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Job Number:	774131
File Number:	MC15795
Date:	3 April 2008
Model:	PN1001
FCC ID:	V3ZPN1001
Industry Canada ID:	7602A-PN1001

Electromagnetic Compatibility Test Report

For

SYSTEMAX SAFETY SYSTEMS INC

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Underwriters Laboratories Inc.
1285 Walt Whitman Rd.
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Job Number: 774131 File Number: MC15795 Page 2 of 54
Model Number: Prototype
Client Name: Systemax Safety Systems Inc.
FCC ID: V3ZPN1001
Industry Canada ID: 7602A-PN1001

Test Report Details

Tests Performed By: **Underwriters Laboratories Inc.**
1285 Walt Whitman Rd.
Melville, NY 11747

Tests Performed For: **Systemax Safety Systems Inc.**
113 Magnolia Ave
Westbury, NY 11590

Applicant Contact: **Max Elia**
Title: **President**
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Test Report Date: **3 April 2008**

Product Type: **Pool Nanny**

Product standards **FCC Part 15, Subpart B & C, 15.35, 15.107, 15.109, 15.209 & 15.231, RSS-GEN, & RSS-210**

Model Number: **PN1001**

Sample Part Numbers: **PN101, PN201, & PN301**

EUT Category: **Periodic Low Power Transmitter**

Testing Start Date: **27 Nov. 2007**

Date Testing Complete: **21 April 2008**

Overall Results: Compliant

Underwriters Laboratories Inc. reports apply only to the specific samples tested under stated test conditions. All samples tested were in good operating condition throughout the entire test program. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. Underwriters Laboratories Inc. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from Underwriters Laboratories Inc. issued reports. This report shall not be used to claim, constitute or imply product certification, approval, or endorsement by NVLAP, A2LA, or any agency of the US government.

This report may contain test results that are not covered by the NVLAP or A2LA accreditation. The scope of accreditation is limited to the specific tests that are listed on the NVLAP and/or A2LA websites referenced at the end of this report.

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 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

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Report Revision History

Revision Date	Description	Revised By	Reviewed By
None	Original	-	Bob DeLisi

1.0 G E N E R A L - Product Description

1.1 Equipment Description

Pool Nanny is a system designed primarily for the safety of children that are in the surroundings of a swimming pool. It consists of a portable device strapped to each child's wrist or ankle, a similar one for each adult or supervisor, and a central unit (powered by means of an AC adaptor), as well as a pair of cables around the supervised area. An installer's device is provided to installers on request, to aid them in the adjustment process after installing the system. The portable units are similar to a wristwatch in shape, size, and weight.

Per FCC Part 2.1093 (C) this device is not required to undergo testing for radio-frequency radiation exposure

The device under test was tested in normal orientation that represents the worst-case orientation. Also the portable device was oriented in 3 orthogonal axis and the worst-case emissions data orientation was tested as shown in test setup.

Antenna description: The antenna is a shortened folded monopole with a capacitive loading due to proximity to the ground plane.

1.2 Equipment Marking Plate

Not Applicable

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1.3 Device Configuration During Test

1.3.1 Equipment Used During Test:

Use	Product Type	Manufacturer	Part Number	Comments
EUT	Pool Nanny (Central Unit)	Systemax Safety Systems Inc.	101	None
EUT	Supervisor portable device	Systemax Safety Systems Inc.	301	None
EUT	Supervised portable device	Systemax Safety Systems Inc.	201	None
AE	AC Adaptor	Radio Shack	273-1775	None
Note: EUT - Equipment Under Test, AE - Auxiliary/Associated Equipment, or SIM - Simulator (Not Subjected to Test)				

1.3.2 Input/Output Ports:

Port #	Name	Type*	Cable Max. >3m (Y/N)	Cable Shielded (Y/N)	Comments
0	Enclosure	N/E	—	—	None
1	Mains	AC	No	No	Base station (central unit)
2	DC	DC	No	No	Batteries 3Volt Lithium
Note: AC = AC Power Port DC = DC Power Port N/E = Non-Electrical I/O = Signal Input or Output Port (Not Involved in Process Control) TP = Telecommunication Ports					

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1.3.3 EUT Internal Operating Frequencies:

Frequency (MHz)	Description	Frequency (MHz)	Description
0.0083	Operating Frequency Base Unit	433	Operating frequency portable unit

1.3.4 Power Interface:

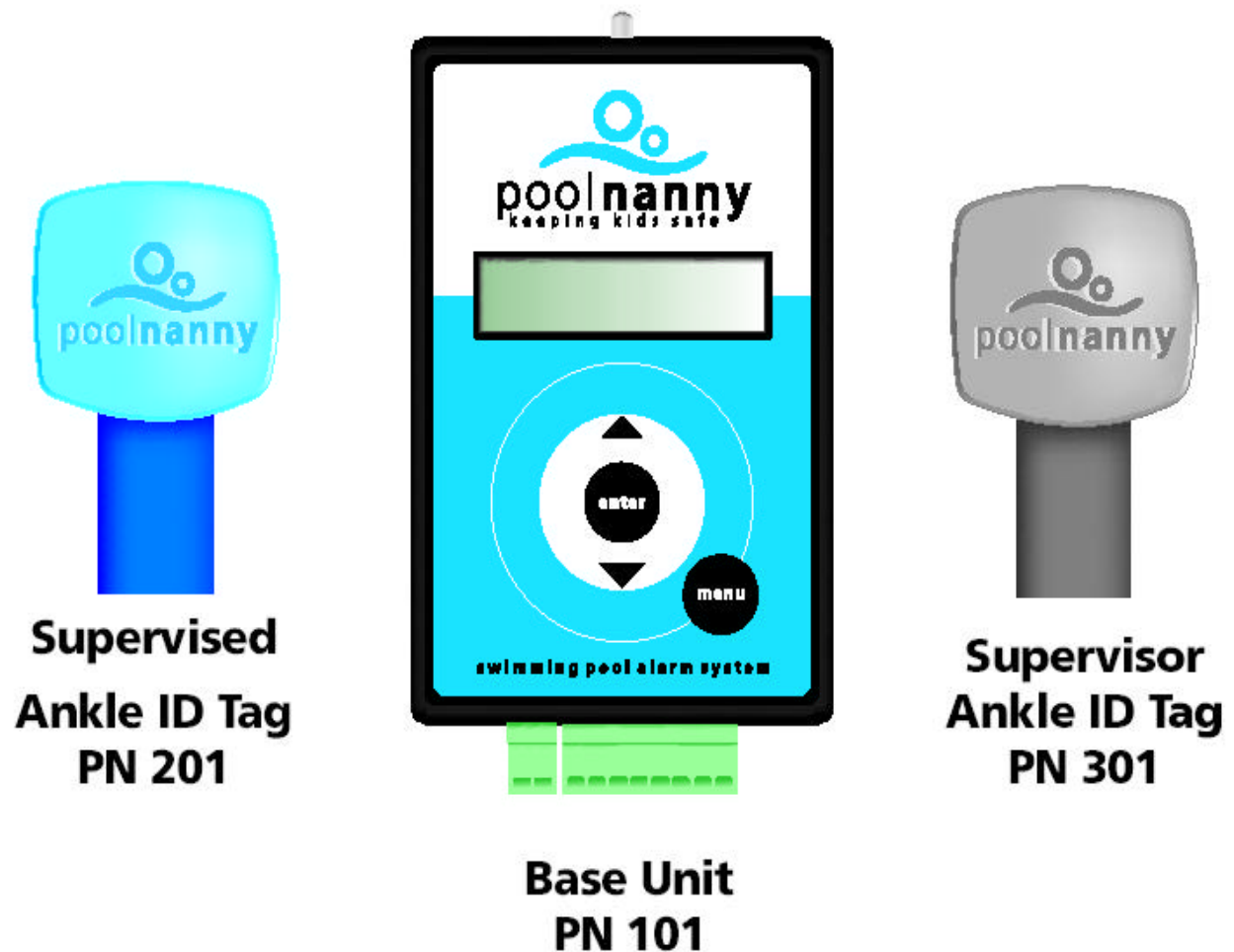
Mode # /Rated	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Phases (#)	Comments
1	120Vac	-	-	60Hz	Single Phase	8.3KHz
2	Battery	-	-	-	-	433 MHz, Batteries 3Volt Lithium

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1.4 Block Diagram:

The diagram below illustrates the configuration of the equipment above.



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1.5 EUT Configurations

The equipment under test was measured at its worst-case orientation during the evaluation.

Mode #	Description
1	8.3KHz transmitter
2	433 MHz transmitter

1.6 EUT Operation Modes

Mode #	Description
1	Transmit
2	Standby

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2.0 Summary

The tests listed in the Summary of Testing section of this report have been performed and the results recorded by Underwriters Laboratories Inc. in accordance with the procedures stated in each test requirement and specification. The applicant determined the list of tests performed were applicable to the Equipment Under Test. As a result, the subject product has been verified to comply or not comply as noted in the Summary of Testing with each test specification. The test results relate only to the items tested.

2.1 Deviations from standard test methods

None

2.2 Device Modifications Necessary for Compliance

None

Reference Standards

Standard Number	Standard Name	Standard Date
CFR 47	FCC Part 15, Subpart C, 15.31, 15.35, 15.207 & 15.209, & 15.231	2007
CFR 47	FCC Part 15, Subpart B, Class B Radio Frequency Devices	2007
ICES-003, Issue 4	Spectrum Management and Telecommunications Policy Interference-Causing Equipment Standard: Digital Apparatus	2003
RSS- 210, Issue 7	Low-power License-exempt Radio communications Devices (All Frequency Bands): Category I Equipment sets out certification requirements for low-power license- exempt radio communication devices that are Category I equipment.	2007
RSS-GEN, Issue 2	General Requirements and Information for the Certification of Radio communication Equipment.	2007

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2.4 Results Summary

This product is considered Class B

Requirement – Test	Result (Compliant)
15.231 Cease Operation	Compliant
15.207 Conducted Emissions	Compliant
15.231 Fundamental Radiated Emissions	Compliant
15.209 General Radiated Emissions	Compliant
15.231 Occupied Bandwidth	Compliant
15.231 Spurious Radiated Emissions	Compliant
15.107 Conducted Emissions - Unintentional	Compliant
15.109 Radiated Emissions 30MHz – 5000MHz- Unintentional	Compliant

Test Engineer:



Joe Danisi (Ext.23055)
 Lead Engineering Associate
 International EMC Services
 Conformity Assessment Services -

Reviewer:



Bob DeLisi Ext.22452)
 Senior Staff Engineer
 International EMC Services
 Conformity Assessment Services

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3.0 Calibration of Equipment Used for Measurement

All test equipment and test accessories are calibrated on a regular basis. The maximum time between calibrations is one year or the manufacturers' recommendation whichever is less.

All test equipment calibrations are traceable to the National Institute of Standards and Technology (NIST); therefore, all test data recorded in this report is traceable to NIST.

4.0 EMISSIONS TEST RESULTS

The emissions tests were performed according to following regulations:

----- United States -----

FCC Part 15, Subpart C, 15.207, 15.209, & 15.231.	Code of Federal Regulations, Part 15, Subpart C, Radio Frequency Devices: 2007
FCC Part 15, Subpart B, 15.107 & 15.109	Code of Federal Regulations, Part 15, Subpart B, Radio Frequency Devices: 2007

----- Industry Canada -----

Radio Standards Specification 210, Issue 7	Low-power License-exempt Radio communications Devices (All Frequency Bands): Category I Equipment sets out certification requirements for low-power license- exempt radio communication devices that are Category I equipment. 2007
RSS-GEN, Issue 2	General Requirements and Information for the Certification of Radio communication Equipment.
ICES-003, Issue 4	Spectrum Management and Telecommunications Policy Interference-Causing Equipment Standard: Digital Apparatus. 2004

Unless specified otherwise in the individual Methods, the tests shall be conducted under the following ambient conditions. Confirmation of these conditions shall be verified at the time the test is conducted.

Ambient Temperature, °C	22.5 ± 2.5	Relative Humidity, %	45 ± 15	Barometric Pressure, mBar	950 ± 150
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4.1 Test Conditions and Results – MAINS TERMINAL – CONDUCTED EMISSIONS

Test Description	Measurements were made on a ground plane. All power was connected to the system through Artificial Mains Network (AMN). Conducted voltage measurements on mains lines were made at the output of the AMN.	
Basic Standard	FCC Part 15, Subpart B, 15.107, ICES-003	
UL LPG	80-EM-S0026	
	Frequency range on each side of line	Measurement Point
Fully configured sample scanned over the following frequency range	150kHz to 30MHz	Mains
Limits - Class B		
Frequency (MHz)	Limit (dB μ V)	
	Quasi-Peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50
Supplementary information: None		

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Table 1 Conducted Emissions EUT Configuration Settings

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: The portable transmitter is powered by a lithium battery only therefore, Conducted Emissions is not applicable however, the base unit plugs into AC power therefore, the base unit was evaluated to the unintentional portion of the standard.		

