



NVLAP LAB CODE 200707-0



# FCC PART 18

## MEASUREMENT AND TEST REPORT

For

### Toshiba Lighting & Technology Corporation

Minamishinagawa JN Bldg, 2-13, Minamishinagawa 2-Chome.

Shinagawa-Ku, Tokyo1408660, Japan

**FCC ID: SAJML13GU24**

<b>Report Type:</b> Original Report	<b>Product Type:</b> Self-Ballasted Lamp
<b>Test Engineer:</b> Karo Liao	<i>Karo Liao</i>
<b>Report Number:</b> RSZ08120252	
<b>Report Date:</b> 2008-12-10	
<b>Reviewed By:</b> EMC Engineer	<i>William . Chan .</i>
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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 *TOSHIBA LIGHTING & TECHNOLOGY CORPORATION*'s model: *MLB13GU*, *MLG13GU*, *MLR13GU*, or the "EUT" as referred to in this report is a *Self-Ballasted Lamp* which measures approximately: *MLB13GU*: 11.4 cm L x 6.1 cm W x 6.1 cm H, *MLG13GU*: 12.7 cm L x 8.4 cm W x 8.4 cm H, *MLR13GU*: 13.5 cm L x 9.0 cm W x 9.0 cm H, rated input voltage: AC 120V/60Hz.

*\* All measurement and test data in this report was gathered from production sample serial number: 0812502 (Assigned by BAEL, Shenzhen). The EUT was received on 2008-08-12.*

### Objective

The following test report is prepared on behalf of *TOSHIBA LIGHTING & TECHNOLOGY CORPORATION* 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

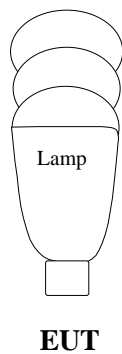
### Justification

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

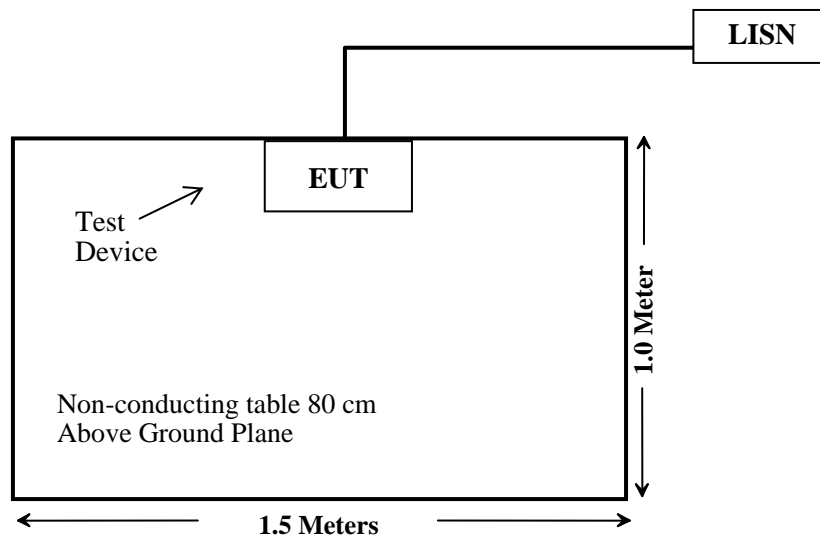
### Equipment Modifications

No modifications were made to the unit tested.

