Standards Council of Canada
Accredited Laboratory
Scope of Accreditation 75

Conseil canadien des normes
Laboratoire accrédité
Portée d'accréditation 75

TM

Test Report:	6W59398.6
Applicant:	KL Industries Inc. 1790 Sun Dolphin Drive Muskegon, MI 49444 USA
Apparatus:	BeaconBuoy (M/N: 91000 and 91001)
FCC ID:	T5O-BuoyRX
In Accordance With:	FCC Part 15 Subpart B, 15.107 and 15.109 Unintentional Radiators
Tested By:	Nemko Canada Inc. 303 River Road Ottawa, Ontario K1V 1H2
Authorized By:	Jin Xu, Wireless Specialist
Date:	April 26, 2006
Total Number of Pages:	15

Report Summary

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, Subpart B. Radiated tests were conducted in accordance with ANSI C63.4-2003. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.

The assessment summary is as follows:

Apparatus Assessed:	BeaconBuoy (M/N: 91000 and 91001)
Specification:	FCC Part 15 Subpart B, 15.107 and 15.109
Compliance Status:	Complies
Exclusions:	None
Non-compliances:	None
Report Release History:	Original Release

Author: Jason Nixon, Telecom Specialist

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025.

TABLE OF CONTENTS

Section 1 : Equipment Under Test

1.1 Product Identification

The Equipment Under Test was identified as follows:

BeaconBuoy receiver

1.2 Samples Submitted for Assessment

The following samples of the apparatus have been submitted for type assessment:

Sample No.	Description	Serial No.
2	Beacon Boy Remote Control	None
3	AC Adapter (MN: TEAC-35-120400U)	None

The first samples were received on: March 8, 2006

1.3 Theory of Operation

The EUT is a light which has an on and off control. The light can also be controlled remotely using the BeaconBuoy transmitter.

1.4 Technical Specifications of the EUT

Manufacturer: Tospo Lighting

Receive Frequency: 433.92MHz

Receiver Type: Superheterodyne

Antenna Data: Integral

Power Source: Internal Battery with a charger port

Section 2 : Test Conditions

2.1 Specifications

The apparatus was assessed against the following specifications:

FCC Part 15 Subpart B, 15.107 and 15.109
Unintentional Radiators

2.2 Deviations From Laboratory Test Procedures

No deviations were made from laboratory test procedures.

2.3 Test Environment

All tests were performed under the following environmental conditions:

Temperature range	:	15 – 30 ^{o}C
Humidity range	:	20 - 75 %
Pressure range	:	86 - 106 kPa
Power supply range	:	+/- 5% of rated voltages

2.4 Test Equipment

Equipment	Manufacturer	Model No.	Asset/Serial No.	Next Cal.
LISN	EMCO	4825/2	FA001545	Jan. 30/07
Spectrum Analyzer	Hewlett-Packard	8566B	FA001309	May 18/06
Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001309	May 18/06
Transient Limiter	Hewlett-Packard	1194 7A	FA000975	May 25/06
Receiver	Rohde & Schwarz	ESVS-30	FA001437	July 27/06
Spectrum Analyzer	Hewlett-Packard	8565E	FA000981	Sept. 15/06
Biconical (1) Antenna	EMCO	3109	FA000805	April 22/06
Log Periodic Antenna #1	EMCO	LPA-25	FA000477	Aug. 29/06
Horn Antenna #1	EMCO	3115	FA000649	Jan. 12/07
1.0 – 2.0 GHz Amplifier	JCA	12-400	FA001498	July 14/06
2.0 – 4.0 GHz Amplifier	JCA	24-600	FA001496	July 14/06
4.0 – 8.0 GHz Amplifier	JCA	48-600	FA001497	July 14/06

Section 3 : Observations

3.1 Modifications Performed During Assessment

No modifications were performed during assessment.

3.2 Record Of Technical Judgements

No technical judgements were made during the assessment.

3.3 EUT Parameters Affecting Compliance

The user of the apparatus could not alter parameters that would affect compliance.

3.4 Test Deleted

No Tests were deleted from this assessment.

