

FCC PART 18

MEASUREMENT AND TEST REPORT

For

Firefly Lighting Co., Ltd.

Firefly Building, Jinzhongyuan Industrial Area, Zhongzhai, Xiamen, Fujian, China.

FCC ID: PGE-BU4

November 1, 2004

This Report Concerns: <input checked="" type="checkbox"/> Original Report	Equipment Type: Luminary, Compact Fluorescent Lamp with integral Ballast
Test Engineer: <u>Sam Lin</u>	
Report Number <u>RSZ04101881</u>	
Test Date: <u>October 28, 2004</u>	
Reviewed By: <u>Chris Zeng</u> 	
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Note: The test report is specially limited to the above company and the product model only. It may not be duplicated without prior written consent of Bay Area Compliance Laboratory Corporation. This report **must not** be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the US Government.

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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *Firefly Lighting Co., Ltd.*'s model *BU4-14W, BU4-20W, XBU48-11U, XBU48-14U, XBU48-18U or the "EUT" as referred to in this report* is a Luminary, Compact Fluorescent Lamp with integral Ballast which measures approximately *BU4-14W: 4.5cm L x 4.5cm W x 11.0cm H, BU4-20W: 4.5cm L x 4.5cm W x 12.0cm H, XBU48-11U: 4.5cm L x 4.5cm W x 9.0cm H, XBU48-14U: 4.5cm L x 4.5cm W x 12.0cm H, XBU48-18U: 4.5cm L x 4.5cm W x 13.0cm H*, rated input voltage: AC 120 V/60Hz.

* The test data gathered are from production sample, serial number: *BU4-14W:00000123000, BU4-20W:00000311000, XBU48-11U:00000456000, XBU48-14U:00000321000, XBU48-18U:00000522 000* provided by the manufacturer.

Objective

The following test report is prepared on behalf of *Firefly Lighting 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 is to determine compliance with FCC rules.

Related Submittal(s)/Grant(s)

No Related Submittals.

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 radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 Meters.

Test Facility

Test site at Bay Area Compliance Laboratory Corporation has been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997 and Article 8 of the VCCI regulations on December 25, 1997. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2001 and FCC MP-5.

The Federal Communications Commission and Voluntary Control Council for Interference has the reports on file and is listed under FCC file 31040/SIT 1300F2 and VCCI Registration No.: C-1298 and R-1234. The test site has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

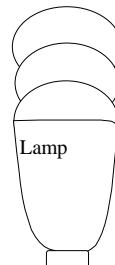
Justification

The EUT was tested under the normal operating conditions stated in the instructions by the manufacturer

Equipment Modifications

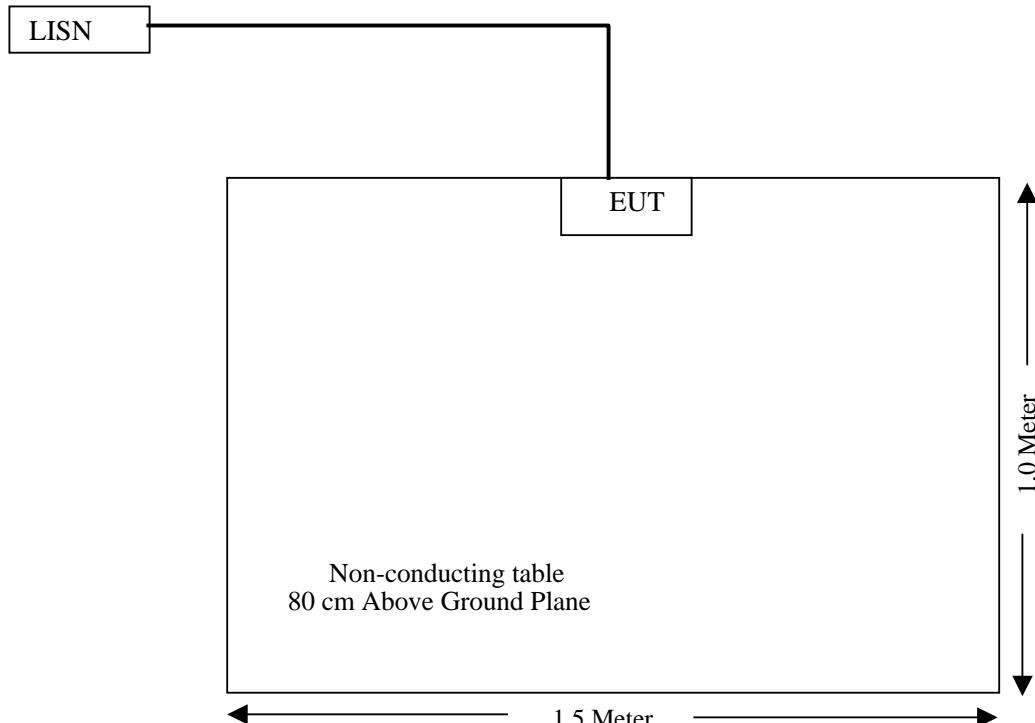
The EUT samples provided were reported by the manufacturer to be unmodified production samples

