

Compliance Labs Inc.

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An EMC/EMI Testing Company

Measured Radio Frequency Emissions
From

TCP Fluorescent Lamps Deco Series

Report 1148
February 28, 2000

For:
Technical Consumer Products
29401 Ambina Drive
Solon OH 44139

Summary: The testing for compliance to FCC Regulations Part 18, Subpart C, dated 10/1/97, was performed on four Technical Consumer Products, Inc. Deco Series lamps. The devices are subject to FCC rules and regulations as a RF lighting device.

In the testing performed on February 28, 2000, the samples of the lamps were found to meet the required FCC specifications for conducted emissions

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R. Edward Koskie, President

Summary: The testing for compliance to FCC Regulations Part 18, Subpart C, Revised as of October 1, 1999, was performed on three Technical Consumer Products, Inc. Deco Series lamps, The devices are subject to FCC rules and regulations as a RF lighting device.

In the testing performed on February 28, 2000, the samples of the lamps were found to meet the required FCC specifications for conducted emissions

I. Introduction:

Four Deco-Series lamps were tested for compliance with FCC Regulations, Part 18, Subpart C, Dated 10/1/97. The testing was done at Compliance Labs Inc., 16740 Peters Road, Middlefield OH 44062. Test procedures were as defined in FCC/OST MP-5 (1986) Methods of Measurement of Radio Noise Emission from Industrial, Scientific and Medical Equipment. Description of the Compliance Lab facility is on file with the FCC Laboratory, Colombia, Maryland (FCC file 31040/SIT, 1300F2).

This testing is a continuation of previous work reported by the University of Michigan and adds to the range of lamps in the product family.

For reference, the model numbers on the original application were:

TCP Fluorescent Lamps; ES11, ES15 and ES18. The listed FCC authorization number was: NIR-10108

II. Test Equipment Listing

<u>Instrument</u>	<u>Manufacturer</u>	<u>Calibration date</u>
EMI Test System	Dynamic Sciences DSI 2020	7/6/99
LISN	Fisher Custom Communications	
	M 50/250-25-4	8/4/99
Cables	Various	N/A

III. Configuration and Identification of Device under test

The units are designed to be screwed into a standard light socket. They have a plastic case (adapter) containing an electronic ballast that is constructed on a PC board which is identical to the board in the U of M tests. The lamps are configured into a loop whose length is a function of the wattage. They are in three sizes, 3W, 7W and 13W. A decorative cover of four different configurations surrounds the fluorescent tubes. Three are shown in figure 5 (Globe and A-type are similar in appearance, one globe is smaller than the other, so only one is pictured). The base and circuitry are the same regardless of the globe. The ballast is a switching power supply operating at 45kHz. At this frequency, conducted but not radiated emission tests are required..

The units are designed by Technical Consumer Products, Inc. 29401 Ambina Drive, Solon OH 44139, and manufactured by Shanghai Jensing Electron Electrical Equipment Co. 23 Kai Jiange Rd. E, Si Jing, Song Jiang, 201601 Shanghai, China.

The Lamps in this test are identified by Model as:

- TCP Fluorescent Lamp,
- Deco Torpedo 3W
- Deco Torpedo 7W
- Deco R-20 13W

They are all low power factor units. The power factor designation will appear on the label for each lamp.

FCC ID: NIR-10108

A standard table lamp socket with a 1.2M two wire cord was prepared for powering the lamps. This length was selected to accommodate the requirement that no part of the EUT be closer than 0.8 M from the LISN.

3.1 Modifications

There were no modifications made on the lamps under test.

4. Emission limits

The lamps were tested in accordance with Part 18, Subpart C, Revised as of October 1, 1999]. The frequency of test and the limits are given in the following table.

4.1 Conducted Emission Limits

Table 4.1 Conducted emission limits
(Paragraph: 18.307; consumer equipment)

Frequency, MHz	Consumer equipment	
	μV	$\text{DB}\mu\text{V}$
0.45-30	250	48.0

5. Emission Tests and Results

Power line conducted emission tests were measured with a FCC approved setup with the DUT on a table as shown in figure1. The lamp cord was routed across the table and to the LISN. The conductive noise level was measured with a DSI measurement system that automatically plotted peak emission values in $\text{dB}\mu\text{V}$ from 0.45 MHz to 30 MHz for both the hot and neutral lines. The system was set to record those points that exceeded the limit line of 48dB.

