

**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.: SZEE090610400221

Issue Date: Jul. 02, 2009

Prepared for

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Prepared by

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CENTRE TESTING INTERNATIONAL**

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(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.: SZEE090422400202

Date of Test: Apr. 22, 2009 to May 25, 2009

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 Y
Lily Yan

Inspected by : Christy Chen
Christy Chen

Approved by: Jim Zhang
Jim Zhang
Manager

Date : Jul. 02, 2009

A circular red stamp with a serrated edge. The outer ring contains the text 'CENTRE TESTING INTERNATIONAL' at the top and '6' at the bottom. The center of the stamp contains the letters 'CTI' in a large, bold, sans-serif font.

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. PRODUCT 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. TEST SETUP CONFIGURATION

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

4.3. SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	---	---	---	---	---	---

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	01/29/2010
Biconilog Antenna	A.H.System	SAS-521-2	487	06/05/2010
Multi device Controller	ETS-LINGREN	2090	00057230	01/29/2010

Shielding Room No. 1 - CE Test				
Equipment	Manufacturer	Model	Serial No.	Due Date
Receiver	R&S	ESCI	100435	01/29/2010
LISN	R&S	ENV216	100098	06/13/2010

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. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

7. TEST CONDITION

7.1 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.

7.2 EUT operation

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

8. CONDUCTED EMISSIONS TEST

8.1. LIMITS

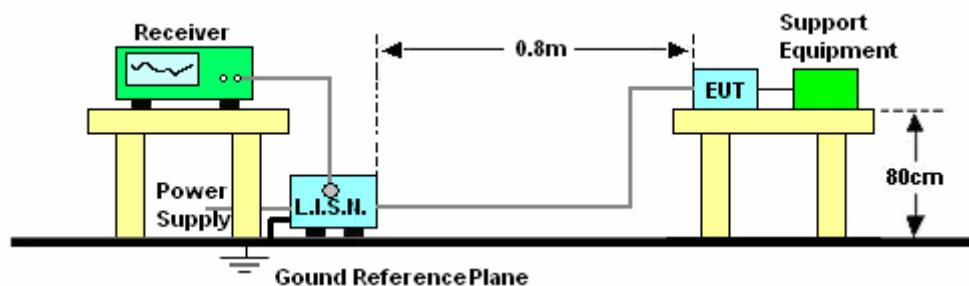
According to section 18.307(c), Conducted Emission limits as following:

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

8.2. 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.

8.3. BLOCK DIAGRAM OF TEST SETUP



8.4. TEST RESULTS

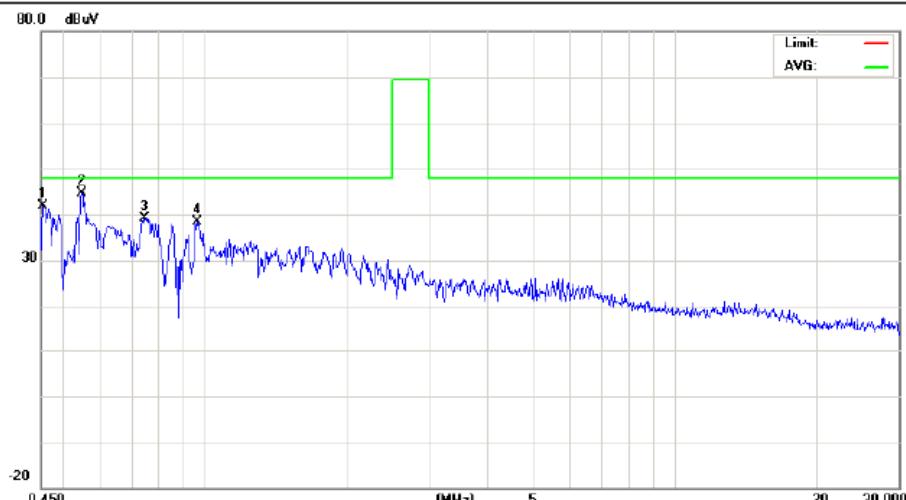
Correct Factor = Cable loss + Antenna Factor
 Measurement = Reading level + Factor
 Margin = Reading in reference to limit
 “---” = The emission level complied with the limits, with sufficient margin, so no further recheck.

