

Test Report Prepared By:

Electronics Test Centre

27 East Lake Hill

Airdrie, Alberta

Canada

T4A 2K3

airdrie@etc-mpbtech.com

<http://www/etc-mpb.com/>

Telephone: (403) 912-0037

Facsimile: (403) 912-0083

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Emissions Testing of the Easy-On Wireless Tail Lights

in accordance with FCC Part 15.249,

**Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz,
and 24.0-24.25 GHz.**

Test Personnel: D. Raynes

Prepared for: Easy-On Wireless Tail Lights

HC72, Box 7010

Malta, Montana

USA

59538

Telephone: 1-406-654-2156



David Raynes
draynes@etc-mpbtech.com
Senior EMC Technologist
Electronics Test Centre (Airdrie)
Authorized Signatory

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1.0 INTRODUCTION

1.1 SCOPE

The purpose of this report is to present the findings and results of compliance testing performed in accordance with CFR Title 47 FCC Part 15, Subpart B, Unintentional Radiators, and Subpart C, Intentional Radiators.

1.2 APPLICANT

This test report has been prepared for Easy-On Wireless Tail Lights, located in Malta, Montana, USA.

1.3 APPLICABILITY

All test procedures, limits, and results defined in this document apply to the Easy-On Wireless Tail Lights Model 101 unit, referred to herein as the Equipment Under Test (EUT).

The results contained in this report relate only to the item tested.

This report does not imply product endorsement by NVLAP or the Canadian or US governments.

1.4 TEST SAMPLE DESCRIPTION

The test sample provided for testing was a Easy-On Wireless Tail Lights:

Product Type:	Wireless vehicle tail lights
Model Number:	101
Serial Number:	n/a
Cables:	Nil
Power	Internal batteries
Requirements:	
Peripheral	Nil
Equipment:	

More detailed information is provided by Easy-On Wireless Tail Lights in Appendix A.

1.5 GENERAL TEST CONDITIONS AND ASSUMPTIONS

Flashing the Hazard lights was found to be the worst-case operating condition. All testing was performed in this mode of operation.

Preliminary investigation of EUT orientation on three orthogonal planes determined the orientation shown in the test setup photos to be the worst case.

Testing was performed with fresh batteries.

The EUT was set up and exercised using the configurations, modes of operation and arrangements defined in this report only. All inputs and outputs to and from other equipment associated with the EUT were adequately simulated.

Where relevant, the EUT was only tested using the monitoring methods and test criteria defined in this report.

1.6 SCOPE OF TESTING

Testing was performed in accordance with FCC Part 15 Subpart C (2004), and ANSI C63.4 (2004).

1.6.1 VARIATIONS IN TEST METHODS

The EUT antennas are integral to the devices. All measurements were performed with receiving antennas without direct connection to the EUT.

1.6.2 TEST SAMPLE CONFIGURATION & MODIFICATIONS

The controller was tested while operating in Hazard Flashing mode.

The tail lights were tested in 'running lights' mode.

The EUT met the requirements without modifications.

2.0 ABBREVIATIONS

AP	-Average Peak
CE	-Conducted Emissions
E	-Field - Electric Field
H	-Field - Magnetic Field
N/T	-Not Tested
N/A	-Not Applicable
PK	-Peak
QP	-Quasi Peak
RE	-Radiated Emissions

3.0 MEASUREMENT UNCERTAINTY

For Radiated E-Field Emissions and Conducted Emissions, the uncertainties in the measurements were calculated using the methods outlined in the NAMAS document, NIS81: May 1984.

Frequency	= \pm 1 kHz
Amplitude (RE)	= \pm 4.01 dB
Amplitude (CE)	= \pm 3.25 dB

4.0 TEST CONCLUSION

STATEMENT OF COMPLIANCE

The client equipment referred to in this report was found to comply with the requirements as stated below.

The EUT was subjected to the following tests. Compliance status is reported as **PASS** or **FAIL**. Test conditions that are not applicable to the EUT are marked **n/a**. If testing was not performed at this time, the appropriate field is marked **n/t**.

The following table summarizes the test results in terms of the specification and class or level applied, the unique test sample identification, the EUT modification state, and configuration as applicable.

TEST CASE	TEST TYPE	SPECIFICATION	TEST SAMPLE	MOD. STATE	CONFIGURATION	RESULT
§4.1	Conducted Emissions at AC lines	FCC Part 15.107 and 15.207	Easy-On Wireless Tail Lights Model 101	nil	See § 1.6.3	n/a
§4.2a	Radiated Emissions (Rx Mode)	FCC Part 15.109	Easy-On Wireless Tail Lights Model 101	nil	See § 1.6.3	n/a
§4.2b	Radiated Emissions (Tx Mode)	FCC Parts 2.1053, 15.205, 15.209 & 15.249	Easy-On Wireless Tail Lights Model 101	nil	See § 1.6.3	PASS

4.1 CONDUCTED EMISSIONS ON AC POWER LINES

4.1a Receive Mode (Part 15.107)

Test Lab: Electronics Test Centre (Airdrie) Test Personnel: D. Raynes Test Date: n/a	Product: Easy-On Wireless Tail Lights Model 101
Test Result, Easy-On Wireless Tail Lights: Not Applicable	
The Easy-On Wireless Tail Lights Model 101 was not tested for Conducted Emissions. This is a DC battery-powered device. There is no direct connection to the AC mains.	

4.1b Transmit Mode (Part 15.207)

Test Lab: Electronics Test Centre (Airdrie) Test Personnel: D. Raynes Test Date: n/a	Product: Easy-On Wireless Tail Lights Model 101
Test Result, Easy-On Wireless Tail Lights: Not Applicable	
The Easy-On Wireless Tail Lights Model 101 was not tested for Conducted Emissions. This is a DC battery-powered device. There is no direct connection to the AC mains.	

4.3 RADIATED EMISSIONS INCLUDING RESTRICTED BANDS OF OPERATION

4.3a Receive Mode (Part 15.109)

Test Lab: MPB Technologies Inc. Airdrie Test Personnel: D. Raynes Test Date: n/a	Product: Easy-On Wireless Tail Lights Model 101
Test Result, Easy-On Wireless Tail Lights: Not Applicable	
There is no Receive function in this device.	

4.3b Transmit Mode (Part 2.1053, 15.205, 15.209 & 15.249)

Test Lab: Electronics Test Centre (Airdrie) Test Personnel: D. Raynes Test Date: 1 February 2006	Product: Easy-On Wireless Tail Lights Model 101																
Test Result, EUM3003: PASS																	
Objectives/Criteria The Radiated E-Field emissions produced by EUT, measured at a distance of 3m, shall not exceed these limits within the restricted bands of operation. Any emissions lying outside these bands (except harmonics), shall be at least 50 dB down from the level of the fundamental. Attenuation below the limits of 15.209 is not required. Note: See the table below for the Restricted Bands of Operation per Part 15.205	Specification: FCC Part 15.209 <table><thead><tr><th>Frequency [MHz]</th><th>Limit (QP @ 3m) [dBμV/m]</th></tr></thead><tbody><tr><td>.009 – 0.490</td><td>88.5 – 53.8</td></tr><tr><td>.490 – 1.7</td><td>53.8 – 43</td></tr><tr><td>1.7 – 30</td><td>49.50</td></tr><tr><td>30 – 88</td><td>40.00</td></tr><tr><td>88 – 216</td><td>43.52</td></tr><tr><td>216 – 960</td><td>46.02</td></tr><tr><td>above 960</td><td>53.98</td></tr></tbody></table>	Frequency [MHz]	Limit (QP @ 3m) [dB μ V/m]	.009 – 0.490	88.5 – 53.8	.490 – 1.7	53.8 – 43	1.7 – 30	49.50	30 – 88	40.00	88 – 216	43.52	216 – 960	46.02	above 960	53.98
Frequency [MHz]	Limit (QP @ 3m) [dB μ V/m]																
.009 – 0.490	88.5 – 53.8																
.490 – 1.7	53.8 – 43																
1.7 – 30	49.50																
30 – 88	40.00																
88 – 216	43.52																
216 – 960	46.02																
above 960	53.98																
The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:																	
Carrier Frequency	Field Strength of Fundamental Frequency [millivolts/meter]	Field Strength of Fundamental Harmonics [μ V/meter]															
902-928 MHz	50 (93.98 dB μ V/meter)	500 (53.98 dB μ V/meter)															
2400-2483.5 MHz	50 (93.98 dB μ V/meter)	500 (53.98 dB μ V/meter)															
5725-5875 MHz	50 (93.98 dB μ V/meter)	500 (53.98 dB μ V/meter)															
24.0-24.25 GHz	250 (107.96 dB μ V/meter)	2500(67.96 dB μ V/meter)															
Comments: The maximum carrier field strength was 91.05 dB μ V/m, implying a limit of 41.05 dB μ V/m for spurious emissions. This is less than the 15.209 limit except for the band between 30 – 80 MHz. There were no emissions measured to be within 10 dB of these limits.																	

