ROGERS LABS, INC.
4405 West 259th Terrace
Louisburg, KS 66053
Phone / Fax (913) 837-3214

ENGINEERING TEST REPORT
FOR
APLLICATION of
GRANT of CERTIFICATION

FOR

CFR 47, PART 15C - INTENTIONAL RADIATORS
Paragraph 15.209
Radiated emission limits; general requirements

For

DIGITAL MONITORING PRODUCTS, INC.
2500 North Partnership Boulevard
Springfield, MO 65802-6310
Terry Shelton,

RFID READER
Model: 793 Keypad
Frequency 0.125 MHz
FCC ID#: CCK 793

Test Date: November 24, 2003

Certifying Engineer: Scot D Rogers

Scot D. Rogers
ROGERS LABS, INC.
4405 West 259th Terrace
Louisburg, KS 66053
Phone: (913) 837-3214
FAX: (913) 837-3214

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FORWARD:

The following is submitted for consideration in obtaining a Grant of Certification for intentional radiators operating under CFR Paragraph 15.209.

Name of Applicant:

DIGITAL MONITORING PRODUCTS, Inc.
2500 North Partnership Boulevard
Springfield, MO 65802-6310

Model: 793 Keypad.

FCC I.D.: CCK 793.

Frequency Range: 0.125 MHz.

Operating Power: 24.95E-6 W (3 meter effective radiated measurement).

1) Applicable Standards & Test Procedures

a) In accordance with the Federal Communications Code of Federal Regulations, dated October 1, 2002, Part 2, Subpart J, Paragraphs 2.907, 2.911, 2.913, 2.925, 2.926, 2.1031 through 2.1057, and applicable parts of paragraph 15, Part 15C Paragraph 15.209 the following is submitted:

b) Test procedures used are the established Methods of Measurement of Radio-Noise Emissions as described in the ANSI 63.4-1992 Document FCC, documents DA00-1407 and DA00-705 and/or TIA/EIA 603-1.

2.1033(b) Application for Certification

(1) Manufacturer: DIGITAL MONITORING PRODUCTS, INC.
2500 North Partnership Boulevard
Springfield, MO 65802-6310

(2) Identification: Model: 793 Keypad
FCC I.D.: CCK 793

(3) Instruction Book:

Refer to Exhibit for Instruction Manual.

(4) Description of Circuit Functions:

Refer to Exhibit of Operational Description.

(5) Block Diagram with Frequencies:

Refer to Exhibit of Operational Description.

(6) Report of Measurements:

Report of measurements follows in this Report.

(7) Photographs: Construction, Component Placement, etc.:

Refer to Exhibit for photographs of equipment.

(8) No Peripheral Equipment was Necessary.

(9) Transition Provisions of 15.37 are not being requested.

(10) Scanning receiver:

Not applicable, the unit is not a scanning receiver.

(11) Not Applicable. The EUT does not operate in the 59 – 64 GHz frequency band.

2) Equipment Tested

Equipment	Model	FCC I.D.#
EUT	793 Keypad	CCK 793
Alarm Panel	XR200	N/A

3) Equipment Function and Testing Procedures

The EUT is a 0.125 MHz radio transmitter used to read RFID tag information and send the data to an alarm panel for use in an alarm system installation. The 793 Keypad RFID READER is a wireless link used for interpreting data stored on a transponder card as key press information for the keypad. The RFID tag code is stored in the alarm panel and once the tag is placed in close proximity of the keypad, it reads the information and relays it to the alarm panel as key presses. The unit is marketed for use with personal identification badges holding the transponder and allowing the user to initiate key sequences to the alarm panel with the movement of the card in front of the keypad. The unit typically operates from a 12 volt dc source and has no provision to connect to utility power. For testing purposes, an alarm panel was connected to the EUT and conducted emissions data was then taken. The wall transformer, supplied by the manufacturer, was used to power the unit. The device utilizes a permanently connected antenna system with no provision for user replacement. The unit has no provision to connect to other external auxiliary equipment.

4) Equipment and Cable Configurations

Conducted Emission Test Procedure

The unit typically operates from 12 volt dc supplied by a control panel. The control panel typically operates from an ac wall transformer with battery backup supplied in the control panel enclosure. For testing purposes, a wall transformer was used to power the control panel and EUT for conducted emission testing. The test setup, including the EUT, was arranged in a typical equipment configuration and placed on a 1 x 1.5-meter wooden bench, 0.8 meters high located in a screen room. The power lines of the system were isolated from the power source using a standard LISN with a 50-µHy choke. EMI was coupled to the spectrum analyzer through a 0.1 µF capacitor internal to the LISN. The LISN was positioned on the floor beneath the wooden bench supporting the EUT. The power lines and cables were draped over the back edge of the table.

Radiated Emission Test Procedure:

The EUT was placed on a rotating 1 x 1.5-meter wooden platform, 0.8 meters above the ground plane at distances of 1, 3, and 10 meters from the FSM antenna. EMI energy was maximized by equipment placement, raising and lowering the FSM antenna, changing the antenna polarization, and by rotating the turntable. Each emission was maximized before data was taken using a spectrum analyzer. Refer to photographs in the exhibits for EUT placement.

5) List of Test Equipment

A Hewlett Packard 8591EM Spectrum Analyzer was used as the measuring device for the emissions testing of frequencies below 1 GHz. A Hewlett Packard 8562A Spectrum Analyzer was used as the measuring device for testing the emissions at frequencies above 1 GHz. The analyzer settings used are described in the following table. Refer to the appendix for a complete list of test equipment.

HP 8591 EM ANALYZER SETTINGS		
CONDUCTED EMISSIONS:		
RBW	AVG. BW	DETECTOR FUNCTION
9 kHz	30 kHz	Peak / Quasi Peak
RADIATED EMISSIONS: (Below 30 MHz)		
RBW	AVG. BW	DETECTOR FUNCTION
9 kHz	30 kHz	Peak / Average
RADIATED EMISSIONS: (Above 30 MHz)		
RBW	AVG. BW	DETECTOR FUNCTION
120 kHz	300 kHz	Peak / Quasi Peak
HP 8562A ANALYZER SETTINGS		
RBW	VIDEO BW	DETECTOR FUNCTION
100 kHz	100 kHz	PEAK
1 MHz	1 MHz	Peak / Average

EQUIPMENT MFG.	MODEL	CAL. DATES	DUE.
LISN Comp. Design	FCC-LISN-2-MOD.CD	10/03	10/04
Antenna ARA	BCD-235-B	10/03	10/04
Antenna EMCO	3147	10/03	10/04
Antenna EMCO	3143	5/03	5/04
Analyzer HP	8591EM	5/03	5/04
Analyzer HP	8562A	2/03	2/04

6) Units of Measurements

Conducted EMI: Data is in dBµV; dB referenced to one microvolt.

Radiated EMI: Data is in dBµV/m; dB/m referenced to one microvolt per meter.

7) Test Site Locations

Conducted EMI: The AC power line conducted emissions tests were performed in a shielded screen room located at Rogers Labs, Inc., 4405 W. 259th Terrace, Louisburg, KS.