3.5 Additional Observations

The following observation was made during this assessment:

3.5.1 Model Differences

The BeaconBuoy comes in two models, the 91000 and 91001. The difference between the models is the battery pack used in the BeaconBuoy receiver. One of the battery packs has a longer charge life than the other.

Section 4 : Results Summary

This section contains the following:

FCC Part 15 Subpart B : Test Results

The column headed 'Required' indicates whether the associated clauses were invoked for the apparatus under test. The following abbreviations are used:

N	No : not applicable / not relevant.
Y	Yes : Mandatory i.e. the apparatus shall conform to these tests.
N/T	Not Tested, mandatory but not assessed. (See section 3.4 Test deleted)

The results contained in this section are representative of the operation of the apparatus as originally submitted.

4.1 FCC Part 15 Subpart C : Test Results

Part 15	Test Description	Required	Result
15.107(a) 15.109(a)	Conducted Emissions for Class B Radiated Emissions for Class B	Y Y	PASS PASS

Notes:

Appendix A : Test Results

Clause 15.107(a) Conducted Emissions

Frequency of Conducted limit (dBmV)

Emission (MHz)	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

Test Conditions:

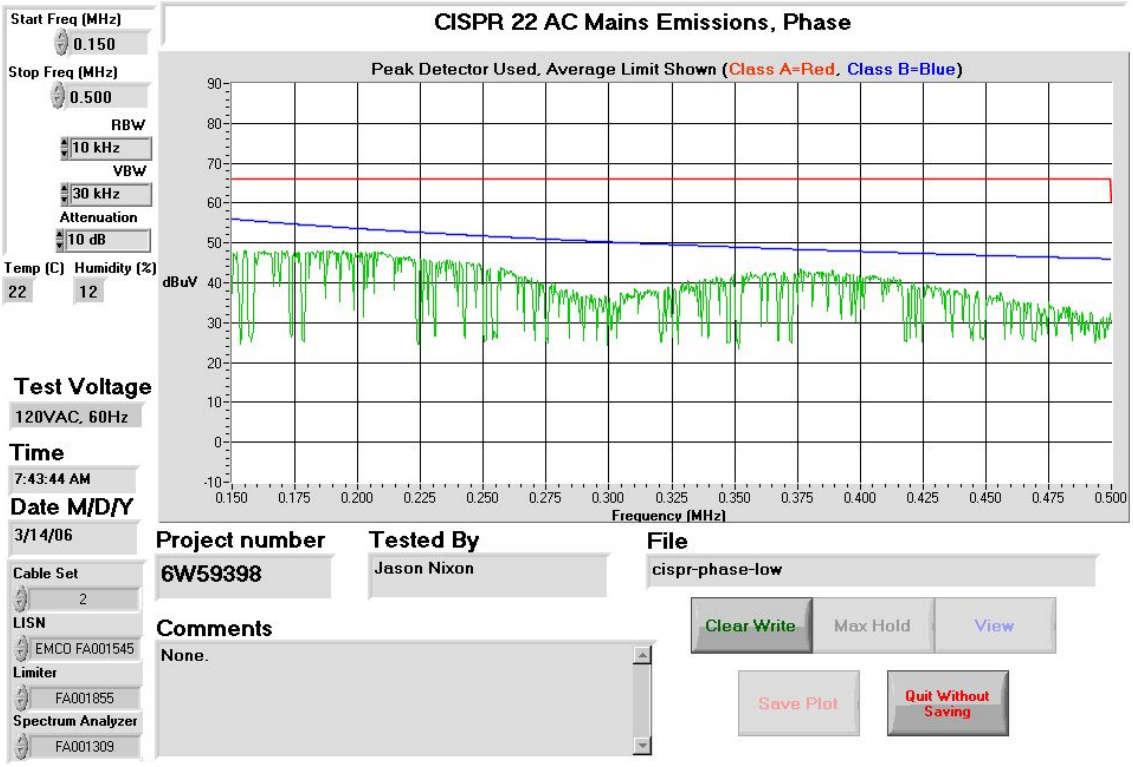
Sample Number:	2	**Temperature:**	22
Date:	March 14, 2006	**Humidity:**	12
Modification State:	0	**Tester:**	Jason Nixon
		Laboratory:	Shielded Room

