



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-N8**

<b>Report Type:</b> Original Report	<b>Product Type:</b> CFL
<b>Test Engineer:</b> <u>Amanda Wei</u> <i>Amanda Wei</i>	
<b>Report Number:</b> <u>RSZ08102952</u>	
<b>Report Date:</b> <u>2008-11-25</u>	
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**Note:** This test report is prepared for the customer shown above and for the device 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\*, NIST, or any agency of the Federal Government.

\* 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-N818; ELT-820; ELT-823*, or the "EUT" as referred to in this report is a *CFL* which measures approximately: *ELT-N818*: 6.5 cm L x 6.5 cm W x 12.5 cm H, *ELT-N820*: 6.5 cm L x 6.5 cm W x 12.5 cm H, *ELT-823*: 6.5 cm L x 6.5 cm W x 13.5 cm H, rated input voltage: AC 120V/60Hz.

*\* All measurement and test data in this report was gathered from production sample serial number: 0810535 (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).



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

## SYSTEM TEST CONFIGURATION

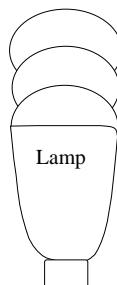
### Justification

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

### Equipment Modifications

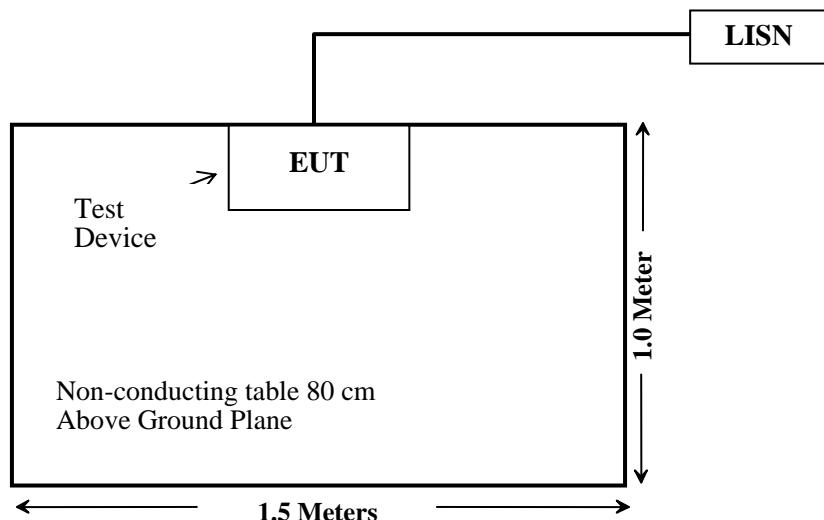
No modifications were made to the unit tested.

