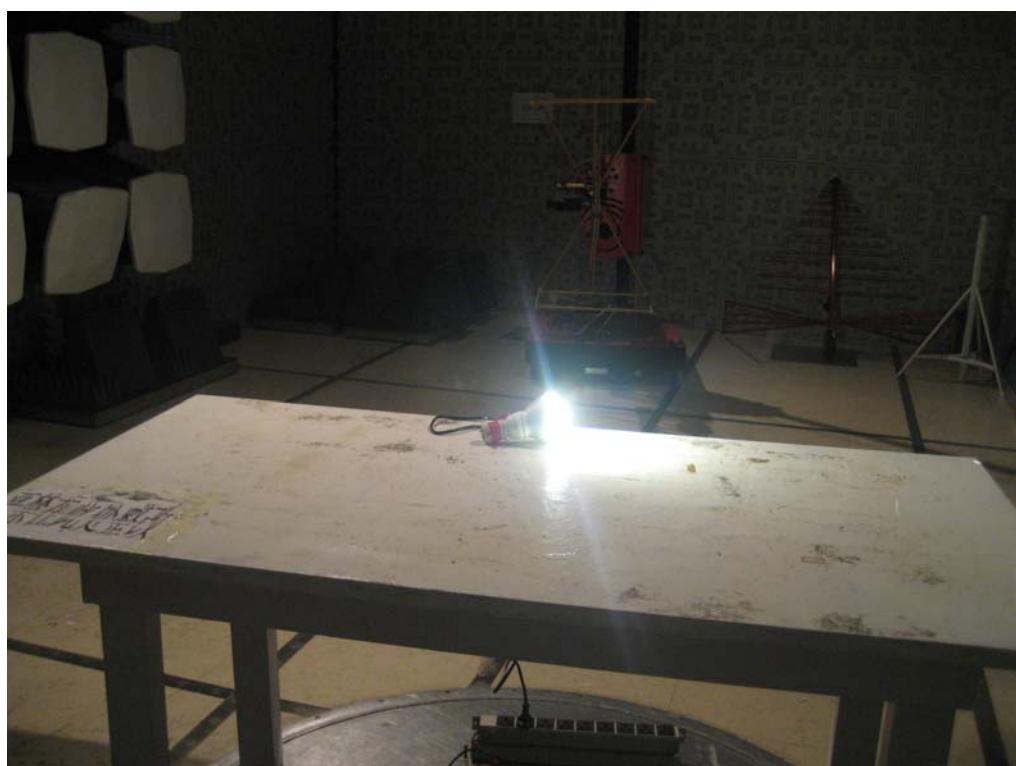


APPENDIX 1 PHOTOGRAPHS OF EUT

CONDUCTED EMISSION TEST



RADIATED EMISSION TEST

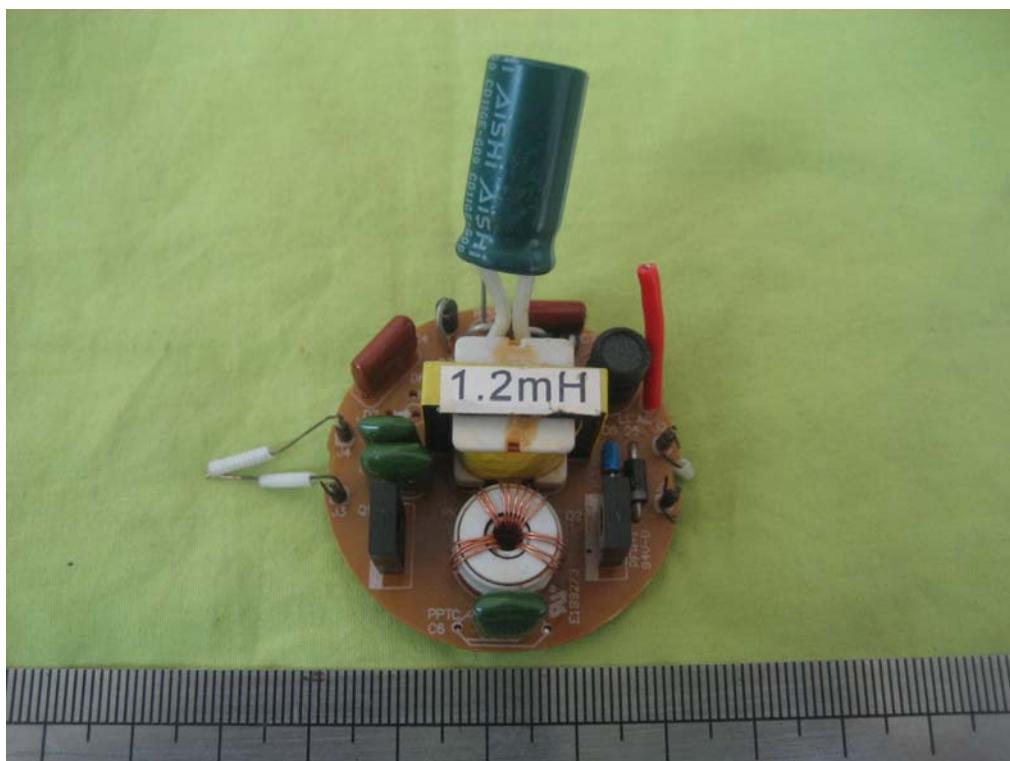