Restricted Bands of Operation per Part 15.205:

MHz	MHz	MHz	MHz	MHz	GHz	GHz
0.0900000 – 0.1100000	8.2910000 - 8.2940000	16.804250 - 16.804750	162.01250 - 167.17000 ■	1660.0000 – 1710.0000	3.6000000 – 4.4000000	14.470000 – 14.500000
0.4950000 – 0.5050000 ■	8.3620000 - 8.3660000	25.500000 - 25.670000	167.72000 - 173.20000 ■	1718.8000 – 1722.2000	4.5000000 – 5.1500000	15.350000 – 16.200000
2.1735000 - 2.1905000	8.3762500 - 8.3867500	37.500000 - 38.250000	240.00000 – 285.00000	2200.0000 – 2300.0000	5.3500000 – 5.4600000	17.700000 – 21.400000
4.1250000 - 4.1280000	8.4142500 - 8.4147500	73.000000 - 74.600000	322.00000 - 335.40000	2310.0000 – 2390.0000	7.2500000 – 7.7500000	22.010000 – 23.120000
4.1772500 - 4.1777500	12.290000 - 12.293000	74.800000 - 75.200000	399.90000 – 410.00000	2483.5000 – 2500.0000 ■	8.0250000 – 8.5000000	23.600000 – 24.000000
4.2072500 - 4.2077500	12.519750 - 12.520250	108.00000 - 121.94000 **	608.00000 – 614.00000	2655.0000 – 2900.0000	9.0000000 – 9.2000000	31.200000 – 31.800000
5.6770000 - 5.6830000	12.576750 - 12.577250	123.00000 - 138.00000 **	960.00000 – 1240.0000 ***	3260.0000 – 3267.0000	9.3000000 – 9.5000000	36.430000 – 36.500000
6.2150000 - 6.2180000	13.360000 - 13.410000	149.90000 - 150.05000 ■	1300.0000 – 1427.0000 ***	3332.0000 – 3339.0000	10.600000 – 12.700000	Above 38.600000
6.2677500 - 6.2682500	16.420000 - 16.423000	156.52475- 156.52525	1435.0000 – 1626.5000	3345.8000 – 3358.0000	13.250000 – 13.400000	
6.3117500 - 6.3122500	16.694750 - 16.695250	156.70000 - 156.90000	1645.5000 – 1646.5000	3500.0000 – 3600.0000 ****		

■ US only

** Canada 108 – 138 MHz

*** Canada 960 – 1427 MHz

**** Canada only

Radiated Emissions Data:

The emissions data is presented in tabular form, showing the uncorrected spectrum analyzer reading, the correction factors applied, the net result, the value(s) of up to 4 limits at the frequency measured, and the margin between the result and the limit(s).

For example:

Test Frequency [MHz]	Meter Reading [dB (uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB (uVolts)]	Limit:1 [dB(uVolts)]	2	3	4
94.0036	37.1 qp	2.2	8.5	47.8	54	43.5	50.5	40.5
Azimuth: 156	Height: 113	Vert	Margin [dB]	-6.2	4.3	-2.7	7.3	

↓		The applicable Limit
Test Frequency [MHz]	94.0036	Test Frequency $f = 94.0036$ MHz
Meter Reading [dB (uV)]	37.1 qp	The reading with Quasi-Peak detector
Gain/Loss Factor [dB]	2.2	Net correction for preamp gain & cable loss
Transducer Factor [dB]	8.5	Correction for antenna loss
Level [dB (uVolts)]	47.8	Corrected value for field strength
Azimuth:	156	The turntable was 156 degrees CW from facing the antenna
Height:	113	The antenna was 113 cm above the ground
Limit: 1	54	The value of Limit 1 at 94.0036 MHz
Margin [dB]	-6.2	The field strength is 6.2 dB below Limit 1
Limit: 2	43.5	The value of Limit 2 at 94.0036 MHz
Margin [dB]	4.3	The field strength is 4.3 dB above Limit 2
Limit: 3	50.5	The value of Limit 3 at 94.0036 MHz
Margin [dB]	-2.7	The field strength is 2.7 dB below Limit 3
Limit: 4	40.5	The value of Limit 4 at 94.0036 MHz
Margin [dB]	7.3	The field strength is 7.3 dB above Limit 4

Meter Reading in dBuV + Gain/Loss Factor in dB + Transducer Factor in dB = Corrected Field Strength

Note: When a preamp is used, the resulting gain is compensated.

Microlynx Systems Ltd
Easy-On Tail Lights
Controller in Hazard Mode
Project# m13e3600-1 02

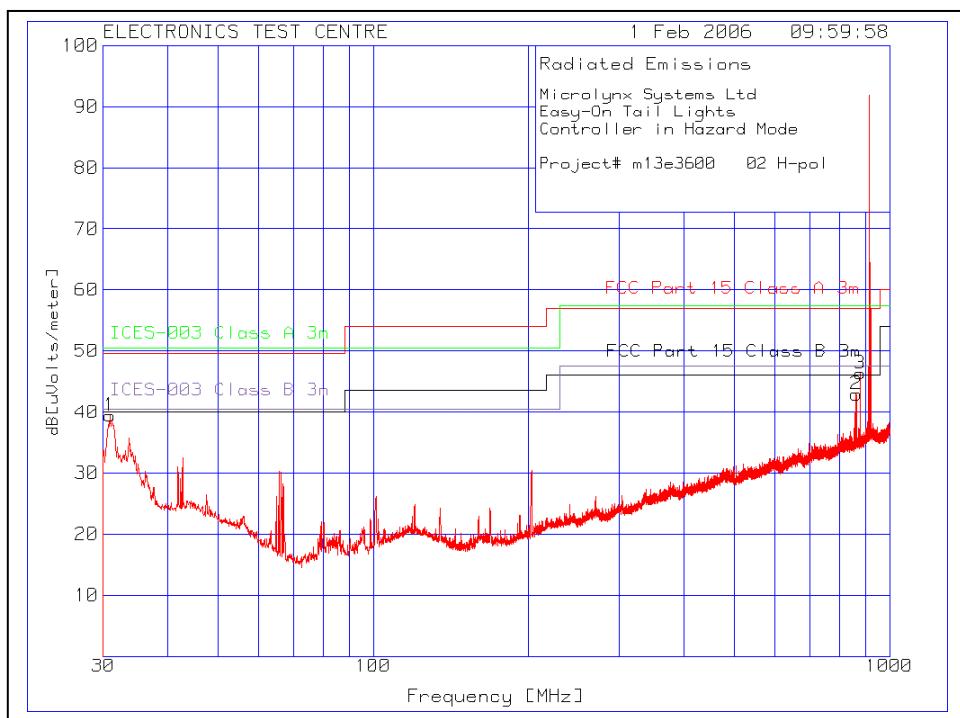
Test Frequency	Meter Reading [MHz]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1 2	3	4
<hr/>							
Range: 1 30 - 1000MHz							
31.3635	9.95 qp	1.2	18.16	29.31	49.54 50.46	40	40.46
Azimuth: 352	Height:114	Horz		Margin [dB]:	-20.23 -21.15	-10.69	-11.15
860.9778	-.35 qp	6.5	22.26	28.41	56.9 57.46	46.02	47.46
Azimuth: 360	Height:167	Horz		Margin [dB]:	-28.49 -29.05	-17.61	-19.05
877.1922	.07 qp	6.5	22.23	28.8	56.9 57.46	46.02	47.46
Azimuth: 160	Height:100	Horz		Margin [dB]:	-28.1 -28.66	-17.22	-18.66
914.5541	61.22 qp	6.69	23.14	91.05	56.9 57.46	46.02	47.46
Azimuth: 88	Height:100	Horz		Margin [dB]:	34.15 33.59	45.03	43.59
914.605	60.8 pk	6.69	23.14	90.63	56.9 57.46	46.02	47.46
Azimuth: 88	Height:100	Horz		Margin [dB]:	33.73 33.17	44.61	43.17
<hr/>							
Range: 1 30 - 1000MHz							
33.6331	13.12 qp	1.2	16.31	30.63	49.54 50.46	40	40.46
Azimuth: 76	Height:378	Vert		Margin [dB]:	-18.91 -19.83	-9.37	-9.83
914.4492	46.45 qp	6.69	22.3	75.44	56.9 57.46	46.02	47.46
Azimuth: 108	Height:238	Vert		Margin [dB]:	18.54 17.98	29.42	27.98
914.563	46.8 pk	6.69	22.3	75.79	56.9 57.46	46.02	47.46
Azimuth: 108	Height:238	Vert		Margin [dB]:	18.89 18.33	29.77	28.33