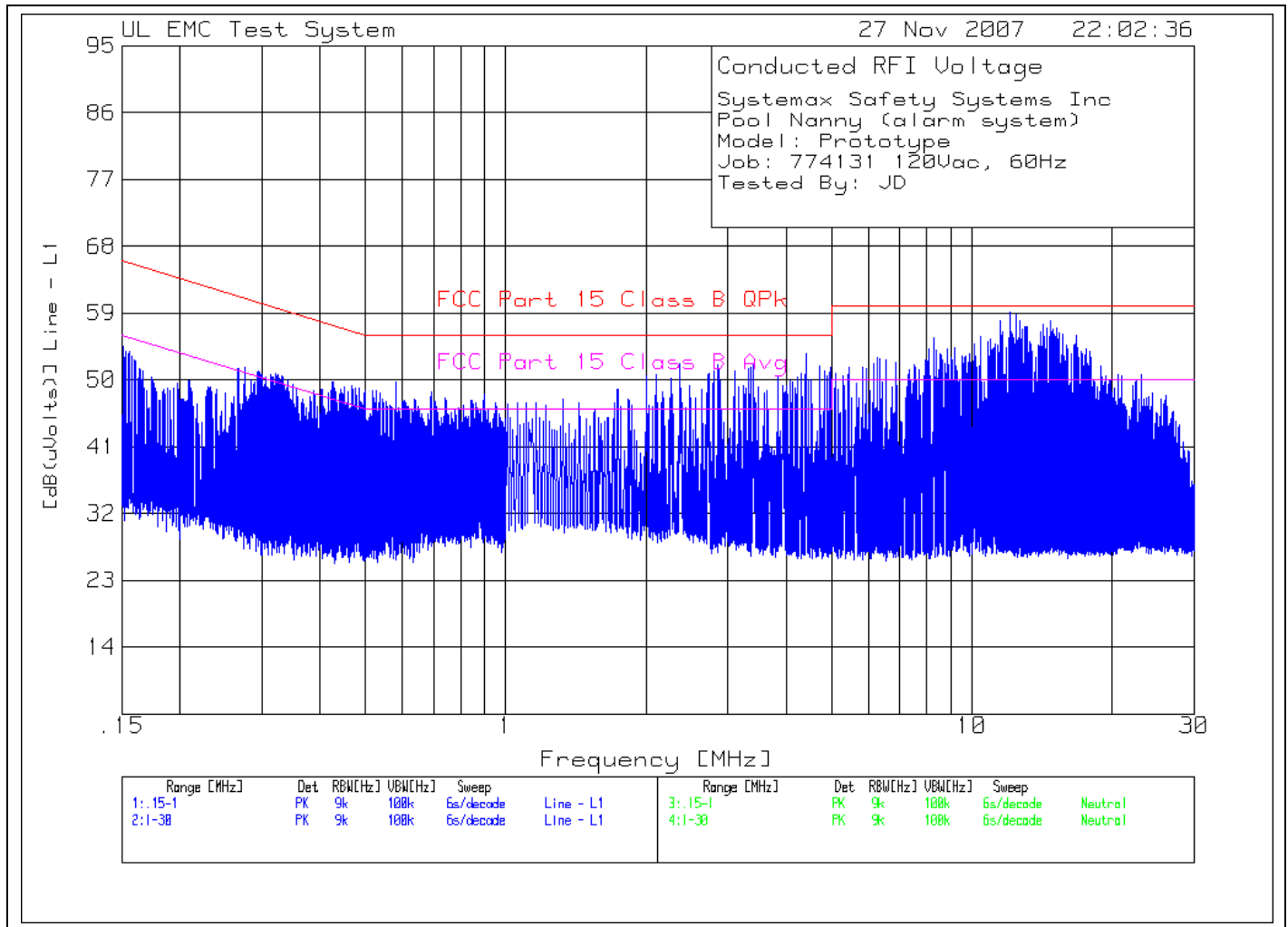
Table 2 Conducted Emissions Test Equipment

Test Equipment Used			
Description	Manufacturer	Model	Identifier
Conducted Emissions – GP 1			
Spectrum Analyzer	Agilent	E7402A	ME5B-123
LISN	EMCO	3825/2R	ME5-790
Switch Driver	HP	11713A	44397
RF Switch Box	UL	4	44404
Measurement Software	UL	Version 9.3	44736
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	43734

Figure 1 Test Setup for Conducted Emissions



Figure 2 Conducted Emissions Graph



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Table 3 Conducted Emissions Data Points

Systemax Safety Systems Inc
 Pool Nanny (alarm system)
 Model: Prototype
 Job: 774131 120Vac, 60Hz
 Tested By: JD

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
Line - L1	.15	- 1MHz									
1	.15106	42.48 pk	12	0	54.48	65.9	55.9	-	-	-	-
				Margin [dB]		-11.42	-1.42	-	-	-	-
2	.16378	39.69 pk	11.9	0	51.59	65.3	55.3	-	-	-	-
				Margin [dB]		-13.71	-3.71	-	-	-	-
3	.20915	38.61 pk	11.3	0	49.91	63.2	53.2	-	-	-	-
				Margin [dB]		-13.29	-3.29	-	-	-	-
4	.23015	38.02 pk	11.1	0	49.12	62.4	52.4	-	-	-	-
				Margin [dB]		-13.28	-3.28	-	-	-	-
5	.26683	40.63 pk	10.9	0	51.53	61.2	51.2	-	-	-	-
				Margin [dB]		-9.67	.33	-	-	-	-
6	.29502	40.37 pk	10.8	0	51.17	60.4	50.4	-	-	-	-
				Margin [dB]		-9.23	.77	-	-	-	-
7	.32534	39.92 pk	10.7	0	50.62	59.6	49.6	-	-	-	-
				Margin [dB]		-8.98	1.02	-	-	-	-
8	.34845	38.63 pk	10.7	0	49.33	59	49	-	-	-	-
				Margin [dB]		-9.67	.33	-	-	-	-
9	.37983	37.14 pk	10.6	0	47.74	58.3	48.3	-	-	-	-
				Margin [dB]		-10.56	-.56	-	-	-	-
10	.40379	38.16 pk	10.6	0	48.76	57.8	47.8	-	-	-	-
				Margin [dB]		-9.04	.96	-	-	-	-
11	.42499	39.28 pk	10.5	0	49.78	57.4	47.4	-	-	-	-
				Margin [dB]		-7.62	2.38	-	-	-	-
12	.45065	38.51 pk	10.5	0	49.01	56.9	46.9	-	-	-	-
				Margin [dB]		-7.89	2.11	-	-	-	-
13	.46867	38.79 pk	10.5	0	49.29	56.5	46.5	-	-	-	-
				Margin [dB]		-7.21	2.79	-	-	-	-
14	.49984	38.07 pk	10.5	0	48.57	56	46	-	-	-	-
				Margin [dB]		-7.43	2.57	-	-	-	-
15	.53609	37.88 pk	10.4	0	48.28	56	46	-	-	-	-
				Margin [dB]		-7.72	2.28	-	-	-	-
16	.58168	39.25 pk	10.4	0	49.65	56	46	-	-	-	-
				Margin [dB]		-6.35	3.65	-	-	-	-
17	.61539	36.05 pk	10.4	0	46.45	56	46	-	-	-	-
				Margin [dB]		-9.55	.45	-	-	-	-
18	.69214	38.05 pk	10.4	0	48.45	56	46	-	-	-	-
				Margin [dB]		-7.55	2.45	-	-	-	-
19	.74366	36.79 pk	10.4	0	47.19	56	46	-	-	-	-
				Margin [dB]		-8.81	1.19	-	-	-	-

LIMIT 1: FCC Part 15 Class B QPk
 LIMIT 2: FCC Part 15 Class B Avg
 pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector
 avlg - denotes average log detection
 ave - denotes average detection
 tm - Trace Math Result

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 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

Systemax Safety Systems Inc
 Pool Nanny (alarm system)
 Model: Prototype
 Job: 774131 120Vac, 60Hz
 Tested By: JD

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level Limit:1 [dB(uVolts)]	2	3	4	5	6
20	.77844	35.56 pk	10.4	0	45.96	56	46	-	-	-
				Margin [dB]	-10.04	-.04	-	-	-	-
21	.85222	36.38 pk	10.4	0	46.78	56	46	-	-	-
				Margin [dB]	-9.22	.78	-	-	-	-
22	.90056	37.76 pk	10.3	0	48.06	56	46	-	-	-
				Margin [dB]	-7.94	2.06	-	-	-	-
23	.95675	35.48 pk	10.3	0	45.78	56	46	-	-	-
				Margin [dB]	-10.22	-.22	-	-	-	-
Line - L1 1 - 30MHz										
24	1.05787	36.65 pk	10.3	0	46.95	56	46	-	-	-
				Margin [dB]	-9.05	.95	-	-	-	-
25	1.10851	36.6 pk	10.3	0	46.9	56	46	-	-	-
				Margin [dB]	-9.1	.9	-	-	-	-
26	1.15914	36.53 pk	10.3	0	46.83	56	46	-	-	-
				Margin [dB]	-9.17	.83	-	-	-	-
27	1.21701	36.25 pk	10.3	0	46.55	56	46	-	-	-
				Margin [dB]	-9.45	.55	-	-	-	-
28	1.32552	37.03 pk	10.3	0	47.33	56	46	-	-	-
				Margin [dB]	-8.67	1.33	-	-	-	-
29	1.43402	36.56 pk	10.3	0	46.86	56	46	-	-	-
				Margin [dB]	-9.14	.86	-	-	-	-
30	1.73061	38.48 pk	10.3	0	48.78	56	46	-	-	-
				Margin [dB]	-7.22	2.78	-	-	-	-
31	1.82465	37.08 pk	10.3	0	47.38	56	46	-	-	-
				Margin [dB]	-8.62	1.38	-	-	-	-
32	2.00549	40.1 pk	10.4	0	50.5	56	46	-	-	-
				Margin [dB]	-5.5	4.5	-	-	-	-
33	2.09953	40.31 pk	10.4	0	50.71	56	46	-	-	-
				Margin [dB]	-5.29	4.71	-	-	-	-
34	2.16463	37.91 pk	10.4	0	48.31	56	46	-	-	-
				Margin [dB]	-7.69	2.31	-	-	-	-
35	2.25867	39.8 pk	10.4	0	50.2	56	46	-	-	-
				Margin [dB]	-5.8	4.2	-	-	-	-
36	2.36717	41.73 pk	10.4	0	52.13	56	46	-	-	-
				Margin [dB]	-3.87	6.13	-	-	-	-
37	2.48291	38.86 pk	10.4	0	49.26	56	46	-	-	-
				Margin [dB]	-6.74	3.26	-	-	-	-

LIMIT 1: FCC Part 15 Class B QPk

LIMIT 2: FCC Part 15 Class B Avg

pk - Peak detector

qp - Quasi-Peak detector

av - Average detector

avlg - denotes average log detection

ave - denotes average detection

tm - Trace Math Result

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Systemax Safety Systems Inc
 Pool Nanny (alarm system)
 Model: Prototype
 Job: 774131 120Vac, 60Hz
 Tested By: JD

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
38	2.62759	38.24 pk	10.4	0	48.64	56	46	-	-	-	-
				Margin [dB]		-7.36	2.64	-	-	-	-
39	2.73609	40.4 pk	10.4	0	50.8	56	46	-	-	-	-
				Margin [dB]		-5.2	4.8	-	-	-	-
40	2.79396	40.86 pk	10.4	0	51.26	56	46	-	-	-	-
				Margin [dB]		-4.74	5.26	-	-	-	-
41	2.8446	41.61 pk	10.4	0	52.01	56	46	-	-	-	-
				Margin [dB]		-3.99	6.01	-	-	-	-
42	2.87354	40.91 pk	10.4	0	51.31	56	46	-	-	-	-
				Margin [dB]		-4.69	5.31	-	-	-	-
43	3.10501	40.86 pk	10.4	0	51.26	56	46	-	-	-	-
				Margin [dB]		-4.74	5.26	-	-	-	-
44	3.27139	38.53 pk	10.4	0	48.93	56	46	-	-	-	-
				Margin [dB]		-7.07	2.93	-	-	-	-
45	3.35096	41.36 pk	10.4	0	51.76	56	46	-	-	-	-
				Margin [dB]		-4.24	5.76	-	-	-	-
46	3.35096	41.36 pk	10.4	0	51.76	56	46	-	-	-	-
				Margin [dB]		-4.24	5.76	-	-	-	-
47	3.16288	38.59 pk	10.4	0	48.99	56	46	-	-	-	-
				Margin [dB]		-7.01	2.99	-	-	-	-
48	3.4016	41.85 pk	10.4	0	52.25	56	46	-	-	-	-
				Margin [dB]		-3.75	6.25	-	-	-	-
49	3.63308	38.22 pk	10.4	0	48.62	56	46	-	-	-	-
				Margin [dB]		-7.38	2.62	-	-	-	-

LIMIT 1: FCC Part 15 Class B QPk

LIMIT 2: FCC Part 15 Class B Avg

pk - Peak detector

qp - Quasi-Peak detector

av - Average detector

avlg - denotes average log detection

ave - denotes average detection

tm - Trace Math Result

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 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

Systemax Safety Systems Inc
 Pool Nanny (alarm system)
 Model: Prototype
 Job: 774131 120Vac, 60Hz
 Tested By: JD

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
=====										
Line - L1 .15 - 1MHz										
.15175	8.86 ave	12	0	20.86	65.9	55.9	-	-	-	-
			Margin [dB]:		-45.04	-35.04	-	-	-	-
.16378	7.86 ave	11.9	0	19.76	65.3	55.3	-	-	-	-
			Margin [dB]:		-45.54	-35.54	-	-	-	-
.20915	8.03 ave	11.3	0	19.33	63.2	53.2	-	-	-	-
			Margin [dB]:		-43.87	-33.87	-	-	-	-
.23015	9.93 ave	11.1	0	21.03	62.4	52.4	-	-	-	-
			Margin [dB]:		-41.37	-31.37	-	-	-	-
.26683	8.45 ave	10.9	0	19.35	61.2	51.2	-	-	-	-
			Margin [dB]:		-41.85	-31.85	-	-	-	-
.29502	4.99 ave	10.8	0	15.79	60.4	50.4	-	-	-	-
			Margin [dB]:		-44.61	-34.61	-	-	-	-
.32534	8.07 ave	10.7	0	18.77	59.6	49.6	-	-	-	-
			Margin [dB]:		-40.83	-30.83	-	-	-	-
.34845	7.68 ave	10.7	0	18.38	59	49	-	-	-	-
			Margin [dB]:		-40.62	-30.62	-	-	-	-
.37983	4.94 ave	10.6	0	15.54	58.3	48.3	-	-	-	-
			Margin [dB]:		-42.76	-32.76	-	-	-	-
.40379	6.09 ave	10.6	0	16.69	57.8	47.8	-	-	-	-
			Margin [dB]:		-41.11	-31.11	-	-	-	-
.42499	5.7 ave	10.5	0	16.2	57.4	47.4	-	-	-	-
			Margin [dB]:		-41.2	-31.2	-	-	-	-
.45065	6.9 ave	10.5	0	17.4	56.9	46.9	-	-	-	-
			Margin [dB]:		-39.5	-29.5	-	-	-	-
.46867	6.71 ave	10.5	0	17.21	56.5	46.5	-	-	-	-
			Margin [dB]:		-39.29	-29.29	-	-	-	-
.49984	6.01 ave	10.5	0	16.51	56	46	-	-	-	-
			Margin [dB]:		-39.49	-29.49	-	-	-	-
.53609	6.09 ave	10.4	0	16.49	56	46	-	-	-	-
			Margin [dB]:		-39.51	-29.51	-	-	-	-
.58168	7.29 ave	10.4	0	17.69	56	46	-	-	-	-
			Margin [dB]:		-38.31	-28.31	-	-	-	-
.61539	6.99 ave	10.4	0	17.39	56	46	-	-	-	-
			Margin [dB]:		-38.61	-28.61	-	-	-	-
.69214	6.79 ave	10.4	0	17.19	56	46	-	-	-	-
			Margin [dB]:		-38.81	-28.81	-	-	-	-

