

MEASUREMENT/TECHNICAL REPORT

Duro-Test Corporation - Model: 1168LN
FCC ID: M64-DT4
June1998

This report concerns (check one:) Original Grant X Class II Change _____

Equipment Type: Fluorescent Ballast (example: computer, printer, modem, etc.)

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes _____ No X

If yes, defer until: _____
date

Company Name agrees to notify the Commission by: _____
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? Yes _____ No X

If no, assumed Part 15, Subpart B for unintentional radiator - the new 47 CFR [10-1-95 Edition] provision.

Report prepared by:

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EXHIBIT 1

GENERAL DESCRIPTION

1.0 General Description

1.1 Product Description

The ballast consists of two sub-systems. The first is a double voltage rectification circuit responsible for the rectification of a 120 volt 50/60 Hz line input to a stable DC voltage. The latter system is an oscillating circuit that is used to drive the fluorescent arc tube at a high frequency voltage. The timing for 3 way is derived from 43kHz to 58kHz for levels 1-2 and 29 kHz to 35 kHz for level 3 in the oscillating circuit.

Duro-Test Corporation has asked to Request for Confidentiality on the following items:

Section 6.2 - Schematic Drawing and Component List of the Model: 1168LN, FCC ID: M64-DT4.

Please see the attached letter from Duro-Test.

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EXHIBIT 2

SYSTEM TEST CONFIGURATION

2.0 System Test Configuration

2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it). During testing, all cables were manipulated to produce worst case emissions.

Radiated emissions test was not performed as the unit operates below 1.705 MHz.

2.2 EUT Exercising Software

There was no special software to exercise the device.

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2.3 Special Accessories

There are no special accessories necessary for compliance of this product.

Confirmed by:

*Andrew J. Bellezza
Engineering Team Leader, ITE
Intertek Testing Services NA Inc.
Agent for Duro-Test Corporation*

Andrew J. Bellezza _____ Signature

6-30-98 _____ Date

Intertek Testing Services NA Inc.

2.4 Equipment Modification

Any modifications installed previous to testing by Duro-Test Corporation will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services NA Inc.

Confirmed by:

*Andrew J. Bellezza
Engineering Team Leader, ITE
Intertek Testing Services NA Inc.
Agent for Duro-Test Corporation*

Andrew J. Bellezza

Signature

6-30-98

Date

Intertek Testing Services NA Inc.

2.5 Support Equipment List and Description

The FCC ID's for all equipment, plus descriptions of all cables used in the tested system (included inserted cards, which have grants) are:

Light bulb test fixture	Manufacturer: N/A
	Model: N/A
	Serial: N/A
	FCC ID: N/A

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EXHIBIT 3

EMISSION RESULTS

3.0 Emission Results

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs, data tables and graphical representations of the emissions are included.

3.1 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

$$FS = RA + AF + CF - AG + PD - AV$$

where FS = Field Strength in $\text{dB}\mu\text{V/m}$
 RA = Receiver Amplitude (including preamplifier) in $\text{dB}\mu\text{V}$
 CF = Cable Attenuation Factor in dB
 AF = Antenna Factor in dB
 AG = Amplifier Gain in dB
 PD = Pulse Desensitization in dB
 AV = Average Factor in dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

$$FS = RA + AF + CF - AG + PD + AV$$

Assume a receiver reading of $62.0 \text{ dB}\mu\text{V}$ is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB , and the resultant average factor was -10 dB . The net field strength for comparison to the appropriate emission limit is $32 \text{ dB}\mu\text{V/m}$. This value in $\text{dB}\mu\text{V/m}$ was converted to its corresponding level in $\mu\text{V/m}$.

$$RA = 52.0 \text{ dB}\mu\text{V/m}$$

$$AF = 7.4 \text{ dB}$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$PD = 0 \text{ dB}$$

$$AV = -10 \text{ dB}$$

$$FS = 52 + 7.4 + 1.6 - 29 + 0 - 10 = 32 \text{ dB}\mu\text{V/m}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(32 \text{ dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m}$$

