U.S. TECH
A TRADITION IN TESTING SERVICES

The Bodine Company
FCC Part 15, Certification Application
B50FEBnet Ballast Spread Spectrum Transceiver

March 9, 2005
UST Project Number: 05-0070

U.S. TECH
A TRADITION IN TESTING SERVICES

I certify that I am authorized to sign for the manufacturer and that all of the statements in this report and in the Exhibits attached hereto are true and correct to the best of my knowledge and belief:

UNITED STATES TECHNOLOGIES, INC. (AGENT RESPONSIBLE FOR TEST):

By: _____

Name: Louis A. Feudi

Title: Operations Manager

Date: March 9, 2005

The Bodine Company
236 Mt. Pleasant Road
Collierville, TN 38017

By: _____

Name: _____

Title: _____

Date: _____

MEASUREMENT/TECHNICAL REPORT

COMPANY NAME: **The Bodine Company**
MODEL: **B50FEBnet Ballast Spread Spectrum Transceiver**
FCC ID: **SZW-FEBNET02**
DATE: **March 9, 2005**

This report concerns (check one): Original grant X
Class II change_____

Equipment type: **Spread Spectrum Transceiver**

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

If yes, defer until:_____
date

N.A. agrees to notify the Commission by N.A.
date
of the intended date of announcement of the product so that the grant can be issued on that date.

Report prepared by:

United States Technologies, Inc.
3505 Francis Circle
Alpharetta, GA 30004

Phone Number: (770) 740-0717
Fax Number: (770) 740-1508

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SECTION 1

GENERAL INFORMATION

GENERAL INFORMATION

1.1 Product Description

The Equipment Under test is the,The Bodine Company's B50FEBnet Ballast.

The B50FEBnet Ballast is part of the FEBnet System. The FEBnet System provides communication with many fluorescent emergency ballasts to relay information such as test results and emergency ballast testing commands. The B50FEBnet Ballast transmits ballast status data to the wireless network.

1.2 Related Submittal(s)/Grant(s)

The EUT will be used with part of a system to send/receive data. The transceiver presented in this report will be used with other like transmitters.

The EUT is subject to the following authorizations:

a) Certification as a transceiver
b) Verification as a receiver and digital device

The information contained in this report is presented for the certification & verification authorization(s) for the EUT.

SECTION 2

TESTS AND MEASUREMENTS

TEST AND MEASUREMENTS

2.1 Configuration of Tested System

The sample was tested per ANSI C63.4, Methods of Measurement from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (1992). Conducted and radiated emissions data were taken with the test receiver or spectrum analyzer's resolution bandwidth adjusted to 9 kHz and 120 kHz, respectively. All measurements are peak unless stated otherwise. The video filter associated with the spectrum analyzer was off throughout the evaluation process. Interconnecting cables were manipulated as necessary to maximize emissions. Bock diagrams of the tested systems are shown in Figure 1. Test configuration photographs for spurious and fundamental emissions are shown in Figure 2a -b.

The sample used for testing was received by U.S. Technologies on February 8, 2005 in good condition.

2.2 Test Facility

Testing was performed at US Tech's measurement facility at 3505 Francis Circle, Alpharetta, GA. This site has been fully described and submitted to the FCC, and accepted in their letter marked 31040/SIT. Additionally this site has also been fully described and submitted to Industry Canada (IC), and has been approved under file number IC2982.

2.3 Test Equipment

Table 2 describes test equipment used to evaluate this product.