LIMIT 1: FCC Part 15 Class B QPk
 LIMIT 2: FCC Part 15 Class B Avg

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector
 avlg - denotes average log detection
 ave - denotes average detection
 tm - Trace Math Result

Job Number: 774131 File Number: MC15795 Page 19 of 54
 Model Number: Prototype
 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

Systemax Safety Systems Inc
 Pool Nanny (alarm system)
 Model: Prototype
 Job: 774131 120Vac, 60Hz
 Tested By: JD

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
.74366	7.26 ave	10.4	0	17.66	56	46	-	-	-	-
			Margin [dB]:		-38.34	-28.34	-	-	-	-
.77844	7.04 ave	10.4	0	17.44	56	46	-	-	-	-
			Margin [dB]:		-38.56	-28.56	-	-	-	-
.85222	6.75 ave	10.4	0	17.15	56	46	-	-	-	-
			Margin [dB]:		-38.85	-28.85	-	-	-	-
.90056	7.12 ave	10.3	0	17.42	56	46	-	-	-	-
			Margin [dB]:		-38.58	-28.58	-	-	-	-
.95675	6.54 ave	10.3	0	16.84	56	46	-	-	-	-
			Margin [dB]:		-39.16	-29.16	-	-	-	-
Line - L1 1 - 30MHz										
1.05787	6.97 ave	10.3	0	17.27	56	46	-	-	-	-
			Margin [dB]:		-38.73	-28.73	-	-	-	-
1.10851	6.6 ave	10.3	0	16.9	56	46	-	-	-	-
			Margin [dB]:		-39.1	-29.1	-	-	-	-
1.15914	6.78 ave	10.3	0	17.08	56	46	-	-	-	-
			Margin [dB]:		-38.92	-28.92	-	-	-	-
1.21701	6.76 ave	10.3	0	17.06	56	46	-	-	-	-
			Margin [dB]:		-38.94	-28.94	-	-	-	-
1.32552	6.37 ave	10.3	0	16.67	56	46	-	-	-	-
			Margin [dB]:		-39.33	-29.33	-	-	-	-
1.43402	6.57 ave	10.3	0	16.87	56	46	-	-	-	-
			Margin [dB]:		-39.13	-29.13	-	-	-	-
1.73061	6.67 ave	10.3	0	16.97	56	46	-	-	-	-
			Margin [dB]:		-39.03	-29.03	-	-	-	-
1.82465	6.56 ave	10.3	0	16.86	56	46	-	-	-	-
			Margin [dB]:		-39.14	-29.14	-	-	-	-
2.00549	6.33 ave	10.4	0	16.73	56	46	-	-	-	-
			Margin [dB]:		-39.27	-29.27	-	-	-	-
2.09953	6.46 ave	10.4	0	16.86	56	46	-	-	-	-
			Margin [dB]:		-39.14	-29.14	-	-	-	-
2.16463	6.39 ave	10.4	0	16.79	56	46	-	-	-	-
			Margin [dB]:		-39.21	-29.21	-	-	-	-
2.25867	6.3 ave	10.4	0	16.7	56	46	-	-	-	-
			Margin [dB]:		-39.3	-29.3	-	-	-	-
2.36717	6.19 ave	10.4	0	16.59	56	46	-	-	-	-
			Margin [dB]:		-39.41	-29.41	-	-	-	-

LIMIT 1: FCC Part 15 Class B QPk
 LIMIT 2: FCC Part 15 Class B Avg

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector
 avlg - denotes average log detection
 ave - denotes average detection
 tm - Trace Math Result

Job Number: 774131 File Number: MC15795 Page 20 of 54
 Model Number: Prototype
 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

Systemax Safety Systems Inc
 Pool Nanny (alarm system)
 Model: Prototype
 Job: 774131 120Vac, 60Hz
 Tested By: JD

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
2.48291	5.99 ave	10.4	0	16.39	56	46	-	-	-	-
			Margin [dB]:		-39.61	-29.61	-	-	-	-
2.62759	5.45 ave	10.4	0	15.85	56	46	-	-	-	-
			Margin [dB]:		-40.15	-30.15	-	-	-	-
2.73609	5.59 ave	10.4	0	15.99	56	46	-	-	-	-
			Margin [dB]:		-40.01	-30.01	-	-	-	-
2.79396	5.35 ave	10.4	0	15.75	56	46	-	-	-	-
			Margin [dB]:		-40.25	-30.25	-	-	-	-
2.8446	5.76 ave	10.4	0	16.16	56	46	-	-	-	-
			Margin [dB]:		-39.84	-29.84	-	-	-	-
2.87354	4.91 ave	10.4	0	15.31	56	46	-	-	-	-
			Margin [dB]:		-40.69	-30.69	-	-	-	-
3.10501	4.71 ave	10.4	0	15.11	56	46	-	-	-	-
			Margin [dB]:		-40.89	-30.89	-	-	-	-
3.27139	3.95 ave	10.4	0	14.35	56	46	-	-	-	-
			Margin [dB]:		-41.65	-31.65	-	-	-	-
3.35096	4.06 ave	10.4	0	14.46	56	46	-	-	-	-
			Margin [dB]:		-41.54	-31.54	-	-	-	-
3.35096	4.39 ave	10.4	0	14.79	56	46	-	-	-	-
			Margin [dB]:		-41.21	-31.21	-	-	-	-
3.16288	3.9 ave	10.4	0	14.3	56	46	-	-	-	-
			Margin [dB]:		-41.7	-31.7	-	-	-	-
3.4016	3.17 ave	10.4	0	13.57	56	46	-	-	-	-
			Margin [dB]:		-42.43	-32.43	-	-	-	-
3.63308	5.13 ave	10.4	0	15.53	56	46	-	-	-	-
			Margin [dB]:		-40.47	-30.47	-	-	-	-

NOTE: "+" - Indicates an emission level in excess of the applicable limit (s).

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector
 avlg - denotes average log detection
 ave - denotes average detection

LIMIT 1: FCC Part 15 Class B QPk
 LIMIT 2: FCC Part 15 Class B Avg

Job Number: 774131 File Number: MC15795 Page 21 of 54
 Model Number: Prototype
 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

Systemax Safety Systems Inc
 Pool Nanny (alarm system)
 Model: Prototype
 Job: 774131 120Vac, 60Hz
 Tested By: JD

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
=====										
Line - L1 1 - 30MHz										
3.82839	4.8 ave	10.4	0	15.2	56	46	-	-	-	-
			Margin [dB]:		-40.8	-30.8	-	-	-	-
4.22624	3.07 ave	10.5	0	13.57	56	46	-	-	-	-
			Margin [dB]:		-42.43	-32.43	-	-	-	-
4.39985	4.72 ave	10.5	0	15.22	56	46	-	-	-	-
			Margin [dB]:		-40.78	-30.78	-	-	-	-
4.71813	3.28 ave	10.5	0	13.78	56	46	-	-	-	-
			Margin [dB]:		-42.22	-32.22	-	-	-	-
4.99302	4.71 ave	10.5	0	15.21	56	46	-	-	-	-
			Margin [dB]:		-40.79	-30.79	-	-	-	-
5.46321	3.63 ave	10.5	0	14.13	60	50	-	-	-	-
			Margin [dB]:		-45.87	-35.87	-	-	-	-
6.14318	6.03 ave	10.5	0	16.53	60	50	-	-	-	-
			Margin [dB]:		-43.47	-33.47	-	-	-	-
6.52657	4.75 ave	10.6	0	15.35	60	50	-	-	-	-
			Margin [dB]:		-44.65	-34.65	-	-	-	-
6.84485	6.34 ave	10.6	0	16.94	60	50	-	-	-	-
			Margin [dB]:		-43.06	-33.06	-	-	-	-
7.50312	7 ave	10.6	0	17.6	60	50	-	-	-	-
			Margin [dB]:		-42.4	-32.4	-	-	-	-
8.08182	8.62 ave	10.6	0	19.22	60	50	-	-	-	-
			Margin [dB]:		-40.78	-30.78	-	-	-	-
8.29883	5.89 ave	10.6	0	16.49	60	50	-	-	-	-
			Margin [dB]:		-43.51	-33.51	-	-	-	-
8.99327	7.16 ave	10.7	0	17.86	60	50	-	-	-	-
			Margin [dB]:		-42.14	-32.14	-	-	-	-
9.91195	8.66 ave	10.7	0	19.36	60	50	-	-	-	-
			Margin [dB]:		-40.64	-30.64	-	-	-	-
10.44724	11.68 ave	10.7	0	22.38	60	50	-	-	-	-
			Margin [dB]:		-37.62	-27.62	-	-	-	-
11.38763	10.93 ave	10.7	0	21.63	60	50	-	-	-	-
			Margin [dB]:		-38.37	-28.37	-	-	-	-
12.03866	9.43 ave	10.8	0	20.23	60	50	-	-	-	-
			Margin [dB]:		-39.77	-29.77	-	-	-	-
12.45822	12.15 ave	10.8	0	22.95	60	50	-	-	-	-
			Margin [dB]:		-37.05	-27.05	-	-	-	-

Job Number: 774131 File Number: MC15795 Page 22 of 54
 Model Number: Prototype
 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

Systemax Safety Systems Inc
 Pool Nanny (alarm system)
 Model: Prototype
 Job: 774131 120Vac, 60Hz
 Tested By: JD

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level Limit:1 [dB(uVolts)]	2	3	4	5	6
12.63906	10.91 ave	10.8	0	21.71	60	50	-	-	-
			Margin [dB]:		-38.29	-28.29	-	-	-
12.78374	9.47 ave	10.8	0	20.27	60	50	-	-	-
			Margin [dB]:		-39.73	-29.73	-	-	-
13.05862	9.62 ave	10.8	0	20.42	60	50	-	-	-
			Margin [dB]:		-39.58	-29.58	-	-	-
13.31903	10.51 ave	10.8	0	21.31	60	50	-	-	-
			Margin [dB]:		-38.69	-28.69	-	-	-
13.68795	8.57 ave	10.9	0	19.47	60	50	-	-	-
			Margin [dB]:		-40.53	-30.53	-	-	-
13.8905	9.34 ave	10.9	0	20.24	60	50	-	-	-
			Margin [dB]:		-39.76	-29.76	-	-	-
14.17261	10.6 ave	11	0	21.6	60	50	-	-	-
			Margin [dB]:		-38.4	-28.4	-	-	-
14.44749	9 ave	11.1	0	20.1	60	50	-	-	-
			Margin [dB]:		-39.9	-29.9	-	-	-
14.75854	8.79 ave	11.2	0	19.99	60	50	-	-	-
			Margin [dB]:		-40.01	-30.01	-	-	-
14.93215	7.46 ave	11.2	0	18.66	60	50	-	-	-
			Margin [dB]:		-41.34	-31.34	-	-	-
15.1781	6.66 ave	11.1	0	17.76	60	50	-	-	-
			Margin [dB]:		-42.24	-32.24	-	-	-
15.37341	7.72 ave	11	0	18.72	60	50	-	-	-
			Margin [dB]:		-41.28	-31.28	-	-	-
15.65553	7.11 ave	10.9	0	18.01	60	50	-	-	-
			Margin [dB]:		-41.99	-31.99	-	-	-
15.91594	6.01 ave	10.9	0	16.91	60	50	-	-	-
			Margin [dB]:		-43.09	-33.09	-	-	-
16.02445	5.27 ave	10.9	0	16.17	60	50	-	-	-
			Margin [dB]:		-43.83	-33.83	-	-	-
16.51634	6.07 ave	10.9	0	16.97	60	50	-	-	-
			Margin [dB]:		-43.03	-33.03	-	-	-
16.75505	4.71 ave	10.9	0	15.61	60	50	-	-	-
			Margin [dB]:		-44.39	-34.39	-	-	-
17.13844	4.65 ave	10.9	0	15.55	60	50	-	-	-
			Margin [dB]:		-44.45	-34.45	-	-	-
17.558	5.12 ave	10.8	0	15.92	60	50	-	-	-
			Margin [dB]:		-44.08	-34.08	-	-	-
17.86181	4.54 ave	10.8	0	15.34	60	50	-	-	-
			Margin [dB]:		-44.66	-34.66	-	-	-

Job Number: 774131 File Number: MC15795 Page 23 of 54
 Model Number: Prototype
 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

Systemax Safety Systems Inc
 Pool Nanny (alarm system)
 Model: Prototype
 Job: 774131 120Vac, 60Hz
 Tested By: JD

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level Limit:1 [dB(uVolts)]	2	3	4	5	6
18.02819	4.72 ave	10.8	0	15.52	60	50	-	-	-
			Margin [dB]:	-44.48	-34.48	-	-	-	-
18.51285	4.76 ave	10.8	0	15.56	60	50	-	-	-
			Margin [dB]:	-44.44	-34.44	-	-	-	-
18.88177	4.11 ave	10.9	0	15.01	60	50	-	-	-
			Margin [dB]:	-44.99	-34.99	-	-	-	-
19.4243	3.76 ave	10.9	0	14.66	60	50	-	-	-
			Margin [dB]:	-45.34	-35.34	-	-	-	-
19.79322	4.61 ave	10.9	0	15.51	60	50	-	-	-
			Margin [dB]:	-44.49	-34.49	-	-	-	-
20.53829	4.18 ave	11.3	0	15.48	60	50	-	-	-
			Margin [dB]:	-44.52	-34.52	-	-	-	-
20.90721	3.83 ave	11.6	0	15.43	60	50	-	-	-
			Margin [dB]:	-44.57	-34.57	-	-	-	-
22.18034	4.02 ave	11.1	0	15.12	60	50	-	-	-
			Margin [dB]:	-44.88	-34.88	-	-	-	-
22.54203	16.08 ave	11.1	0	27.18	60	50	-	-	-
			Margin [dB]:	-32.82	-22.82	-	-	-	-
23.12796	4 ave	11.1	0	15.1	60	50	-	-	-
			Margin [dB]:	-44.9	-34.9	-	-	-	-
24.35046	3.82 ave	11	0	14.82	60	50	-	-	-
			Margin [dB]:	-45.18	-35.18	-	-	-	-

NOTE: "+" - Indicates an emission level in excess of the applicable limit (s).

