

RF Technologies, Inc. 0800-0349 14032

#### FCC Rules and Regulations / Intentional Radiators

Operational in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz, Bands

Part 15, Subpart C, Section 15.247

#### THE FOLLOWING MEETS THE ABOVE TEST SPECIFICATION

Help Alert Pendant
Wireless Nurse Call Device
2405 GHz - 2480 GHz
Wireless connection (Tested at 3.0 vdc)
0800-0349
0800-0349
N/A
January 14 & 16, 2008
RF Technologies, Inc. 3125 North 126th Street Brookfield, Wisconsin 53066

**NOTICE**: "This report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government". Please see the "Additional Description of Equipment Under Test" page listed inside of this report.

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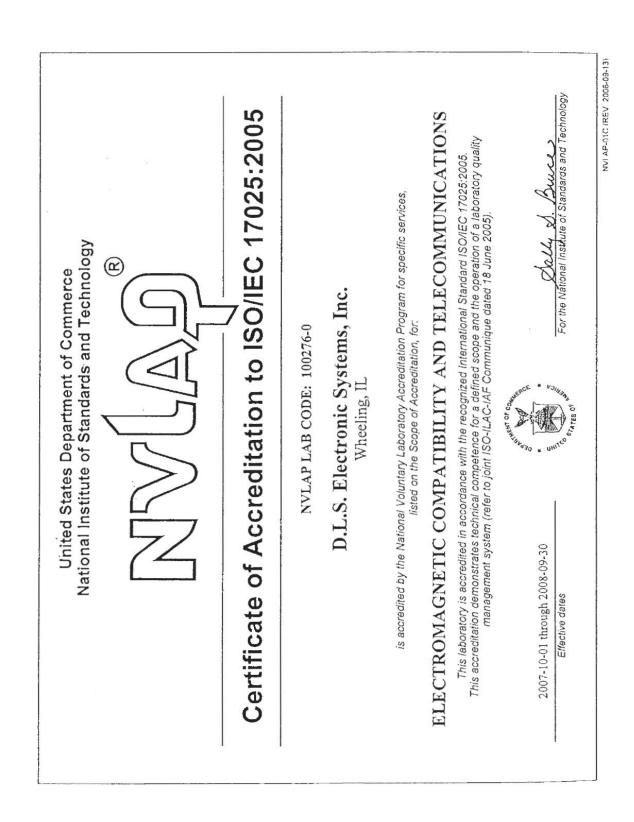
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#### 1.0 SUMMARY OF TEST REPORT

It was found that the Help Alert Pendant, Model Number(s) 0800-0349, **meets** the radio interference radiated emission requirements of the FCC "Rules and Regulations", Part 15, Subpart C, Section 15.247 for operational in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz, Bands. The <u>AC Power Line conducted</u> emissions test was not required because the Help Alert Pendant is powered from a D.C. power source. It does not have a line cord to plug into the A.C. power line.

#### 2.0 INTRODUCTION

On January 14 & 16, 2008, a series of radio frequency interference measurements was performed on Help Alert Pendant, Model Number(s) 0800-0349, Serial Number: N/A. The tests were performed according to the procedures of the FCC as stated in the "Methods of Measurement of Radio-Noise Emissions for Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz" found in the American National Standards Institute, ANSI C63.4-2003. Tests were performed by personnel of D.L.S. Electronic Systems, Inc. who are responsible to Donald L. Sweeney, Senior EMC Engineer.

D.L.S. Electronic Systems, Inc. is a full service EMC/Safety Testing Laboratory accredited to ISO 17025. NVLAP Certificate and Scope can be viewed at <u>http://www.dlsemc.com/certificate</u>. Our facilities are registered with the FCC, Industry Canada, and VCCI.

#### **Main Test Facility:**

D.L.S. Electronic Systems, Inc. 1250 Peterson Drive Wheeling, Illinois 60090 **O.A.T.S. Test Facility:** D.L.S. Electronic Systems, Inc. 166 S. Carter Street Genoa City, Wisconsin 53128

#### 3.0 OBJECT

The purpose of this series of tests was to determine if the test sample could meet the radio frequency interference emission requirements of the FCC "Rules and Regulations", Part 15, Subpart C, Sections 15.205, 15.209 & 15.247 for Intentional Radiators operating in the Bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.



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#### 4.0 TEST SET-UP

All emission tests were performed at D.L.S. Electronic Systems, Inc. and set up according to the ANSI C63.4-2003, Annex H.

All radiated emissions tests were performed with the test item placed on a 80 cm high rotating non-conductive table, located in the test room. Equipment normally operated on the floor was placed on a metal covered turntable which is flush with the surrounding conducting ground plane. The ground plane has an electrical isolation layer over its surface approximately 7 mm thick. The EUT is separated from the turntable ground plane by a non-conductive layer. The equipment under test was set up according to ANSI C63.4-2003, Sections 6 and 8.

#### 5.0 TEST EQUIPMENT (Bandwidths and Detector Function)

All preliminary data below 1000 MHz was automatically plotted using the ESI 26/40 Fixed Tuned Receiver. The data was taken using Peak, Quasi-Peak or the Average Detector Functions as required. This information was then used to determine the frequencies of maximum emissions. Above 1000 MHz, final data was taken using the Average Detector.

Below 1000 MHz, final data was taken using the ESI 26/40 Fixed Tuned Receiver. These plots were made using the Peak or Quasi-Peak Detector functions, with manual measurements performed on the questionable frequencies using the Quasi-Peak or the Average Detector Function of the ESI 26/40 Fixed Tuned Receiver as required. Above 1000 MHz, final data was taken using the Average Detector on the Spectrum Analyzer.

The bandwidths shown below are specified by ANSI C63.4-2003, Section 4.2.

Frequency Range	Bandwidth (-6 dB)
10 to 150 kHz	200 Hz
150 kHz to 30 MHz	9 kHz
30 MHz to 1 GHz	120 kHz
Above 1 GHz	1 MHz

A list of the equipment used can be found in Table 1. All primary equipment was calibrated against known reference standards with a verified traceable path to NIST.



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#### 6.0 AMBIENT MEASUREMENTS

For emissions measurements, broadband antennas and an EMI Test Receiver with a panoramic spectrum display are used. First the frequency range is scanned and displayed on the test receiver display. Next the scanned frequency range is divided into smaller ranges, and then it is manually tuned through to determine the emissions from the EUT. A headset or loudspeaker is connected to the test receiver's AM/FM demodulated output as an aid in detecting ambient signals and finding frequencies of significant emission from the EUT. If there is any doubt as to the source of the emission, it is further investigated by rotating the EUT, or by disconnecting the power from the EUT.

The EUT is set up in its typical configuration and operated in its various modes. For tabletop systems, cables are manipulated within the range of likely configurations. For floor-standing equipment, the cables are located in the same manner as the user would install them and no further manipulation is made. If the manner of cable installation is not known, or if it changes with each installation, cables or wires for floor-standing equipment shall be manipulated to the extent possible to produce the maximum level of emissions. For each mode of operation, the frequency spectrum is monitored. Variations in antenna height, antenna polarization, EUT azimuth, and cable or wire placement (each variable within bounds specified elsewhere) are explored to produce the emissions that have the highest amplitude relative to the limit. These methods are performed to the specifications in ANSI C63.4-2003.



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#### 7.0 DESCRIPTION OF TEST SAMPLE: (See also Paragraph 8.0)

7.1 Description:

This test sample is a hand held or necklace worn pendant transceiver that when an individual is in distress they press the button alerting the caregiver they need assistance. In addition the test sample within a mesh network or receivers can give relative position, presence at a location and low battery indication.

The transmit duty cycle was increased to maximum;100%, for radiated and conducted measurements.

#### 7.2 PHYSICAL DIMENSIONS OF EQUIPMENT UNDER TEST

Length: 55mm x Width: 42mm x Height: 15mm

7.3 LINE FILTER USED:

N/A

7.4 INTERNAL CLOCK FREQUENCIES:

Switching Power Supply Frequencies:

N/A

Clock Frequencies:

16 MHz

#### 7.5 DESCRIPTION OF ALL CIRCUIT BOARDS:

1. ZigBee Pendant Transceiver PCB Assemble Freescale PN: 0830-0059 Rev. A



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- 8.0 ADDITIONAL DESCRIPTION OF TEST SAMPLE: (See also Paragraph 7.0)
- 1: There were no additional descriptions noted at the time of test.

NOTE:

Tested both on-board antennas (A & B) at Low, Mid and High Channels in the continuous transmit mode.

#### 9.0 PHOTO INFORMATION AND TEST SET-UP

Item 0 Help Alert Pendant Model Number: 0800-0349 Serial Number: N/A



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#### 10.0 RADIATED PHOTOS TAKEN DURING TESTING

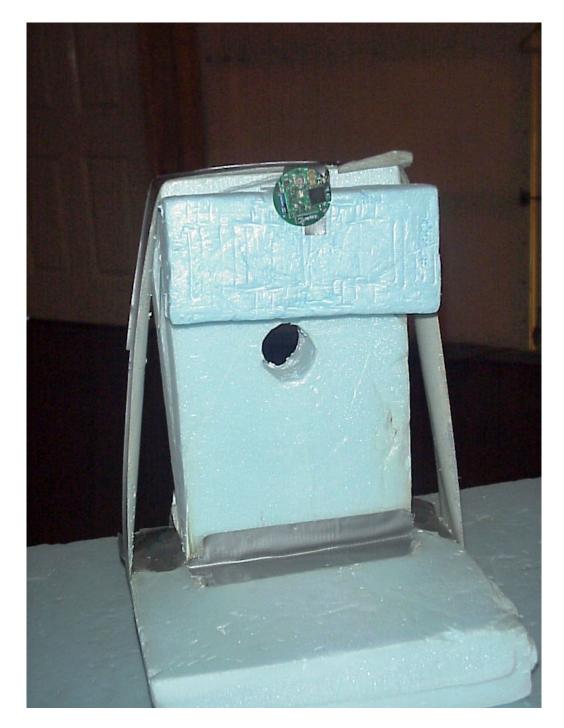




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#### 10.0 RADIATED PHOTOS TAKEN DURING TESTING (CON'T)



### **RADIATED 1**



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#### 10.0 RADIATED PHOTOS TAKEN DURING TESTING (CON'T)



### RADIATED 2



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#### 10.0 RADIATED PHOTOS TAKEN DURING TESTING (CON'T)



### RADIATED 3



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#### 11.0 RESULTS OF TESTS

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The radio interference emission charts can be seen on the pages at the end of this report. Data sheets indicating the test measurements taken during testing can also be found at the end of this report.

#### 12.0 CONCLUSION

It was found that the Help Alert Pendant, Model Number(s) 0800-0349 **meets** the radio interference radiated emission requirements of the FCC "Rules and Regulations", Part 15, Subpart C, Section 15.247 for operational in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz, Bands. The <u>conducted</u> emissions test was not required because the Help Alert Pendant is powered from a D.C. power source. It does not have a line cord to plug into the A.C. power line.



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#### TABLE 1 – EQUIPMENT LIST

Test Equipment	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Due Dates
Receiver	Rohde & Schwarz	ESI 26	837491/010	20 Hz – 26 GHz	11/08
Preamp	R&S	TS-PR10	032001/005	1GHz-10GHz	1/08
Preamp	Miteq	MF-6D- 010100-50 A	213976	10GHz-18GHz	5/08
Preamp	Miteq	AMF-8B- 180265-40- 10P-H/S		18GHz-26GHz	9/08
Attenuator- 20dB Fixed	Aeroflex Weinschel	75A-20-12	1071	DC – 40GHz	7/08
Antenna	EMCO	3104C	97014785	20 MHz – 200 MHz	2/08
Antenna	EMCO	3146	97024895	200 MHz – 1 GHz	3/08
Horn Antenna	EMCO	3115	5731	1-18GHz	6/08
Horn Antenna	ЕМСО	3116	2549	18-40GHz	5/08

All primary equipment is calibrated against known reference standards with a verified traceable path to NIST.



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# APPENDIX A

# TEST PROCEDURE

## Part 15, Subpart C, Section 15.247 (a-h)

### OPERATION WITHIN THE BAND 902-928 MHz,

### 2400-2483.5 MHz AND 5725-5857 MHz



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#### APPENDIX A

#### 1.0 AC POWER LINE CONDUCTED EMISSION MEASUREMENTS

If applicable, the conducted emissions were measured over the frequency range from 150 kHz to 30 MHz in accordance with the power line measurements as specified in the American National Standards Institute, ANSI C63.4-2003, Section 12. Since the device is operated from the public utility lines, the 115 Vac 60 Hz power leads, high and low sides, were to be measured by connecting the measuring equipment to the appropriate meter terminal of the LISN. All signals were then recorded. The allowed levels for Intentional Radiators cannot exceed the following:

Frequency of	Conducted Limits (dBuV)		
Emissions (MHz)	Quasi Peak	Average	
.15 to .5	66 to 56	56 to 46	
.5 to 5	56	46	
5 to 30	60	50	

All conducted emissions measurements were made at a test room temperature of °F at % relative humidity.

# NOTE: This test was not run because the device is battery operated.



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#### APPENDIX A

#### 2.0 SPURIOUS EMISSIONS AT ANTENNA TERMINALS – PART 15.247(c)

Spurious conducted emissions were measured at the antenna terminals. Plots were made showing the amplitude of each harmonic emission with the equipment operated. As shown by the radiated charts there was no reason to believe that there were any spurious emissions other than the harmonics that were than individually investigated when doing the conducted test at the antenna terminals. Measurements were made up to the 10<sup>th</sup> harmonic of the fundamental.

