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ENGINEERING TEST REPORT
FOR
APLLICATION of
GRANT of CERTIFICATION

FOR

CFR 47, PART 15C - INTENTIONAL RADIATORS
Paragraph 15.249

For

Coyote DataCom, Inc.
12721 Benson
Overland Park, KS 66213
Keith Hollcroft,

DATA TRANSMITTER
Models: DR-915L, DR-915LT
Frequency 902-928 MHz
FCC ID#: PHO-DR915L

Test Date: February 7, 2001

Certification Date: February 7, 2001

Certifying Engineer: Scot D Rogers

Scot D. Rogers
ROGERS LABS, INC.
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TABLE OF CONTENTS

FORWARD:

The following is submitted for consideration in obtaining a Grant of Certification for low power intentional radiators per CFR Paragraph 15.249.

Name of Applicant:

Coyote DataCom, Inc.
12721 Benson
Overland Park, KS 66213

Models: DR-915L, DR-915LT DATA TRANSMITTER

FCC I.D.: PHO-DR915L

Frequency Range: 902-928 MHz

Operating Power: Less than 50 mV/m @ 3 Meters (94 dBµV/m @ 3 meters)

1) Applicable Standards & Test Procedures

a) In accordance with the Federal Communications Code of Federal Regulations, dated October 1, 1999, Part 2, Subpart J, Paragraphs 2.907, 2.911, 2.913, 2.925, 2.926, 2.1031 through 2.1057, and Part 15C Paragraph 15.249 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.

2.1033(b) Application for Certification

(1) Manufacturer: COYOTE DATACOM, INC.
12721 Benson
Overland Park, KS 66213

(2) Identification: Models: DR-915L, DR-915LT TRANSMITTER
FCC I.D.: PHO-DR915L

(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:

Follows in this Report.

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

Refer to Appendix of this report for Photographs of equipment.

(8) No Peripheral Equipment was Necessary.

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

(10) Direct Sequence Spread Spectrum:

Not Applicable.

(11) Not Applicable. The EUT is not a Scanning Receiver.

(12) Not Applicable. The EUT does not operate in the 59-64

GHz frequency band.

2) Equipment Tested

Equipment	Model	FCC I.D.#
EUT	DR-915L, DR-915LT	PHO-DR915L
CPU	Sharp PC9000	FKG PC9000
Printer	2168A	B94C2121X

3) Equipment Function and Testing Procedures

The EUT is a 902-928 MHz radio transmitter used to transmit data for use in the industrial market place. The DR-915L, or DR-915LT, DATA TRANSMITTER is a wireless link used for transmitting information from one remote location to another. The unit is marketed for developers wishing to incorporate a wireless link in a system solution. This product can reduce the development time for system engineers by utilizing the pre-developed transmitter or transceiver into their system needs. The unit typically operates from a direct current voltage source supplied at the system level. For testing purposes a twelve-volt wall transformer was used to power the unit. The device is marketed for use with one of three antenna configurations. The antenna options include two permanently mounted (one gray and one black) and a black antenna attached to an eight inch length of coaxial cable which is permanently affixed to the printed circuit board. The unit has provision to connect to a computer for data and command information. The EUT was tested with and

without computer communications through the RS232 serial port.

4) Equipment and Cable Configurations

Conducted Emission Test Procedure

The unit typically operates only from twelve-volt supply voltage from the host device. For testing purposes a twelve-volt wall transformer was used to power the unit. 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 rotatable 1 x 1.5-meter wooden platform, 0.8 meters above the ground plane at a distance of 3 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 photos in Appendix 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 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:		
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	1762	10/00	10/01
Antenna	ARA	BCD-235-B	10/00	10/01
Antenna	EMCO	3147	10/00	10/01
Antenna	EMCO	3143	4/00	4/01
Analyzer	HP	8591EM	7/00	7/01

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 powerline 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 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 EUT 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 of the EUT. All 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 frequencies of each of these emissions, which had the highest amplitudes. 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.

