FCC TEST REPORT

FCC ID : YY4-PAR20

Applicant : Plusrite Electric（Jiangsu）Co., Ltd.

Address : NO.1 People West Road.,Wujin,Changzhou,jiangsu,China

Equipment Under Test (EUT) :

Product description : LED PART Lamp

Model No. : PAR20

Standards : FCC PART 18: 2007

Date of Test : Nov. 14~15, 2010

Test Engineer : **Sonic.chen/ Engineer** Sonic.chen

Reviewed By **:Philo.zhong / Manager** Philo zhong

PREPARED BY:
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Contents

2 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission (30MHz to 1GHz)	FCC PART 18: 2007	ANSI C63.4:2003	N/A	PASS
Conducted Emission (450KHz to 30MHz)	FCC PART 18: 2007	ANSI C63.4:2003	N/A	PASS

3 General Information

3.1 Client Information

Applicant:	Plusrite Electric（Jiangsu）Co., Ltd.
Address of Applicant:	NO.1 People West Road.,Wujin,Changzhou,jiangsu,China
Manufacturer :	Plusrite Electric（Jiangsu）Co., Ltd.
Address Of Manufacturer :	NO.1 People West Road.,Wujin,Changzhou,jiangsu,China

3.2 General Description of E.U.T.

Product description:	LED PAR Lamp
Model No.:	PAR20

3.3 Details of E.U.T.

Power Supply: 120VAC / 60Hz 6W

3.4 Description of Support Units

The EUT has been tested as an independent unit.

3.5 Standards Applicable for Testing

The customer requested FCC tests for a LED Energy Saving Lamp. The standards used were FCC Part18.

3.6 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.

3.7 Test Facility

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

- **FCC – Registration No.: 880581**

  Waltek Services(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 880581,June 24，2008.

- **IC – Registration No.: IC7760**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration IC7760,Aug .3，2010.

3.8 Test Location

All Emissions testswere performed at:-
1/F, Fukangtai Building,West Baima Rd.,Songgang Street,
Baoan District, Shenzhen 518105, Guangdong,China.

4 Equipment Used during Test

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
EMC Analyzer	Agilent/ E7405A	MY45114943	W2008001	9k-26.5GHz	Aug-03-10	Aug-02-11	Wws20081596	±1dB
Trilog Broadband Antenne 30-3000 MHz	SCHWARZBECK MESS-ELEKTROM / VULB9163	336	W2008002	30-3000 MHz	Aug-03-10	Aug-02-11		±1dB
Broad-band Horn Antenna	SCHWARZBECK MESS-ELEKTROM / BBHA 9120D(1201)	667	W2008003	1-18GHz	Aug-03-10	Aug-02-11		f＜10 GHz：±1dB 10GHz＜f＜18 GHz：±1.5dB
Broadband Preamplifier	SCHWARZBECK MESS-ELEKTROM / BBV 9718	9718-148	W2008004	0.5-18GHz	Aug-03-10	Aug-02-11		±1.2dB
10m Coaxial Cable with N-male Connectors usable up to 25GHz,	SCHWARZBECK MESS-ELEKTROM / AK 9515 H	-	-	-	Aug-03-10	Aug-02-11		-
10m 50 Ohm Coaxial Cable with N-plug,individual length,usable up to 3(5)GHz, Connector	SCHWARZBECK MESS-ELEKTROM / AK 9513				Aug-03-10	Aug-02-11		
Positioning Controller	C&C LAB/ CC-C-IF				N/A	N/A		
Color Monitor	SUNSPO/ SP-14C				N/A	N/A		
Test Receiver	ROHDE&SCHWARZ/ ESPI	101155	W2005001	9k-3GHz	Aug-03-10	Aug-02-11	Wws20080942	±1dB
EMI Receiver	Beijingkehuan	KH3931		9k-1GHz	Aug-03-10	Aug-02-11		
Two-Line V-Network	ROHDE&SCHWARZ/	100115	W2005002	50Ω/50μH	Aug-	Aug-02-11	Wws20080941	±10%

