



NVLAP LAB CODE 200707-0



## FCC PART 18

### MEASUREMENT AND TEST REPORT

For

### HESHAN LED ELECTRONIC INDUSTRY CO., LTD

EAST INDUSTRIAL AREA, Gonghe Town, 529728 Heshan,

Guangdong, China

**FCC ID: WN4ELT-N9**

<b>Report Type:</b> Original Report	<b>Product Type:</b> CFL
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<b>Report Number:</b> RSZ08102951	
<b>Report Date:</b> 2008-11-25	
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\* This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk "\*" (Rev.2)

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## GENERAL INFORMATION

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### Product Description for Equipment under Test (EUT)

The HESHAN LED ELECTRONIC INDUSTRY CO., LTD's model: *ELT-N918*, *ELT-N920*, *ELT-N923*, or the "EUT" as referred to in this report is a CFL which measures approximately: *ELT-N918*: 6.0 cm L x 6.0 cm W x 14.2 cm H, *ELT-N920*: 6.0 cm L x 6.0 cm W x 14.5 cm H, *ELT-N923*: 6.0 cm L x 6.0 cm W x 15.3 cm H, rated input voltage: AC 120V/60Hz.

*\* All measurement and test data in this report was gathered from production sample serial number: 0810534 (Assigned by BACL, Shenzhen). The EUT was received on 2008-10-29.*

### Objective

The following test report is prepared on behalf of HESHAN LED ELECTRONIC INDUSTRY 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. (Shenzhen). 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 in 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 November 04, 2004. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

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 a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



NVLAP LAB CODE 200707-0

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

## SYSTEM TEST CONFIGURATION

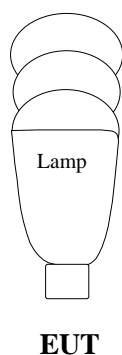
### Justification

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

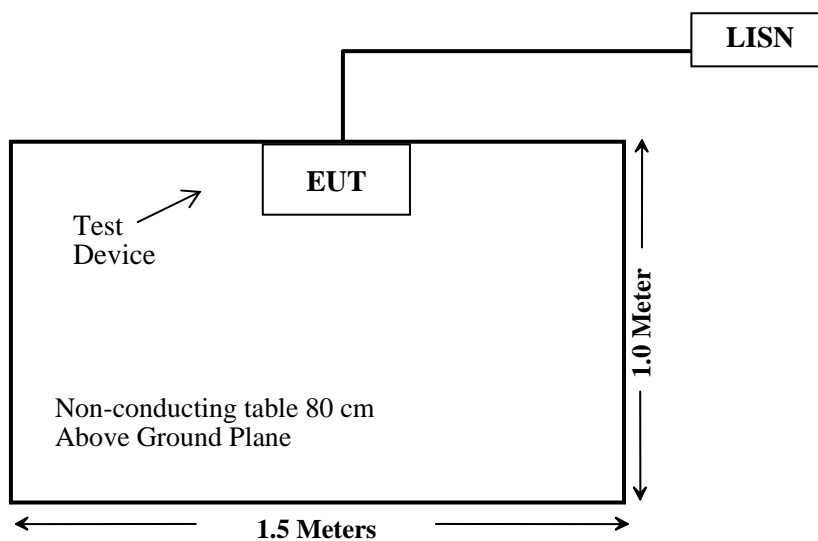
### Equipment Modifications

No modifications were made to the unit tested.