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector
 avlg - denotes average log detection
 ave - denotes average detection

LIMIT 1: FCC Part 15 Class B QPk
 LIMIT 2: FCC Part 15 Class B Avg

Job Number: 774131 File Number: MC15795 Page 24 of 54
 Model Number: Prototype
 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

4.2 Test Conditions and Results – Occupied Bandwidth

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the spectrum analyzer resolution bandwidth set per the appropriate standard.		
Basic Standard		FCC Part 15, Subpart C, RSS-210	
Occupied Bandwidth Limits			
±1.0825 MHz, 431.9175 –434.0825			

Table 4 Occupied Bandwidth Configuration Settings

Power Interface Mode # (See Section 1.3.4)	EUT Configurations Mode # (See Section 1.6)	EUT Operation Mode # (See 1.5)
2	2	1
Supplementary information: None		

Table 5 Occupied Bandwidth Spectrum Analyzer Settings

Resolution Bandwidth (MHz)	Occupied Bandwidth Requirements	
	dBc	%
0.1	-20	99
Supplementary information: None		

Table 6 Occupied Bandwidth Test Equipment

Test Equipment Used			
Description	Manufacturer	Model	Identifier
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081
Dipole Antenna	EMCO	3121C	3359
Temp/Humidity/ Pressure Meter	Cole Parmer	99760-00	4268
Measurement Software	UL	Version 9.3	44740

Job Number: 774131 File Number: MC15795 Page 25 of 54
Model Number: Prototype
Client Name: Systemax Safety Systems Inc.
FCC ID: V3ZPN1001
Industry Canada ID: 7602A-PN1001

Figure 3 Test Setup for Occupied Bandwidth



Figure 4 Occupied Bandwidth Graph

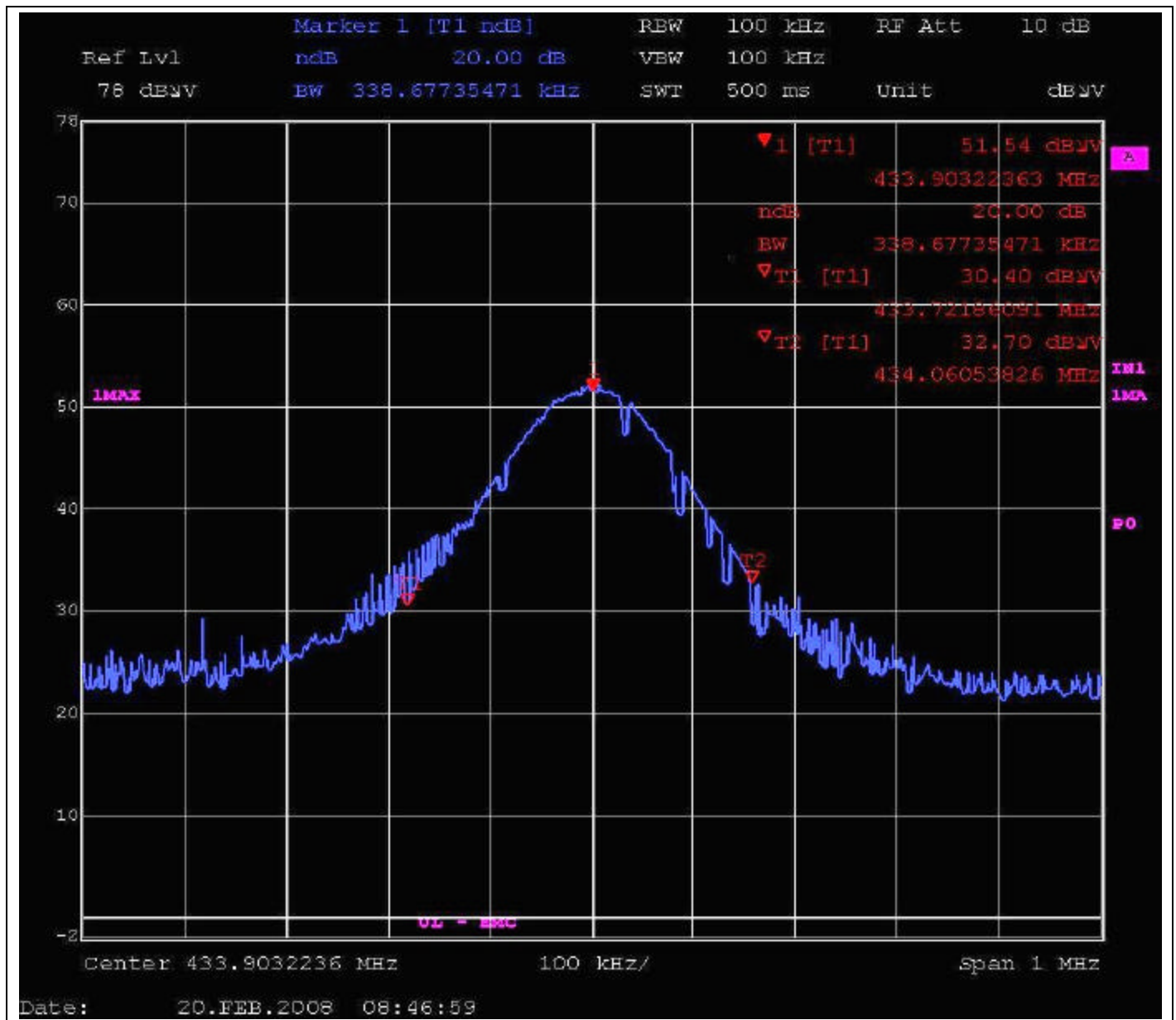
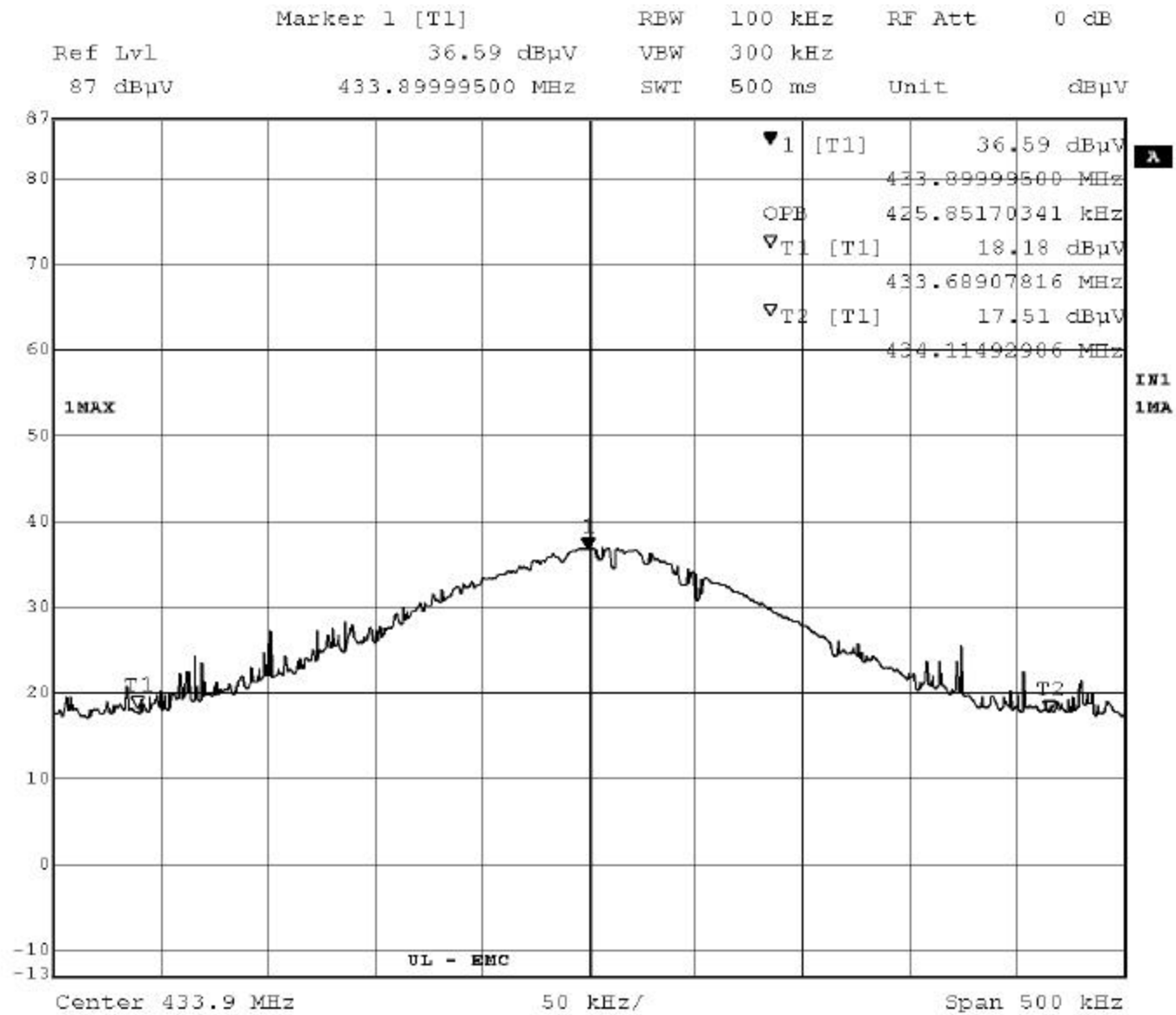


Figure 5 Occupied Bandwidth Graph



Date: 21.APR.2008 14:44:26

Job Number: 774131 File Number: MC15795 Page 28 of 54
Model Number: Prototype
Client Name: Systemax Safety Systems Inc.
FCC ID: V3ZPN1001
Industry Canada ID: 7602A-PN1001

4.3 Test Conditions and Results – Cease Operation

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the transmission time measured with the spectrum analyzer set to zero span at the fundamental frequency.
Basic Standard	FCC Part 15, Subpart C, RSS-210
Cease Operation Limits	
The transmissions shall stop within 5 seconds of either a button being released or if automatically controlled transmissions shall be stopped 5 seconds after transmissions begin.	

Table 7 Cease Operation Configuration Settings

Power Interface Mode # (See Section 1.3.4)	EUT Configurations Mode # (See Section 1.6)	EUT Operation Mode # (See 1.5)
2	2	1
Supplementary information: None		

Table 8 Cease Operation Test Equipment

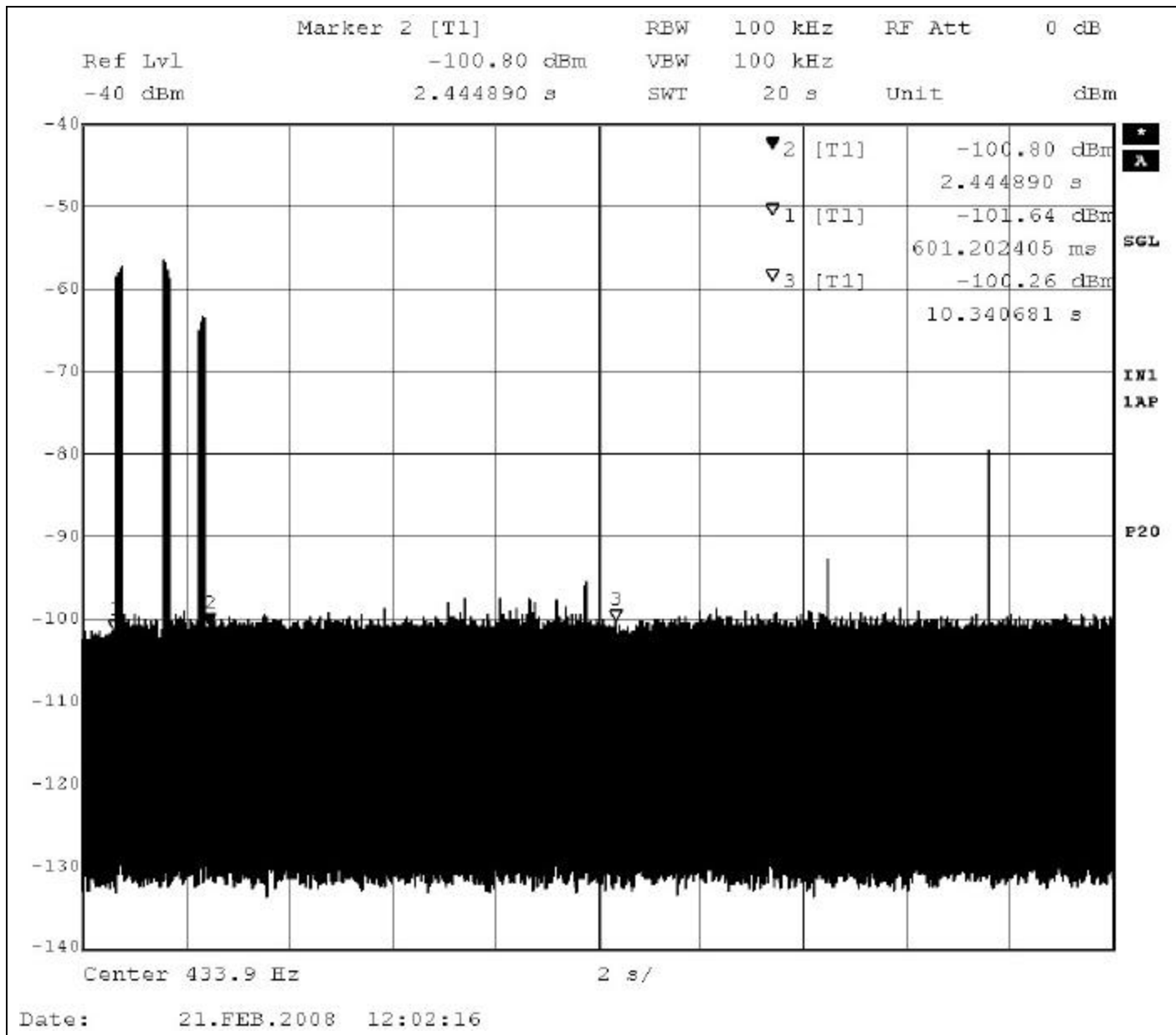
Test Equipment Used			
Description	Manufacturer	Model	Identifier
EMI Receiver	Rohde & Schwarz	ESIB40	34968
Dipole Antenna	EMCO	3121C	3359
Temp/Humidity/ Pressure Meter	Cole Parmer	99760-00	4268
Measurement Software	UL	Version 9.3	44740

Job Number: 774131 File Number: MC15795 Page 29 of 54
Model Number: Prototype
Client Name: Systemax Safety Systems Inc.
FCC ID: V3ZPN1001
Industry Canada ID: 7602A-PN1001

Figure 6 Test Setup for Cease Operation



Figure 7 Cease Operation Graph



4.3 Test Conditions and Results – Pulse Train

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The pulse train was measured with the spectrum analyzer set to zero span at the fundamental frequency.
Basic Standard	FCC Part 15 Subpart A, 15.35
Pulse Train Limits	
There are no limits for this test. This data is used to calculate the averaging correction factor that is applied to the measured peak radiated emissions results.	