### Configuration of Test Setup



### Block Diagram of Test Setup



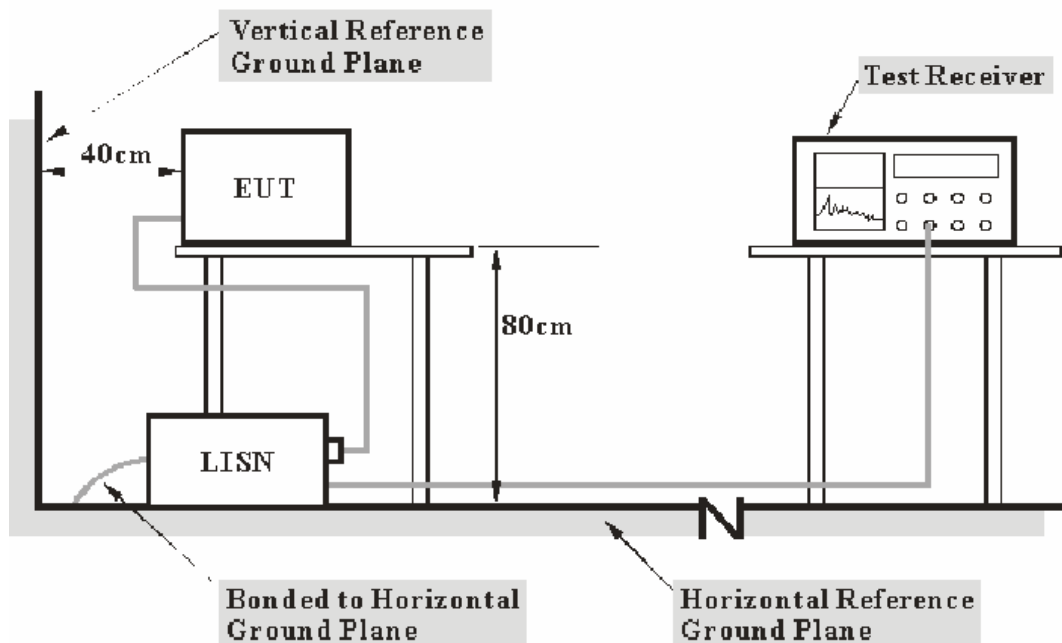
## CONDUCTED EMISSIONS

### 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>Frequency Range</i>	<i>IF B/W</i>
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:

*MLB13GU: 7.2 dB at 0.485 MHz in the Line conductor mode.*  
*MLG13GU: 4.9 dB at 0.455 MHz in the Neutral conductor mode.*  
*MLR13GU: 0.7 dB at 0.450 MHz in the Neutral 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 Karo Liao on 2008-08-13.

Test Mode: On

**Model: MLB13GU**

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)
0.485	40.80	PK	Line	48.00	7.20
0.485	40.20	PK	Neutral	48.00	7.80
0.620	40.10	PK	Neutral	48.00	7.90
0.530	39.90	PK	Line	48.00	8.10
0.530	39.00	PK	Neutral	48.00	9.00
0.660	36.90	PK	Line	48.00	11.10
0.685	35.80	PK	Neutral	48.00	12.20
0.705	35.50	PK	Line	48.00	12.50
0.650	34.50	PK	Neutral	48.00	13.50
0.750	34.30	PK	Neutral	48.00	13.70
0.780	34.00	PK	Line	48.00	14.00
0.835	33.40	PK	Line	48.00	14.60



**Model: MLG13GU**

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)
0.455	43.10	PK	Neutral	48.00	4.90
0.500	41.90	PK	Line	48.00	6.10
0.550	38.80	PK	Line	48.00	9.20
0.580	36.90	PK	Line	48.00	11.10
0.650	36.50	PK	Neutral	48.00	11.50
0.605	36.30	PK	Neutral	48.00	11.70
0.480	36.10	PK	Neutral	48.00	11.90
0.755	35.60	PK	Line	48.00	12.40
0.745	34.90	PK	Neutral	48.00	13.10
0.915	33.50	PK	Line	48.00	14.50
0.825	33.30	PK	Line	48.00	14.70
0.940	32.60	PK	Neutral	48.00	15.40

**Model: MLR13GU**

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)
0.450	47.30	PK	Neutral	48.00	0.70 *
0.455	44.10	PK	Line	48.00	3.90
0.495	43.70	PK	Neutral	48.00	4.30
0.505	41.30	PK	Line	48.00	6.70
0.595	41.00	PK	Neutral	48.00	7.00
0.745	39.10	PK	Neutral	48.00	8.90
0.695	38.60	PK	Neutral	48.00	9.40
0.590	38.30	PK	Line	48.00	9.70
0.640	37.50	PK	Line	48.00	10.50
0.550	37.20	PK	Line	48.00	10.80
0.790	35.10	PK	Line	48.00	12.90
0.895	33.80	PK	Neutral	48.00	14.20

\* Within measurement uncertainty.