### Configuration of Test Setup



### Block Diagram of Test Setup



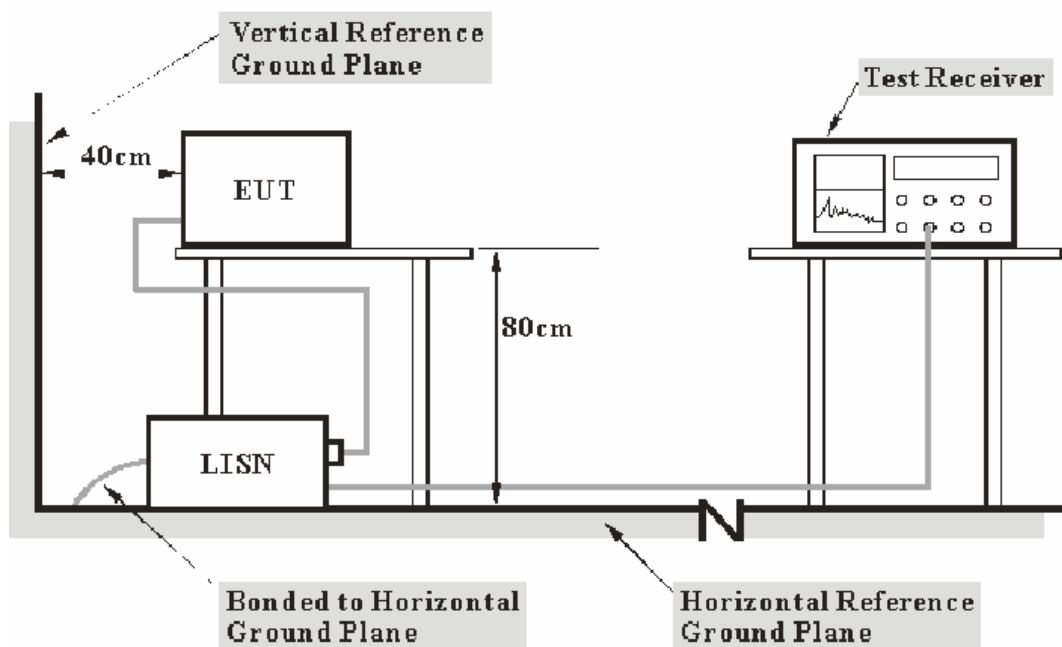
## CONDUCTED EMISSIONS

### 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 NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is  $\pm 2.4$  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: 1986 measurement procedure. Specification used was with the FCC Part 18 limits.

The EUT was connected to a 120 VAC/ 60Hz 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:

<i><b>Frequency Range</b></i>	<i><b>IF B/W</b></i>
450 kHz – 30 MHz	9 kHz

## Test Equipment List and Details

<b>Manufacturer</b>	<b>Description</b>	<b>Model</b>	<b>Serial Number</b>	<b>Calibration Date</b>	<b>Calibration Due Date</b>
Com-Power	L.I.S.N.	LI-200	12005	N/A	N/A
Com-Power	L.I.S.N.	LI-200	12208	N/A	N/A
Rohde & Schwarz	EMI Test Receiver	ESCS30	DE25330	2008-03-25	2009-03-25
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2008-03-25	2009-03-25

\* Com-Power's LISN were used as the supporting equipment.

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

## Test Procedure

During the conducted emission test, the EUT power cord was connected to the outlet of the LISN.

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

All data was recorded in the PK detection mode.

## 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:

*ELT-N918: 3.00 dB at 0.485 MHz in the Neutral conductor mode.*

*ELT-N920: 6.70 dB at 0.450 MHz in the Neutral conductor mode.*

*ELT-N923: 3.60 dB at 0.480 MHz in the Line conductor mode.*

**Test Data****Environmental Conditions**

<b>Temperature:</b>	25 ° C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	100.0 kPa

Testing was performed by Amanda Wei on 2008-10-31.

Test Mode: On

**Model: ELT-N918**

Line Conducted Emissions				FCC Part 18.307	
Frequency (MHz)	Amplitude (dBμV)	Detector (PK/QP/AV)	Conductor (Line/Neutral)	Limit (dBμV)	Margin (dB)
0.485	45.00	PK	Neutral	48.00	3.00
0.585	44.40	PK	Neutral	48.00	3.60
0.575	44.40	PK	Line	48.00	3.60
0.485	44.20	PK	Line	48.00	3.80
0.765	43.70	PK	Line	48.00	4.30
0.530	43.60	PK	Line	48.00	4.40
0.680	43.50	PK	Neutral	48.00	4.50
0.780	42.80	PK	Neutral	48.00	5.20
0.725	42.80	PK	Line	48.00	5.20
0.960	41.60	PK	Line	48.00	6.40
0.975	40.90	PK	Neutral	48.00	7.10
0.870	40.10	PK	Neutral	48.00	7.90



