

FCC PART 18 EMI MEASUREMENT AND TEST REPORT

For
Leedarson Lighting (Xiamen) Co., Ltd.
Caitang Industrial Zone, Lvling Road, Xiamen, China

FCC ID: VRZ091320

Mar 26, 2010

Product Name:	CFL
Model No:	NHSI20 NHSAR13 NHSAR09 NHSCT13
Sample	
Received Date:	Mar 20, 2010
Test	
Performed Date:	Mar 25, 2010
Test Engineer:	David Zhang <i>David Zhang</i>
Reviewed By:	Steven Hsu <i>Steven Hsu</i>
Prepared By:	BEST Test Service Shenzhen Co., Ltd. C, 310-316, Huameiju Business Center, 82 Block, Baoan District, Shenzhen, China TEL: +86-755-28236006 FAX: +86-755-28236249 Email: certification@bestcert.cn



NVLAP LAB CODE 200770-0

Note: The test report only allows to be revised within the retention period unless further standard or the requirement was noticed. This report is for the exclusive use of BEST's Client and is provided pursuant to the agreement between BEST and its Client. BEST's responsibility and Liability are limited to the terms and conditions of the agreement. BEST assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the BEST name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by BEST. The observations and test results in this report are relevant only to the sample tested. This report by itself does not that the material, product, of service is or has ever been under an BEST certification program. National Voluntary Laboratory Accreditation Program (NVLAP) has accredited this laboratory under ISO17025: 2005 for specific laboratory activities as listed in the NVLAP directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.

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 7

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The Leedarson Lighting (Xiamen) Co., Ltd.'s model NHSI20 NHSAR13 NHSAR09 NHSCT13 or the "EUT" as referred to in this report is CFL, rated input voltage: AC 120V/60Hz, operation frequency between 40 KHz to 60 KHz.

Model	NHSI20	Electrical Power	20W
Model	NHSAR13	Electrical Power	13W
Model	NHSAR09	Electrical Power	9W
Model	NHSCT13	Electrical Power	13W

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 Leedarson Lighting (Xiamen) 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.

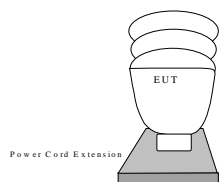
Schematics / Block Diagram

N/A.

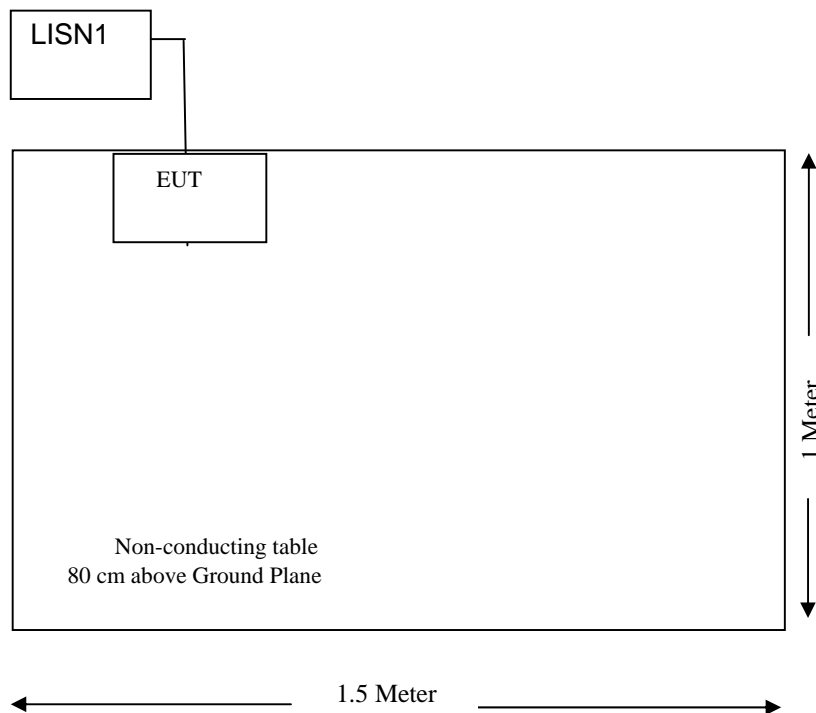
Equipment Modifications

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).