**Plot(s) of Test Data**

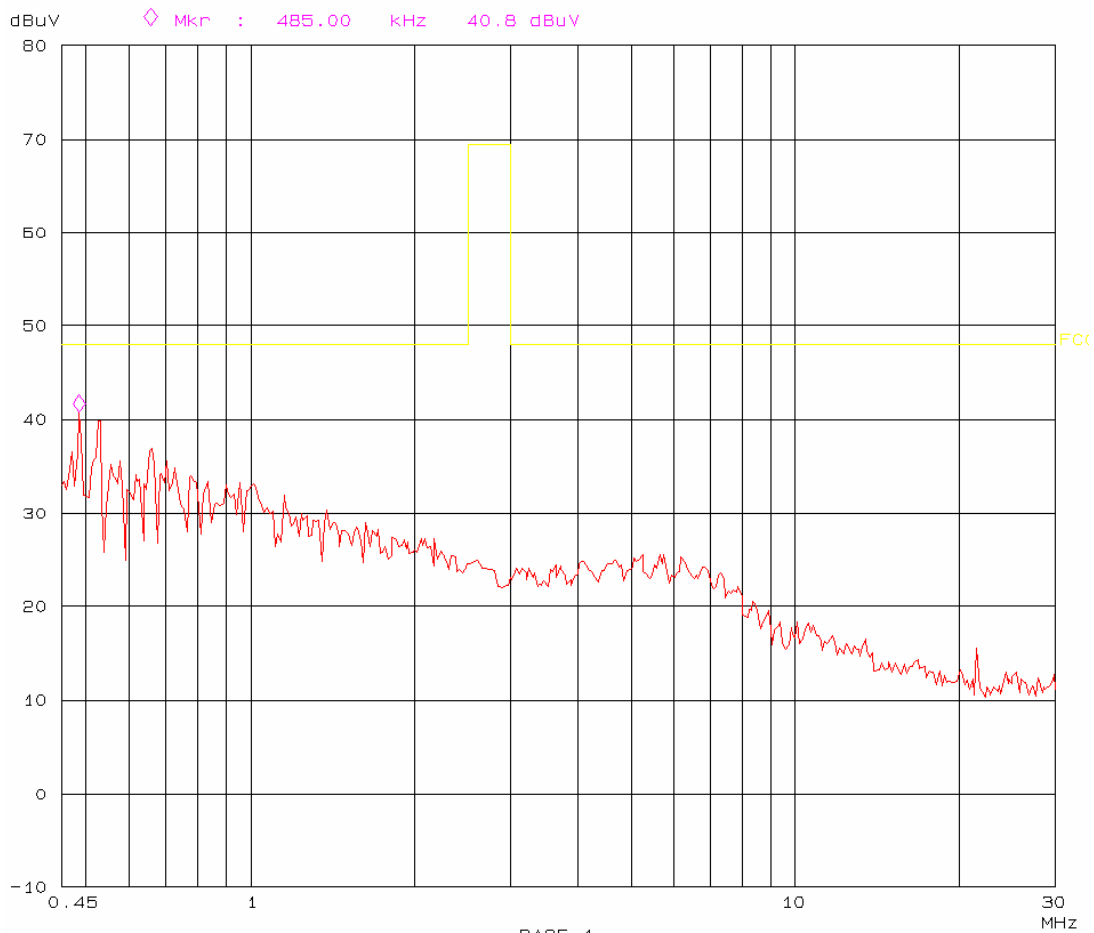
Plot(s) of Test Data is presented hereinafter as reference.

