



FCC PART 18

EMI MEASUREMENT AND TEST REPORT

For
Dongguan City Howin Decoration Products Co., Ltd

Xiaohu Industrial Area, Daojiao Town, Dongguan City, Guangdong, China.

FCC ID: WG52005070820088

Product Name:	<u>GU-24 Self Ballasted Lamps</u>
Model No:	<u>HW-GU24-13W/HW-GU24-26W/HW-GU24-40W</u>
Sample Received Date:	<u>Jun 10, 2008</u>
Test Performed Date:	<u>Jun 16, 2008</u>
Test Engineer:	<u>Paul Tan</u> 
Reviewed By:	<u>Chris Zeng</u> 
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Note: The test report is specially limited to the above company and the product model only, it may not be duplicated without prior written consent of Best Test Service (Shenzhen) Co., Ltd.

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.....	4
JUSTIFICATION	4
SCHEMATICS / BLOCK DIAGRAM.....	4
EQUIPMENT MODIFICATIONS	4
CONFIGURATION OF TEST SYSTEM	4
TEST SETUP BLOCK DIAGRAM	4
CONDUCTED EMISSIONS TEST DATA.....	5
APPLICABLE STANDARD	5
MEASUREMENT UNCERTAINTY.....	5
EUT SETUP	5
TEST EQUIPMENTS	6
TEST PROCEDURE	6
SUMMARY OF TEST RESULTS	6
CONDUCTED EMISSIONS TEST DATA AND PLOTS.....	6

GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The Dongguan City Howin Decoration Products Co., Ltd's model HW-GU24-13W/HW-GU24-26W/HW-GU24-40W or the "EUT" as referred to in this report are GU-24 Self Ballasted Lamps, rated input voltage: AC 120V/60Hz.

The test data was only good for the test sample. It may have deviation for other test sample.

Objective

The following test report is prepared on behalf of Dongguan City Howin Decoration Products 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 demonstrate compliance with FCC Part 18 limit requirements for Industrial, Scientific, and Medical Equipment.

Related Submittal(s)/Grant(s)

No Related Submittals.

Test Methodology

All measurements contained in this report were conducted with MP-5 1986, FCC Method of measurements of radio noise emission from Industrial, Scientific and Medical equipments.

Test Facility

All measurement facilities used to collect the data are located at Huatongwei Building , Keji Rd, 12 S, high-Tech Park, Nanshan District, Shenzhen, China.

The sites are constructed in conformance with the requirements of ANSI C63.7/634 and CISPR 22, The site was accredited by FCC (662850), A2LA(2243.01) and CNAL (L1225)

SYSTEM TEST CONFIGURATION

Justification

The EUT was tested under normal mode as used by a common (typical) user.

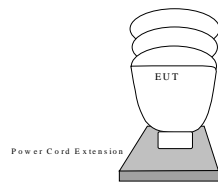
Schematics / Block Diagram

N/A

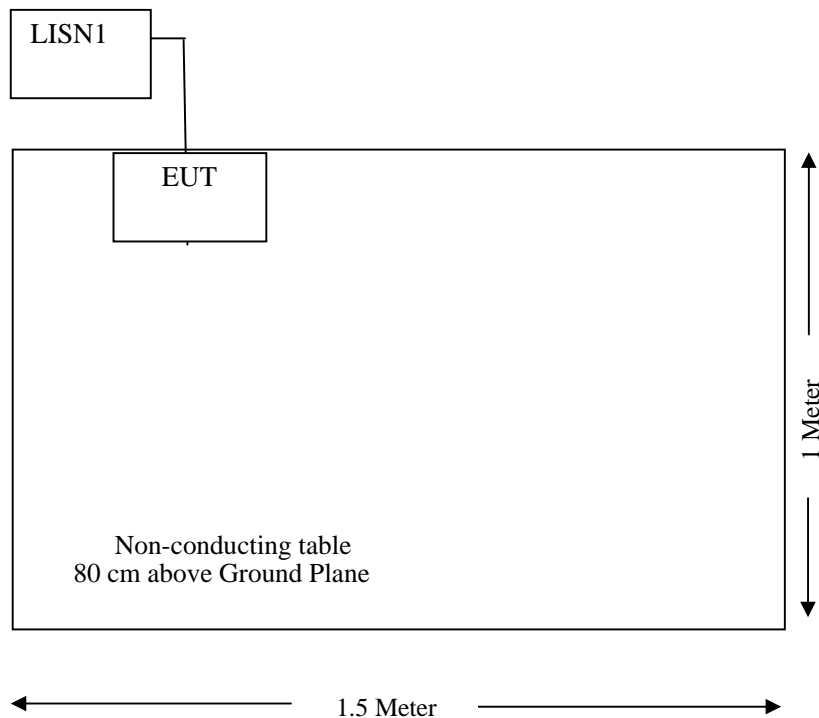
Equipment Modifications

No modifications were made by BEST TEST SERVICE (SHENZHEN) CO., LTD. to ensure the EUT to comply with the application limits and requirements.

