

FCC PART 18 TEST REPORT

For

Jiangxi Midea Guiya Green Lighting Electrical Co., Ltd.

Guixi Industrial District, Guixi, Jiangxi, China

FCC ID: VGZAS20W

Report Type: Original Report	Product Type: CFL
Test Engineer: Phase Zhang	<i>Phase Zhang</i>
Report Number: RSZ110921536-00	
Report Date: 2011-11-30	
Reviewed By: Suny Sun EMC Engineer	<i>Suny Sun</i>
Test Laboratory: Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn	

Note: This test report is prepared for the customer shown above and for the equipment described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP*, or any agency of the Federal Government.

* This report contains data that are not covered by the NVLAP accreditation and are marked with an asterisk "★" (Rev.2)

TABLE OF CONTENTS

GENERAL INFORMATION	3
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	3
OBJECTIVE.....	3
RELATED SUBMITTAL(S)/GRANT(S)	3
TEST METHODOLOGY	3
TEST FACILITY	3
SYSTEM TEST CONFIGURATION	5
JUSTIFICATION.....	5
EUT EXERCISE SOFTWARE.....	5
SPECIAL ACCESSORIES	5
EQUIPMENT MODIFICATIONS.....	5
EXTERNAL I/O CABLE	5
CONFIGURATION OF TEST SETUP.....	5
BLOCK DIAGRAM OF TEST SETUP.....	6
FCC §18.307 - AC LINE CONDUCTED EMISSIONS	7
APPLICABLE STANDARD.....	7
MEASUREMENT UNCERTAINTY	7
EUT SETUP	7
EMI TEST RECEIVER SETUP	8
TEST PROCEDURE.....	8
TEST EQUIPMENT LIST AND DETAILS	8
TEST RESULTS SUMMARY	9
TEST DATA.....	9
FCC §18.305 – FIELD STRENGTH	12
MEASUREMENT UNCERTAINTY	12
EUT SETUP	12
EMI TEST RECEIVER SETUP AND SPECTRUM ANALYZER SETUP.....	13
TEST EQUIPMENT LIST AND DETAILS	13
TEST PROCEDURE.....	13
TEST DATA.....	13

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The Jiangxi Midea Guiya Green Lighting Electrical Co., Ltd's model: MDESAS20W-E26 (FCC ID: VGZAS20W) (the "EUT") in this report was a CFL, which was measured approximately: 13.8 cm (L) x 6.8cm (D), and rated input voltage: AC 120V/60Hz.

** All measurement and test data in this report was gathered from production sample serial number: 1109039 (Assigned by BACL, Shenzhen). The EUT was received on 2011-09-21.*

Objective

This test report is prepared on behalf of Jiangxi Midea Guiya Green Lighting Electrical Co., Ltd in accordance with Part 2-Subpart J, and Part 18-Subparts A, B and C of the Federal Communication Commissions rules and regulations.

The objective of the manufacturer is to determine compliance with FCC Part 18 limits.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All measurements contained in this report were conducted with MP-5, FCC Methods of Measurements of Radio Noise Emissions from ISM Equipment, February 1986. All measurement was performed at Bay Area Compliance Laboratories Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



The current scope of accreditations can be found at <http://ts.nist.gov/Standards/scopes/2007070.htm>

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

EUT Exercise Software

No exercise software was used.

Special Accessories

The special accessories were supplied by Bay Area Compliance Laboratories Corp.

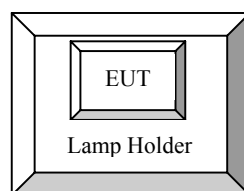
Equipment Modifications

No modifications were made to the unit tested.