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

Mode : Normal
Humidity : 53%

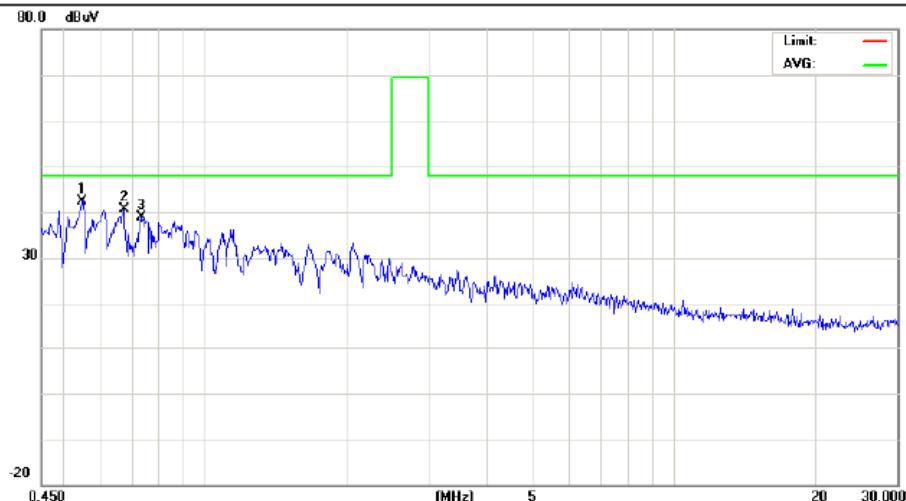
L Line:

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	31.76	29.86	14.96	10.00	10.00	41.76	39.86	24.96	48.00	48.00	-8.14	-23.04	P
2	0.5500	34.75	29.61	13.57	9.99	9.99	44.74	39.60	23.56	48.00	48.00	-8.40	-24.44	P
3	0.7500	29.19	27.22	12.23	9.93	9.93	39.12	37.15	22.16	48.00	48.00	-10.85	-25.84	P
4	0.9700	28.61	27.01	12.27	9.86	9.86	38.47	36.87	22.13	48.00	48.00	-11.13	-25.87	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	0.5500	32.51	30.23	14.49	9.99	9.99	42.50	40.22	24.48	48.00	48.00	-7.78	-23.52	P
2	0.6740	30.59	28.07	11.30	9.95	9.95	40.54	38.02	21.25	48.00	48.00	-9.98	-26.75	P
3	0.7340	28.87	27.20	16.41	9.93	9.93	38.80	37.13	26.34	48.00	48.00	-10.87	-21.66	P