Configuration of Test System



Test Setup Block Diagram



CONDUCTED EMISSIONS TEST DATA

Applicable Standard

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).

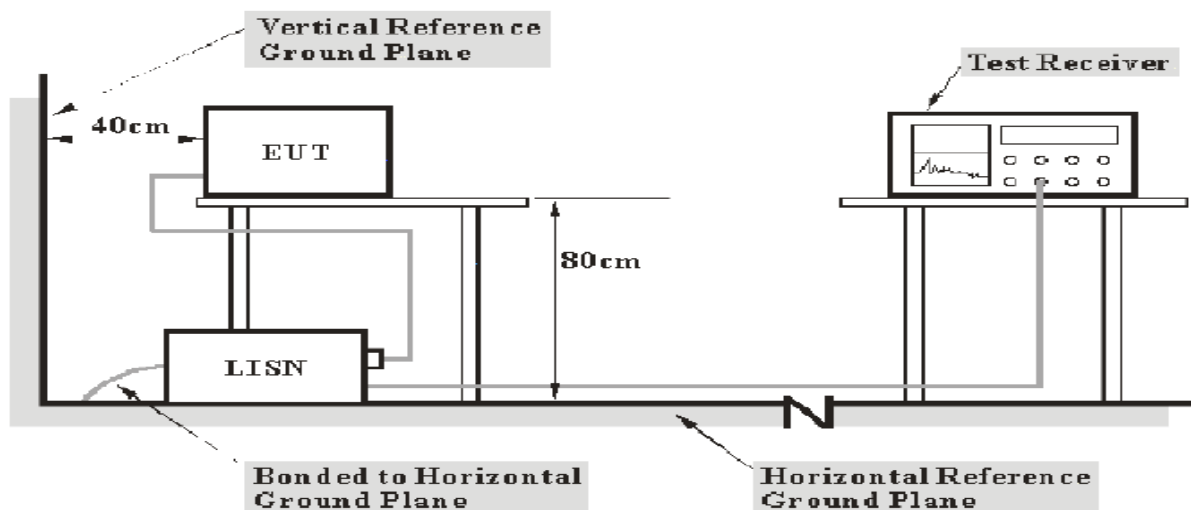
Frequency Range (MHz)	Max RF Voltage (μ V)	Max RF Voltage (dB μ V)
Non-consumer equipment		
0.45 to 1.6	1,000	60.0
1.6 to 30	3,000	69.0
Consumer equipment		
0.45 to 2.51	250	48.0
2.51 to 3.0	3000	69.0
3.0 to 30	250	48.0

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMI. The factors contributing to uncertainties are EMI Test Receiver, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMI Measurements, the best estimate of the uncertainty of any conducted emissions measurement at BEST TEST SERVICE (SHENZHEN) CO., LTD. is ± 2.0 dB.

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 measurement procedure. The specification used was the FCC Part 18 limits.

The EUT was connected to the power cord extension and placed on the left of the back edge on the test table.

The power cord extension was connected with 120 VAC/60 Hz power source.

Test Equipments

Manufacturer	Description	Model	Serial Number	Cal. Date	Cal. Due.Date
ROHDE & SCHWARZ	EMI TEST RECEIVER	ESCS30	100038	2007-08-05	2008-08-05
ROHDE & SCHWARZ	L.I.S.N	ESH2-Z5	100028	2007-08-05	2008-08-05
ROHDE & SCHWARZ	Pulse Limiter	ESHSZ2	100044	2007-08-05	2008-08-05

Statement of traceability: BEST attests that all calibrations have been performed per the CNAL /A2LA requirements, traceable to NIM China

Test Procedure

During the conducted emission test, the power cord of the power cord extension was connected to the auxiliary outlet of the first LISN.

Maximizing procedure was performed on the six (6) highest emissions to ensure that the EUT is compliant with all installation combination.