Table 9 Pulse Train Configuration Settings

Power Interface Mode # (See Section 1.3.4)	EUT Configurations Mode # (See Section 1.6)	EUT Operation Mode # (See 1.5)
2	2	1
Supplementary information: None		

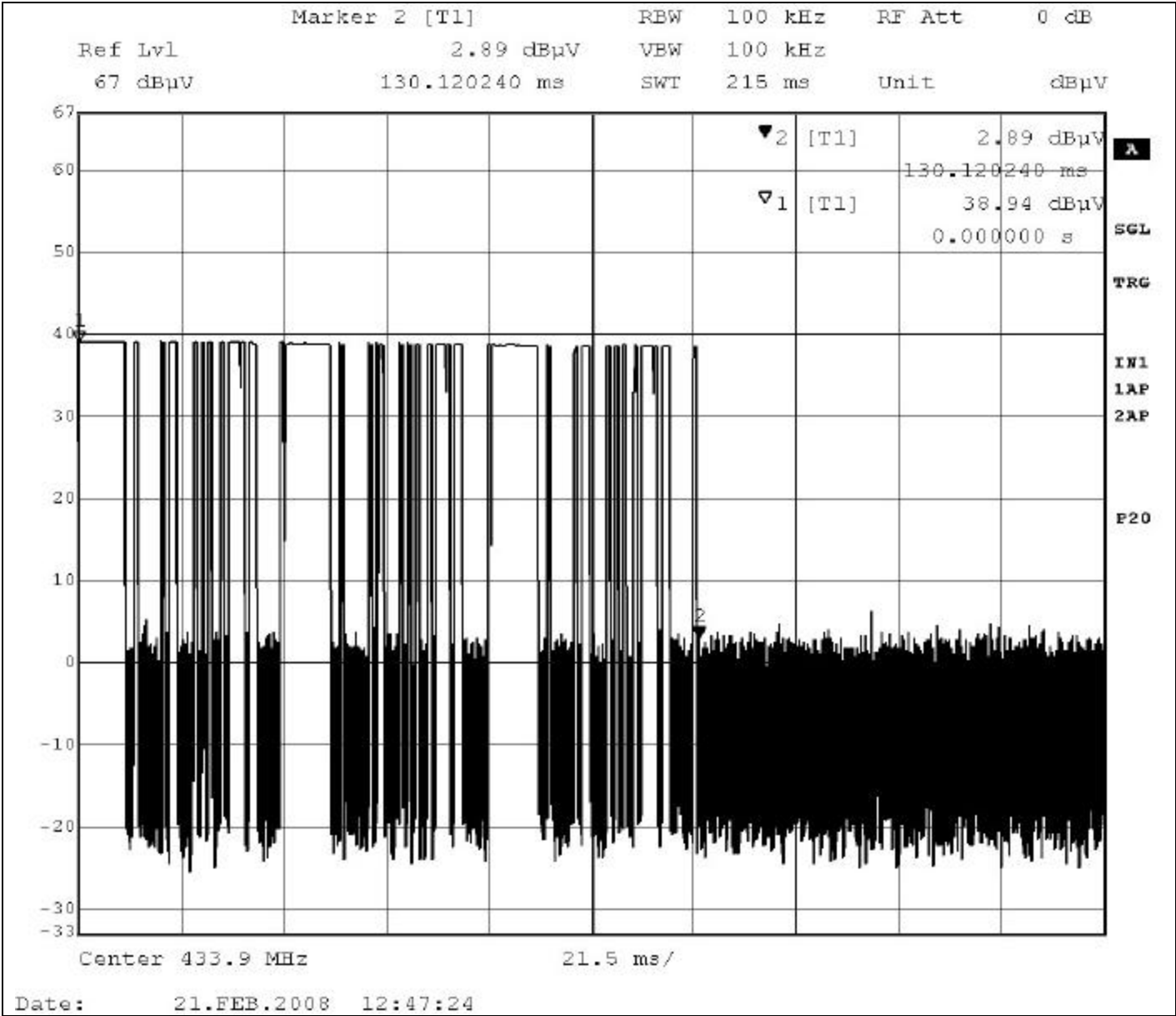
Table 10 Pulse Train Calculation

Pulse Width (mS)	Total Transmission time or 100ms which ever is lesser	Average Correction Factor (dB) $20 \log \left(\frac{PulseWidth}{TotalTransmissionTime} \right)$
130.1	100	2.28

Table 11 Pulse Train Test Equipment

Test Equipment Used			
Description	Manufacturer	Model	Identifier
EMI Receiver	Rohde & Schwarz	ESIB40	34968
Dipole Antenna	EMCO	3121C	3359
Temp/Humidity/ Pressure Meter	Cole Parmer	99760-00	4268
Measurement Software	UL	Version 9.3	44740

Figure 9 Pulse Train Graph



Job Number: 774131 File Number: MC15795 Page 33 of 54
 Model Number: Prototype
 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

4.4 Test Conditions and Results – RADIATED EMISSIONS

Test Description	Measurements were made in a 3 -meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3-meter. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.			
Basic Standard		FCC Part 15 Subpart C, and RSS-210		
UL LPG		80-EM-S0029		
		Frequency range		Measurement Point
Fully configured sample scanned over the following frequency range		0.009 MHz – 1GHz		(3 meter measurement distance)
Fully configured sample scanned over the following frequency range		1GHz – 5 GHz		(3 meter measurement distance)
Limits				
Frequency (MHz)	Limit (dBµV/m)			
	Quasi-Peak	Average	Average	
	General Emissions		Fundamental	Spurious
0.009 – 0.490	128.5 – 93.8	-	-	-
0.490 – 1.705	73.8 – 63	-	-	-
1.705 – 30	69.5	-	-	-
30 – 88	40	-	-	-
88 – 216	43.5	-	-	-
216-960	46	-	-	
960-1000	54			
1000-10000	-	54	-	-
433			80.8	-
SPURIOUS			-	60.8
Supplementary information: Spurious limits are only applied against products of the transmitter. All other emissions must meet the general limits. Portable transmitters are to be checked in 3 orthogonal axis.				

Job Number: 774131 File Number: MC15795 Page 34 of 54
 Model Number: Prototype
 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

Table 15 Radiated Emissions EUT Configuration Settings

Power Interface Mode # (See Section 1.3.4)	EUT Configurations Mode # (See Section 1.6)	EUT Operation Mode # (See 1.5)
2	2	1
Supplementary information: None		

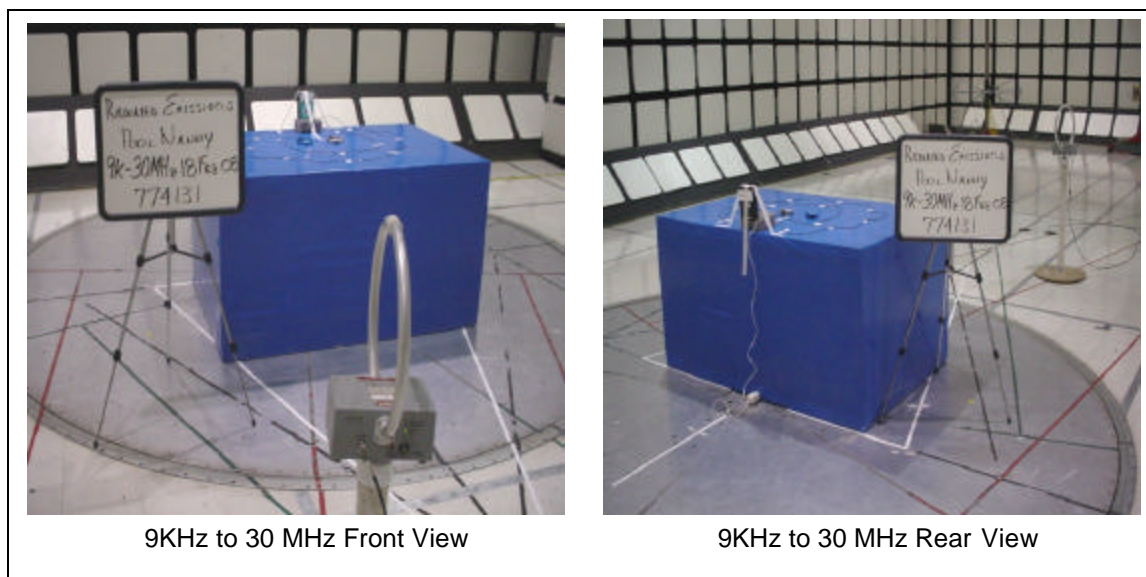
Table 16 Radiated Emissions Test Equipment

Test Equipment Used			
Description	Manufacturer	Model	Identifier
60Hz-30MHz			
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081
Active Loop Antenna	EMCO	6507	ME5A-288
Switch Driver	HP	11713A	ME7A-627
System Controller	Sunol Sciences	SC99V	44396
Camera Controller	Panasonic	WV-CU254	44395
RF Switch Box	UL	1	44398
Measurement Software	UL	Version 9.3	44740
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268
30-1000MHz			
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081
Bicon Antenna	Schaffner	VBA6106A	43441
Log-P Antenna	Schaffner	UPA6109	44067
Switch Driver	HP	11713A	ME7A-627
System Controller	Sunol Sciences	SC99V	44396
Camera Controller	Panasonic	WV-CU254	44395
RF Switch Box	UL	1	44398
Measurement Software	UL	Version 9.3	44740
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268
Above 1GHz			
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081
Horn Antenna	EMCO	3115	ME5A-766
Preamplifier (1 - 26GHz)	HP	8449B	ME5-914

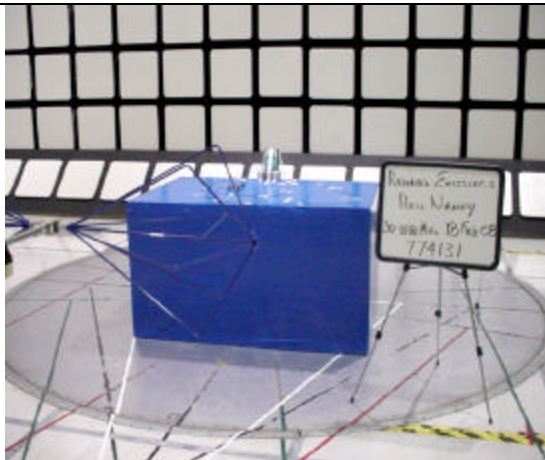
Job Number: 774131 File Number: MC15795 Page 35 of 54
Model Number: Prototype
Client Name: Systemax Safety Systems Inc.
FCC ID: V3ZPN1001
Industry Canada ID: 7602A-PN1001

Test Equipment Used			
Description	Manufacturer	Model	Identifier
Switch Driver	HP	11713A	ME7A-627
System Controller	Sunol Sciences	SC99V	44396
Camera Controller	Panasonic	WV-CU254	44395
RF Switch Box	UL	1	44398
Measurement Software	UL	Version 9.3	44740
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268

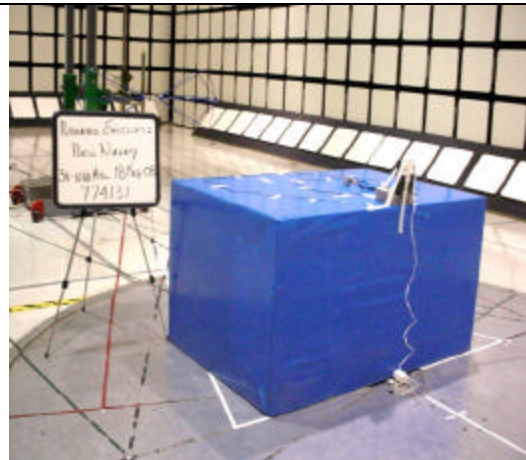
Figure 12 Test setup for Radiated Emissions



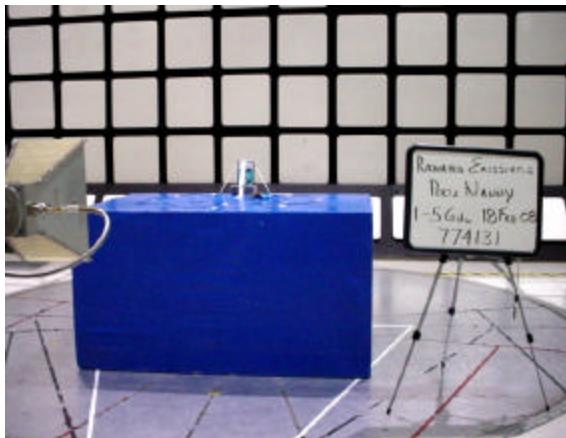
Job Number: 774131 File Number: MC15795 Page 36 of 54
Model Number: Prototype
Client Name: Systemax Safety Systems Inc.
FCC ID: V3ZPN1001
Industry Canada ID: 7602A-PN1001