The allowed emissions for transmitters operating in the 2400 MHz - 2483.5 MHz bands for Help Alert Pendant equipment are found under Part 15, Section 15.247(c). This paragraph states that in any 100 kHz bandwidth outside the frequency band which the spread spectrum intentional radiator is operating, the radio frequency power produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

#### NOTE: See the following pages for the data and graphs of the actual measurements made:



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APPENDIX A

## CONDUCTED EMISSION DATA AND GRAPH(S)

### TAKEN FOR

### SPURIOUS EMISSION MEASUREMENTS MADE

### AT THE ANTENNA TERMINALS

### PART 15.247(c)

### ANTENNA A

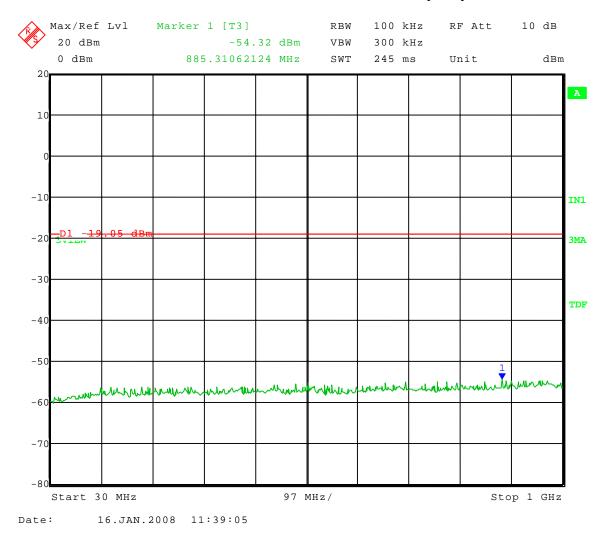


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#### APPENDIX A

Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Spurious Emissions - Conducted
Operator:	Craig B
Comment:	Low Channel Transmit = 2.405 GHz
	Antenna A
	Frequency Range: 30 to 1000 MHz
	Limit = -19.05  dBm



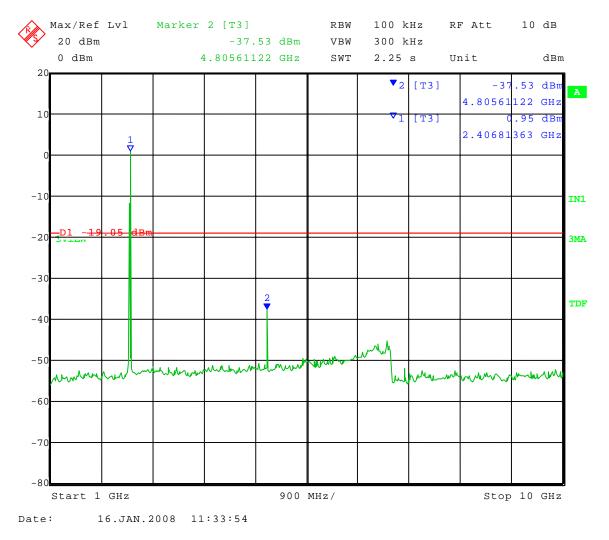


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#### APPENDIX A

Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Spurious Emissions - Conducted
Operator:	Craig B
Comment:	Low Channel Transmit = 2.405 GHz
	Antenna A
	Frequency Range: 1 to 10 GHz
	Limit = -19.05  dBm



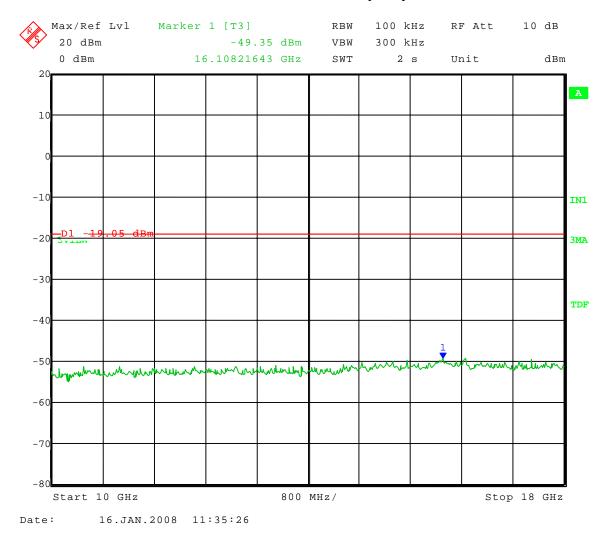


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#### APPENDIX A

Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Spurious Emissions - Conducted
Operator:	Craig B
Comment:	Low Channel Transmit = 2.405 GHz
	Antenna A
	Frequency Range: 10 to 18 GHz
	Limit = -19.05 dBm



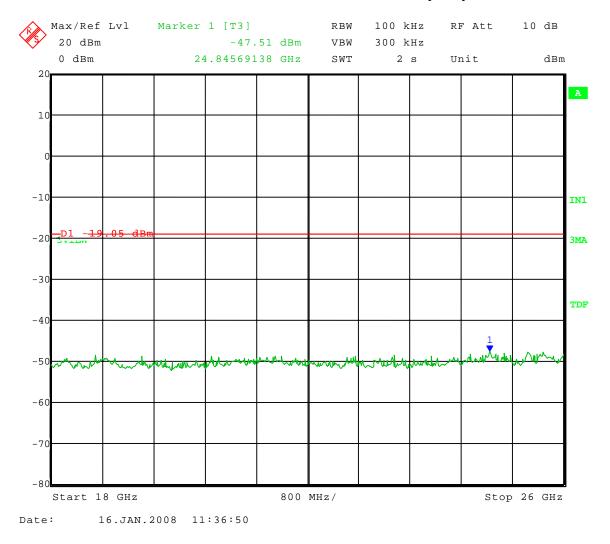


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#### APPENDIX A

Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Spurious Emissions - Conducted
Operator:	Craig B
Comment:	Low Channel Transmit = 2.405 GHz
	Antenna A
	Frequency Range: 18 to 26 GHz
	Limit = -19.05  dBm



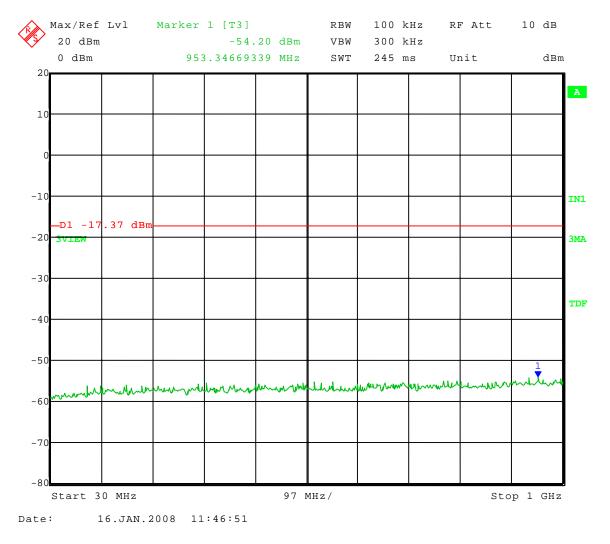


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#### APPENDIX A

Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Spurious Emissions - Conducted
Operator:	Craig B
Comment:	Middle Channel Transmit = 2.440 GHz
	Antenna A
	Frequency Range: 30 to 1000 MHz
	Limit = -17.37  dBm



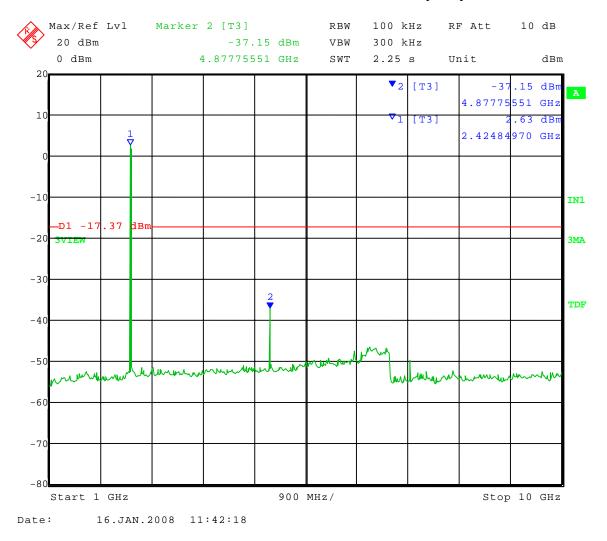


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#### APPENDIX A

Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Spurious Emissions - Conducted
Operator:	Craig B
Comment:	Middle Channel Transmit = 2.440 GHz
	Antenna A
	Frequency Range: 1 to 10 GHz
	Limit = -17.37 dBm



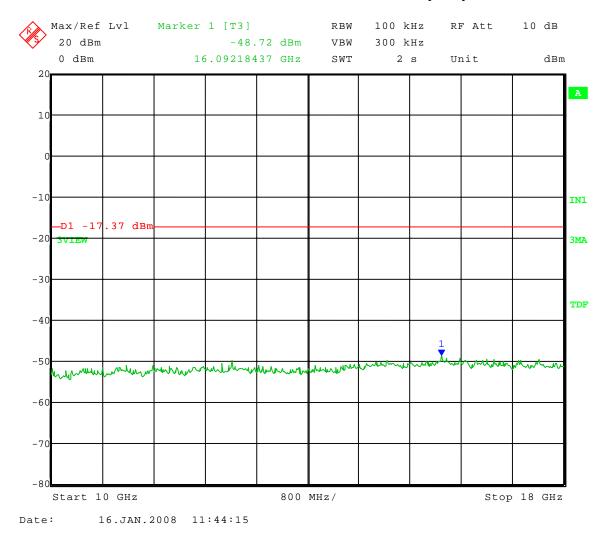


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Test Date:	01-16-2008
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Test:	Spurious Emissions - Conducted
Operator:	Craig B
Comment:	Middle Channel Transmit = 2.440 GHz
	Antenna A
	Frequency Range: 10 to 18 GHz
	Limit = -17.37  dBm



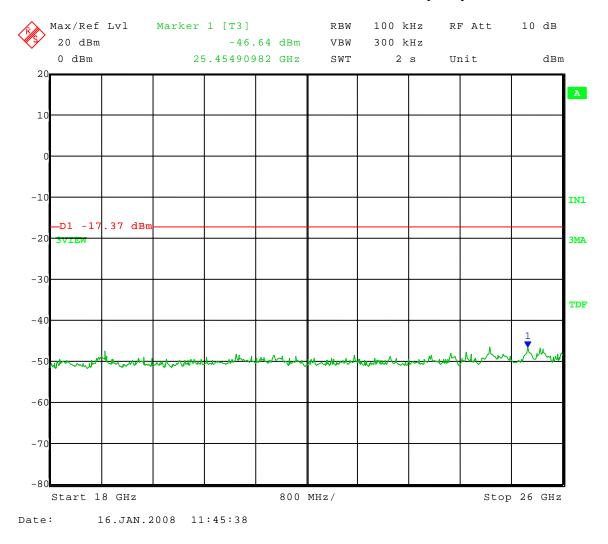


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Test Date:	01-16-2008
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Test:	Spurious Emissions - Conducted
Operator:	Craig B
Comment:	Middle Channel Transmit = 2.440 GHz
	Antenna A
	Frequency Range: 18 to 26 GHz
	Limit = -17.37  dBm



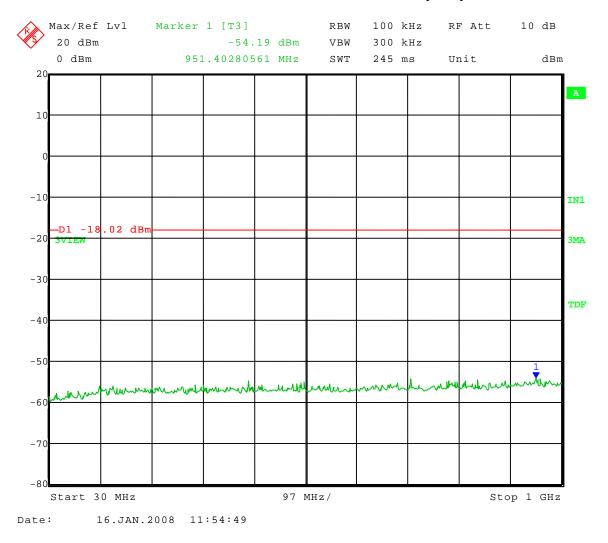


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#### APPENDIX A

Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Spurious Emissions - Conducted
Operator:	Craig B
Comment:	High Channel Transmit = 2.480 GHz
	Antenna A
	Frequency Range: 30 to 1000 MHz
	Limit = -18.02  dBm



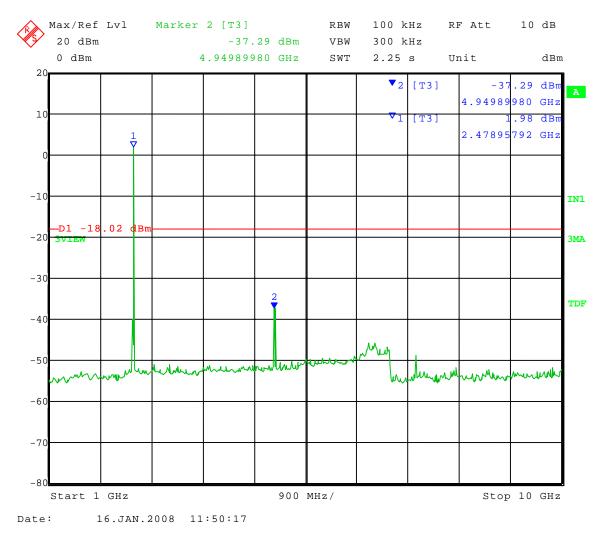


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Operator:	Craig B
Comment:	High Channel Transmit = 2.480 GHz
	Antenna A
	Frequency Range: 1 to 10 GHz
	Limit = -18.02  dBm



