

# ***FCC TEST REPORT***

**FCC ID** : UVW-EBU0703

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

**Equipment Under Test (EUT) :**

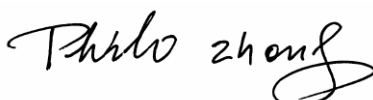
Product description : Electronic Ballast

Model No. : EBU104/106/108/204/206/208/213/218MA  
EBU104/106/108/204/206/208/213/218MB

**Standards** : FCC Part 18

**Date of Test** : October 31, 2007

**Test Engineer** : **Tiger Su**

**Reviewed By** : 

PERPARED BY:

**Waltek Services (Shenzhen) Co., Ltd.**

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### 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.: EBU104/106/108/204/206/208/213/218MA  
EBU104/106/108/204/206/208/213/218MB

### **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.: 759397**  
Solid Industrial (Shenzhen) Co., Ltd. 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 759397, December 28, 2006.

#### **4.8 Test Location**

All Emissions tests were performed at:-

Solid Industrial (Shenzhen) Co., Ltd. at 333 Bulong Highway Buji Longgang, Shenzhen, Guangdong, China.

## 5 Equipment Used during Test

	<b>Conducted Emission Test</b>					
<b>Item</b>	<b>Test Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Series No.</b>	<b>Specification</b>	<b>Last Cal.</b>
<b>1</b>	EMI Test Receiver	Rohde&schwarz	ESPI3	100038	9 kHz to 3000 MHz	2007.08
<b>2</b>	Artificial Mains	Rohde&schwarz	ESH2-Z5	100028	9kHz-30 MHz, Continuous Current 4*25 A	2007.08
<b>3</b>	Pulse Limiter	Rohde&schwarz	ESHSZ2	100044		2007.08
<b>4</b>	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:	October 31, 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

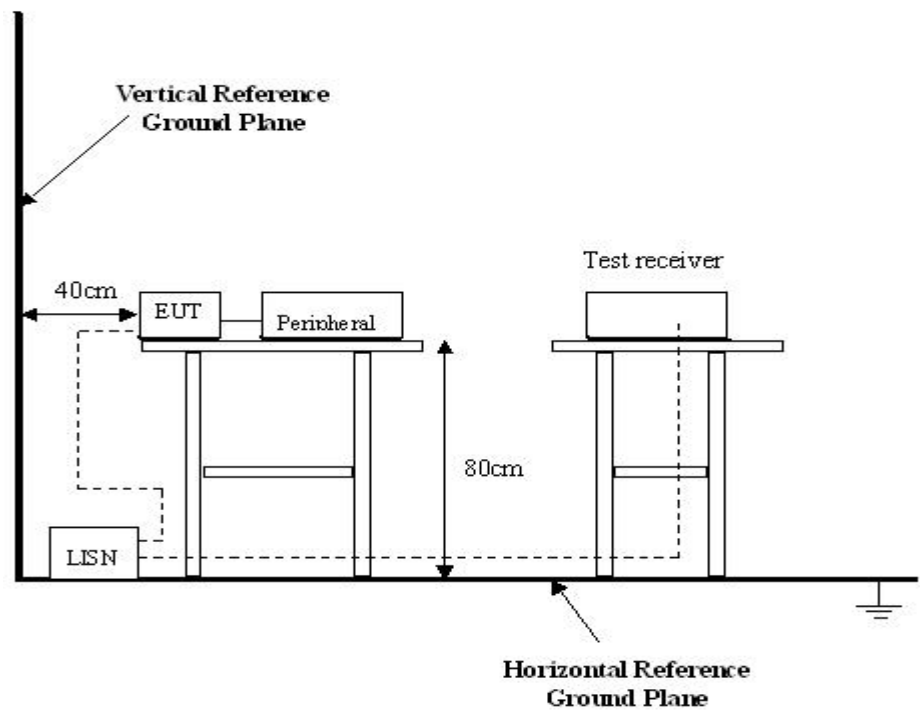
1. During the conducted emission test, the power cord of the EUT is connected to the auxiliary outlet of the LISN.
2. The EUT was tested according to FCC MP-5. The frequency spectrum from 150kHz to 30MHz was investigated.
3. The maximised peak emissions from the EUT was scanned and measured for both 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.