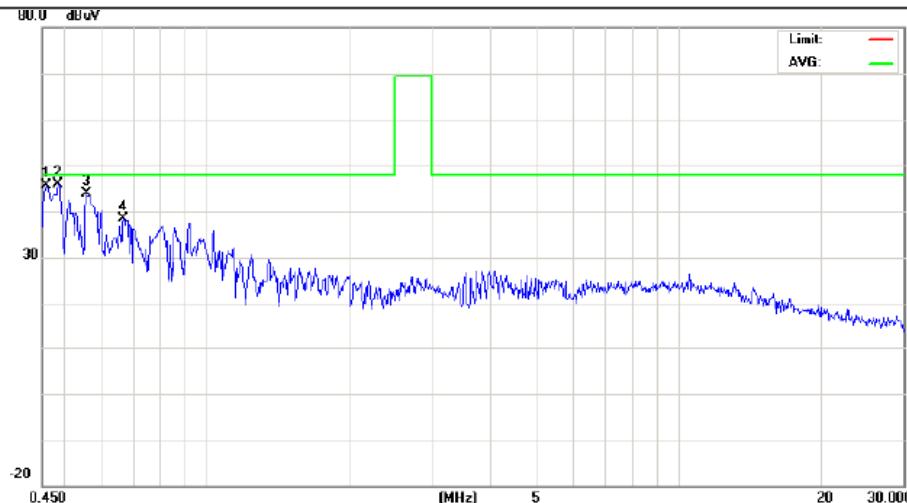


EUT : EU-19W
Power : AC 120V/60Hz
Temperature : 24°C

Mode : Normal
Humidity : 53%

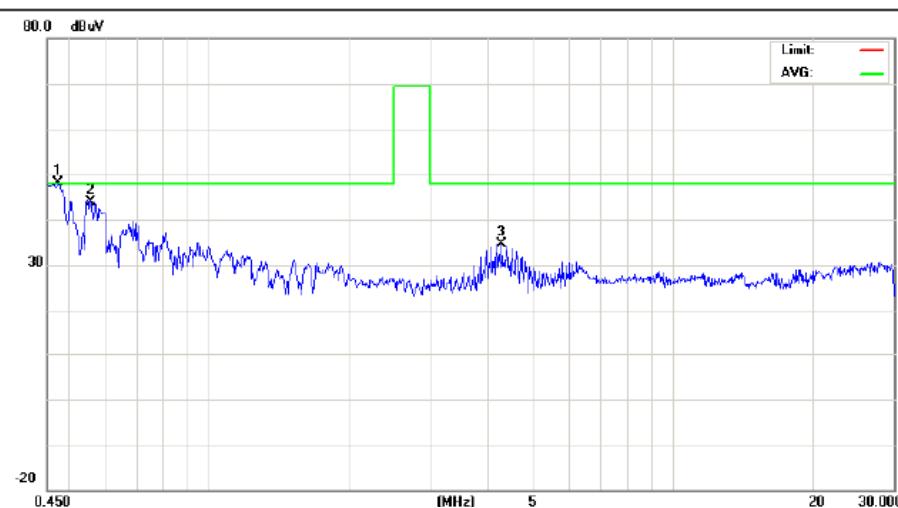
L Line:

No.	Freq.	Reading_Level (dBuV)			Correct Factor		Measurement (dBuV)			Limit (dBuV)			Margin (dB)	
		MHz	Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F
1	0.4580	35.62	33.53	21.28	10.00	45.62	43.53	31.28	48.00	48.00	-4.47	-16.72	P	
2	0.4860	35.77	30.90	13.74	10.01	45.78	40.91	23.75	48.00	48.00	-7.09	-24.25	P	
3	0.5580	33.92	31.15	17.55	9.99	43.91	41.14	27.54	48.00	48.00	-6.86	-20.46	P	
4	0.6700	28.52	24.18	10.03	9.96	38.48	34.14	19.99	48.00	48.00	-13.86	-28.01	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	0.4740	38.05	33.17	18.93	10.00	48.05	43.17	28.93	48.00	48.00	-4.83	-19.07	P	
2	0.5580	34.43	30.26	13.92	9.99	44.42	40.25	23.91	48.00	48.00	-7.75	-24.09	P	
3	4.3060	24.81	13.97	2.12	9.78	34.59	23.75	11.90	48.00	48.00	-24.25	-36.10	P	



9. RADIATED EMISSION TEST

9.1. LIMITS

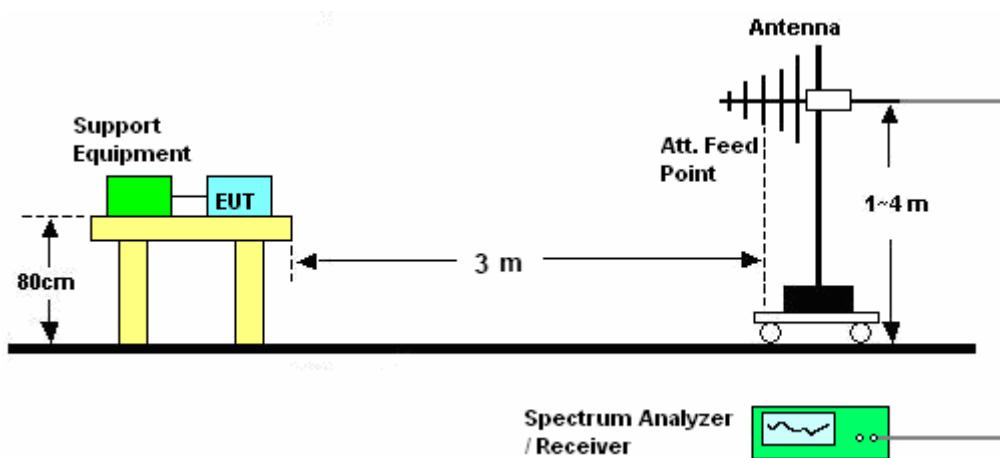
According to section 18.305(c), Radiated Emission limits as following:

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

9.2. 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.