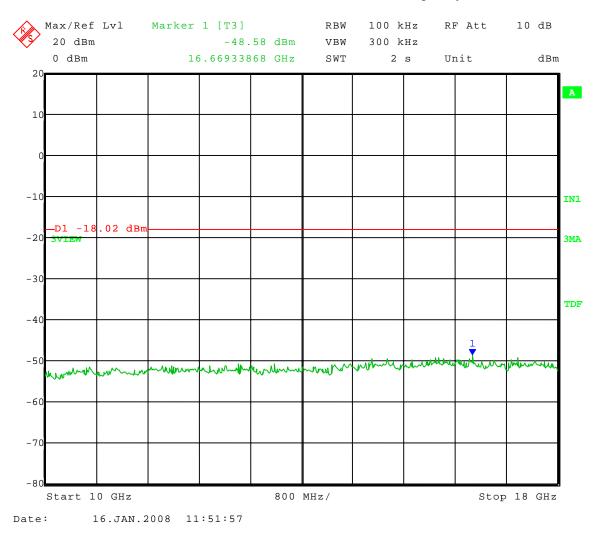


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Test:	Spurious Emissions - Conducted
Operator:	Craig B
Comment:	High Channel Transmit = 2.480 GHz
	Antenna A
	Frequency Range: 10 to 18 GHz
	Limit = -18.02  dBm



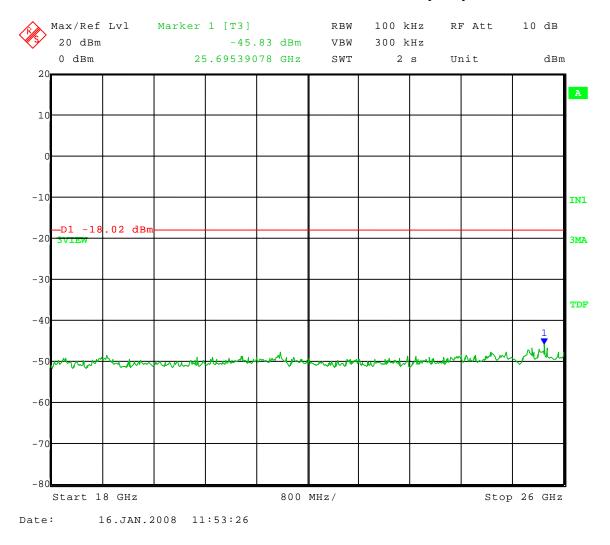


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	Antenna A
	Frequency Range: 18 to 26 GHz
	Limit = -18.02  dBm





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APPENDIX A

### CONDUCTED EMISSION DATA AND GRAPH(S)

### TAKEN FOR

### SPURIOUS EMISSION MEASUREMENTS MADE

### AT THE ANTENNA TERMINALS

### PART 15.247(c)

### ANTENNA B

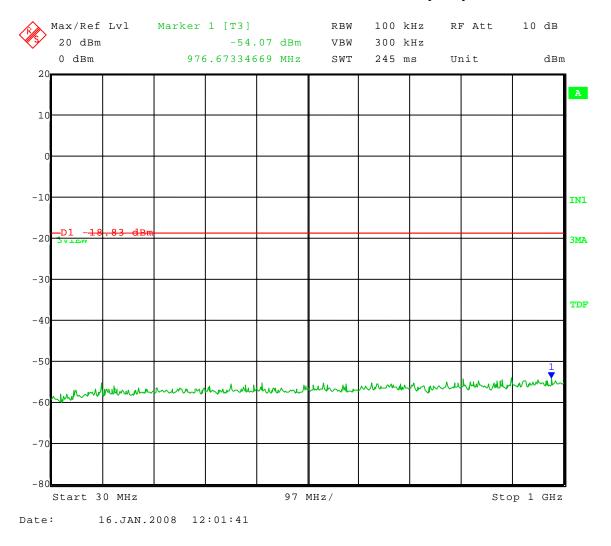


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Test:	Spurious Emissions - Conducted
Operator:	Craig B
Comment:	Low Channel Transmit = 2.405 GHz
	Antenna B
	Frequency Range: 30 to 1000 MHz
	Limit = -18.83  dBm



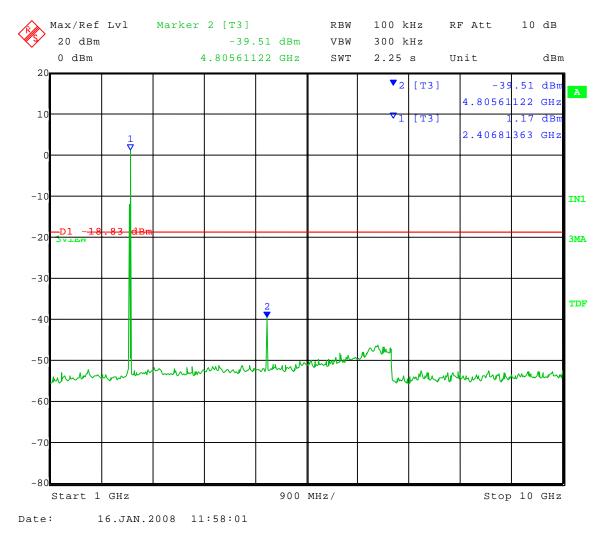


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Operator:	Craig B
Comment:	Low Channel Transmit = 2.405 GHz
	Antenna B
	Frequency Range: 1 to 10 GHz
	Limit = -18.83  dBm



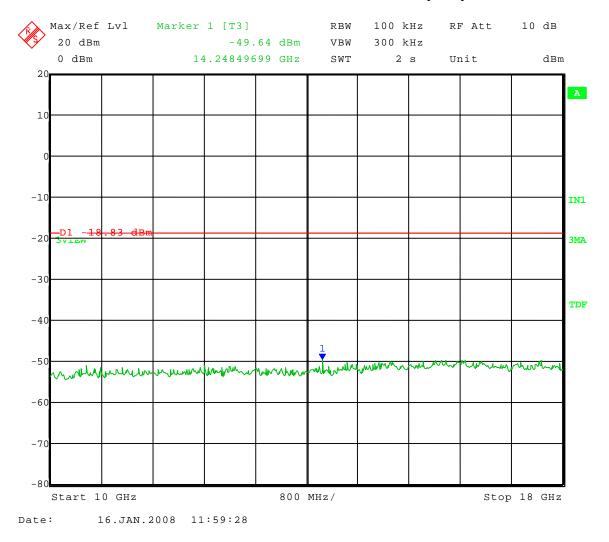


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	Frequency Range: 10 to 18 GHz
	Limit = -18.83  dBm



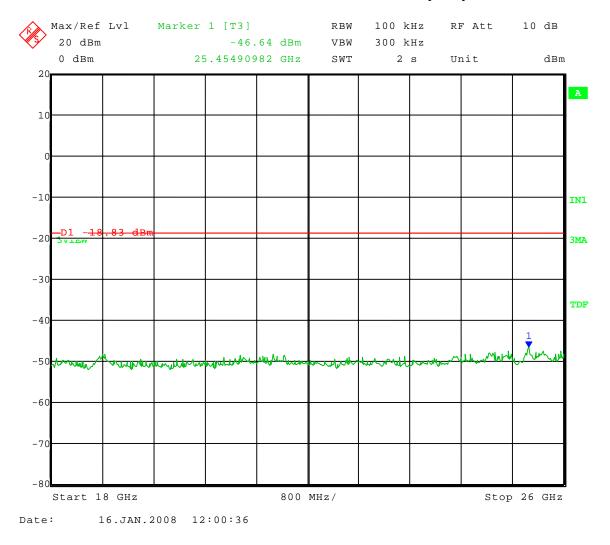


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	Antenna B
	Frequency Range: 18 to 26 GHz
	Limit = -18.83  dBm



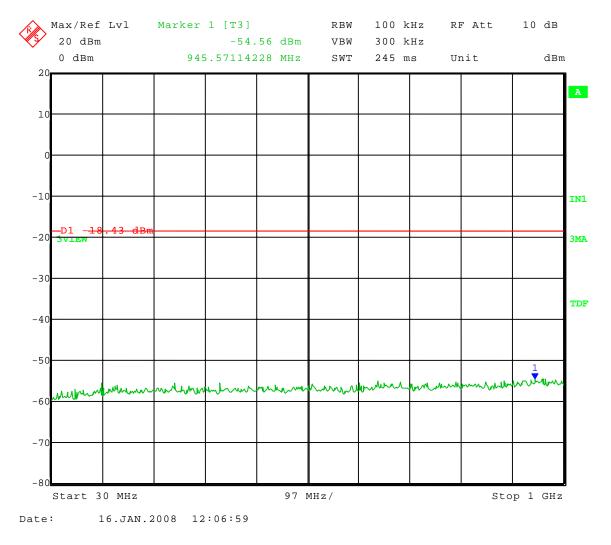


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Operator:	Craig B
Comment:	Middle Channel Transmit = 2.440 GHz
	Antenna B
	Frequency Range: 30 to 1000 MHz
	Limit = -18.43  dBm



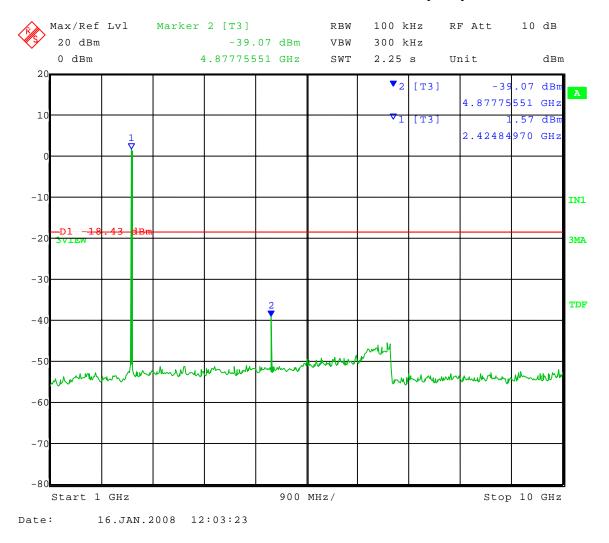


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EUT:	SG-Pendant
Test:	Spurious Emissions - Conducted
Operator:	Craig B
Comment:	Middle Channel Transmit = 2.440 GHz
	Antenna B
	Frequency Range: 1 to 10 GHz
	Limit = -18.43  dBm



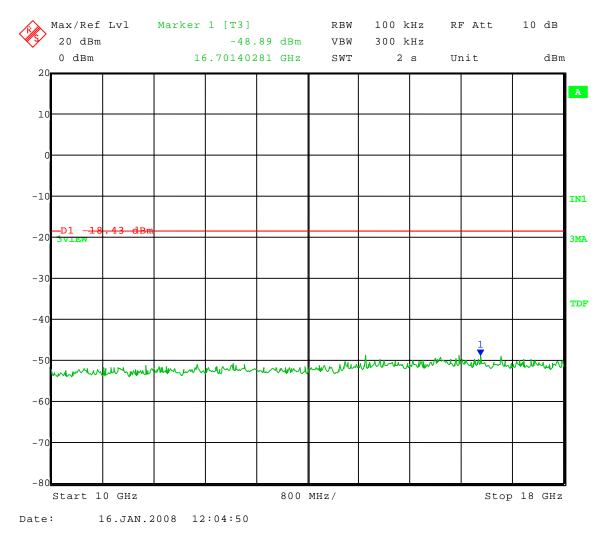


RF Technologies, Inc. 0800-0349 14032

1250 Peterson Dr., Wheeling, IL 60090

### APPENDIX A

Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Spurious Emissions - Conducted
Operator:	Craig B
Comment:	Middle Channel Transmit = 2.440 GHz
	Antenna B
	Frequency Range: 10 to 18 GHz
	Limit = -18.43  dBm



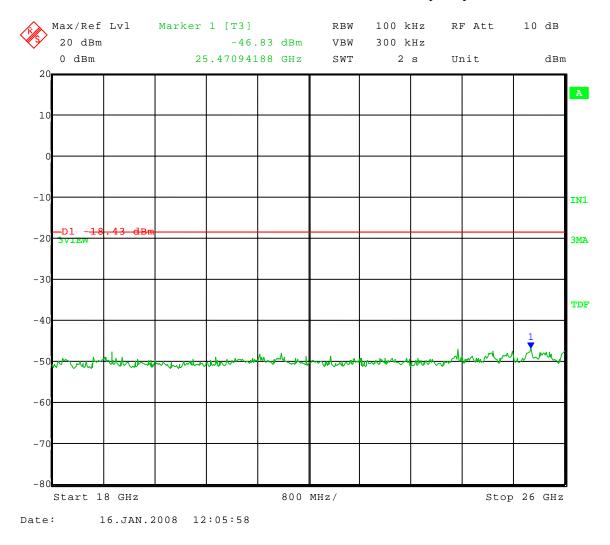


RF Technologies, Inc. 0800-0349 14032

1250 Peterson Dr., Wheeling, IL 60090

### APPENDIX A

Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Spurious Emissions - Conducted
Operator:	Craig B
Comment:	Middle Channel Transmit = 2.440 GHz
	Antenna B
	Frequency Range: 18 to 26 GHz
	Limit = -18.43  dBm