**Model: ELT-N920**

Line Conducted Emissions				FCC Part 18.307	
Frequency (MHz)	Amplitude (dBμV)	Detector (PK/QP/AV)	Conductor (Line/Neutral)	Limit (dBμV)	Margin (dB)
0.450	41.30	PK	Neutral	48.00	6.70
0.450	41.30	PK	Line	48.00	6.70
0.470	40.00	PK	Neutral	48.00	8.00
0.470	39.80	PK	Line	48.00	8.20
0.535	39.50	PK	Neutral	48.00	8.50
0.500	38.60	PK	Line	48.00	9.40
0.545	38.30	PK	Line	48.00	9.70
0.625	38.00	PK	Neutral	48.00	10.00
0.635	37.90	PK	Line	48.00	10.10
0.720	37.30	PK	Line	48.00	10.70
0.805	36.70	PK	Neutral	48.00	11.30
0.750	36.50	PK	Neutral	48.00	11.50

**Model: ELT-N923**

Line Conducted Emissions				FCC Part 18.307	
Frequency (MHz)	Amplitude (dBμV)	Detector (PK/QP/AV)	Conductor (Line/Neutral)	Limit (dBμV)	Margin (dB)
0.480	44.40	PK	Line	48.00	3.60
0.530	43.70	PK	Line	48.00	4.30
0.530	43.60	PK	Neutral	48.00	4.40
0.555	43.30	PK	Neutral	48.00	4.70
0.600	42.80	PK	Line	48.00	5.20
0.645	42.60	PK	Line	48.00	5.40
0.675	41.90	PK	Neutral	48.00	6.10
0.725	41.90	PK	Line	48.00	6.10
0.770	41.80	PK	Line	48.00	6.20
0.725	41.30	PK	Neutral	48.00	6.70
0.820	40.70	PK	Neutral	48.00	7.30
0.880	40.00	PK	Neutral	48.00	8.00

**Plot(s) of Test Data**

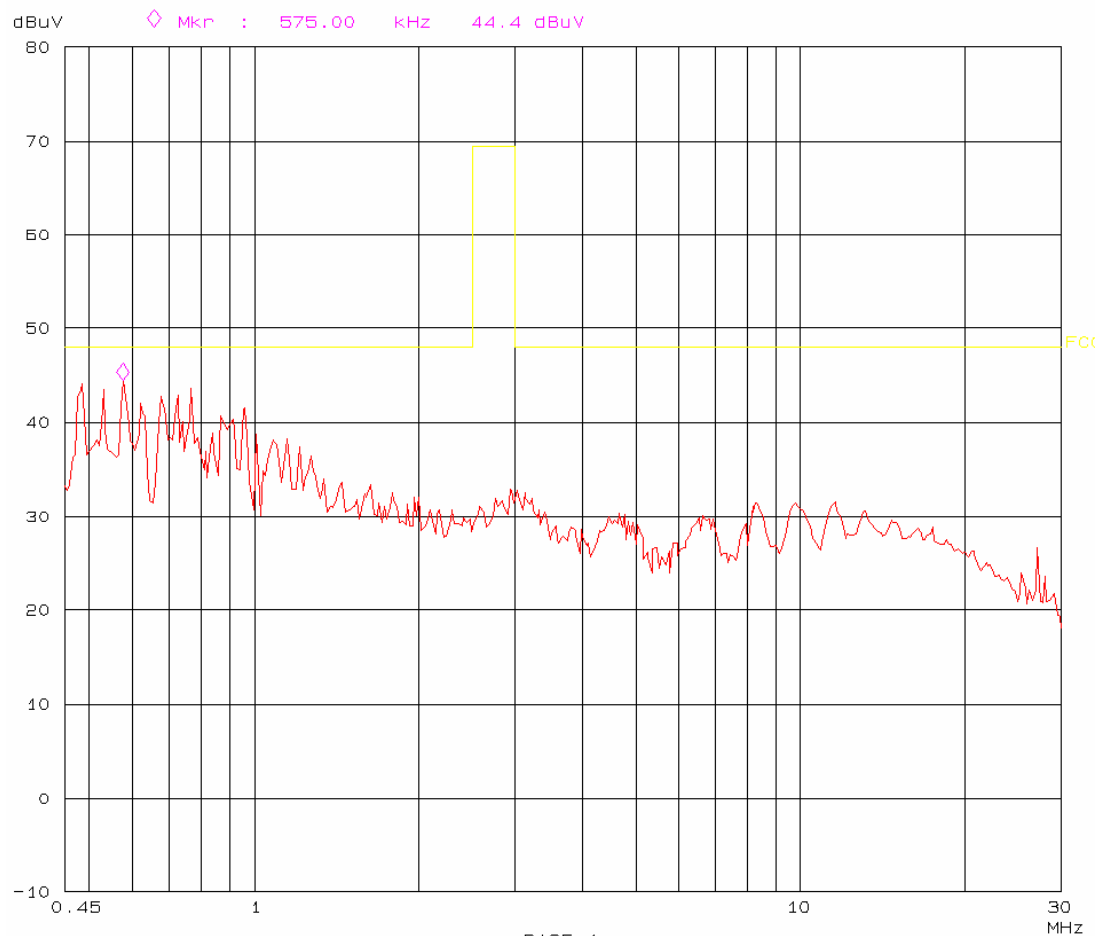
Plot(s) of Test Data is presented hereinafter as reference..