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
	ENV216				03-10			
Absorbing Clamp	ROHDE&SCHWARZ/ MDS-21	100205	W2005003	impandance50 Ω loss ： 17 dB	Aug-03-10	Aug-02-11	Wws20080943	±1dB
10m 50 Ohm Coaxial Cable with N-plug,individual length,usable up to 3(5)GHz, Connectors	SCHWARZBECK MESS-ELEKTROM / AK 9514				Aug-03-10	Aug-02-11		
Digital Power Analyzer	Em Test AG/Switzerland/ DPA 500	V07451 03095	W2008012	Power：2000VA Vol-range：0-300V Freq_range：10-80Hz	Aug-03-10	Aug-02-11	Wwd20081185	Voltage distinguish:0.025% Power_freq distinguish:0.02Hz
Power Source	Em Test AG/Switzerland/ ACS 500	V07451 03096	W2008013	Vol-range：0-300V Power_freq：10-80Hz				
Electrostatic Discharge Simulator	Em Test AG/Switzerland/DITO	V07451 03094	W2008005	Contact discharge：500V-10KV Air diacharge：500V-16.5KV	Aug-03-10	Aug-02-11	Wwc20082400	7.5A current will be changed in V_m=1.5V
RF Generator	TESEQ GmbH/ NSG4070	25781	W2008008	Fraq-range：9K-1GHz RF voltage：-60 dBm-+10dBm	Aug-03-10	Aug-02-11	Wws20081890	Power_freq distinguish0.1Hz RFeletricity distinguish 0.1 B
CDN M-Type	TESEQ GmbH/ CDN M016	25112	W2008009	Voltage correct factor 9.5 dB	Aug-03-10	Aug-02-11	Wwc20082396	150K-80MHz：±1dB 80-230MHz:-2-+3dB
EM-Clamp	TESEQ GmbH/ KEMZ 801	25453	W2008010	Freq_range：0.15-1000 MHz	Aug-03-10	Aug-02-11	Wwc20082397	0.3-400 MHz：±4dB Other freq：±5dB

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
Attenuator 6dB	TESEQ GmbH/ ATN6050	25365			Aug-03-10	Aug-02-11	Wws20081597	
All Modules Generator	SCHAFFNER/6150	34579	W2008006	voltage:200V-4.4KV Pulse current：100A-2.2KA	Aug-03-10	Aug-02-11	Wwc20082401	voltage: ±10% Pulse current：±10%
Capacitive Coupling Clamp	SCHAFFNER/ CDN 8014	25311			Aug-03-10	Aug-02-11	Wwc20082398	-
Signal and Data Line Coupling Network	SCHAFFNER/ CDN 117	25627	W2008011	1.2/50μS	Aug-03-10	Aug-02-11	Wwc20082399	-
AC Power Supply	TONGYUN/ DTDGC-4				Aug-03-10	Aug-02-11	Wws20080944	-
Exposure Level Tester ELT-400	Narda Safety TEST Solutions/2304/03	M-0155	w2008022	Test freq range：1—400kHz	Aug-03-10	Aug-02-11	Wwd20081191	Test uncertainly：1—120kHz:±1.83%, 120 kHz-400 kHz: ±4.06%
Magnetic Field Probe 100cm^2	Narda Safety TEST Solutions/2300/90.10	M-1070	w2008021	Test freq range：1—400kHz				Test uncertainly：1Hz-10Hz: ±16.2%, 10Hz - 120kHz:±2.2%, 120 kHz-400 kHz: ±4.7%
Active Loop Antenna Charger 10kHz-30MHz	Beijing Dazhi / ZN30900A	-	-	10kHz-30MHz	Aug-03-10	Aug-02-11		±1dB

5 Conducted Emission Test

Product Name:	LED PAR Lamp
Test Requirement:	FCC Part 18
Test Method:	Based on ANSI C63.4:2003
Test Date:	Nov. 14, 2010
Frequency Range:	450kHz to 30MHz
Class:	Class B
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximised peak within 6dB of Average Limit

5.1 Test Equipment

Please refer to Section 4 this report.