9.3. BLOCK DIAGRAM OF TEST SETUP



9.4. TEST RESULTS

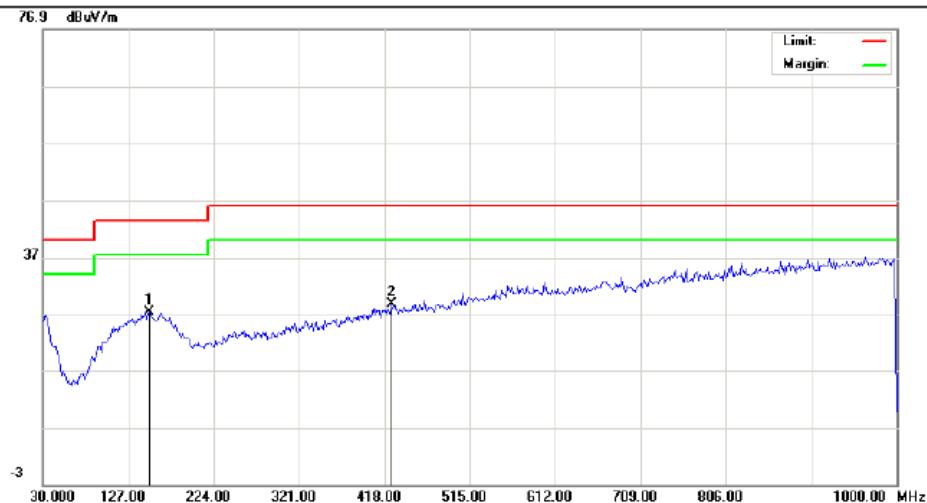
Correct Factor = Cable loss + Antenna Factor
 Measurement = Reading level + Factor
 Margin = Reading in reference to limit
 “---” = The emission level complied with the limits, with sufficient margin, so no further recheck.

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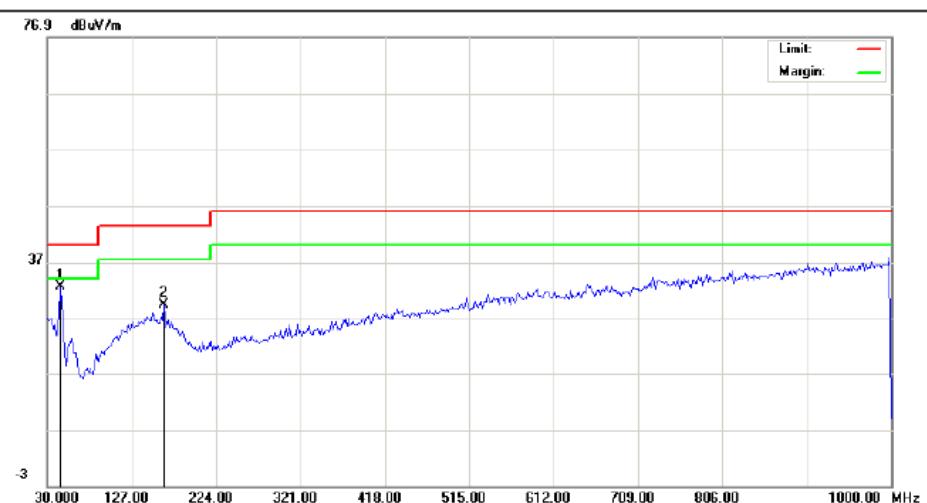
H:

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	P/F	
1	151.2500	8.28				19.05	27.33			43.50		-16.17	P
2	426.0833	9.39				19.50	28.89			46.00		-17.11	P



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	P/F	
1	44.5500	18.63				14.00	32.63			40.00		-7.37	P
2	164.1833	10.95				18.48	29.43			43.50		-14.07	P