All data was recorded in the peak detection mode. Quasi-peak readings were only performed when an emission was found to be marginal (within 4 dB μ V of specification limits). Quasi-peak readings are distinguished with a "Qp".

The EUT was tested under the normal modes during the final qualification test to represent the worst-case results.

Summary of Test Results

Pass

The EUT complied with the FCC 18 Conducted margin for industry, scientific and medical device, and with the worst margin reading of:

8.2 dB μ V at 0.0500 MHz in the live mode for HW-GU24-13W

5.0 dB μ V at 0.459 MHz in the live mode for HW-GU24-26W

2.0 dB μ V at 0.722 MHz in the live mode for HW-GU24-40W

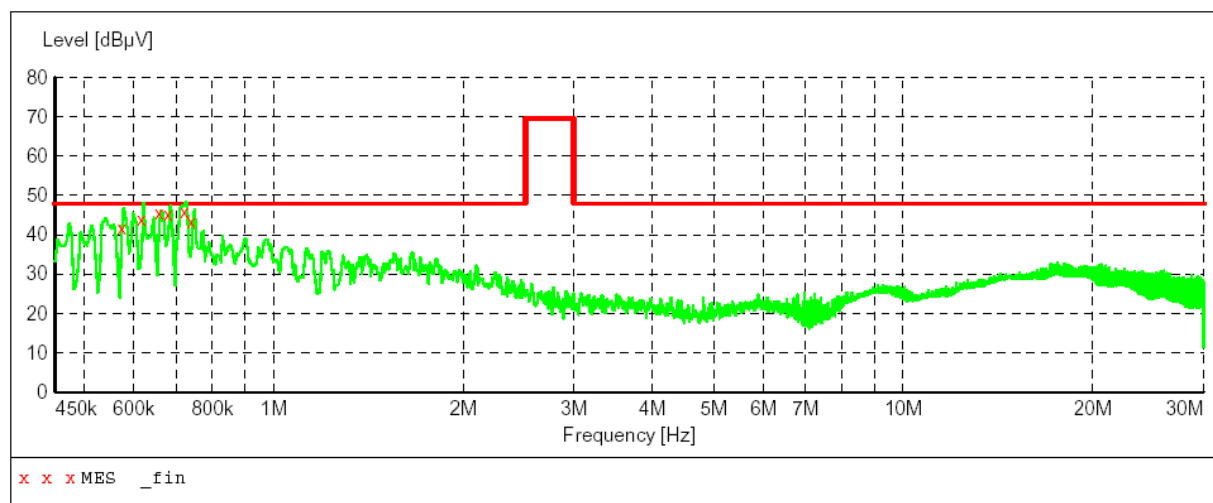
Conducted Emissions Test Data and Plots

BEST TEST SERVICE SHENZHEN CO., LTD**Voltage Mains Test FCC PART 18**

EUT: GU24 Self Ballasted Lamp M/N:WHW-GU24-40W
Manufacturer: Howin
Operating Condition: ON
Test Site: SHIELDED ROOM
Operator: Paul
Test Specification: AC 120V/60Hz
Comment:
Start of Test: 6/16/2008

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT:**

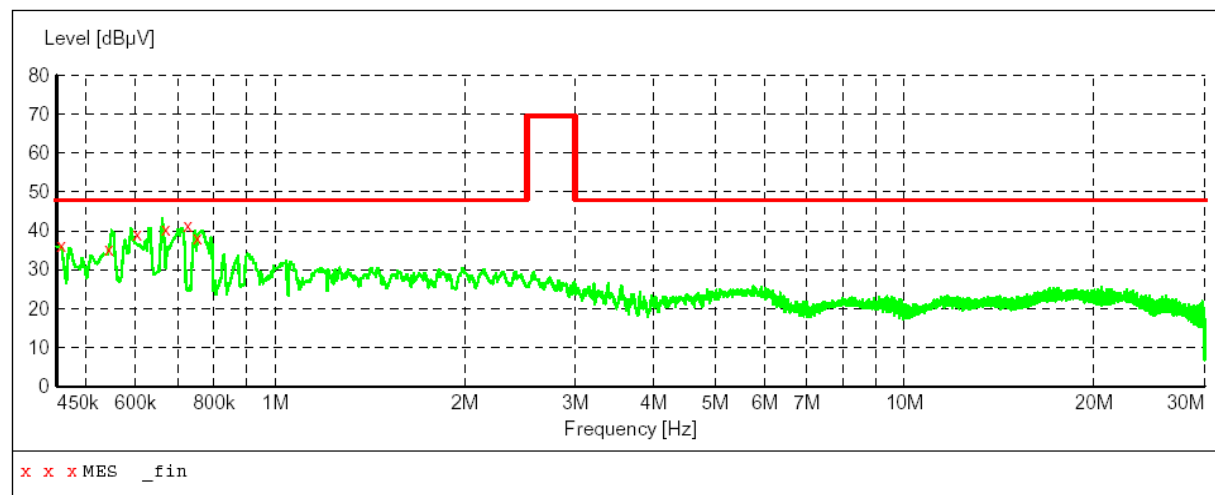
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.574000	41.80	10.1	48	6.1	QP	L1	GND
0.616000	44.10	10.1	48	3.8	QP	L1	GND
0.658000	45.70	10.1	48	2.2	QP	L1	GND
0.680000	45.30	10.1	48	2.6	QP	L1	GND
0.722000	45.90	10.1	48	2.0	QP	L1	GND
0.740000	43.40	10.1	48	4.5	QP	L1	GND