The tests were run as follows. An automatic scan using peak detection was completed over the specified frequency range. Peak detection was used because of the ability of the equipment to scan significantly faster than at quasi-peak. Since any quasi-peak measurement would be less than peak, where the scan showed reading at or less than limit the unit would obviously pass. For verification, where the scan indicated a value at or above the limit value, that frequency was examined with quasi-peak detection and a pass/fail judgement made.

5.1 Conducted Emission Results

The results of the scans on each of the units are shown as Figure 1- 3.and Table 1-3. The red line is the hot line and the blue is the neutral line. The limit line is shown in green. None of the lamps had suspect frequencies. The data thus shows that the units meet the Consumer Equipment limits.

Figure 1

Frequency scan of Deco 13W

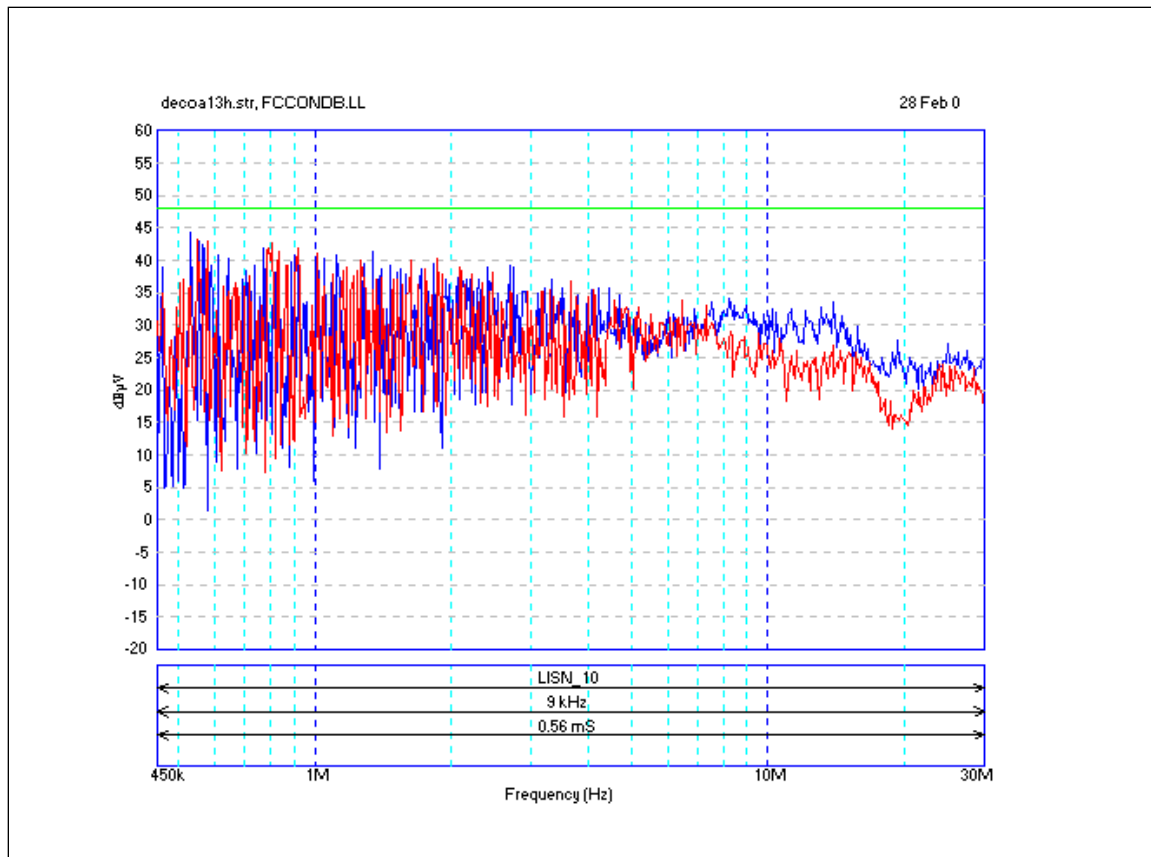


Table 1
Results of examining suspect frequencies

There were no suspect frequencies

