NVLAP LAB CODE 200707-0

# FCC PART 18

# MEASUREMENT AND TEST REPORT

For

## ZHEJIANG NVC LAMPS CO., LTD

NO201-16, Tongda Road, South Zone, Hushan District,

Jiangshan, Zhejiang, China

**FCC ID: VVOESS-15**

| **Report Type:** | **Product Type:** |
|---|---|
| Original Report | CFL |

| | |
|---|---|
| **Test Engineer:** | Allan An |
| **Report Number:** | RSZ08101751 |
| **Report Date:** | 2009-02-17 |
| **Reviewed By:** | Lisa Zhu<br>EMC Engineer |
| **Prepared By:** | Bay Area Compliance Laboratories Corp. (Shenzhen)<br>6/F, the 3rd Phase of WanLi Industrial Building,<br>ShiHua Road, FuTian Free Trade Zone<br>Shenzhen, Guangdong, China<br>Tel: +86-755-33320018<br>Fax: +86-755-33320008 |

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# GENERAL INFORMATION

## Product Description for Equipment under Test (EUT)

The *ZHEJIANG NVC LAMPS CO., LTD*'s model: *ESS-9W; ESS-13W; ESS-15W,* or the "EUT" as referred to in this report is a *CFL* which measures approximately: *ESS-9W*: 10 cm L x 5 cm W x 5 cm H, *ESS-13W*: 11 cm L x 5 cm W x 5 cm H, *ESS-15W*: 12 cm L x 5 cm W x 5 cm H, rated input voltage: AC 120V/60Hz.

** All measurement and test data in this report was gathered from production sample serial number: 0810520 (Assigned by BACL, Shenzhen). The EUT was received on 2008-10-17.*

## Objective

The following test report is prepared on behalf of *ZHEJIANG NVC LAMPS 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).


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

# SYSTEM TEST CONFIGURATION

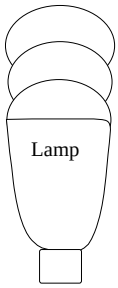
## Justification

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

## Equipment Modifications

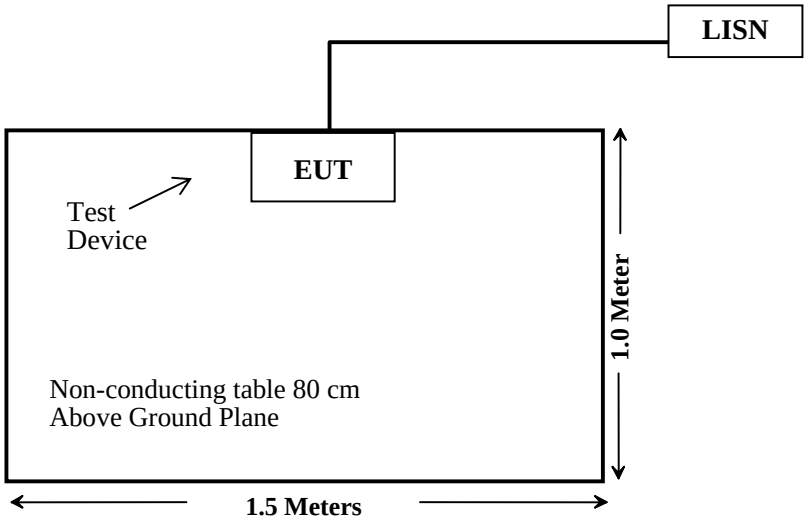
No modifications were made to the unit tested.