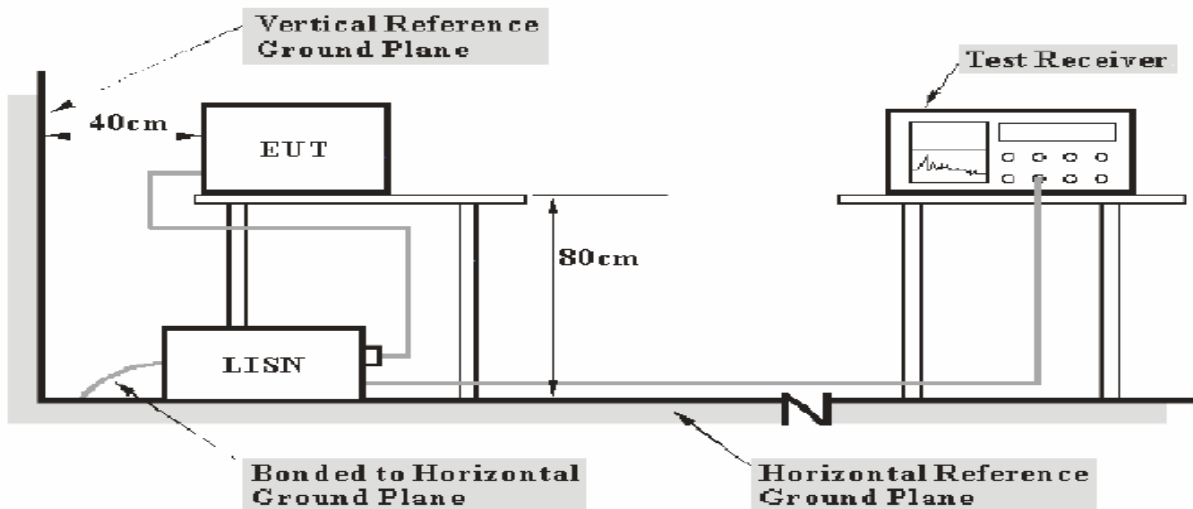
Frequency Range (MHz)	Max RF Voltage (μ V)	Max RF Voltage (dBuV)
Non-consumer equipment		
0.45 to 1.6	1,000	60.0
1.6 to 30	3,000	69.0
Consumer equipment		
0.45 to 2.51	250	48.0
2.51 to 3.0	3000	69.0
3.0 to 30	250	48.0

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	2009-08-05	2010-08-05
ROHDE & SCHWARZ	L.I.S.N	ESH2-Z5	100028	2009-08-05	2010-08-05
ROHDE & SCHWARZ	Pulse Limiter	ESHSZ2	100044	2009-08-05	2010-08-05

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:

Conducted Emissions Test Data and Plots

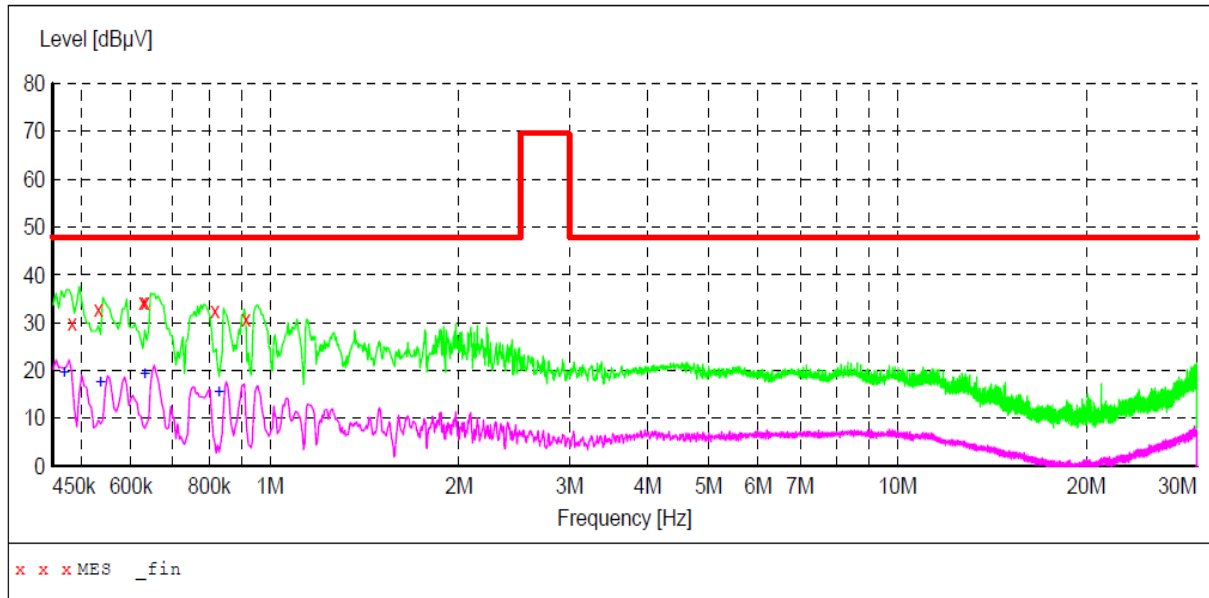
BEST TEST SERVICE SHENZHEN CO.,LTD

Voltage Mains Test FCC Part 18

EUT: CFL M/N:NHSAR09
 Manufacturer: Leedarson
 Operating Condition: ON
 Test Site: 3# SHIELDED ROOM
 Operator: Paul
 Test Specification: AC 120V/60Hz
 Comment: L
 Start of Test: 3/25/2010

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
0.483000	29.80	10.1	48	18.1	QP	L1	GND
0.532500	32.80	10.1	48	15.1	QP	L1	GND
0.627000	34.30	10.1	48	13.6	QP	L1	GND
0.631500	34.20	10.1	48	13.7	QP	L1	GND
0.816000	32.70	10.1	48	15.2	QP	L1	GND
0.915000	30.70	10.1	48	17.2	QP	L1	GND