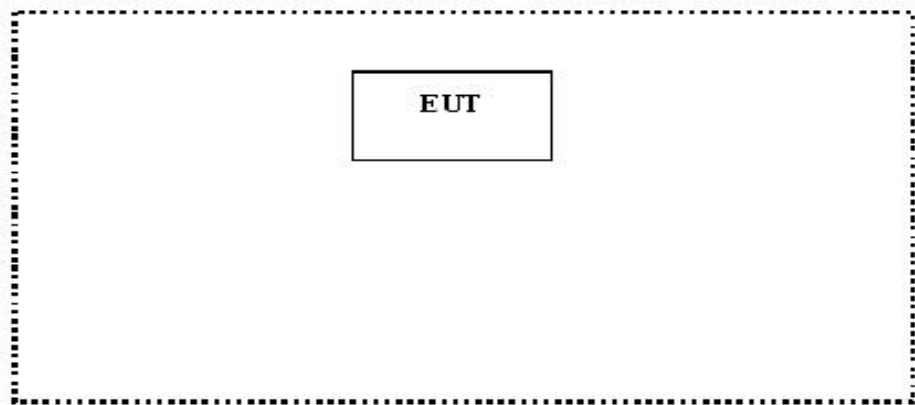
The power supply used by the EUT is connected to a 120VAC / 60Hz power source.



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

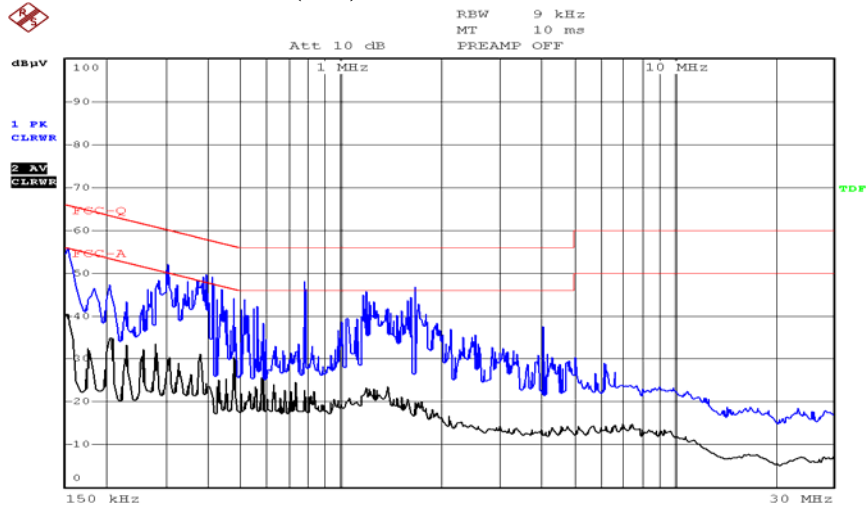
### 6.8.1 Measurement Data

An initial pre-scan was performed on the live and neutral lines.

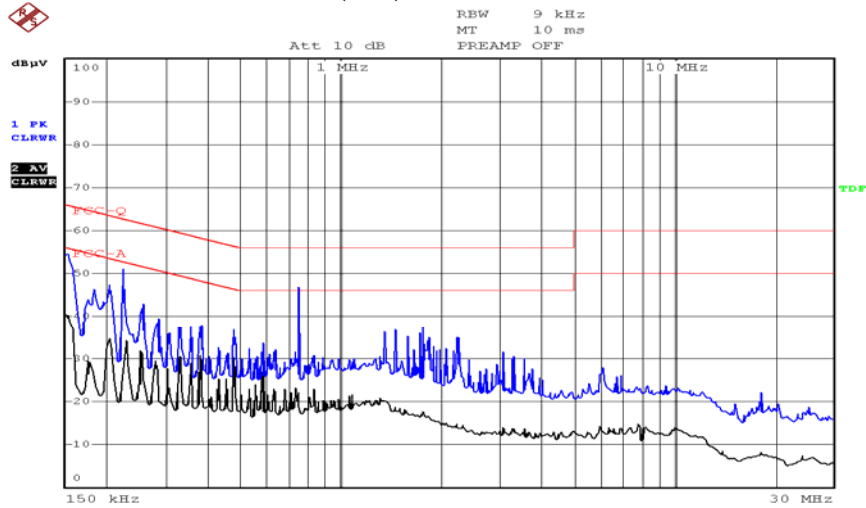
No further quasi-peak or average measurements were performed since no peak emissions were detected within 10dB line below the average limit.

Please refer to the following peak scan graph for reference.