## Configuration of Test Setup




**EUT**

## Block Diagram of Test Setup



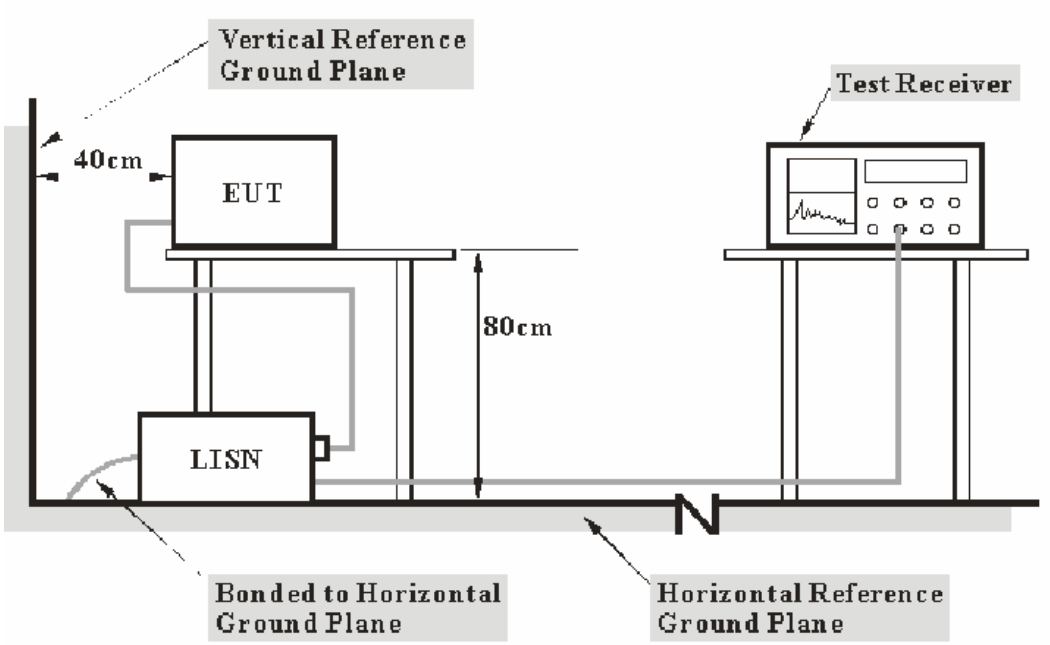
# CONDUCTED EMISSIONS

## 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 ±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:

| ***Frequency Range*** | ***IF B/W*** |
|---|---|
| 450 kHz – 30 MHz | 9 kHz |

## Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|
| 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 Quasi-peak 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:

*ESS-9W***: 11.10 dB** at **0.520 MHz** in the **Line** conductor mode.
*ESS-13W***: 4.90 dB** at **0.455 MHz** in the **Neutral** conductor mode.
*ESS-15W***: 3.10 dB** at **0.485 MHz** in the **Line** conductor mode.

# Test Data

## Environmental Conditions

| | |
|---|---|
| **Temperature:** | 25 ° C |
| **Relative Humidity:** | 56 % |
| **ATM Pressure:** | 100.0 kPa |

*Testing was performed by Allan An on 2008-11-03.*

*Test Mode: On*

## Model: ESS-9W

| Line Conducted Emissions | | | | FCC Part 18.307 | |
|---|---|---|---|---|---|
| **Frequency (MHz)** | **Amplitude (dBµV)** | **Detector (PK/QP/AV)** | **Conductor (Line/Neutral)** | **Limit (dBµV)** | **Margin (dB)** |
| 0.520 | 36.90 | PK | Line | 48.00 | 11.10 |
| 0.460 | 36.00 | PK | Neutral | 48.00 | 12.00 |
| 0.520 | 34.40 | PK | Neutral | 48.00 | 13.60 |
| 0.685 | 32.50 | PK | Line | 48.00 | 15.50 |
| 0.800 | 31.80 | PK | Line | 48.00 | 16.20 |
| 1.530 | 28.50 | PK | Line | 48.00 | 19.50 |
| 1.475 | 26.70 | PK | Neutral | 48.00 | 21.30 |
| 26.240 | 26.30 | PK | Line | 48.00 | 21.70 |
| 27.990 | 25.60 | PK | Neutral | 48.00 | 22.40 |
| 13.505 | 24.40 | PK | Line | 48.00 | 23.60 |
| 1.795 | 23.20 | PK | Neutral | 48.00 | 24.80 |
| 13.535 | 22.50 | PK | Neutral | 48.00 | 25.50 |

**Model: ESS-13W**

| Line Conducted Emissions | | | | FCC Part 18.307 | |
|---|---|---|---|---|---|
| **Frequency (MHz)** | **Amplitude (dBμV)** | **Detector (PK/QP/AV)** | **Conductor (Line/Neutral)** | **Limit (dBμV)** | **Margin (dB)** |
| 0.455 | 43.10 | PK | Neutral | 48.00 | 4.90 |
| 0.450 | 40.60 | PK | Line | 48.00 | 7.40 |
| 0.555 | 37.40 | PK | Neutral | 48.00 | 10.60 |
| 0.635 | 36.60 | PK | Neutral | 48.00 | 11.40 |
| 0.630 | 36.10 | PK | Line | 48.00 | 11.90 |
| 1.465 | 35.60 | PK | Line | 48.00 | 12.40 |
| 0.980 | 35.20 | PK | Neutral | 48.00 | 12.80 |
| 0.730 | 34.60 | PK | Line | 48.00 | 13.40 |
| 10.835 | 32.80 | PK | Neutral | 48.00 | 15.20 |
| 25.765 | 32.20 | PK | Neutral | 48.00 | 15.80 |
| 10.665 | 31.90 | PK | Line | 48.00 | 16.10 |
| 29.895 | 29.00 | PK | Line | 48.00 | 19.00 |