LIMIT 1: FCC Part 15 Class A 3m
LIMIT 2: ICES-003 Class A 3m
LIMIT 3: FCC Part 15 Class B 3m 
LIMIT 4: ICES-003 Class B 3m 

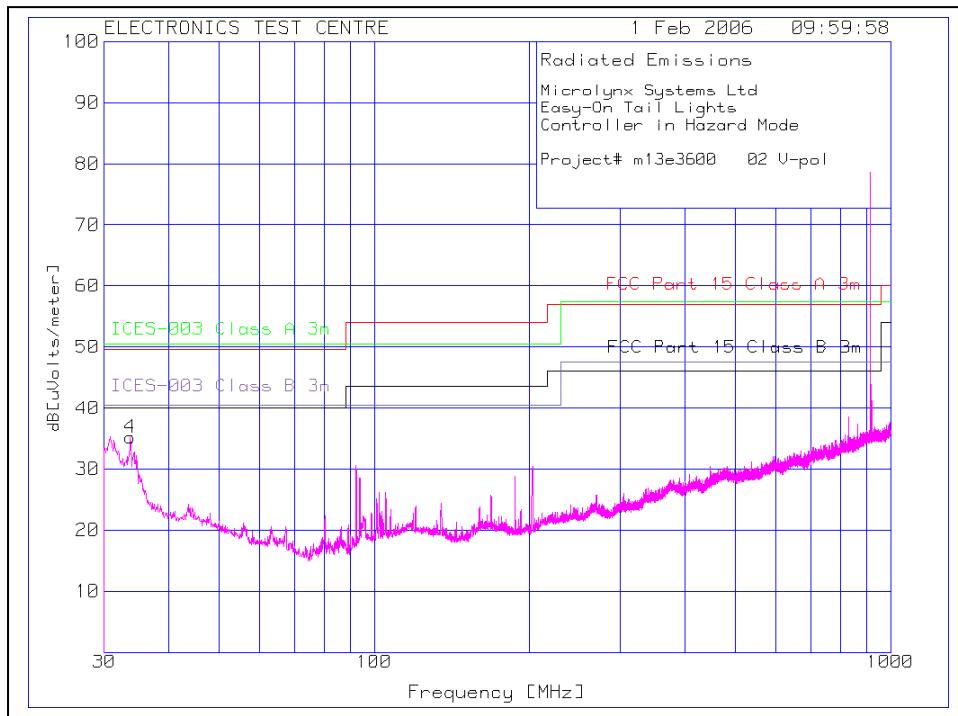
pk - Peak detector

qp - Quasi-Peak detector

Plot of Radiated Emissions:



Plot of Radiated Emissions:



Microlynx Systems Ltd
Easy-On Tail Lights
Controller in Hazard Mode
Project# m13e3600-1 03

No.	Test Frequency	Meter Reading	Gain/Loss Factor	Transducer Factor	Level dB[uVolts/meter]	Limit:1 2
	[MHz]	[dB(uV)]	[dB]	[dB]		↓
Range: 1	1000 - 2000MHz					=====
1	1829.254	49.38 pk	-35.16	26.88	41.1	60 53.98
	Azimuth:300	Height:100	Horz	Margin [dB]	-18.9	-12.88
Range: 2	1000 - 2000MHz					=====
2	1829.054	50.6 pk	-35.15	26.85	42.3	60 53.98
	Azimuth:340	Height:99	Vert	Margin [dB]	-17.7	-11.68

LIMIT 1: FCC Part 15 Class A 3m
LIMIT 2: FCC Part 15 Class B 3m

pk - Peak detector

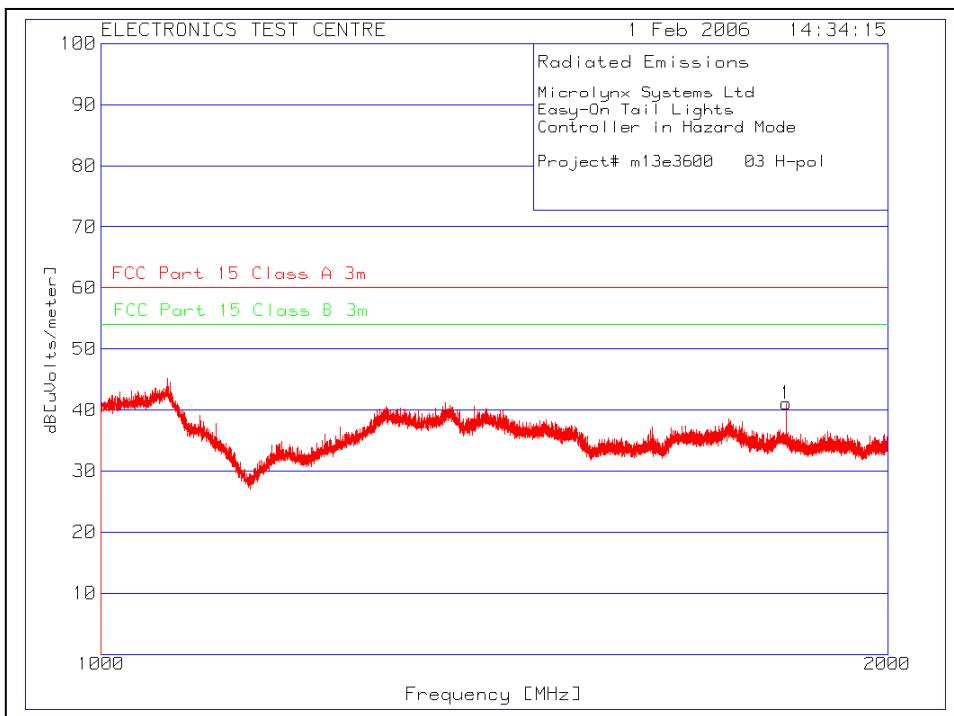
Microlynx Systems Ltd
Easy-On Tail Lights
Controller in Hazard Mode
Project# m13e3600-1 04

No.	Test Frequency	Meter Reading	Gain/Loss Factor	Transducer Factor	Level dB[uVolts/meter]	Limit:1 2
	[MHz]	[dB(uV)]	[dB]	[dB]		↓
Range: 1	2000 - 9500MHz					=====
1	2743.306	56.99 pk	-40.2	29.41	46.2	60 53.98
	Azimuth:280	Height:99	Horz	Margin [dB]	-13.8	-7.78
2	3658.452	44.36 pk	-33.63	31.67	42.4	60 53.98
	Azimuth:320	Height:99	Horz	Margin [dB]	-17.6	-11.58
Range: 3	2000 - 9500MHz					=====
3	2742.807	58.39 pk	-40.18	29.39	47.6	60 53.98
	Azimuth:340	Height:100	Vert	Margin [dB]	-12.4	-6.38
4	3658.452	46.64 pk	-33.63	31.69	44.7	60 53.98
	Azimuth:340	Height:100	Vert	Margin [dB]	-15.3	-9.28