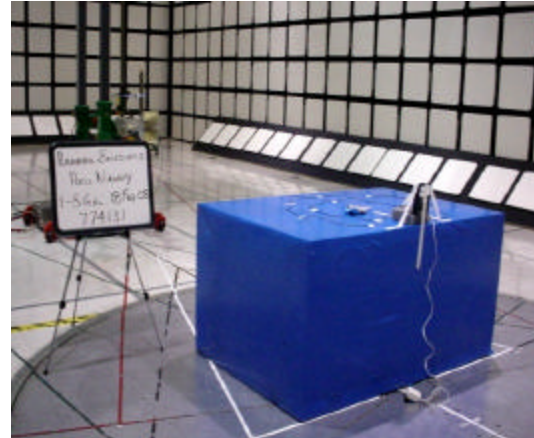
30 MHz to 1000MHz Front View



30 MHz to 1000MHz Rear View

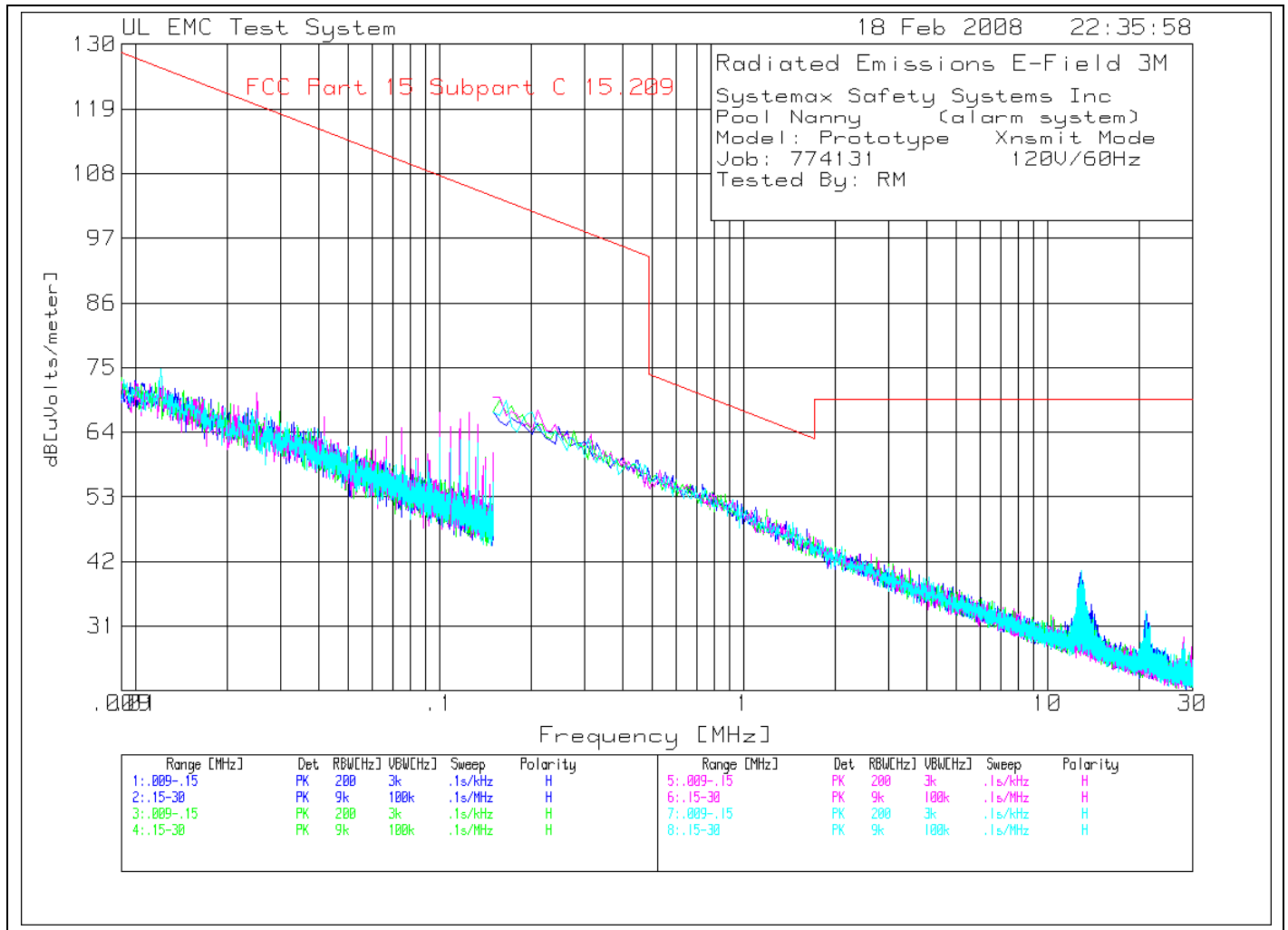


1GHz to 5GHz Front View



1 GHz to 5 GHz Rear View

Figure 13 Radiated Emissions Graph



Job Number: 774131 File Number: MC15795 Page 38 of 54
 Model Number: Prototype
 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

Table 17 Radiated Emissions Data Points

Systemax Safety Systems Inc
 Pool Nanny (alarm system)
 Model: Prototype Xmit. Mode
 Job: 774131 120V/60Hz
 Tested By: RM

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6

0°	.009 - .15MHz	-----									
1	.01351	44.4 pk	0	27.1	71.5	125	-	-	-	-	-
	Azimuth:208	Height:101	Horz	Margin [dB]		-53.5	-	-	-	-	-
0°	.15 - 30MHz	-----									
2	12.87674	24.51 pk	.3	15.7	40.51	69.5	-	-	-	-	-
	Azimuth:296	Height:101	Horz	Margin [dB]		-28.99	-	-	-	-	-
3	21.2443	17.19 pk	.3	15.6	33.09	69.5	-	-	-	-	-
	Azimuth:328	Height:101	Horz	Margin [dB]		-36.41	-	-	-	-	-
45°	.009 - .15MHz	-----									
4	.10007	49.43 pk	.1	16	65.53	107.6	-	-	-	-	-
	Azimuth:58	Height:119	Horz	Margin [dB]		-42.07	-	-	-	-	-
45°	.15 - 30MHz	-----									
5	.27689	48.51 pk	.1	15.6	64.21	98.8	-	-	-	-	-
	Azimuth:276	Height:119	Horz	Margin [dB]		-34.59	-	-	-	-	-
90°	.009 - .15MHz	-----									
6	.02502	48.22 pk	.1	22.4	70.72	119.6	-	-	-	-	-
	Azimuth:6	Height:140	Horz	Margin [dB]		-48.88	-	-	-	-	-
7	.07501	47.98 pk	.1	16.6	64.68	110.1	-	-	-	-	-
	Azimuth:59	Height:140	Horz	Margin [dB]		-45.42	-	-	-	-	-
8	.12501	51.48 pk	.1	15.8	67.38	105.7	-	-	-	-	-
	Azimuth:354	Height:140	Horz	Margin [dB]		-38.32	-	-	-	-	-
90°	.15 - 30MHz	-----									
9	.20972	52.02 pk	.1	15.6	67.72	101.2	-	-	-	-	-
	Azimuth:358	Height:140	Horz	Margin [dB]		-33.48	-	-	-	-	-
10	27.98462	13.31 pk	.4	15.4	29.11	69.5	-	-	-	-	-
	Azimuth:355	Height:140	Horz	Margin [dB]		-40.39	-	-	-	-	-
135°	.009 - .15MHz	-----									
11	.0121	46.85 pk	-.1	28	74.75	125.9	-	-	-	-	-
	Azimuth:354	Height:160	Horz	Margin [dB]		-51.15	-	-	-	-	-
12	.12501	46.57 pk	.1	15.8	62.47	105.7	-	-	-	-	-
	Azimuth:354	Height:160	Horz	Margin [dB]		-43.23	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector
 avlg - Average log detector
 ave - Average detector

Job Number: 774131 File Number: MC15795 Page 39 of 54
 Model Number: Prototype
 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

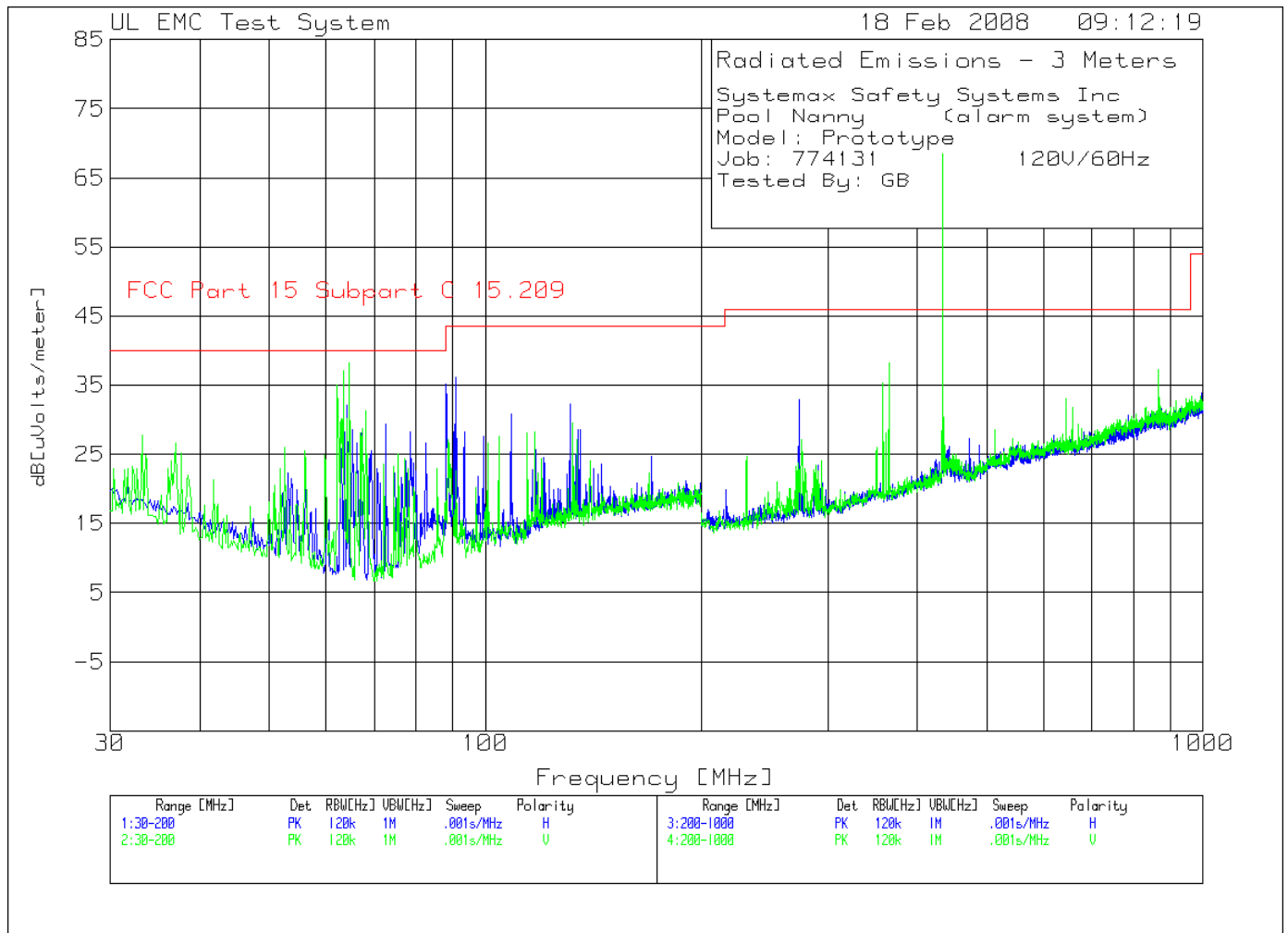
Systemax Safety Systems Inc
 Pool Nanny (alarm system)
 Model: Prototype Xmit. Mode
 Job: 774131 120V/60Hz
 Tested By: RM

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
=====											
135°	.15 - 30MHz	-----									
13	12.93646	24.41 pk	.3	15.7	40.41	69.5	-	-	-	-	-
	Azimuth:348	Height:160	Horz	Margin [dB]		-29.09	-	-	-	-	-
14	20.97558	17.7 pk	.3	15.6	33.6	69.5	-	-	-	-	-
	Azimuth:306	Height:160	Horz	Margin [dB]		-35.9	-	-	-	-	-
15	28.26827	11.32 pk	.4	15.4	27.12	69.5	-	-	-	-	-
	Azimuth:5	Height:160	Horz	Margin [dB]		-42.38	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector
 avlg - Average log detector
 ave - Average detector

Job Number: 774131 File Number: MC15795 Page 40 of 54
 Model Number: Prototype
 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001



Job Number: 774131 File Number: MC15795 Page 41 of 54
 Model Number: Prototype
 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

Systemax Safety Systems Inc
 Pool Nanny (alarm system)
 Model: Prototype
 Job: 774131 120V/60Hz
 Tested By: GB

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
=====											
Horizontal 30 - 200MHz -----											
4	88.1982	26.08 pk	.5	8.6	35.18	43.5	-	-	-	-	-
	Azimuth:284	Height:399	Horz	Margin [dB]		-8.32	-	-	-	-	-
Vertical 30 - 200MHz -----											
1	62.1622	28.26 pk	.4	6.4	35.06	40	-	-	-	-	-
	Azimuth:16	Height:101	Vert	Margin [dB]		-4.94	-	-	-	-	-
2	63.3534	30.42 pk	.4	6.2	37.02	40	-	-	-	-	-
	Azimuth:16	Height:101	Vert	Margin [dB]		-2.98	-	-	-	-	-
3	64.5445	31.71 pk	.5	6	38.21	40	-	-	-	-	-
	Azimuth:32	Height:101	Vert	Margin [dB]		-1.79	-	-	-	-	-
Horizontal 200 - 1000MHz -----											
5	433.7169	40.85 pk	2.1	16.8	59.75	46	80.8	-	-	-	-
	Azimuth:230	Height:201	Horz	Margin [dB]		13.75	-20.95	-	-	-	-
Vertical 200 - 1000MHz -----											
6	433.7169	49.42 pk	2.1	16.9	68.42	46	80.8	-	-	-	-
	Azimuth:358	Height:101	Vert	Margin [dB]		22.42	-12.28	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
 LIMIT 2: FCC Part 15 Subpart C 15.231

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector
 avlg - Average log detector
 ave - Average detector

Job Number: 774131 File Number: MC15795 Page 42 of 54
 Model Number: Prototype
 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