**Model: ESS-15W**

| Line Conducted Emissions | | | | FCC Part 18.307 | |
|---|---|---|---|---|---|
| **Frequency (MHz)** | **Amplitude (dBμV)** | **Detector (PK/QP/AV)** | **Conductor (Line/Neutral)** | **Limit (dBμV)** | **Margin (dB)** |
| 0.485 | 44.90 | PK | Line | 48.00 | 3.10 |
| 0.475 | 43.60 | PK | Neutral | 48.00 | 4.40 |
| 0.610 | 40.20 | PK | Neutral | 48.00 | 7.80 |
| 1.545 | 37.80 | PK | Neutral | 48.00 | 10.20 |
| 0.515 | 37.30 | PK | Line | 48.00 | 10.70 |
| 0.665 | 34.90 | PK | Line | 48.00 | 13.10 |
| 1.550 | 32.80 | PK | Line | 48.00 | 15.20 |
| 2.125 | 32.60 | PK | Neutral | 48.00 | 15.40 |
| 17.070 | 27.90 | PK | Neutral | 48.00 | 20.10 |
| 24.070 | 27.70 | PK | Line | 48.00 | 20.30 |
| 27.635 | 26.60 | PK | Line | 48.00 | 21.40 |
| 12.000 | 23.40 | PK | Neutral | 48.00 | 24.60 |