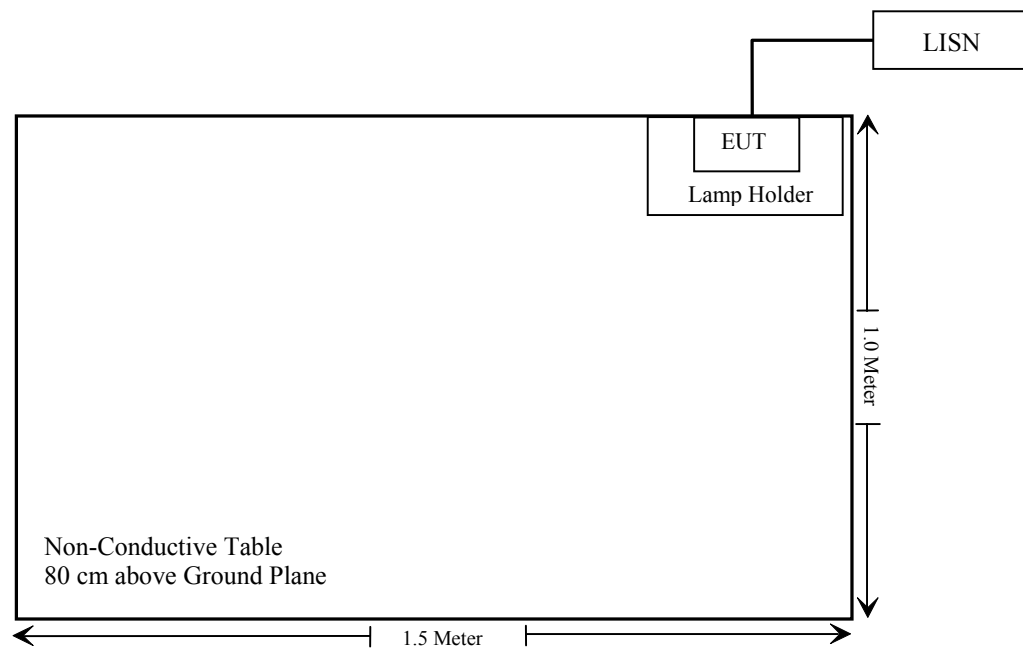
External I/O Cable

Cable Description	Length (m)	From Port	To
Unshielded Detachable AC Power Cable	1.2	EUT	LISN

Configuration of Test Setup



Block Diagram of Test Setup



FCC §18.307 - AC LINE CONDUCTED EMISSIONS

Applicable Standard

Conduction limits. For the following equipment, when designed to be connected to the public utility (AC) power line the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies shall not exceed the limits in the following tables. Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal using a 50 μ H/50 ohms line impedance stabilization network (LISN).

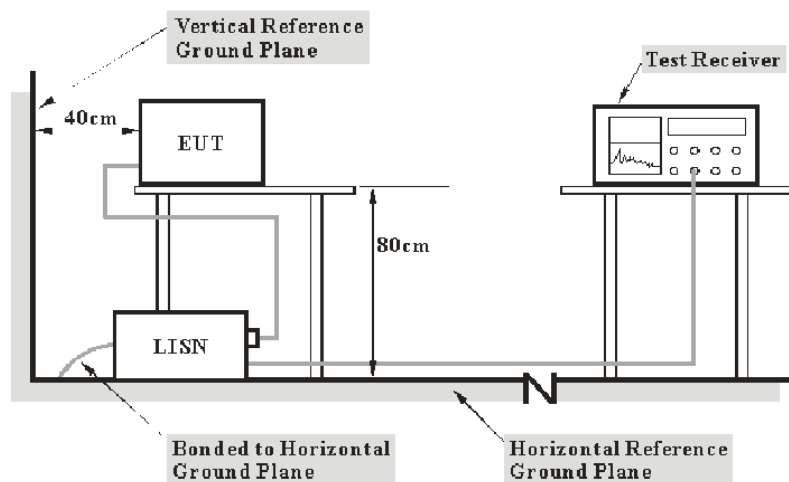
Frequency (MHz)	Maximum RF line voltage measured with a 50 μ H/50 ohm LISN (uV)
Non-consumer equipment:	
0.45 to 1.6	1,000
1.6 to 30	3,000
Consumer equipment:	
0.45 to 2.51	250
2.51 to 3.0	3,000
3.0 to 30	250

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on CISPR 16-4-2, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratories Corp. is 2.4 dB (k=2, 95% level of confidence).

EUT Setup



- Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with MP-5: 1986 measurement procedure. Specification used was with the FCC Part 18 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The EUT was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 450 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

<u><i>Frequency Range</i></u>	<u><i>IFBW</i></u>
450 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the EUT was connected to the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-Peak detection mode.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	100176	2010-11-24	2011-11-23
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2010-11-17	2011-11-16
Rohde & Schwarz	Pulse limiter	ESH3Z2	DE25985	2011-07-08	2012-07-07
BACL	CE Test software	BACL-CE	V1.0	-	-

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 18, with the worst margin reading of:

10.43 dB at 0.970 MHz in the Vertical conducted mode

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level is in compliance with the limit if

$$L_m + U_{(L_m)} \leq L_{lim} + U_{cispr} \\ \text{or } U_{(L_m)} \leq Margin + U_{cispr}$$

The measurement result of EUT is below the limit level by a margin 10.43 dB and $U_{(L_m)}(2.4\text{dB}) \leq Margin(10.43\text{dB}) + U_{cispr}(3.4\text{dB})$, so the EUT complies with the limit of the FCC Part 18 Class B.