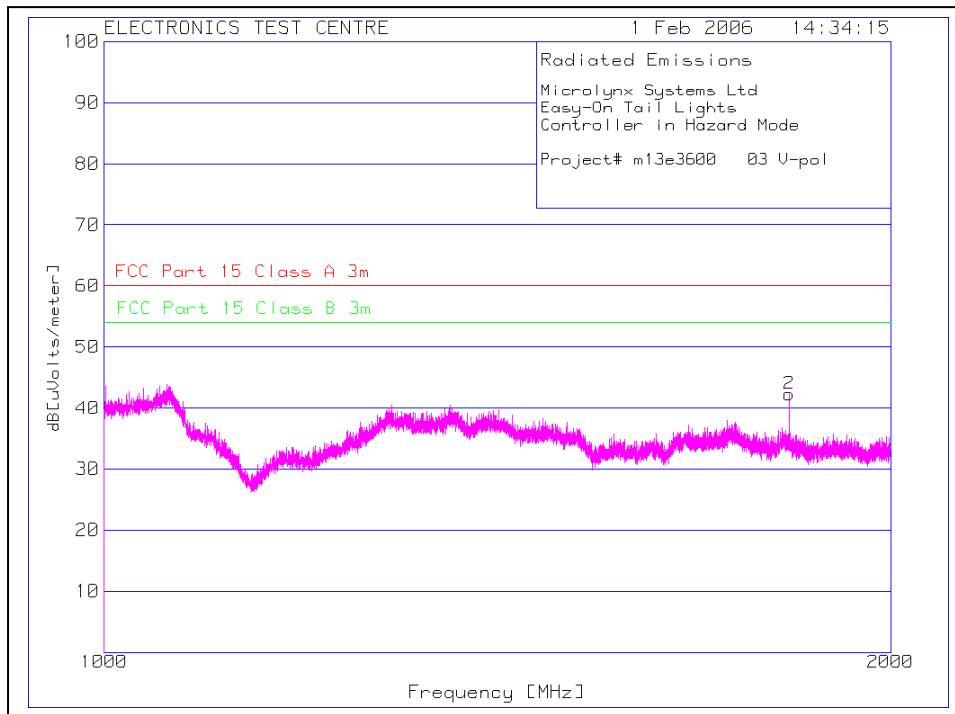
LIMIT 1: FCC Part 15 Class A 3m
LIMIT 2: FCC Part 15 Class B 3m

pk - Peak detector

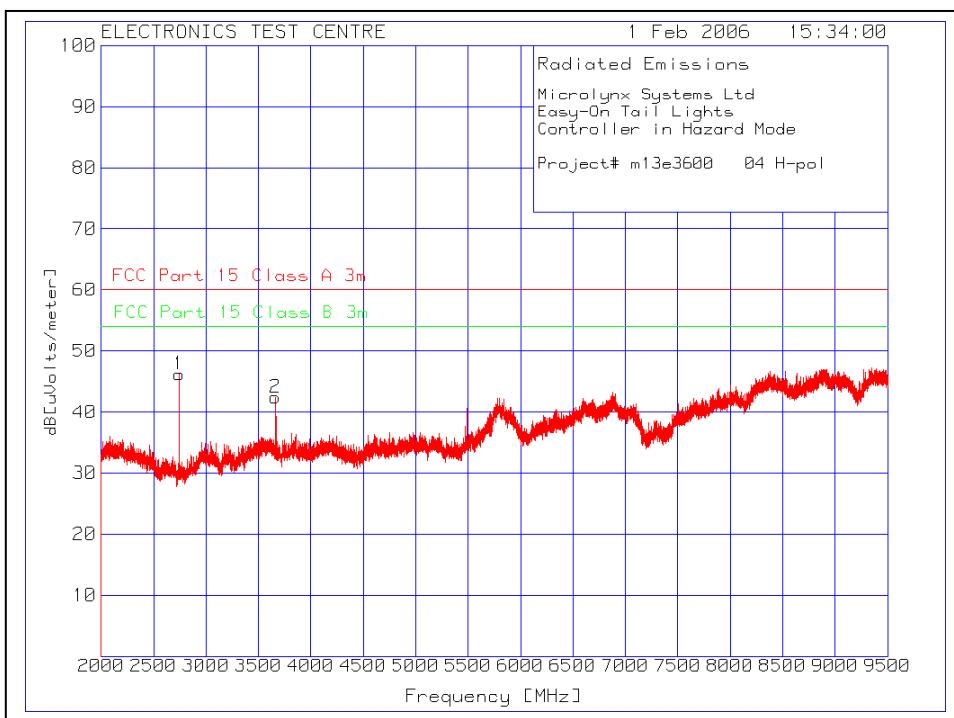
Plot of Radiated Emissions:



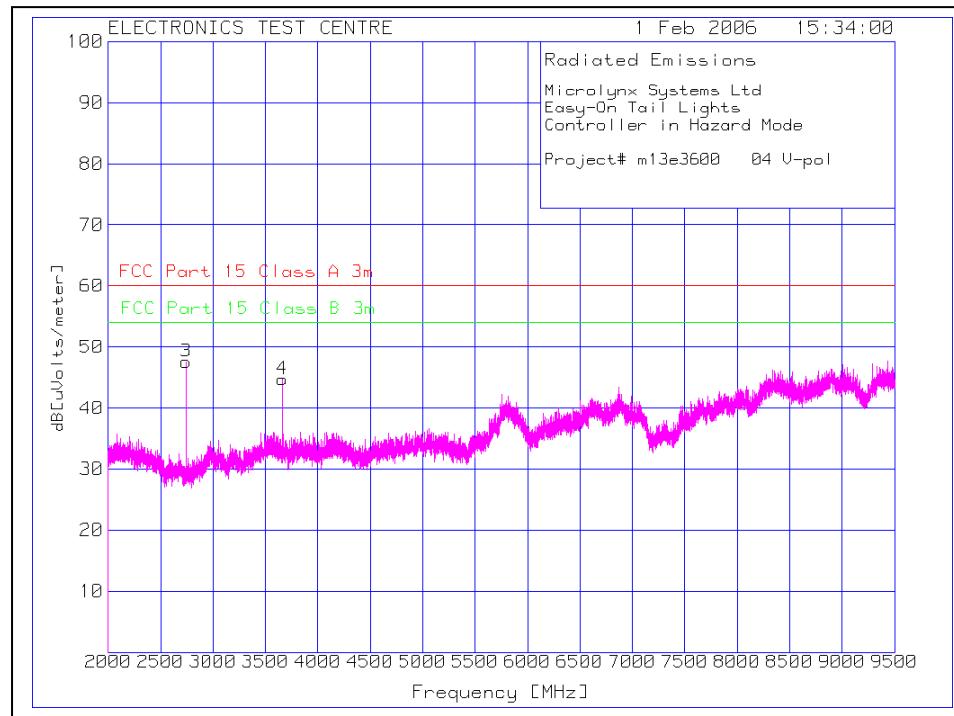
Plot of Radiated Emissions:



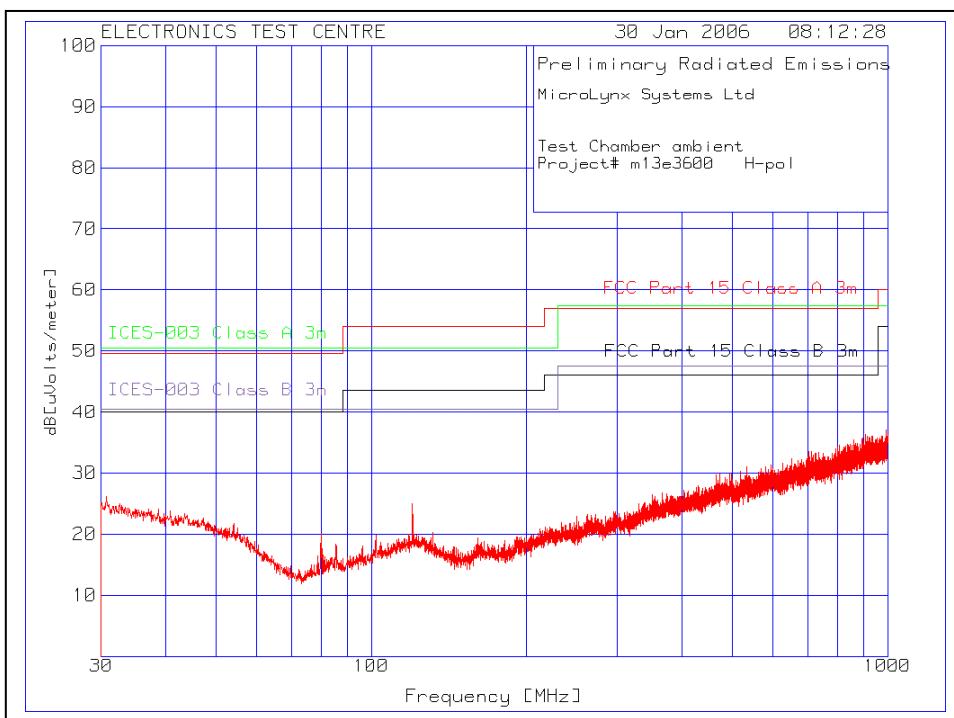
Plot of Radiated Emissions:



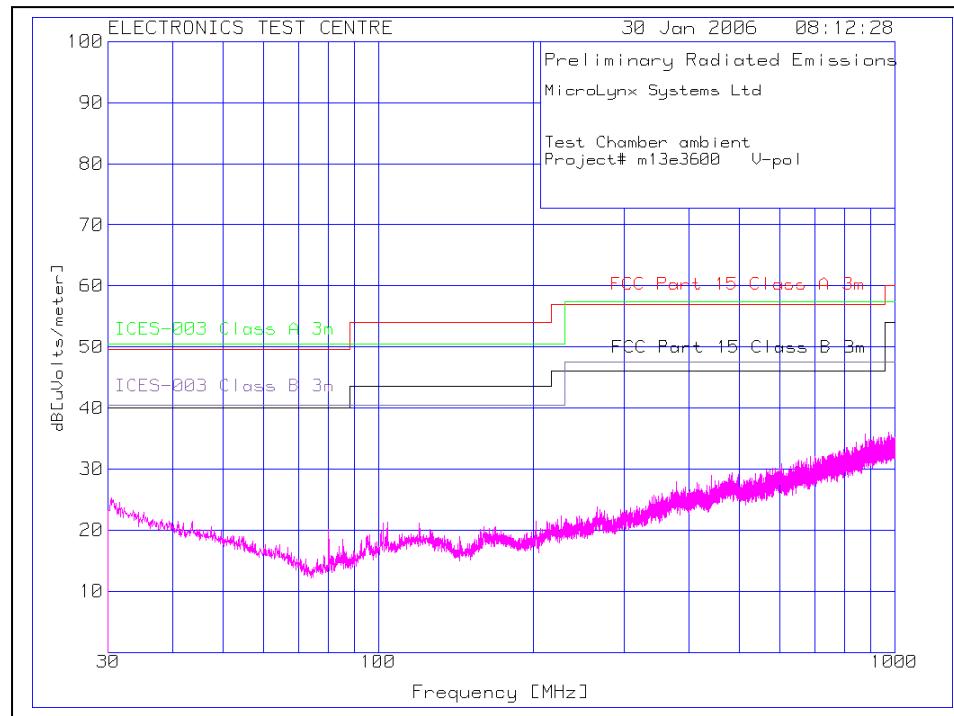
Plot of Radiated Emissions:



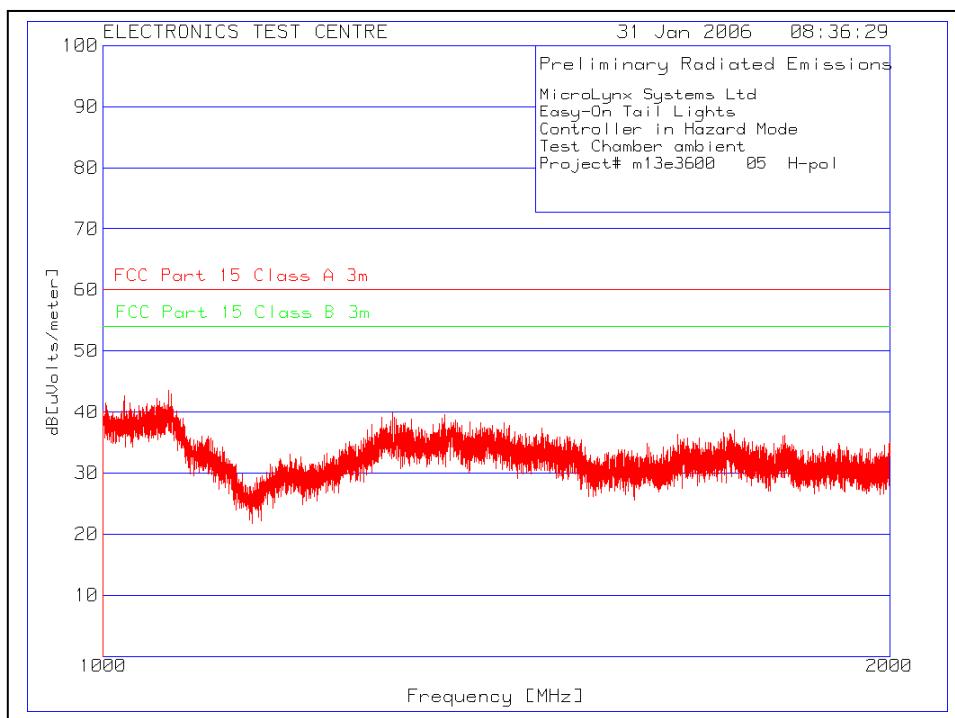
Plot of Radiated Emissions: Test Chamber ambient



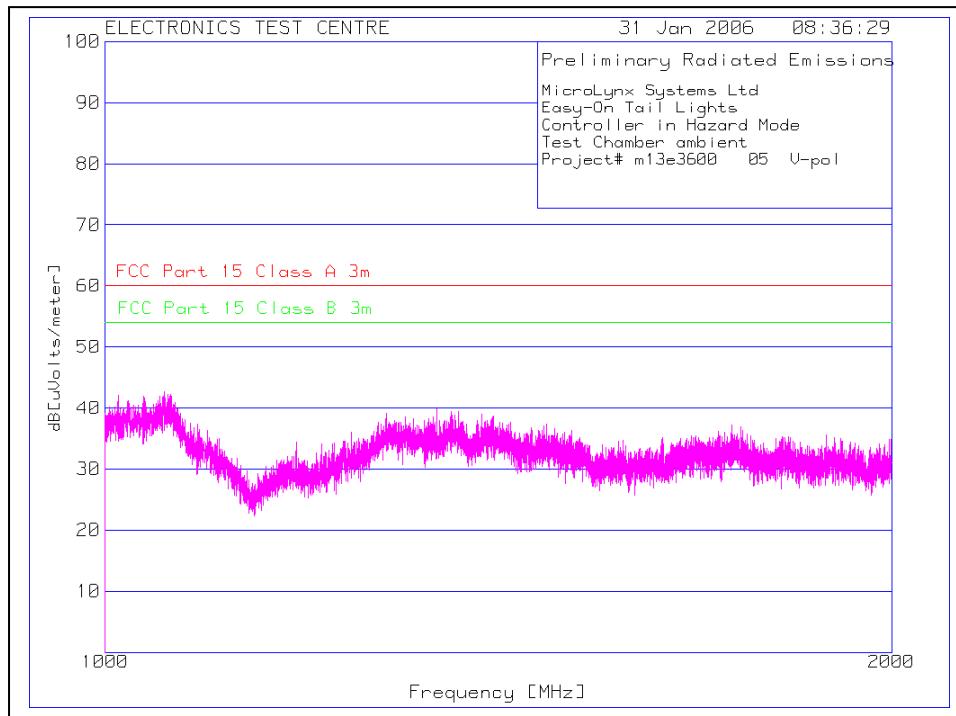
Plot of Radiated Emissions: Test Chamber ambient