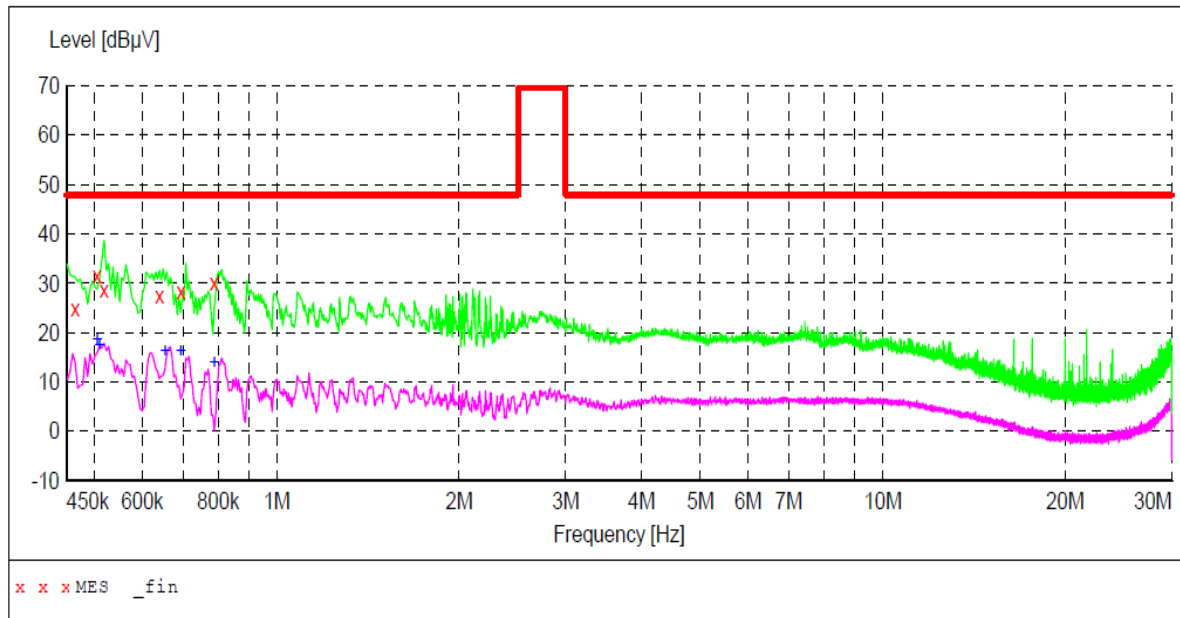
BEST TEST SERVICE SHENZHEN CO.,LTD

Voltage Mains Test FCC Part 18

EUT: CFL M/N:NHSAR09
 Manufacturer: Leedarson
 Operating Condition: ON
 Test Site: 3# SHIELDED ROOM
 Operator: Paul
 Test Specification: AC 120V/60Hz
 Comment:
 Start of Test: 3/25/2010

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
0.465000	25.00	10.1	48	22.9	QP	N	GND
0.505500	31.70	10.1	48	16.2	QP	N	GND
0.519000	28.80	10.1	48	19.1	QP	N	GND
0.640500	27.40	10.1	48	20.5	QP	N	GND
0.694500	28.50	10.1	48	19.4	QP	N	GND
0.789000	30.20	10.1	48	17.7	QP	N	GND

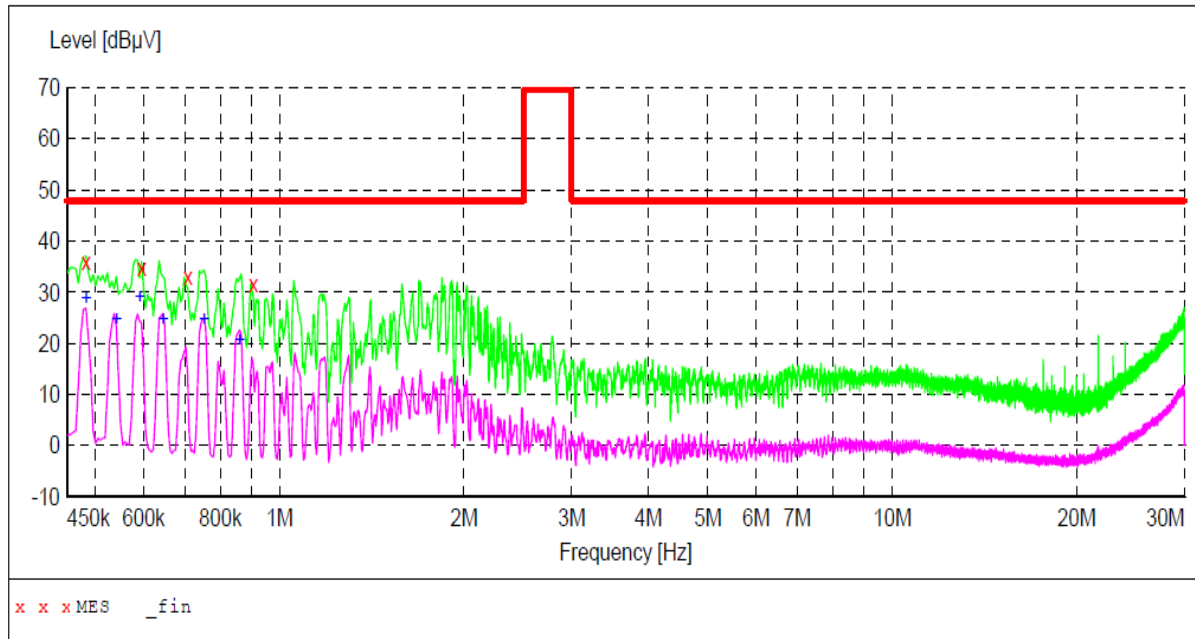
BEST TEST SERVICE SHENZHEN CO.,LTD

Voltage Mains Test FCC Part 18

EUT: CFL M/N:NHSAR13
 Manufacturer: Leedarson
 Operating Condition: ON
 Test Site: 3# SHIELDED ROOM
 Operator: Paul
 Test Specification: AC 120V/60Hz
 Comment: N
 Start of Test: 3/25/2010