2.4 Modifications

The following modification was made by US Tech, to bring the EUT into compliance with FCC Part 15, Class B Limits for the transmitter portion of the EUT or the Class B Digital Device Requirements:

1. A double turned, Steward Ferrite (Part Number: LBF143064-000) was installed on the lamp wire.

FIGURE 1

TEST CONFIGURATION

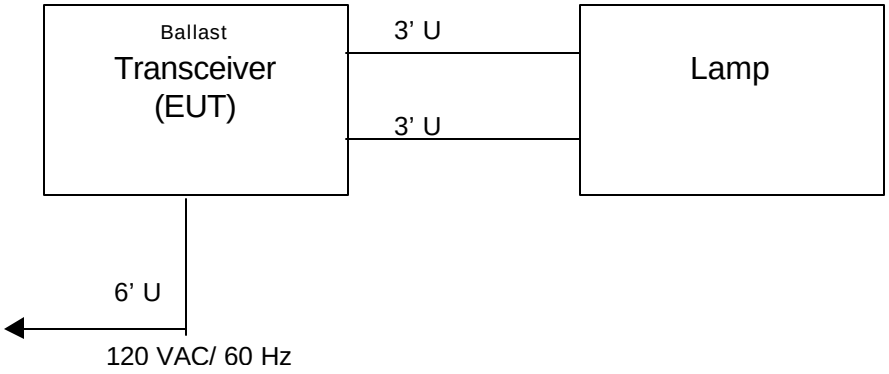

TABLE 1
EUT and Peripherals

PERIPHERAL MANU.	MODEL NUMBER	SERIAL NUMBER	FCC ID:	CABLES P/D
Ballast Transceiver (EUT) The Bodine Company	B50FEBnet Ballast	03145761	None	2 @ 3' U 6' U Power Cord 120 VAC/ 60 Hz
Lamp The Bodine Company	None	None	None	None

Detail of I/O Cables Attached to EUT

DESCRIPTION OF CABLE	DETAILS OF CABLE			CABLE LENGTH
Power Cable	**Manufacturer and Part Number**			6’
	Shield Type	**Shield Termination**	**Type of Backshell**	
	N/A	N/A	N/A	
(2) Lamp Cables	**Manufacturer and Part Number**			3’
	Shield Type	**Shield Termination**	**Type of Backshell**	
	N/A	N/A	N/A	

TABLE 2
TEST INSTRUMENTS

EQUIPMENT	MODEL NUMBER	MANUFACTURER	SERIAL NUMBER	DATE OF LAST CALIBRATION
SPECTRUM ANALYZER	8558B	HEWLETT-PACKARD	2332A10055	2/19/04
SPECTRUM ANALYZER	8593E	HEWLETT-PACKARD	3205A00124	11/29/04
SIGNAL GENERATOR	8648B	HEWLETT-PACKARD	3642U01679	10/13/03
RF PREAMP	8447D	HEWLETT-PACKARD	2944A06291	4/29/04
BICONICAL ANTENNA	3110B	EMCO	9307-1431	5/18/04
LOG PERIODIC	3146	EMCO	3110-3236	6/30/04
LISN (x 2) 8028-50-TS24-BNC	8028	SOLAR ELE.	910494 & 910495	1/20/04
HORN ANTENNA	SAS-571	A. H. SYSTEMS	605	04/26/04
PREAMP	8449B	HEWLETT PACKARD	3008A00480	06/23/04
CALCULATION PROGRAM	N/A	N/A	Ver. 6.0	N/A

2.6 Antenna Description (Paragraph 15.203)

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

The Model The Bodine Company B50FEBnet Ballast Spread Spectrum Transceiver incorporates a Hirose H.FL connector and will be used with approved antennas only. This device will currently be used with the following antenna:

1. Nearson, P/N S467FL-L-MM-915S, Range: 902-928 MHz, 50 Ohm impedance, 2.0 dBi Gain, Omni, Vertical Polarization, Half-Wave Dipole

2.7 Peak power within the band 902 – 928 MHz per FCC Section 15.247(b)

Peak power within the band 902 – 928 MHz has been measured with a spectrum analyzer by connecting the spectrum analyzer directly via a short cable to the antenna output terminals or across the antenna leads on the PCB as specified by the manufacturer. The spectrum analyzer was set for a 50 Ω impedance with the VBW $\geq$ RBW 6 dB bandwidth. The results of the measurements are given in Table 3 and Figure 3a1 through Figure 3a3.

Fundamental Frequencies were measured at Low Channel, Mid Channel, High Channel.