3.1 Line Conducted Configuration Photograph

Worst Case Line Conducted Emissions

Front View

Switch Setting is at 1st Level

0.453 MHz

0.680 MHz

0.907 MHz

Switch Setting is at 2nd Level

0.453 MHz

Switch Setting is at 3rd Level

1.480 MHz

3.1 Line Conducted Configuration Photograph (cont)

Worst Case Line Conducted Emissions

Rear View

Switch Setting is at 1st Level

0.453 MHz

0.680 MHz

0.907 MHz

Switch Setting is at 2nd Level

0.453 MHz

Switch Setting is at 3rd Level

1.480 MHz

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3.2 Line Conducted Emission Configuration Data - Model: 1168LN

The data on the following page lists the significant emission frequencies, the limit, and the margin of compliance. Numbers with a minus sign are below the limit.

Judgement: Passed by

Switch Setting is at 1st Level

9 dB

Switch Setting is at 2nd Level


5 dB

Switch Setting is at 3rd Level

7 dB

* All readings are peak unless stated otherwise.

TEST PERSONNEL:



Tester Signature

Vathana F. Ven. Project Engineer
Typed/Printed Name

6/30/98
Date

Intertek Testing Services

Emissions Site 2 Boxborough, MA

Table:1

Company: Duro-Test Corporation

Model: 1168LN

Notes: Switch setting is at 1st Level

FCC Class B Conducted Emissions

Frequency (MHz)	Reading Side A (dBuV)	Reading Side B (dBuV)	Class B Limit (dBuV)	Margin (dB)
0.453	38	39	48	-9
0.680	39	39	48	-9
0.907	39	37	48	-9
1.260	36	38	48	-10
1.660	34	37	48	-11
2.070	33	30	48	-15
28.90	31	31	48	-17