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
0.483000	36.00	10.1	48	11.9	QP	N	GND
0.595500	34.90	10.1	48	13.0	QP	N	GND
0.708000	33.20	10.1	48	14.7	QP	N	GND
0.906000	31.60	10.1	48	16.3	QP	N	GND

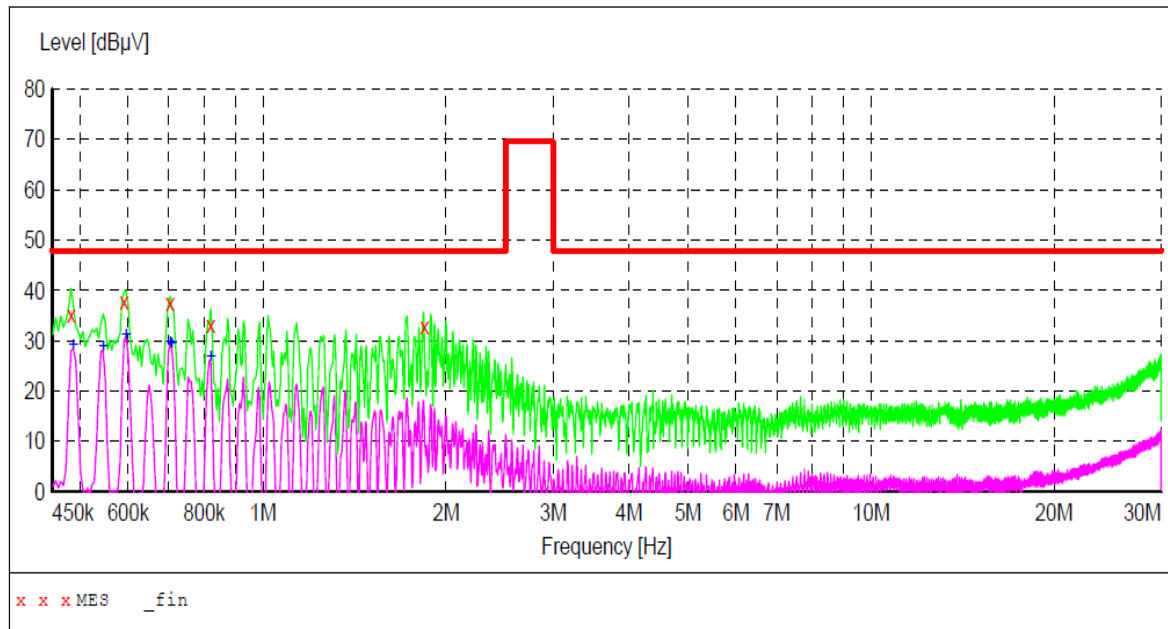
BEST TEST SERVICE SHENZHEN CO.,LTD

Voltage Mains Test FCC Part 18

EUT: CFL M/N:NHSAR13
 Manufacturer: Leedarson
 Operating Condition: ON
 Test Site: 3# SHIELDED ROOM
 Operator: Paul
 Test Specification: AC 120V/60Hz
 Comment: L
 Start of Test: 3/25/2010

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
0.483000	35.10	10.1	48	12.8	QP	L1	GND
0.591000	37.80	10.1	48	10.1	QP	L1	GND
0.703500	37.40	10.1	48	10.5	QP	L1	GND
0.820500	33.00	10.1	48	14.9	QP	L1	GND
1.842000	32.90	10.2	48	15.0	QP	L1	GND