**Model: MLB13GU**

Conducted Emission  
FCC Part18

23. Aug 08 12:12

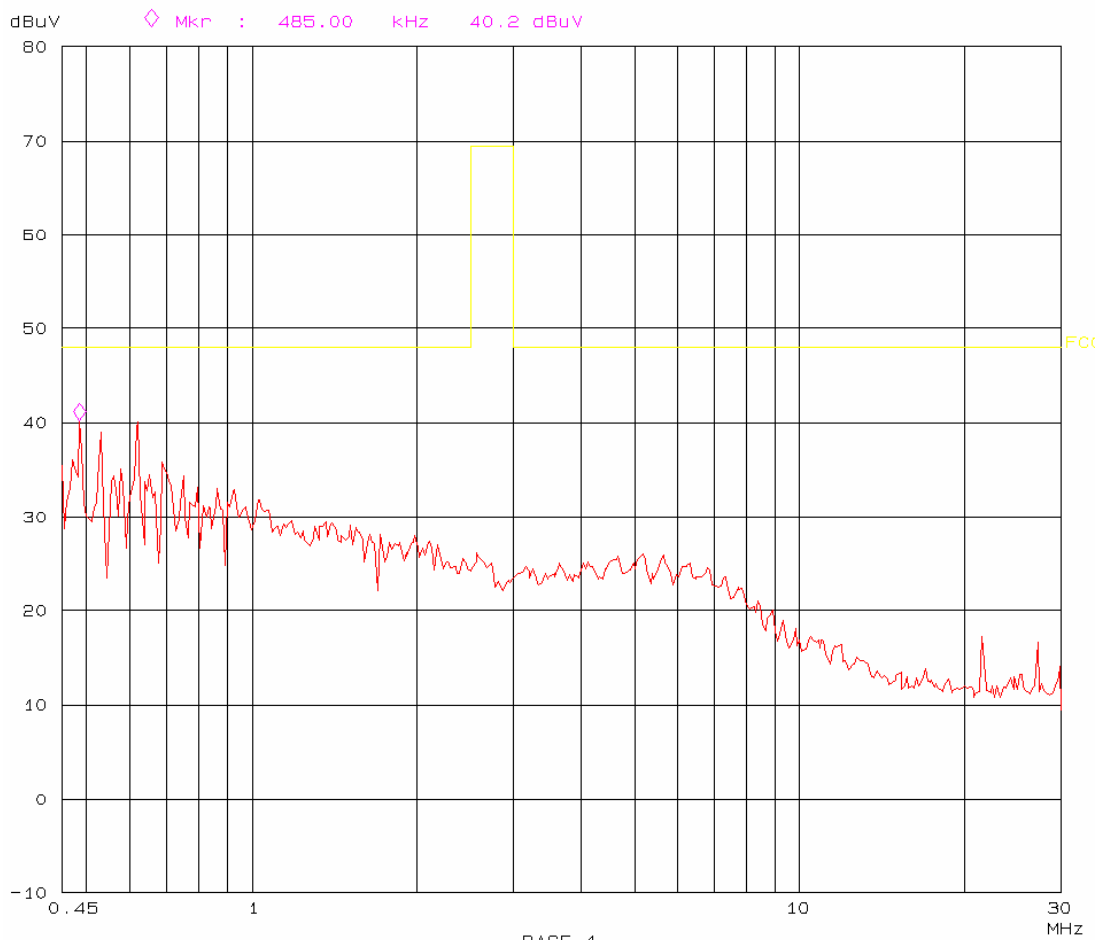
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Manuf: TOSHIBA LIGHTING&TECHNOLOGY CORPORATION  
Op Cond: ON  
Operator: Karo  
Test Spec: AC 120V/60Hz L  
Comment: Temp: 25 Hum: 56%