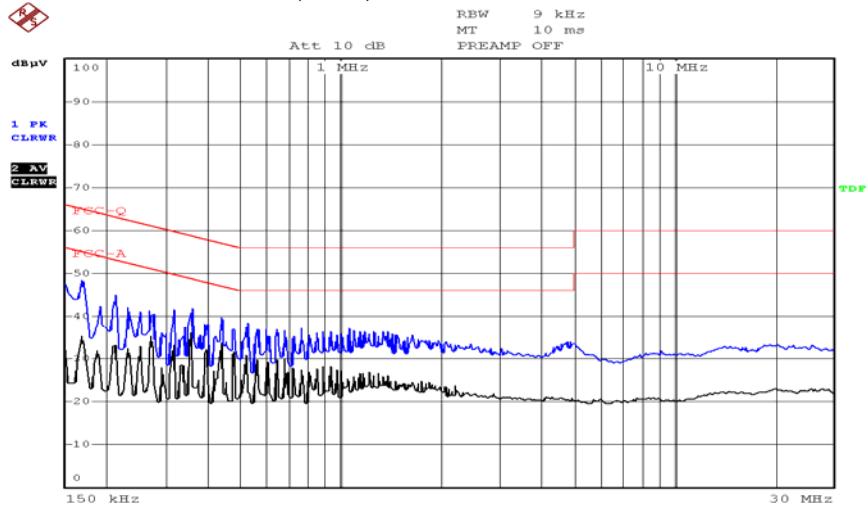
Live Line for EBU104MA (4W)



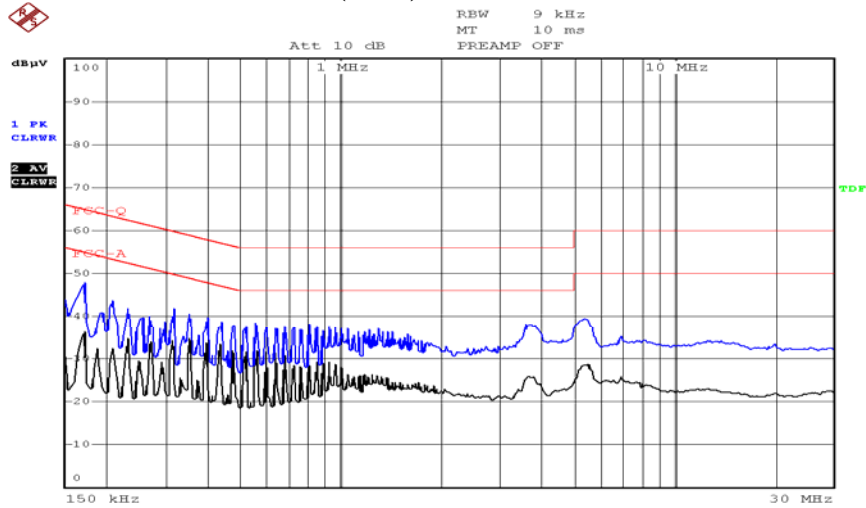
Neutral Line for EBU104MA (4W)



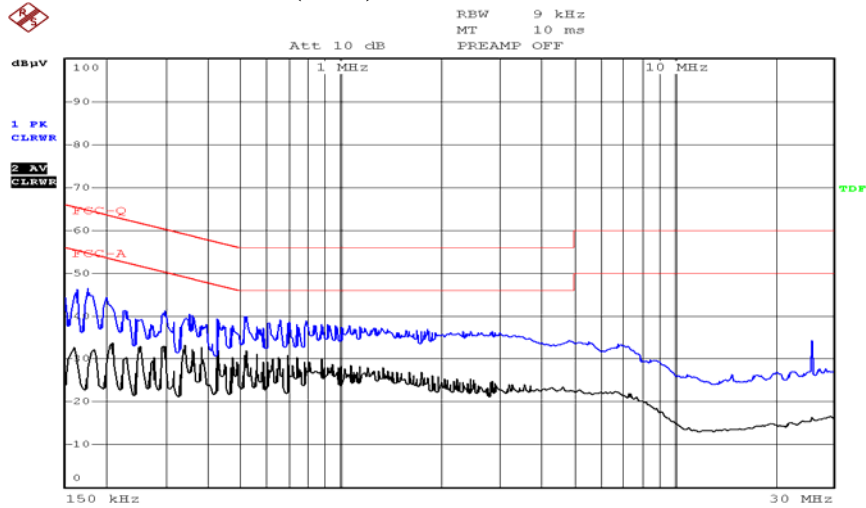
Live Line for EBU208MA (16W)