APPENDIX 2 EXTERNAL PHOTOGRAPHS OF EUT

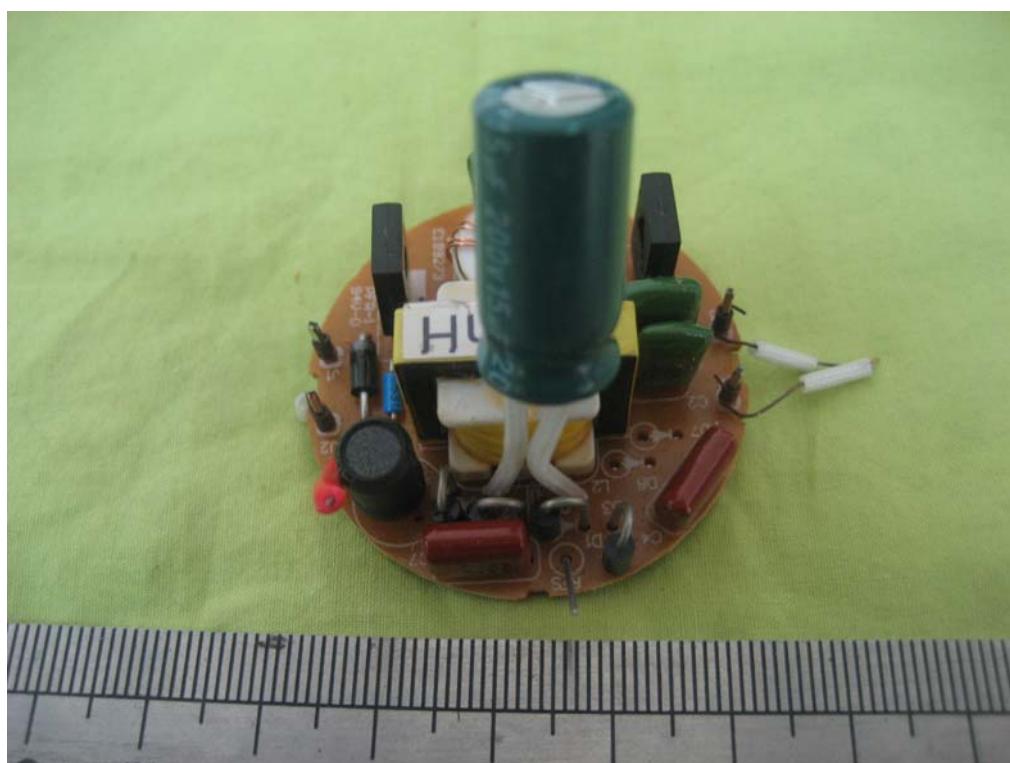
View of EU-19W



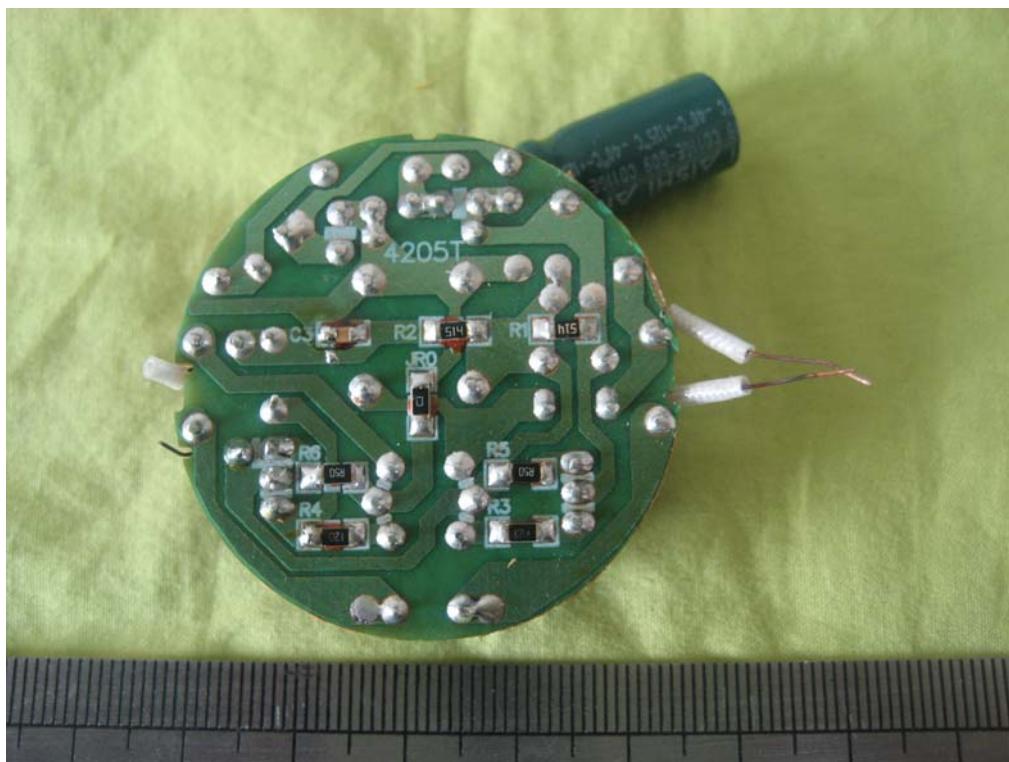
View of EUT-23W