Conducted Emission  
FCC Part18

23. Aug 08 12:37

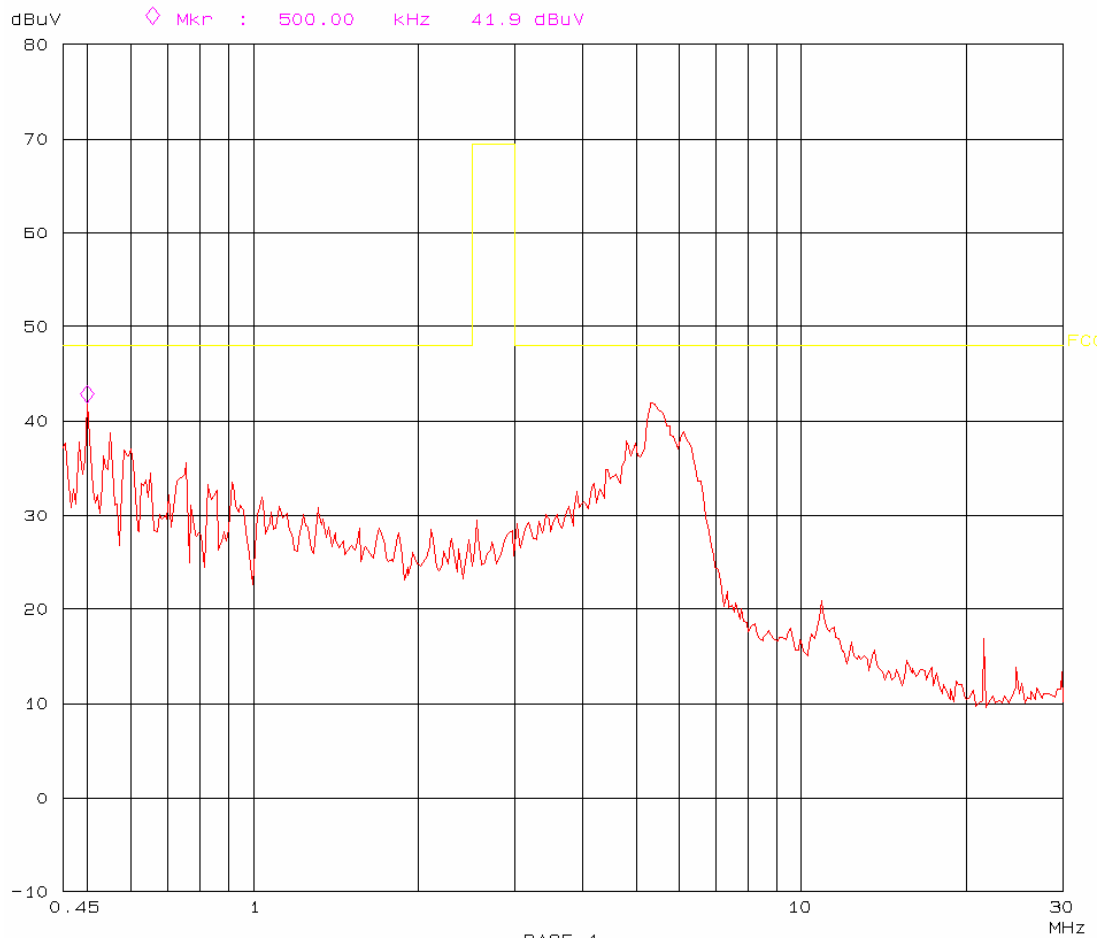
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Manuf: TOSHIBA LIGHTING&TECHNOLOGY CORPORATION  
Op Cond: ON  
Operator: Karo  
Test Spec: AC 120V/60Hz N  
Comment: Temp: 25 Hum: 56%