### Configuration of Test Setup



**EUT**

### Block Diagram of Test Setup



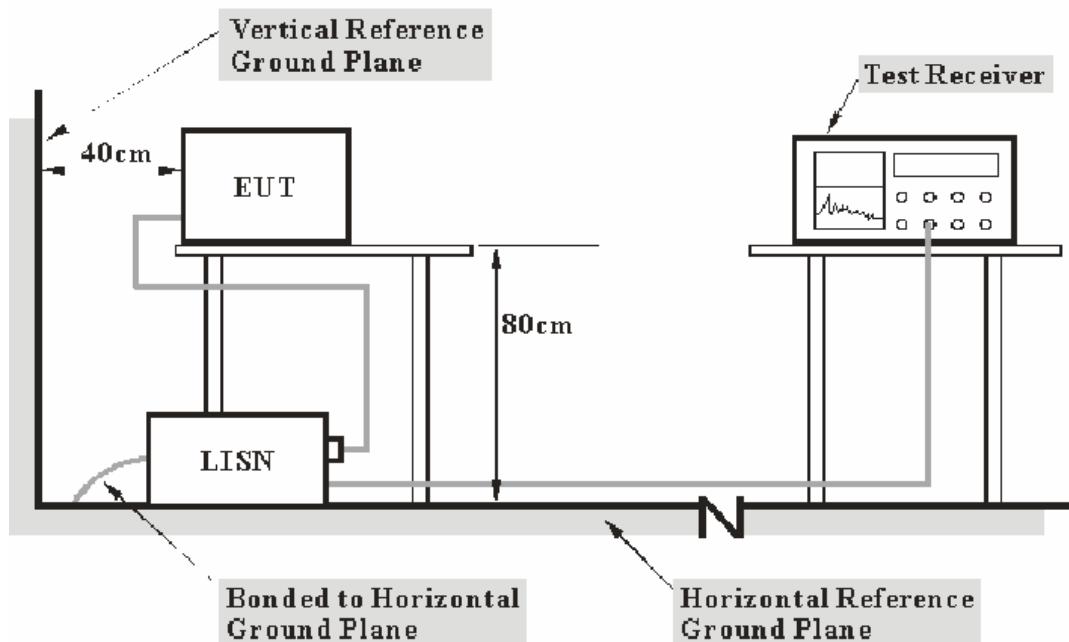
## CONDUCTED EMISSIONS

### 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:

<b>Frequency Range</b>	<b>IF B/W</b>
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-N818: 2.50 dB at 0.475 MHz** in the **Line** conductor mode.

**ELT-N820: 2.60 dB at 0.525 MHz** in the **Line** conductor mode.

**ELT-N823: 2.10 dB at 0.500 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 2008-11-01 and 2008-11-18.

Test Mode: On

**Model: ELT-N818**

Line Conducted Emissions				FCC Part 18.307	
Frequency (MHz)	Amplitude (dB $\mu$ V)	Detector (PK/QP/AV)	Conductor (Line/Neutral)	Limit (dB $\mu$ V)	Margin (dB)
0.475	45.50	PK	Line	48.00	2.50
0.475	45.30	PK	Neutral	48.00	2.70
0.575	45.30	PK	Neutral	48.00	2.70
0.675	44.60	PK	Neutral	48.00	3.40
0.665	44.20	PK	Line	48.00	3.80
0.625	43.70	PK	Neutral	48.00	4.30
0.575	43.30	PK	Line	48.00	4.70
0.770	42.90	PK	Neutral	48.00	5.10
0.530	42.30	PK	Line	48.00	5.70
0.760	41.90	PK	Line	48.00	6.10
0.820	40.90	PK	Neutral	48.00	7.10
0.875	39.00	PK	Line	48.00	9.00

**Model: ELT-N820**

Line Conducted Emissions				FCC Part 18.307	
Frequency (MHz)	Amplitude (dB $\mu$ V)	Detector (PK/QP/AV)	Conductor (Line/Neutral)	Limit (dB $\mu$ V)	Margin (dB)
0.525	45.40	PK	Line	48.00	2.60
0.525	44.20	PK	Neutral	48.00	3.80
0.545	42.60	PK	Line	48.00	5.40
0.470	42.40	PK	Neutral	48.00	5.60
0.475	42.40	PK	Line	48.00	5.60
0.545	41.00	PK	Neutral	48.00	7.00
0.575	40.90	PK	Neutral	48.00	7.10
0.600	40.40	PK	Line	48.00	7.60
0.630	40.20	PK	Neutral	48.00	7.80
1.090	40.00	PK	Line	48.00	8.00
19.545	35.80	PK	Line	48.00	12.20
19.160	32.70	PK	Neutral	48.00	15.30

**Model: ELT-N823**

Line Conducted Emissions				FCC Part 18.307	
Frequency (MHz)	Amplitude (dB $\mu$ V)	Detector (PK/QP/AV)	Conductor (Line/Neutral)	Limit (dB $\mu$ V)	Margin (dB)
0.500	45.90	PK	Line	48.00	2.10*
0.500	45.60	PK	Neutral	48.00	2.40
0.600	44.20	PK	Line	48.00	3.80
0.600	43.70	PK	Neutral	48.00	4.30
0.700	42.90	PK	Neutral	48.00	5.10
0.720	42.60	PK	Line	48.00	5.40
0.720	42.40	PK	Neutral	48.00	5.60
0.700	42.30	PK	Line	48.00	5.70
0.820	42.00	PK	Line	48.00	6.00
0.820	41.90	PK	Neutral	48.00	6.10
0.900	41.00	PK	Line	48.00	7.00
0.895	40.40	PK	Neutral	48.00	7.60

\* Within measurement uncertainty.