BEST TEST SERVICE SHENZHEN CO.,LTD**Voltage Mains Test FCC PART 18**

EUT: GU24 Self Ballasted Lamp M/N:WHW-GU24-40W
Manufacturer: Howin
Operating Condition: ON
Test Site: SHIELDED ROOM
Operator: Paul
Test Specification: AC 120V/60Hz
Comment:
Start of Test: 6/16/2008

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT:**

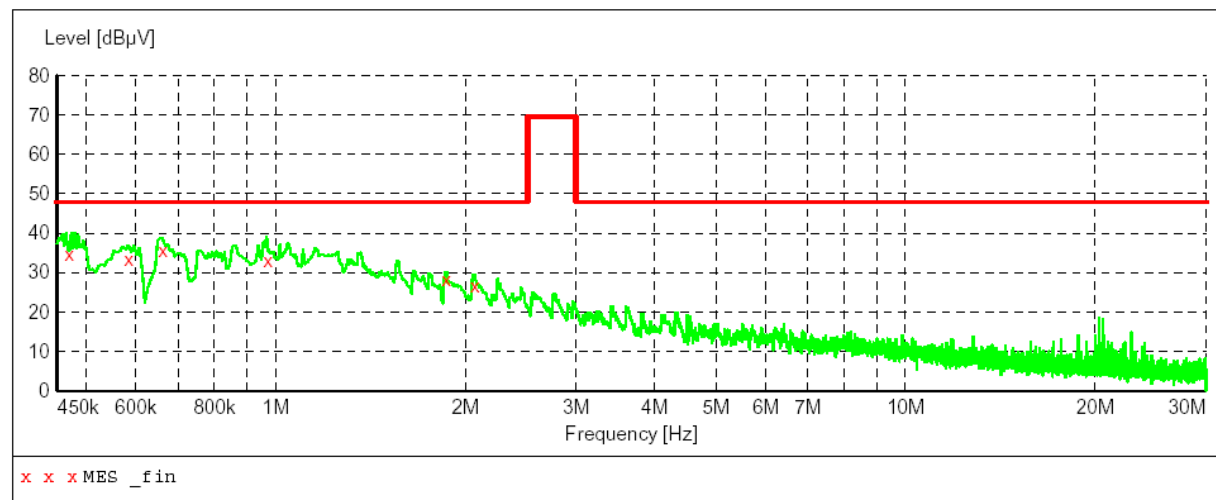
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.458000	36.40	10.1	48	11.5	QP	N	GND
0.544000	35.20	10.1	48	12.7	QP	N	GND
0.604000	39.30	10.1	48	8.6	QP	N	GND
0.670000	40.60	10.1	48	7.3	QP	N	GND
0.726000	41.50	10.1	48	6.4	QP	N	GND
0.752000	38.30	10.1	48	9.6	QP	N	GND

BEST TEST SERVICE SHENZHEN CO.,LTD**Voltage Mains Test FCC Part 18**

EUT: GU24 Self Ballasted Lamp M/N:WHW-GU24-26W
Manufacturer: Howin
Operating Condition: ON
Test Site: 3# SHIELDED ROOM
Operator: Paul
Test Specification: AC 120V/60Hz
Comment:
Start of Test: 6/16/2008

SCAN TABLE: "Voltage (9K-30M)OP"