**Model: MLG13GU**

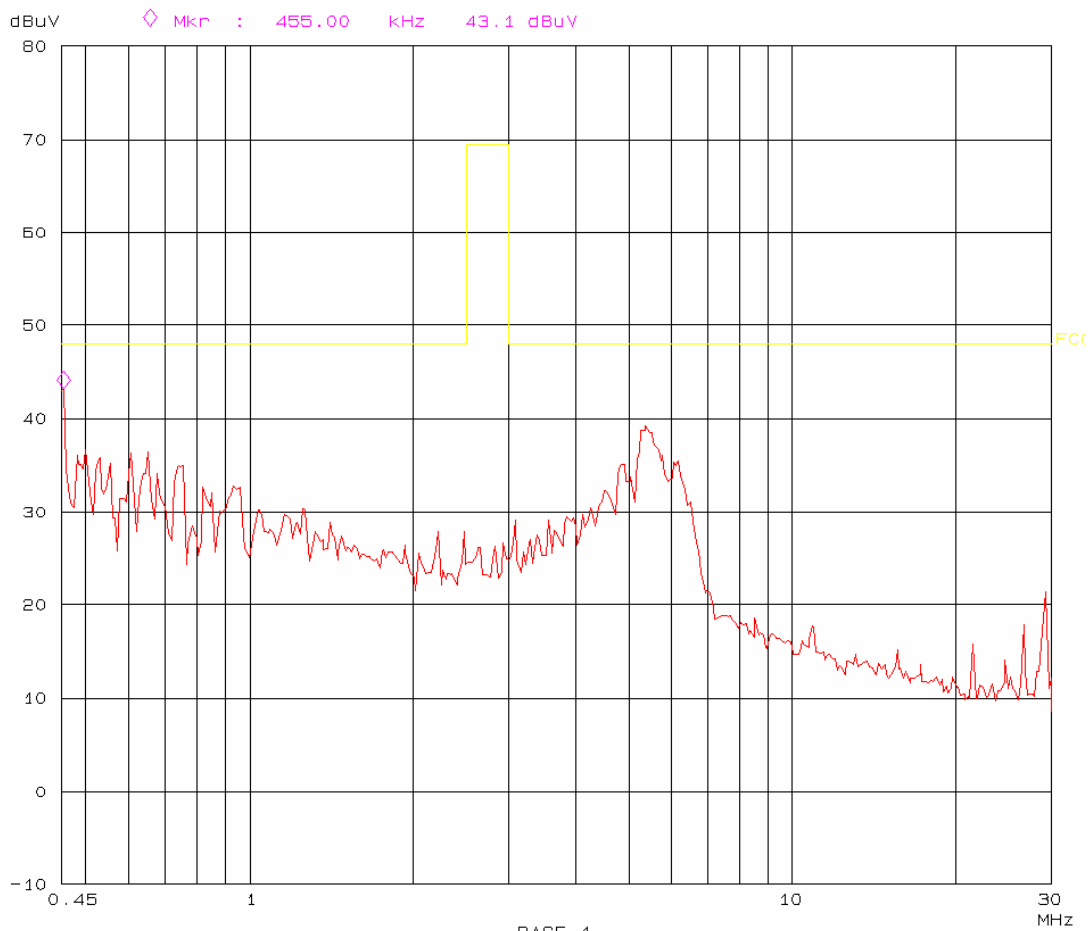
Conducted Emission  
FCC Part18

EUT: CFL M/N: MLG13GU  
Manuf: TOSHIBA LIGHTING&TECHNOLOGY CORPORATION  
Op Cond: ON  
Operator: Kano  
Test Spec: AC 120V/60Hz L  
Comment: Temp: 25 Hum: 56%



### Conducted Emission FCC Part18

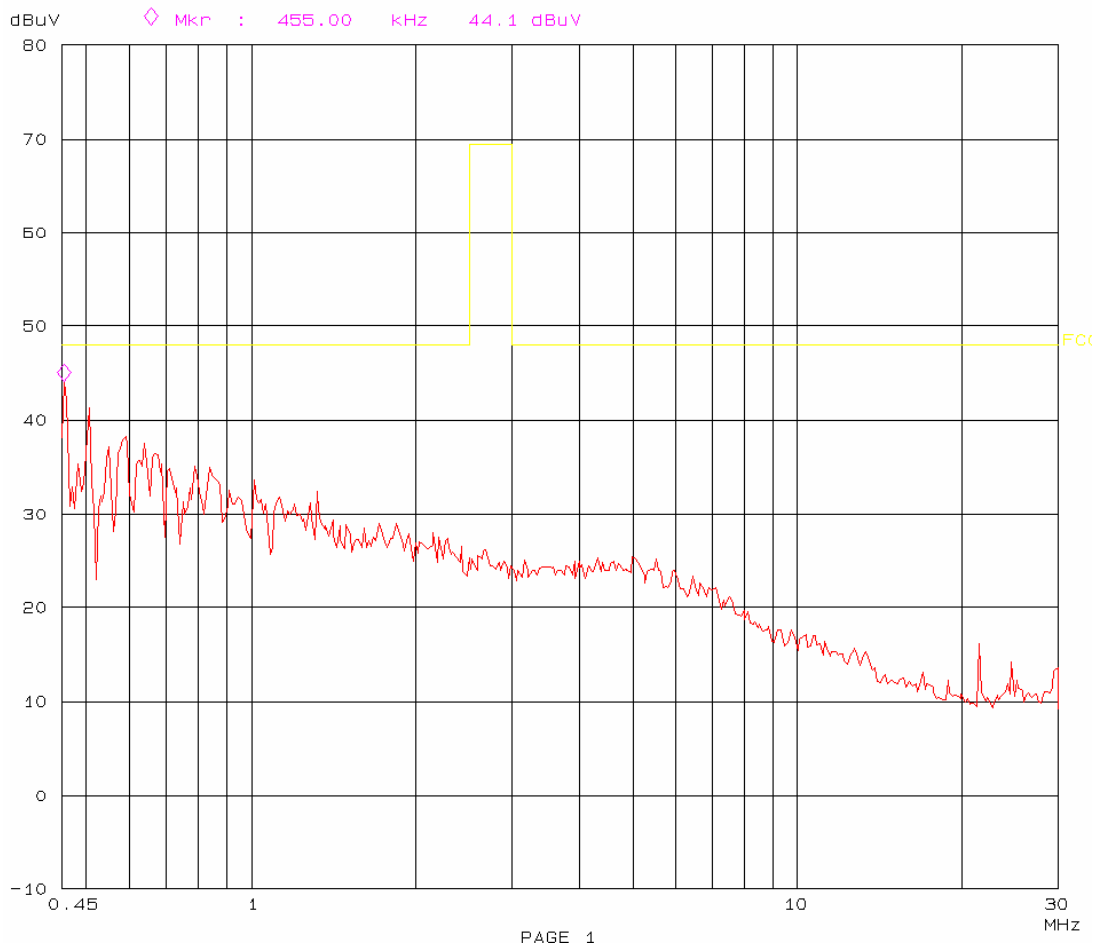
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Manuf: TOSHIBA LIGHTING&TECHNOLOGY CORPORATION  
Op Cond: ON  
Operator: Karo  
Test Spec: AC 120V/60Hz N  
Comment: Temp: 25 Hum: 56%