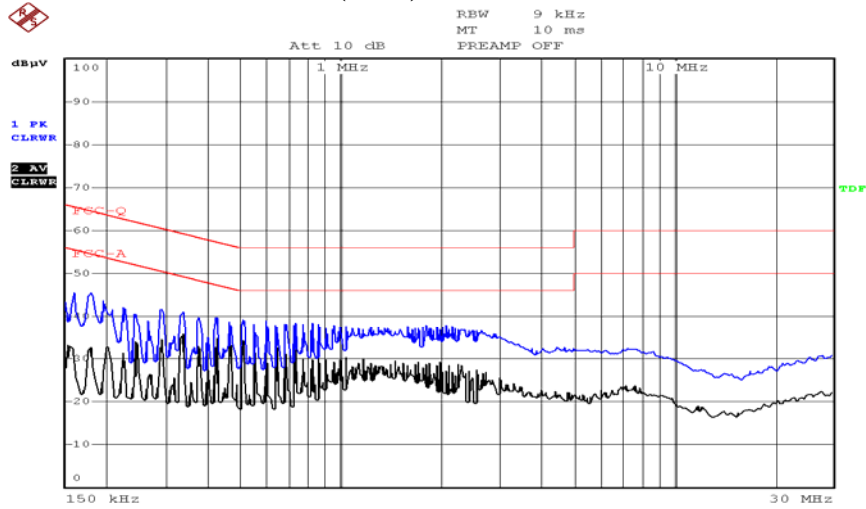
Neutral Line for EBU208MA (16W)



Live Line for EBU218MA (36W)



Neutral Line for EBU218MA (36W)



## Live Line for EBU104MA (4W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.15	56.01	40.71	66.00	56.00	9.99	15.29
2	0.30	52.35	30.26	60.28	50.28	7.93	20.02
3	0.40	50.00	24.74	57.90	47.90	7.90	23.16
4	0.79	47.82	17.38	56.00	46.00	8.18	28.62
5	1.44	45.59	23.79	56.00	46.00	10.41	22.21
6	1.68	46.73	20.15	56.00	46.00	9.27	25.85

## Neutral Line for EBU104MA (4W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.15	54.59	40.12	66.00	56.00	11.41	15.88
2	0.25	52.00	34.49	61.78	51.78	9.78	17.29
3	0.75	47.13	24.35	56.00	46.00	8.87	21.65
4	1.47	37.62	20.07	56.00	46.00	18.38	25.93
5	1.79	37.99	20.04	56.00	46.00	18.01	25.96
6	2.25	35.15	14.58	56.00	46.00	20.85	31.42

## Live Line for EBU208MA (16W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.17	47.17	35.50	64.96	54.96	17.79	19.46
2	0.22	45.05	33.31	62.83	52.83	17.78	19.52
3	0.32	41.89	31.62	59.74	49.74	17.85	18.12
4	0.45	40.00	29.77	56.93	46.93	16.93	17.16

## Neutral Line for EBU208MA (16W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.17	47.15	36.11	64.96	54.96	7.81	18.85
2	0.21	43.23	32.22	63.22	53.22	19.99	21.00
3	0.32	41.89	33.37	59.74	49.74	17.85	16.37
4	0.40	40.00	34.68	57.90	47.90	17.90	13.22

## Live Line for EBU218MA (36W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.17	46.00	32.45	64.96	54.96	18.96	22.51
2	0.20	45.11	30.00	63.62	53.62	18.51	23.26
3	0.29	31.29	32.99	60.56	50.56	29.27	17.57

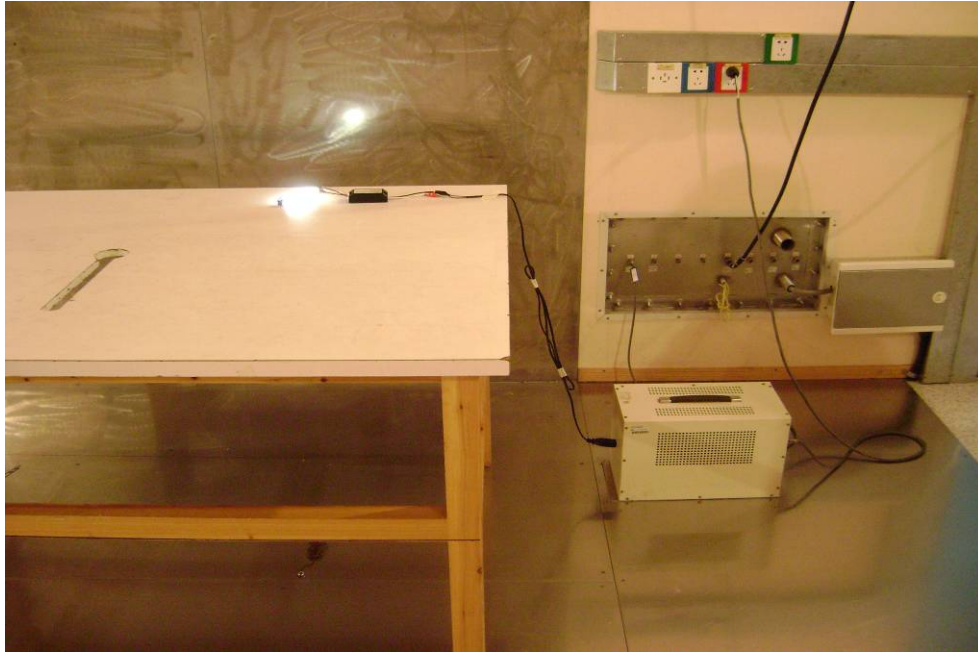
## Neutral Line for EBU218MA (36W)