5.2 Test Procedure

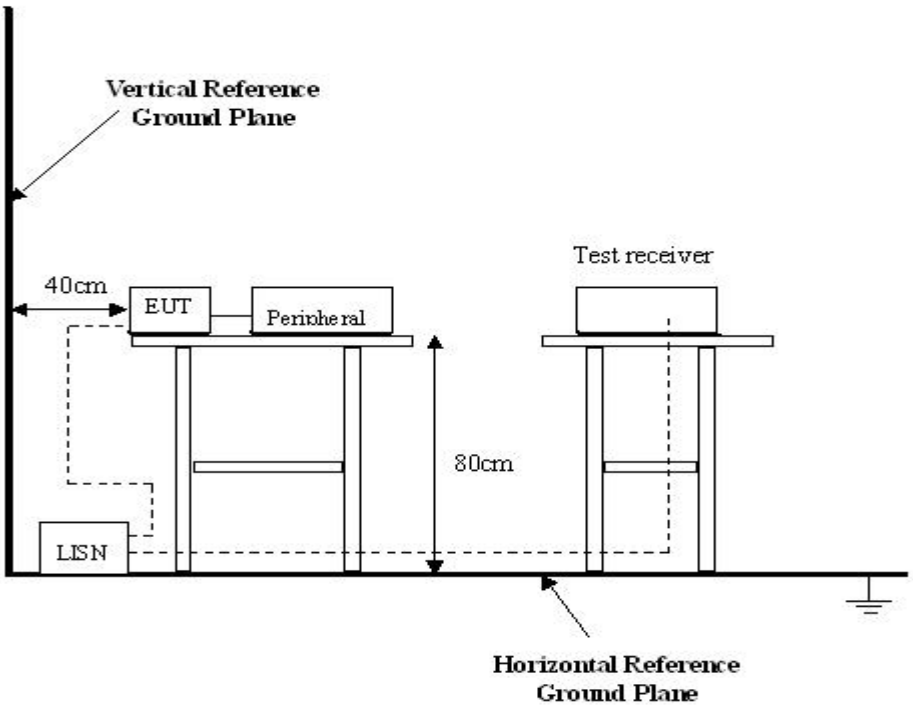
1. During the conducted emission test, the power cord of the EUT is connected to the auxiliary outlet of the LISN.
2. The EUT was tested according to FCC MP-5. The frequency spectrum from 450kHz to 30MHz was investigated.
3. The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

5.3 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.

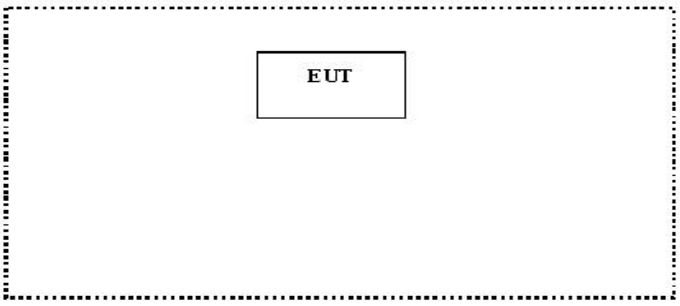


The EUT was placed on the test table in ON mode.

5.4 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.



5.5 Conducted Emission Limits

Frequency of Emission (MHz)	Conducted Limit (dBuV)- Quasi-peak
0.45— 2.51	48
2.51 — 3.0	69.54
3.0 — 30	48

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

5.6 Spectrum Analyzer

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

Start Frequency····· 450 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

5.7 Conducted Emission Test Result

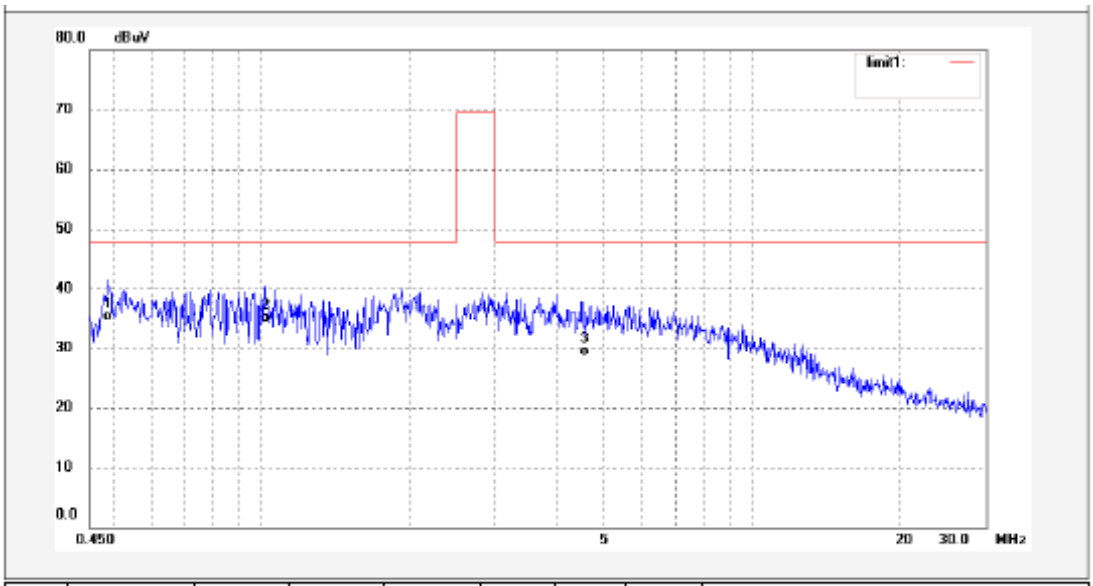
Test Item:	Conducted Emission Test
Test Voltage:	120VAC / 60Hz
Test Mode:	Normal
Temperature:	25.5 °C
Humidity:	51%RH
Test Result:	PASS

