FCC TEST REPORT

FCC ID : UVW-EBU0701

Applicant : **ZhongShan Yixin Electronic Co., Ltd.**
Anle Village, Dongfeng Town, Zhongshan City, Guangdong Province

Equipment Under Test (EUT) :

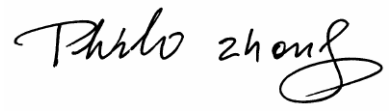
Product description : Electronic Ballast

Model No. : EBU122/132/140/2232/3240MA;EFU232MB

Standards : FCC Part 18

Date of Test : March 6, 2007

Test Engineer : **Tiger Su**

Reviewed By : 

PERPARED BY:

Waltek Services (Shenzhen) Co., Ltd.

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2 Contents

3 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission (30MHz to 1GHz)	FCC PART 18: 2003	ANSI C63.4:2003	Class B	N/A
Conducted Emission (150KHz to 30MHz)	FCC PART 18: 2003	ANSI C63.4:2003	Class B	PASS

4 General Information

4.1 Client Information

Applicant:	**ZhongShan Yixin Electronic Co., Ltd.**
Address of Applicant:	Anle Village, Dongfeng Town, Zhongshan City, Guangdong Province

4.2 General Description of E.U.T.

Product description:	Electronic Ballast
Model No.:	EBU122/132/140/2232/3240MA;EFU232MB

4.3 Details of E.U.T.

Power Supply:	120VAC / 60Hz

4.4 Description of Support Units

The EUT has been tested as an independent unit.

4.5 Standards Applicable for Testing

The customer requested FCC tests for an Electronic Ballast. The standards used were FCC Part18.

4.6 Test Methodology

All measurements contained in this report are conducted with FCC Measurement Procedure MP-5, technical requirements for Methods of Measurement of Radio-Noise Emission from ISM Equipment.

4.7 Test Facility

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

- **FCC – Registration No.: 97379**

  Shenzhen Academy Of Metrology and Quality Inspection EMC Laboratory has been registered 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 97379, April 20, 2006.

4.8 Test Location

All Emissions testswere performed at:-

Bldg,of Metrology and Quality Inspection ,Longzhu Road ,Nanshan District ,Shenzhen ,Guangdong ,China

5 Equipment Used during Test

	Conducted Emission Test					
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Series No.**	**Specification**	**Last Cal.**
1	EMI Test Receiver	Rohde&schwarz	ESCS30	100038	9 kHz to 2750 MHz	2007.11.05
2	Artificial Mains	Rohde&schwarz	ESH2-Z5	100028	9kHz-30 MHz, Continous Current 4*25 A	2007.11.05
3	Pulse Limiter	Rohde&schwarz	ESHSZ2	100044		2007.11.05
4	EMI Test Software	Rohde&schwarz	ESK1	N/A	Version1.60	N/A

6 Conducted Emission Test

Product Name:	Electronic Ballast
Test Requirement:	FCC Part 18
Test Method:	Based on FCC Part 18
Test Date:	March 6, 2007
Frequency Range:	150kHz to 30MHz
Class:	Class B
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximised peak within 6dB of Average Limit

6.1 Test Equipment

Please refer to Section 5 this report.

6.2 Test Procedure

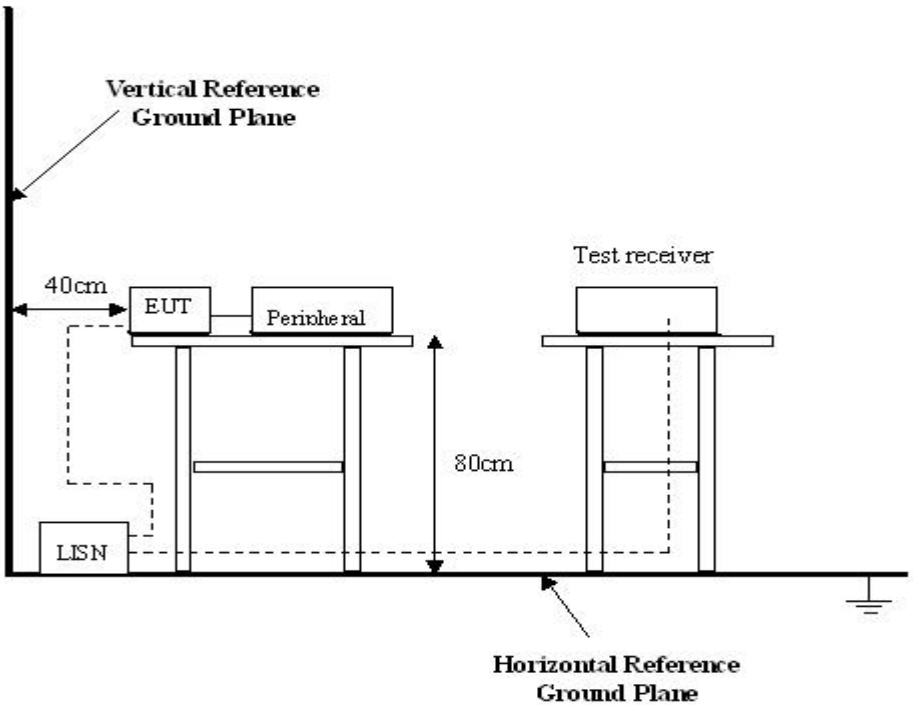
1. During the conducted emission test, the power cord of the EUT is connected to the auxiliary outlet of the LISN.
2. The EUT was tested according to FCC MP-5. The frequency spectrum from 150kHz to 30MHz was investigated.
3. The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

6.3 Conducted Test Setup

The conducted emission tests were performed using the setup accordance with the FCC MP-5 measurement procedure.

The EUT is tested independently.

The power supply used by the EUT is connected to a 120VAC / 60Hz power source.



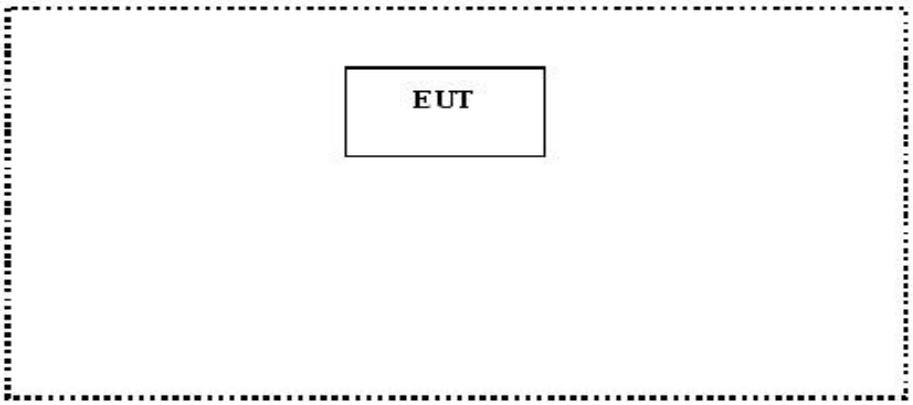
6.4 EUT Operating Condition

Operating condition is according to FCC MP-5.

A. Setup the EUT and simulators as shown on follow.

B. Enable RF signal and confirm EUT active.

C. Modulate output capacity of EUT up to specification.



6.5 Conducted Emission Limits

Frequency of Emission (MHz)	Conducted Limit (dBuV)- Quasi-peak
0.15— 0.5	66-56
0.5 — 5.0	56
5.0 — 30	60

Note: In the above limits, the tighter limit applies at the band edges.

6.6 Spectrum Analyzer

The spectrum analyzer is configured during the conduction test is as follows:

Start Frequency ····· 150 kHz
Stop Frequency ····· 30 MHz
Sweep Speed ····· Auto
IF Bandwidth ····· 9 kHz
Video Bandwidth ····· 100 kHz
Quasi-Peak Adaptor Bandwidth ····· 9 kHz
Quasi-Peak Adaptor Mode ····· Normal

6.7 Frequency Range Of Measurements

Frequency band in which device operates (MHz)	Range of frequency measurements	
	Lowest frequency	Highest frequency
Below 1.705	Lowest frequency generated in the device, but not lower than 9 kHz.	30MHz.
1.705 to 30	Lowest frequency generated in the device, but not lower than 9 kHz.	400MHz.
30 to 500	Lowest frequency generated in the device or 25MHz, whichever is lower.	Tenth harmonic or 1,000MHz, whichever is higher.
500 to 1,000	Lowest frequency generated in the device or 100MHz, whichever is lower.	Tenth harmonic.
Above 1,000	do	Tenth harmonic or highest detectable emission.