NO.	Frequency [MHz]	QP Level [dBuV]	AV Level [dBuV]	QP Limit [dBuV]	AV Limit [dBuV]	QP margin [dB]	AV margin [dB]
1	0.17	45.50	33.13	64.96	54.96	9.46	21.83
2	0.19	31.17	33.00	64.04	54.04	32.87	21.04
3	0.29	31.41	30.59	60.56	50.56	29.15	19.97

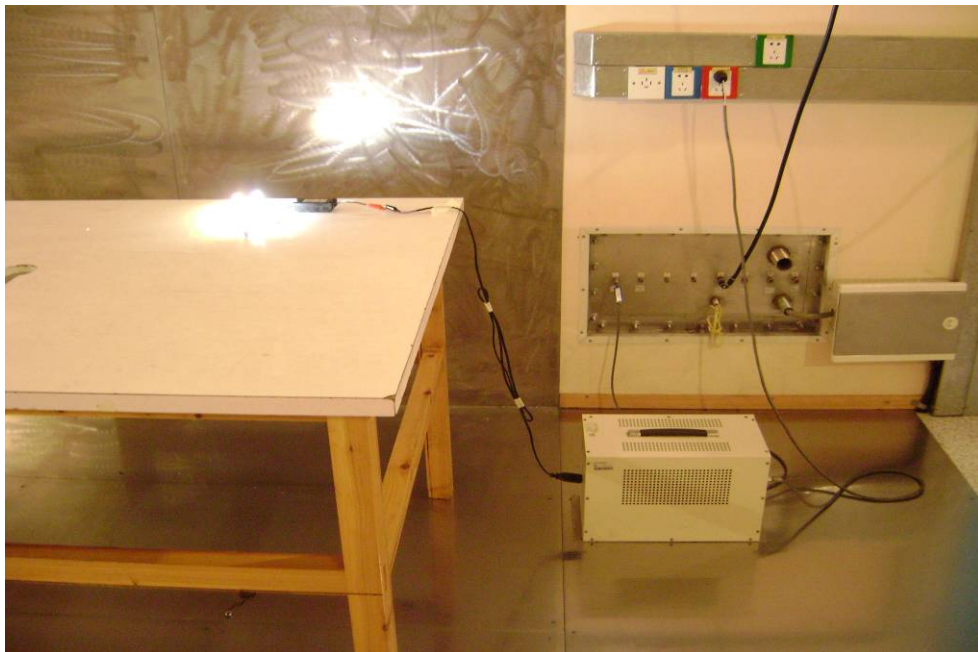


## **7 Photographs of Testing**

### **7.1 Conducted Emission Test View for