**Model: MLR13GU**

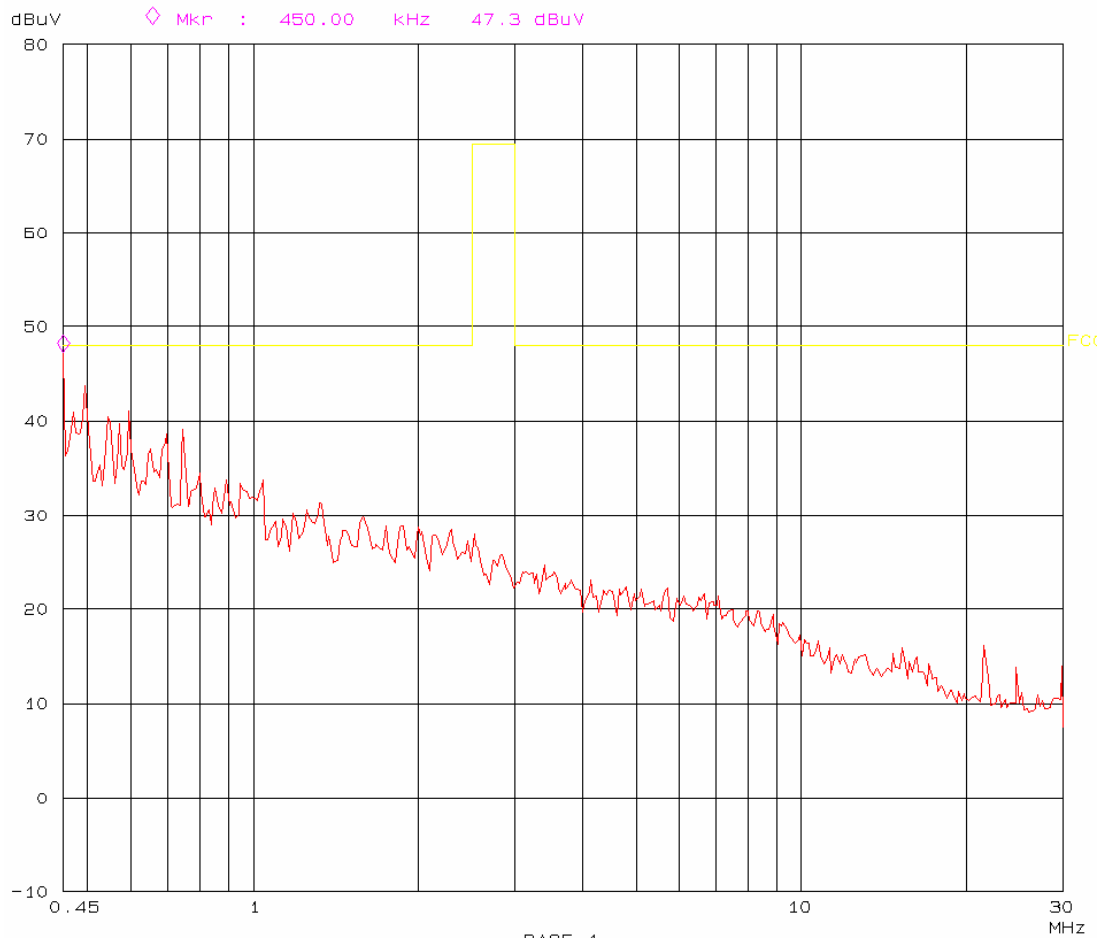
Conducted Emission  
FCC Part18

EUT: CFL M/N: MLR13GU  
Manuf: TOSHIBA LIGHTING&TECHNOLOGY CORPORATION  
Op Cond: ON  
Operator: Karo  
Test Spec: AC 120V/60Hz L  
Comment: Temp: 25 Hum: 56%



Conducted Emission  
FCC Part18

EUT: CFL M/N: MLR13GU  
Manuf: TOSHIBA LIGHTING&TECHNOLOGY CORPORATION  
Op Cond: DN  
Operator: Karo  
Test Spec: AC 120V/60Hz N  
Comment: Temp: 25 Hum: 56%



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