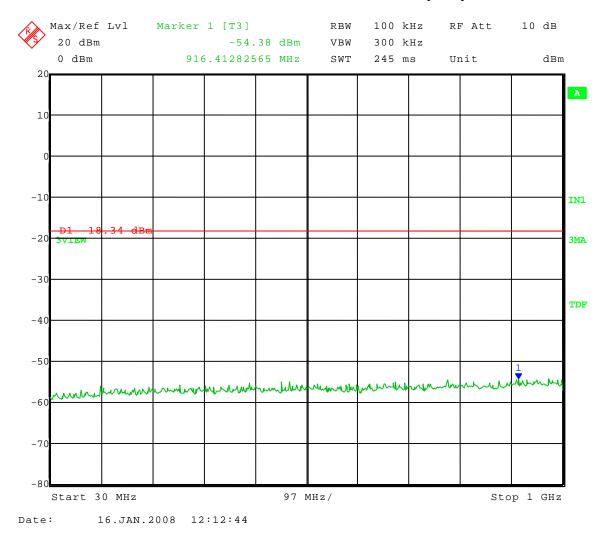


RF Technologies, Inc. 0800-0349 14032

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### APPENDIX A

Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Spurious Emissions - Conducted
Operator:	Craig B
Comment:	High Channel Transmit = 2.480 GHz
	Antenna B
	Frequency Range: 30 to 1000 MHz
	Limit = -18.34  dBm



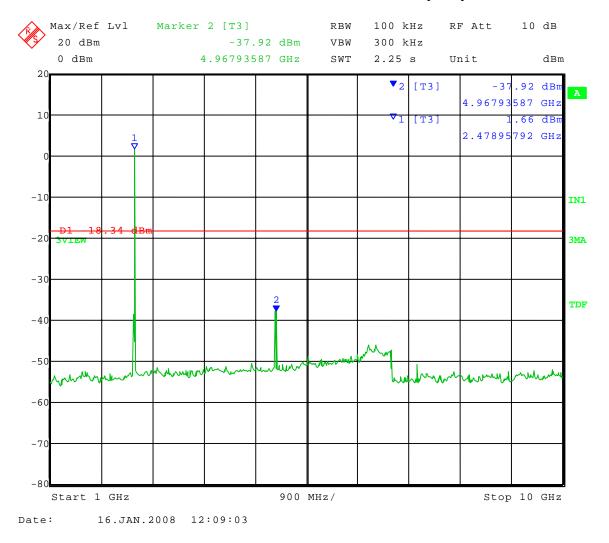


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### APPENDIX A

Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Spurious Emissions - Conducted
Operator:	Craig B
Comment:	High Channel Transmit = 2.480 GHz
	Antenna B
	Frequency Range: 1 to 10 GHz
	Limit = -18.34  dBm



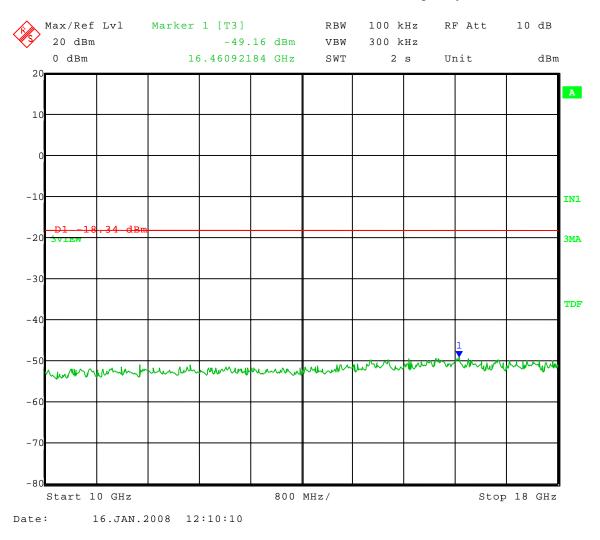


RF Technologies, Inc. 0800-0349 14032

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### APPENDIX A

Test Date:	01-16-2008						
Company:	RF Technologies						
EUT:	SG-Pendant						
Test:	Spurious Emissions - Conducted						
Operator:	Craig B						
Comment:	High Channel Transmit = 2.480 GHz						
	Antenna B						
	Frequency Range: 10 to 18 GHz						
	Limit = -18.34  dBm						



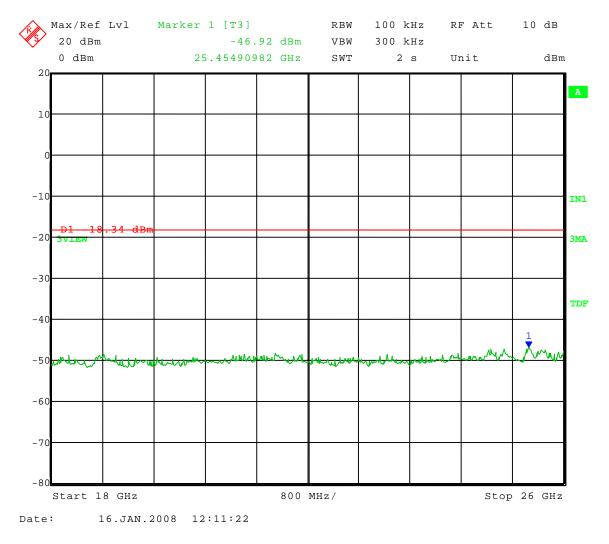


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### APPENDIX A

Test Date:	01-16-2008						
Company:	RF Technologies						
EUT:	SG-Pendant						
Test:	Spurious Emissions - Conducted						
Operator:	Craig B						
Comment:	High Channel Transmit = 2.480 GHz						
	Antenna B						
	Frequency Range: 18 to 26 GHz						
	Limit = -18.34  dBm						





RF Technologies, Inc. 0800-0349 14032

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## APPENDIX A

# 3.0 CONDUCTED EMISSIONS (ANTENNA TERMINAL) PHOTOS TAKEN DURING TESTING





RF Technologies, Inc. 0800-0349 14032

### 1250 Peterson Dr., Wheeling, IL 60090

### APPENDIX A

### 4.0 **RESTRICTED BANDS**

As stated in Section 15.205a, the fundamental emission from the Help Alert Pendant shall not fall within any of the bands listed below:

Frequency in MHz	Frequency in MHz	Frequency in MHz	Frequency in GHz
.0900 to .1100	162.0125 to 167.17	2310.0 to 2390	9.30 to 9.50
.4900 to .5100	167.7200 to 173.20	2483.5 to 2500	10.60 to 12.70
2.1735 to 2.1905	240.000 to 285.00	2655.0 to 2900	13.25 to 13.40
8.362 to 8.3660	322.200 to 335.40	3260.0 to 3267	14.47 to 14.50
13.36 to 13.410	399.900 to 410.00	3332.0 to 3339	15.35 to 16.20
25.50 to 25.670	608.000 to 614.00	3345.8 to 3358	17.70 to 21.40
37.50 to 38.250	960.000 to 1240.00	3600.0 to 4400	22.01 to 23.13
73.00 to 75.500	1300.000 to 1427.00	4500.0 to 5250	23.60 to 24.00
108.00 to 121.94	1435.000 to 1626.50	5350.0 to 5450	31.20 to 31.80
123.00 to 138.00	1660.000 to 1710.00	7250.0 to 7750	36.43 to 36.50
149.90 to 150.00	1718.800 to 1722.20	8025.0 to 8500	ABOVE 38.60
156.70 to 156.90	2200.000 to 2300.00	9000.0 to 9200	

### NOTE:

The noise floor within the Restricted Bands for the EMC Receiver will typically lay 20 dB below the limit.

### 5.0 RESTRICTED BAND AND BAND EDGE COMPLIANCE

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the attenuation below the general limits specified in 15.209 is not required.

The field strength of any **radiated emissions** which fall within the restricted bands shall not exceed the general radiated emissions limits as stated Section 15.209.

**NOTE:** See the following page(s) for the graph(s) made showing compliance for Restricted Band and Band Edge Compliance:



1250 Peterson Dr., Wheeling, IL 60090

Company: 1 Model Tested: 0 Report Number:

RF Technologies, Inc. 0800-0349 14032

APPENDIX A

# DATA AND GRAPH(S) TAKEN SHOWING

# THE RESTRICTED BAND COMPLIANCE

# PART 15.247(c)



RF Technologies, Inc. sted: 0800-0349 mber: 14032

1250 Peterson Dr., Wheeling, IL 60090

## APPENDIX A

# Radiated Spurious Emissions in Restricted Bands - 30 MHz to 25 GHz Tested at a 3 Meter Distance

EUT:	SG-Pendant
Manufacturer:	RF Technologies
<b>Operating Condition:</b>	70 deg F; 27% R.H.
Test Site:	Site 3
Operator:	Craig B
Test Specification:	FCC Part 15.247(d) and FCC Part 15.205
Comment:	Continuous transmit.
Date:	01/14/2008

Notes: (1) Peak measurements were taken with RBW = 1 MHz, VBW = 3 MHz
(2) Average measurements were taken with RBW = 1 MHz, VBW = 10 Hz
(3) All other restricted band emissions at least 20 dB under the limit.

### Channel 11 Antenna A:

Frequency	Measurement	Ant.	Level	Antenna	System	Total	Duty Cycle	Final	Limit	Margin	Comment
	Туре	Pol.		Factor	Loss	Level	Correction	Corrected			
(GHz)			(dBuV)	(dB/m)	(dB)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
4.81	Average	Vert	56.10	32.82	-32.2	56.72	-21.45	35.27	54	18.73	Res. Band
4.81	Max Peak	Vert	64.36	32.82	-32.2	64.98		64.98	74	9.02	Res. Band
4.81	Average	Horz	56.08	32.82	-32.2	56.70	-21.45	35.25	54	18.75	Res. Band
4.81	Max Peak	Horz	64.61	32.82	-32.2	65.23		65.23	74	8.77	Res. Band



RF Technologies, Inc. sted: 0800-0349 mber: 14032

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## APPENDIX A

# Radiated Spurious Emissions in Restricted Bands - 30 MHz to 25 GHz Tested at a 3 Meter Distance

EUT:	SG-Pendant
Manufacturer:	RF Technologies
<b>Operating Condition:</b>	70 deg F; 27% R.H.
Test Site:	Site 3
Operator:	Craig B
Test Specification:	FCC Part 15.247(d) and FCC Part 15.205
Comment:	Continuous transmit.
Date:	01/14/2008

Notes: (1) Peak measurements were taken with RBW = 1 MHz, VBW = 3 MHz
(2) Average measurements were taken with RBW = 1 MHz, VBW = 10 Hz
(3) All other restricted band emissions at least 20 dB under the limit.

### Channel 18 Antenna A:

Frequency	Measurement	Ant.	Level	Antenna	System	Total	Duty Cycle	Final	Limit	Margin	Comment
	Туре	Pol.		Factor	Loss	Level	Correction	Corrected			
(GHz)			(dBuV)	(dB/m)	(dB)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
4.88	Average	Vert	56.18	32.96	-32.1	57.04	-21.45	35.59	54	18.41	Res. Band
4.88	Max Peak	Vert	64.54	32.96	-32.1	65.40		65.40	74	8.60	Res. Band
4.88	Average	Horz	57.24	32.96	-32.1	58.10	-21.45	36.65	54	17.35	Res. Band
4.88	Max Peak	Horz	66.26	32.96	-32.1	67.12		67.12	74	6.88	Res. Band



RF Technologies, Inc. sted: 0800-0349 mber: 14032

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## APPENDIX A

# Radiated Spurious Emissions in Restricted Bands - 30 MHz to 25 GHz Tested at a 3 Meter Distance

EUT:	SG-Pendant
Manufacturer:	RF Technologies
<b>Operating Condition:</b>	70 deg F; 27% R.H.
Test Site:	Site 3
<b>Operator:</b>	Craig B
Test Specification:	FCC Part 15.247(d) and FCC Part 15.205
Comment:	Continuous transmit.
Date:	01/14/2008

Notes: (1) Peak measurements were taken with RBW = 1 MHz, VBW = 3 MHz
(2) Average measurements were taken with RBW = 1 MHz, VBW = 10 Hz
(3) All other restricted band emissions at least 20 dB under the limit.

#### Channel 26 Antenna A:

Frequency	Measurement	Ant.	Level	Antenna	System	Total	Duty Cycle	Final	Limit	Margin	Comment
	Туре	Pol.		Factor	Loss	Level	Correction	Corrected			
(GHz)			(dBuV)	(dB/m)	(dB)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
4.96	Average	Vert	54.85	33.12	-32.0	55.97	-21.45	34.52	54	19.48	Res. Band
4.96	Max Peak	Vert	63.47	33.12	-32.0	64.59		64.59	74	9.41	Res. Band
4.96	Average	Horz	52.77	33.12	-32.0	53.89	-21.45	32.44	54	21.56	Res. Band
4.96	Max Peak	Horz	61.76	33.12	-32.0	62.88		62.88	74	11.12	Res. Band



RF Technologies, Inc. sted: 0800-0349 mber: 14032

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## APPENDIX A

# Radiated Spurious Emissions in Restricted Bands - 30 MHz to 25 GHz Tested at a 3 Meter Distance

EUT:	SG-Pendant
Manufacturer:	RF Technologies
<b>Operating Condition:</b>	70 deg F; 27% R.H.
Test Site:	Site 3
Operator:	Craig B
Test Specification:	FCC Part 15.247(d) and FCC Part 15.205
Comment:	Continuous transmit.
Date:	01/14/2008

Notes: (1) Peak measurements were taken with RBW = 1 MHz, VBW = 3 MHz
(2) Average measurements were taken with RBW = 1 MHz, VBW = 10 Hz
(3) All other restricted band emissions at least 20 dB under the limit.