Test Data

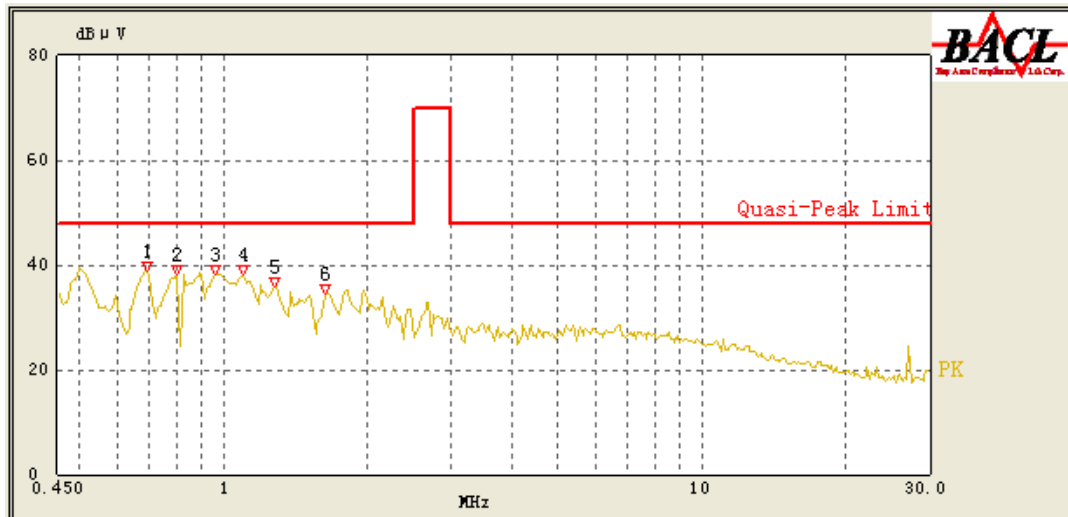
Environmental Conditions

Temperature:	25 °C
Relative Humidity:	48 %
ATM Pressure:	100.0 kPa

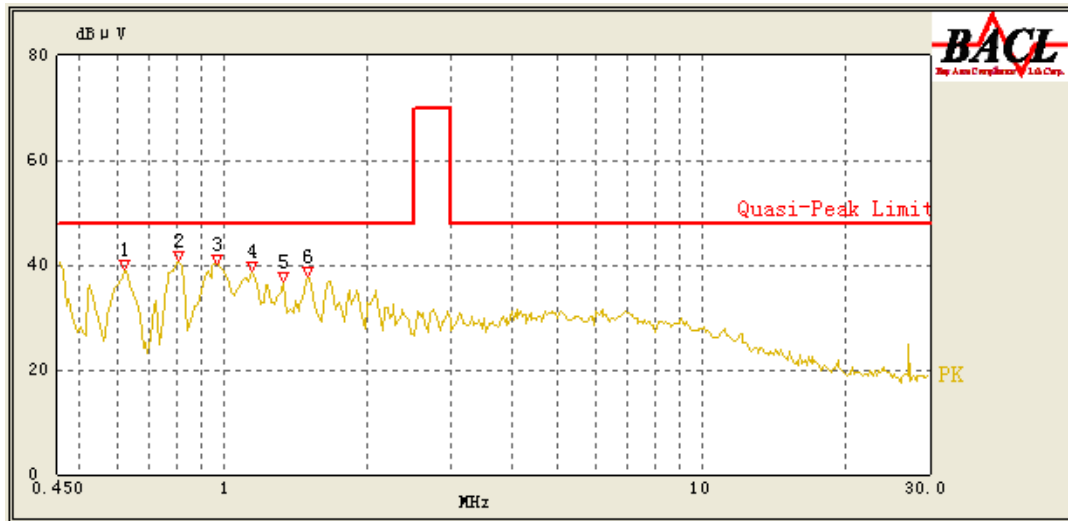
Testing was performed by Phase Zhang on 2011-09-23.

Test Mode: On

AC 120V/60 Hz, Line:



Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)
1.105	35.02	10.10	48.00	12.98
0.965	33.08	10.10	48.00	14.92
1.640	32.17	10.10	48.00	15.83
0.800	31.45	10.10	48.00	16.55
0.695	31.17	10.10	48.00	16.83
1.285	30.02	10.10	48.00	17.98

AC 120V/ 60 Hz, Neutral:

Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)
0.970	37.57	10.10	48.00	10.43
0.620	36.28	10.10	48.00	11.72
1.145	34.95	10.10	48.00	13.05
0.805	33.58	10.10	48.00	14.42
1.340	25.53	10.10	48.00	22.47
1.505	24.86	10.10	48.00	23.14

Note:

- 1) Corrected Amplitude = Reading + Correction Factor
- 2) Correction Factor = LISN/ISN VDF (Voltage Division Factor) + Cable Loss + Pulse Limiter Attenuation
The corrected factor has been input into the transducer of the test software.
- 3) Margin = Limit – Corrected Amplitude.