TABLE 3
PEAK POWER OUTPUT

Frequency of Fundamental (MHz)	Measurement (dBm)*	Measurement (mW)*	FCC Limit (Watt)
903.145	8.74	7.48	1.0
910.310	9.24	8.39	1.0
917.790	11.26	13.37	1.0

Power = Antilog (dBm/10) = Antilog (8.74/10) = Antilog 0.874 = 7.48
*** Measurement includes 0.1 dB for cable loss**

Test Date: February 15, 2005

Tester Signature:  **Name: David Blethen**

Figure 3a1.
Peak Power per FCC Section 15.247(b) (Low Channel)

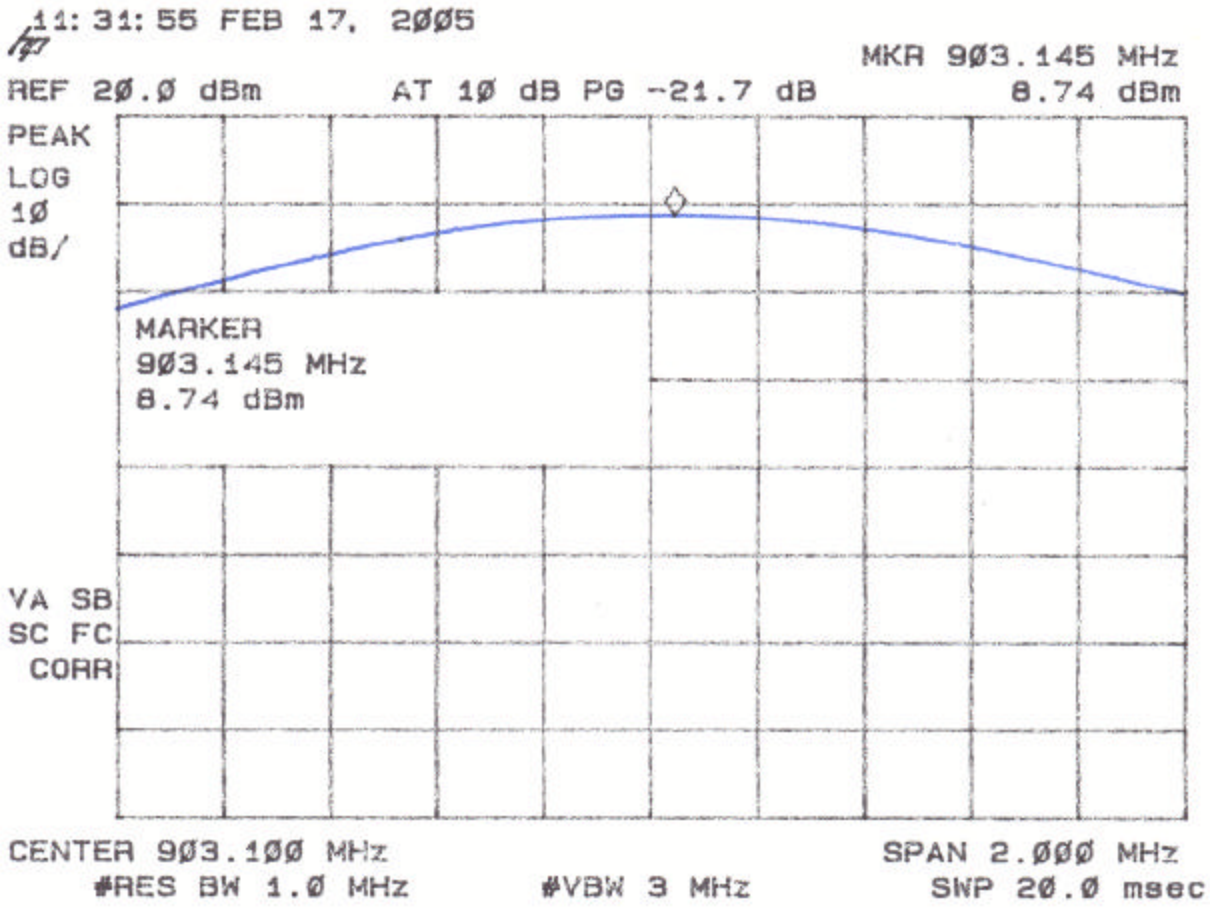

Figure 3a2.
Peak Power per FCC Section 15.247(b) (Mid Channel)