APPENDIX 3 INTERNAL PHOTOGRAPHS OF EUT

View of PCB of EU-19W – 1



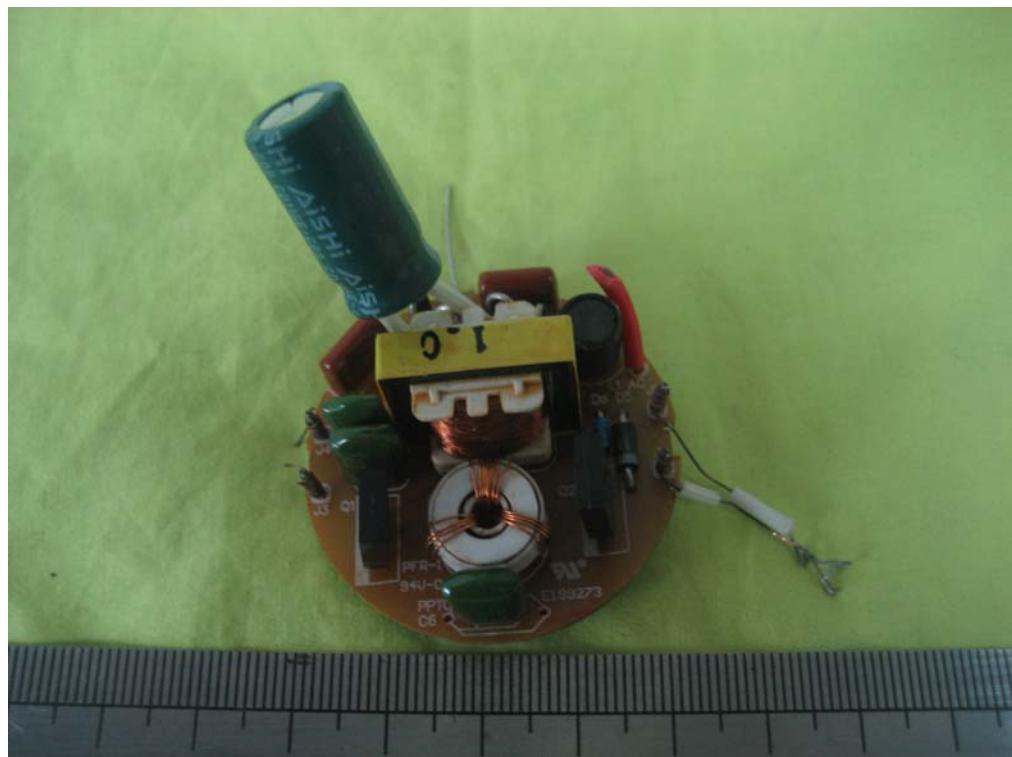
View of PCB of EU-19W – 2