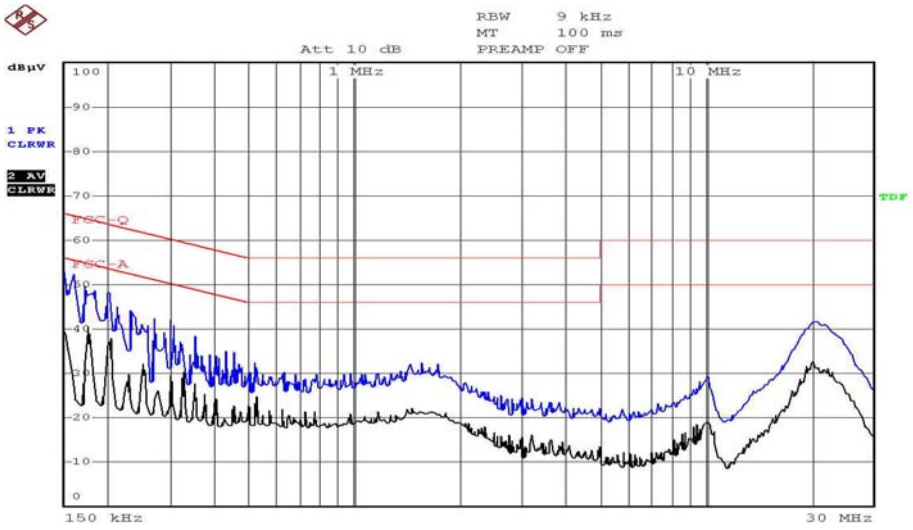
6.8 Conducted Emission Test Result

Test Item: Conducted Emission Test
Test Voltage: 120VAC / 60Hz
Test Mode: Normal
Temperature: 24 °C
Humidity: 52%RH
Test Result: PASS

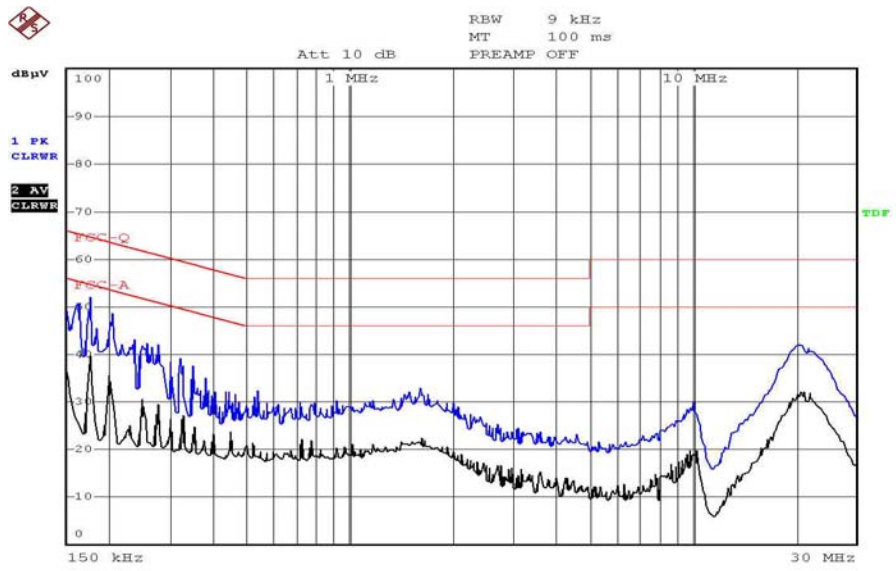
6.8.1 Measurement Data

An initial pre-scan was performed on the live and neutral lines.
No futher quasi-peak or average measurements were performed since no peak emissions were detected within 10dB line below the average limit.
Please refer to the following peak scan graph for reference.

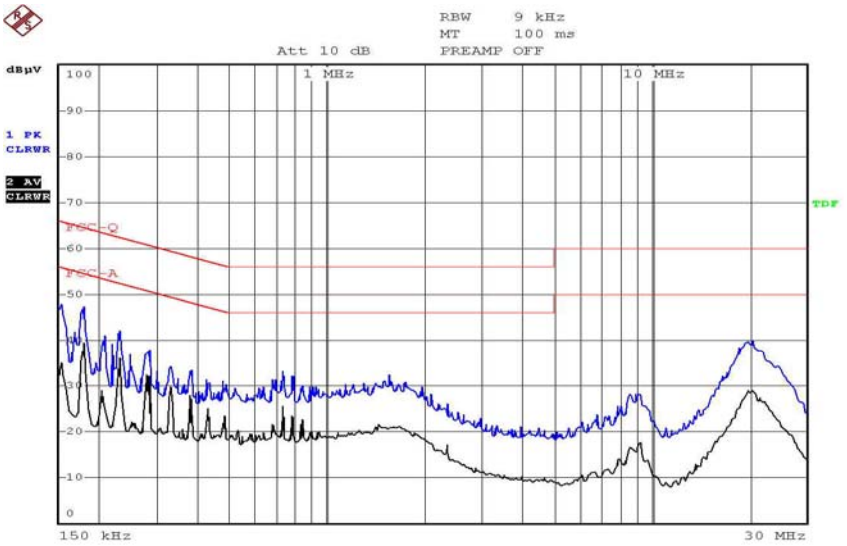
Live Line for EBU122MA (22W)



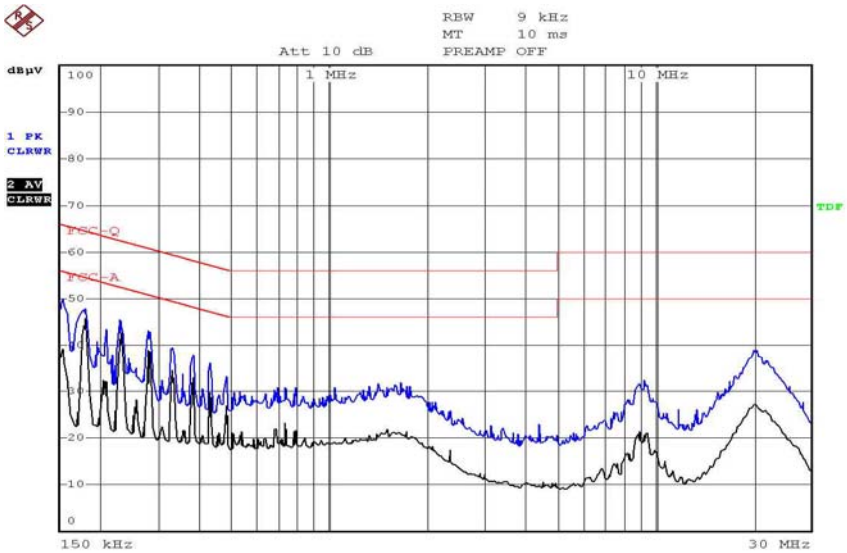
Neutral Line for EBU122MA (22W)



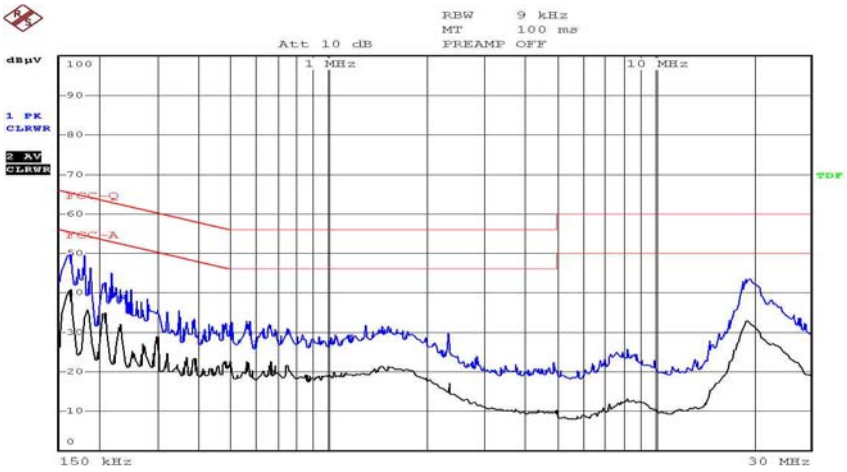
Live Line for EBU132MA (32W)



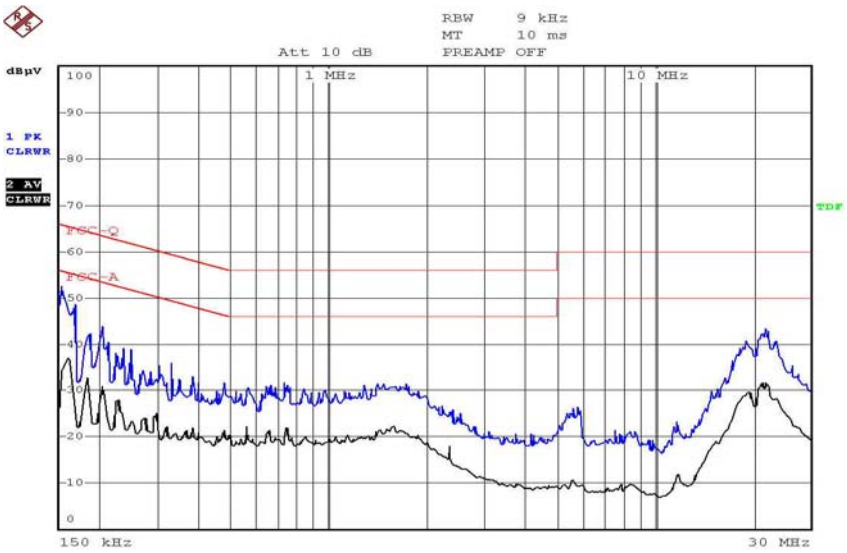
Neutral Line for EBU132MA (32W)