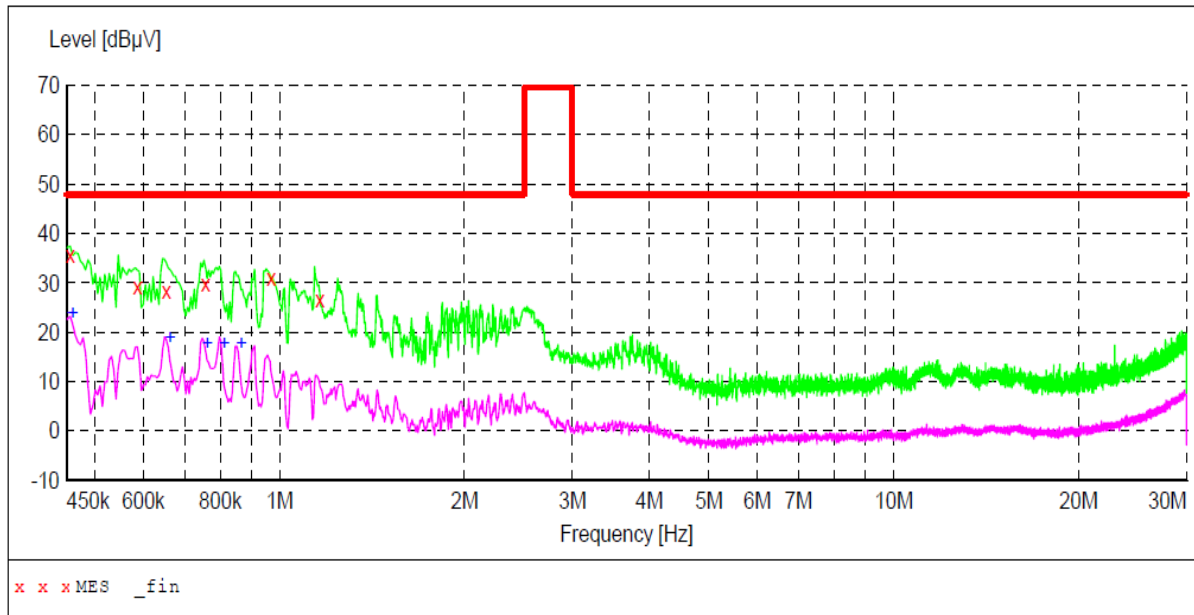
BEST TEST SERVICE SHENZHEN CO.,LTD

Voltage Mains Test FCC Part 18

EUT: CFL M/N:NHSCT13
 Manufacturer: Leedarson
 Operating Condition: ON
 Test Site: 3# SHIELDED ROOM
 Operator: Paul
 Test Specification: AC 120V/60Hz
 Comment:
 Start of Test: 3/25/2010

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

Short Description: 150K-30M Voltage



MEASUREMENT RESULT:

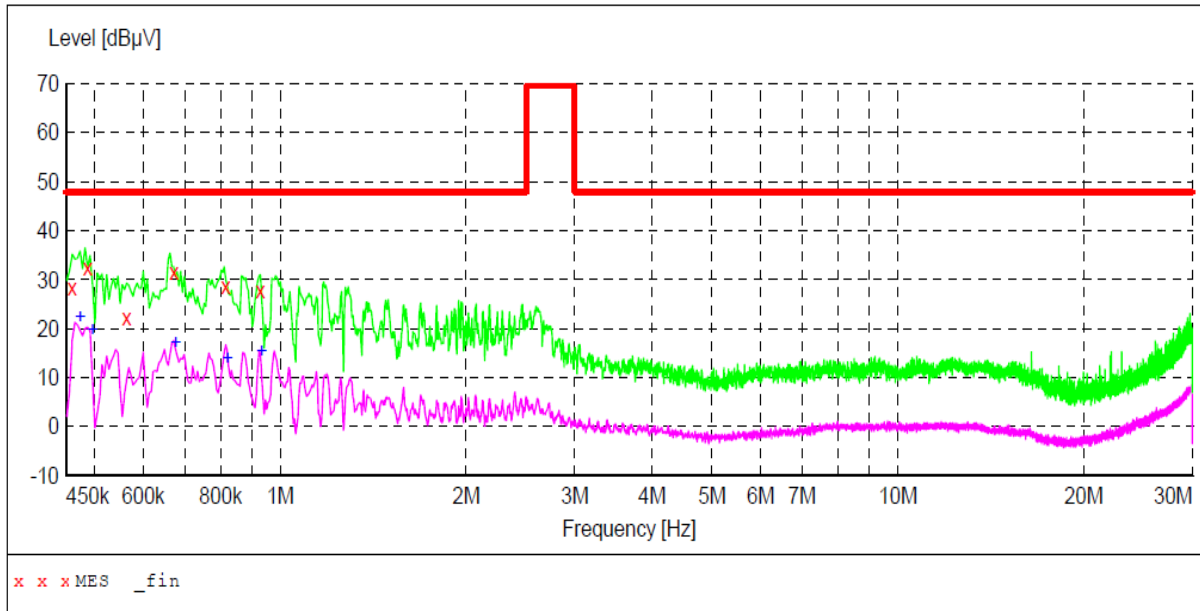
Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.456000	35.80	10.1	48	12.1	QP	N	GND
0.586500	29.40	10.1	48	18.5	QP	N	GND
0.654000	28.40	10.1	48	19.5	QP	N	GND
0.757500	29.70	10.1	48	18.2	QP	N	GND
0.969000	30.90	10.1	48	17.0	QP	N	GND
1.162500	26.70	10.2	48	21.2	QP	N	GND