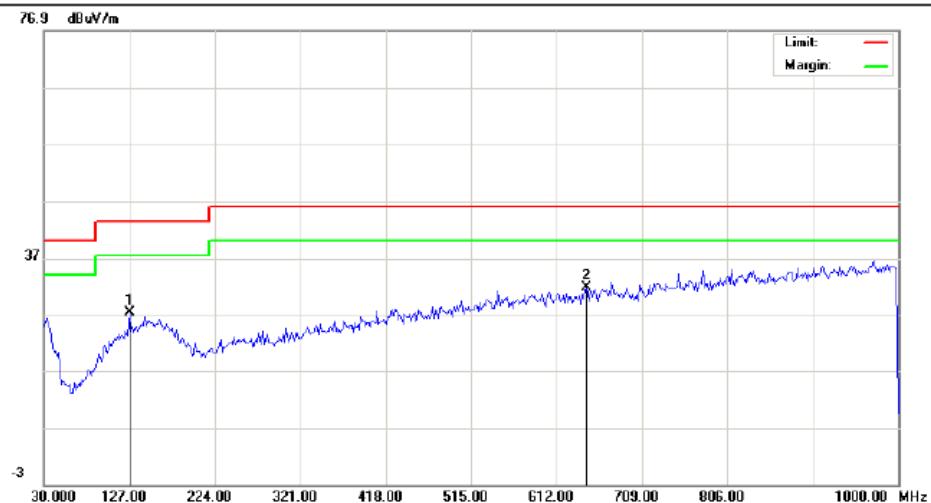


EUT : EU-19W
Power : AC 120V/60Hz
Temperature : 24 °C

Mode : Normal
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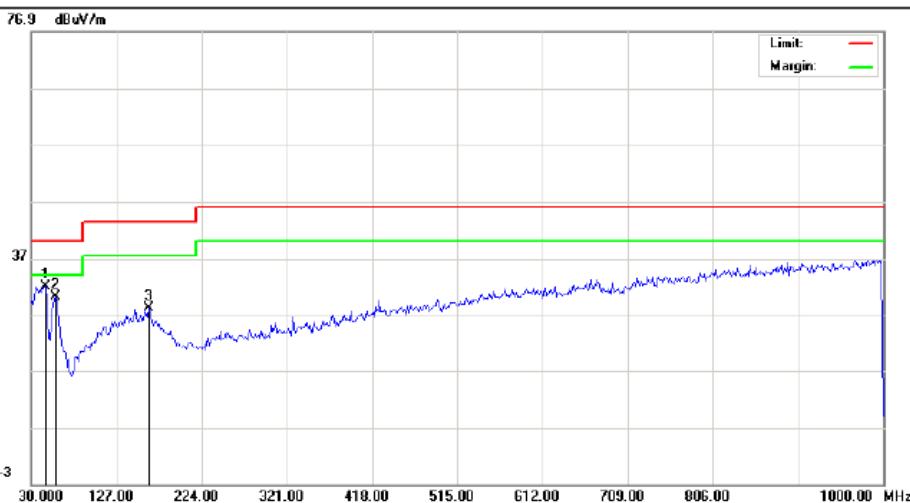
H:

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	127.0000	9.40				18.00	27.40			43.50		-16.10		P
2	645.9500	8.70				23.07	31.77			46.00		-14.23		P



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	19.25				12.83	32.08			40.00		-7.92		P
2	57.4833	22.58				7.65	30.23			40.00		-9.77		P
3	164.1833	9.71				18.48	28.19			43.50		-15.31		P