EBU104MA (4W)**



### **7.2 Conducted Emission Test View for EBU208MA (16W)**



### 7.3 Conducted Emission Test View for EBU218MA (36W)



## 8 Photographs-Constructional Details

### 8.1 EUT-Front View for EBU104MA (4W)



### 8.2 EUT-Back View for EBU104MA (4W)

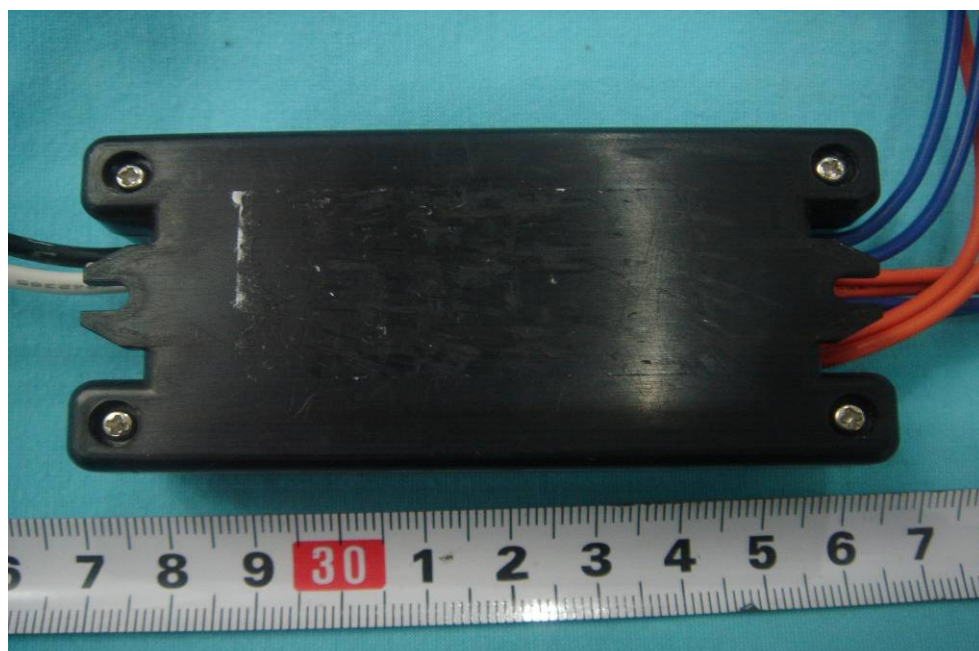




### 8.3 EUT-Front View for EBU208MA (16W)



### 8.4 