### Channel 11 Antenna B:

Frequency	Measurement	Ant.	Level	Antenna	System	Total	Duty Cycle	Final	Limit	Margin	Comment
	Туре	Pol.		Factor	Loss	Level	Correction	Corrected			
(GHz)			(dBuV)	(dB/m)	(dB)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
4.81	Average	Vert	56.03	32.82	-32.2	56.65	-21.45	35.20	54	18.80	Res. Band
4.81	Max Peak	Vert	64.59	32.82	-32.2	65.21		65.21	74	8.79	Res. Band
4.81	Average	Horz	52.87	32.82	-32.2	53.49	-21.45	32.04	54	21.96	Res. Band
4.81	Max Peak	Horz	61.74	32.82	-32.2	62.36		62.36	74	11.64	Res. Band



RF Technologies, Inc. sted: 0800-0349 mber: 14032

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## APPENDIX A

# Radiated Spurious Emissions in Restricted Bands - 30 MHz to 25 GHz Tested at a 3 Meter Distance

EUT:	SG-Pendant
Manufacturer:	RF Technologies
<b>Operating Condition:</b>	70 deg F; 27% R.H.
Test Site:	Site 3
Operator:	Craig B
Test Specification:	FCC Part 15.247(d) and FCC Part 15.205
Comment:	Continuous transmit.
Date:	01/14/2008

Notes: (1) Peak measurements were taken with RBW = 1 MHz, VBW = 3 MHz
(2) Average measurements were taken with RBW = 1 MHz, VBW = 10 Hz
(3) All other restricted band emissions at least 20 dB under the limit.

### Channel 18 Antenna B:

Frequency	Measurement	Ant.	Level	Antenna	System	Total	Duty Cycle	Final	Limit	Margin	Comment
	Туре	Pol.		Factor	Loss	Level	Correction	Corrected			
(GHz)			(dBuV)	(dB/m)	(dB)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
4.88	Average	Vert	58.08	32.96	-32.1	58.94	-21.45	37.49	54	16.51	Res. Band
4.88	Max Peak	Vert	66.47	32.96	-32.1	67.33		67.33	74	6.67	Res. Band
4.88	Average	Horz	55.79	32.96	-32.1	56.65	-21.45	35.20	54	18.80	Res. Band
4.88	Max Peak	Horz	64.35	32.96	-32.1	65.21		65.21	74	8.79	Res. Band



RF Technologies, Inc. sted: 0800-0349 mber: 14032

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## APPENDIX A

# Radiated Spurious Emissions in Restricted Bands - 30 MHz to 25 GHz Tested at a 3 Meter Distance

EUT:	SG-Pendant
Manufacturer:	RF Technologies
<b>Operating Condition:</b>	70 deg F; 27% R.H.
Test Site:	Site 3
Operator:	Craig B
Test Specification:	FCC Part 15.247(d) and FCC Part 15.205
Comment:	Continuous transmit.
Date:	01/14/2008

Notes: (1) Peak measurements were taken with RBW = 1 MHz, VBW = 3 MHz
(2) Average measurements were taken with RBW = 1 MHz, VBW = 10 Hz
(3) All other restricted band emissions at least 20 dB under the limit.

### Channel 26 Antenna B:

Frequency	Measurement	Ant.	Level	Antenna	System	Total	Duty Cycle	Final	Limit	Margin	Comment
	Туре	Pol.		Factor	Loss	Level	Correction	Corrected			
(GHz)			(dBuV)	(dB/m)	(dB)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
4.96	Average	Vert	58.51	33.12	-32.0	59.63	-21.45	38.18	54	15.82	Res. Band
4.96	Max Peak	Vert	67.10	33.12	-32.0	68.22		68.22	74	5.78	Res. Band
4.96	Average	Horz	55.12	33.12	-32.0	56.24	-21.45	34.79	54	19.21	Res. Band
4.96	Max Peak	Horz	66.21	33.12	-32.0	67.33		67.33	74	6.67	Res. Band



# DATA AND GRAPH(S) TAKEN SHOWING

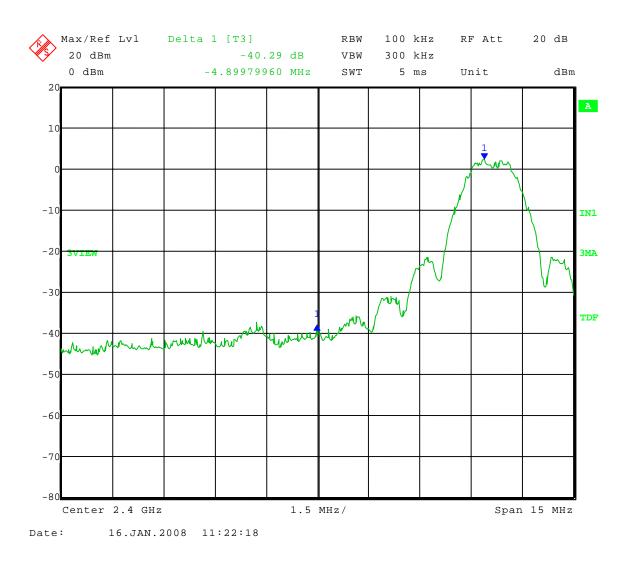
# THE BAND EDGE <u>CONDUCTED</u> COMPLIANCE

PART 15.247(c)



Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Low Band-Edge Compliance - Conducted
Operator:	Craig B
Comment:	Low Channel: Frequency – 2.405 GHz
	Antenna A

Band-Edge Frequency = 2.4 GHz Band-Edge > 20 dB Below Peak In-Band Emission

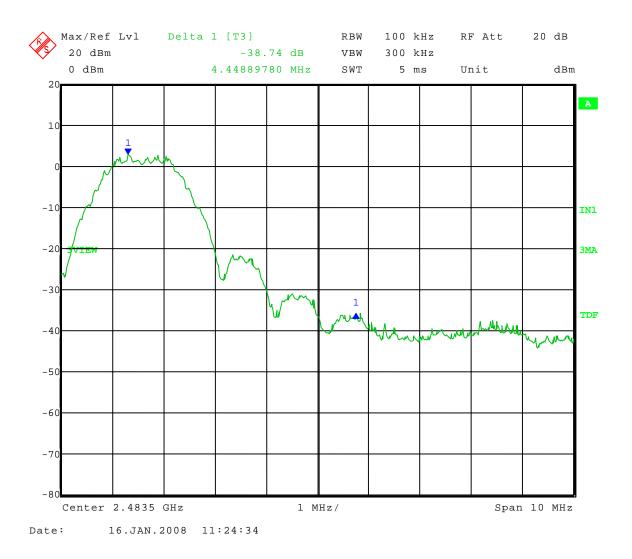




Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Upper Band-Edge Compliance - Conducted
Operator:	Craig B

Comment: High Channel: Frequency – 2.480 GHz Antenna A

> Band-Edge Frequency = 2.4835 GHz Band-Edge > 20 dB Below Peak In-Band Emission

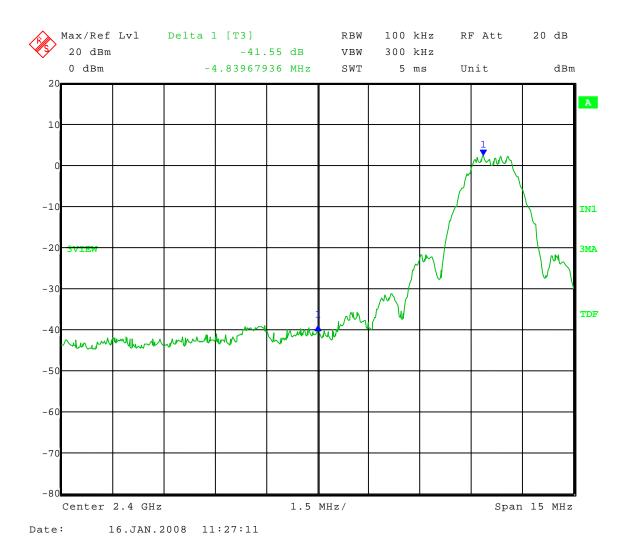




Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Low Band-Edge Compliance - Conducted
Operator:	Craig B

## Comment: Low Channel: Frequency – 2.405 GHz Antenna B

Band-Edge Frequency = 2.4 GHz Band-Edge > 20 dB Below Peak In-Band Emission

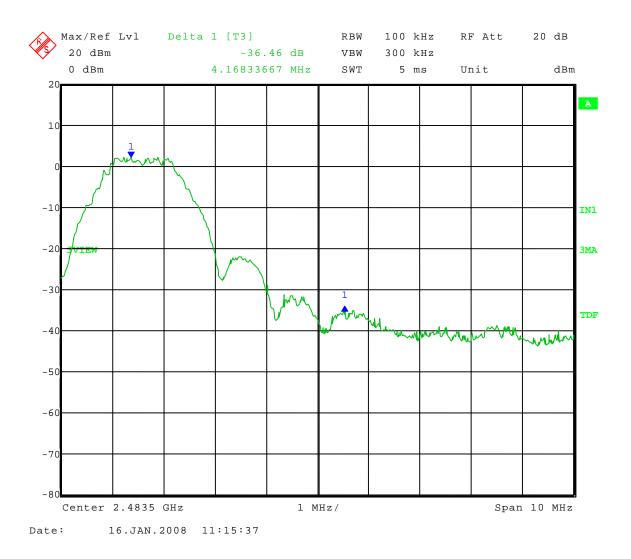




Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Upper Band-Edge Compliance - Conducted
Operator:	Craig B

Comment: High Channel: Frequency – 2.480 GHz Antenna B

> Band-Edge Frequency = 2.4835 GHz Band-Edge > 20 dB Below Peak In-Band Emission





# DATA AND GRAPH(S) TAKEN SHOWING

# THE UPPER BAND EDGE

# PART 15.247(c)

# BAND EDGE FALLS ON THE RESTRICTED

# FREQUENCY BAND



Company: RF Technologies, Inc. 0800-0349 Model Tested: Report Number: 14032

## Radiated Upper Band-Edge measurement

Test Procedure: "Measurement of Digital Transmission Systems Operating under Section 15.247 (March 23, 2005)

The EUT was investigated at the low and high channels of operation to determine band-edge compliance. Because the upper band-edge coincides with a restricted band, bandedge compliance for the upper band-edge was determined using the radiated mark-delta method. The radiated field strength of the fundamental emission was first determined and then the mark-delta method was used to determine the field strength of the band-edge emissions.

The lower band-edge compliance was determined using the marker-delta method in which the radio frequency power that is produced by the EUT is at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power.

Upper Band-Edge Marker Delta Method Antenna A (worst-case)

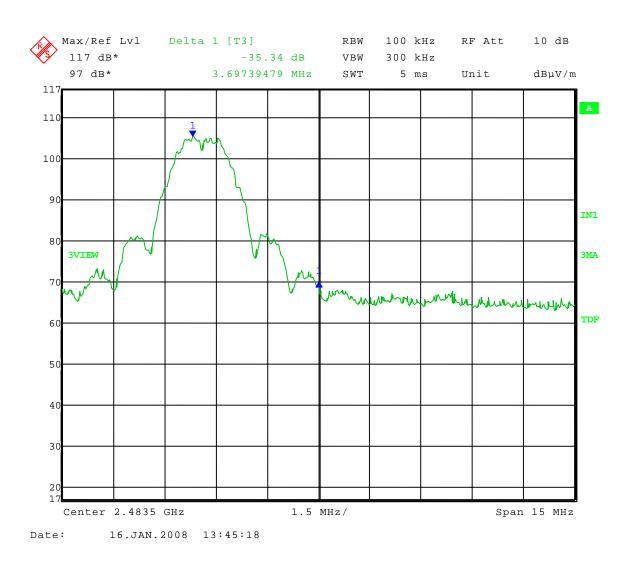
Frequency (MHz)	Antenna Polarity (H/V)	Fundamental Field Strength (dBµV/m)	Duty Cycle Correction (dB)	Delta- Marker (dB)	Band-Edge Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2480 (Peak)	V	98.44	N/A	-35.34	63.10	74	10.90
2480 (Avg)	V	96.08	-21.45	-35.34	39.29	54	14.71



Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Upper Band-Edge Radiated – Marker Delta Method
Operator:	Craig B

Comment:

High Channel: Frequency - 2.480 GHz





### 6.0 FIELD STRENGTH OF FUNDAMENTAL AND SPURIOUS EMISSION MEASUREMENTS

The radiated measurements made at D.L.S. Electronic Systems, Inc., for the Help Alert Pendant, Model Number: 0800-0349, are shown in tabulated and graph form. Preliminary radiation measurements were performed at a 3 meter test distance with the limits adjusted linearly when required. The frequency range from 30 MHz to over 960 MHz, depending upon the fundamental frequency as stated in Part 15.33a, was automatically scanned and plotted at various angles.

Measurements for the Help Alert Pendant were made up to 25000 MHz, in accordance with Section 15.33a for Intentional Radiators with a fundamental frequency of 2405 GHz - 2480 GHz MHz. For intentional radiators, the frequency range to be investigated is determined by the lowest radio frequency generated by the device without going below 30 MHz, up to at least the tenth harmonic of the highest fundamental frequency or 10 GHz, whichever is lower. At those frequencies where significant signals were detected, measurements were made over the entire frequency range specified in FCC Part 15, Subpart C, Section 15.247 at the open field test site, located at Genoa City, Wisconsin, FCC file number **31040/SIT**. When required, limits were extrapolated using a linear extrapolation.

All signals in the frequency range of 30 MHz to 2000 MHz were measured with a Biconical Antenna or tuned dipoles and from 200 MHz to 1000 MHz, a Log Periodic or Tuned Dipoles were used. From 1000 MHz to 25 GHz Horn Antennas were used. During the test the equipment was rotated and the antenna was raised and lowered from 1 meter to 4 meters to find the maximum level of emissions. In order to find maximum emissions, the cables were moved through all the positions the equipment would be expected to experience in the field. The EUT, peripheral equipment and cables were configured to meet the conditions in ANSI C63.4-2003, Clauses 6 & 8. Tests were made with the receive antenna(s) in both the horizontal and vertical planes of polarization. In each case, the table was rotated to find the maximum emissions.