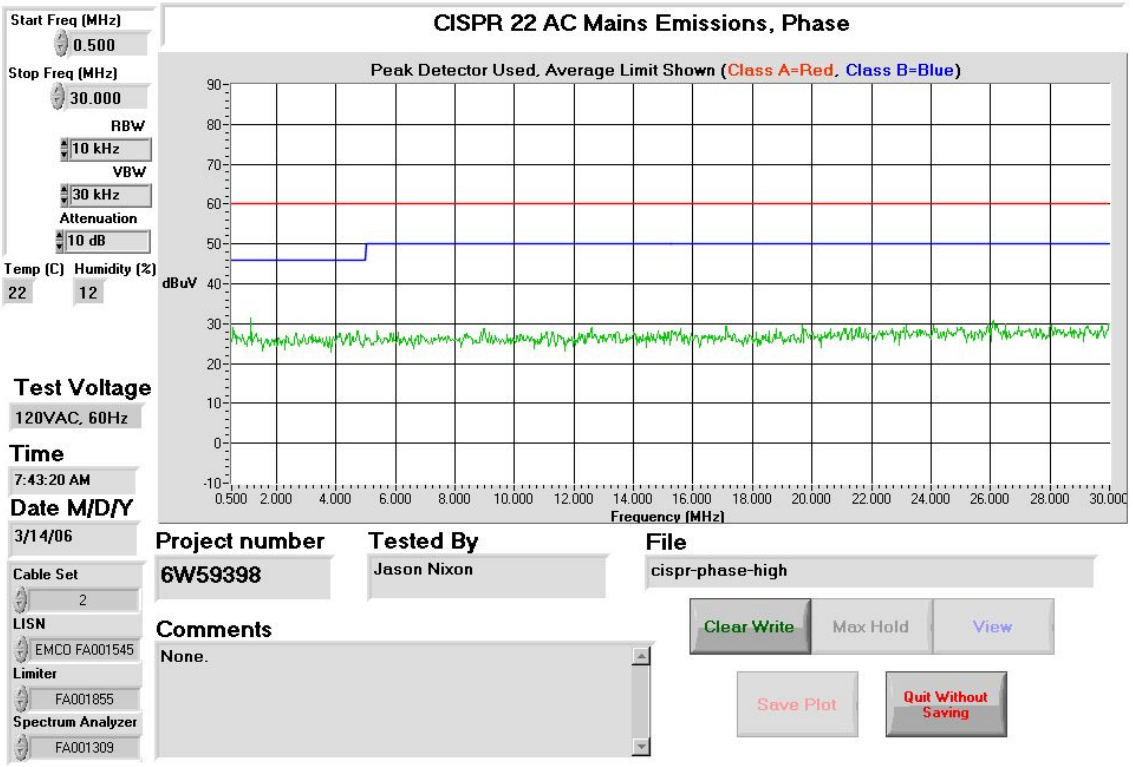
Test Results: See Attached Plots.

Additional Observations:

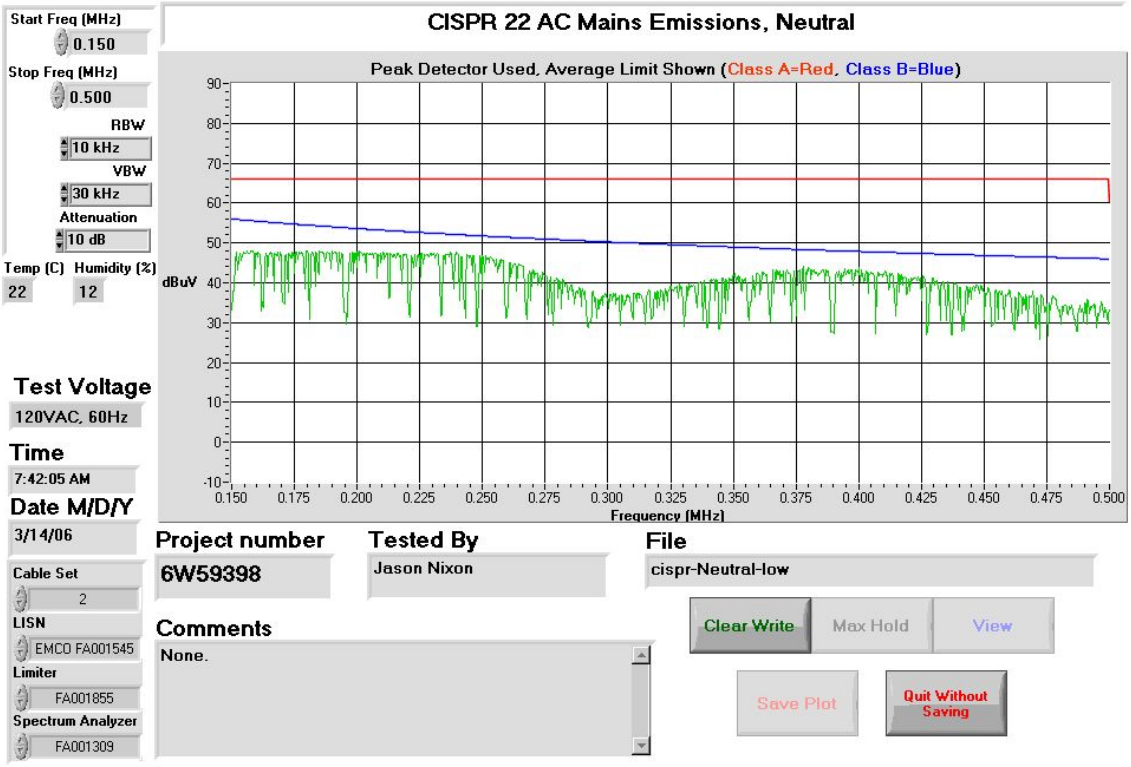
All plots were taken using a Peak detector and compared to the Average limit. All plots have been corrected using the Cable, LISN and transient limiter losses to show compliance with the Average limit.