Configuration of Test System



EUT

Test Setup Block Diagram



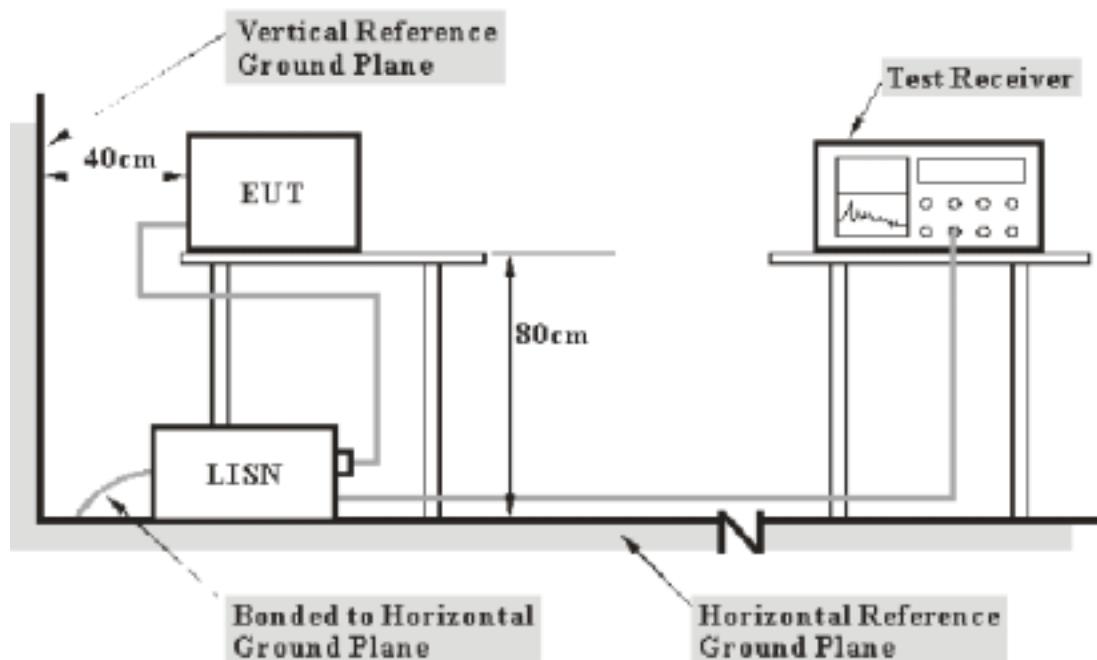
CONDUCTED EMISSION

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 BACL is ± 2.4 dB.

EUT Setup



Note:

1. Support units were connected to second LISN.
2. Both of LISNs (AMIN) 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 a 120 VAC/ 60Hz power source.

EMI Test Receiver Setup

The EMI Test Receiver was set to investigate the spectrum from 450 KHz to 30MHz.

During the conducted emission test, the EMI Test Receiver was set with the following configurations:

Frequency Range	IFBW
450KHz - 30MHz	9KHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	A.M.N	ESH2-Z5	892107/021	2003-11-20	2004-11-19
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2003-11-20	2004-11-19
Rohde & Schwarz	EMI Test Receiver	ESH3Z2	DE25985	2003-11-20	2004-11-19
THERMAX	Coaxial Cable	RGS-142	EC001	2003-11-20	2004-11-19
Compwer	LISN	LT-200	12208	2004-10-30	2005-10-29
Compwer	LISN	LT-200	12005	2004-10-30	2005-10-29
Fluke	True RMS Multimeter	187	78540402	2004-3-23	2005-3-22

* **Statement of Traceability:** BACL attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

Test Procedure

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

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

All data was recorded in the peak detection mode.