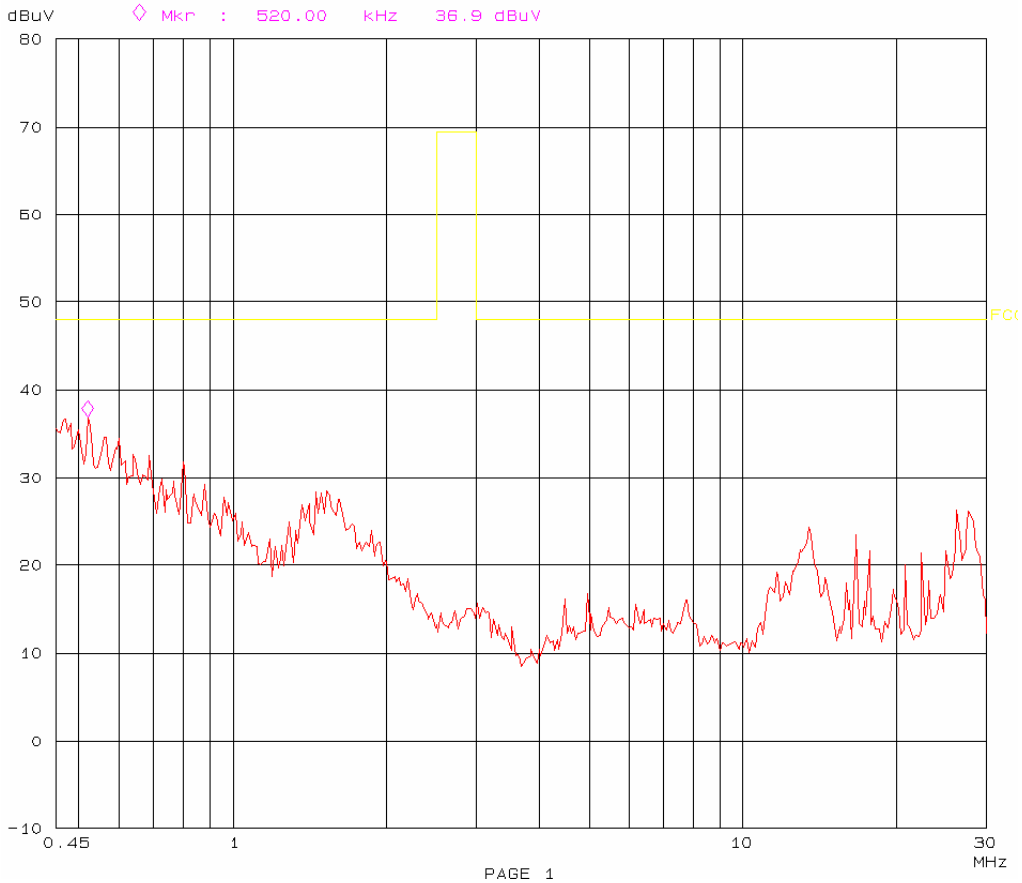
## Plot(s) of Test Data

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

## Model: ESS-9W

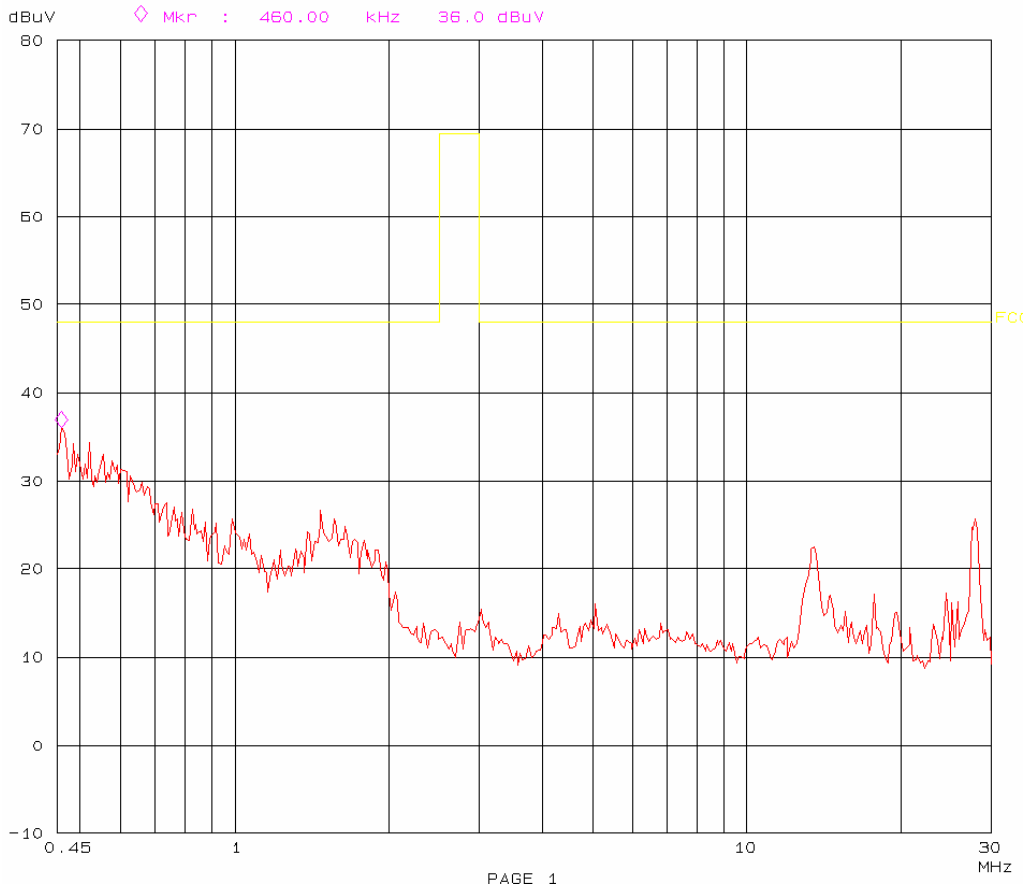
Conducted emission
FCC Part18

| | | |
|---|---|---|
| EUT: | CFL | ESS-9W |
| Manuf: | NVC | |
| Op Cond: | On | |
| Operator: | Allan | |
| Test Spec: | AC 120V 60Hz L | |
| Comment: | Temp: 25 Hum: 56% | |
| | BACL | |