Radiated EMI: The radiated emissions tests were performed at the 3 meters, Open Area Test Site (OATS) located at Rogers Labs, Inc., 4405 W. 259th Terrace, Louisburg, KS.

Site Approval: Refer to Appendix for FCC Site Approval Letter, Reference # 90910.

8) SUBPART B – UNINTENTIONAL RADIATORS

Conducted EMI

The EUT and support equipment was arranged in a typical equipment configuration and placed on a 1 x 1.5-meter wooden bench 80 cm above the conducting ground plane, floor of a screen room. The bench was positioned 40 cm away from the wall of the screen room. The LISN was positioned on the floor of the screen room 80 cm from the rear of the EUT. The manufacturer supplied AC power wall adapter for the support equipment was connected to the LISN. A second LISN was positioned on the floor of the screen room 80 cm from the rear of the supporting equipment. All other power cords except the EUT were then powered from the second LISN. EMI was coupled to the spectrum analyzer through a 0.1 µF capacitor, internal to the LISN. Power line conducted emissions testing was carried out individually for each current carrying conductor of the EUT. The excess length of lead between the system and the LISN receptacle was folded

back and forth to form a bundle not exceeding 40 cm in length. The screen room, conducting ground plane, analyzer, and LISN were bonded together to the protective earth ground. Preliminary testing was performed to identify the frequency of each radio frequency emission displaying the highest amplitude. The cables were repositioned to obtain maximum amplitude of measured EMI level. Once the worst-case configuration was identified, plots were made of the EMI from 0.15 MHz to 30 MHz then the data was recorded with maximum conducted emissions levels. Refer to figures one and two for plots of conducted emissions.

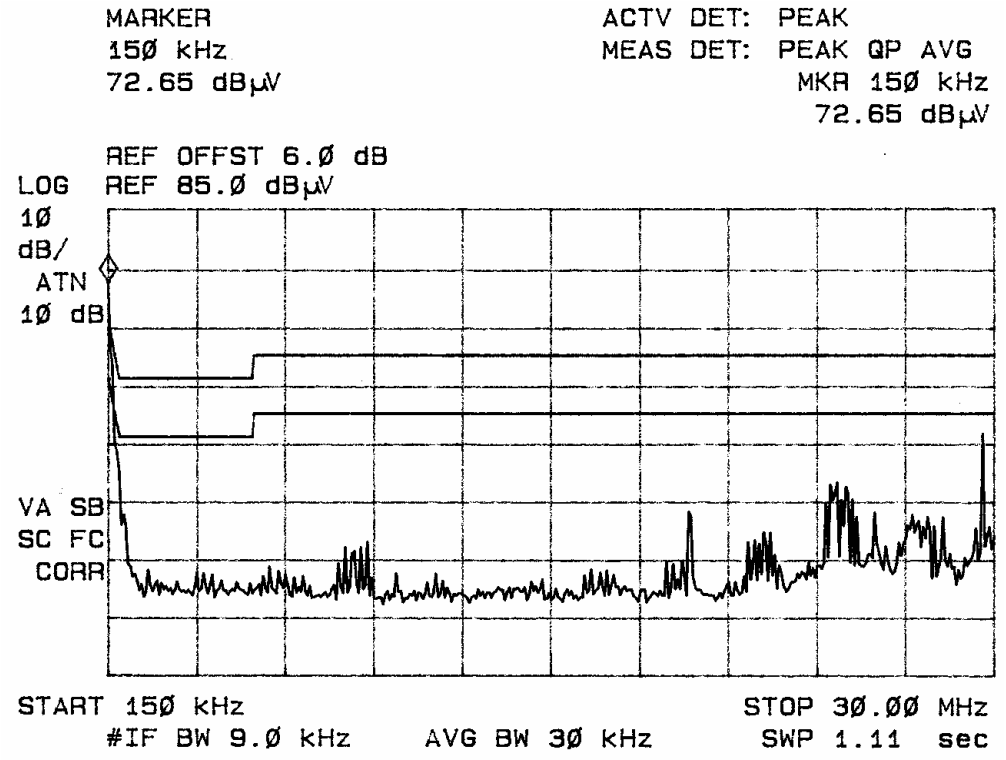

Figure one Line Conducted Emissions Line 1.

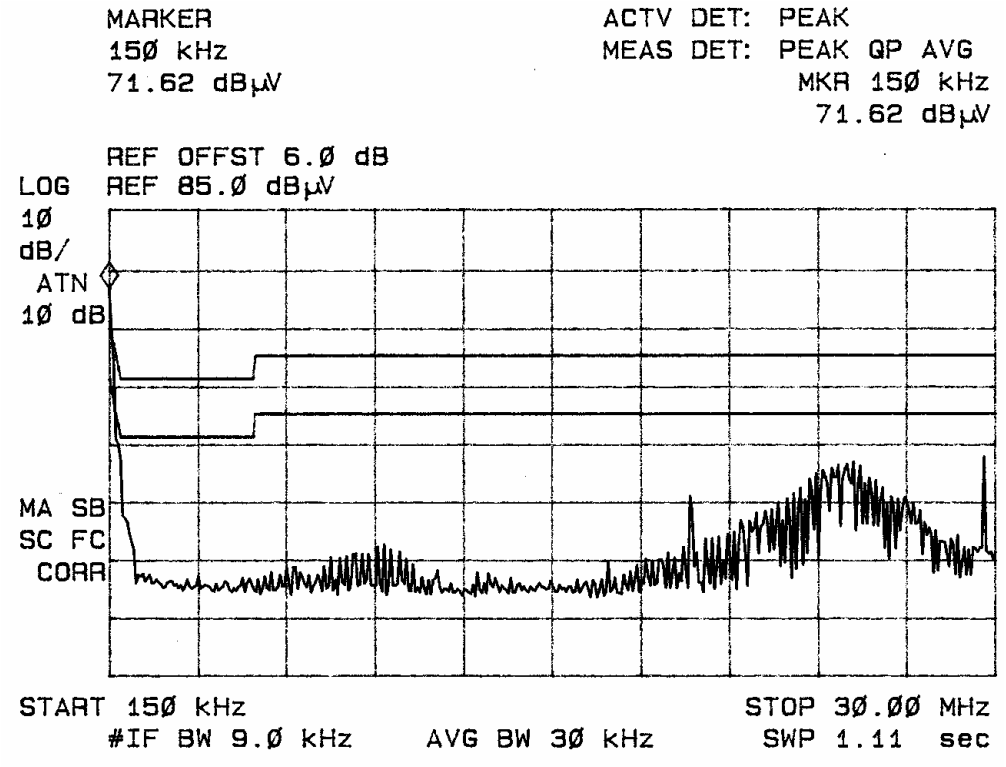

Figure two Line Conducted Emissions Line 2.