**Model: ELT-N918**

Conducted emission  
FCC 18

31. Oct 08 09:24

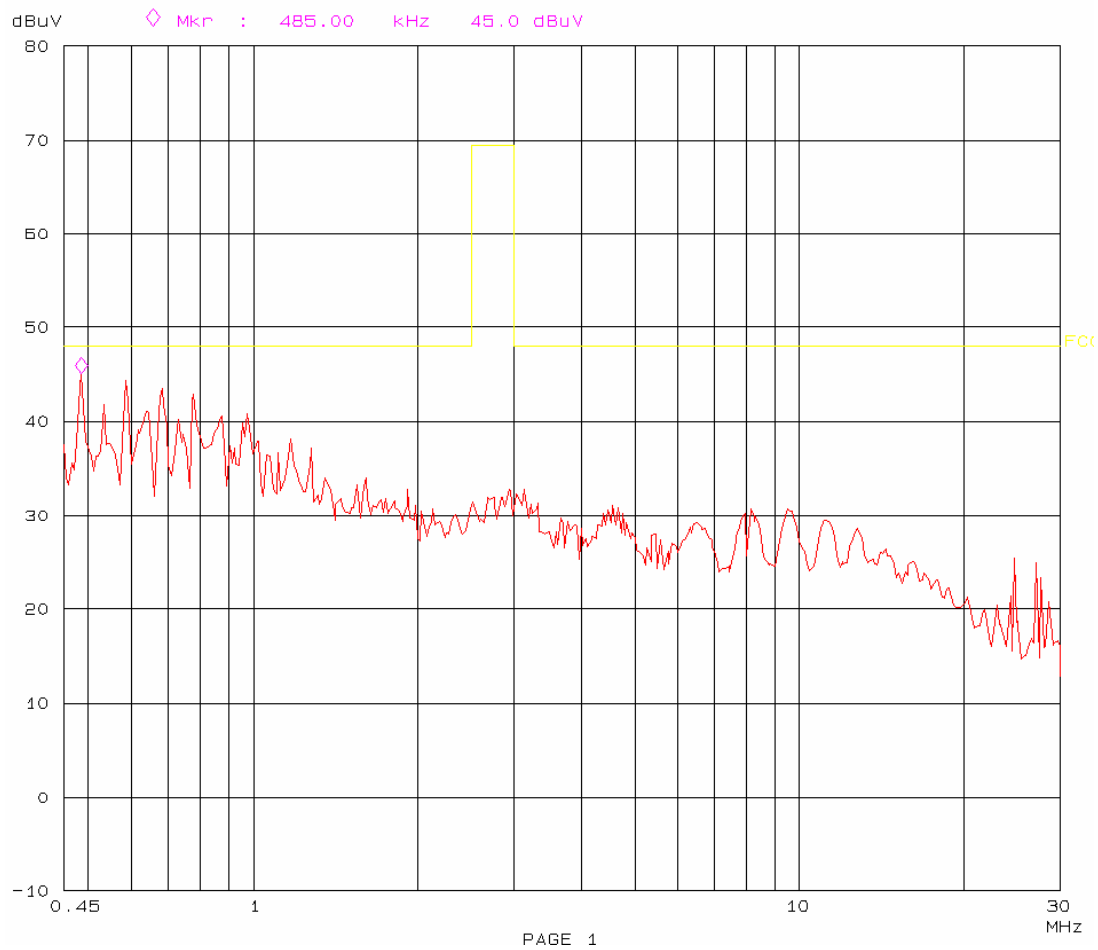
EUT: CFL M/N: ELT\_N918  
Manuf: HESHAN  
Op Cond: On  
Operator: Amanda  
Test Spec: AC 120V 60Hz L  
Comment: Temp: 25 Hum: 56%  
BACL



