FCC EMC TEST REPORT
FOR THE
SAFETY 1ST, INC.
MODEL 49239
NURSERY MONITOR
TRANSMITTER
FCC ID: MNJ49239T

Prepared for:

Safety 1st, Inc.
210 Boylston Street
Chestnut Hill, MA 02167
USA

Submitted by:

Green Mountain Electromagnetics, Inc.

(802)388-3390
Fax: (802)388-6279
Email: gme@gmelectro.com
219 Blake Roy Road • Middlebury, VT 05753

Safety 1st, Inc.
FCC EMC Testing
At
Green Mountain Electromagnetics, Inc.
Middlebury, Vermont

Unit: Model 49239 Transmitter
Tested: September 24, 1999
Received: 9/21/99

I. Applicable Standards:

The units described in this report were measured for verification of compliance with the FCC Intentional Radiator EMC standard, 47 CFR: Part 15, Subpart C.

Measurement procedures were in accordance with ANSI C63.4, "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (1992)."

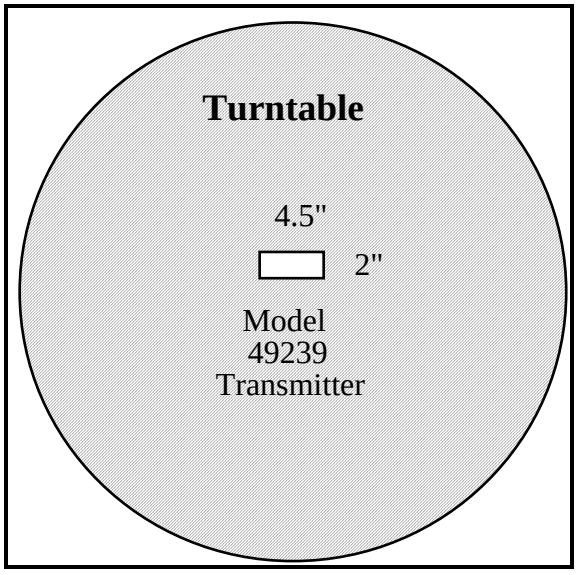
II. Units Tested:

The Safety 1st Model 49239 transmitter is part of the Sound & Lights Clear Connection Nursery Monitor system. The Model 49239 49-MHz transmitter consists of a plastic case containing the transmitter electronics, a permanently attached internal antenna, an on/off switch with indicator LED, and a 9-V internal battery. A standard 9-Vdc port is used for connecting the Model 49239 transmitter to a Class 2 AC-power adapter. The table below describes the unit that was subjected to measurements determining compliance with applicable EMC standards:

Product	Manufacturer	Model	FCC ID
Sound & Lights Clear Connection Nursery Monitor	Safety 1st	49239 Transmitter	MNJ49239T
AC Adapter	Safety 1st	HA35U-092	n/a

III. Equipment and Cable Configuration:

GME received the unit in satisfactory condition for testing, however the manufacturer is responsible for ensuring that the equipment under test (EUT) represents the product line. The EUT was arranged on a turntable as in the block diagram below. This EUT configuration produced the maximum radiated emissions. The EUT was subjected to final emissions tests while connected to all loads and operating in a continuous mode.



The temperature, humidity, and atmospheric pressure during unit testing were 21˚C, 57% RH and 100.8 kPa for radiated emissions.

IV. Measuring Equipment:

The table below describes the instrumentation used at Green Mountain Electromagnetics, Inc. (GME) to perform this testing:

Unit	Manufacturer	Model	Serial #	Last Cal.	Next Cal.
Spectrum Analyzer	Hewlett-Packard	8592	3624A00631	8/9/99	8/9/00
Broadband Amplifier	Mini-Circuits	ZJL-3G	D021699	2/20/99	2/20/00
Plotter	Hewlett-Packard	7440	2539A09149	n/a	n/a

Broadband E-field Antenna	Antenna Research Associates	LPB-2513/A	1125	9/20/99	9/20/00
LISN	GME	4A	n/a	8/27/99	8/27/00
Turntable	Antenna Research Associates	ART-1000	1004	n/a	n/a
Antenna Mast	Antenna Research Associates	AS-620	1004	n/a	n/a

V. Unit of Measurement:

Measurements of radiated electric fields were made in units of dB referenced to 1 microvolt per meter (dBuV/m). Fields and deviations in the results table were corrected for the appropriate antenna factor, cable loss, amplifier gain and measurement distance X (per 47 CFR, C15.31). The following equations were employed:

(1) Field (dBuV/m) = Measured Value (dBuV) + Antenna Factor (dB) + Cable Loss (dB) - Amplifier Gain (dB).
(2) Pass/Fail Deviation (dB) = Field (dBuV/m) - Limit (dBuV/m) - 20 log(X/3 meters).