Test Data

Date of Test:	October 28, 2004	Temperature:	25
EUT:	Luminary, Compact Fluorescent Lamp with integral Ballast	Humidity:	70%
M/N:	BU4-20W	Operating Mode:	On
S/N:	0000031100	Test Engineer:	Sam Lin

LINE CONDUCTED EMISSIONS				FCC PART 18	
Frequency MHz	Amplitude dB μ V	Detector QP/AV/PK	Phase Line/Neutral	Limit dB μ V	Margin dB
0.480	41.50	PK	Line	48.00	-6.50
0.475	40.10	PK	Neutral	48.00	-7.90
0.525	37.20	PK	Line	48.00	-10.80
0.610	37.10	PK	Line	48.00	-10.90
0.520	36.90	PK	Neutral	48.00	-11.10
0.605	36.50	PK	Neutral	48.00	-11.50
0.695	36.10	PK	Line	48.00	-11.90
0.695	35.90	PK	Neutral	48.00	-12.10

Date of Test:	October 28, 2004	Temperature:	25
EUT:	Luminary, Compact Fluorescent Lamp with integral Ballast	Humidity:	70%
M/N:	BU4-14W	Operating Mode:	On
S/N:	00000123000	Test Engineer:	Sam Lin

LINE CONDUCTED EMISSIONS				FCC PART 18	
Frequency MHz	Amplitude dB μ V	Detector QP/AV PK	Phase Line/Neutral	Limit dB μ V	Margin dB
0.490	39.50	PK	Neutral	48.00	-8.50
0.495	39.10	PK	Line	48.00	-8.90
0.570	36.10	PK	Line	48.00	-11.90
0.770	36.00	PK	Line	48.00	-12.00
0.520	35.60	PK	Neutral	48.00	-12.40
0.755	34.80	PK	Neutral	48.00	-13.20

Date of Test: October 28, 2004 Temperature: 25
 EUT: Luminary, Compact Fluorescent Lamp with integral Ballast Humidity: 70%
 M/N: XBU48-11U Operating Mode: On
 S/N: 00000456000 Test Engineer: Sam Lin

LINE CONDUCTED EMISSIONS				FCC PART 18	
Frequency MHz	Amplitude dB μ V	Detector QP/AV/ PK	Phase Line/Neutral	Limit dB μ V	Margin dB
1.020	36.80	PK	Line	48.00	-11.20
0.575	35.60	PK	Line	48.00	-12.40
0.665	34.40	PK	Line	48.00	-13.60
0.455	34.20	PK	Neutral	48.00	-13.80
0.730	34.10	PK	Neutral	48.00	-13.90
0.815	33.60	PK	Neutral	48.00	-14.40

Date of Test: October 28, 2004 Temperature: 25
 EUT: Luminary, Compact Fluorescent Lamp with integral Ballast Humidity: 70%
 M/N: XBU48-14U Operating Mode: On
 S/N: 00000321000 Test Engineer: Sam Lin

LINE CONDUCTED EMISSIONS				FCC PART 18	
Frequency MHz	Amplitude dB μ V	Detector QP/AV/ PK	Phase Line/Neutral	Limit dB μ V	Margin dB
0.720	38.10	PK	Line	48.00	-9.90
0.495	37.30	PK	Line	48.00	-10.70
0.640	37.10	PK	Line	48.00	-10.90
0.635	36.90	PK	Neutral	48.00	-11.10
0.495	36.80	PK	Neutral	48.00	-11.20
0.535	36.50	PK	Neutral	48.00	-11.50

Date of Test: October 28, 2004 Temperature: 25
EUT: Luminary, Compact Fluorescent Humidity: 70%
Lamp with integral Ballast
M/N: XBU48-18U Operating Mode: On
S/N: 0000052200 Test Engineer: Sam Lin

LINE CONDUCTED EMISSIONS				FCC PART 18	
Frequency MHz	Amplitude dB μ V	Detector QP/AV/ PK	Phase Line/Neutral	Limit dB μ V	Margin dB
0.490	41.80	PK	Neutral	48.00	-6.20
0.485	41.60	PK	Line	48.00	-6.40
0.565	37.40	PK	Line	48.00	-10.60
0.565	37.20	PK	Neutral	48.00	-10.80
0.740	36.30	PK	Neutral	48.00	-11.70
0.735	36.10	PK	Line	48.00	-11.90