# 6.0 FIELD STRENGTH OF FUNDAMENTAL AND SPURIOUS EMISSION MEASUREMENTS (CON'T)

As stated in Section 15.247(b) the allowed maximum peak output power of the transmitter shall not exceed 1 Watt. In any 100 kHz bandwidth outside these frequency bands (the power that is produced by the modulation products of the spreading sequence), the information sequence and the carrier frequency shall be either at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. Attenuation below the general limits specified in 15.209 is not required.

Field strength limits are at a distance of 3 meters. The emission limits shown are based on measurement instrumentation employing an average detector.

Emissions radiated outside of the specified frequency bands, except for harmonics are attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Preliminary radiated emission measurements were performed at a 3 meter test distance. The frequency range from 30 MHz to 1000 MHz was automatically scanned and plotted at various angles.

## NOTE:

All radiated emissions measurements were made at a test room temperature of **70°F** at **27%** relative humidity.



# RADIATED DATA AND GRAPH(S) TAKEN FOR

# FIELD STRENGTH OF FUNDAMENTAL AND

# SPURIOUS EMISSION MEASUREMENTS

# PART 15.247

30 MHz - 1000 MHz

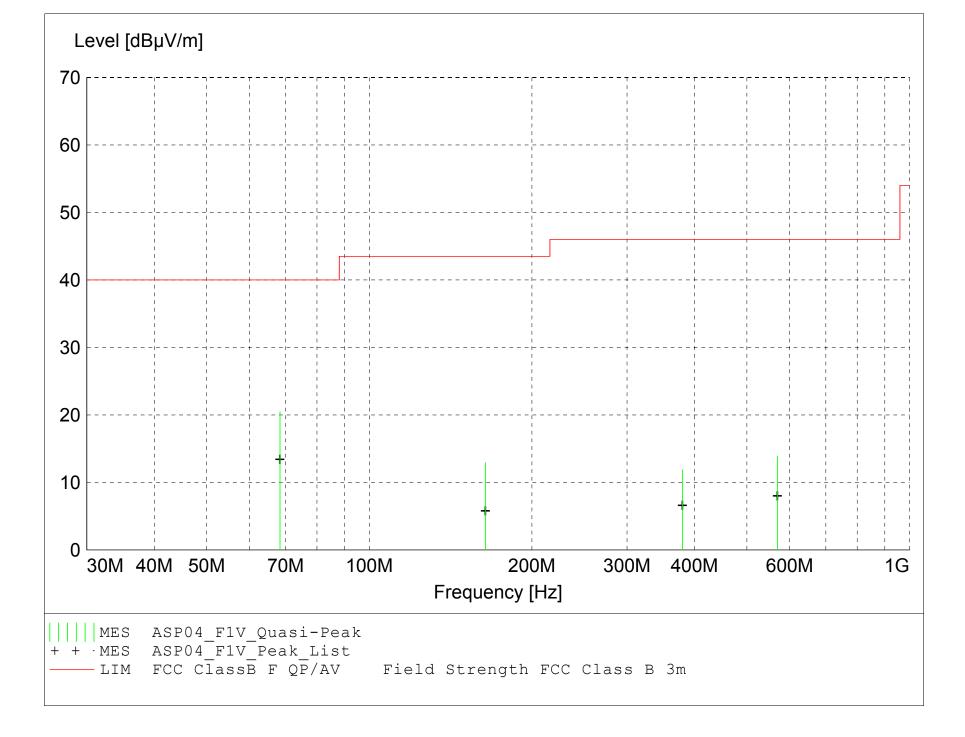
#### FCC Part 15 Class B

#### Electric Field Strength

EUT:	SG-Pendant	
Manufacturer:	RF Technologies, Inc.	
Operating Condition:	71 deg. F; 33% R.H.	
Test Site:	DLS O.F. Site 3	
Operator:	Craig B	
Test Specification:	Transmit and Receive modes	
Comment:	Low, Mid, & High channels;	Antennas A & B
	Date: 01-10-2008	

#### TEXT: "Site 3 MidV 3M"

Short Description: Test Set-up Vert30-1000MHz TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/005 Antennas ---Biconical -- EMCO 3104C SN: 9701-4785 Log Periodic -- EMCO 3146 SN: 9702-4895 Pre-Amp --- Rohde&Schwarz TS-PR10 SN: 032001/005 TEST SET-UP: EUT Measured at 3 Meters with VERTICAL Antenna Polarization



## MEASUREMENT RESULT: "ASP04\_F1V\_Final"

1/10/2008 11:39AM

Frequency	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
		Factor	Loss	Level			Ant.	Angle	Detector	
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
68.345000	36.47	7.85	-23.8	20.5	40.0	19.5	1.00	0	QUASI-PEAK	Noise Floor
164.105000	22.19	13.95	-23.2	12.9	43.5	30.6	1.00	135	QUASI-PEAK	Noise Floor
569.400000	16.03	18.40	-20.5	13.9	46.0	32.1	1.00	225	QUASI-PEAK	Noise Floor
379.970000	18.41	14.80	-21.3	11.9	46.0	34.1	1.30	45	QUASI-PEAK	Noise Floor

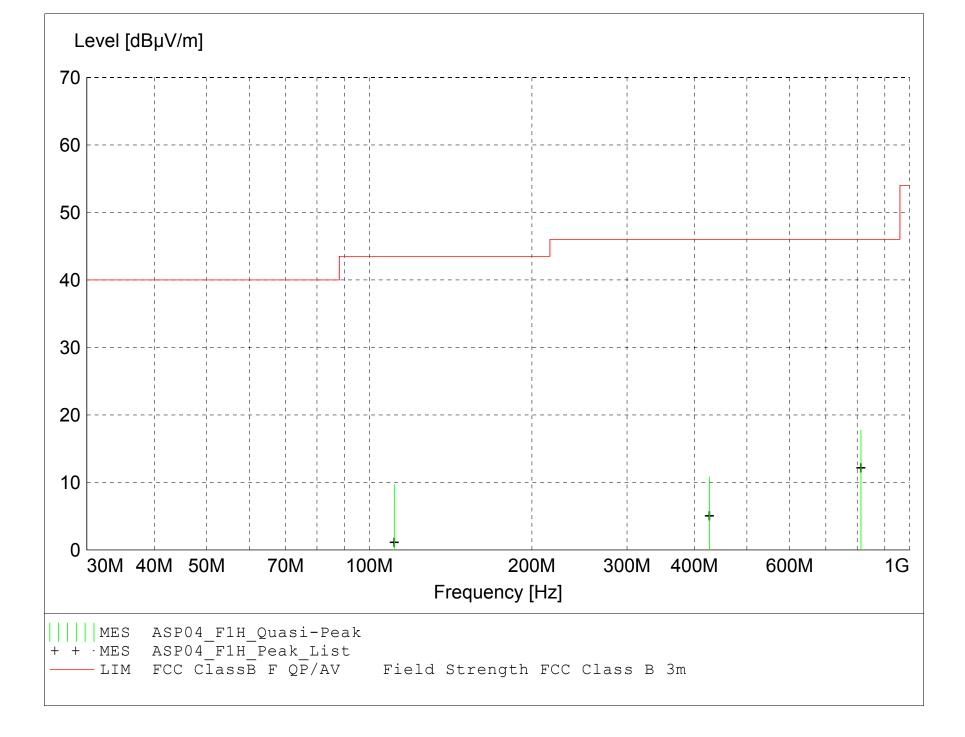
#### FCC Part 15 Class B

#### Electric Field Strength

EUT:	SG-Pendant	
Manufacturer:	RF Technologies, Inc.	
Operating Condition:	71 deg. F; 33% R.H.	
Test Site:	DLS O.F. Site 3	
Operator:	Craig B	
Test Specification:	Transmit and Receive modes	
Comment:	Low, Mid, & High channels;	Antennas A & B
	Date: 01-10-2008	

#### TEXT: "Site 3 MidH 3M"

Short Description: Test Set-up Horz30-1000MHz TEST EQUIPMENT: Receiver --- Rohde&Schwarz ESI 40 SN: 837808/005 Antennas ---Biconical -- EMCO 3104C SN: 9701-4785 Log Periodic -- EMCO 3146 SN: 9702-4895 Pre-Amp --- Rohde&Schwarz TS-PR10 SN: 032001/005 TEST SET-UP: EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization



## MEASUREMENT RESULT: "ASP04\_F1H\_Final"

1/10/2008 11:36AM

Frequency	Level	Antenna	System	Total	Limit	Margin	Height	EuT	Final	Comment
		Factor	Loss	Level			Ant.	Angle	Detector	
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
812.860000	15.98	20.90	-19.1	17.7	46.0	28.3	1.20	315	QUASI-PEAK	Noise Floor
111.260000	21.15	12.01	-23.5	9.7	43.5	33.8	2.80	180	QUASI-PEAK	Noise Floor
426.060000	15.92	16.00	-21.1	10.8	46.0	35.2	2.70	0	QUASI-PEAK	Noise Floor



# RADIATED DATA AND GRAPH(S) TAKEN FOR

# E.I.R.P. OF FUNDAMENTAL EMISSION

# MEASUREMENTS

# PART 15.247

# SUBSTITUTION METHOD



DLS Electronic Systems, Inc.

Company: RF Technologies Operator: Craig B Date of test: 01-14-2008 Temperature: 70 deg. F Humidity: 27% R.H.

EIRP - Substitution Method								
Model: SG-I	Model: SG-Pendant							
Channel: 11	Antenna A							
Frequency and Polarization (MHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Signal Gen.	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)	Strength of emission [EIRP] (mW)
2405 vertical	101.02	-4.74	1.85	9.59	3.00	30.00	27.00	2.00
2405 horizontal	101.27	-6.06	1.85	9.59	1.68	30.00	28.32	1.47

#### EIRP - Substitution Method

EIRP = Signal generator output - cable loss + antenna gain $<math>ERP_{(ref. to \frac{1}{2}\lambda dipole)} = Signal generator output - cable loss + antenna gain - 2.15$ 



DLS Electronic Systems, Inc.

Company: RF Technologies Operator: Craig B Date of test: 01-14-2008 Temperature: 70 deg. F Humidity: 27% R.H.

EIRP - Substitution Method								
Model: SG-Pendant								
Channel: 18	Antenna A							
Frequency and Polarization (MHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Signal Gen.	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)	Strength of emission [EIRP] (mW)
2440 vertical	99.95	-5.09	1.86	9.63	2.68	30.00	27.32	1.85
2440 horizontal	100.25	-6.86	1.86	9.63	0.91	30.00	29.09	1.23

#### EIRP - Substitution Method

$$\begin{split} EIRP &= Signal \; generator \; output \; - \; cable \; loss \; + \; antenna \; gain \\ ERP_{(ref. \; to \; \mbox{\tiny $12$$\lambda$ dipole})} &= \; Signal \; generator \; output \; - \; cable \; loss \; + \; antenna \; gain \; - \; 2.15 \end{split}$$



DLS Electronic Systems, Inc.

Company: RF Technologies Operator: Craig B Date of test: 01-14-2008 Temperature: 70 deg. F Humidity: 27% R.H.

EIRP - Substitution Method								
Model: SG-Pendant								
Channel: 26	Antenna A							
Frequency and Polarization (MHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Signal Gen.	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)	Strength of emission [EIRP] (mW)
2480 vertical	98.79	-6.69	1.86	9.68	1.13	30.00	28.87	1.30
2480 horizontal	96.41	-10.52	1.86	9.68	-2.70	30.00	32.70	0.54

#### EIRP - Substitution Method

$$\begin{split} EIRP &= Signal \; generator \; output \; - \; cable \; loss \; + \; antenna \; gain \\ ERP_{(ref. \; to \; \mbox{\tiny $12$$\lambda$ dipole})} &= \; Signal \; generator \; output \; - \; cable \; loss \; + \; antenna \; gain \; - \; 2.15 \end{split}$$



DLS Electronic Systems, Inc.

Company: RF Technologies Operator: Craig B Date of test: 01-14-2008 Temperature: 70 deg. F Humidity: 27% R.H.

EIRP - Substitution Method								
Model: SG-Pendant								
Channel: 11	Antenna B							
Frequency and Polarization (MHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Signal Gen.	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)	Strength of emission [EIRP] (mW)
2405 vertical	100.83	-4.93	1.85	9.59	2.81	30.00	27.19	1.91
2405 horizontal	99.35	-7.98	1.85	9.59	-0.24	30.00	30.24	0.95

#### EIRP - Substitution Method

EIRP = Signal generator output - cable loss + antenna gain $<math>ERP_{(ref. to \frac{1}{2}\lambda dipole)} = Signal generator output - cable loss + antenna gain - 2.15$ 



DLS Electronic Systems, Inc.

Company: RF Technologies Operator: Craig B Date of test: 01-14-2008 Temperature: 70 deg. F Humidity: 27% R.H.

EIRP - Substitution Method								
Model: SG-Pendant								
Channel: 18	Antenna B							
Frequency and Polarization (MHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Signal Gen.	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)	Strength of emission [EIRP] (mW)
2440 vertical	98.88	-6.16	1.86	9.63	1.61	30.00	28.39	1.45
2440 horizontal	99.27	-7.84	1.86	9.63	-0.07	30.00	30.07	0.98

#### EIRP - Substitution Method

$$\begin{split} EIRP &= Signal \; generator \; output \; - \; cable \; loss \; + \; antenna \; gain \\ ERP_{(ref. \; to \; \mbox{\tiny $12$$\lambda$ dipole})} &= \; Signal \; generator \; output \; - \; cable \; loss \; + \; antenna \; gain \; - \; 2.15 \end{split}$$



DLS Electronic Systems, Inc.

Company: RF Technologies Operator: Craig B Date of test: 01-14-2008 Temperature: 70 deg. F Humidity: 27% R.H.