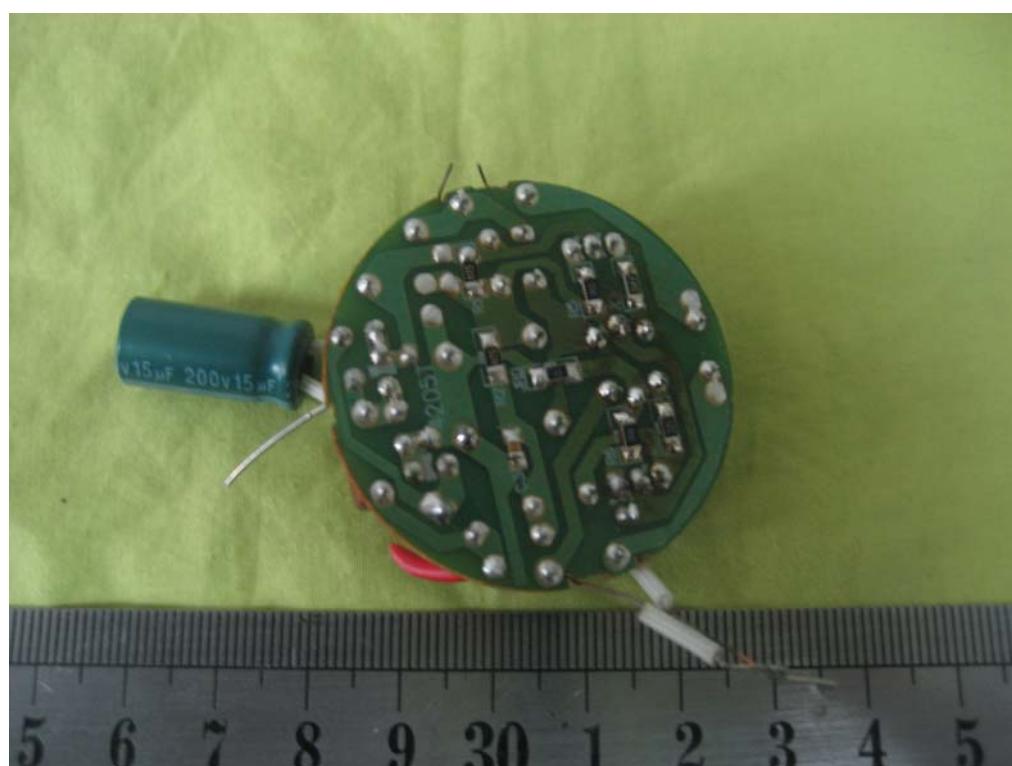
View of PCB of EU-19W- 3



View of PCB of EU-23W- 1



View of PCB of EU-23W- 2

View of PCB of EU-23W- 3
----End of the report----