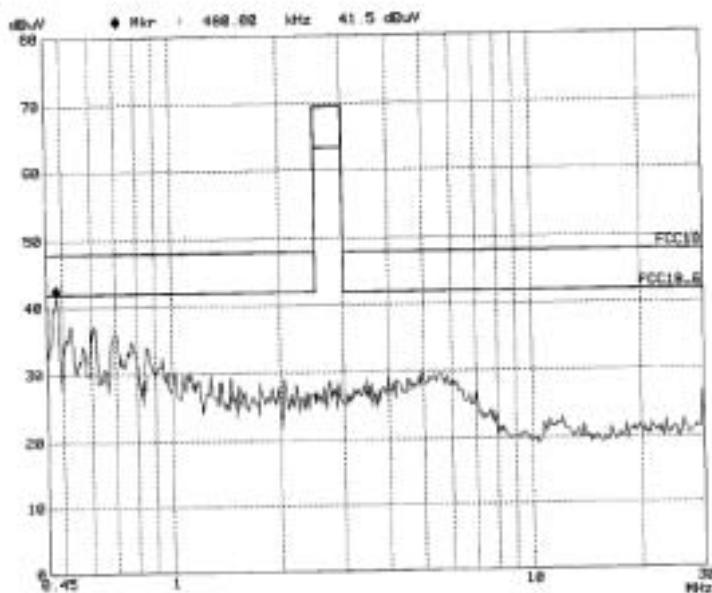
Test Result: Pass

Plot(s) of Test Data

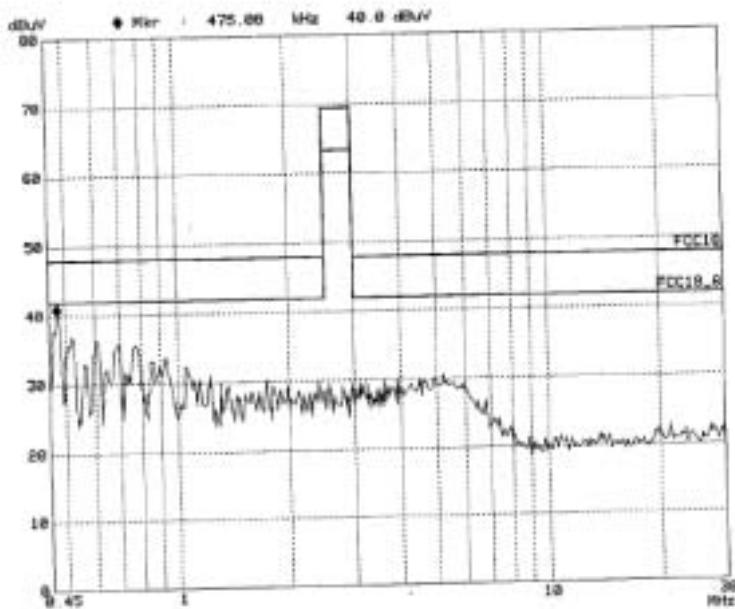
Plot(s) of Test Data is presented hereinafter as reference.

BU4-20W

Line:

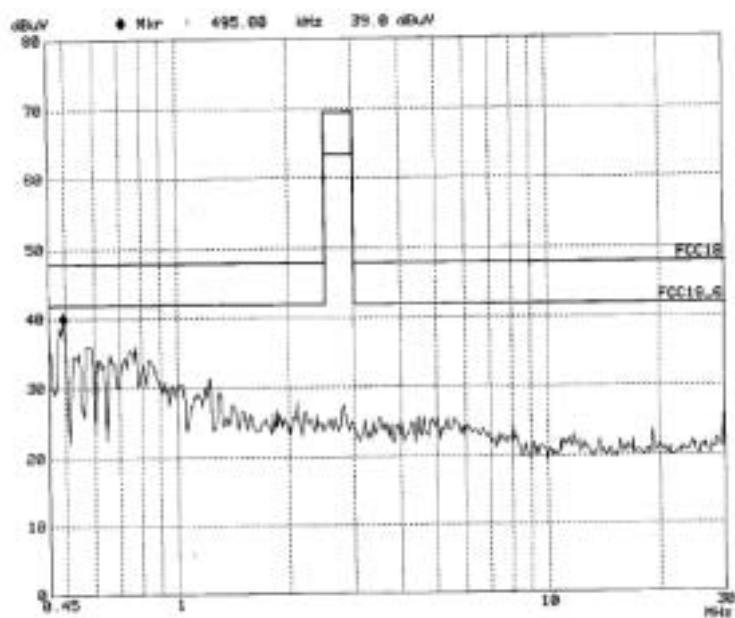


Neutral:

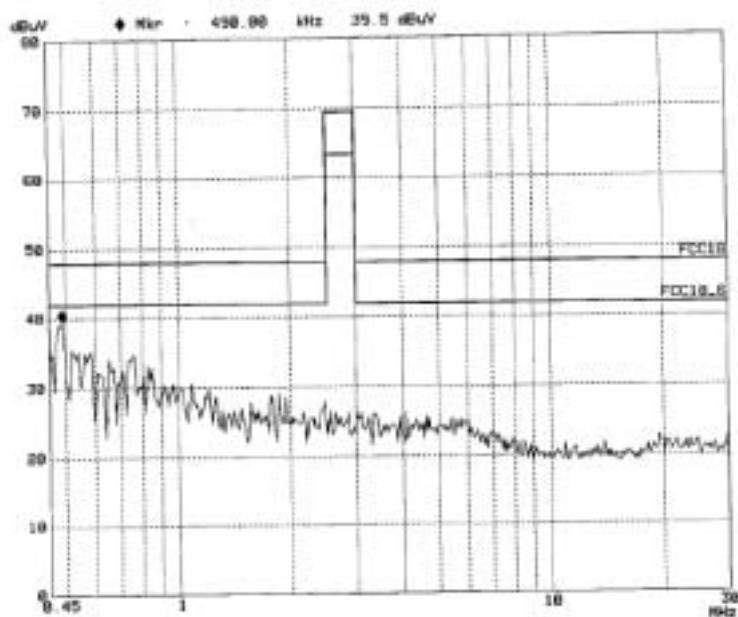


BU4-14W

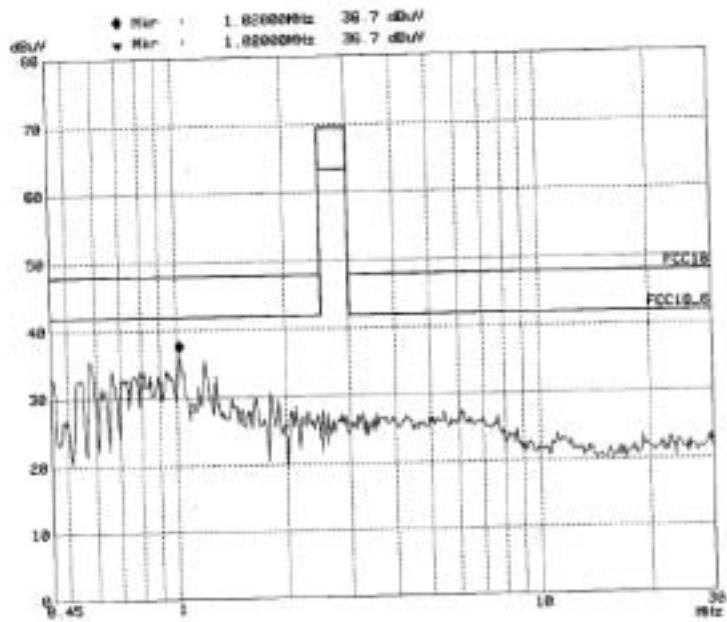
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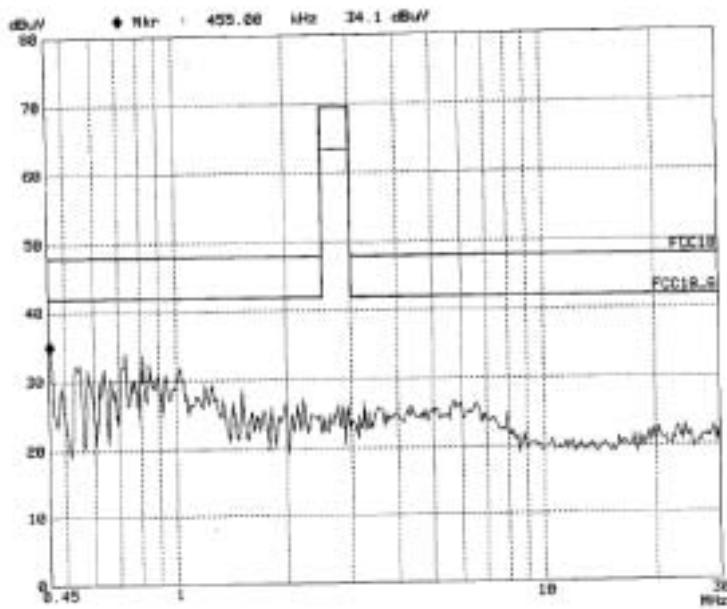
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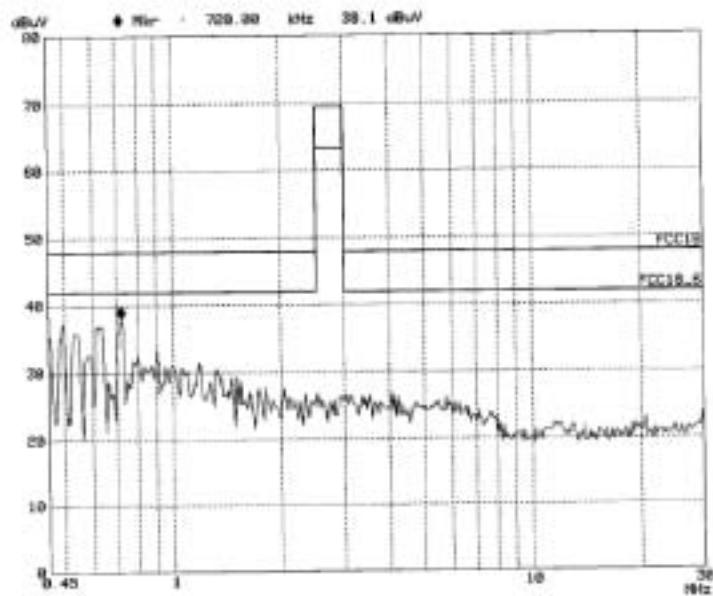
XBU48-11U