APPENDIX 1 PHOTOGRAPHS OF EUT CONDUCTED EMISSION TEST



RADIATED EMISSION TEST

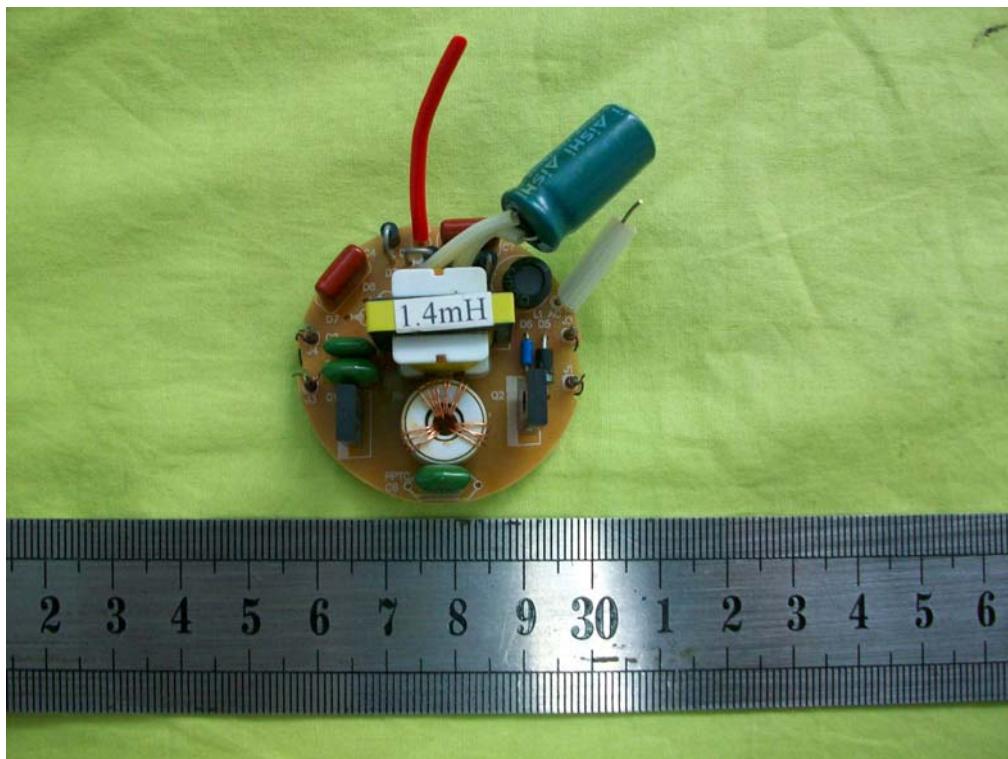


APPENDIX 2 EXTERNAL PHOTOGRAPHS OF EUT

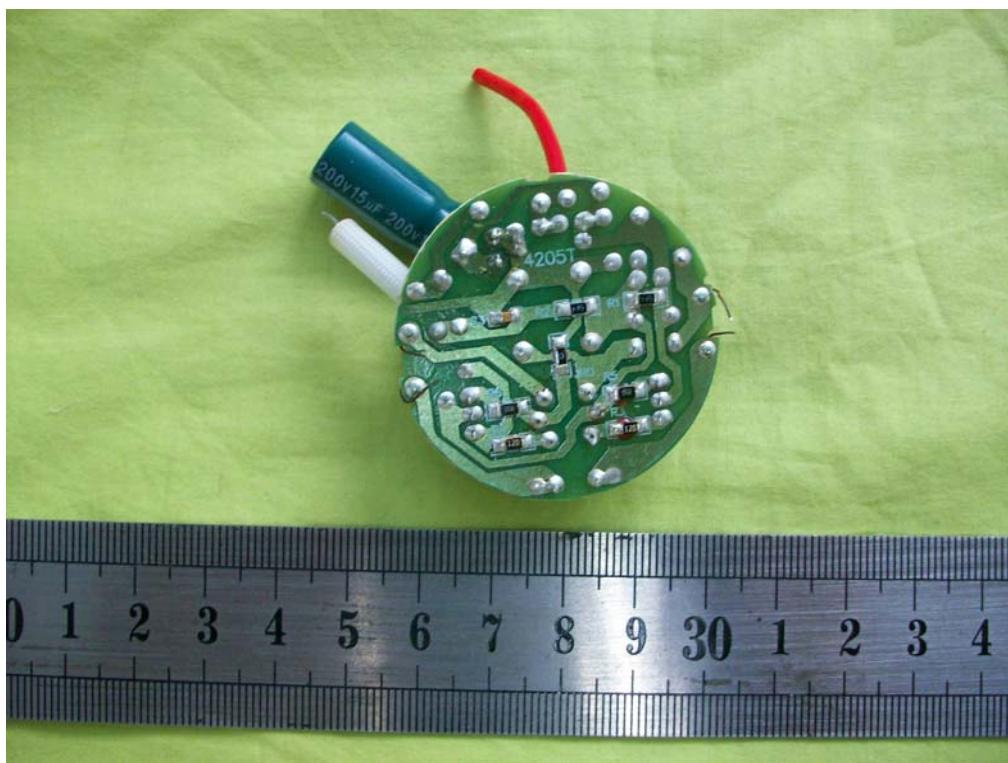
View of EU-19W



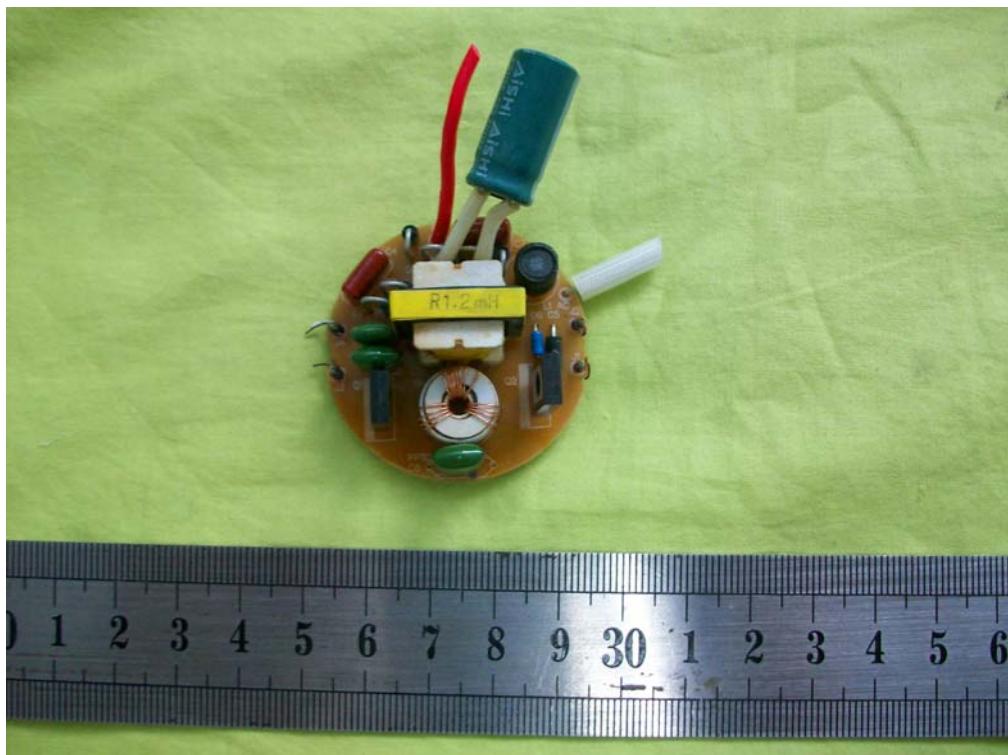