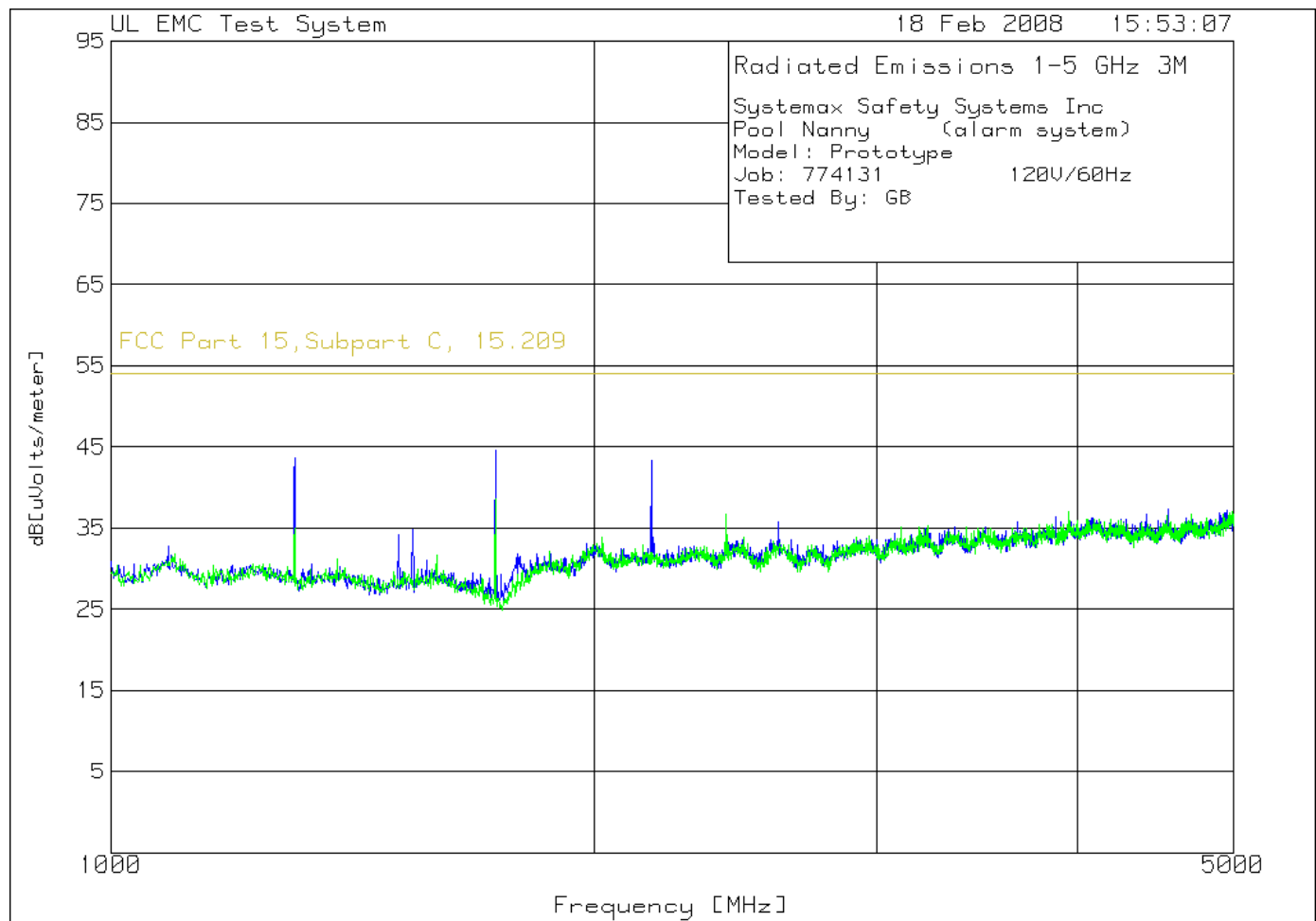
Systemax Safety Systems Inc
 Pool Nanny (alarm system)
 Model: Prototype
 Job: 774131 120V/60Hz
 Tested By: GB

Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4	5	6
Frequency	Reading	Factor	Factor	dB[uVolts/meter]						
[MHz]	[dB(uV)]	[dB]	[dB]							
=====										
Vertical 30 - 200MHz										
62	9.78 qp	.4	6.4	16.58	40	-	-	-	-	-
Azimuth: 4	Height:310	Vert	Margin	[dB]:	-23.42	-	-	-	-	-
63.3	14.73 qp	.4	6.2	21.33	40	-	-	-	-	-
Azimuth: 286	Height:153	Vert	Margin	[dB]:	-18.67	-	-	-	-	-
62.7415	13.98 qp	.4	6.3	20.68	40	-	-	-	-	-
Azimuth: 97	Height:241	Vert	Margin	[dB]:	-19.32	-	-	-	-	-
Horizontal 200 - 1000MHz										
433.9202	34.63 pk	2.1	16.9	53.63	46	80.8	-	-	-	-
Azimuth: 195	Height:107	Horz	Margin	[dB]:	7.63	-27.07	-	-	-	-
Vertical 200 - 1000MHz										
433.917	37.9 pk	2.1	16.9	56.9	46	80.8	-	-	-	-
Azimuth: 287	Height:231	Vert	Margin	[dB]:	10.9	-23.8	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
 LIMIT 2: FCC Part 15 Subpart C 15.231

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector
 avlg - Average log detector
 ave - Average detector

Job Number:	774131	File Number:	MC15795	Page	43 of 54
Model Number:	Prototype				
Client Name:	Systemax Safety Systems Inc.				
FCC ID:	V3ZPN1001				
Industry Canada ID:	7602A-PN1001				



Job Number: 774131 File Number: MC15795 Page 44 of 54
 Model Number: Prototype
 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

Systemax Safety Systems Inc
 Pool Nanny (alarm system)
 Model: Prototype
 Job: 774131 120V/60Hz
 Tested By: GB

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6

Horizontal 1000 - 2500MHz -----											
1	1301.802	53.08 pk	-34.5	25.1	43.68	54	-	-	-	-	-
	Azimuth:81	Height:100	Horz	Margin [dB]		-10.32	-	-	-	-	-
2	1735.736	52.14 pk	-33.8	26.3	44.64	54	-	-	-	-	-
	Azimuth:303	Height:100	Horz	Margin [dB]		-9.36	-	-	-	-	-
4	2169.67	48.56 pk	-33.3	28.1	43.36	54	-	-	-	-	-
	Azimuth:54	Height:100	Horz	Margin [dB]		-10.64	-	-	-	-	-
Horizontal 2500 - 5000MHz -----											
6	2603.402	39.52 pk	-32.7	28.9	35.72	54	-	-	-	-	-
	Azimuth:54	Height:100	Horz	Margin [dB]		-18.28	-	-	-	-	-
Vertical 1000 - 2500MHz -----											
3	1735.736	46.08 pk	-33.8	26.3	38.58	54	-	-	-	-	-
	Azimuth:192	Height:100	Vert	Margin [dB]		-15.42	-	-	-	-	-
5	2415.916	40.79 pk	-32.7	28.6	36.69	54	-	-	-	-	-
	Azimuth:54	Height:100	Vert	Margin [dB]		-17.31	-	-	-	-	-

LIMIT 1: FCC Part 15 Class C, Section 15.209

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector
 avlg - Average log detector
 ave - Average detector

Job Number: 774131 File Number: MC15795 Page 45 of 54
 Model Number: Prototype
 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

4.5 Test Conditions and Results – RADIATED EMISSIONS

Test Description	Measurements were made in a 3-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3-meter. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.	
Basic Standard	FCC Part 15 Subpart B, ICES-003	
UL LPG	80-EM-S0029	
	Frequency range	Measurement Point
Fully configured sample scanned over the following frequency range	30MHz – 5GHz	(3 meter measurement distance)
Limits		
Frequency (MHz)	Limit (dBµV/m)	
	Quasi-Peak	Average
30 – 88	40	-
88 – 216	43.5	-
216-960	46	-
960-1000	54	-
1000-5000	-	54
Supplementary information: None		

Table 18 Radiated Emissions EUT Configuration Settings

Power Interface Mode # (See Section 1.3.4)	EUT Configurations Mode # (See Section 1.6)	EUT Operation Mode # (See 1.5)
1	1	1
Supplementary information: None		

Job Number: 774131 File Number: MC15795 Page 46 of 54
 Model Number: Prototype
 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

Table 19 Radiated Emissions Test Equipment

Test Equipment Used			
30-1000MHz			
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081
Bicon Antenna	Schaffner	VBA6106A	43441
Log-P Antenna	Schaffner	UPA6109	44067
Bias Tee	Miteq	AM-1523-7687	44392
Bias Tee	Miteq	AM-1523-7687	44393
Preamp	Miteq	AM-3A-000110-7687	44391
Preamp	Miteq	AM-3A-000110-7687	44394
Switch Driver	HP	11713A	ME7A-627
System Controller	Sunol Sciences	SC99V	44396
Camera Controller	Panasonic	WV-CU254	44395
RF Switch Box	UL	1	44398
Measurement Software	UL	Version 9.3	44740
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268
Above 1GHz			
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081
Horn Antenna	EMCO	3115	ME5A-766
Preamp (1 - 26GHz)	HP	8449B	ME5-914
Switch Driver	HP	11713A	ME7A-627
System Controller	Sunol Sciences	SC99V	44396
Camera Controller	Panasonic	WV-CU254	44395
RF Switch Box	UL	1	44398
Measurement Software	UL	Version 9.3	44740
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268

Figure 14 Test setup for Radiated Emissions

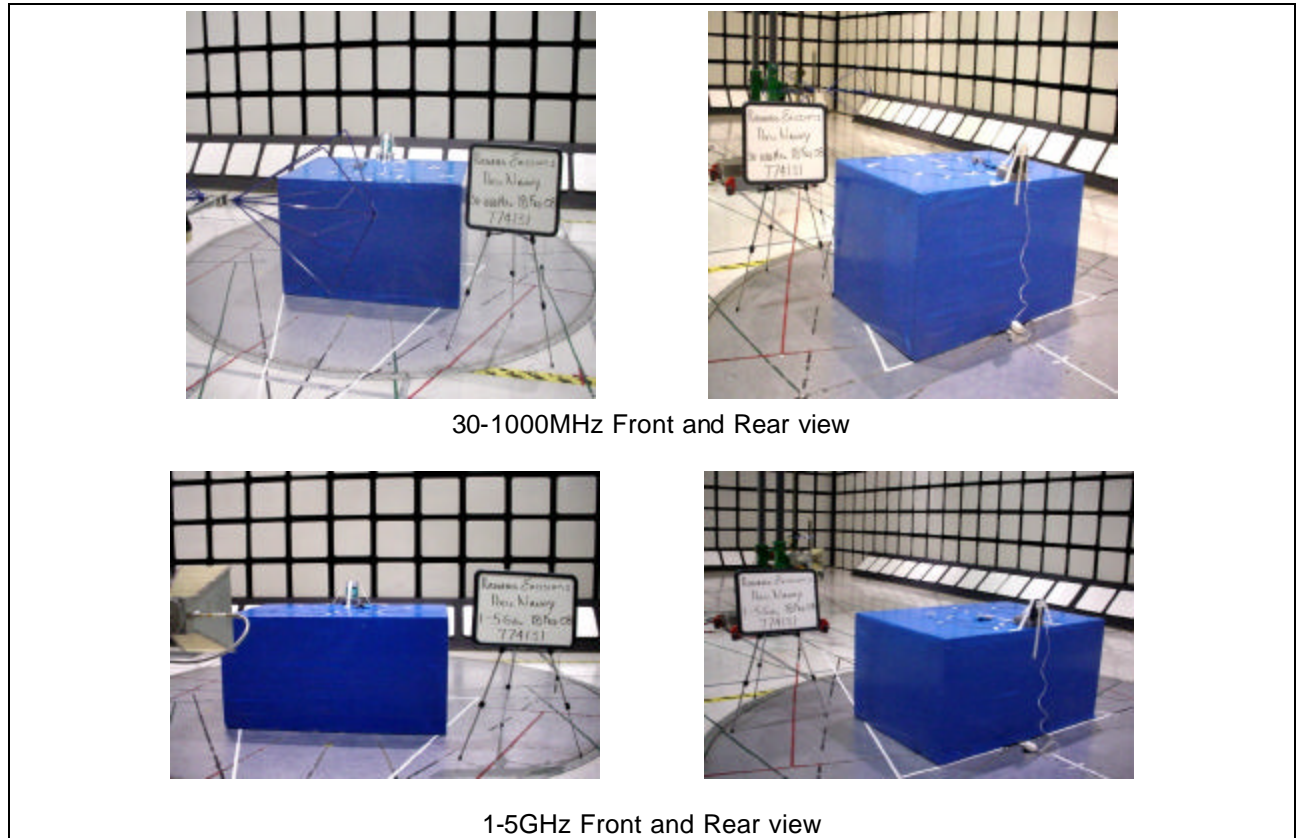
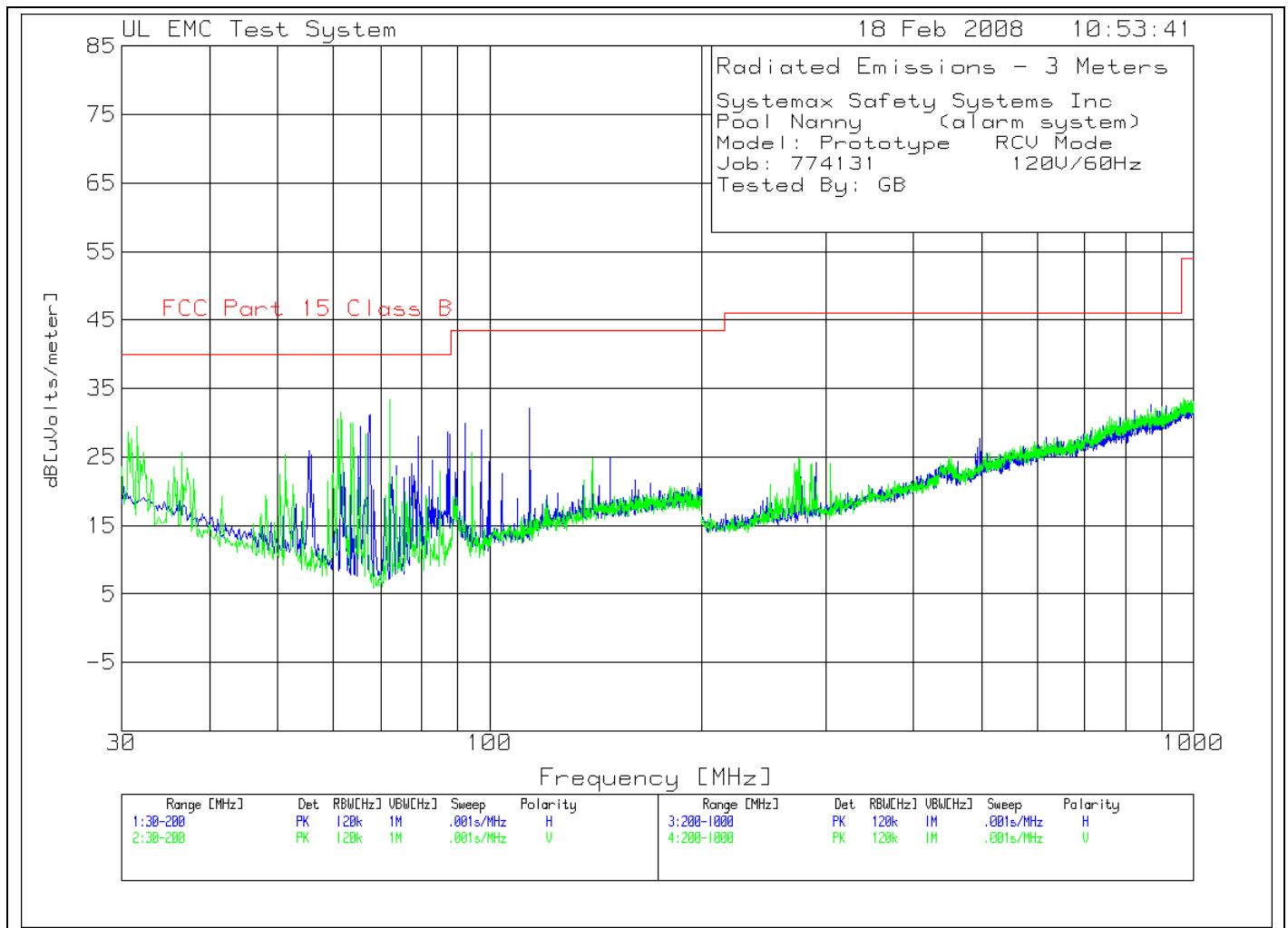