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT:**

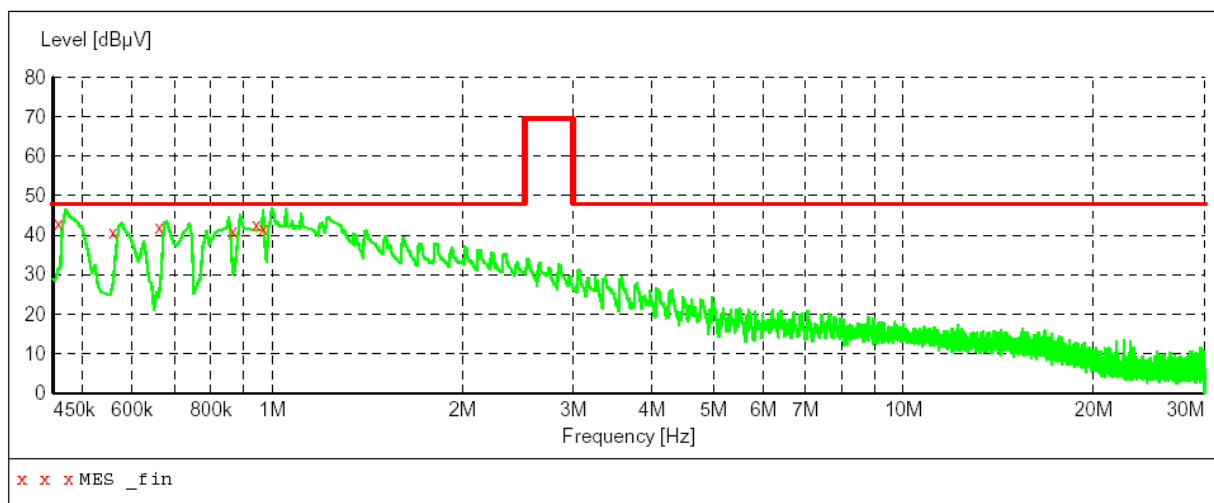
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.471000	34.60	10.1	48	13.3	QP	N	GND
0.584000	33.50	10.1	48	14.4	QP	N	GND
0.662000	35.70	10.1	48	12.2	QP	N	GND
0.974000	33.20	10.2	48	14.7	QP	N	GND
1.868000	28.10	10.2	48	19.8	QP	N	GND
2.072000	26.70	10.2	48	21.2	QP	N	GND

BEST TEST SERVICE SHENZHEN CO.,LTD**Voltage Mains Test FCC Part 18**

EUT: GU24 Self Ballasted Lamp M/N:WHW-GU24-26W
Manufacturer: Howin
Operating Condition: ON
Test Site: 3# SHIELDED ROOM
Operator: Paul
Test Specification: AC 120V/60Hz
Comment:
Start of Test: 6/16/2008

SCAN TABLE: "Voltage (9K-30M)OP"

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT:**

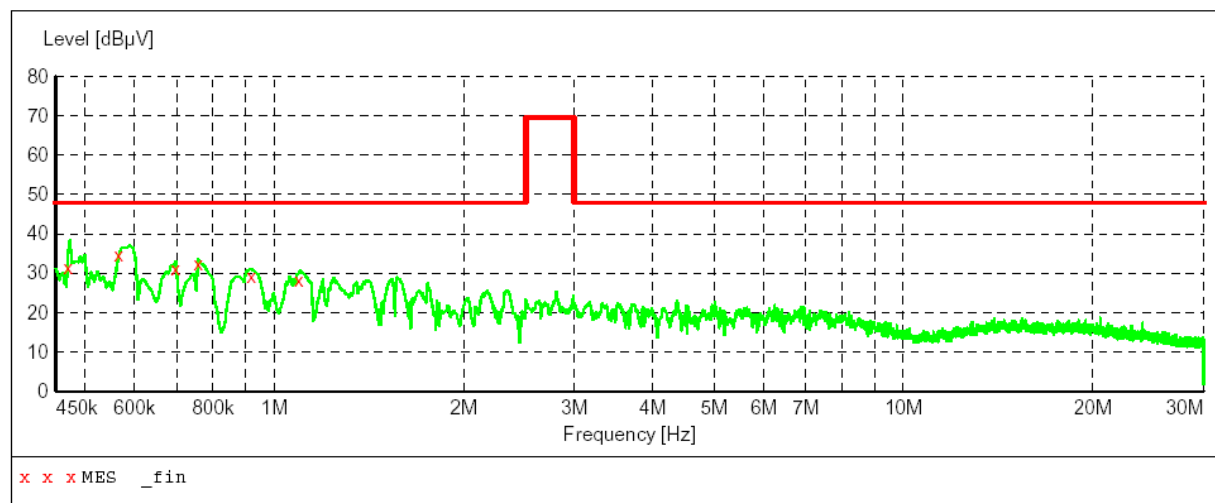
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.459000	42.90	10.1	48	5.0	QP	L1	GND
0.560000	40.80	10.1	48	7.1	QP	L1	GND
0.662000	42.20	10.1	48	5.7	QP	L1	GND
0.866000	41.10	10.1	48	6.8	QP	L1	GND
0.944000	42.80	10.1	48	5.1	QP	L1	GND
0.968000	41.60	10.2	48	6.3	QP	L1	GND