**Plot(s) of Test Data**

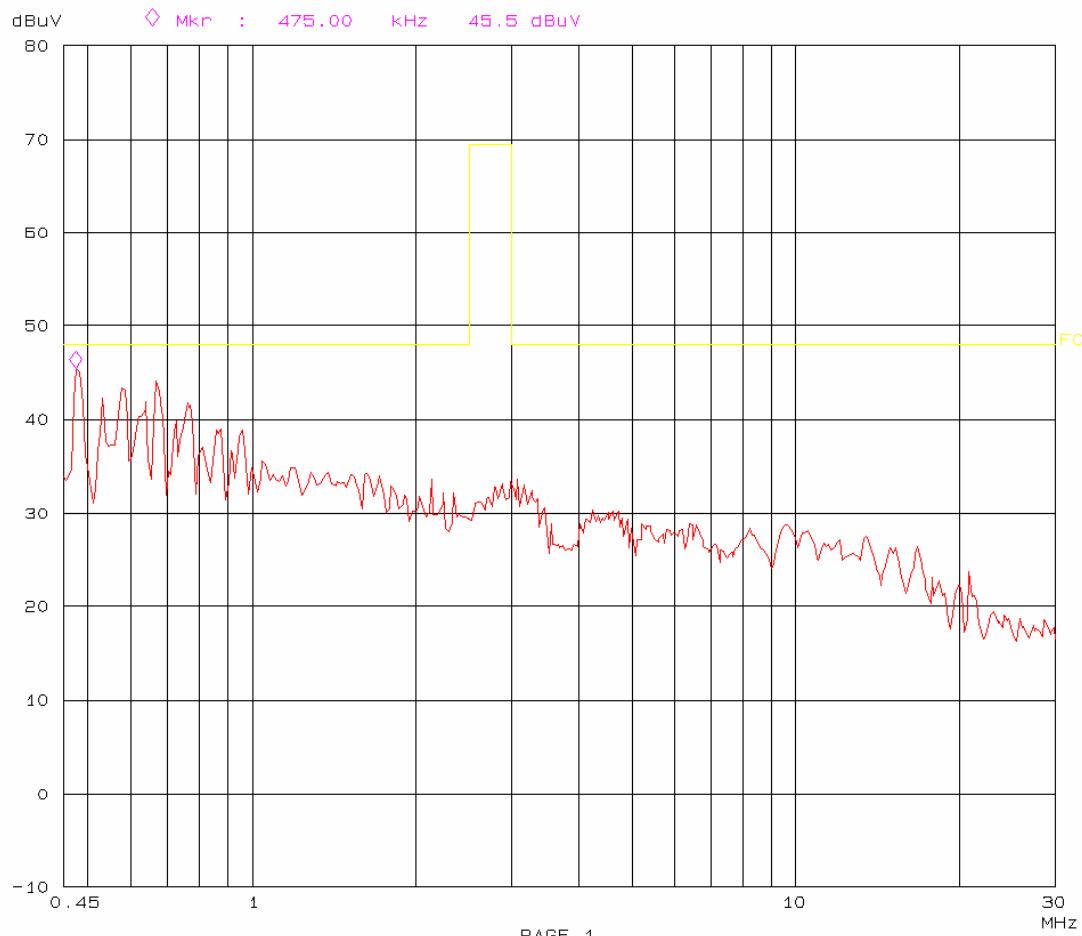
Plot(s) of Test Data is presented hereinafter as reference.

**Model: ELT-N818**

Conducted emission  
FCC 18

01. Nov 08 09:31

EUT: CFL M/N: ELT\_N818  
Manuf: HESHAN  
Op Cond: On  
Operator: Amanda  
Test Spec: AC 120V 60Hz L  
Comment: Temp: 25 Hum: 56%  
BACL