Test Engineer: Vathana F. Ven

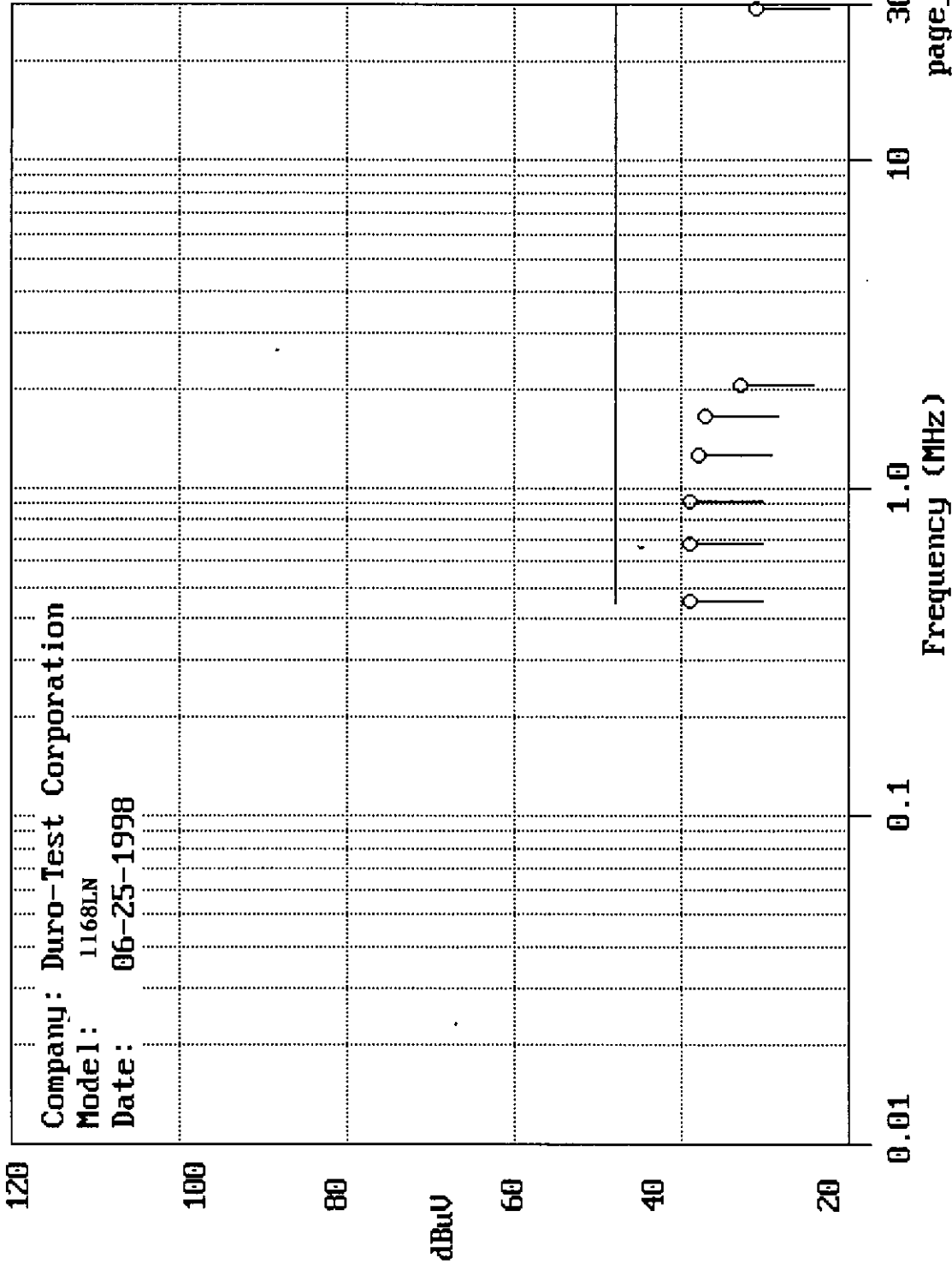
Test Date: 06-25-1998

FCC Class B Line Conducted Emission Limits and Data from Table 1

Company: Duro-Test Corporation

Model: 11168LN

Date: 06-25-1998



Intertek Testing Services

Emissions Site 2 Boxborough, MA

Table:2

Company: Duro-Test Corporation

Model: 1168LN