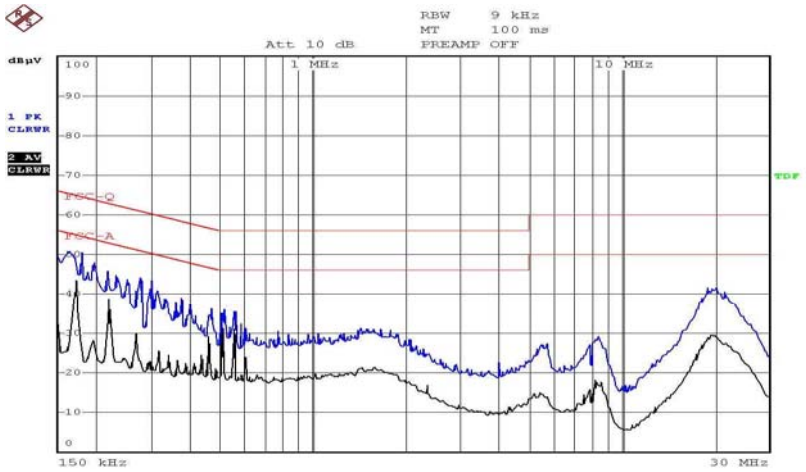
Live Line for EBU140MA (40W)



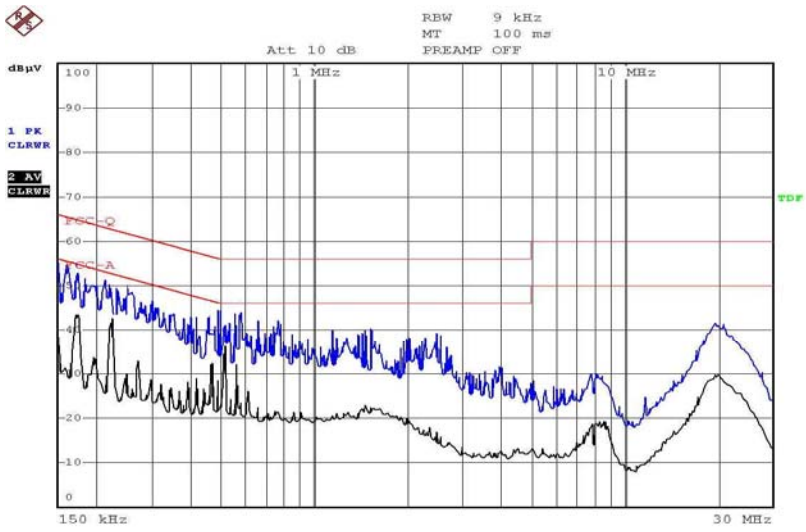
Neutral Line for EBU140MA (40W)



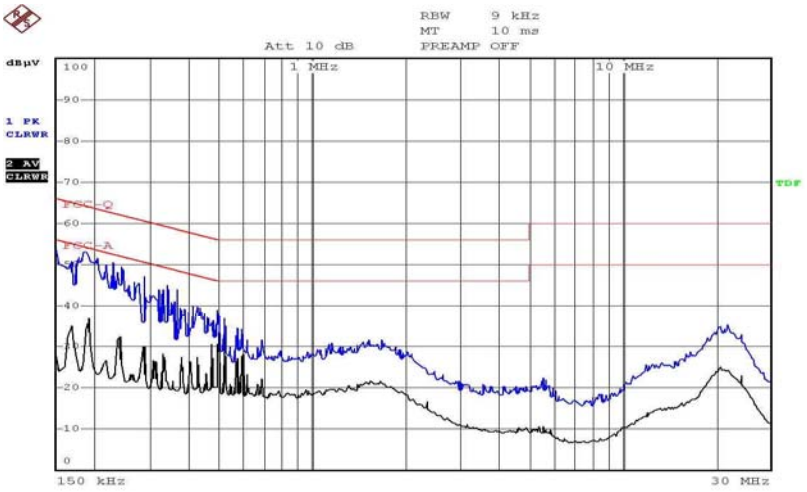
Live Line for EBU2232MA (54W)



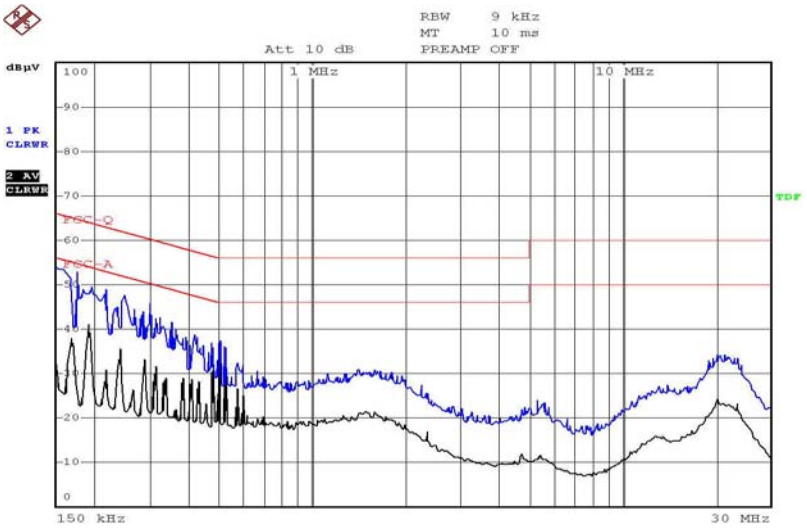
Neutral Line for EBU2232MA (54W)



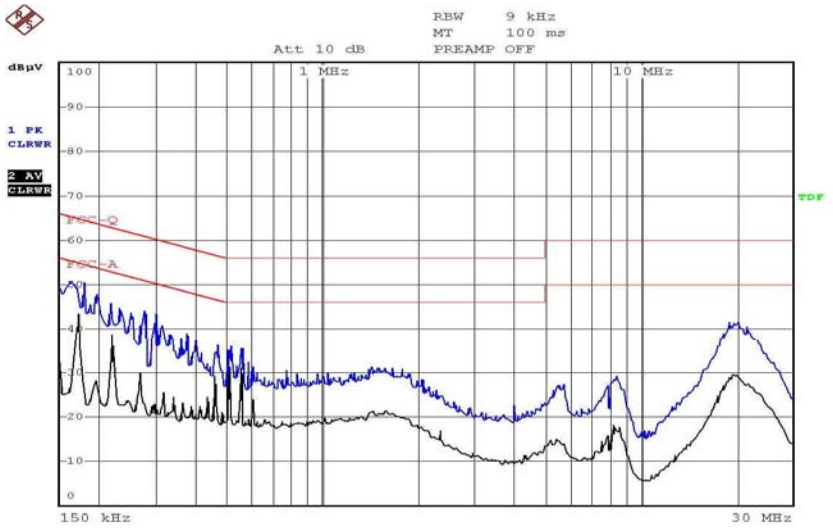
Live Line for EBU232MB (64W)



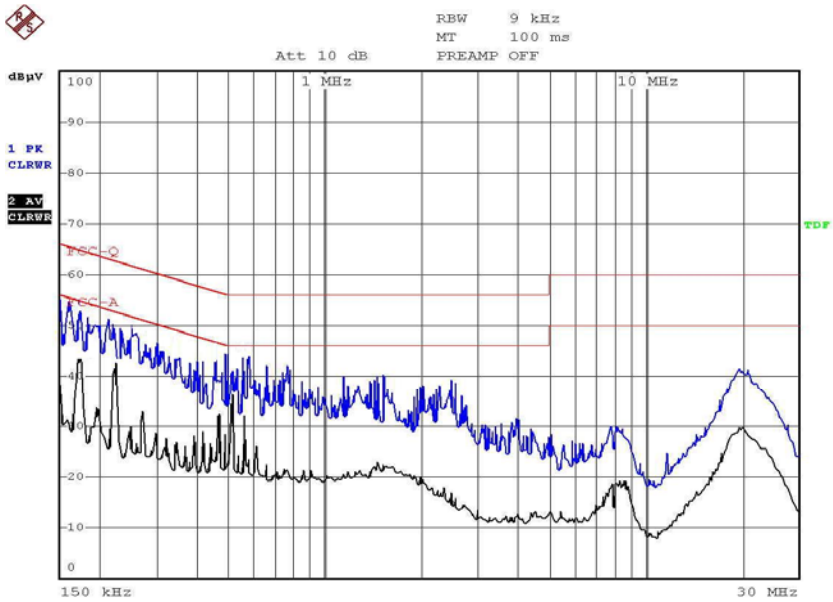
Neutral Line for EBU232MB (64W)



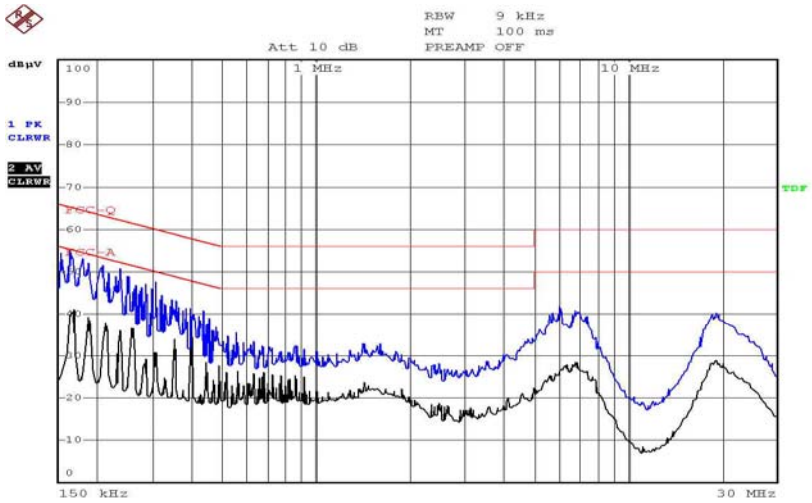
Live Line for EBU3240MA (72W)