EIRP - Substitution Method								
Model: SG-Pendant								
Channel: 26	Antenna B							
Frequency and Polarization (MHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Signal Gen.	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)	Strength of emission [EIRP] (mW)
2480 vertical	97.74	-7.74	1.86	9.68	0.08	30.00	29.92	1.02
2480 horizontal	98.10	-8.83	1.86	9.68	-1.01	30.00	31.01	0.79

#### EIRP - Substitution Method

$$\begin{split} EIRP &= Signal \; generator \; output \; - \; cable \; loss \; + \; antenna \; gain \\ ERP_{(ref. \; to \; \mbox{\tiny $12$$\lambda$ dipole})} &= \; Signal \; generator \; output \; - \; cable \; loss \; + \; antenna \; gain \; - \; 2.15 \end{split}$$



Company: Company: RF Techno Model Tested: 0800-0349 Report Number: 14032

RF Technologies, Inc.

# 6 dB BANDWIDTH GRAPHS

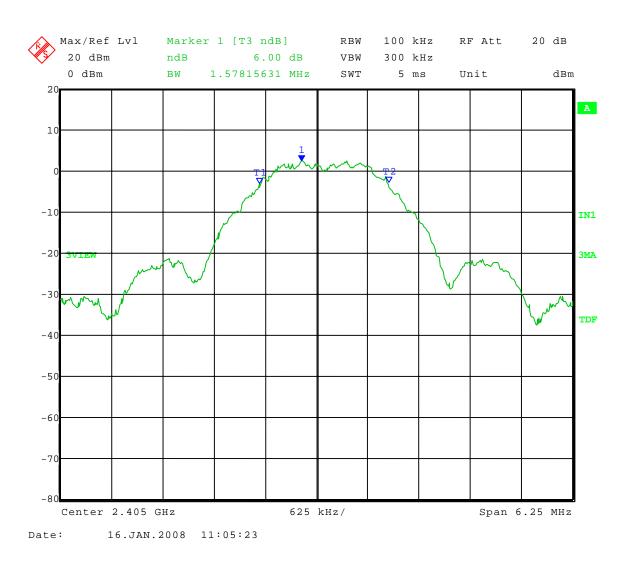
# PART 15.247

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Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	6 dB Bandwidth - Conducted
Operator:	Craig B

## Comment: Low Channel: Frequency – 2.405 GHz Antenna A

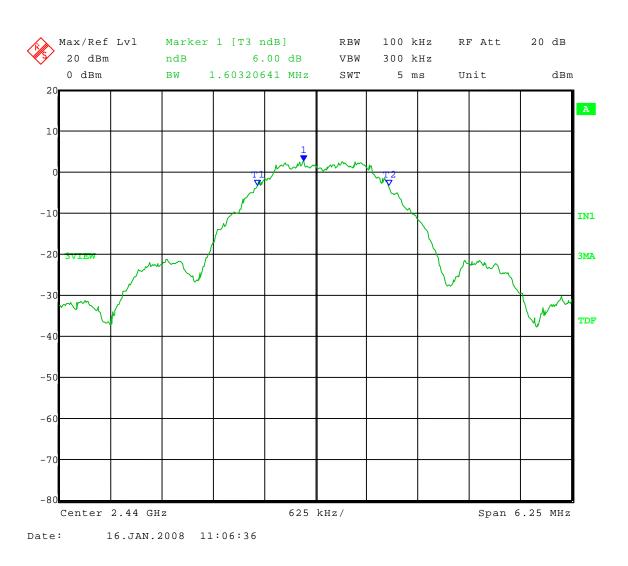


6 dB Bandwidth = 1.578 MHz



Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	6 dB Bandwidth - Conducted
Operator:	Craig B

## Comment: Middle Channel: Frequency – 2.440 GHz Antenna A

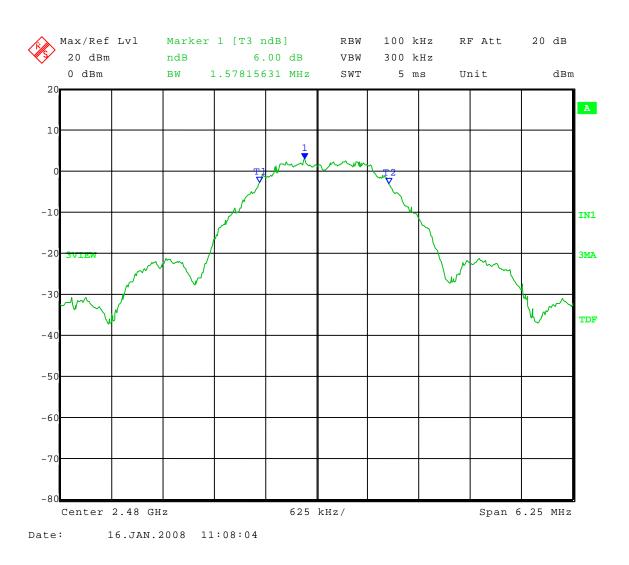


## 6 dB Bandwidth = 1.603 MHz



Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	6 dB Bandwidth - Conducted
Operator:	Craig B

Comment: High Channel: Frequency – 2.480 GHz Antenna A

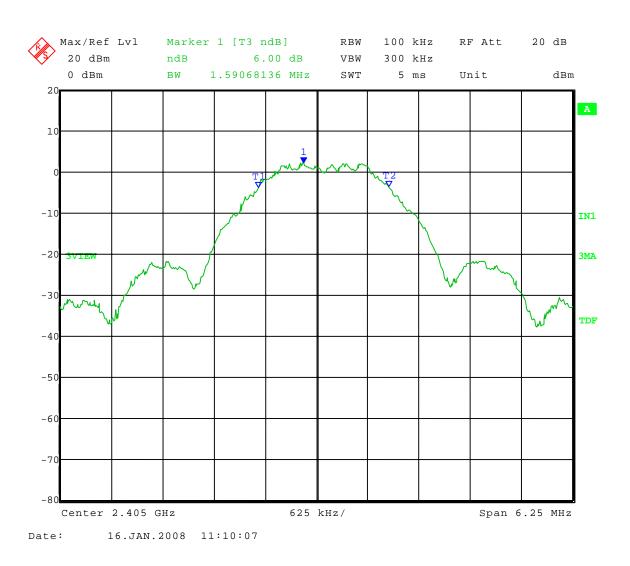


6 dB Bandwidth = 1.578 MHz



Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	6 dB Bandwidth - Conducted
Operator:	Craig B

# Comment: Low Channel: Frequency – 2.405 GHz Antenna B

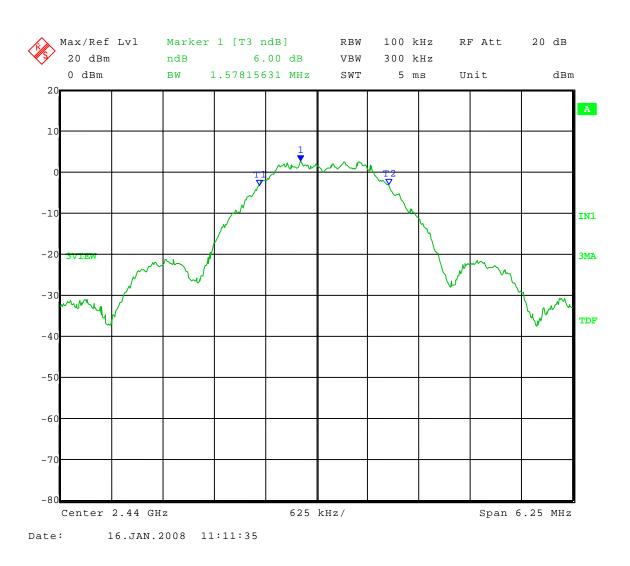


6 dB Bandwidth = 1.591 MHz



Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	6 dB Bandwidth - Conducted
Operator:	Craig B

## Comment: Middle Channel: Frequency – 2.440 GHz Antenna B

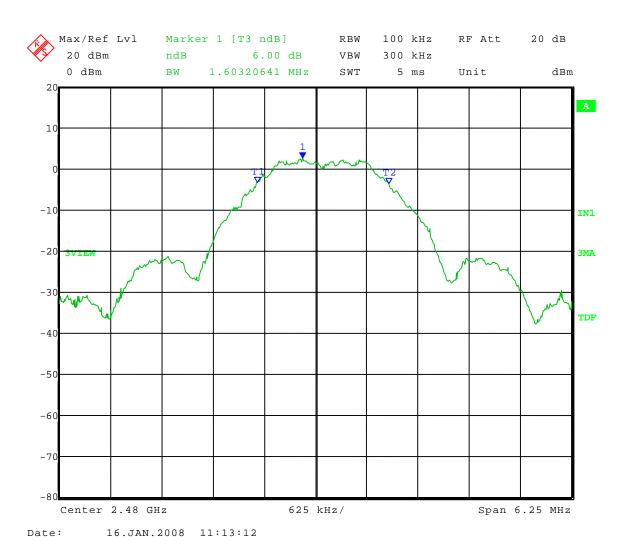


## 6 dB Bandwidth = 1.578 MHz



Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	6 dB Bandwidth - Conducted
Operator:	Craig B

## Comment: High Channel: Frequency – 2.480 GHz Antenna B



6 dB Bandwidth = 1.603 MHz



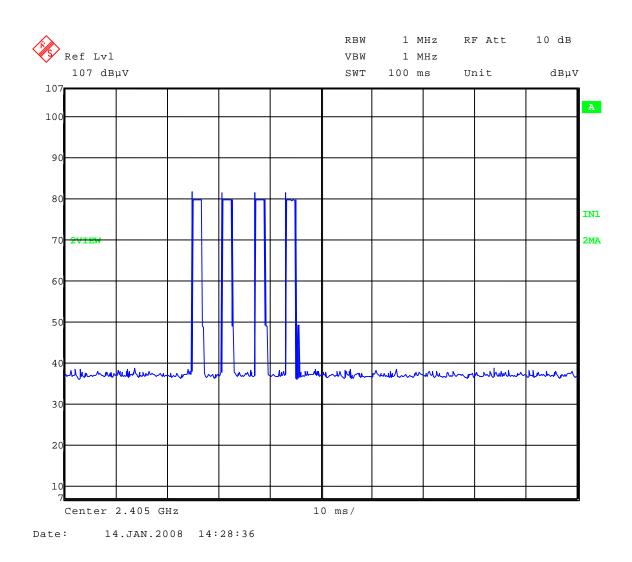
# DUTY CYCLE OF NORMAL UNIT GRAPH(S)

# PART 15.247



Test Date:	01-14-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Duty Cycle – maximum duty cycle during normal operation
Operator:	Craig B

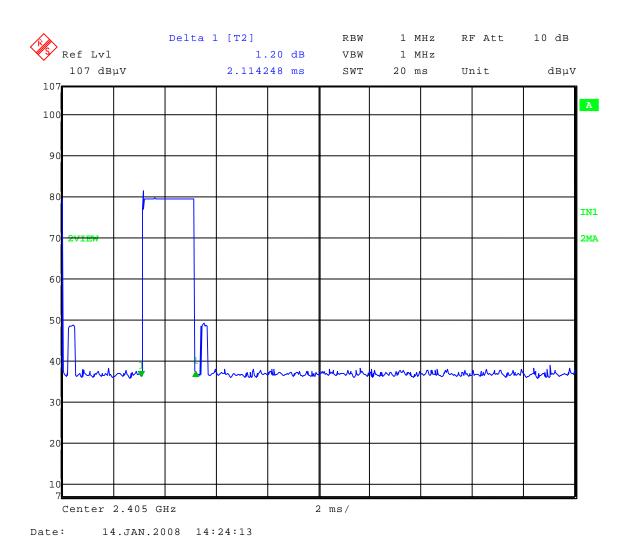
Comment: Total on Time =  $4 \times 2.114 \text{ ms} = 8.456 \text{ ms}$  during 100 ms Sweep 20 log (8.456/100) = -21.456 **Duty Cycle Correction Factor = 21.45 dB** 





Test Date:	01-14-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Duty Cycle – maximum duty cycle during normal operation
Operator:	Craig B

Comment: One pulse = 2.114 ms





# NUMBER OF HOPPING FREQUENCIES GRAPH(S)

# PART 15.247



# **RFT**echnologies™

3125 N. 126<sup>th</sup> St. Brookfield, WI 53005 1-800-669-9946 Ph: 262-790-1771 Fx: 262-790-1784 info@rft.com www.rft.com

Product Name:	Help Alert Pendant
Owner:	RF Technologies, Inc.
Owner Model Number:	0800-0349
FCC ID Number:	KXU-SPFSZ24
Canadian ID Number:	2719A- SPFSZ24

List of 16 frequencies (channels) used by the RF Technologies Help Alert Pendant.