Conducted emission  
FCC 18

31. Oct 08 09:05

EUT: CFL M/N: ELT\_N918  
Manuf: HESHAN  
Op Cond: On  
Operator: Amanda  
Test Spec: AC 120V 60Hz N  
Comment: Temp: 25 Hum: 56%  
BACL

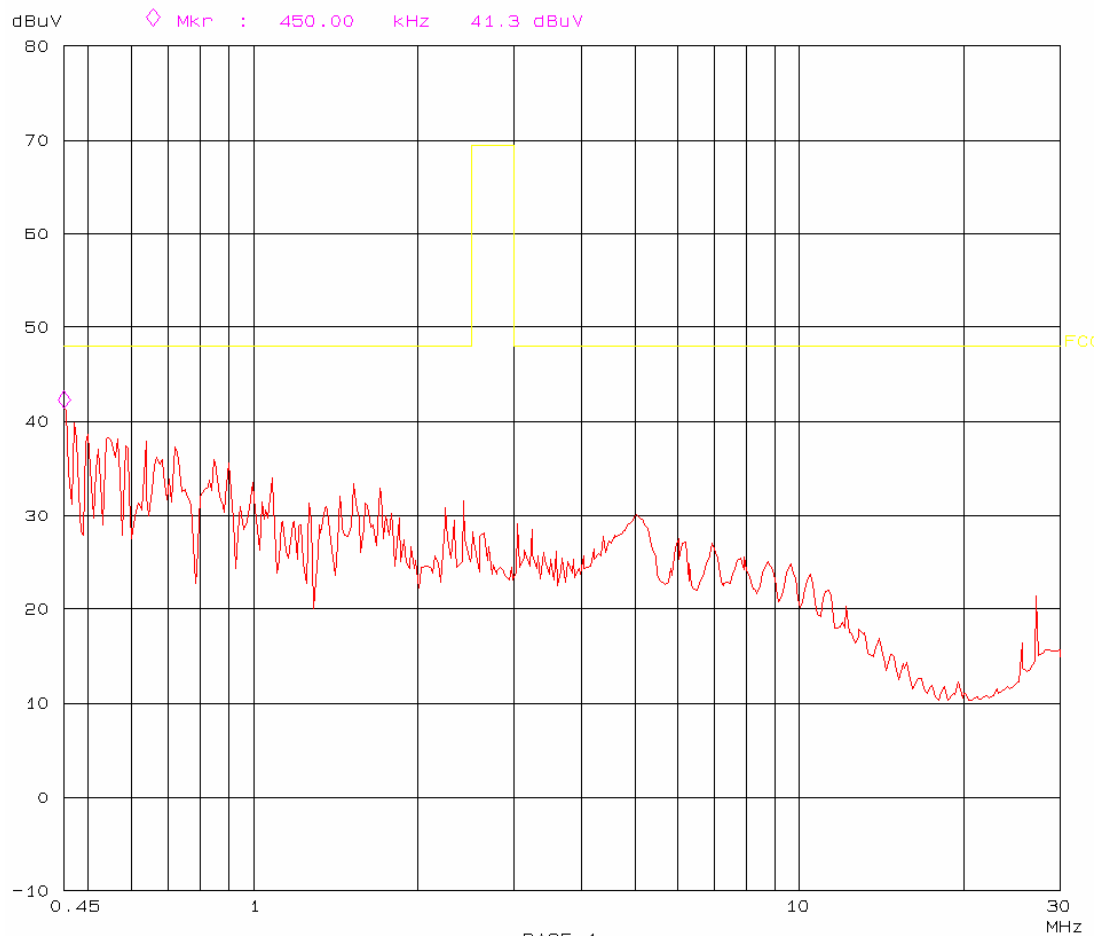