5.7.1 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.

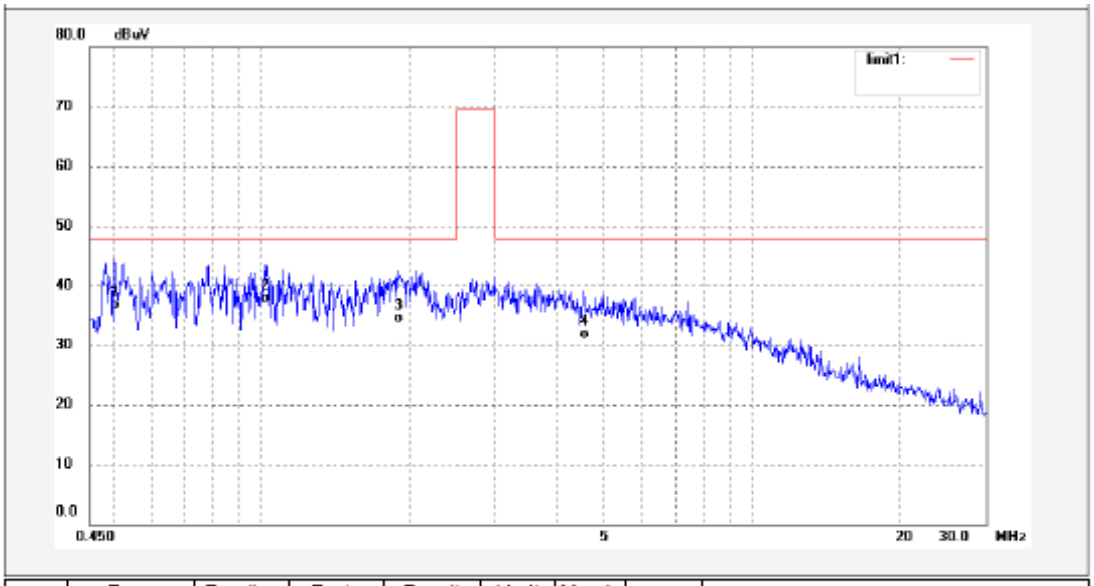
Model : PAR20

LIVE LINE



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.4900	24.07	10.35	34.42	48.00	-13.58	QP	
2	1.0260	24.03	10.36	34.39	48.00	-13.61	QP	
3	4.5700	18.25	10.40	28.65	48.00	-19.35	QP	

NEUTRAL LINE



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.5060	25.64	10.35	35.99	48.00	-12.01	QP	
2	1.0220	26.76	10.36	37.12	48.00	-10.88	QP	
3	1.9060	23.28	10.37	33.65	48.00	-14.35	QP	
4	4.5700	20.71	10.40	31.11	48.00	-16.89	QP	

6 Emissions Test Results

6.1 Radiation Emission Data

Test Requirement:	FCC Part18.305
Test Method:	ANSI C63.4:2003
Test Date:	Nov. 14, 2010
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Class:	Class B
Limit:	40 dBμV/m between 30MHz & 88MHz
	43.5 dBμV/m between 88MHz & 216MHz
	46 dBμV/m between 216MHz & 1000MHz
Detector:	Peak for pre-scan (120kHz resolution bandwidth)
	Quasi-Peak if maximised peak within 6dB of limit

6.1.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on ANSI C63.4:2003, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Waltek Lab is +/-5.05 dB.