BEST TEST SERVICE SHENZHEN CO., LTD

Voltage Mains Test FCC Part 18

EUT: CFL M/N:NHSCT13
 Manufacturer: Leedarson
 Operating Condition: ON
 Test Site: 3# SHIELDED ROOM
 Operator: Paul
 Test Specification: AC 120V/60Hz
 Comment:
 Start of Test: 3/25/2010

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
0.460500	28.50	10.1	48	19.4	QP	L1	GND
0.487500	32.50	10.1	48	15.4	QP	L1	GND
0.564000	22.40	10.1	48	25.5	QP	L1	GND
0.672000	31.60	10.1	48	16.3	QP	L1	GND
0.816000	28.60	10.1	48	19.3	QP	L1	GND
0.928500	27.80	10.1	48	20.1	QP	L1	GND

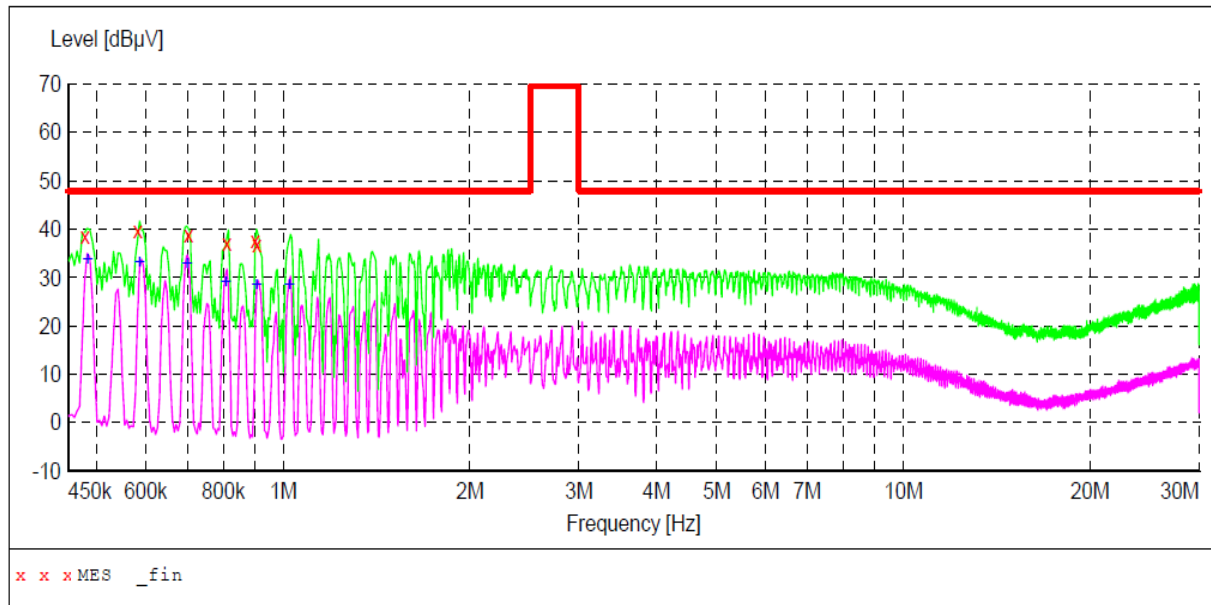
BEST TEST SERVICE SHENZHEN CO.,LTD

Voltage Mains Test FCC Part 18

EUT: CFL M/N:NHSI20
 Manufacturer: Leedarson
 Operating Condition: ON
 Test Site: 3# SHIELDED ROOM
 Operator: Paul
 Test Specification: AC 120V/60Hz
 Comment: L1
 Start of Test: 3/25/2010