Figure 2

Frequency scan of Deco 3W

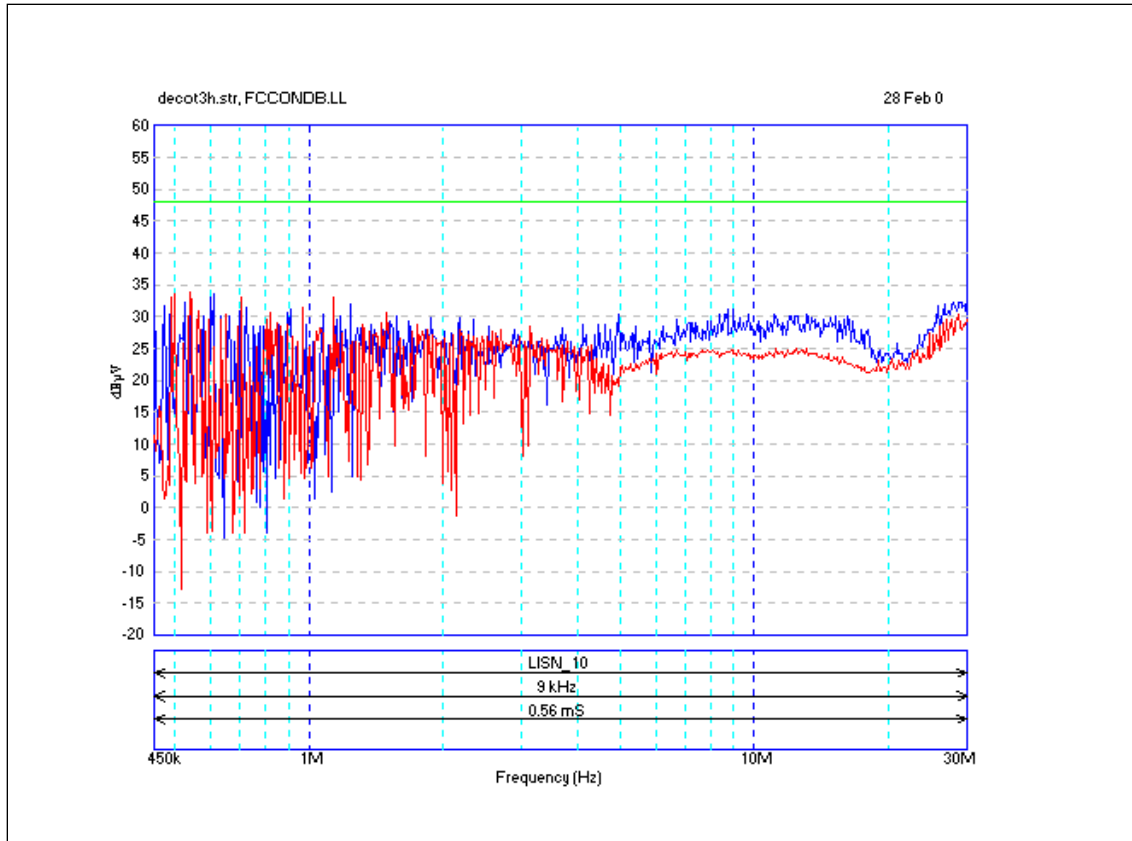


Table 2
Results of examining suspect frequencies

There were no suspect frequencies

Figure 3
Frequency scan of Deco 7W

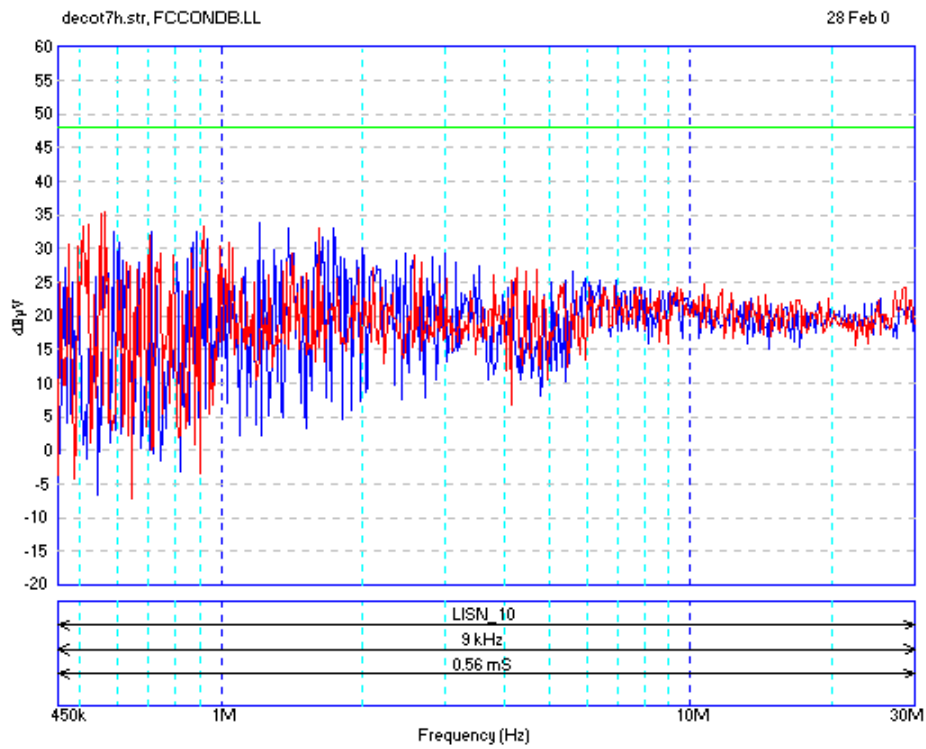


Table 3
Results of examining suspect frequencies

There were no suspect frequencies

Figure 4, Test setup

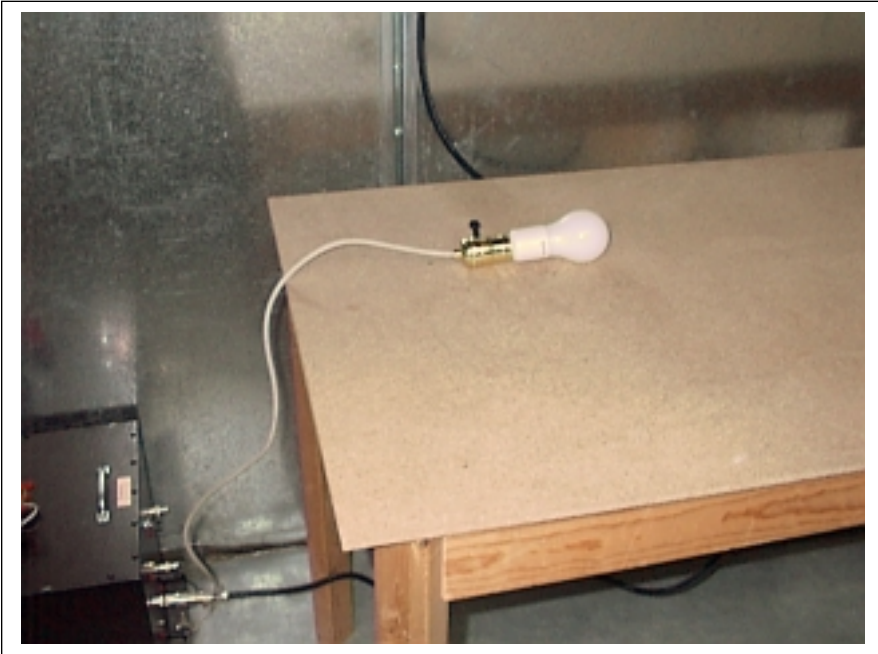


Figure 5, Globe Configurations



Torpedo style on left, Reflector style in center , Globe and A-shape on right