6.1.2 EUT Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part18.305 (C) Consumer epuipment limits.
The EUT was placed on the test table in ON mode.

6.1.3 Spectrum Analyzer Setup

According to FCC Part18.305 Rules, the system was tested 30 to 1000MHz.

Start Frequency.....30 MHz
Stop Frequency .....1 GHz
Sweep Speed Auto
IF Bandwidth .....120 kHz
Video Bandwidth 100KHz
Quasi-Peak Adapter Bandwidth .....120 kHz
Quasi-Peak Adapter Mode.....Normal
Resolution Bandwidth 100KHz

6.1.4 Test Procedure

For the radiated emissions test, maximizing procedure was performed on the six (6) highest emissions to ensure EUT is compliant with all installation combinations.
All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dBμV of specification limits), and are distinguished with a "Qp" in the data table. But any frequency above 1000 MHz, the limit is based on average detector.
The EUT was under normal mode during the final qualification test and the configuration was used to represent the worst case results.

6.1.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

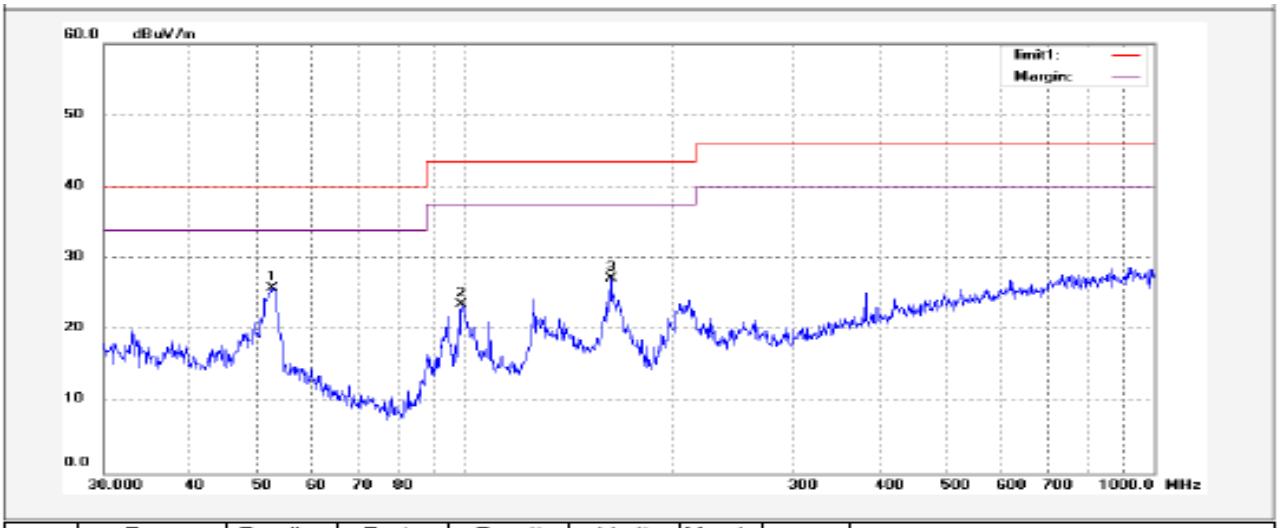
The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:
Margin = Corr. Ampl. – Class B Limit

6.1.6 Summary of Test Results

According to the data in this section , the EUT complied with the FCC Part18. standards.