Conducted emission
FCC Part18

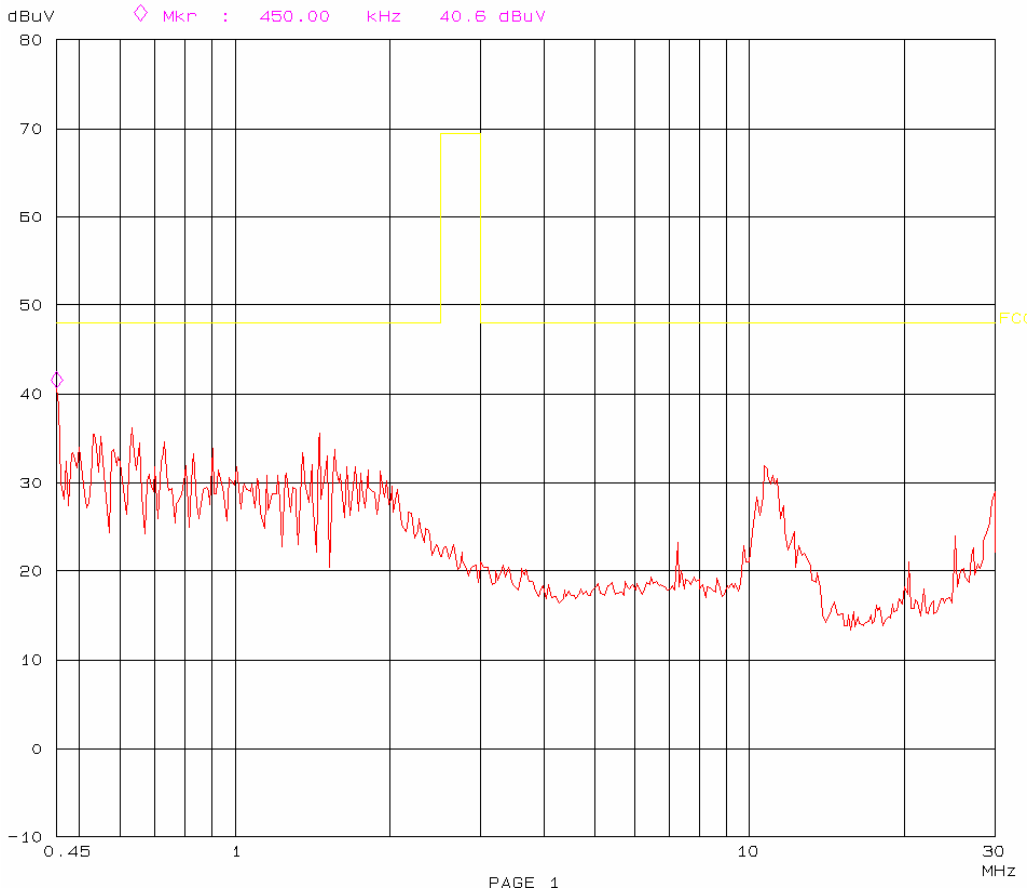
| | |
|---|---|
| EUT: | CFL ESS-9W |
| Manuf: | NVC |
| Op Cond: | On |
| Operator: | Allan |
| Test Spec: | AC 120V 60Hz N |
| Comment: | Temp: 25 Hum: 56% |
| | BACL |