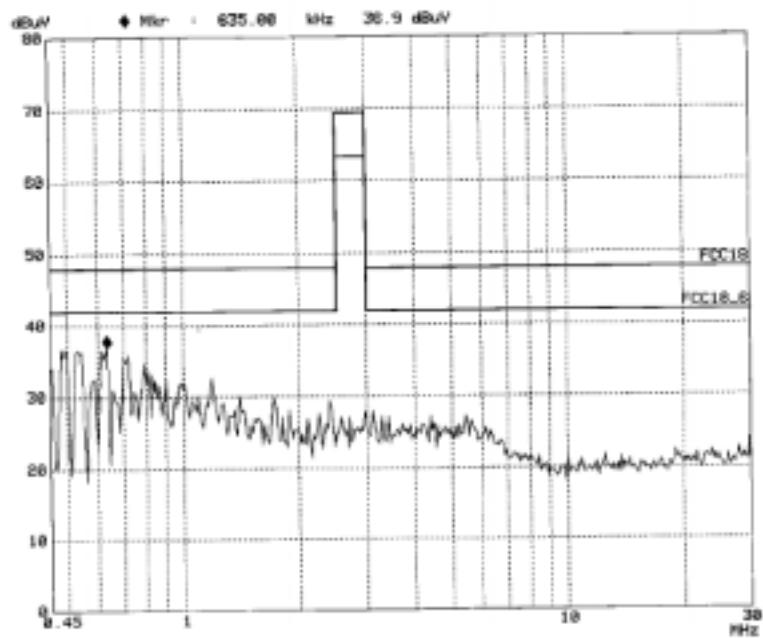
Neutral:



XBU48-14U

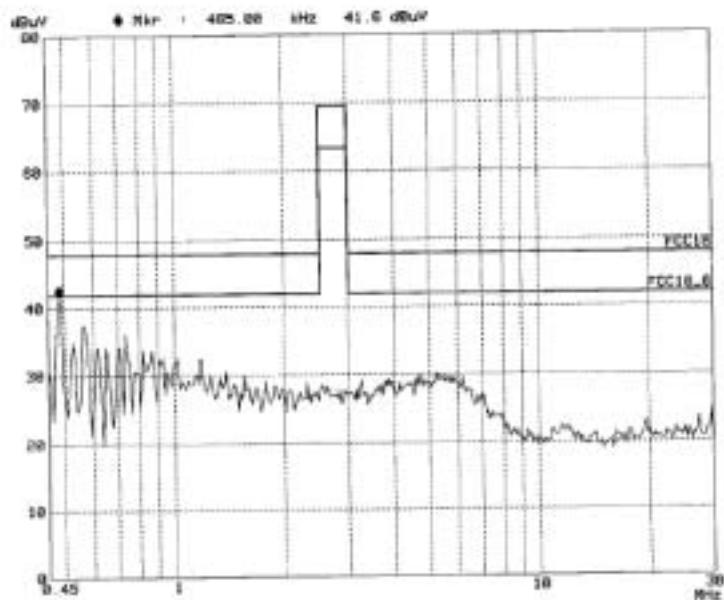


Neutral:



XBU48-18U

Line:



Neutral