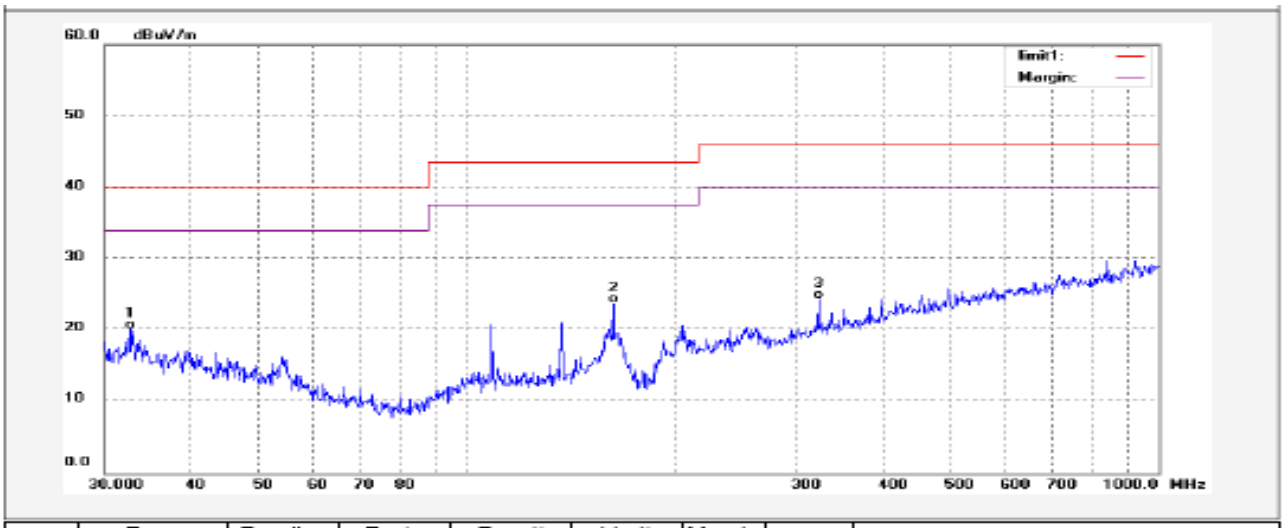
Model : PAR20

Horizontal:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	52.6345	12.74	13.16	25.90	40.00	-14.10	peak	
2	99.0690	10.76	12.82	23.58	43.50	-19.92	peak	
3	163.1623	13.69	13.50	27.19	43.50	-16.31	peak	

Vertical:

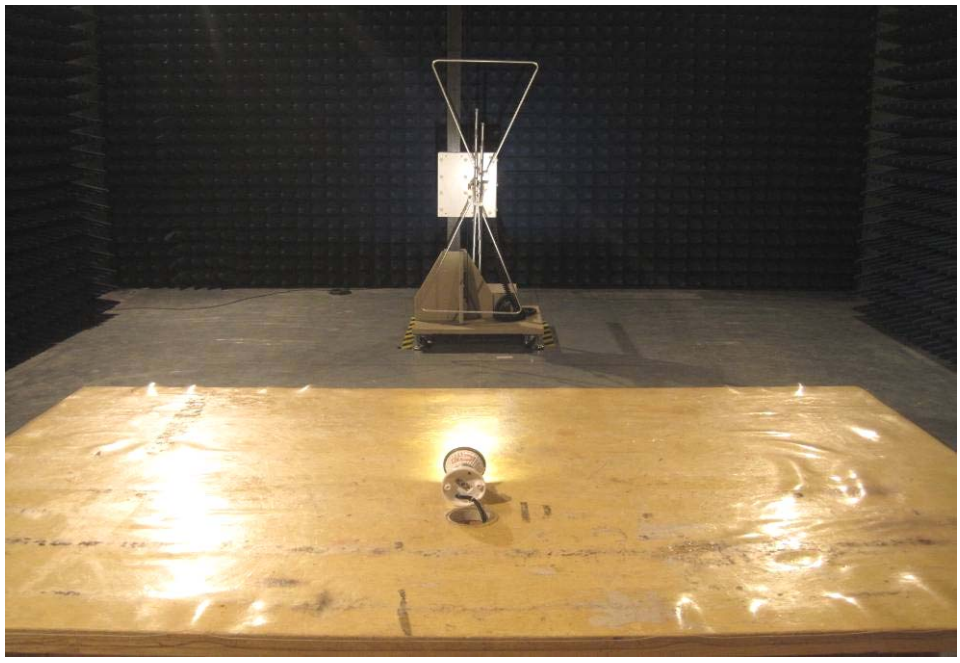


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	32.6395	3.21	16.92	20.13	40.00	-19.87	QP	
2	163.1623	10.33	13.47	23.80	43.50	-19.70	QP	
3	322.5896	5.09	19.25	24.34	46.00	-21.66	QP	