Radiated EMI

The EUT was arranged in a typical equipment configuration and operated through all of its various modes. Preliminary testing was performed in a screen room with the EUT positioned 1 meter from the FSM. Radiated emissions measurements were performed to identify the frequencies, which produced the highest emissions. Plots were made of the frequency spectrum from 30 MHz to 1,200 MHz for the preliminary testing. Refer to figures three and four for plots of the radiated emissions spectrum taken in a screen room at one meter distance. The highest radiated emission was then re-maximized at the OATS location before final radiated emissions measurements were performed. Final data was taken with the EUT located at the OATS at a distance of 10 meters between the EUT and the receiving antenna to demonstrate compliance with the general radiated emissions limits. The frequency spectrum from 30 MHz to 1,000 MHz was searched for radiated

emissions. Measured emission levels were maximized by EUT placement on the table, rotating the turntable through 360 degrees, varying the antenna height between 1 and 4 meters above the ground plane and changing antenna position between horizontal and vertical polarization. Antennas used were Broadband Biconical from 30 to 200 MHz, Biconilog from 30 to 1000 MHz, Log Periodic from 200 MHz to 5 GHz and or, pyramidal horns and mixers from 4 GHz to 10 GHz, notch filters and appropriate amplifiers were utilized. A loop antenna was used to measure the 125 kHz fundamental intentional radiator emission at distances of 1, 3, and 10 meters.

Sample Calculations:

RFS = Radiated Field Strength
dBµV/m @ 3m = dBµV + A.F. - Amplifier Gain
dBµV/m @ 3m = 46.9 + 5.8 - 30
= 22.7

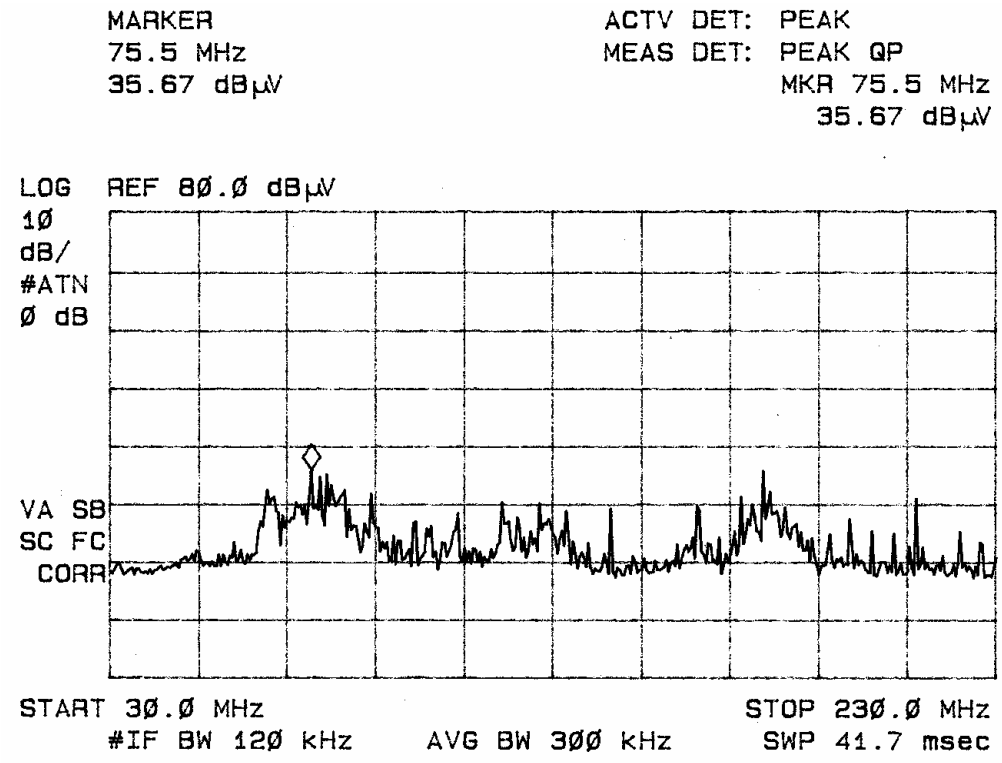

Figure three Radiated Emissions taken at 1 meter in screen room.

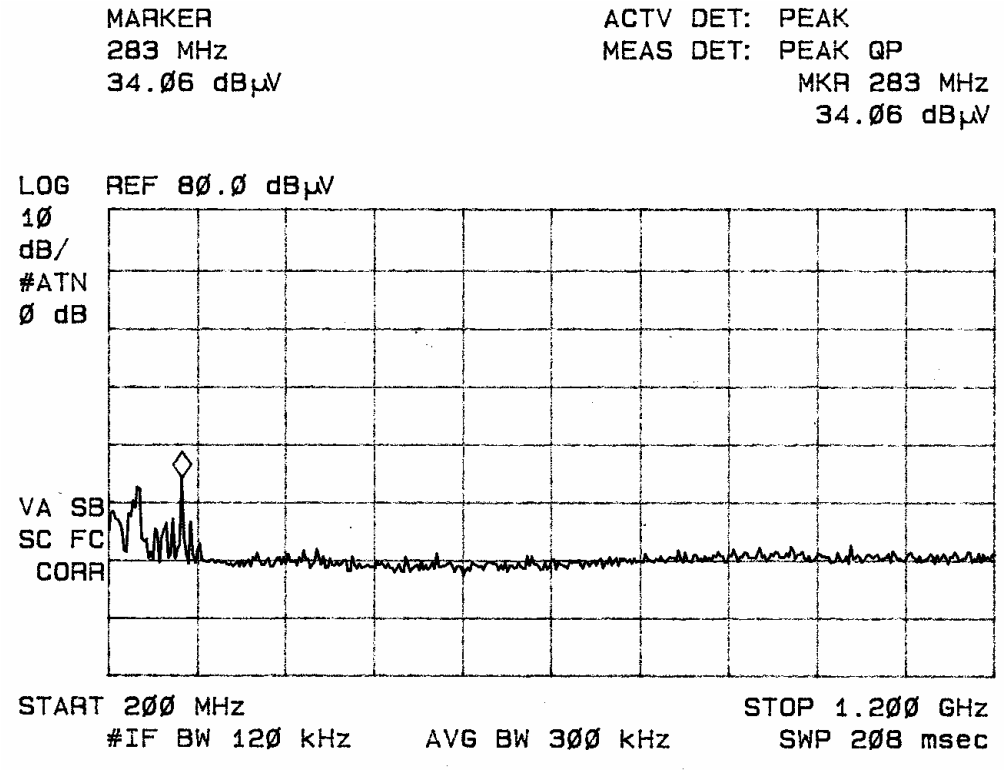

Figure four Radiated Emissions taken at 1 meter in screen room.

Conducted (7 Highest Emissions)

Frequency band (MHz)	L1 Level (dBµV) Peak	Q.P.	AVE	L2 Level (dBµV) Peak	Q.P.	AVE	CISPR 22 Q.P./AVE Limit(dBµV)
0.15 - 0.5	72.6	65.8	34.5	71.6	65.5	34.5	66 / 56
0.5 – 5	43.6	37.3	10.8	44.8	37.5	10.2	56 / 46
5 – 10	28.7	24.7	14.4	26.9	23.4	13.7	60 / 50
10 – 15	26.7	23.1	13.7	25.4	21.4	12.6	60 / 50
15 – 20	33.9	32.5	31.9	35.9	34.8	34.3	60 / 50
20 – 25	33.3	29.2	18.9	37.7	35.7	32.7	60 / 50
25 - 30	47.1	46.2	45.8	43.2	42.1	41.7	60 / 50

Other emissions present had amplitudes at least 10 dB below the limit.