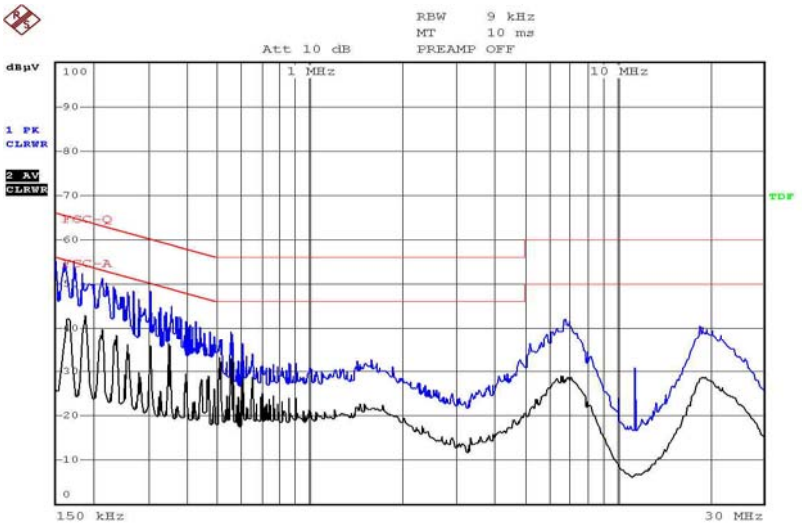
Neutral Line for EBU3240MA (72W)



Live Line for EBU3240MA



Neutral Line for EBU3240MA



Live Line for EBU122MA (22W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.150	53.3	39.4	66.0	56.0	21.1	12.7
2	0.208	40.1	27.7	63.3	53.3	25.6	23.2
3	0.256	37.9	27.5	61.6	51.6	24.1	23.7
4	0.346	35.7	20.5	59.1	49.1	28.6	23.4
5	0.426	33.3	25.9	56.0	46.0	20.1	22.7
6	1.596	33.4	22.0	56.0	46.0	24.0	22.6

Neutral Line for EBU122MA (22W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.150	52.1	39.1	66.0	56.0	13.9	16.9
2	0.201	48.3	37.3	63.6	53.6	15.3	16.3
3	0.300	42.4	29.4	60.3	50.3	17.9	20.9
4	0.456	34.9	25.3	56.0	46.0	21.1	20.7
5	0.545	33.7	24.9	56.0	46.0	22.3	21.1
6	1.745	32.2	21.7	56.0	46.0	23.8	24.3

Live Line for EBU132MA (32W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.160	47.19	35.10	65.47	55.47	18.28	20.37
2	0.179	46.93	37.69	64.54	54.54	17.61	16.85
3	0.231	43.17	35.07	63.10	53.10	19.93	18.03
4	1.713	33.10	21.94	56.00	46.00	22.90	24.06

Neutral Line for EBU132MA (32W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.160	50.00	39.00	65.47	55.47	15.47	16.47
2	0.180	47.25	43.71	64.50	54.50	17.25	10.79
3	0.251	44.91	40.11	61.75	51.75	16.84	11.64
4	0.325	38.63	34.43	59.62	49.62	20.99	25.19

Live Line for EBU140MA (40W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.171	49.13	40.06	64.92	54.92	15.79	14.86
2	0.185	48.42	37.00	64.27	54.27	15.85	17.27
3	0.235	26.71	31.43	62.30	52.30	35.59	20.87

Neutral Line for EBU140MA (40W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.160	53.12	36.23	65.47	55.47	12.35	19.24
2	0.210	43.61	30.71	63.22	53.22	19.61	22.51
3	0.339	36.72	21.66	59.27	49.27	22.55	27.61

Live Line for EBU2232MA (54W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.173	51.9	39.4	64.8	54.8	12.9	15.4
2	0.229	46.7	38.5	62.5	52.5	15.8	14.0
3	0.468	37.8	28.7	56.6	46.6	18.8	17.9
4	0.515	35.4	27.3	56.0	46.0	20.6	18.7
5	1.501	31.1	21.8	56.0	46.0	24.9	24.2

Neutral Line for EBU2232MA (54W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.166	50.9	37.7	65.2	55.2	14.3	17.5
2	0.225	46.4	35.3	62.7	52.7	16.3	17.4
3	0.321	41.1	25.9	59.7	49.7	18.6	23.8
4	0.472	36.7	26.1	56.5	46.5	19.8	20.4
5	0.519	35.8	26.2	56.0	46.0	20.2	19.8
6	1.500	32.0	21.0	56.0	46.0	24.0	25.0

Live Line for EBU232MB (64W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.150	53.39	27.00	66.00	56.00	12.61	29.00
2	0.189	52.27	35.05	64.09	54.09	11.82	19.04
3	0.210	50.66	23.41	63.22	53.22	12.56	29.81
4	0.350	45.00	22.82	59.01	49.01	14.01	26.19

Neutral Line for EBU232MB (64W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.150	53.21	33.31	66.00	56.00	12.79	22.69
2	0.175	52.13	30.21	64.73	54.73	12.60	24.52
3	0.242	45.00	30.11	62.05	52.05	17.05	21.94
4	0.350	41.33	24.00	59.01	49.01	17.68	25.01

Live Line for EBU3240MA (72W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.173	54.7	39.9	64.8	54.8	10.1	14.9
2	0.211	51.3	34.3	63.2	53.2	11.9	18.9
3	0.307	47.5	31.1	60.1	50.1	12.6	19.0
4	0.446	41.0	24.7	57.0	47.0	16.0	22.3
5	1.502	32.4	22.8	56.0	46.0	23.6	23.2

Neutral Line for EBU3240MA (72W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.165	54.9	41.0	65.2	55.2	10.5	14.2
2	0.217	51.1	40.0	63.0	53.0	11.9	13.0
3	0.305	47.7	36.7	60.1	50.1	12.4	13.4
4	0.550	38.3	24.5	56.0	46.0	17.7	21.5
5	1.557	32.9	22.4	56.0	46.0	23.1	23.6

7 Photographs of Testing

7.1 Conducted Emission Test View for EBU122MA (22W)

7.2 Conducted Emission Test View for EBU132MA (32W)

7.3 Conducted Emission Test View for EBU140MA (40W)

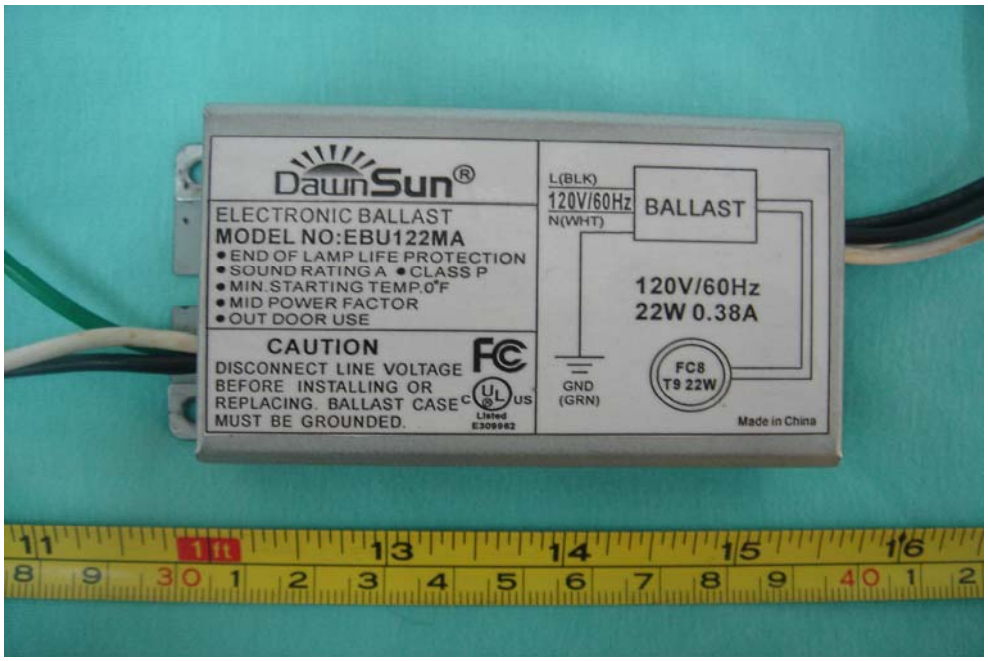
7.4 Conducted Emission Test View for EBU2232MA (54W)