Sample calculation at 30 MHz:
32.0 dBuV/m field = 32.5 dBuV measured + 19 dB/m AF + 0.5 dB cable loss - 20.0 dB amp.
-8.0 dB deviation = 32.0 dBuV/m field - 40.0 dBuV/m limit - 20 log(3/3) dB distance.

Uncertainty:
The combined uncertainties for GME emissions measurements are: u(y) = 1.946 for radiated and u(y) = 1.298 for conducted.

VI. Measurement Location:

The GME laboratory and Open Area Test Site (OATS) are located at 219 Blake Roy Road, Middlebury, VT. The OATS is a 3-meter site complete with antenna positioner, ground plane and motorized turntable. The OATS is constructed in accordance with ANSI C63.7-1992 and complies with the requirements for radiated emissions testing in ANSI C63.4-1992 and CISPR

16-1993. The electromagnetic laboratory is constructed in accordance with CE immunity standards and ANSI C63.4-1992 (conducted emissions).
GME is internationally accredited by the American Association for Laboratory Accreditation (A2LA) and meets the quality requirements in EN 45001-1989 and ISO/IEC Guide 25-1990, "General Requirements for the Competence of Calibration and Testing Laboratories."

VII. Measurement Procedures:

Results of Preliminary Testing: The EUT configuration identified in III produced the maximum radiated emissions. Excluding the fundamental, average data is not required as the unit is compliant with average limits in peak detection mode. Per 47 CFR: 15.35, a peak limit which is 20-dB higher than the average limit is applied to the fundamental.

1. Radiated Emissions in accordance with FCC Part 15.209 & 15.235.

Frequency range: 30 MHz to 88 MHz
Limit: 40 dBuV @ 3 meters
Frequency range: 88 MHz to 216 MHz
Limit: 43.5 dBuV @ 3 meters
Frequency range: 216 MHz to 500 MHz
Limit: 46 dBuV @ 3 meters
Fundamental frequency: 49 MHz
Limit: 80 dBuV average/100.0 dBuV peak @ 3 meters
Harmonic frequencies: 98, 147, 196, 245, 294, 343, 392, 441, 490 MHz
Limit: as above @ 3 meters

a. Set up instrumentation at open area test site.
   i. Mount EUT on turntable and broadband antenna on antenna positioner.
   ii. Record temperature, humidity and atmospheric pressure.
   iii. Measurement distance is 3 meters and antenna scan height is varied from 1 to 4 meters.
b. Verify spectrum analyzer and antenna operation.
   i. Spectrum analyzer is connected to antenna.
   ii. Broadband amplifier is inserted between antenna and analyzer to ensure analyzer noise threshold is at least 6 dB below specification limit.
c. Set up, power and operate EUT as described in Section III.
d. Perform preliminary evaluation of equipment in the near field.

i. Vary antenna height, antenna polarization, and antenna orientation to EUT.
ii. Repeat step d.i. while evaluating electromagnetic radiation in the 30 to 500 MHz spectrum.

e. Determine frequencies and equipment orientations that produce maximum radiation.
f. Perform final evaluation of unit by recording spectrum analyzer data on the plotter.
i. Ensure the EUT is producing the maximum radiation found in step e.
ii. Collect data over the entire frequency range.