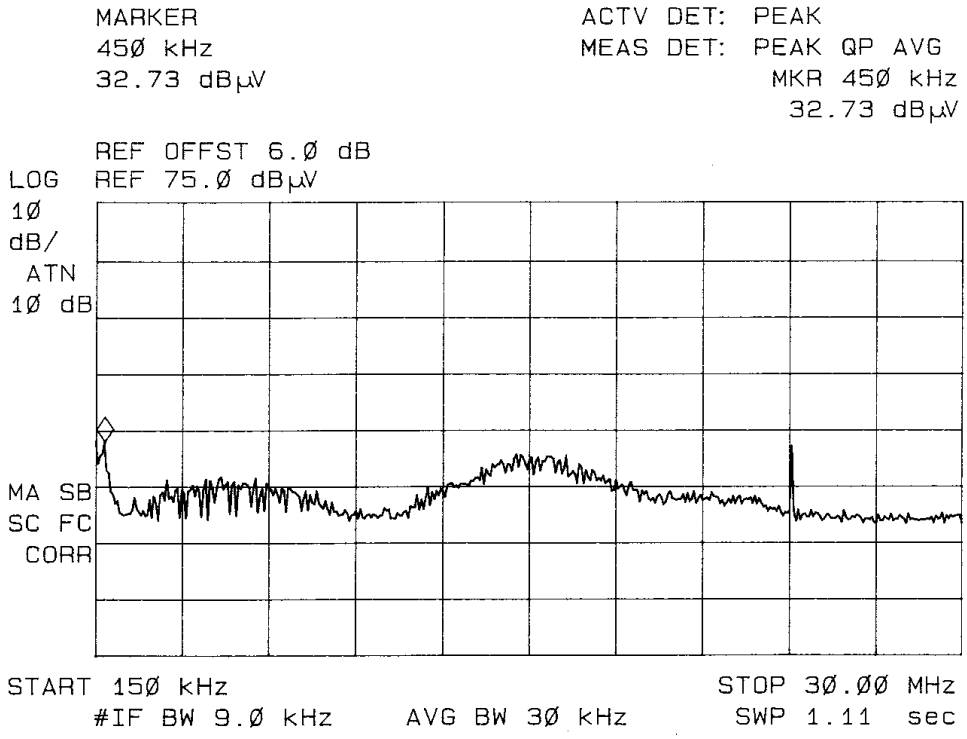


Figure 1. Conducted Emissions Line 1.

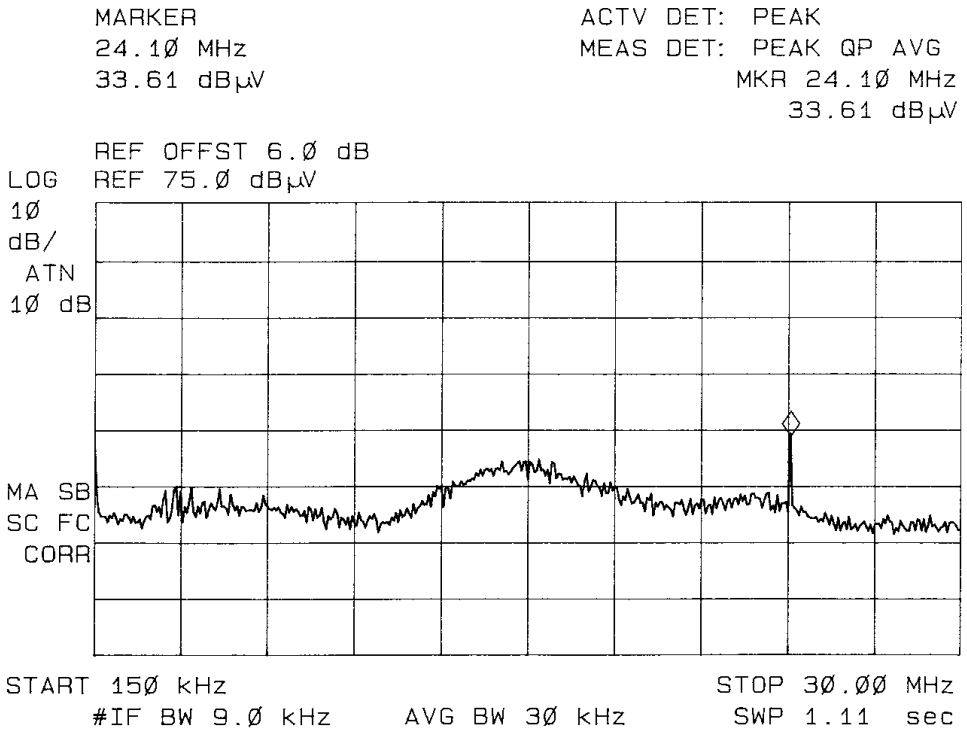


Figure 2. Conducted Emissions Line 2.

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 10,000 MHz for the preliminary testing. Refer to figures three and four for plots of the radiated emissions spectrum taken in a screen room. The highest radiated emission was then re-maximized at this location before final radiated emissions measurements were performed. Final data was taken with the EUT located at the OATS at a distance of 3 meters between the EUT and the receiving antenna. The frequency spectrum from 30 MHz to 10,000 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.