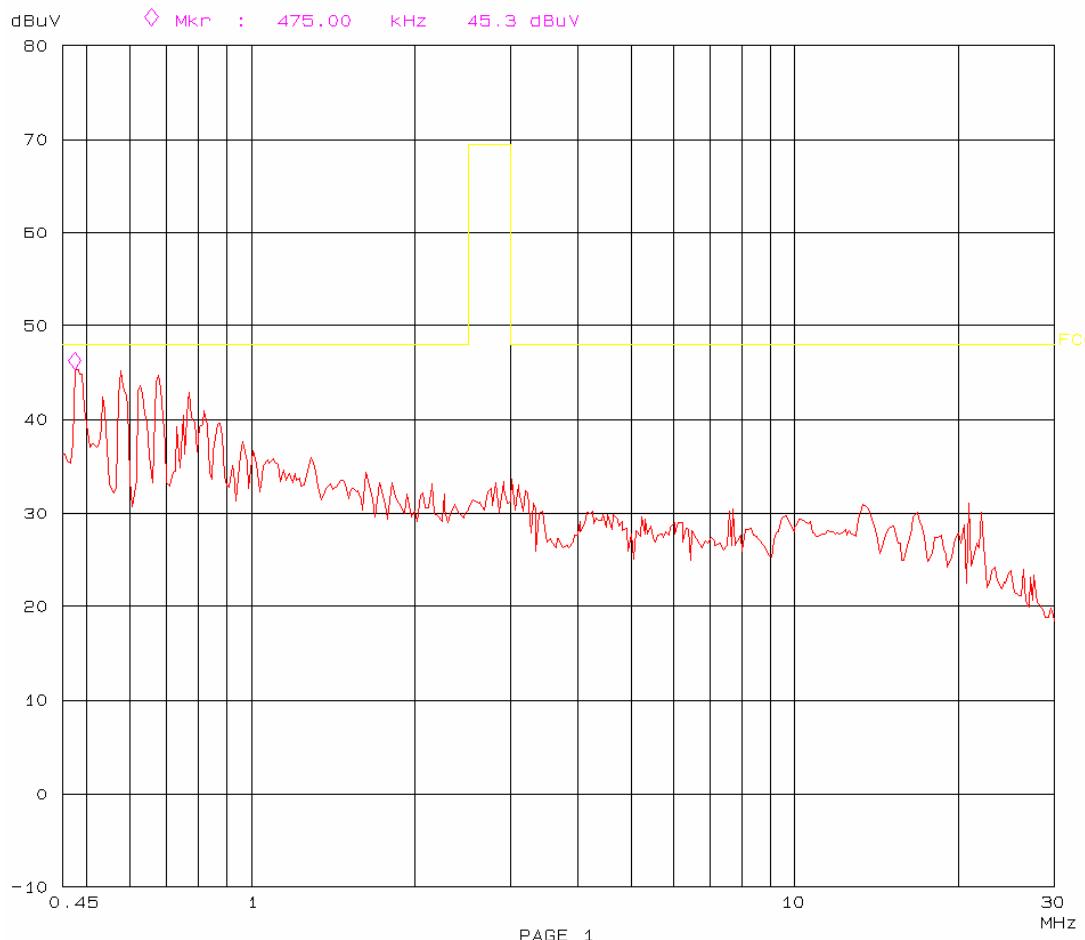


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Conducted emission  
FCC 18

01. Nov 08 09:16

EUT: CFL M/N: ELT\_N818  
Manuf: HESHAN  
Op Cond: On  
Operator: Amanda  
Test Spec: AC 120V 60Hz N  
Comment: Temp: 25 Hum: 56%  
BACL