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

Short Description: 150K-30M Voltage



MEASUREMENT RESULT:

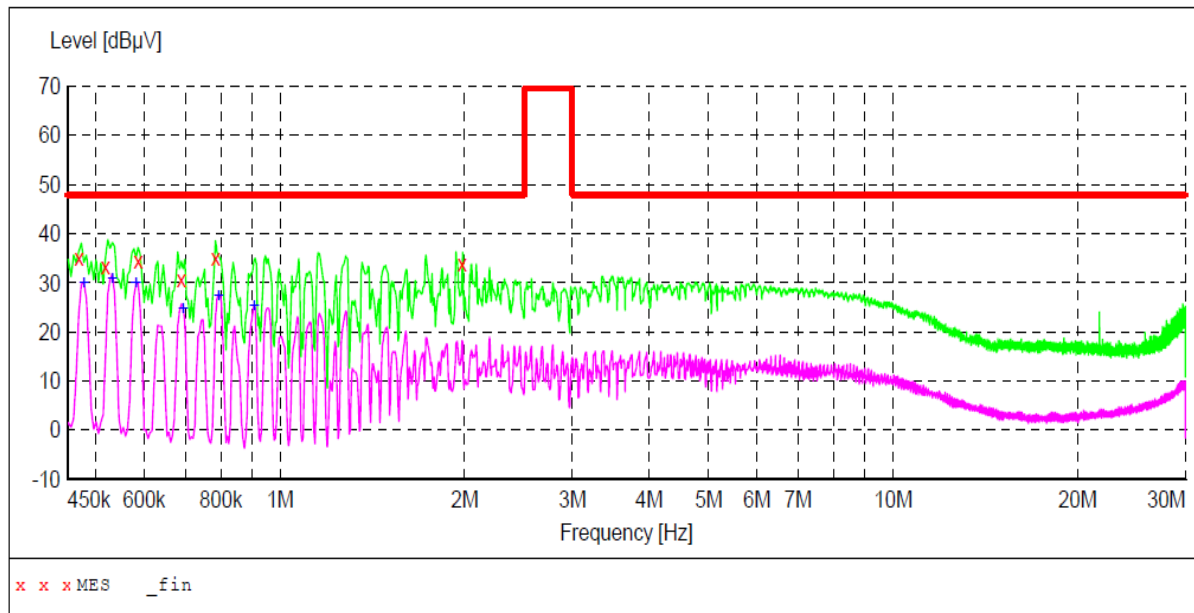
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.478500	38.60	10.1	48	9.3	QP	L1	GND
0.582000	39.80	10.1	48	8.1	QP	L1	GND
0.703500	38.90	10.1	48	9.0	QP	L1	GND
0.811500	37.10	10.1	48	10.8	QP	L1	GND
0.901500	37.60	10.1	48	10.3	QP	L1	GND
0.906000	36.80	10.1	48	11.1	QP	L1	GND

BEST TEST SERVICE SHENZHEN CO., LTD

Voltage Mains Test FCC Part 18

EUT: CFL M/N:NHSI20
 Manufacturer: Leedarson
 Operating Condition: ON
 Test Site: 3# SHIELDED ROOM
 Operator: Paul
 Test Specification: AC 120V/60Hz
 Comment: L1
 Start of Test: 3/25/2010

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
0.469500	35.00	10.1	48	12.9	QP	N	GND
0.519000	33.50	10.1	48	14.4	QP	N	GND
0.586500	34.40	10.1	48	13.5	QP	N	GND
0.690000	30.80	10.1	48	17.1	QP	N	GND
0.784500	35.00	10.1	48	12.9	QP	N	GND
1.981500	34.00	10.2	48	13.9	QP	N	GND