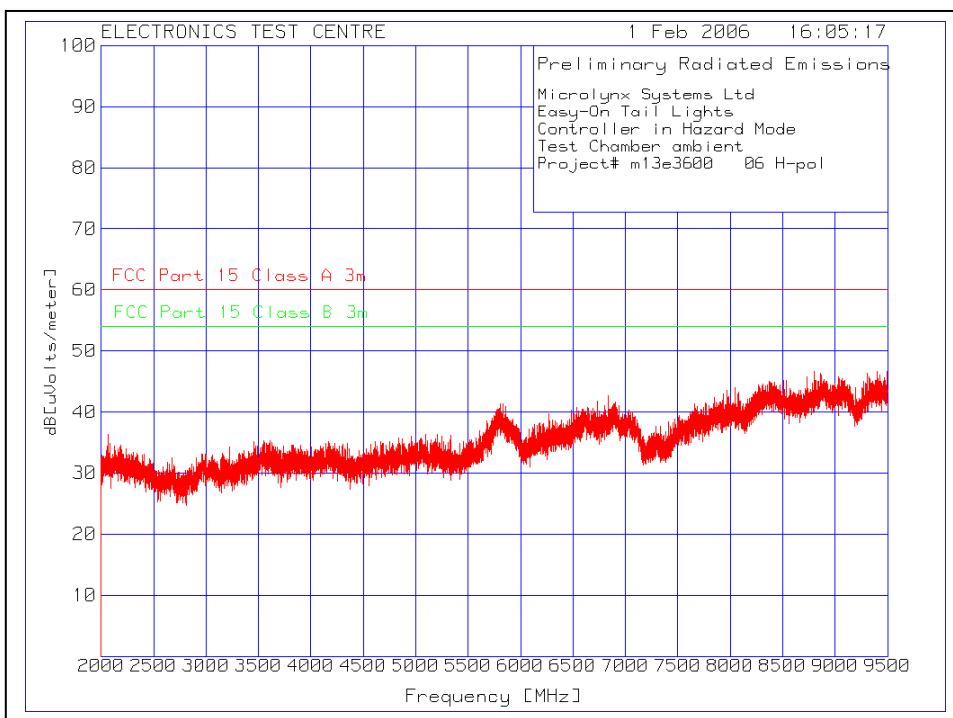
Plot of Radiated Emissions: Test Chamber ambient



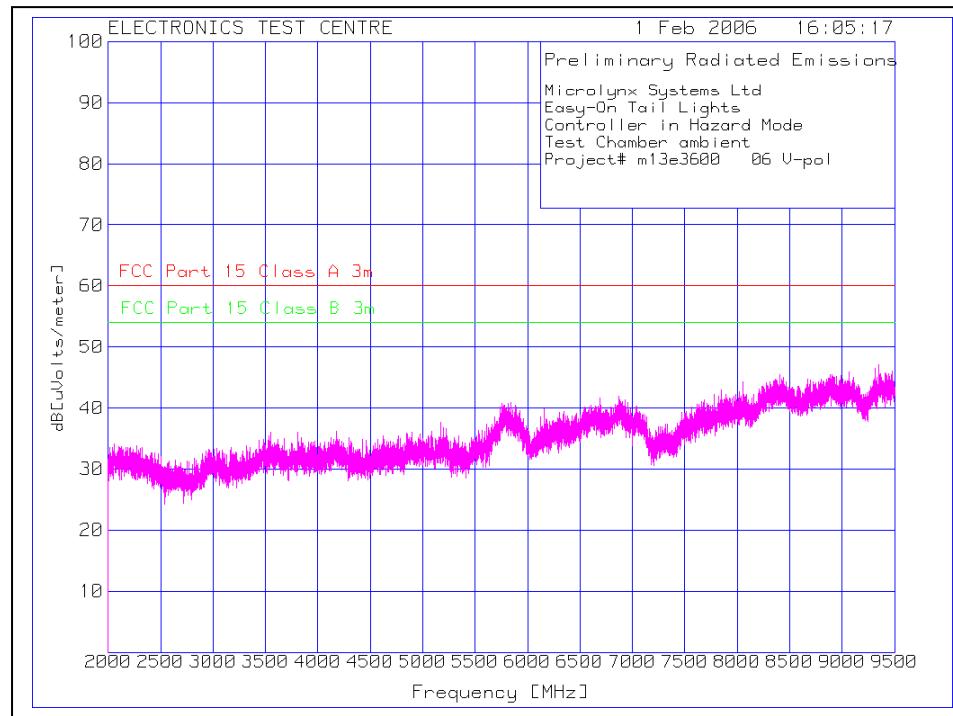
Plot of Radiated Emissions: Test Chamber ambient



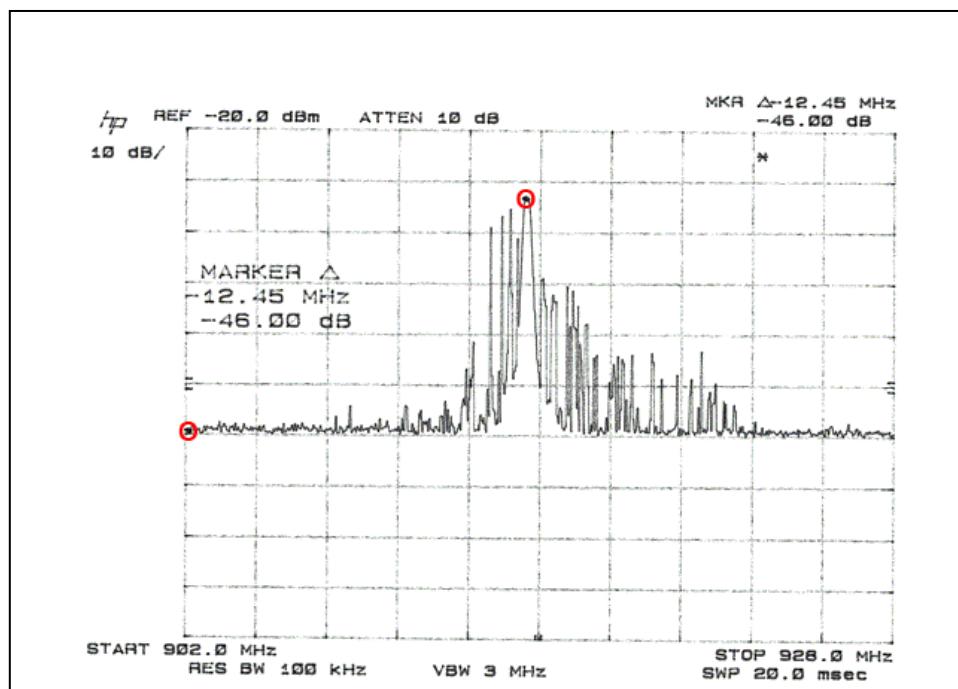
Plot of Radiated Emissions: Test Chamber ambient