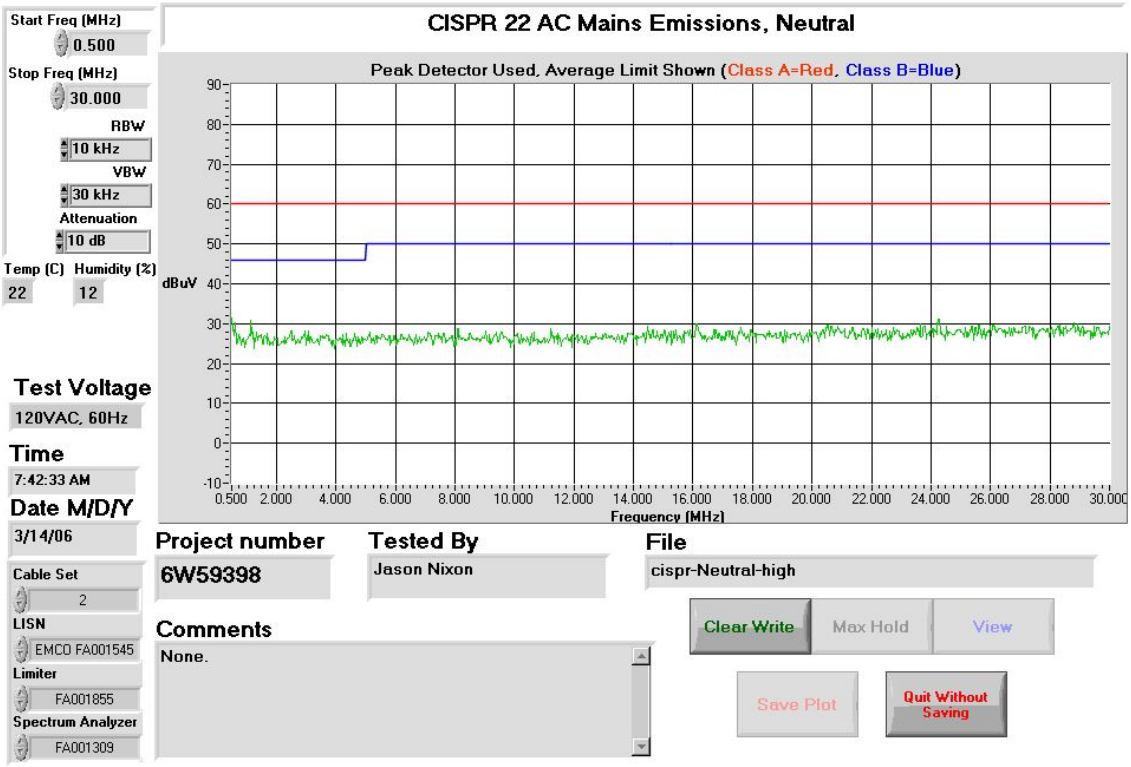
Phase Conductor





Neutral Conductor





Clause 15.109(a) Radiated Emissions

Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (microvoltsmeter)
30 - 88	100
88 - 216	150
216 - 960	200
Above 960	500

Test Conditions:

Sample Number:	2	**Temperature:**	10
Date:	March 15, 2006	**Humidity:**	34
Modification State:	0	**Tester:**	Jason Nixon
		Laboratory:	OATS

Test Results:

See Attached Table for Results

Additional Observations:

The Spectrum was searched from 30MHz to 2GHz.

The EUT was measured on three orthogonal axis.

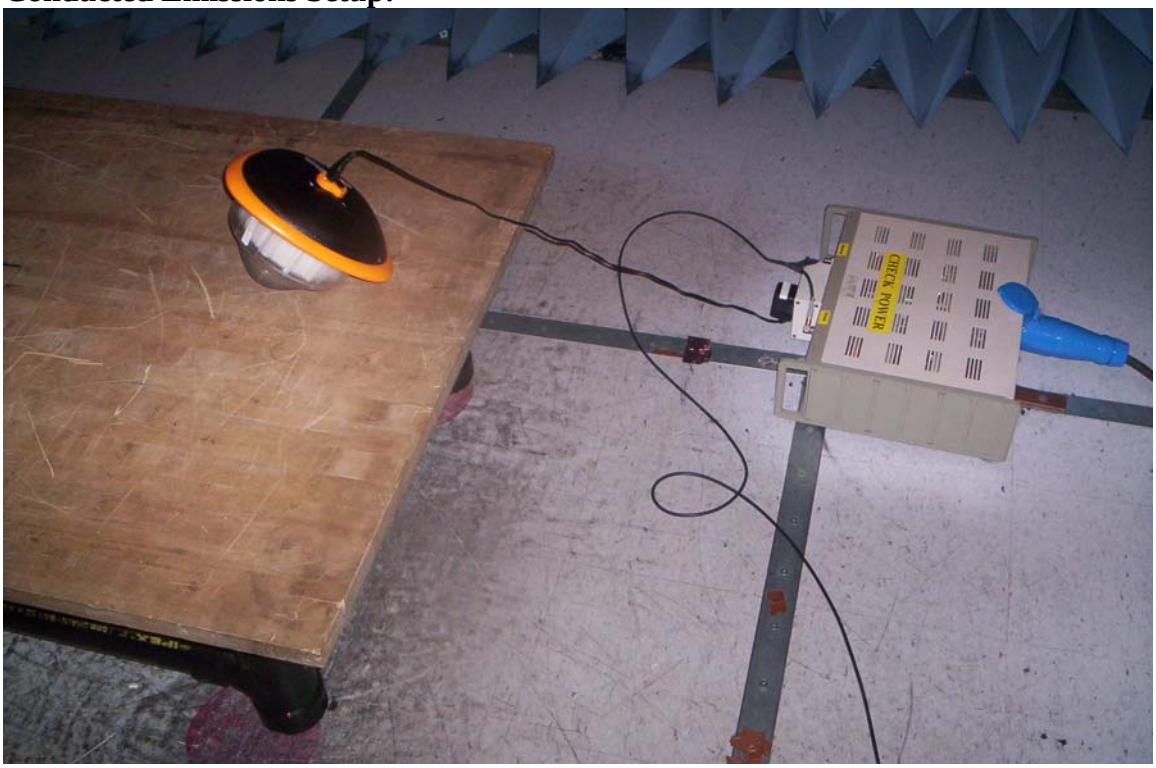
All measurements were performed using a Quasi-Peak Detector with 120kHz RBW below 1GHz and a 1MHz RBW/VBW above 1GHz at a distance of 3 meters.