Data: General Radiated Emissions from test system (8 Highest Emissions)

Frequency in MHz	FSM Horz. (dBµV)	FSM Vert. (dBµV)	A.F. (dB/m)	Amp. Gain (dB)	RFS Horz. @ 3m (dBµV/m)	RFS Vert. @ 3m (dBµV/m)	FCC Class B Limit @ 3m (dBµV/m)
65.3	46.9	47.3	5.8	30	22.7	23.1	30.0
75.0	41.0	46.4	7.1	30	18.1	23.5	30.0
78.7	48.7	43.9	7.4	30	26.1	21.3	30.0
211.4	48.0	46.1	9.7	30	27.7	25.8	30.0
231.0	48.0	48.5	10.2	30	28.2	28.7	37.0
270.0	37.3	46.4	12.4	30	19.7	28.8	37.0
280.1	39.9	44.2	12.5	30	22.4	26.7	37.0
290.0	37.7	41.2	12.6	30	20.3	23.8	37.0

Other emissions present had amplitudes at least 10 dB below the limit.

Summary of Results for Test System Conducted Emissions

The conducted emissions for the EUT meet the requirements for CISPR 22 and FCC Part 15B CLASS B Digital Devices. The EUT had a 0.2 dB minimum margin below the quasi-peak limit and a 4.2 dB margin below the average limit. Other emissions were present with recorded data representing worst-case amplitudes.

Summary of Results for Test System Radiated Emissions

The radiated emissions for the EUT meet the requirements for CISPR 22 and FCC Part 15B CLASS B Digital Devices. The EUT had a 2.3 dB minimum margin below the quasi-peak limit. Other emissions were present with amplitudes at least 10 dB below the limit.

Statement of Modifications and Deviations

No modifications to the EUT were required for the unit to meet the CISPR 22 or FCC Part 15B CLASS B emissions standards. There were no deviations or exceptions to the specifications.

9) Subpart C - Intentional Radiators

As per CFR Part 15, Subpart C, paragraph 15.201 the following information is submitted.

15.203 Antenna Requirements

The unit is produced with a permanently attached antenna and has no provision for user service, replacement, or antenna modification. The requirements of 15.203 are fulfilled and there are no deviations or exceptions to the specification.

15.205 Restricted Bands of Operation

Spurious emissions falling in the restricted frequency bands of operation were measured at a distance of three meters at the OATS. The EUT utilizes frequency, determining circuitry, which generates harmonics falling in the restricted bands. Emissions were checked at the OATS, using appropriate antennas or pyramidal horns, amplification stages, and a spectrum analyzer. No other significant emission was observed which fell into the restricted bands of operation.

Sample Calculations:
RFS (dBµV/m @ 3m) = FSM(dBµV) + A.F.(dB) - Gain(dB)
= -9.5 + 67.7 - 20
= 38.2

Data: Emissions in Restricted Bands

Frequency in MHz	FSM Horz. (dBµV)	FSM Vert. (dBµV)	A.F. (dB/m)	Amp. Gain (dB)	RFS Horz. @ 3m (dBµV/m)	RFS Vert. @ 3m (dBµV/m)	FCC Class B Limit @ 3m (dBµV/m)
0.50	-9.5	-	67.7	20	38.2	-	78
169.3	52.6	43.8	8.7	35	26.3	17.5	43.5

Summary of Results for Radiated Emissions in Restricted Bands:

The radiated emissions for the EUT meet the requirements for FCC Part 15C Intentional Radiators. The EUT had a 17.2 dB minimum margin below the limits. Average, Quasi-peak, and peak amplitudes were checked for compliance with the regulations. No other emissions where found in the restricted frequency bands. Other emissions were present with amplitudes at least 20 dB below the FCC Limits.

15.209 Radiated Emissions Limits; General Requirements

Radiated EMI

The EUT was arranged in a typical equipment configuration and operated through all of its various modes. Preliminary testing was performed in a screen room with the EUT positioned 1 meter from the FSM. Radiated emissions measurements were performed to identify the frequencies, which produced the highest emissions. Emissions were checked in the screen room from 0.060 to 1,200 MHz and plots were made of the frequency spectrum from 0.060 MHz to 1,200 MHz for the preliminary testing. Refer to figures five through nine displaying plots made of emissions taken in the screen room. The highest radiated emission was then re-maximized at the OATS location before final radiated emissions measurements were performed. Final data was taken with the EUT located at the open area test site at a distance of 3 meters between the EUT and the receiving antenna. The frequency spectrum from 0.060 MHz to 1,000 MHz was searched for radiated emissions. Measured emission levels were maximized by EUT placement on the table, rotating the turntable through 360 degrees, varying the antenna height between 1 and 4 meters above the ground plane and changing antenna polarization between

horizontal and vertical. Antennas used were loop antenna from 0.06 MHz to 30 MHz, Broadband Biconical from 30 MHz to 200 MHz, Biconilog from 30 MHz to 1000 MHz, Log Periodic from 200 MHz to 5 GHz, and/or Pyramidal Horns from 4 GHz to 10 GHz.

Sample Calculations:

RFS = Radiated Field Strength

dBµV/m @ 3m = dBµV + A.F. - Amplifier Gain

dBµV/m @ 3m = 46.4 + 7.9 - 35

= 19.3

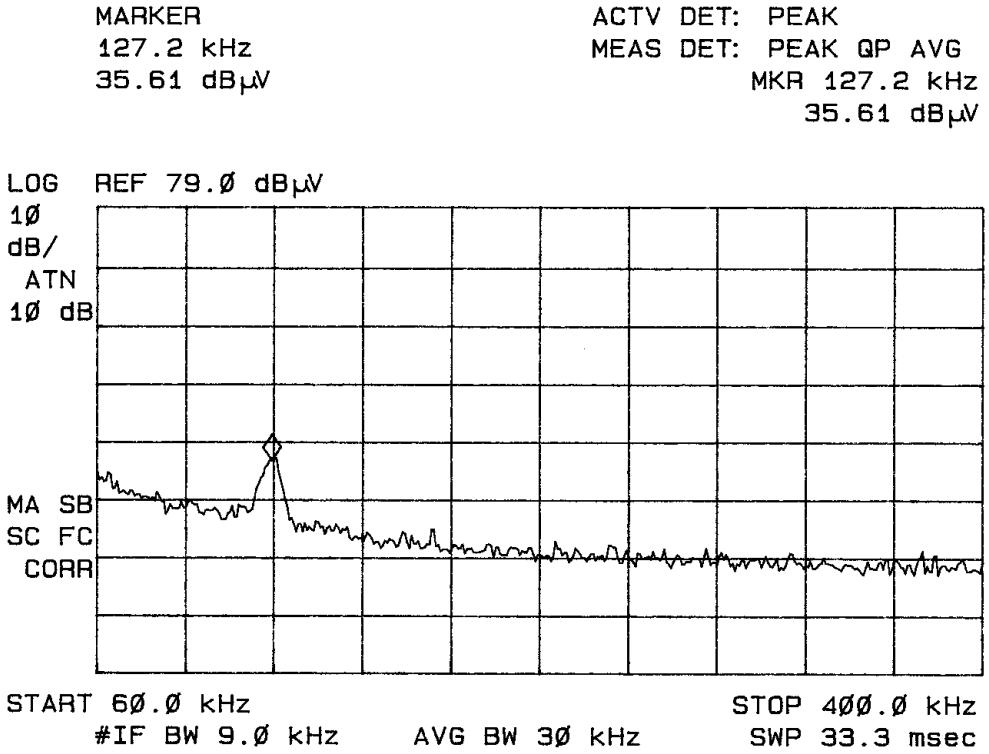

Figure five Radiated Emissions taken at 1 meter in screen room.

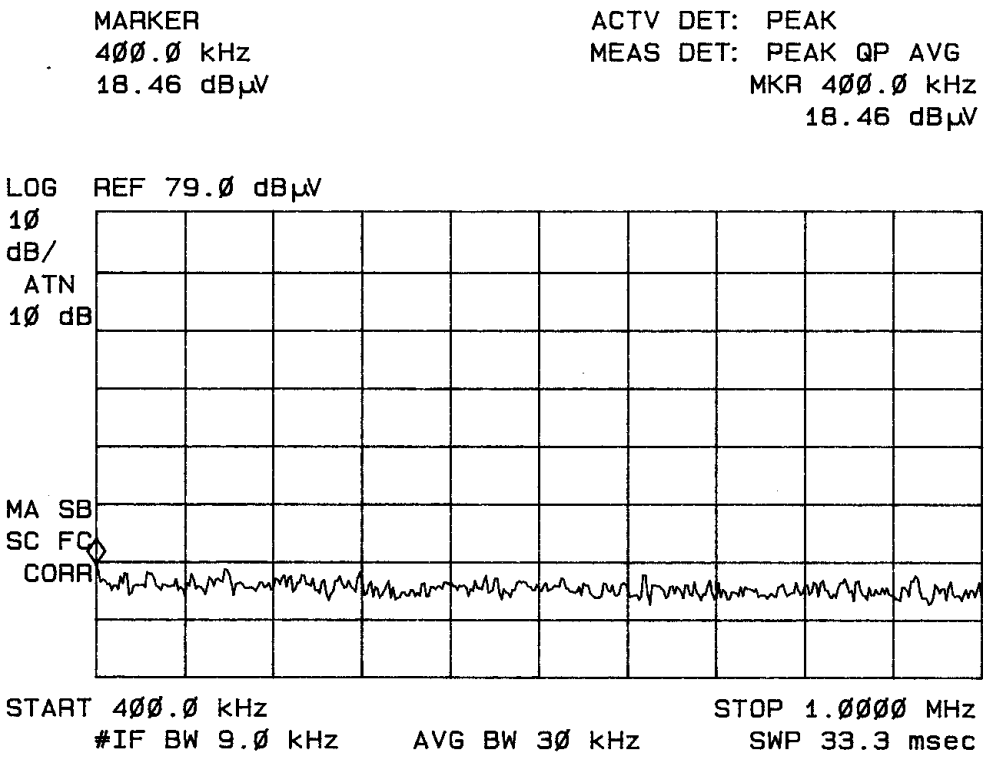

Figure six Radiated Emissions taken at 1 meter in screen room.

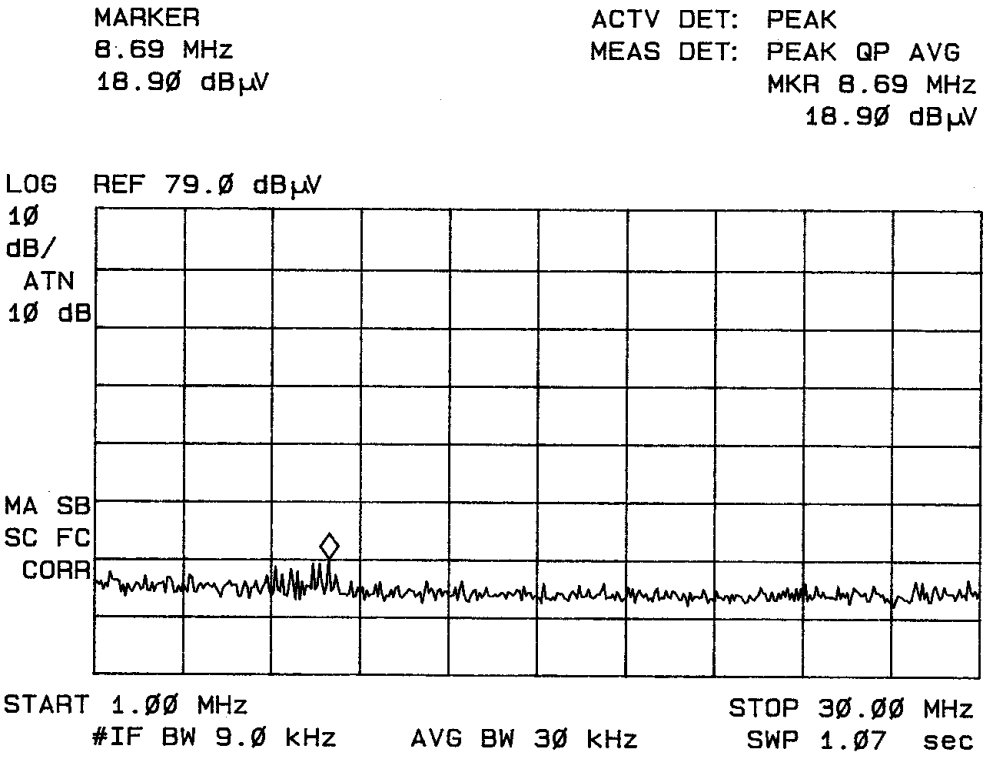

Figure seven Radiated Emissions taken at 1 meter in screen room.