7.5 Conducted Emission Test View for EBU232MB (64W)

7.6 Conducted Emission Test View for EBU3240MA (72W)

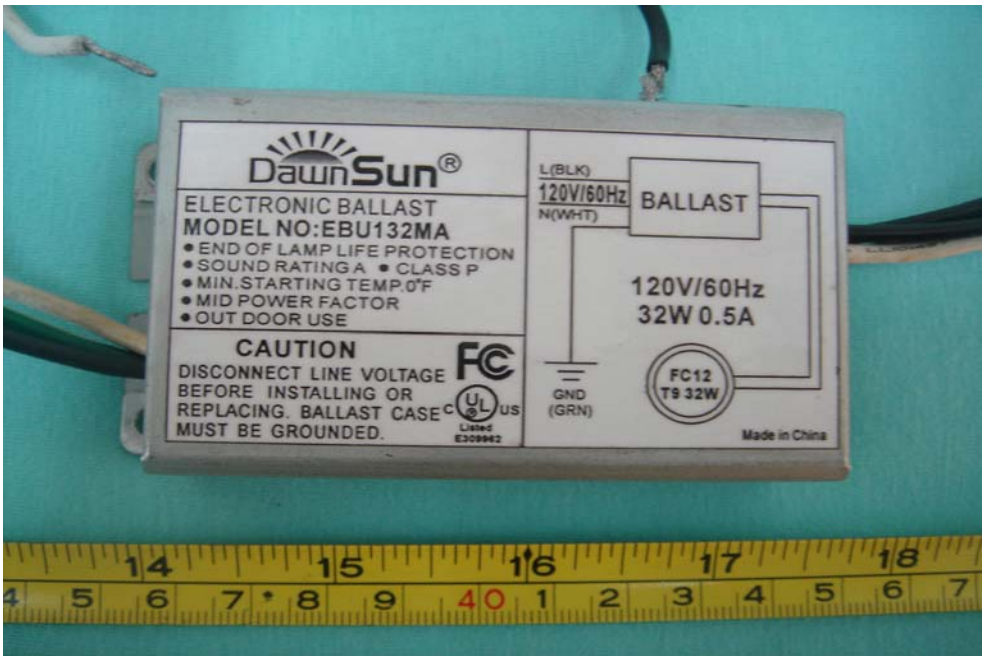
8 Photographs-Constructional Details

8.1 EUT-Front View for EBU122MA (22W)



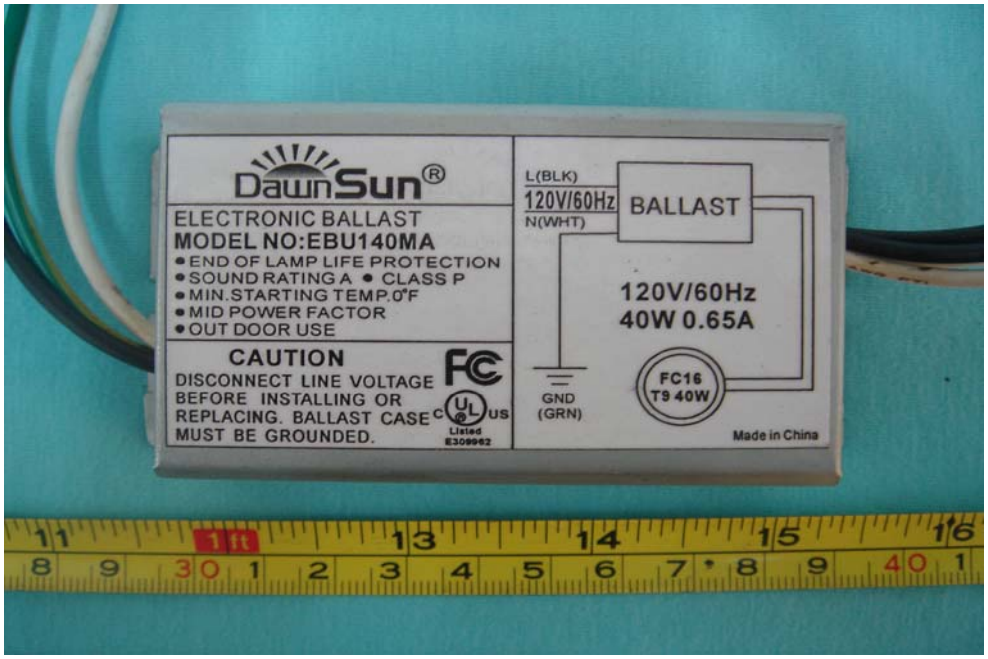
8.2 EUT-Back View for EBU122MA (22W)

8.3 EUT-Front View for EBU132MA (32W)



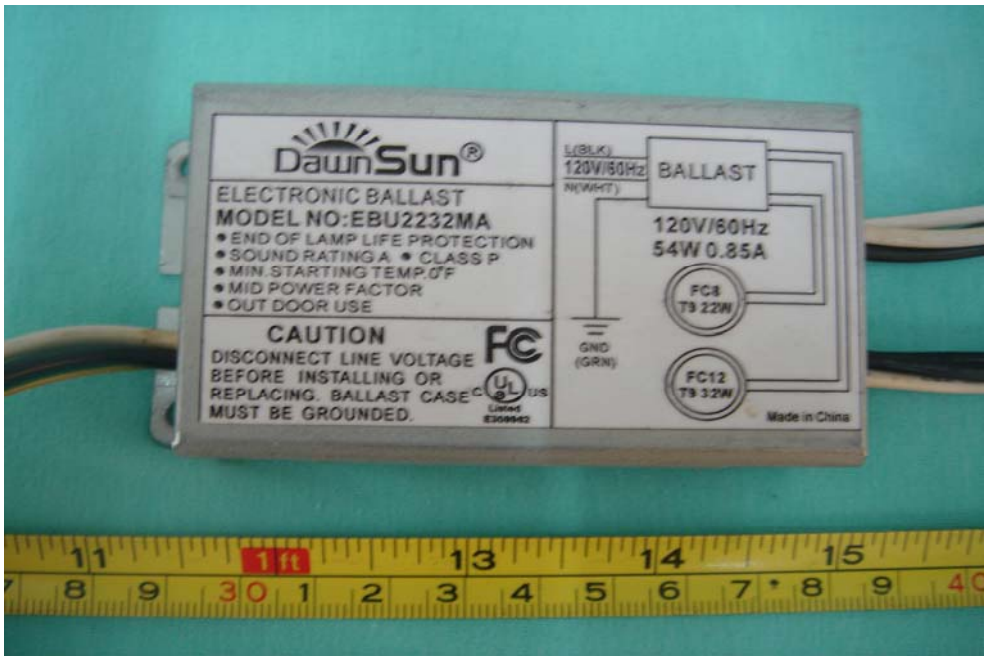
8.4 EUT-Back View for EBU132MA (32W)

8.5 EUT-Front View for EBU140MA (40W)



8.6 EUT-Back View for EBU140MA (40W)

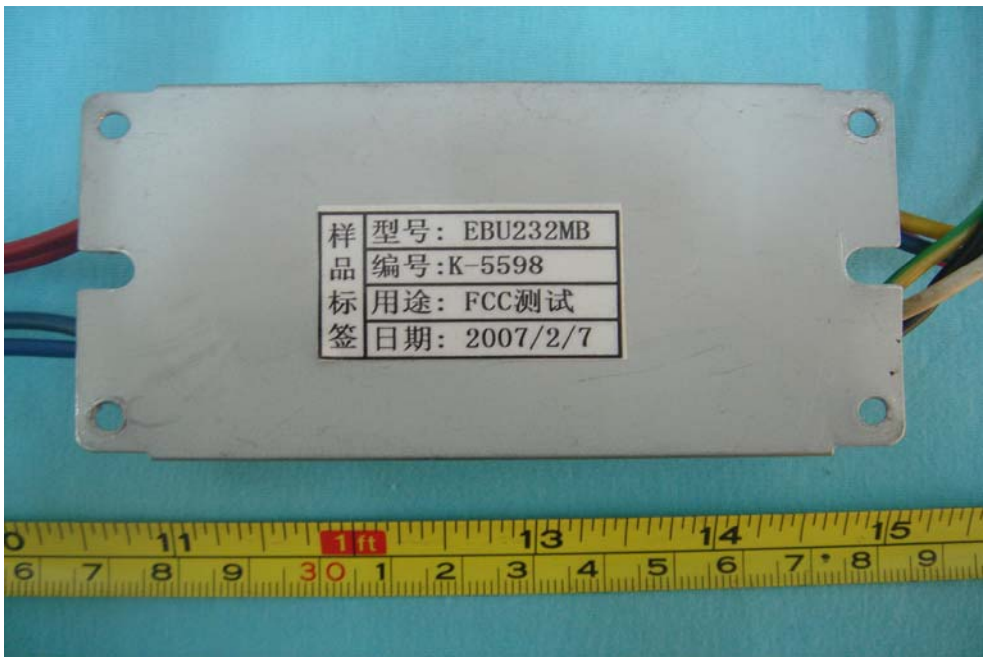
8.7 EUT-Front View for EBU2232MA (54W)