**Model: ELT-N920**

Conducted emission  
FCC 18

31. Oct 08 11:29

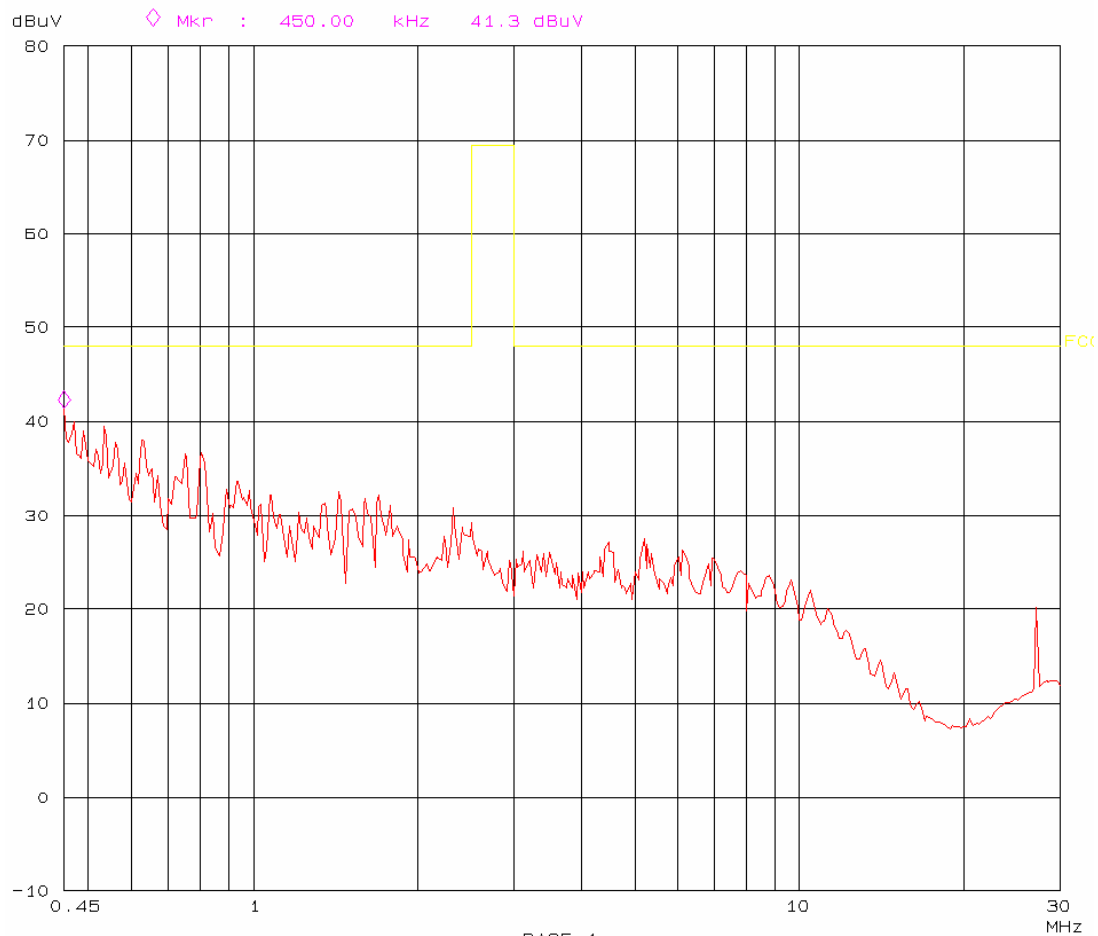
EUT: CFL M/N: ELT\_N920  
Manuf: HESHAN  
Op Cond: On  
Operator: Amanda  
Test Spec: AC 120V 60Hz L  
Comment: Temp: 25 Hum: 56%  
BACL