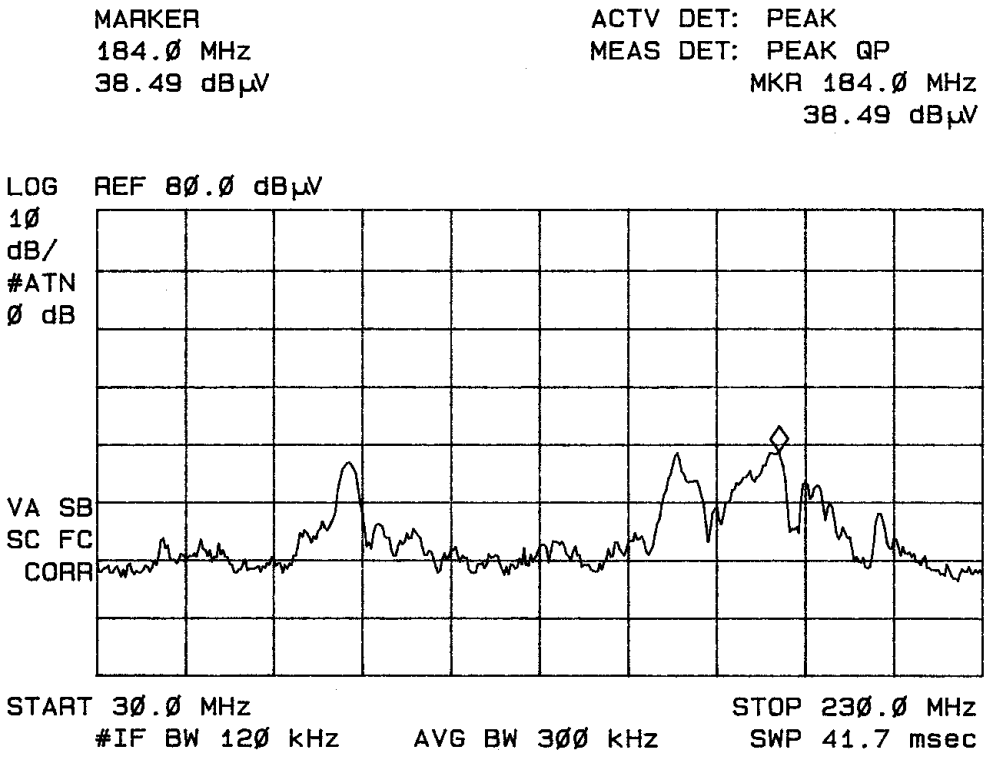

Figure eight Radiated Emissions taken at 1 meter in screen room.

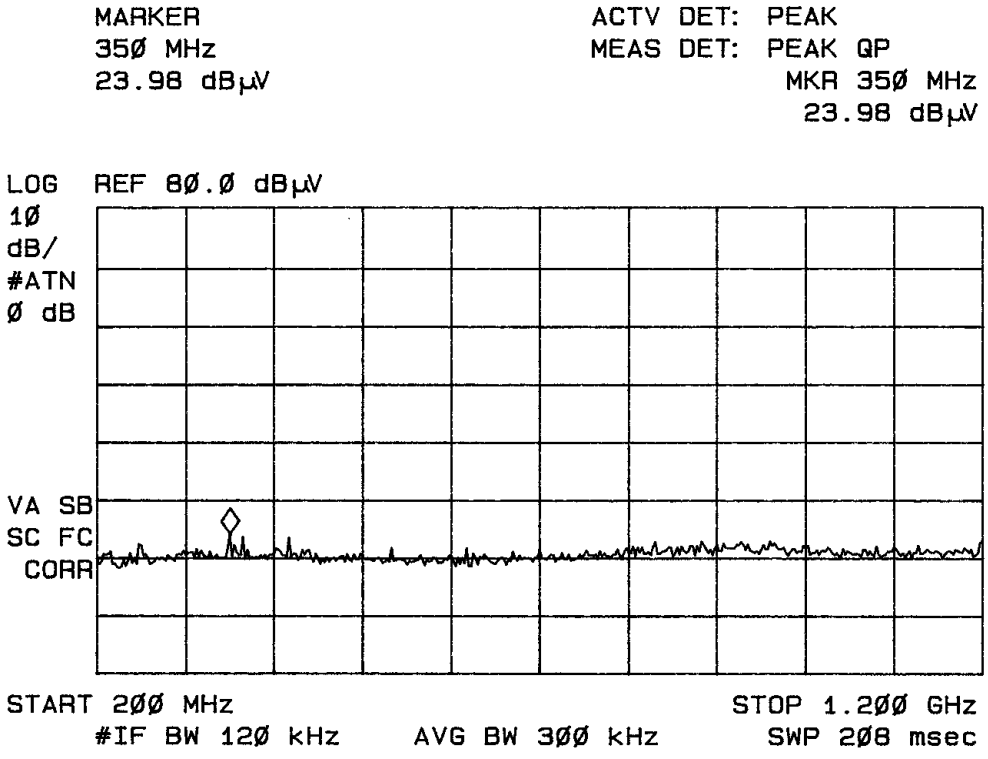

Figure nine Radiated Emissions taken at 1 meter in screen room.

Data: General Radiated Emissions from EUT (6 Highest Emissions)

Frequency in MHz	FSM Horz. (dBµV)	FSM Vert. (dBµV)	A.F. (dB/m)	Amp. Gain (dB)	RFS Horz. @ 3m (dBµV/m)	RFS Vert. @ 3m (dBµV/m)	FCC Class B Limit @ 3m (dBµV/m)
86.5	46.4	51.0	7.9	35	19.3	23.9	40.0
169.3	52.6	43.8	8.7	35	26.3	17.5	43.5
177.2	52.9	40.5	8.8	35	26.7	14.3	43.5
182.4	52.5	45.8	9.1	35	26.6	19.9	43.5
192.3	52.3	40.3	10.0	35	27.3	15.3	43.5
206.3	51.5	45.3	10.4	35	26.9	20.7	43.5

Other emissions present had amplitudes at least 20 dB below the limit.

Summary of Results for Radiated Emissions:

The radiated emissions for the EUT meet the requirements for FCC Part 15C Intentional Radiators. The EUT had a 16.1 dB minimum margin below the limits. Other emissions were present with amplitudes at least 20 dB below the FCC Limits.

Radiated Emissions of Intentional Radiator in the Band 0.125 MHz

Radiated emissions measurements were performed at several intermediate distances less than the 300 meter limit specification. The radiated emissions for the EUT were measured at distances of 1, 3, and 10 meters. Data points so obtained were plotted on semi-logarithmic graph paper, and a best-fit linear line was extended to the 300 meter mark of the graph, and the extrapolated emissions level was then compared to the limit for each frequency. Data for the intentional radiator was taken for frequencies of 0.125 MHz to 30 MHz as follows.

For each test position location:

1. The EUT was placed on a wooden table top 80 cm above the ground plane. The EUT was set to transmit in a normal mode of operation and field strength data was taken.

Refer to the test set-up exhibit for photographs of the test set-up.

2. The EUT was rotated, the receive antenna was raised, and lowered in order to maximize the received emission. Maximum received emissions were achieved when the EUT antenna was in the same plane and at the same height as the receiving loop antenna.

3. The reading for each frequency of emission was recorded and plotted on semi-logarithmic graph paper for the extrapolated data.

Refer to figure ten displaying extrapolated data information.