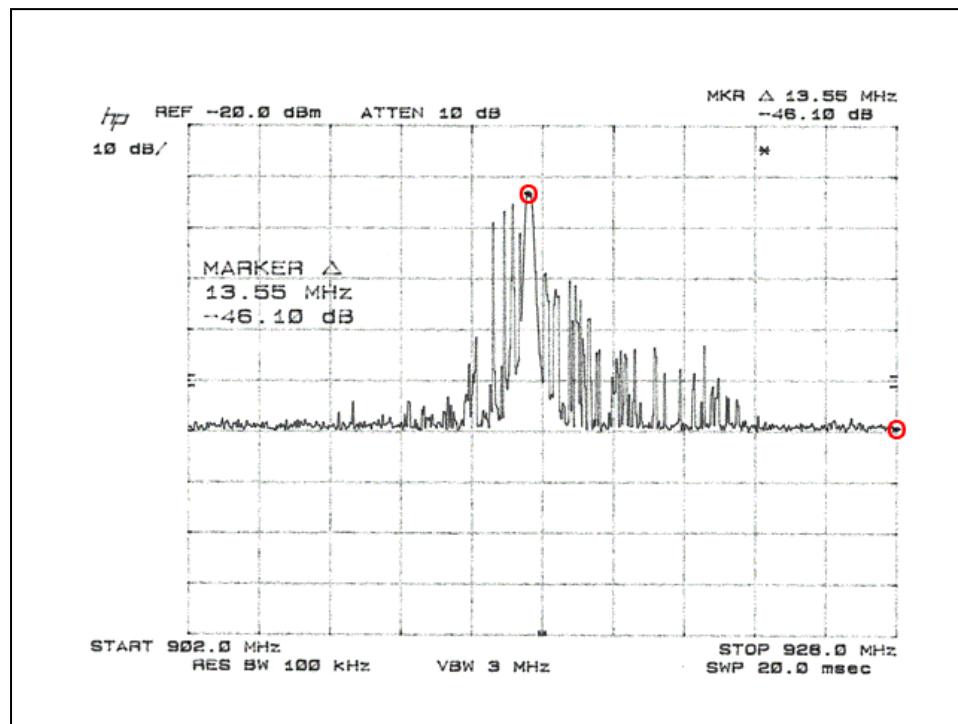
Plot of Radiated Emissions: Test Chamber ambient



Plot of Radiated Emissions: Lower Band Edge



Plot of Radiated Emissions: Upper Band Edge



5.0 TEST FACILITY

5.1 LOCATION

The EUT was tested for Electromagnetic Compatibility at the Electronics Test Centre, located in Airdrie, Alberta, Canada.

The RF Anechoic Chamber (RFAC) is identified as Chamber 1, located in the main building complex at the Electronics Test Centre. Its usable working space measures 10.6 m long x 7.3 m wide x 6.5 m high.

This test site is listed with the FCC under Registration Number 99541. Measurements taken at this site are accepted by Industry Canada per file number IC 2046-1.

The floor, walls and ceiling consist of annealed steel panels. The walls and ceiling are covered with ferrite tile, augmented by RF absorbant foam material on the end wall nearest the turntable, and on the adjacent walls and the ceiling. The chamber floor supports a 15 cm high internal floor, constructed of annealed steel panels, that forms the ground plane, and is bonded to the chamber walls.

The 3-m diameter turntable is flush-mounted with the floor. A sub-floor cable-way is provided to route cables between the turntable pit and EUT support equipment. Cables reach the EUT through an opening in the centre of the turntable.

Test instrumentation and EUT support equipment is located in two shielded vestibules located at the side of the main room. Cables are routed through bulkhead panels between the rooms as required. Power feeds are routed into the main room and vestibules through line filters providing at least 100 dB of attenuation between 10 kHz and 10 GHz.

5.2 GROUNDING PLAN

The EUT was located on a wooden table 80 cm above the ground plane.

In accordance with Microlynx Systems Ltd specifications, the EUT was not grounded.

5.3 POWER

DC power was supplied by batteries internal to the EUT.

5.4 EMISSIONS PROFILE

Ambient radiated electromagnetic emission profiles were generated throughout the tests and are included in the test data.

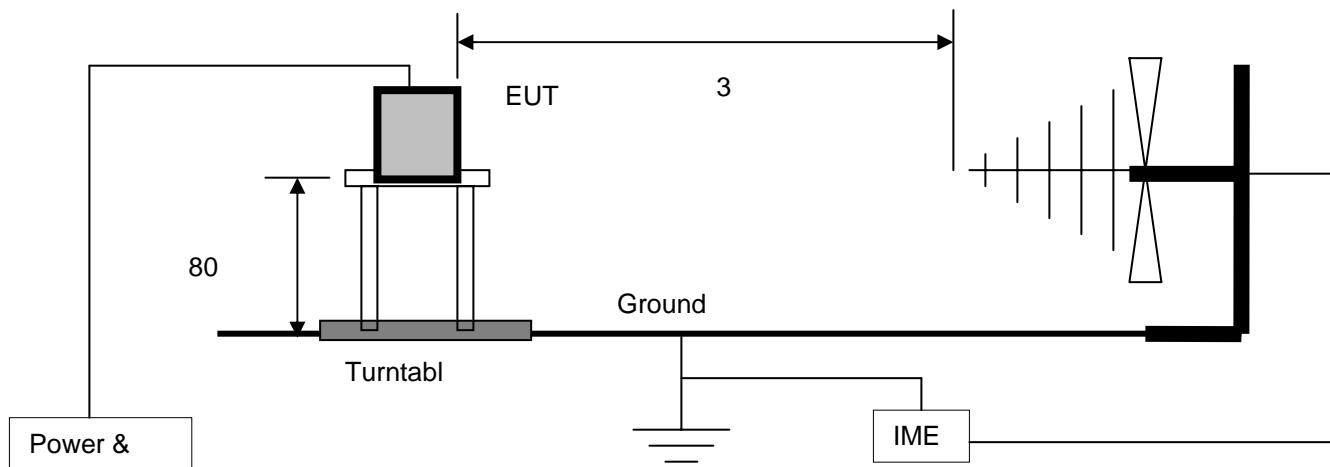
5.5 TEST CONFIGURATION

5.5.1 Tabletop Equipment

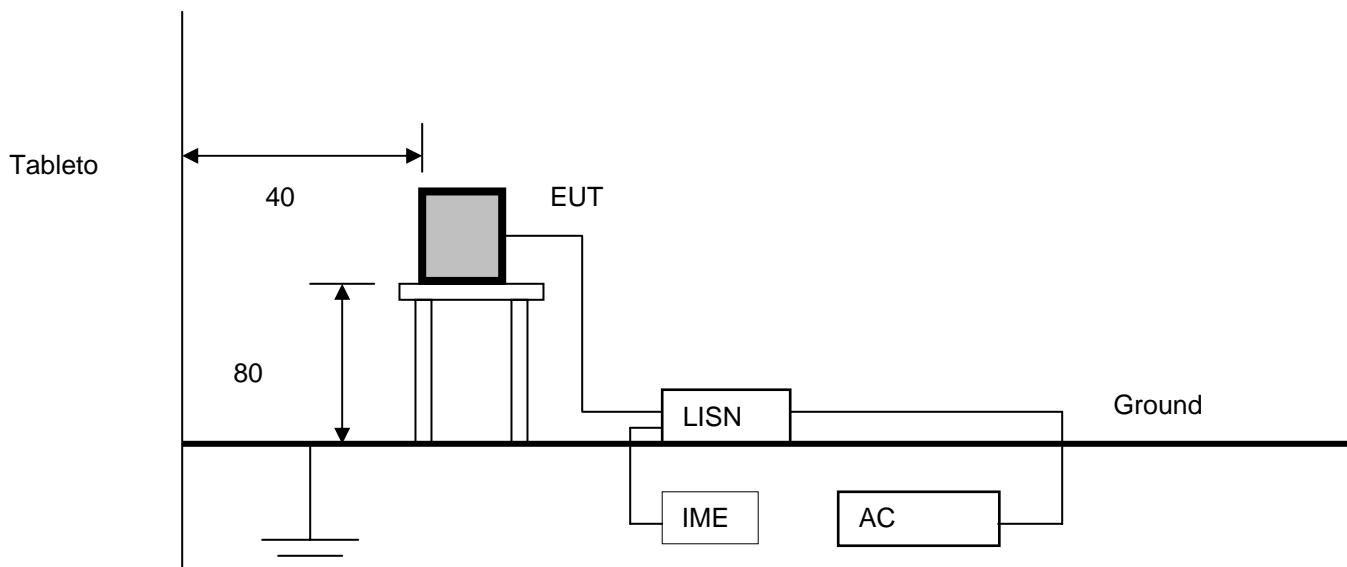
The following diagrams illustrate the configuration of the EUT test and measurement equipment for Radiated and Conducted Emissions Testing of tabletop equipment.