BEST TEST SERVICE SHENZHEN CO.,LTD**Voltage Mains Test FCC Part 18**

EUT: GU24 Self Ballasted Lamp M/N:WHW-GU24-13W
Manufacturer: Howin
Operating Condition: ON
Test Site: 3# SHIELDED ROOM
Operator: Paul
Test Specification: AC 120V/60Hz
Comment:
Start of Test: 6/16/2008

SCAN TABLE: "Voltage (9K-30M)QP"

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT:**

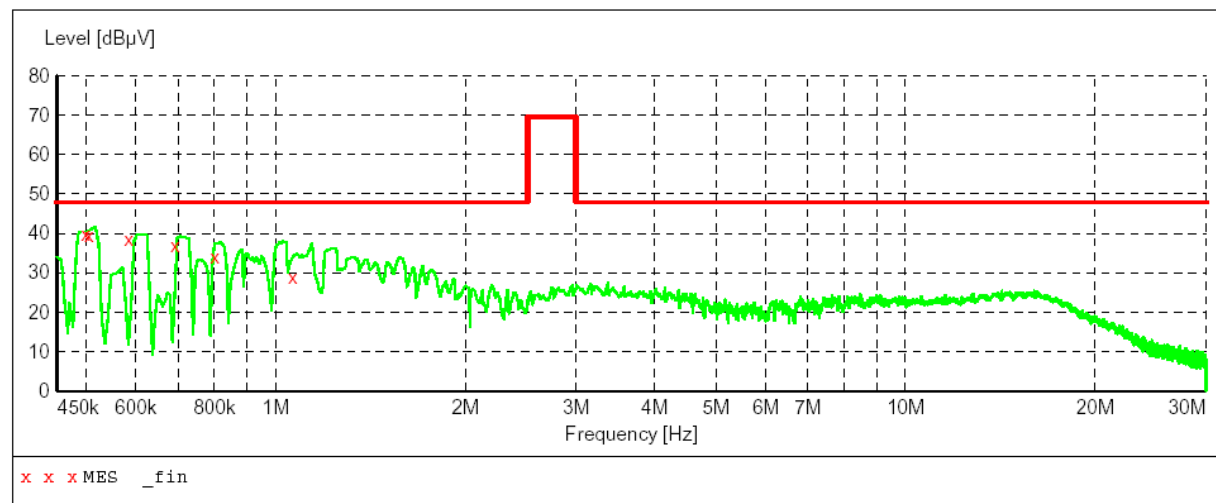
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.471000	31.40	10.1	48	16.5	QP	N	GND
0.566000	34.60	10.1	48	13.3	QP	N	GND
0.698000	31.10	10.1	48	16.8	QP	N	GND
0.758000	32.40	10.1	48	15.5	QP	N	GND
0.920000	29.20	10.1	48	18.7	QP	N	GND
1.094000	28.10	10.2	48	19.8	QP	N	GND

BEST TEST SERVICE SHENZHEN CO.,LTD**Voltage Mains Test FCC Part 18**

EUT: GU24 Self Ballasted Lamp M/N:WHW-GU24-13W
Manufacturer: Howin
Operating Condition: ON
Test Site: 3# SHIELDED ROOM
Operator: Paul
Test Specification: AC 120V/60Hz
Comment:
Start of Test: 6/16/2008

SCAN TABLE: "Voltage (9K-30M)QP"

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT:**

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.500000	39.70	10.1	48	8.2	QP	L1	GND
0.506000	39.40	10.1	48	8.5	QP	L1	GND
0.584000	38.40	10.1	48	9.5	QP	L1	GND
0.692000	37.00	10.1	48	10.9	QP	L1	GND
0.800000	33.90	10.1	48	14.0	QP	L1	GND
1.064000	28.80	10.2	48	19.1	QP	L1	GND