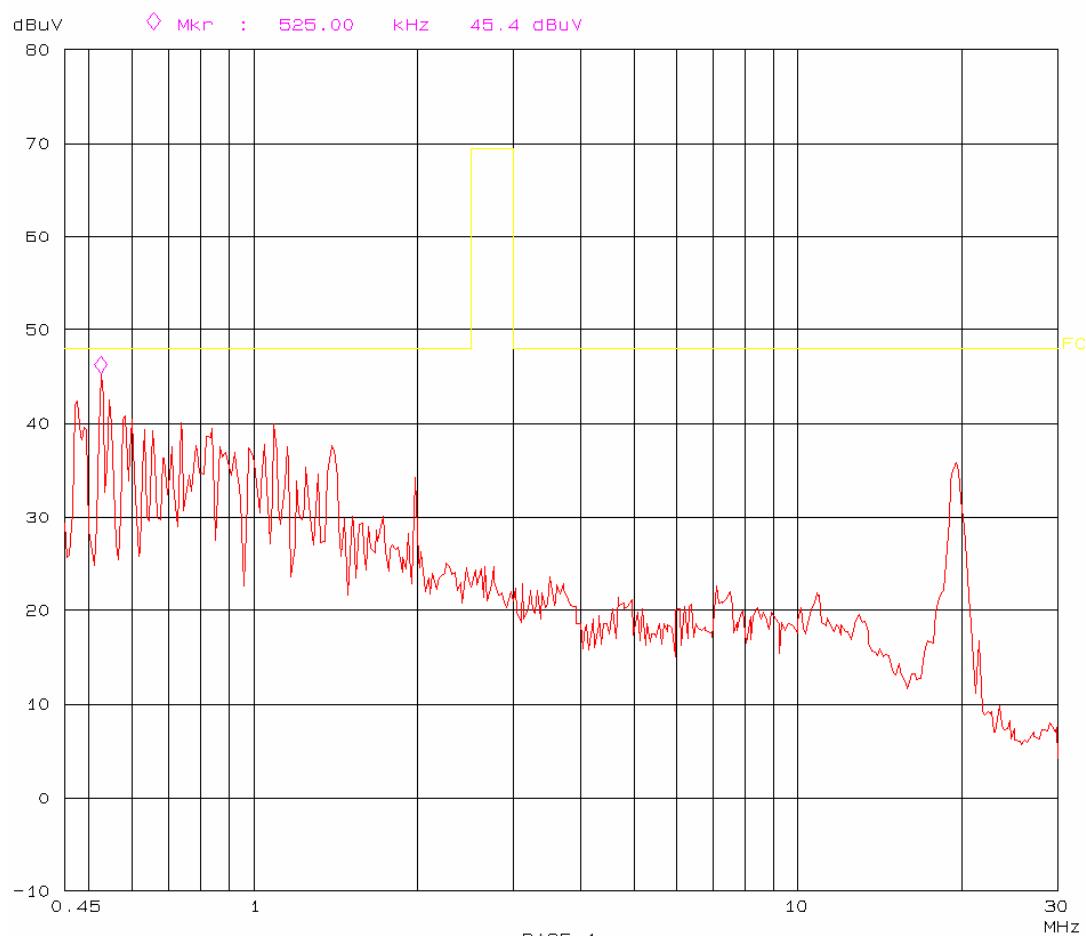
**Model: ELT-N820**

Conducted emission

18. Nov 08 09:28

FCC Part 18

EUT: CFL M/N: ELT\_N820  
Manuf: HESHAN  
Op Cond: On  
Operator: Amanda  
Test Spec: AC 120V/60Hz L  
Comment: Temp: 25 Hum: 56%  
BACL