Conducted emission  
FCC 18

31. Oct 08 10:37

EUT: CFL M/N: ELT\_N920  
Manuf: HESHAN  
Op Cond: On  
Operator: Amanda  
Test Spec: AC 120V 60Hz N  
Comment: Temp: 25 Hum: 56%  
BACL

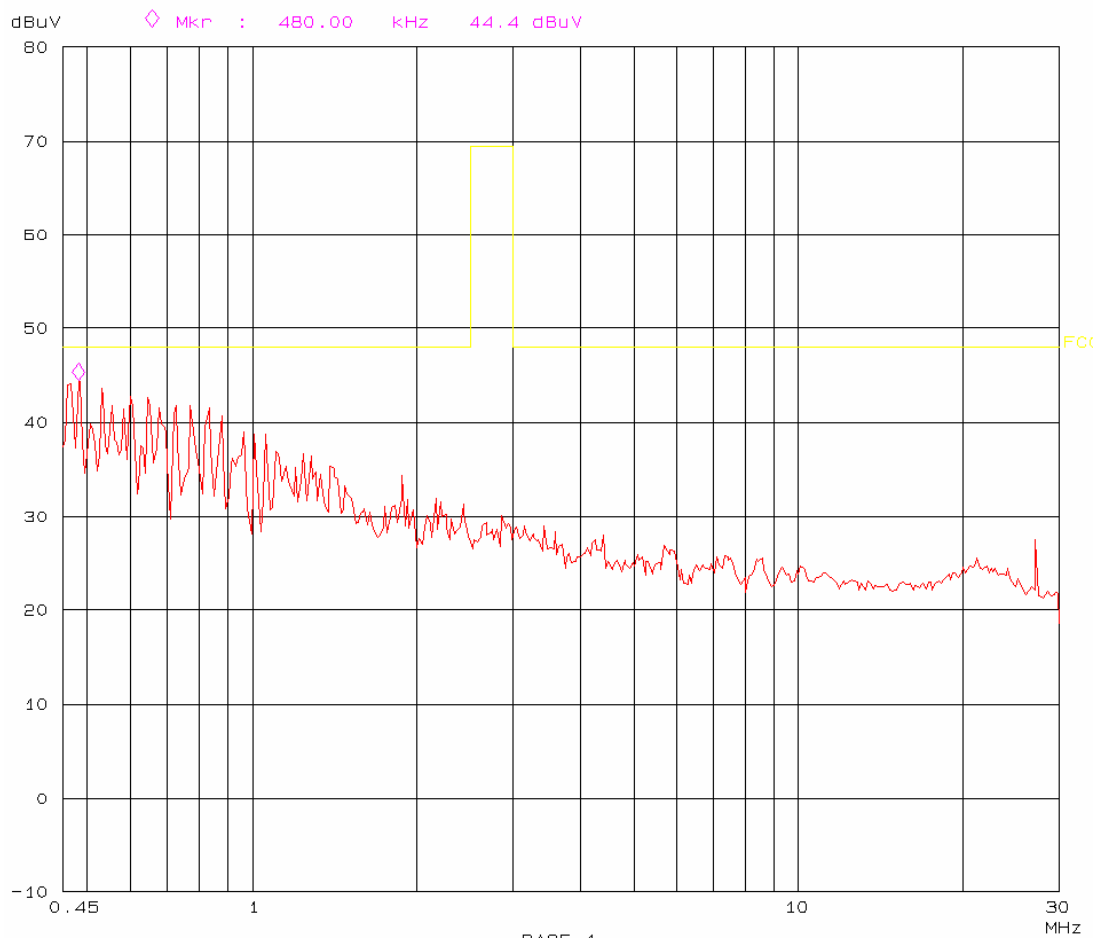


**Model: ELT-N923**

Conducted emission  
FCC 18

31. Oct 08 09:47

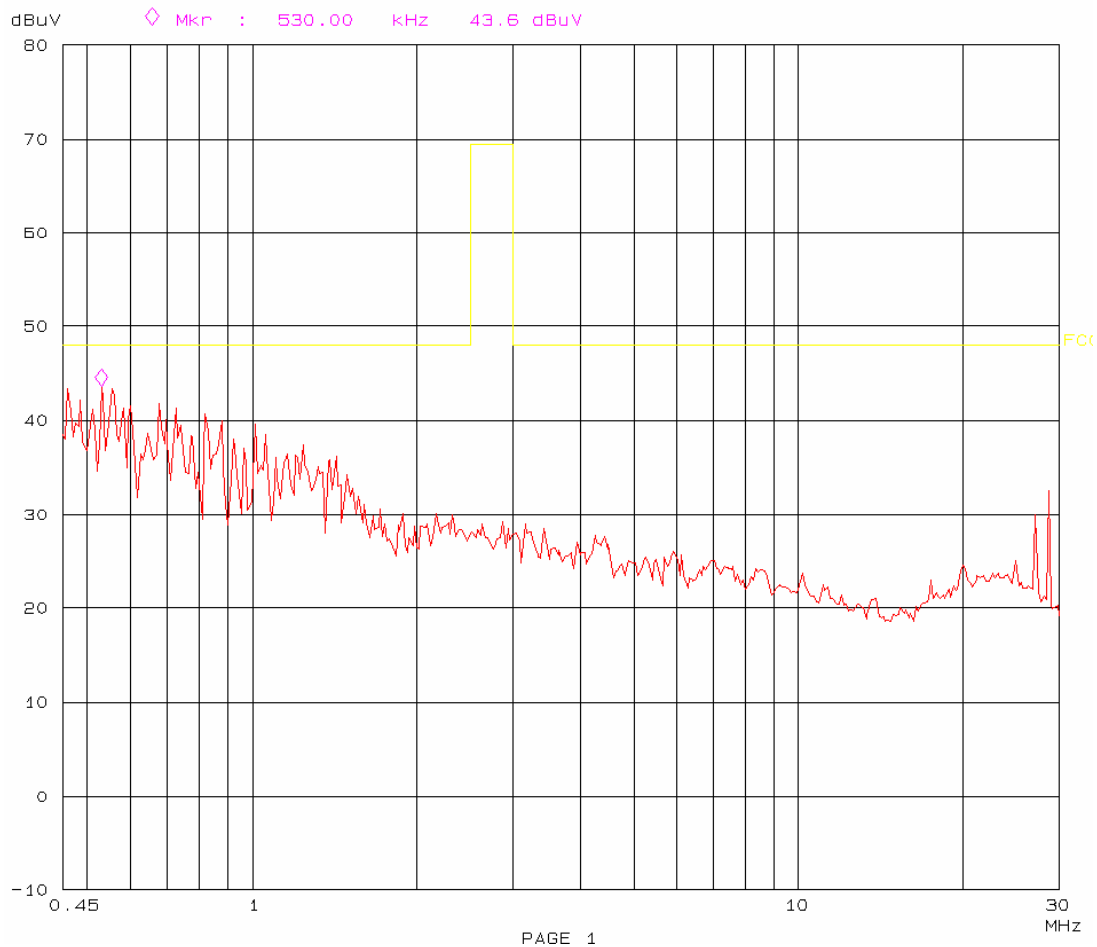
EUT: CFL M/N: ELT\_N923  
Manuf: HESHAN  
Op Cond: On  
Operator: Amanda  
Test Spec: AC 120V 60Hz L  
Comment: Temp: 25 Hum: 56%  
BACL



Conducted emission  
FCC 18

31. Oct 08 10:05

EUT: CFL M/N: ELT\_N923  
Manuf: HESHAN  
Op Cond: On  
Operator: Amanda  
Test Spec: AC 120V 60Hz N  
Comment: Temp: 25 Hum: 56%  
BACL



\*\*\*\*\* END OF REPORT \*\*\*\*\*