View of EUT-23W

APPENDIX 3 INTERNAL PHOTOGRAPHS OF EUT

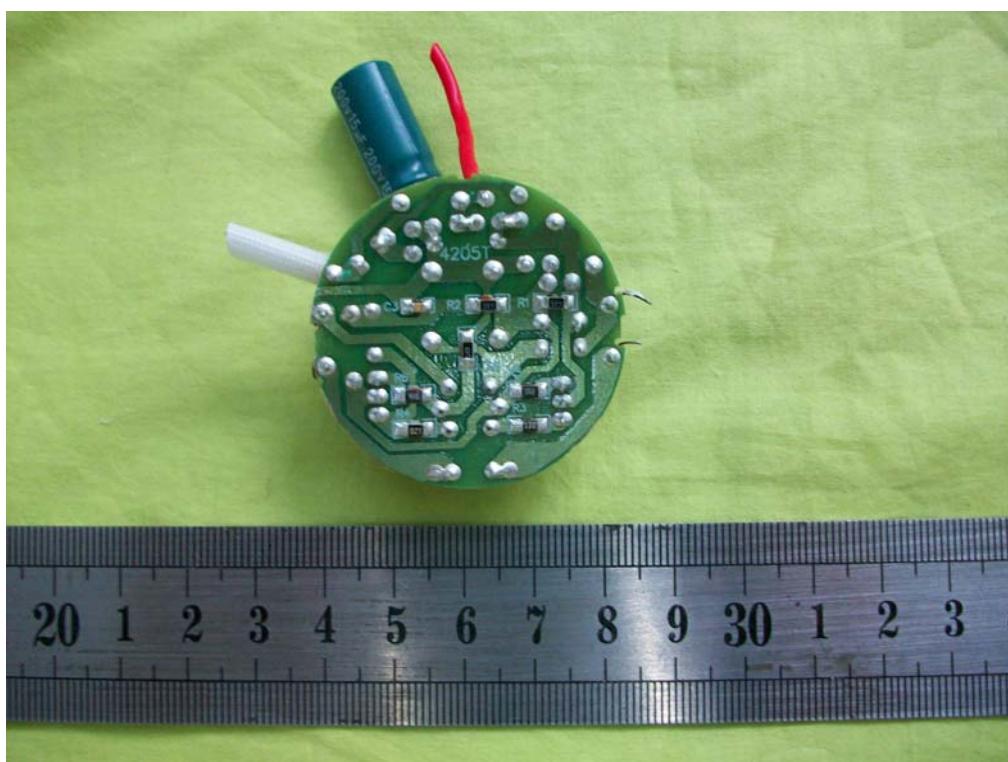
View of PCB of EU-19W – 1



View of PCB of EU-19W – 2



View of PCB of EU-23W- 1



View of PCB of EU-23W- 2
----End of the report----