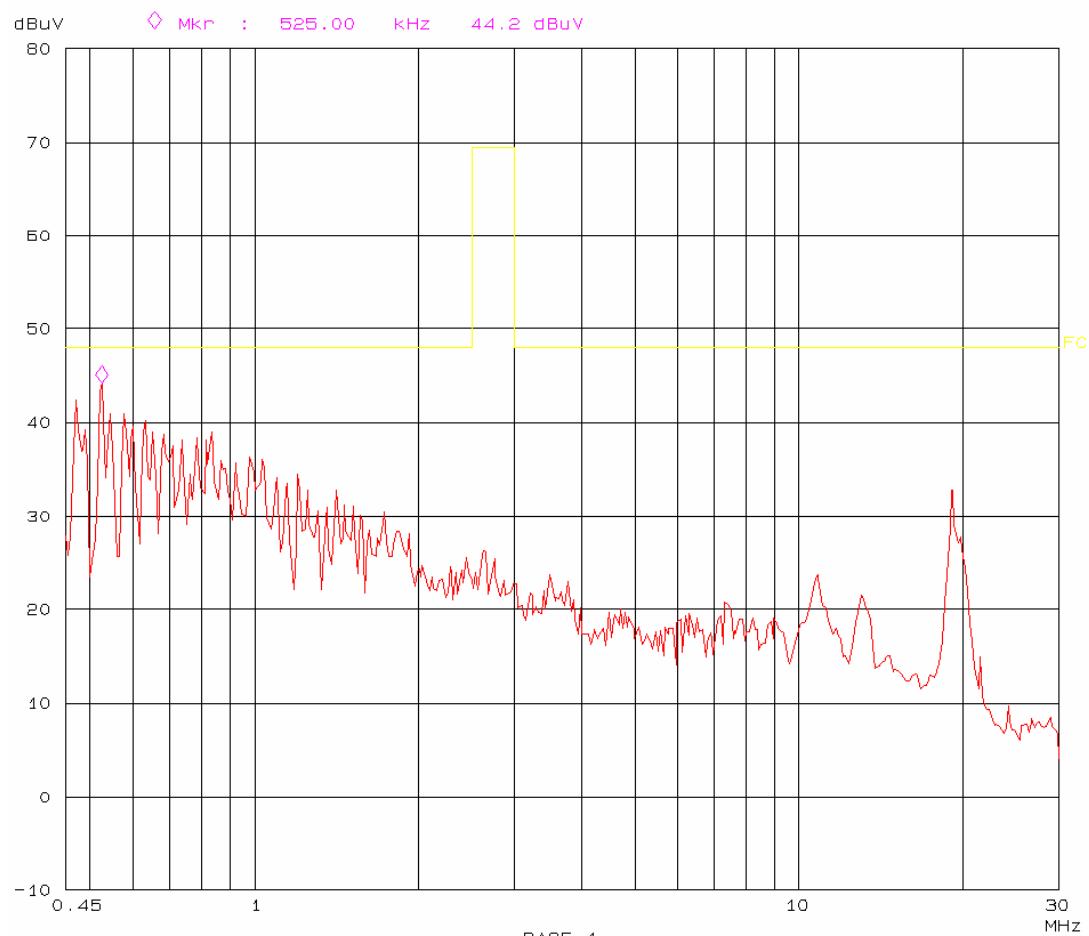


## Conducted emission

18. Nov 08 10:28

## FCC Part 18

EUT: CFL M/N: ELT\_N820  
Manuf: HESHAN  
Op Cond: On  
Operator: Amanda  
Test Spec: AC 120V/60Hz N  
Comment: Temp: 25 Hum: 56%  
BACL



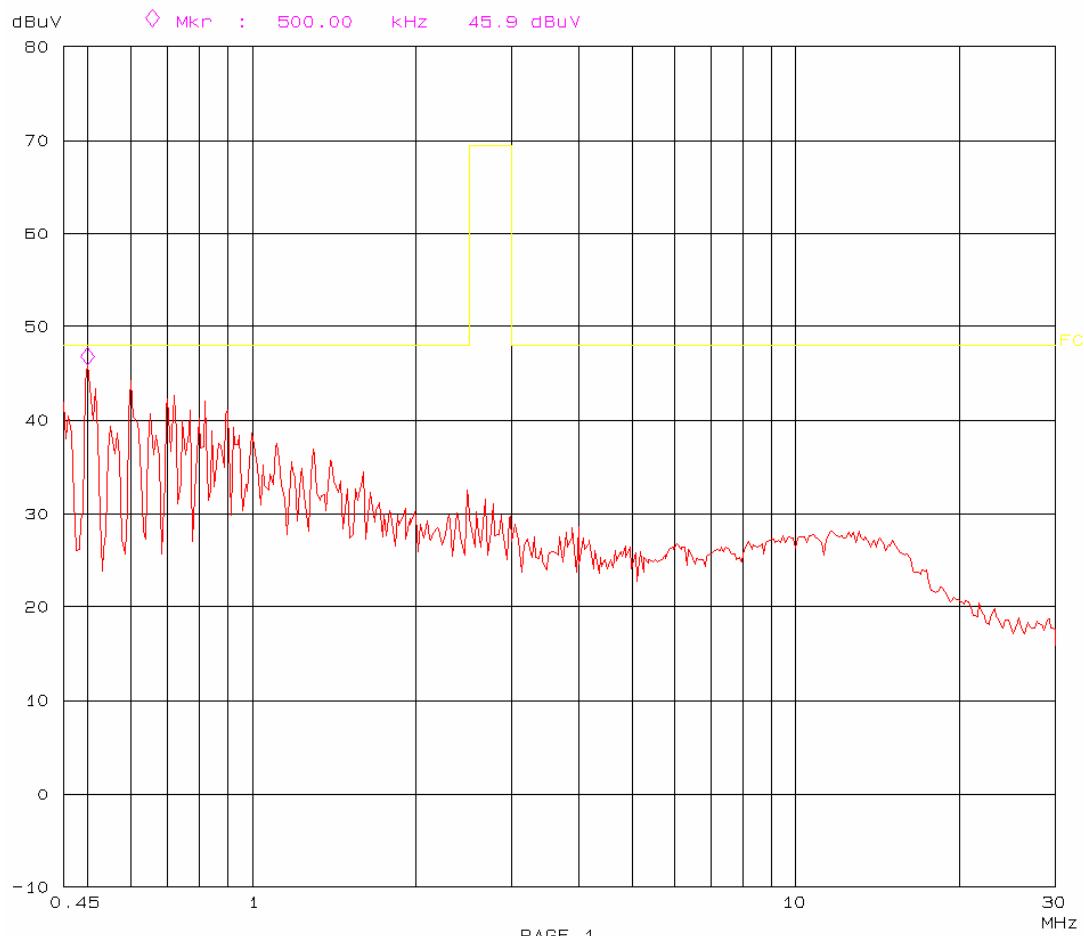
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**Model: ELT-N823**