EUT-Back View for EBU208MA (16W)



8.5 EUT-Front View for EBU218MA (36W)

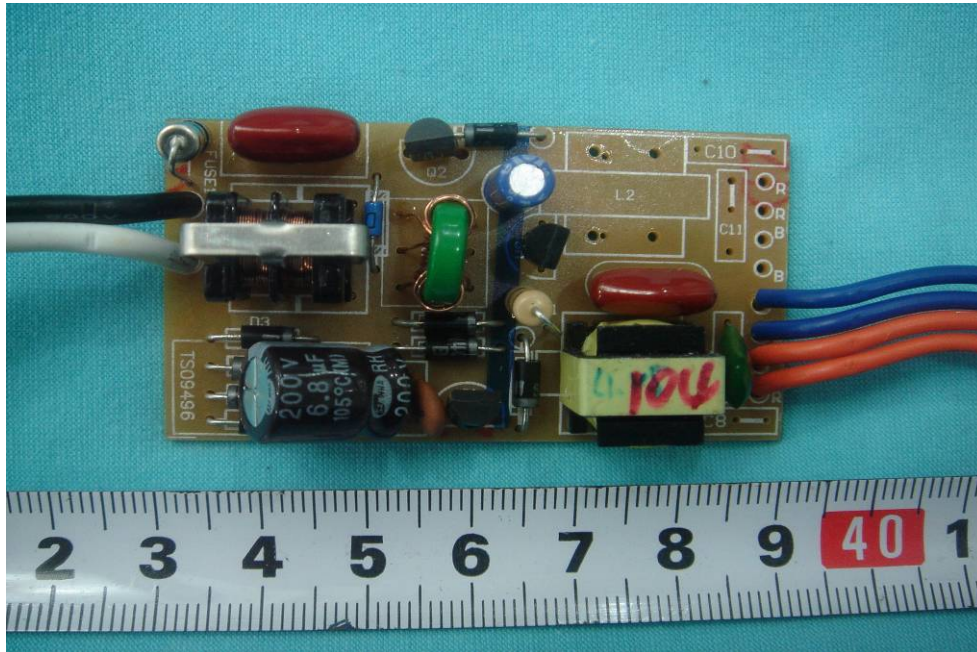


8.6 EUT-Back View for EBU218MA (36W)

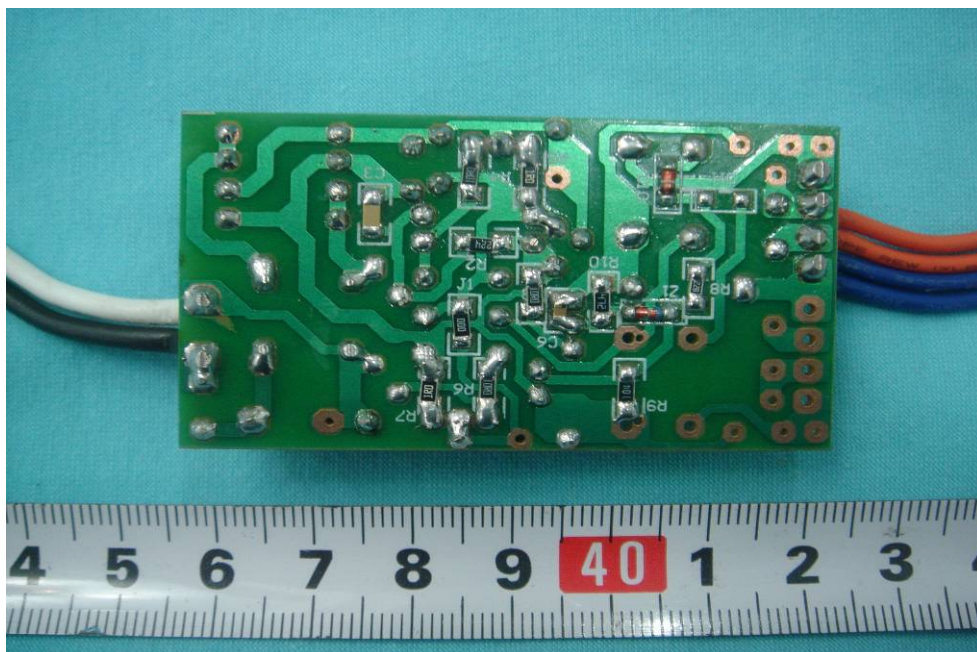




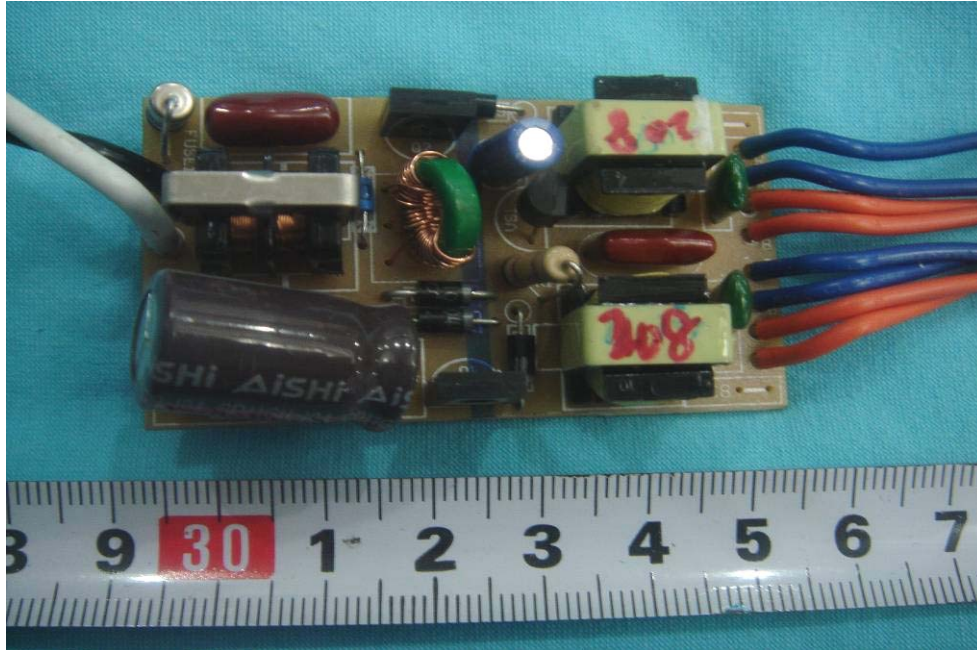
### 8.7 PCB-Front View for EBU104MA (4W)



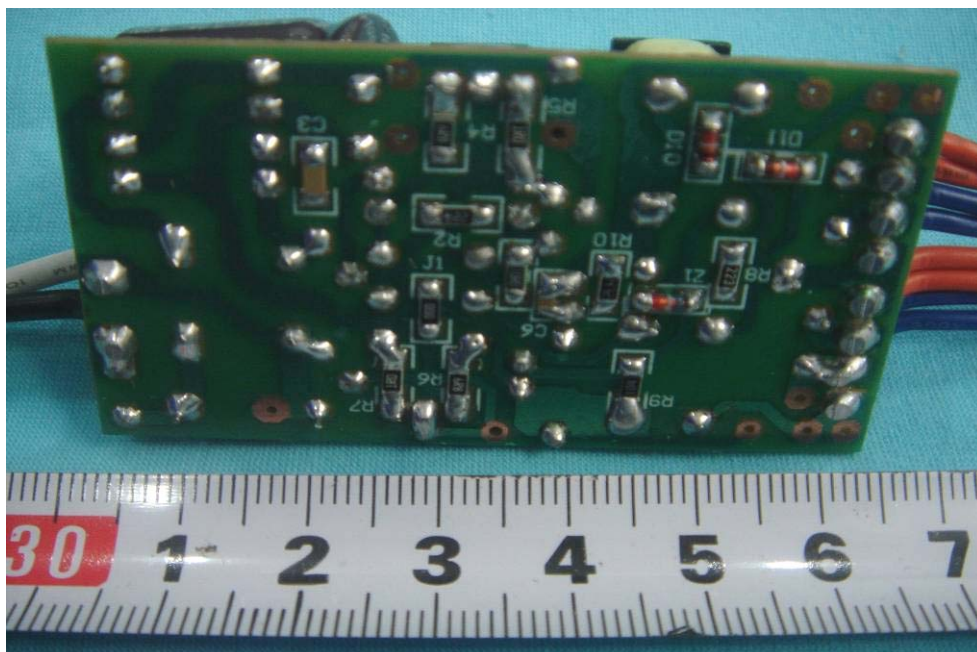
### 8.8 PCB-Back View for EBU104MA (4W)