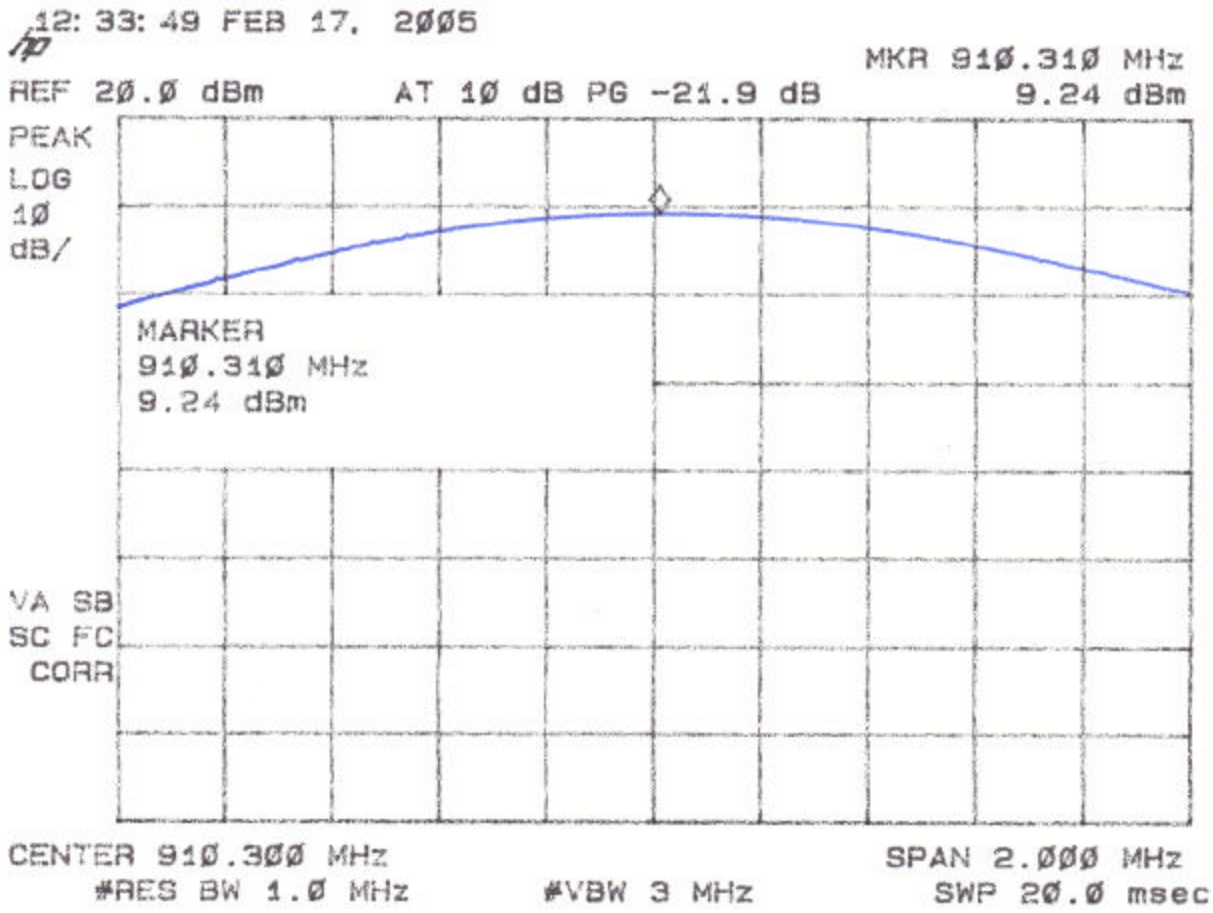

Figure 3a3.
Peak Power per FCC Section 15.247(b) (High Channel)