Freq. (MHz)	Ant	Pol. V/H	RCVD Signal (dBµV)	Ant. Factor (dB)	Amp. Gain (dB)	Cable Loss (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)
78.8934	BC1	V	24.9	7.1	N/A	1.7	33.7	40.0	6.3
38.9506	BC1	V	23.3	11.0	N/A	1.3	35.6	40.0	4.4
251.9377	BC1	V	7.5	16.5	N/A	2.3	26.3	46.4	20.1
433.2489	LP1	V	8.6	16.1	N/A	3.1	27.8	46.4	18.6
724.1728	LP1	V	8.3	20.4	N/A	4.0	32.7	46.4	13.7
935.3461	LP1	V	8.1	23.6	N/A	4.5	36.2	46.4	10.2

Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole

Appendix B : Setup Photographs

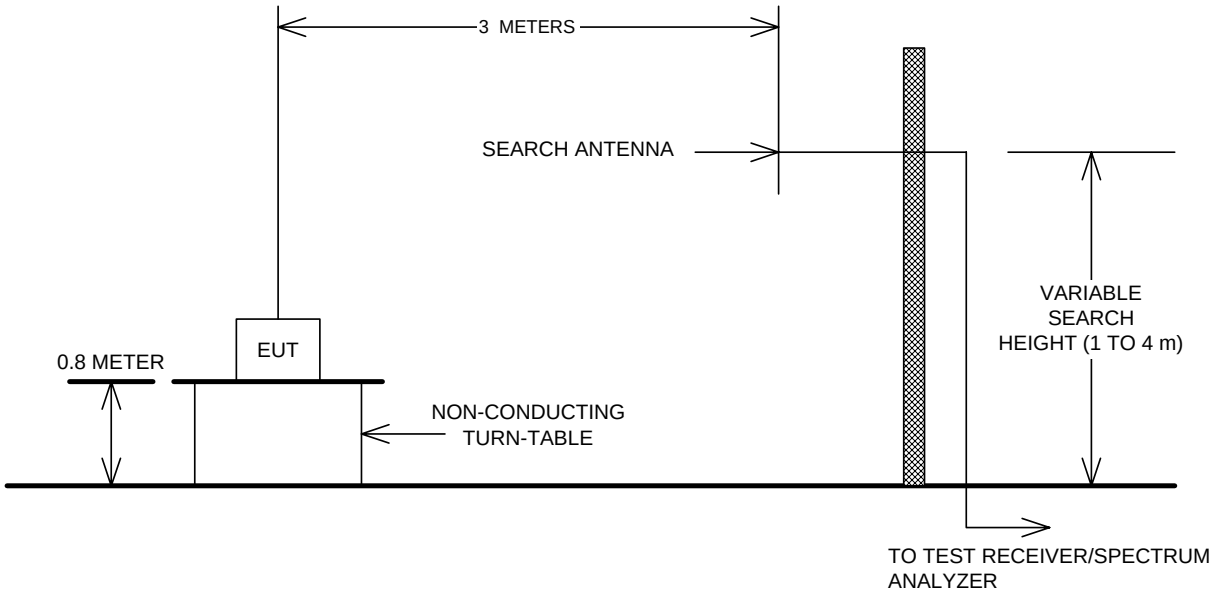
Conducted Emissions Setup:



Spurious Emissions Setup:

Appendix C : Block Diagram of Test Setups

Test Site For Radiated Emissions



Conducted Emissions