Figure 15 Radiated Emissions Graph



Job Number: 774131 File Number: MC15795 Page 49 of 54
 Model Number: Prototype
 Client Name: Systemax Safety Systems Inc.
 FCC ID: V3ZPN1001
 Industry Canada ID: 7602A-PN1001

Table 20 Radiated Emissions Data Points

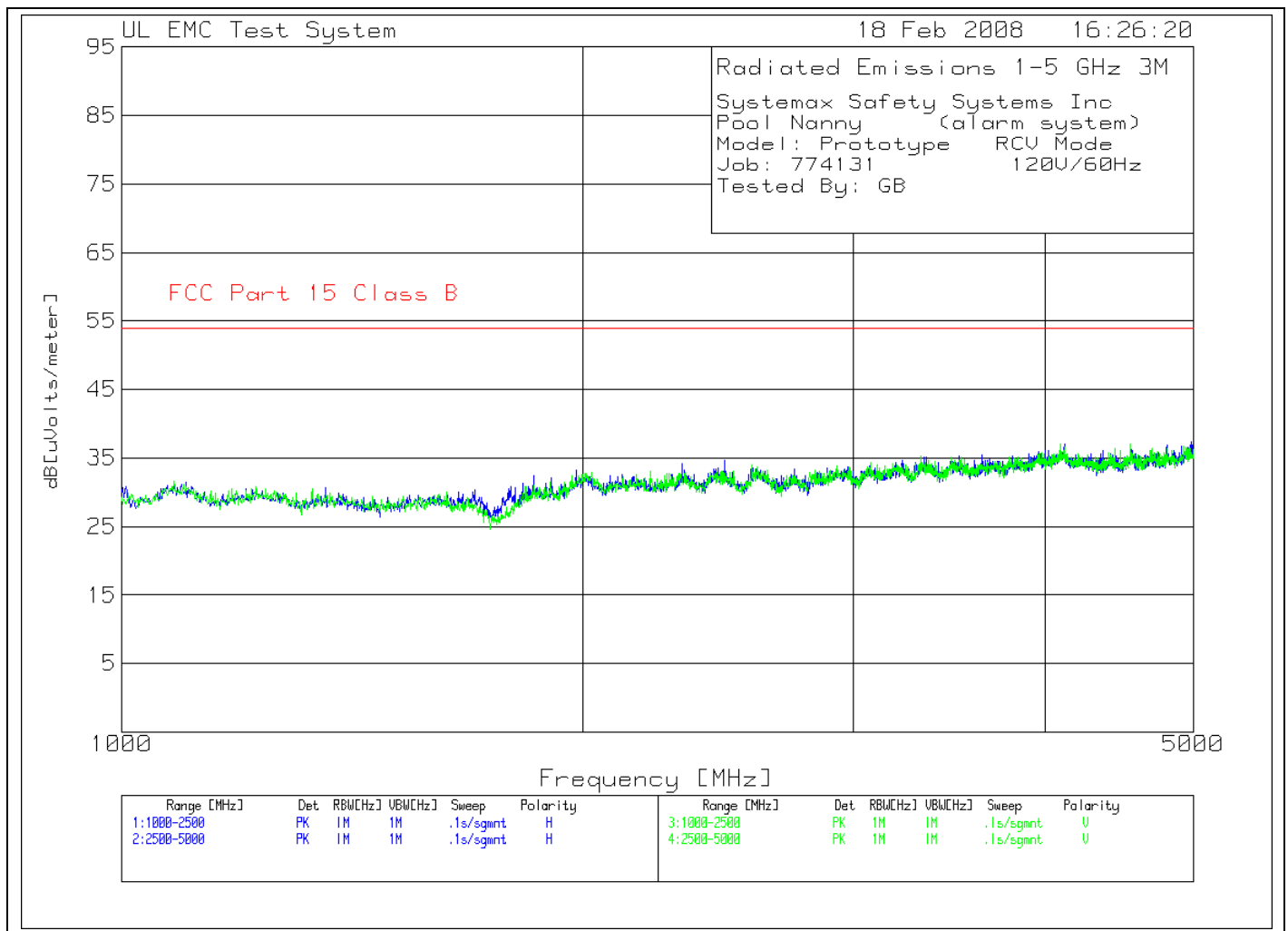
Systemax Safety Systems Inc
 Pool Nanny (alarm system)
 Model: Prototype RCV Mode
 Job: 774131 120V/60Hz
 Tested By: GB

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
=====											
Horizontal 30 - 200MHz -----											
3	65.3954	23.29 pk	.4	5.7	29.39	40	-	-	-	-	-
	Azimuth:135	Height:400	Horz	Margin [dB]	-10.61	-	-	-	-	-	-
4	67.6076	25.16 pk	.5	5.5	31.16	40	-	-	-	-	-
	Azimuth:98	Height:400	Horz	Margin [dB]	-8.84	-	-	-	-	-	-
6	114.0641	19.29 pk	.7	12.2	32.19	43.5	-	-	-	-	-
	Azimuth:209	Height:250	Horz	Margin [dB]	-11.31	-	-	-	-	-	-
Vertical 30 - 200MHz -----											
1	61.4815	24.69 pk	.4	6.5	31.59	40	-	-	-	-	-
	Azimuth:24	Height:100	Vert	Margin [dB]	-8.41	-	-	-	-	-	-
2	63.3534	23.31 pk	.4	6.2	29.91	40	-	-	-	-	-
	Azimuth:210	Height:100	Vert	Margin [dB]	-10.09	-	-	-	-	-	-
5	72.032	26.81 pk	.5	6.1	33.41	40	-	-	-	-	-
	Azimuth:350	Height:100	Vert	Margin [dB]	-6.59	-	-	-	-	-	-

LIMIT 1: FCC Part 15 Class B

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector
 avlg - denotes average log detection

Figure 17 Radiated Emissions Graph



Job Number: 774131 File Number: MC15795 Page 51 of 54
Model Number: Prototype
Client Name: Systemax Safety Systems Inc.
FCC ID: V3ZPN1001
Industry Canada ID: 7602A-PN1001

Table 23 Radiated Emissions Data Points

Systemax Safety Systems Inc
Pool Nanny (alarm system)
Model: Prototype RCV Mode
Job: 774131 120V/60Hz
Tested By: GB

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6

Horizontal 1000 - 2500MHz -----											
1	1358.859	40.05 pk	-34.4	25.1	30.75	54	-	-	-	-	-
	Azimuth:165	Height:101	Horz	Margin [dB]	-23.25	-	-	-	-	-	-
2	1855.856	38.99 pk	-33.6	27	32.39	54	-	-	-	-	-
	Azimuth:358	Height:101	Horz	Margin [dB]	-21.61	-	-	-	-	-	-
3	2319.82	38.76 pk	-32.9	28.4	34.26	54	-	-	-	-	-
	Azimuth:276	Height:101	Horz	Margin [dB]	-19.74	-	-	-	-	-	-
4	2472.973	38.65 pk	-32.7	28.7	34.65	54	-	-	-	-	-
	Azimuth:193	Height:101	Horz	Margin [dB]	-19.35	-	-	-	-	-	-
Horizontal 2500 - 5000MHz -----											
5	3640.761	35.12 pk	-31.2	31.6	35.52	54	-	-	-	-	-
	Azimuth:195	Height:200	Horz	Margin [dB]	-18.48	-	-	-	-	-	-
Vertical 1000 - 2500MHz -----											
6	2211.712	38.02 pk	-33.2	28.2	33.02	54	-	-	-	-	-
	Azimuth:276	Height:200	Vert	Margin [dB]	-20.98	-	-	-	-	-	-
Vertical 2500 - 5000MHz -----											
7	4096.064	34.98 pk	-30.4	32.5	37.08	54	-	-	-	-	-
	Azimuth:56	Height:200	Vert	Margin [dB]	-16.92	-	-	-	-	-	-
8	4548.032	34.68 pk	-30	32.4	37.08	54	-	-	-	-	-
	Azimuth:6	Height:101	Vert	Margin [dB]	-16.92	-	-	-	-	-	-

LIMIT 1: FCC Part 15 Class B

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
ave - Average detector

Job Number: 774131 File Number: MC15795 Page 52 of 54
Model Number: Prototype
Client Name: Systemax Safety Systems Inc.
FCC ID: V3ZPN1001
Industry Canada ID: 7602A-PN1001

5.0 Test Conditions and Results: Fundamental Frequency and Spurious Emissions- Measurement Limit Calculations.

Limit Calculation:

Fundamental Frequency is 431MHz
From table in section 15.231
Limit = $41.6667(431) - 7083.3333$
Limit = 10995.8uV
Limit = Log 10995.8(20)
Limit = 80.8dBuV
Limit for Spurious Emissions = 20dB lower then fundamental = 60.8dBuV/m

Radiated Emissions Limit conversion from mV/m to dBmV/m (accordance with paragraph 15.109)

Radiated Emissions Limit (dB μ V/m) = $20 \cdot \log (\mu\text{V/m})$
Radiated Emissions Limit (dB μ V/m) = $20 \cdot \log (90)$
Radiated Emissions Limit (dB μ V/m) = 39.1

Radiated Emissions test data obtained during measurements.

Field Strength (dB μ V/m) = Measured field strength (dB μ V/m) + Antenna Factor (dB) + Cable Factor (dB)
Field Strength (dB μ V/m) = 19.7dB μ V/m + 12.5dB + 0.3dB
Field Strength (dB μ V/m) = 32.5

Duty Cycle factor calculation.

Total number of pulses counted in 100ms.
Total time on = 130.1ms
Duty cycle correction factor = $20 \log (130.1 / 100\text{ms})$
= $20 \log (0.114)$
= - 2.285

The correction factor is added to the measured field strength in dBuV/m

Job Number: 774131 File Number: MC15795 Page 53 of 54
Model Number: Prototype
Client Name: Systemax Safety Systems Inc.
FCC ID: V3ZPN1001
Industry Canada ID: 7602A-PN1001

Appendix A

Accreditations and Authorizations



NVLAP Lab code: 100255-0

NVLAP: Recognized under the National Voluntary Laboratory Accreditation Program (NVLAP) for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC EN17025 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. For a full scope listing see <http://ts.nist.gov/ts/htdocs/210/214/scopes/1002550.htm>



FCC: Details of the measurement facilities used for these tests have been filed with the Federal Communications Commission's Laboratory in Columbia, Maryland (Ref. No. 91040).



Industry Canada Industrie Canada

Industry of Canada: Accredited by Industry Canada for performance of radiated measurements. Our test site complies with RSP 100, Issue 7, Section 3.3. File #: IC 2181



VCCI: Accepted as an Associate Member to the VCCI. The measurement facilities detailed in this test report have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. Registration Nos.: (Radiated Emissions) R-797, (Conducted Emissions) C-832, C-833, C-834 and (Conducted Emissions - Telecommunications Ports) T-160.

Job Number: 774131 File Number: MC15795 Page 54 of 54
Model Number: Prototype
Client Name: Systemax Safety Systems Inc.
FCC ID: V3ZPN1001
Industry Canada ID: 7602A-PN1001



ICASA: ICASA (Independent Communications Authority of South Africa) has appointed UL as a Designated Test Laboratory to test Telecommunications equipment for type approval in compliance with CISPR 22 to assist in fulfilling its mandate under section 54(1) of the Telecommunications Act, 1996 (Act 103 of 1996).



NIST/CAB: Validated by the European Commission as a U.S. Conformity Assessment Body (CAB) of the U.S.-EU Mutual Recognition Agreement (MRA) for the Electromagnetic Compatibility - Council Directive 89/336/EEC, Article 10 (2). Also validated for the Telecommunication Equipment-Council Directive 99/5/EC, Annex III and IV, Identification Number: 0983.

NIST/CAB: Provisioned to act as a U.S. Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the Asia Pacific Economic Cooperation (APEC) MRA between the American Institute in Taiwan (AIT) and the United States. Our laboratory is considered qualified to test equipment subject to the applicable EMC regulations of the Chinese Taipei Bureau of Standards, Metrology and Inspection (BSMI) which require testing to CNS 13438 (CISPR 22).

NIST/CAB: Recognized by the Infocomm Development Authority of Singapore (IDA) under the Asia Pacific Economic Cooperation Mutual Recognition Agreement (APEC MRA). Our laboratory is provisionally designated to act as a Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the APEC MRA. Our scope of designation includes IDA TS EMC (CISPR 22), IEC 61000-4-2, -4-3, -4-4, -4-5, and -4-6