## Model: ESS-13W

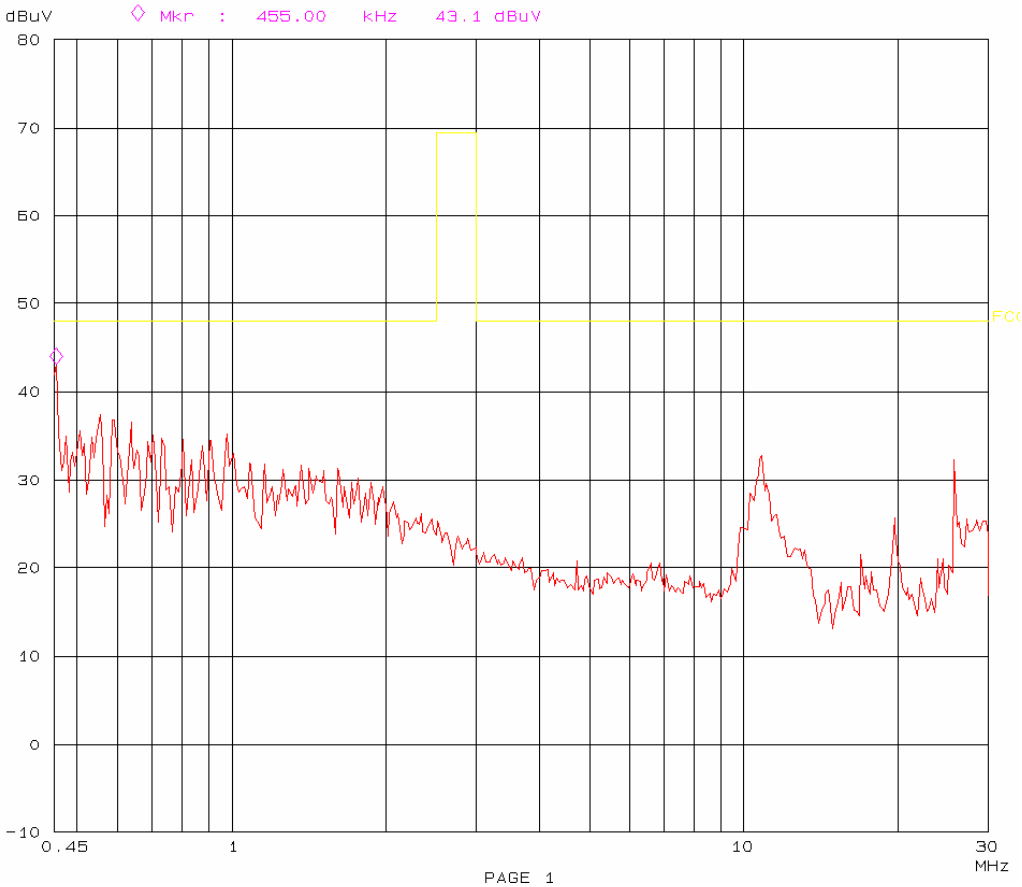
Conducted emission
FCC Part18

| | |
|---|---|
| EUT: | CFL ESS-13W |
| Manuf: | NVC |
| Op Cond: | On |
| Operator: | Allan |
| Test Spec: | AC 120V 60Hz L |
| Comment: | Temp: 25 Hum: 56% |
| | BACL |



Conducted emission
FCC Part18

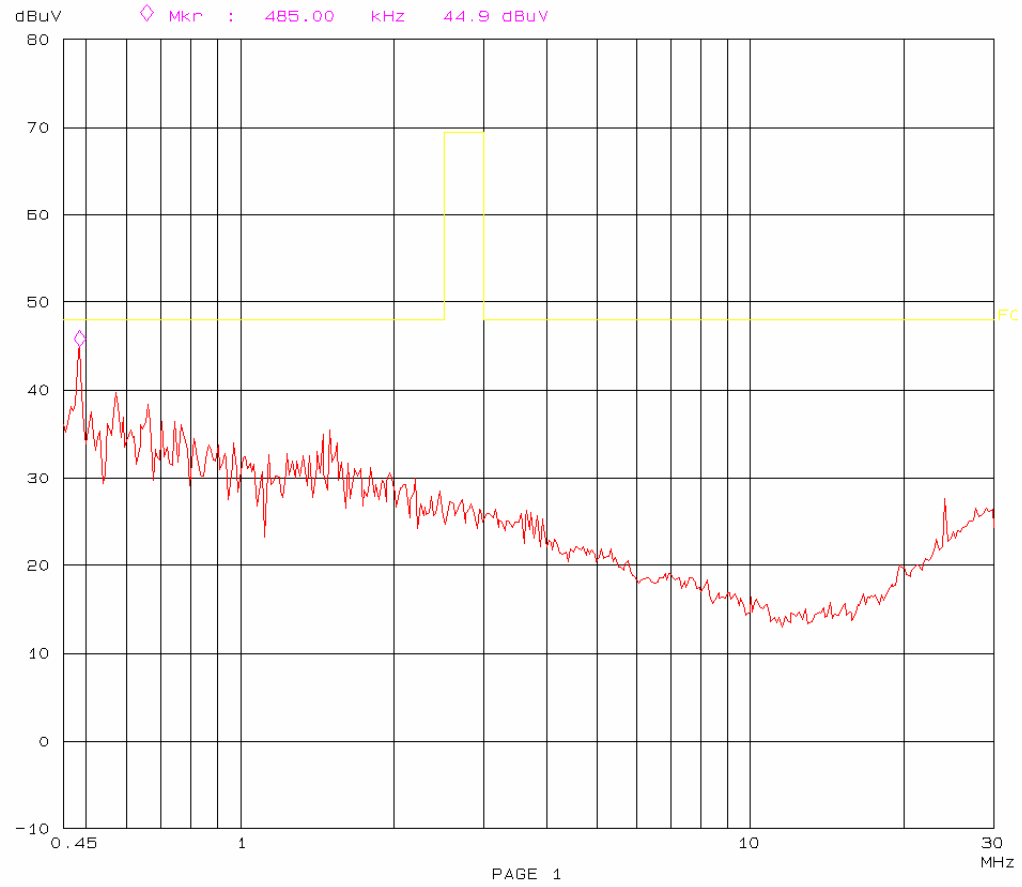
| | | |
|---|---|---|
| EUT: | CFL | ESS-13W |
| Manuf: | NVC | |
| Op Cond: | On | |
| Operator: | Allan | |
| Test Spec: | AC 120V 60Hz N | |
| Comment: | Temp: 25 Hum: 56% | |
| | BACL | |