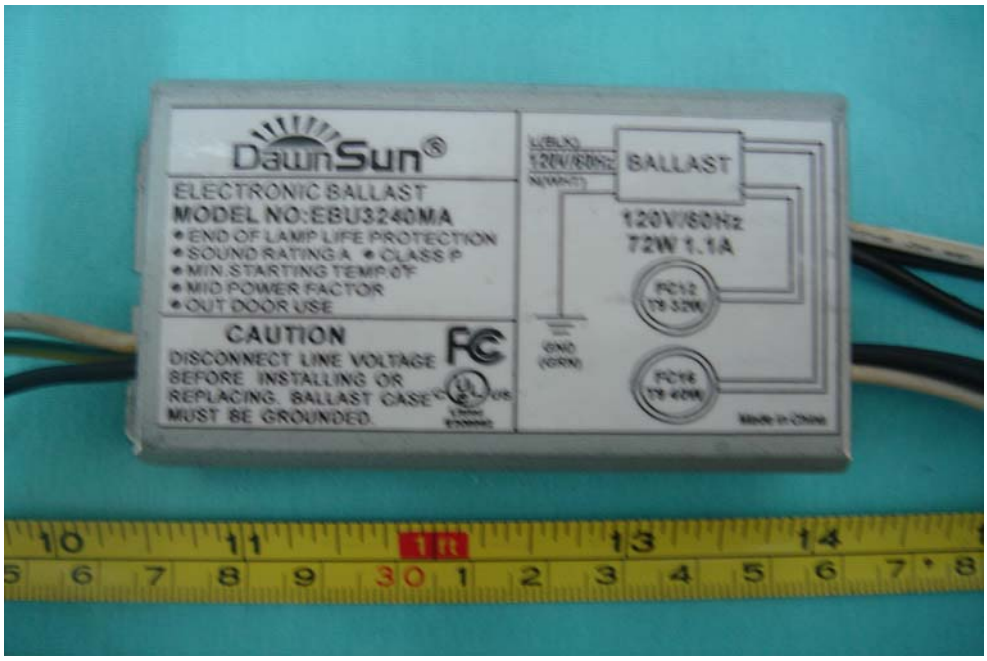
8.8 EUT-Back View for EBU2232MA (54W)

8.9 EUT-Front View for EBU232MB (64W)

8.10 EUT-Back View for EBU232MB (64W)

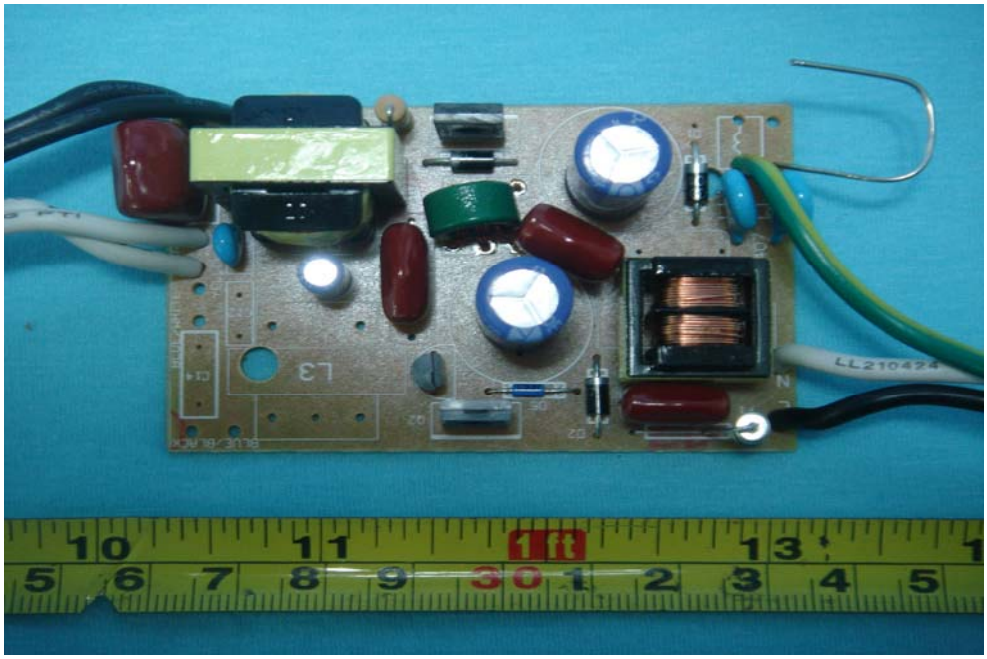


8.11 EUT-Front View for EBU3240MA (72W)

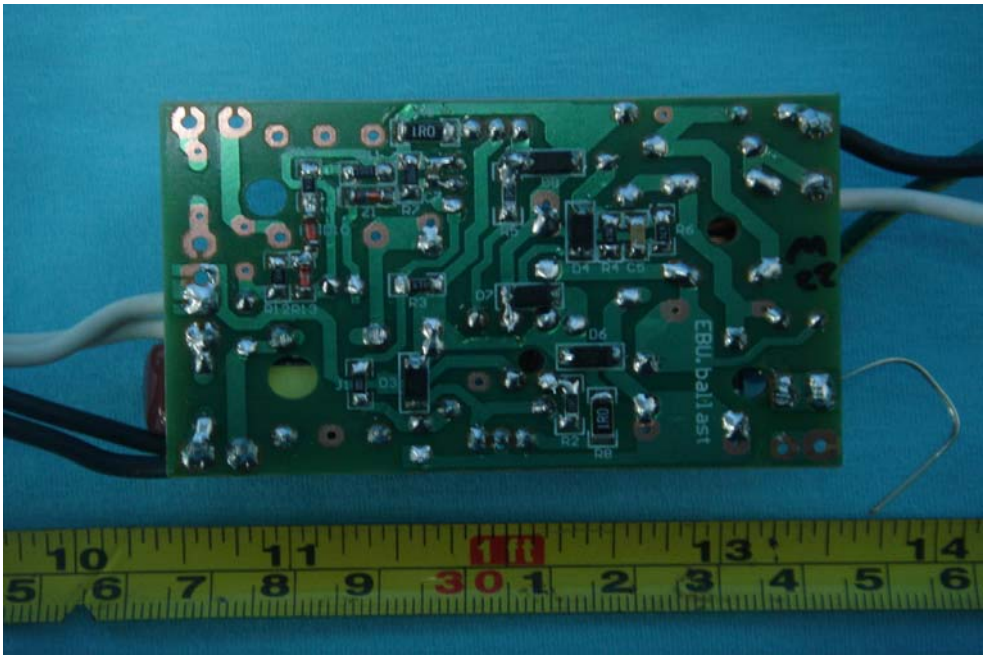


8.12 EUT-Back View for EBU3240MA (72W)

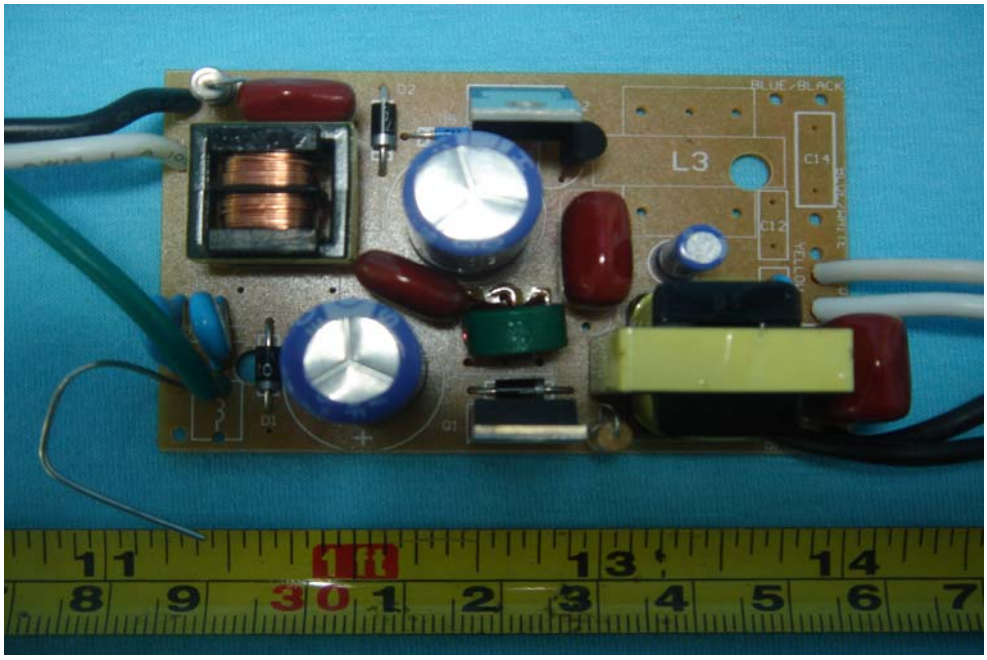
8.13 PCB-Front View for EBU122MA (22W)



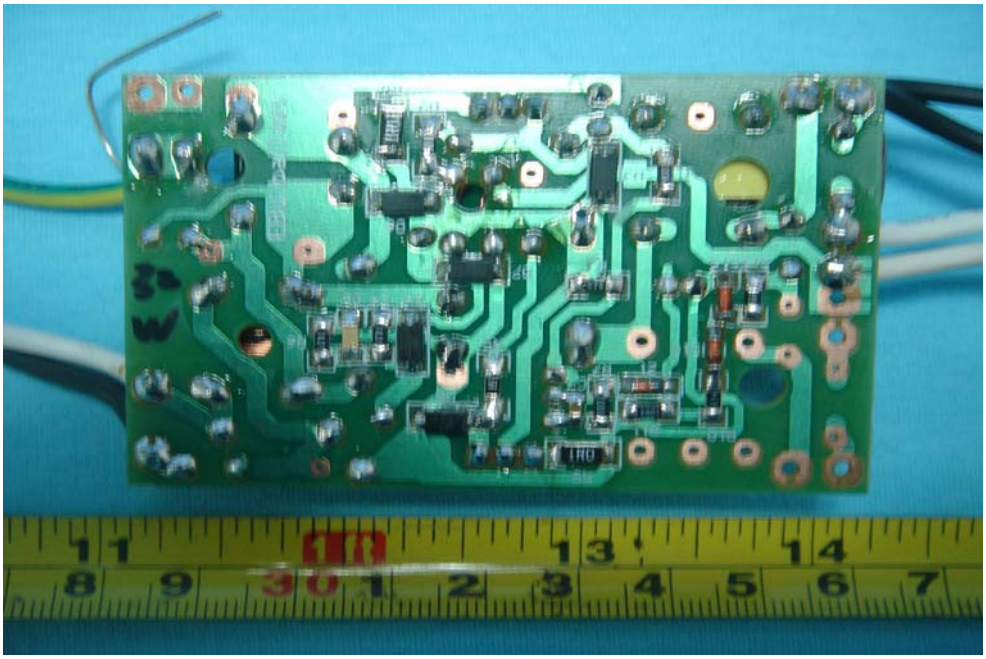
8.14 PCB-Back View for EBU122MA (22W)