2. Conducted Emissions in accordance with FCC Part 15.207.

Frequency range: 450 kHz to 30 MHz
Limit: 47.9 dBuV quasi-peak

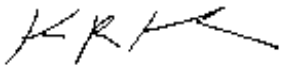
a. Set up instrumentation in laboratory.
i. Mount EUT on table.
ii. Record temperature, humidity, and atmospheric pressure.
iii. Attach EUT power cable to the Line Impedance Stabilization Network (LISN).
b. Verify spectrum analyzer and LISN operation.
i. Spectrum analyzer is connected to LISN.
ii. Measurements are made at both plus (L1) and minus (L2) leads.
c. Set up, power and operate EUT as described in Section III.
i. Use supplied power cable.
d. Perform preliminary evaluation of equipment.
i. Vary EUT modes and cable placement.
ii. Repeat step d.i. while evaluating conducted emissions in the 450 kHz to 30 MHz spectrum.
e. Determine frequencies and cable orientations that produce maximum emissions.
i. Identify beat frequencies and harmonics.
f. Perform final evaluation of unit by recording spectrum analyzer data on the plotter.
i. Ensure the EUT is producing the maximum emissions found in step e.
ii. Collect data over the entire frequency range.

VIII. Summary of Results:

The Safety 1st Model 49239 transmitter complies with FCC Part 15, Subpart C, emissions requirements. Section X contains a table comparing the unit radiated emissions to the applicable limit from 30 MHz to 500 MHz as identified in measurement procedure VII-1 and in accordance with the equations identified in V. Section XI contains a table comparing the unit conducted emissions to the applicable limit from 450 kHz to 30 MHz as identified in measurement procedure VII-2.

Testing was performed by Kyle R. Kowalczyk, president, Green Mountain Electromagnetics and requested by:

Safety 1st, Inc.
210 Boylston Street
Chestnut Hill, MA 02167
USA



Kyle R. Kowalczyk
9/30/99

IX. Photograph of Measurement Setup:

The following two pages contain photographs of the equipment as it was tested.

X. Radiated Emissions Data (FCC ID MNJ49239T)

Freq	Pol	Detector	RBW	VBW	V meas	AF	Amp	Cable	Field	Dist	Limit	Dev
MHz	H/V		kHz	kHz	dBuV	dB1/m	dB	dB	dBuV/m	dB	dBuV/m	dB
30	H	Peak	120	300	32.5	19.0	20.0	0.5	32.0	0.0	40.0	-8.0
30	V	Peak	120	300	32.5	19.0	20.0	0.5	32.0	0.0	40.0	-8.0
35	H	Peak	120	300	38.0	18.2	20.0	0.5	36.7	0.0	40.0	-3.3
35	V	Peak	120	300	38.0	18.2	20.0	0.5	36.7	0.0	40.0	-3.3
40	H	Peak	120	300	36.0	18.3	20.0	0.5	34.8	0.0	40.0	-5.2
40	V	Peak	120	300	37.0	18.3	20.0	0.5	35.8	0.0	40.0	-4.2
45	H	Peak	120	300	32.5	17.8	20.0	0.5	30.8	0.0	40.0	-9.2
45	V	Peak	120	300	32.5	17.8	20.0	0.5	30.8	0.0	40.0	-9.2
49	H	Peak	120	300	93.0	15.6	20.0	0.5	89.1	0.0	100.0	-10.9
49	V	Peak	120	300	95.0	15.6	20.0	0.5	91.1	0.0	100.0	-8.9
60	H	Peak	120	300	43.0	11.0	20.0	1.0	35.0	0.0	40.0	-5.0
60	V	Peak	120	300	44.0	11.0	20.0	1.0	36.0	0.0	40.0	-4.0
70	H	Peak	120	300	37.5	8.0	20.0	1.0	26.5	0.0	40.0	-13.5
70	V	Peak	120	300	39.0	8.0	20.0	1.0	28.0	0.0	40.0	-12.0
80	H	Peak	120	300	30.0	9.8	20.0	1.0	20.8	0.0	40.0	-19.2
80	V	Peak	120	300	31.0	9.8	20.0	1.0	21.8	0.0	40.0	-18.2
90	H	Peak	120	300	32.5	10.9	20.0	1.0	24.4	0.0	43.5	-19.1
90	V	Peak	120	300	32.5	10.9	20.0	1.0	24.4	0.0	43.5	-19.1
98	H	Peak	120	300	46.5	12.5	20.0	1.5	40.5	0.0	43.5	-3.0
98	V	Peak	120	300	46.5	12.5	20.0	1.5	40.5	0.0	43.5	-3.0
125	H	Peak	120	300	31.0	12.2	20.0	2.0	25.2	0.0	43.5	-18.3
125	V	Peak	120	300	30.0	12.2	20.0	2.0	24.2	0.0	43.5	-19.3
147	H	Peak	120	300	30.0	10.5	20.0	2.0	22.5	0.0	43.5	-21.0
147	V	Peak	120	300	40.0	10.5	20.0	2.0	32.5	0.0	43.5	-11.0
175	H	Peak	120	300	31.0	10.9	20.0	2.0	23.9	0.0	43.5	-19.6
175	V	Peak	120	300	35.0	10.9	20.0	2.0	27.9	0.0	43.5	-15.6
196	H	Peak	120	300	32.0	11.3	20.0	2.5	25.8	0.0	43.5	-17.7
196	V	Peak	120	300	31.0	11.3	20.0	2.5	24.8	0.0	43.5	-18.7
245	H	Peak	120	300	31.0	13.4	20.0	3.0	27.4	0.0	46.0	-18.6
245	V	Peak	120	300	32.5	13.4	20.0	3.0	28.9	0.0	46.0	-17.1
294	H	Peak	120	300	35.0	15.1	20.0	3.0	33.1	0.0	46.0	-12.9
294	V	Peak	120	300	32.0	15.1	20.0	3.0	30.1	0.0	46.0	-15.9
343	H	Peak	120	300	36.0	15.6	20.0	3.0	34.6	0.0	46.0	-11.4
343	V	Peak	120	300	34.0	15.6	20.0	3.0	32.6	0.0	46.0	-13.4
392	H	Peak	120	300	31.0	16.5	19.0	3.5	32.0	0.0	46.0	-14.0
392	V	Peak	120	300	32.5	16.5	19.0	3.5	33.5	0.0	46.0	-12.5
441	H	Peak	120	300	31.0	17.1	19.0	3.5	32.6	0.0	46.0	-13.4
441	V	Peak	120	300	32.5	17.1	19.0	3.5	34.1	0.0	46.0	-11.9
490	H	Peak	120	300	37.0	18.2	19.0	4.0	40.2	0.0	46.0	-5.8