## Model: ESS-15W

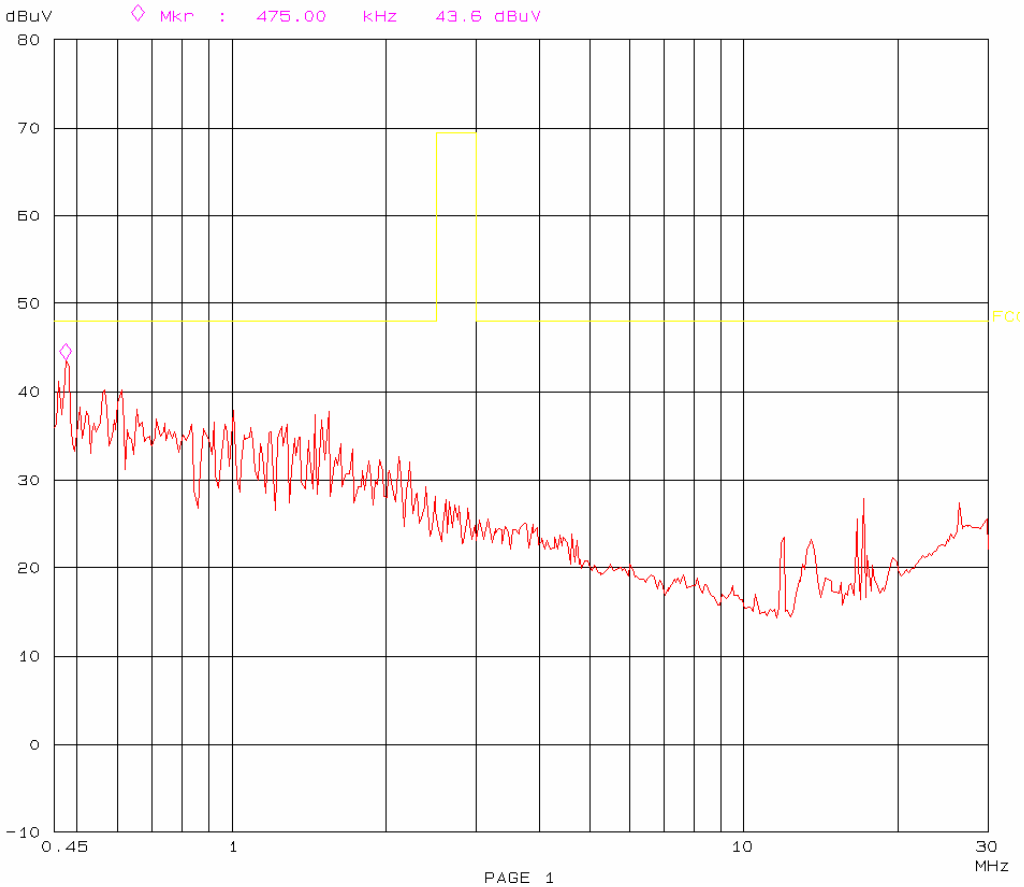
Conducted emission
FCC Part18

| | | |
|---|---|---|
| EUT: | CFL | ESS-15W |
| Manuf: | NVC | |
| Op Cond: | On | |
| Operator: | Allan | |
| Test Spec: | AC 120V 60Hz L | |
| Comment: | Temp: 25 Hum: 56% | |
| | BACL | |



Conducted emission
FCC Part18

| | |
|---|---|
| EUT: | CFL ESS-15W |
| Manuf: | NVC |
| Op Cond: | On |
| Operator: | Allan |
| Test Spec: | AC 120V 60Hz N |
| Comment: | Temp: 25 Hum: 56% |
| | BACL |

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