Notes: Switch setting is at 2nd Level

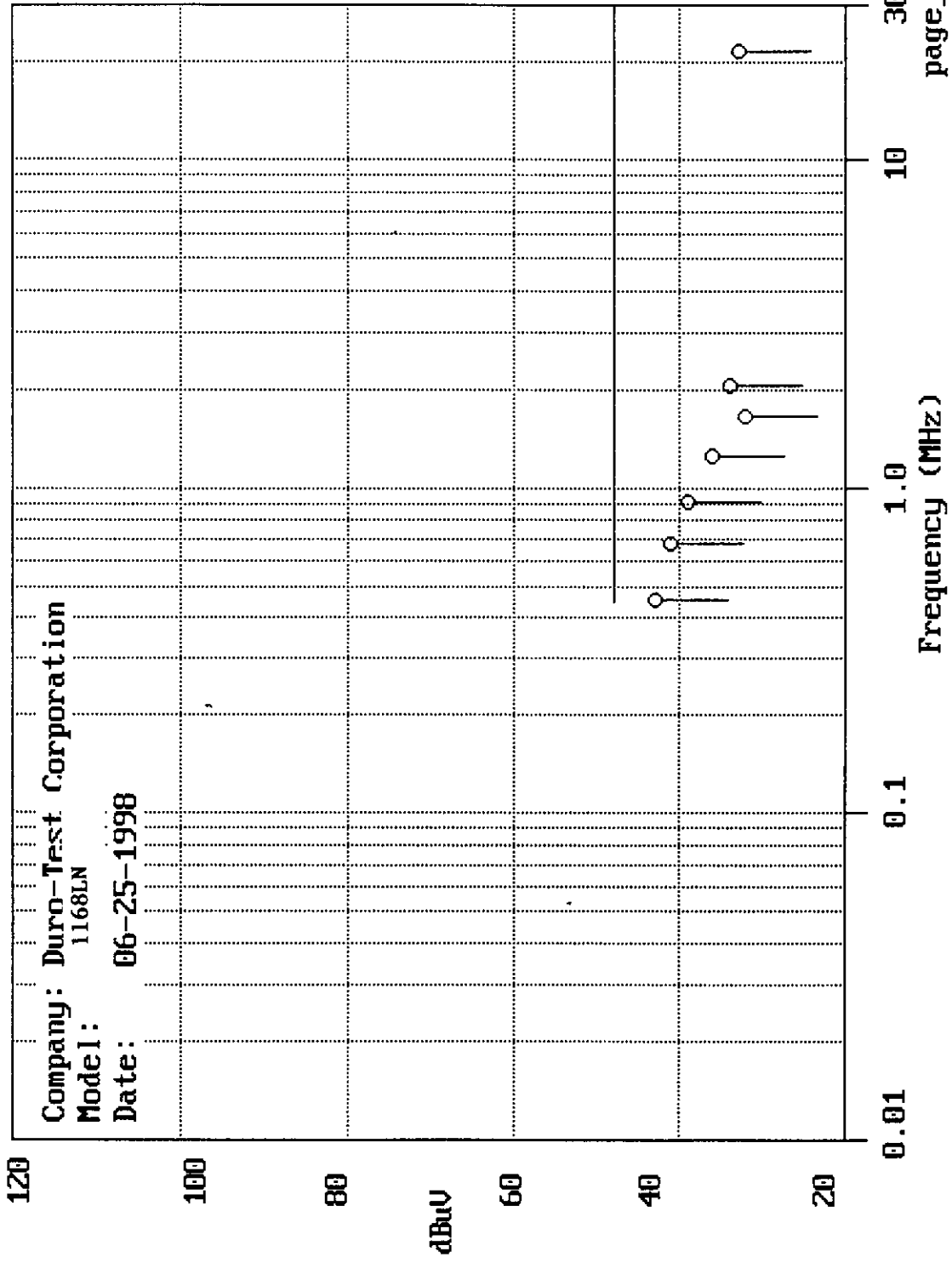
FCC Class B Conducted Emissions

Frequency (MHz)	Reading Side A (dBuV)	Reading Side B (dBuV)	Class B Limit (dBuV)	Margin (dB)
0.453	41	43	48	-5
0.680	41	39	48	-7
0.907	39	39	48	-9
1.260	36	34	48	-12
1.660	32	30	48	-16
2.070	34	34	48	-14
21.80	33	27	48	-15