7 Photographs of Testing

7.1 Conducted Emission Test View

7.2 Radiation Emission Test View

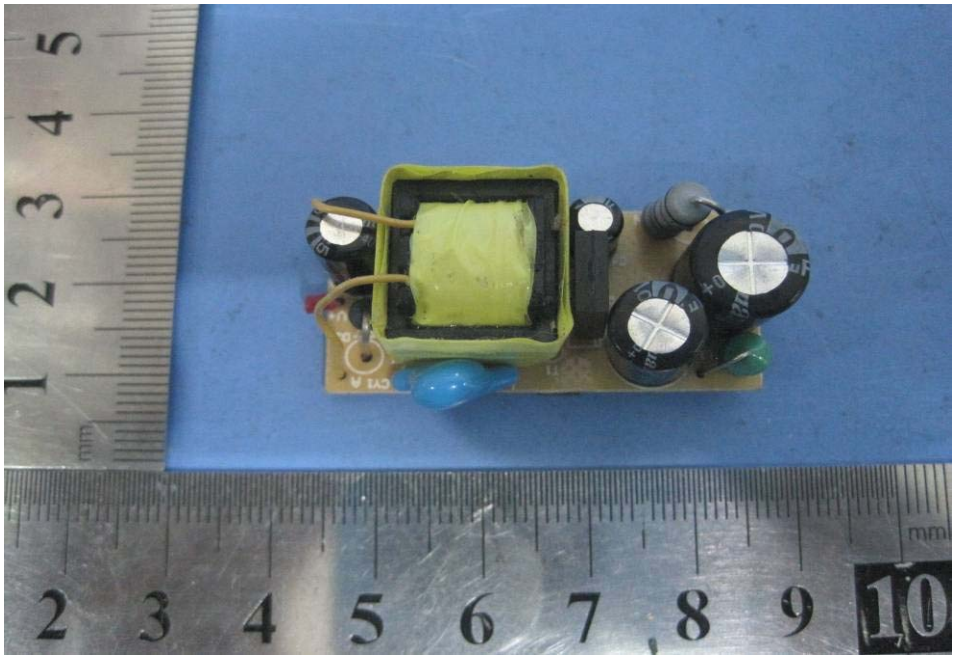


8 Photographs - Constructional Details

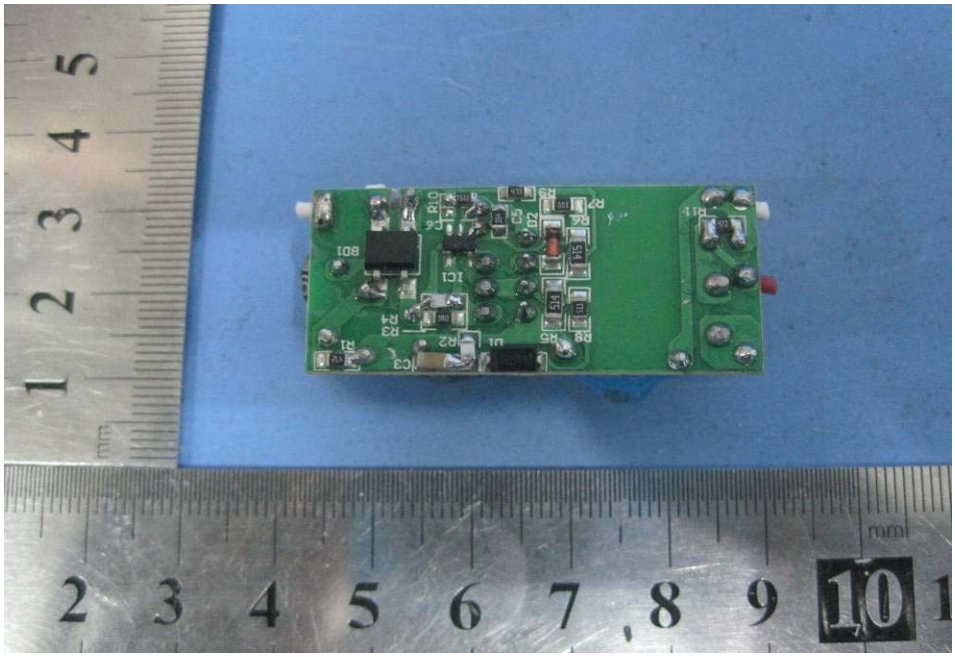
8.1 EUT - Front View

8.2 EUT - Back View

8.3 PCB - Front View



8.4 PCB - Back View



9 FCC ID Label

This device complies with FCC PART 18: 2007 of the FCC Rules.

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 Label Location