490	V	Peak	120	300	36.0	18.2	19.0	4.0	39.2	0.0	46.0	-6.8

XI. Conducted Emissions Data (FCC ID MNJ49239T)

L1

Freq	Detector	RBW	VBW	Vmeas	Limit	Dev
MHz		kHz	kHz	dBuV	dBuV	dB
0.45	Peak	9	30	40.5	47.9	-7.4
3	Peak	9	30	35.0	47.9	-12.9
6	Peak	9	30	32.5	47.9	-15.4
9	Peak	9	30	32.5	47.9	-15.4
12	Peak	9	30	32.5	47.9	-15.4
15	Peak	9	30	32.5	47.9	-15.4
16.7	Peak	9	30	46.3	47.9	-1.7
16.7	Q-Peak	9	30	40.0	47.9	-7.9
18	Peak	9	30	32.5	47.9	-15.4
21	Peak	9	30	32.5	47.9	-15.4
24	Peak	9	30	32.5	47.9	-15.4
27	Peak	9	30	32.5	47.9	-15.4
30	Peak	9	30	32.5	47.9	-15.4

L2

Freq	Detector	RBW	VBW	Vmeas	Limit	Dev
MHz		kHz	kHz	dBuV	dBuV	dB
0.45	Peak	9	30	30.5	47.9	-17.4
3	Peak	9	30	32.0	47.9	-15.9
6	Peak	9	30	24.0	47.9	-23.9
9	Peak	9	30	22.5	47.9	-25.4
12	Peak	9	30	22.5	47.9	-25.4
15	Peak	9	30	22.5	47.9	-25.4
16.7	Peak	9	30	46.7	47.9	-1.2
16.7	Q-Peak	9	30	40.0	47.9	-7.9
18	Peak	9	30	22.5	47.9	-25.4
21	Peak	9	30	22.5	47.9	-25.4
24	Peak	9	30	22.5	47.9	-25.4
27	Peak	9	30	22.5	47.9	-25.4
30	Peak	9	30	22.5	47.9	-25.4