Test Engineer: Vathana F. Ven

Test Date: 06-25-1998

FCC Class B Line Conducted Emission Limits and Data from Table 2



Intertek Testing Services

Emissions Site 2 Boxborough, MA

Table:3

Company: Duro-Test Corporation

Model: 1168LN

Notes: Switch setting is at 3rd Level

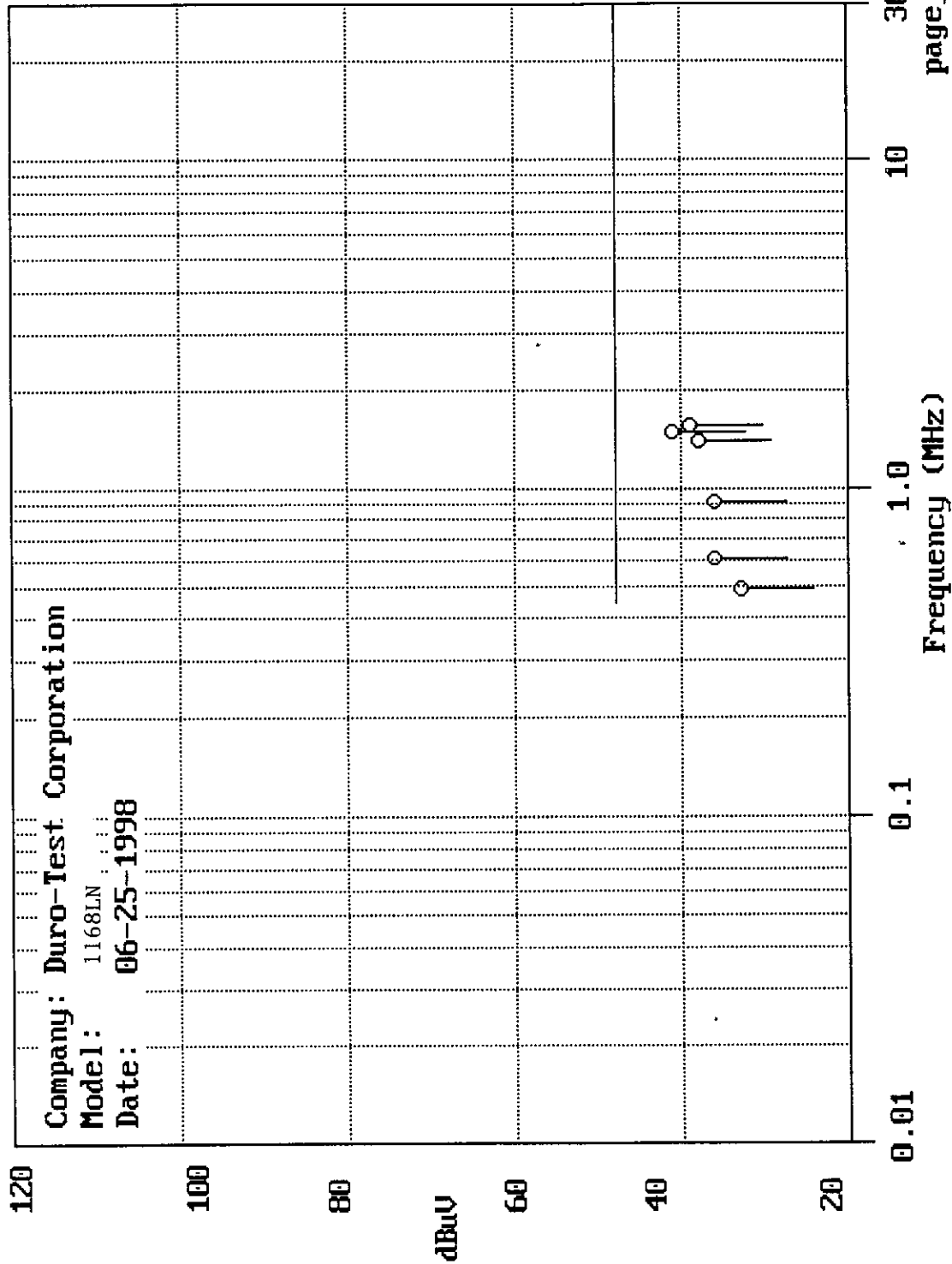
FCC Class B Conducted Emissions

Frequency (MHz)	Reading Side A (dBuV)	Reading Side B (dBuV)	Class B Limit (dBuV)	Margin (dB)
0.493	33	33	48	-15
0.608	36	36	48	-12
0.912	36	36	48	-12
1.403	38	38	48	-10
1.480	41	41	48	-7
1.558	39	39	48	-9

Test Engineer: Vathana F. Ven

Test Date: 06-25-1998

FCC Class B Line Conducted Emission Limits and Data from Table 3



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EXHIBIT 4

EQUIPMENT PHOTOGRAPHS

4.0 Equipment Photographs

Photographs of the EUT are attached.

Figure 6.2 Fluorescent Ballast Schematic Diagram and Component List