Radiated

Tableto



Conducted



6.0 TEST EQUIPMENT

The following equipment was used for this procedure. All measurement devices are calibrated annually, traceable to NIST.

6.1 RADIATED EMISSIONS

- a) Spectrum Analyzer with RF Preselector
- b) CISPR Quasi-peak Adapter
- c) Power Isolation Transformers
- d) Biconilog antenna (20 MHz to 2 GHz)
- e) Antenna mast positioner and controller
- f) Flush-mounted turntable and controller
- g) Personal Computer and EMC software

6.2 CONDUCTED EMISSIONS

- a) Spectrum Analyzer with RF Preselector
- b) Line Impedance Stabilization Network, 50 μ H
- c) CISPR Quasi-peak Adapter
- d) Isolation Transformer
- e) Personal Computer and EMC software

6.3 CALIBRATION

All measurement instrumentation conforms to ANSI C63.2. Calibration is maintained in accordance with manufacturer recommendations. Each measurement device is labeled with its ETC asset number and calibration due date.

6.3.1 CALIBRATION ACCURACY

Test equipment used to provide quantitative measurements are calibrated with standards traceable to the National Research Council, National Institute of Standards and Technology or other national standards. Instrumentation systems for emissions measurements have the following accuracies:

Frequency = \pm 1 kHz
Amplitude (RE) = \pm 4.01 dB
Amplitude (CE) = \pm 3.25 dB

6.3.2 TEST EQUIPMENT DESCRIPTION

Testing was performed with equipment selected from the following list.

Instrument	Manufacturer	Model No.	Asset No.	Calibration Due
Spectrum Analyzer & Display	Hewlett Packard	8566B & 85662	9565	26 April 2006
Spectrum Analyzer & Display	Hewlett Packard	8566B & 85662	9168	7 September 2006
RF Preselector	Hewlett Packard	85685A	9728	8 September 2006
RF Preselector	Hewlett Packard	85685A	4464	26 April 2006
Quasi-Peak Adapter	Hewlett Packard	85650A	4411	26 April 2006
Quasi-Peak Adapter	Hewlett Packard	85650A	9243	8 September 2006
Measurement System Software	Underwriters Laboratories	Version 6.0	4443	n/a
Inverter (single phase)	California Instruments	5000iX	4378	6 September 2007
Low Noise Amplifier	MITEQ	JS43-01001800-21-5P	4354	7 January 2007
Line Impedance Stabilization Network	EMCO	3825/2r	9331	5 January 2007
Line Impedance Stabilization Network	EMCO	3825/2r	9259	5 January 2007
Line Impedance Stabilization Network	EMCO	38100/1SPEC	9331	5 January 2007
Line Impedance Stabilization Network	EMCO	38100/1SPEC	9259	5 January 2007
Active Monopole	EMCO	3301B	9764	21 July 2007
Biconilog Antenna	ARA	LPB-2520/A	4318	7 January 2007
Biconical Antenna	EMCO	3104	9257	12 January 2007
Log-periodic Array	EMCO	3147	20721	18 January 2007
DRG Horn	EMCO	3106	9699	10 August 2007
DRG Horn	Tensor	4106	9576	11 January 2007
DRG Horn	EMCO	3115	9588	5 January 2007
Low Noise Amplifier	MITEQ	JS43-01001800-21-5P	4354	7 January 2007

Appendix A

Easy-On Wireless Tail Lights Model 101

Test Sample Description (from data provided by Easy-On Wireless Tail Lights)

Quotation Number:	Project Number::	
Company Name : Easy_on Wireless Tail Lights	Contact Name : Terry Stiles	
Address : HC72, Box 7010, Malta, Montana 59538	Phone : 1-406-654-2156	
	Fax :	
	E-mail : easyonlights@mtintouch.net	
Product Name: Easy-On Wireless Tail Lights	# of units to be tested :1 (one)	
Part/Model # : 101	Serial # :N/A	
Product Application	Designated Marketplaces	
Commercial <input checked="" type="checkbox"/>	Canada <input checked="" type="checkbox"/>	Other <input type="checkbox"/>
Military <input type="checkbox"/>	United States of America <input checked="" type="checkbox"/>	<input type="checkbox"/>
	European Union <input type="checkbox"/>	<input type="checkbox"/>

GENERAL INFORMATION REQUIRED FOR ALL PRODUCTS

Dimensions (L x W x H) See attached picture	Weight: approx 5 (lbs. kgs.)				
Power Requirements: AC <input type="checkbox"/>	Voltage: Tx: 3 VDC	# of AC phases: _____	current: _____ Amps	frequency: _____ Hz	
DC <input checked="" type="checkbox"/>	Voltage: Rx: 3 VDC		current: _____ Amps		
Product Intended Application	Temporary or emergency battery operated rear tail lights				
Product Deployment Environments	Exterior; rear of vehicles				
Peripheral support and/or Monitoring Equipment to Monitor and Operate the Product (to be supplied by client):	None				
Description of interconnecting leads & cables (Attach separate sheet, if required)	Type: Connectors: Terminations : Shielding: Length:	Cable 1 None	Cable 2	Cable 3	Cable 4
List of internally generated frequencies: Crystal / Oscillator / Switcher / LO	Microprocessor – 4 MHz				
Typical installation and operating instructions/configuration to expedite EUT set-up (Attach a Separate sheet, if required)	User's Manual attached.				
Brief Functional description of Product including System Block Diagram (Attach a Separate sheet, if required)	See attached photograph. System consists of a handheld transmitter and 2 magnetically-mounted tail lights.				

**CLIENT SAMPLE DESCRIPTION
WIRELESS PRODUCT INFORMATION**

Type of Radio Device (check all applicable Equipment Configurations)

Intentional transmitter <input checked="" type="checkbox"/>	Receiver <input type="checkbox"/>	Transceiver <input type="checkbox"/>
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Type of Radio Operating License

Unlicensed Personal Communication <input checked="" type="checkbox"/>	Unlicensed National Information Infrastructure <input type="checkbox"/>	Ultra-Wideband Operation <input type="checkbox"/>	Licensed <input type="checkbox"/>
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Type of Modulation of Radio Device

CDMA <input type="checkbox"/>	TDMA <input type="checkbox"/>	Other <input checked="" type="checkbox"/>
Spread Spectrum Technology <input type="checkbox"/>	Direct sequencer <input type="checkbox"/>	Frequency hopper <input type="checkbox"/>
Transmitter Power Output : FM radio module, 3 dBm typical		Emission Designator :

Information on Radio Frequencies

Transmitter Operating Frequency(s) & Bandwidth	914.5 MHz, data modulation rate < 10 kbps (Keymark TXB1 module, not a pre-approved module)
Transmitter Channel Frequencies & separations (If required, attach a separate sheet)	Single frequency of operation only
Receiver Operating Frequency(s) & Bandwidth	914.5 MHz, 230 kHz IF BW (Keymark RXC1 module)
Receiver Channel Frequencies & separations (If required, attach a separate sheet)	Single frequency of operation only

Information on Antenna(s)

Is the antenna removable? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Antenna Connector Type : PCB antenna	Number of Antennas : 1
Gain of Each Antenna (and tolerance)	-5 dBi, +/- 2dB	
Activity and State of Digital Circuitry during ON Time	Microprocessor is operating, sensing the state of input switches, running LEDs, and generating digital data for transmission over the radio	

Radio Transmission Type

Continuous <input type="checkbox"/>	Intermittent <input checked="" type="checkbox"/>	ON Time/ OFF Time :
Activity and State of Digital Circuitry during OFF Time	Polling input switches for user activity; periodic 'keep alive' messages transmitted	