Frequency (kHz)	Distance (meters)	FSM (dBmV)	Antenna Factor (dB)	Amplification (dB)	Calculated level (dBmV)
125.0	1	48.9	71.9	20	100.8
125.0	3	27.3	71.9	20	79.2
125.0	10	1.6	71.9	20	53.5

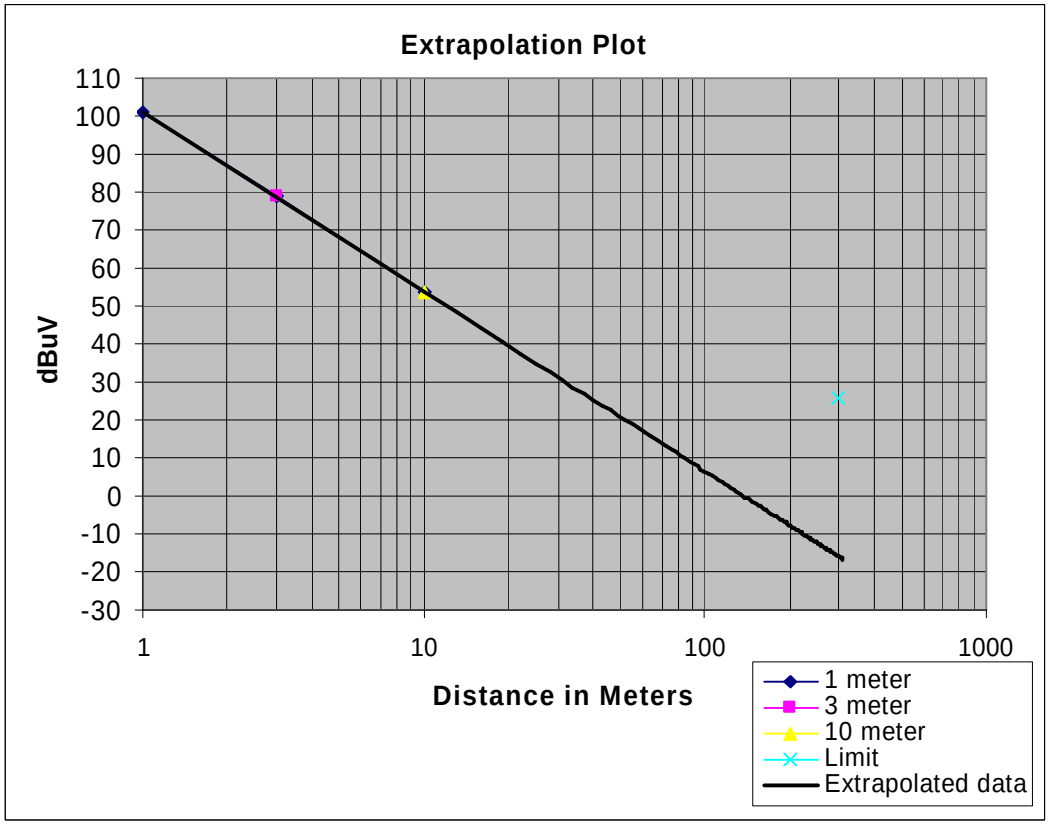

Figure ten Extrapolated Radiated Emissions data.

Data: Radiated Emissions data from EUT taken at three meter distance.

Emission Frequency (kHz)	FSM (dBµV)	Antenna. Factor (dB)	Amplifier Gain (dB)	Calculated Field Strength @ 3m (dBµV/m)	Calculated Limit @ 3m (dBµV/m)
250.0	-5.2	70.9	20	45.7	79.8
375.0	-6.9	70.6	20	43.7	76.8
500.0	-9.5	67.7	20	38.2	78.0
625.0	-11.0	66.9	20	35.9	68.4
750.0	-10.7	66.9	20	36.2	62.0
875.0	-12.0	66.3	20	34.3	57.4
1000.0	-11.4	56.6	20	25.2	54.0
1250.0	-12.3	55.8	20	23.5	51.3

Summary of Results for Radiated Emissions of Intentional Radiator

The EUT had the highest emission of 100.8 dBmV/m at 1 meters at the fundamental frequency of operation. The extrapolation plot predicts this level to be approximately -15 dBmV/m at 300 meters. This is well below the limit of 25.7 dBµV/m required by 15.209. The harmonic emissions were also measured and compared to the specifications of 15.209 and found to be more than 20 dB below the limits. There are no measurable emissions in the restricted bands other than those recorded in this report. Other emissions were present with amplitudes at least 20 dB below the FCC Limits. The specifications of 15.209 were met; there are no deviations or exceptions to the requirements. Plots were made showing the occupied bandwidth of the fundamental. These plots were taken at a distance of 1 meter located in a screen room. Refer to figures eleven and twelve displaying the emission of the intentional emission.

Statement of Modifications and Deviations

No modifications to the EUT were required for the unit to meet the FCC Part 15C emissions standards. There were no deviations to the specifications.

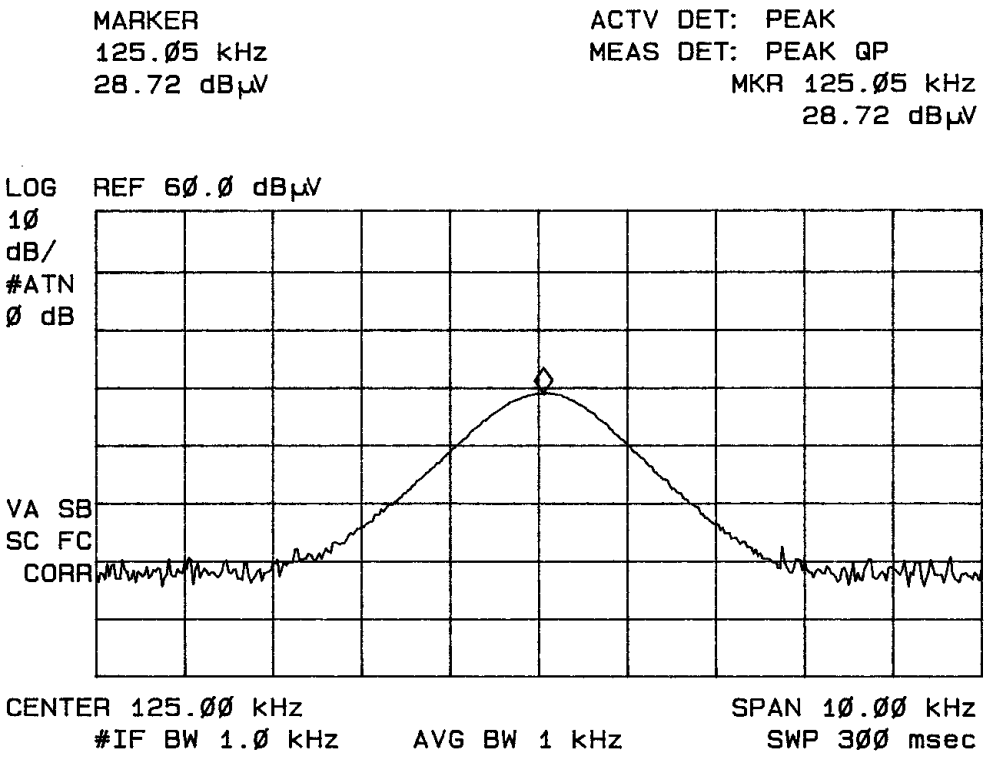

Figure eleven Radiated Emission occupied bandwidth.