### 8.9 PCB-Front View for EBU208MA (16W)

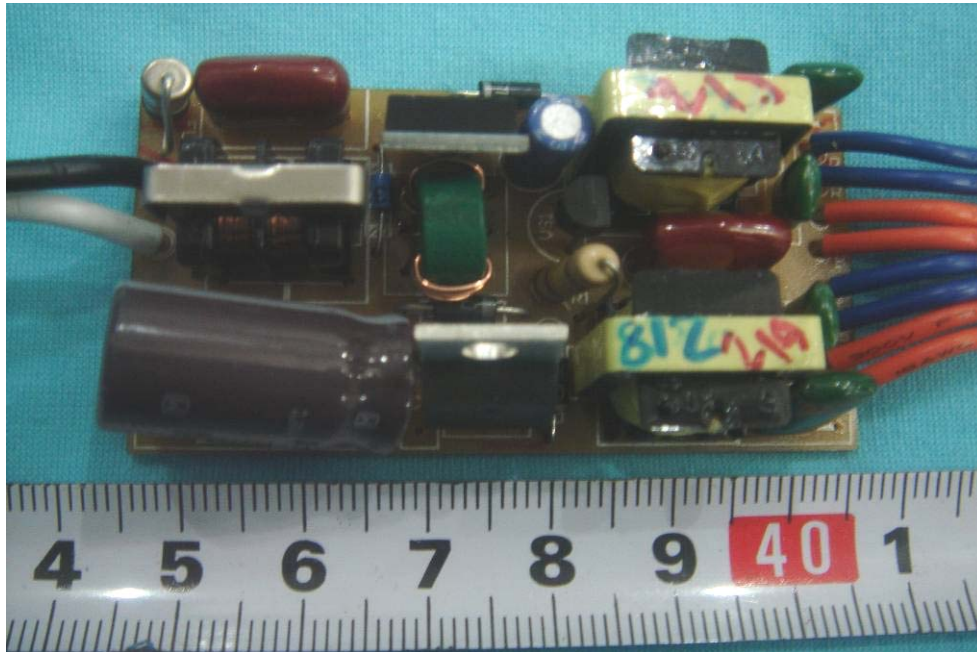


### 8.10 PCB-Back View for EBU208MA (16W)

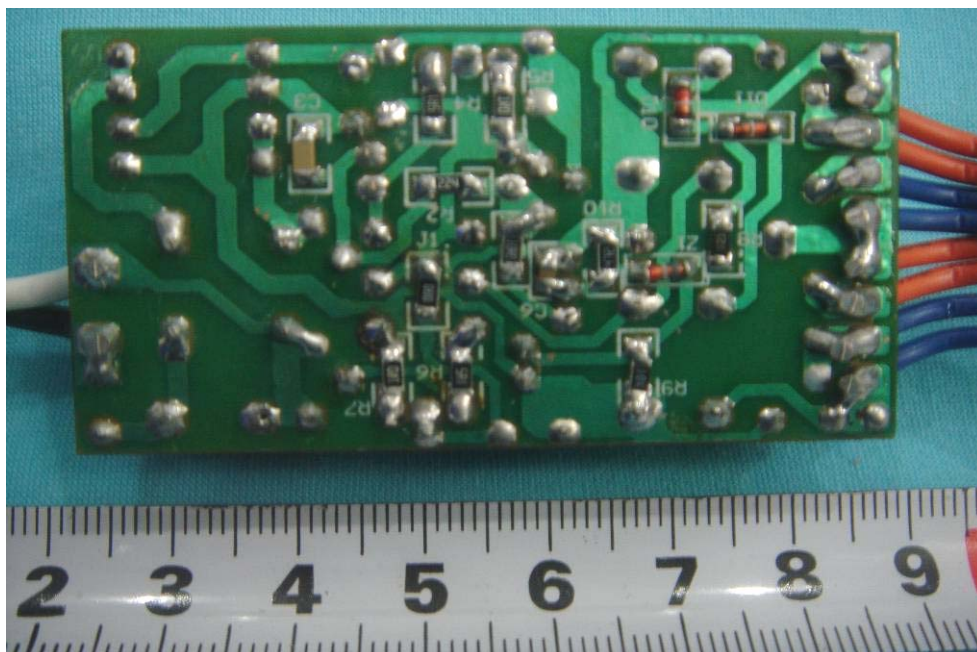




### 8.11 PCB-Front View for EBU218MA (36W)



### 8.12 PCB-Back View for EBU218MA (36W)





## 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