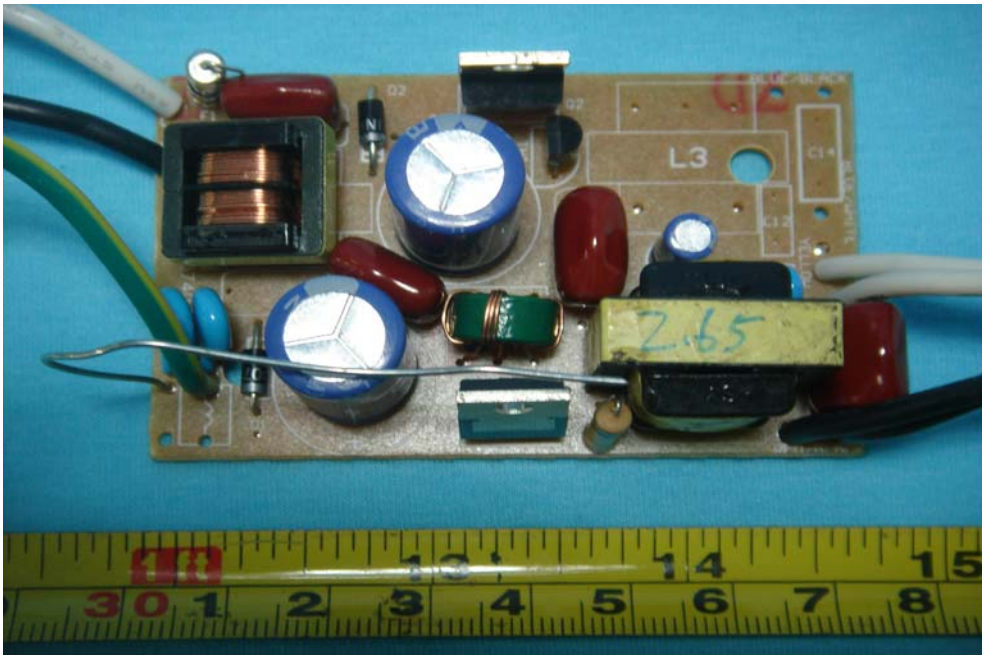
8.15 PCB-Front View for EBU132MA (32W)



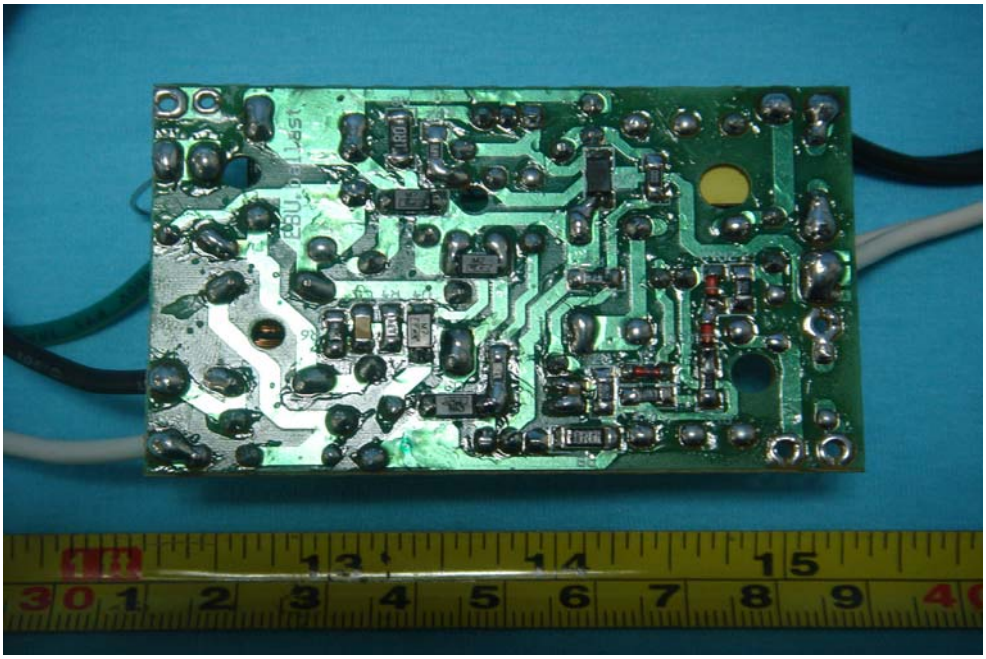
8.16 PCB-Back View for EBU132MA (32W)



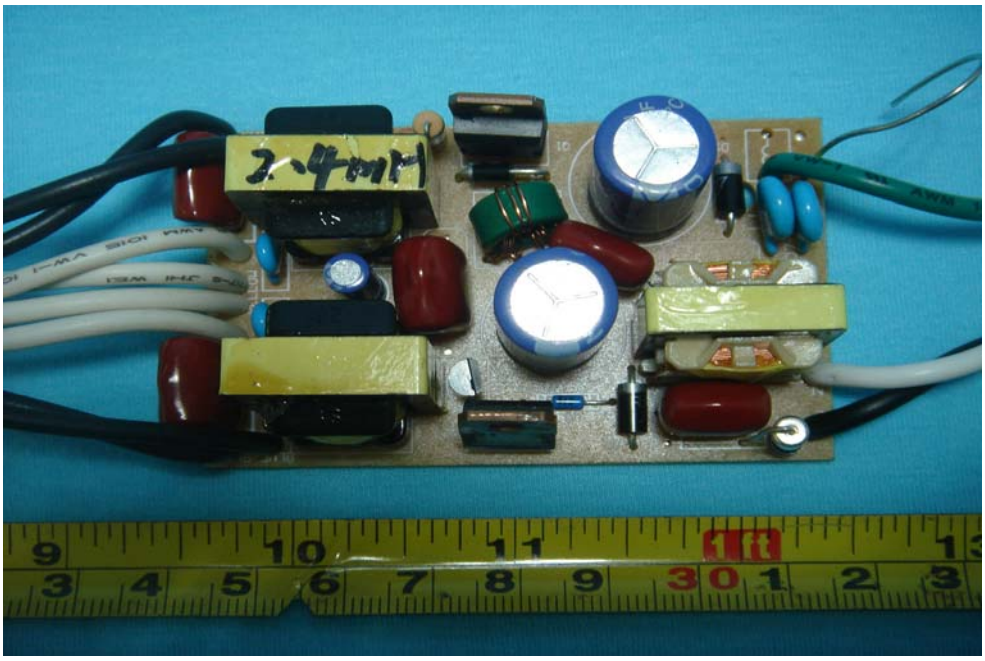
8.17 PCB-Front View for EBU140MA (40W)



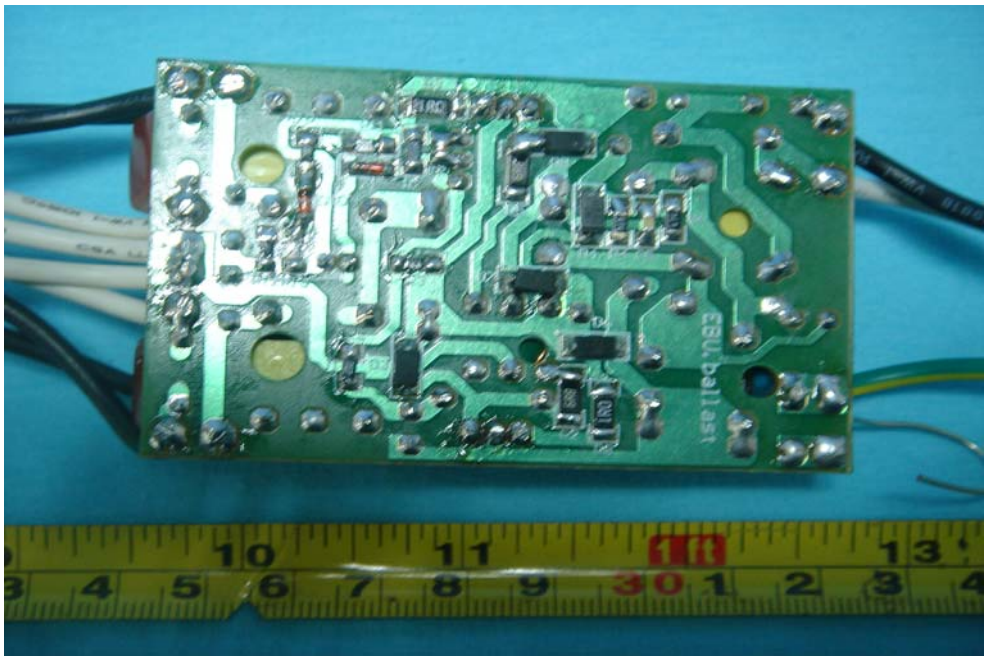
8.18 PCB-Back View for EBU140MA (40W)