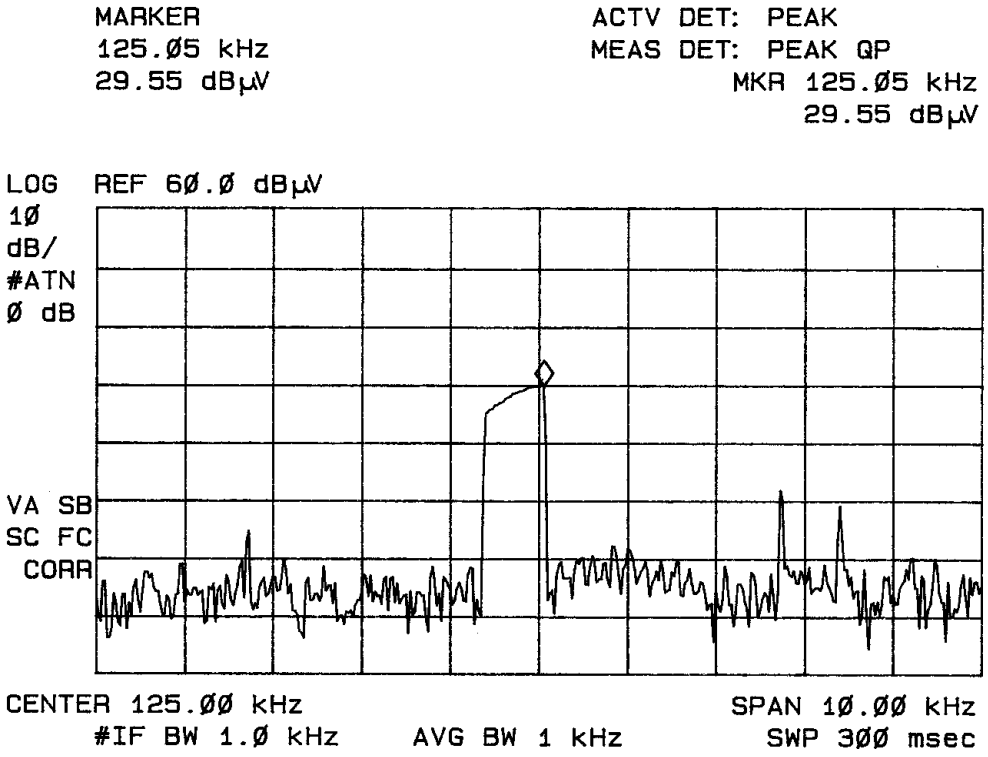

Figure twelve Radiated Emission occupied bandwidth.

APPENDIX

Model: 793 Keypad RFID READER

1. Test Equipment List
2. Rogers Qualifications
3. FCC Site Approval Letter

TEST EQUIPMENT LIST FOR ROGERS LABS, INC.

The test equipment used is maintained in calibration and good operating condition. Use of this calibrated equipment ensures measurements are traceable to national standards.

List of Test Equipment:	Calibration Date:
Scope: Tektronix 2230	2/03
Wattmeter: Bird 43 with Load Bird 8085	2/03
Power Supplies: Sorensen SRL 20-25, SRL 40-25, DCR 150, DCR 140	2/03
H/V Power Supply: Fluke Model: 408B (SN: 573)	2/03
R.F. Generator: HP 606A	2/03
R.F. Generator: HP 8614A	2/03
R.F. Generator: HP 8640B	2/03
Spectrum Analyzer: HP 8562A, Mixers: 11517A, 11970A, 11970K, 11970U, 11970V, 11970W HP Adapters: 11518, 11519, 11520	2/03
Spectrum Analyzer: HP 8591 EM	5/03
Frequency Counter: Leader LDC 825	2/03
Antenna: EMCO Biconilog Model: 3143	5/03
Antenna: EMCO Log Periodic Model: 3147	10/03
Antenna: Antenna Research Biconical Model: BCD 235	10/03
Antenna: EMCO Dipole Set 3121C	2/03
Antenna: C.D. B-101	2/03
Antenna: Solar 9229-1 & 9230-1	2/03
Antenna: EMCO 6509	2/03
Audio Oscillator: H.P. 201CD	2/03
R.F. Power Amp 65W Model: 470-A-1010	2/03
R.F. Power Amp 50W M185- 10-501	2/03
R.F. PreAmp CPPA-102	2/03
LISN 50 µHy/50 ohm/0.1 µf	10/03
LISN Compliance Eng. 240/20	2/03
Peavey Power Amp Model: IPS 801	2/03
Power Amp A.R. Model: 10W 1010M7	2/03
Power Amp EIN Model: A301	2/03
ELGAR Model: 1751	2/03
ELGAR Model: TG 704A-3D	2/03
ESD Test Set 2010i	2/03
Fast Transient Burst Generator Model: EFT/B-101	2/03
Current Probe: Singer CP-105	2/03
Current Probe: Solar 9108-1N	2/03
Field Intensity Meter: EFM-018	2/03
KEYTEK Ecat Surge Generator	2/03
Shielded Room 5 M x 3 M x 3.0 M (101 dB Integrity)	

10/10/2003

QUALIFICATIONS

Of

SCOT D. ROGERS, ENGINEER

ROGERS LABS, INC.

Mr. Rogers has approximately 14 years experience in the field of electronics. Six years working in the automated controls industry and 6 years working with the design, development and testing of radio communications and electronic equipment.

POSITIONS HELD:

Systems Engineer:	A/C Controls Mfg. Co., Inc. 6 Years
Electrical Engineer:	Rogers Consulting Labs, Inc. 5 Years
Electrical Engineer:	Rogers Labs, Inc. Current

EDUCATIONAL BACKGROUND:

1) Bachelor of Science Degree in Electrical Engineering from Kansas State University.

2) Bachelor of Science Degree in Business Administration
Kansas State University.

3) Several Specialized Training courses and seminars pertaining to Microprocessors and Software programming.

Scot D Rogers

Scot D. Rogers

November 24, 2003
Date

1/11/01

FEDERAL COMMUNICATIONS COMMISSION

Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046

August 15, 2003

Registration Number: 90910

Rogers Labs, Inc.
4405 West 259th Terrace
Louisburg, KS 66053

Attention: Scot Rogers

Re: Measurement facility located at Louisburg
3 & 10 meter site
Date of Renewal: August 15, 2003

Dear Sir or Madam:

Your request for renewal of the registration of the subject measurement facility has been received. The information submitted has been placed in your file and the registration has been renewed. The name of your organization will remain on the list of facilities whose measurement data will be accepted in conjunction with applications for Certification under Parts 15 or 18 of the Commission's Rules. Please note that the file must be updated for any changes made to the facility and the registration must be renewed at least every three years.

Measurement facilities that have indicated that they are available to the public to perform measurement services on a fee basis may be found on the FCC website www.fcc.gov under E-Filing, OET Equipment Authorization Electronic Filing, Test Firms.

Sincerely,

Ms. Phyllis Parrish
Information Technician