All Zigbee radios use IEEE 802.15.4, which specifies the 16 channels to use. They start at 2405 MHz and are separated by 5 MHz. Therefore the channels are as follows:



# CONDUCTED PEAK OUTPUT POWER GRAPHS

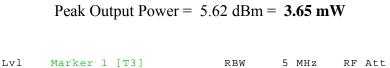
# PART 15.247

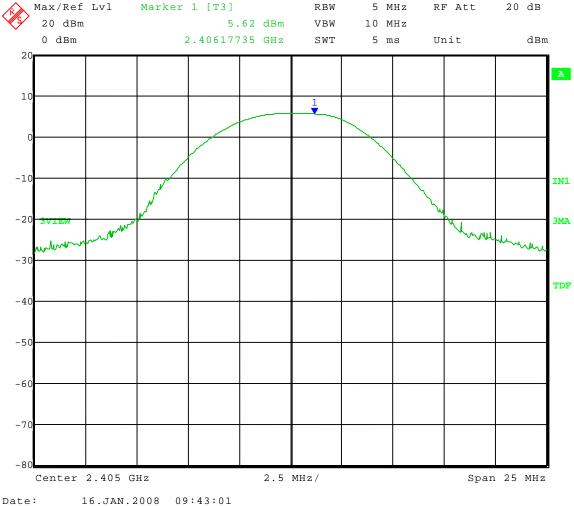
Page -91 of 104-



Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Peak Power Output - Conducted
Operator:	Craig B

# Comment: Low Channel: Frequency – 2.405 GHz Antenna A

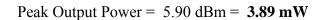


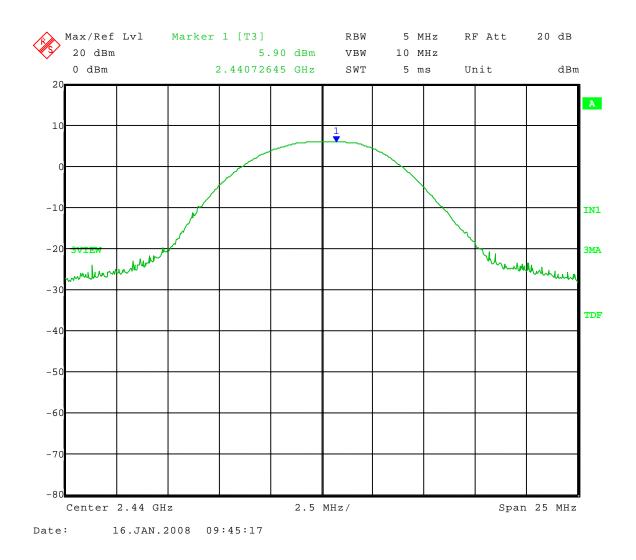




Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Peak Power Output - Conducted
Operator:	Craig B

# Comment: Mid Channel: Frequency – 2.440 GHz Antenna A



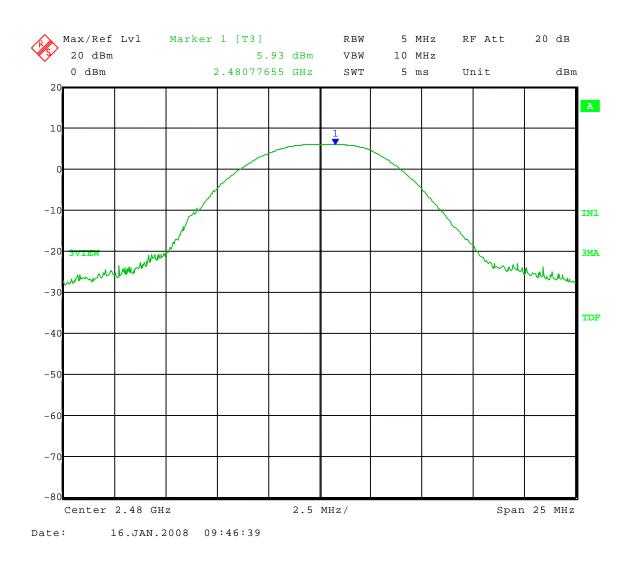




Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Peak Power Output - Conducted
Operator:	Craig B

#### Comment: High Channel: Frequency – 2.480 GHz Antenna A

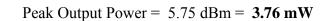
Peak Output Power = 5.93 dBm = 3.92 mW

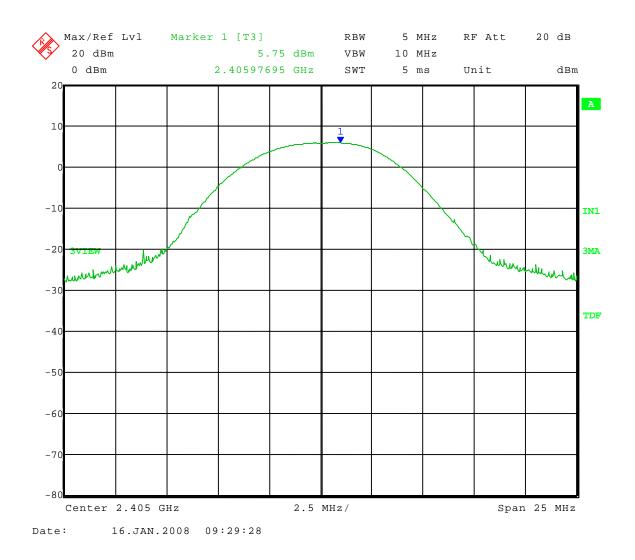




Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Peak Power Output - Conducted
Operator:	Craig B

# Comment: Low Channel: Frequency – 2.405 GHz Antenna B



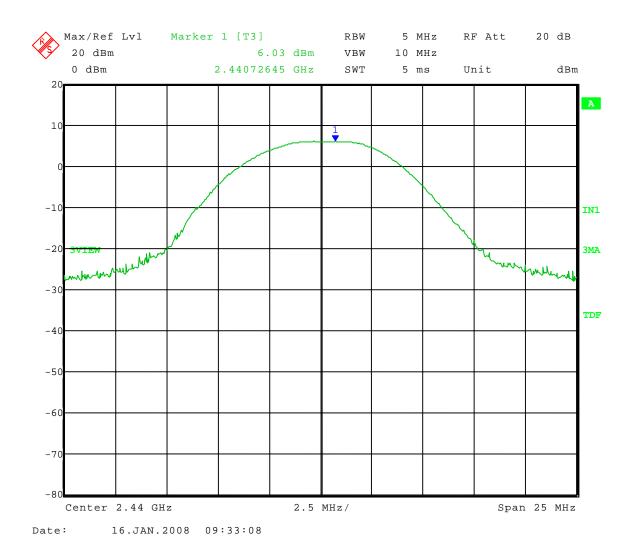




Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Peak Power Output - Conducted
Operator:	Craig B

# Comment: Mid Channel: Frequency – 2.440 GHz Antenna B

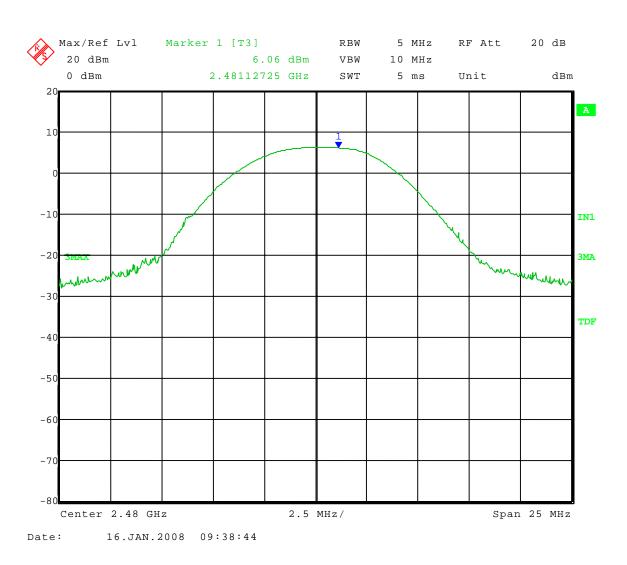
Peak Output Power = 6.03 dBm = 4.01 mW





Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Peak Power Output - Conducted
Operator:	Craig B

## Comment: High Channel: Frequency – 2.480 GHz Antenna B



Peak Output Power = 6.06 dBm = 4.04 mW



# PEAK POWER SPECTRAL DENSITY GRAPHS

# PART 15.247

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Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Peak Power Spectral Density - Conducted
Operator:	Craig B
-	-

#### Comment: Low Channel: Frequency – 2.405 GHz Antenna A Limit: 8 dBm

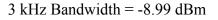
#### Max/Ref Lvl Marker 1 [T3] RBW 3 kHz RF Att 20 dB 20 dBm -9.50 dBm VBW 10 kHz 0 dBm 2.40552154 GHz SWT 500 s Unit dBm 20 A 10 huntun -10 IN1 M Munun monthem ....ll MN -20 ЗМА V -30 TDF -40 -50 -60 -70 -80 150 kHz/ Span 1.5 MHz Center 2.405 GHz Date: 16.JAN.2008 09:59:11

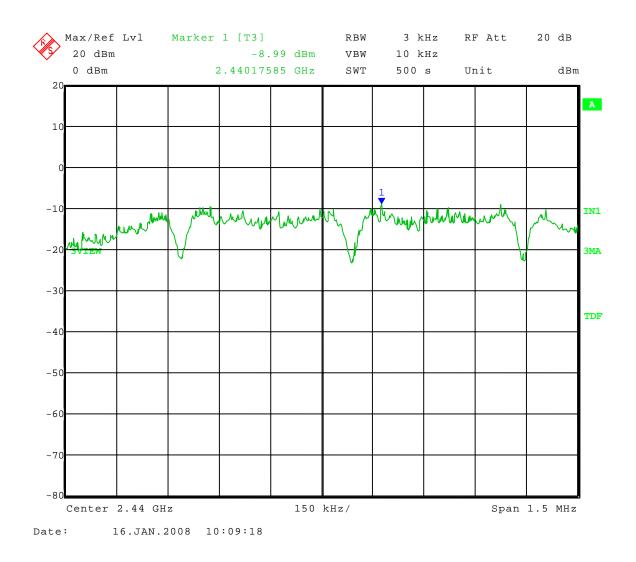
#### 3 kHz Bandwidth = -9.5 dBm



Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Peak Power Spectral Density - Conducted
Operator:	Craig B

Comment: Middle Channel: Frequency – 2.440 GHz Antenna A Limit: 8 dBm

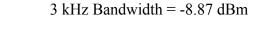


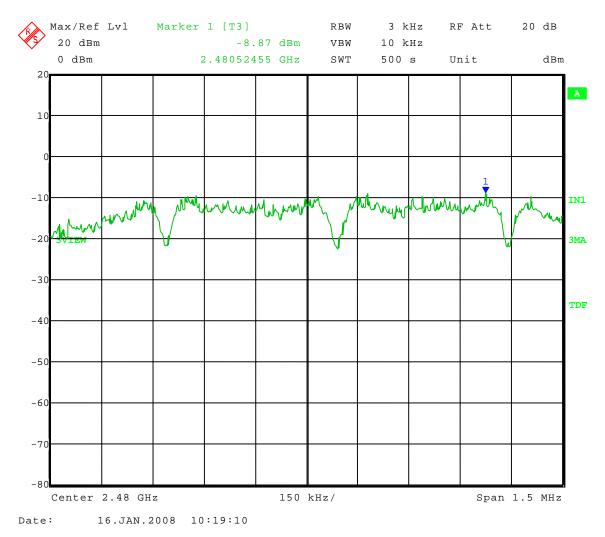




Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Peak Power Spectral Density - Conducted
Operator:	Craig B

Comment: High Channel: Frequency – 2.480 GHz Antenna A Limit: 8 dBm



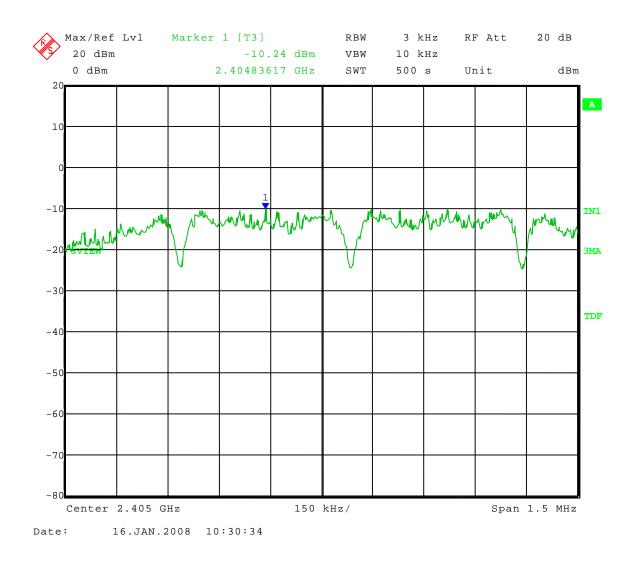




Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Peak Power Spectral Density - Conducted
Operator:	Craig B

# Comment:Low Channel: Frequency – 2.405 GHzAntenna BLimit:8 dBm

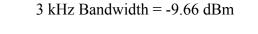
#### 3 kHz Bandwidth = -10.24 dBm

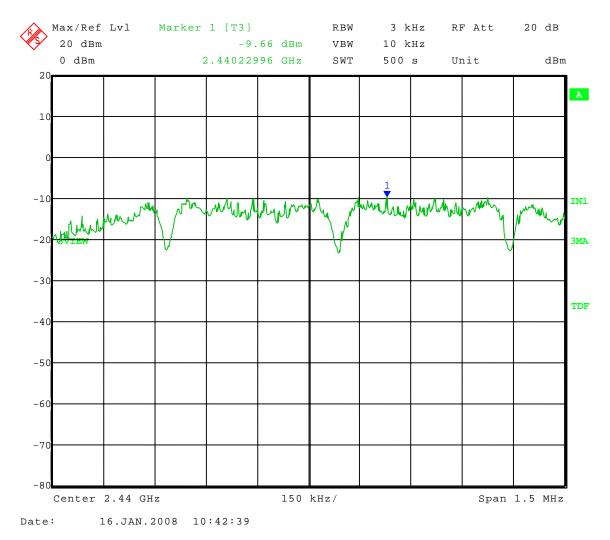




Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Peak Power Spectral Density - Conducted
Operator:	Craig B

Comment:Middle Channel: Frequency – 2.440 GHzAntenna BLimit:8 dBm







Test Date:	01-16-2008
Company:	RF Technologies
EUT:	SG-Pendant
Test:	Peak Power Spectral Density - Conducted
Operator:	Craig B

Comment: High Channel: Frequency – 2.480 GHz Antenna B Limit: 8 dBm