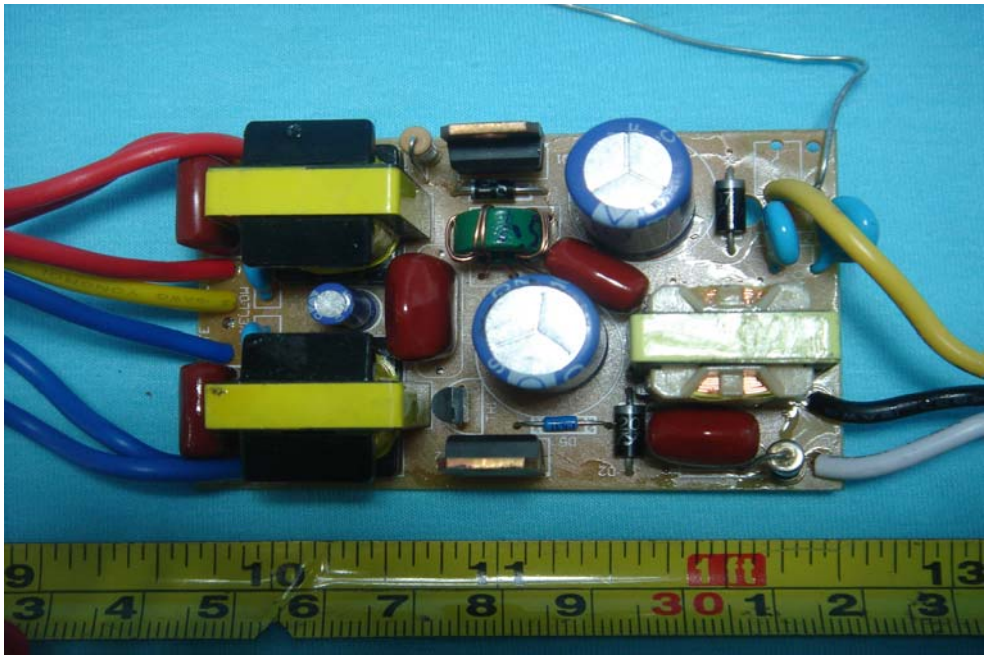
8.19 PCB-Front View for EBU2232MA (54W)



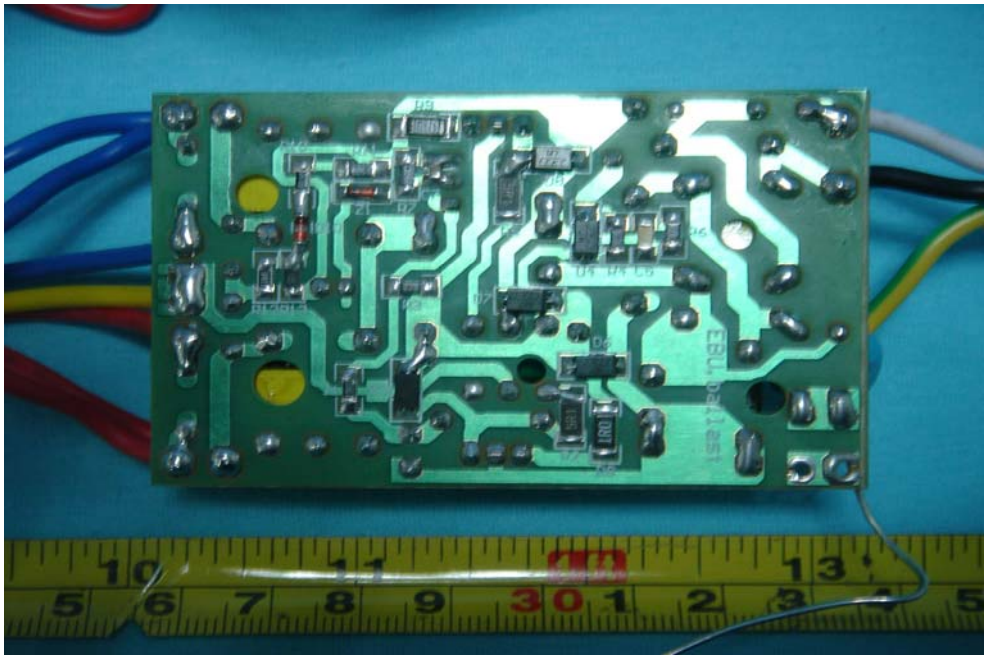
8.20 PCB-Back View for EBU2232MA (54W)



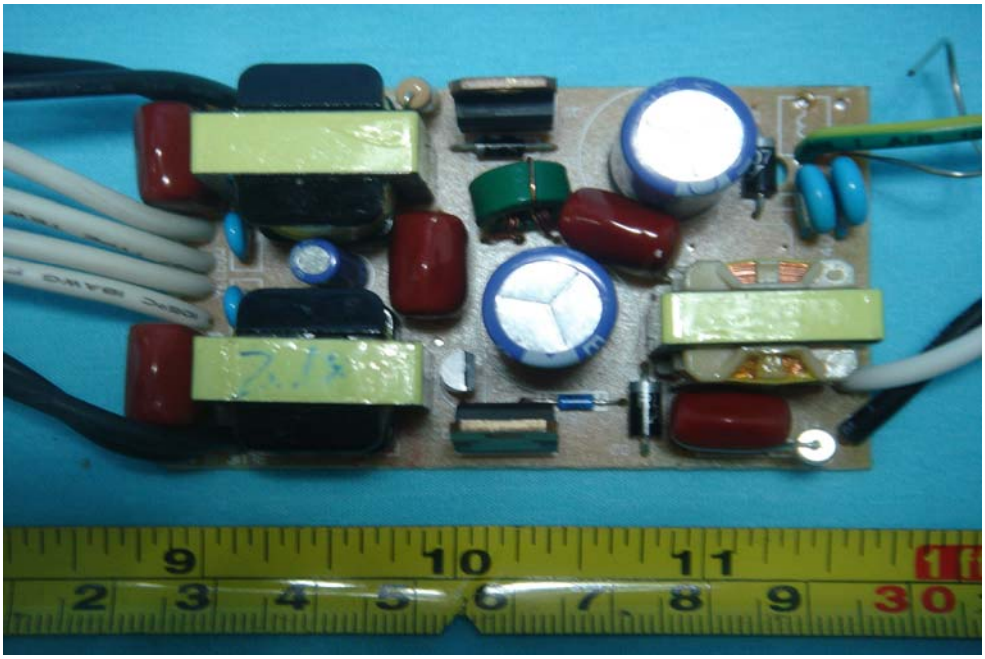
8.21 PCB-Front View for EBU232MB (64W)



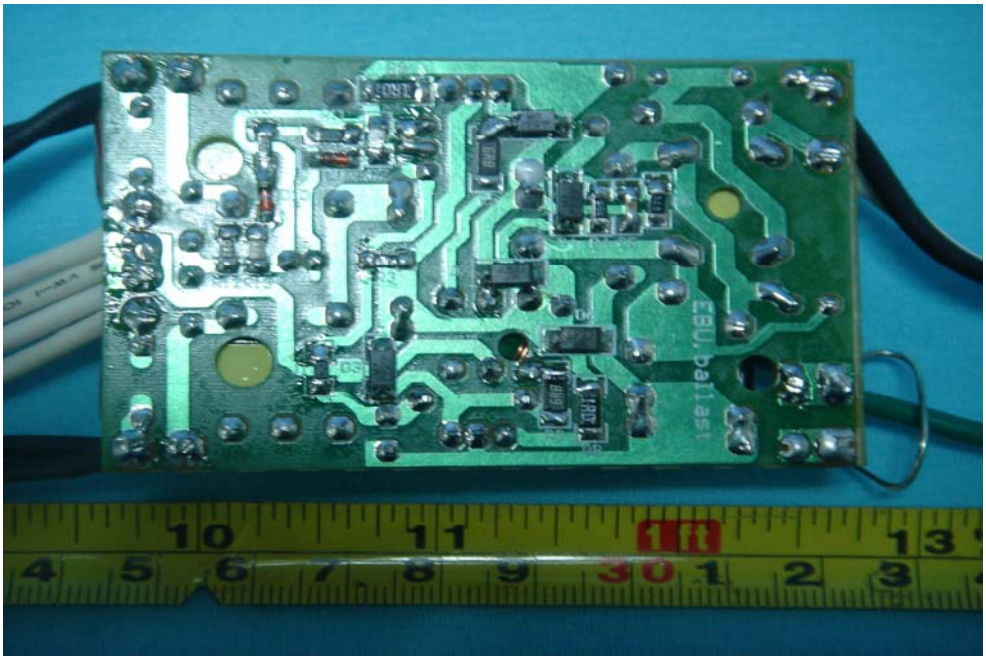
8.22 PCB-Back View for EBU232MB (64W)



8.23 PCB-Front View for EBU3240MA (72W)



8.24 PCB-Back View for EBU3240MA (72W)



9 FCC ID Label

This device complies with Part 18 of the FCC Rules. Operation is subject to the following two conditions:(1)this device may not cause harmful interference,and (2) this device must accept any interference received, including interference that may cause undesired operation.

The Label must not be a stick-on paper. The Label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Proposed Label Location on EUT

EUT Top View/ proposed FCC Mark Location