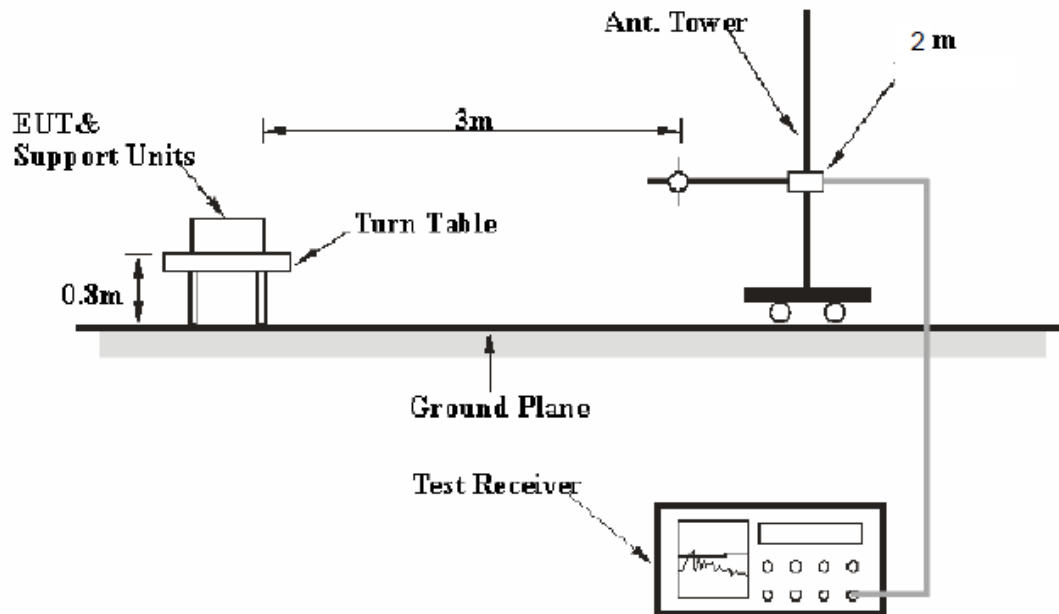
FCC §18.305 – FIELD STRENGTH

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in 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 CISPR 16-4-2, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is 4.0 dB ($k=2$, 95% level of confidence).

EUT Setup



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the FCC MP - 5.

The EUT was connected to 120 VAC/60 Hz power source.

EMI Test Receiver Setup and Spectrum Analyzer Setup

The system was investigated from 9 kHz to 30 MHz.

During the radiated emission test, the EMI test receiver and Spectrum Analyzer were set with the following configurations:

<i>Frequency Range</i>	<i>R B/W</i>	<i>Video B/W</i>	<i>IF B/W</i>
9kHz– 150kHz	300 Hz	1 kHz	200Hz
150kHz– 30 MHz	10 kHz	30 kHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ETS-LINDGREN	Passive Loop Antenna	6512	00029604	2010-11-30	2011-11-29
Rohde & Schwarz	EMI Test Receiver	ESCI	101122	2010-11-17	2011-11-16

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

Test Procedure

During the conducted emission test, the EUT was connected to the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak detection mode from 9 kHz to 30 MHz.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	48 %
ATM Pressure:	100.0 kPa

The testing was performed by Phase Zhang on 2011-09-23.

Test Mode: On

Frequency (MHz)	Reading (dBμA/m)	Detector (PK/QP/ AV)	Direction (Degree)	Height (m)	Antenna Factor (dB S/m)	Cable Loss (dB)	Corrected Amplitude		Limit (dBμV/m)	Margin (dB)
							dBμA/m	dBμV/m		
0.0112	-38.12	QP	74.00	2.00	35.1	0.1	-2.92	48.58	63.5	14.92
0.0129	-37.75	QP	149.00	2.00	34.9	0.1	-2.75	48.75	63.5	14.75
0.0234	-38.74	QP	7.00	2.00	28.0	0.1	-10.64	40.86	63.5	22.64
0.1011	-35.51	QP	124.00	2.00	14.2	0.1	-21.21	30.29	63.5	33.21
0.1171	-35.03	QP	23.00	2.00	13.7	0.1	-21.23	30.27	63.5	33.23
4.5100	-30.69	QP	173.00	2.00	-15.6	0.1	-36.19	15.31	63.5	48.19

Note:

- 1) $dB\mu V/m = dB\mu A/m + 51.5$
- 2) Corrected Amplitude = Meter Reading + Correction Factor
- 3) Correction Factor = Antenna Factor + Cable Loss
- 4) Margin = Limit – Corrected Amplitude

****END OF REPORT****