Conducted emission  
FCC 18

01. Nov 08 10:21

EUT: CFL M/N: ELT\_N823  
Manuf: HESHAN  
Op Cond: On  
Operator: Amanda  
Test Spec: AC 120V 60Hz L  
Comment: Temp: 25 Hum: 56%  
BACL



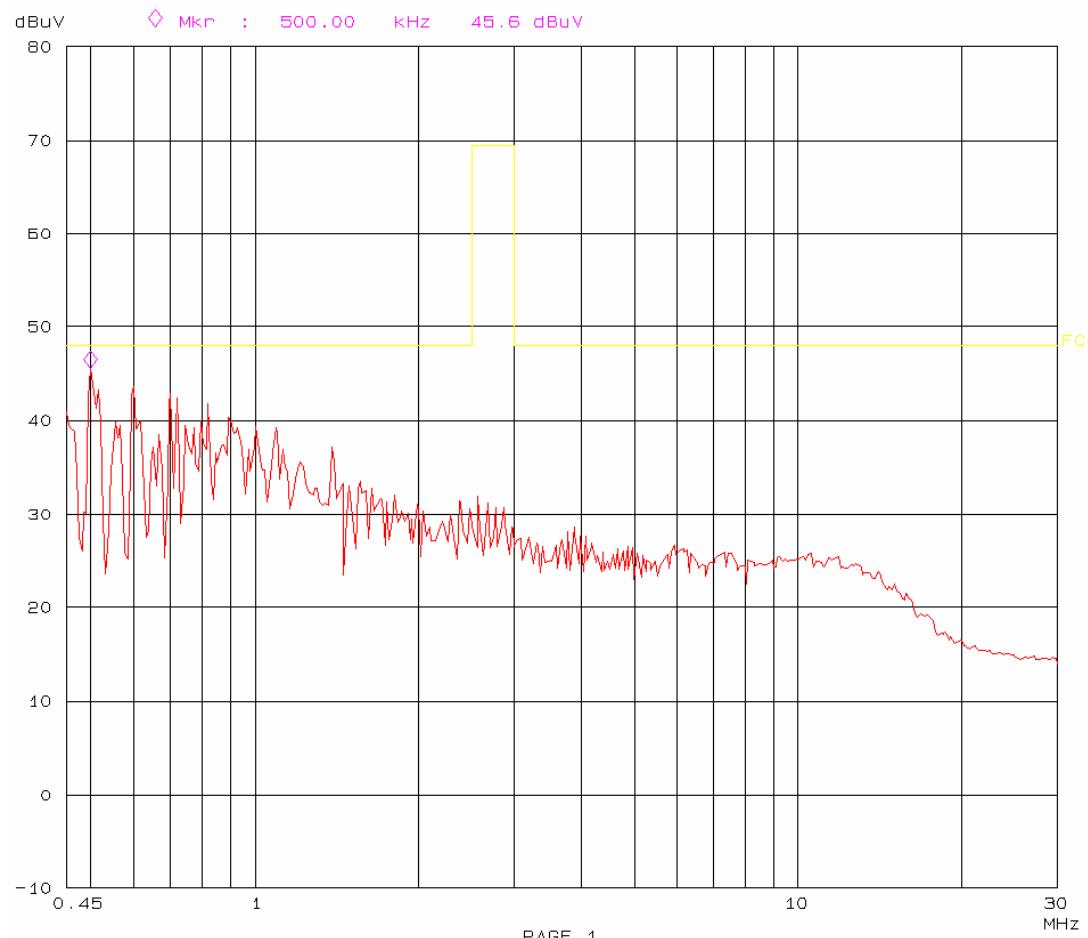
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## Conducted emission

01. Nov 08 11:25

FCC 18

EUT: CFL M/N: ELT\_N823  
Manuf: HESHAN  
Op Cond: On  
Operator: Amanda  
Test Spec: AC 120V 60Hz N  
Comment: Temp: 25 Hum: 56%  
BACL



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