Sample Calculations:

RFS = Radiated Field Strength

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

dBµV/m @ 3m = 51.3 + 15.2 - 35

= 31.5

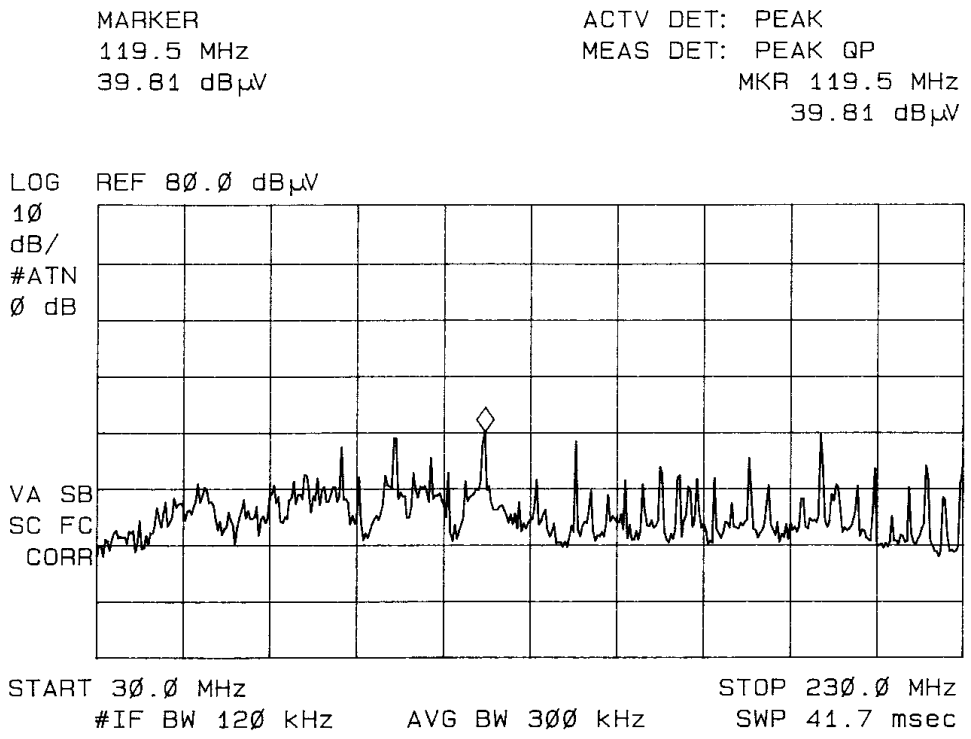


Figure 3. Radiated Emissions taken at 1 meter in screen room.

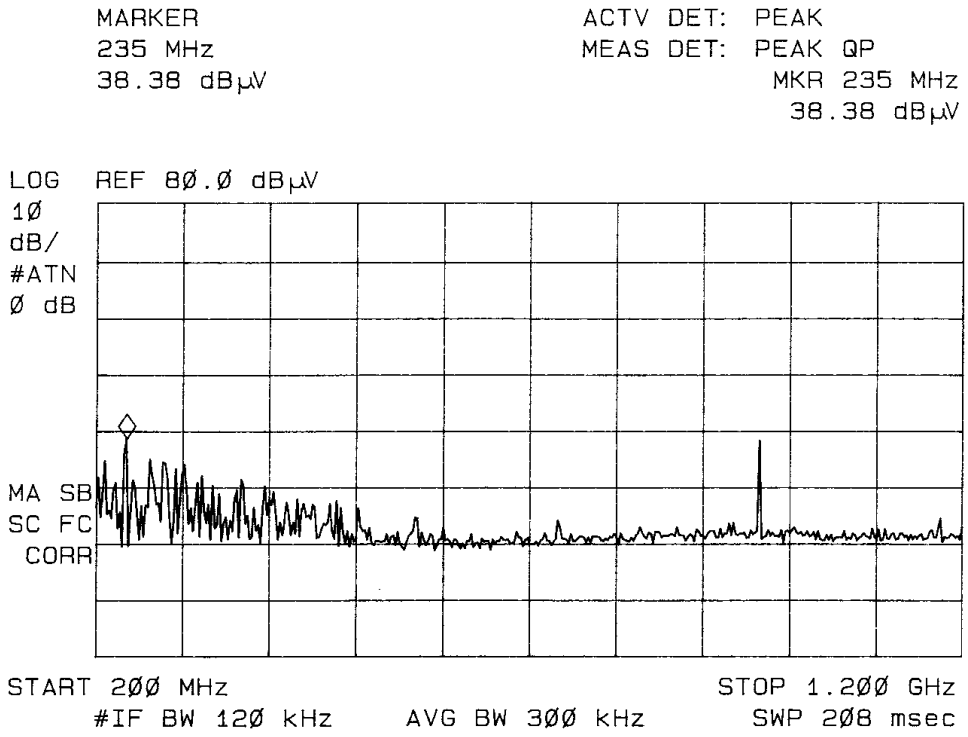


Figure 4. Radiated Emissions taken at 1 meter in screen room.

Data: Conducted Emissions (7 Highest Emissions)

Frequency in MHz	Peak Level L1 in dBµV	Peak Level L2 in dBµV	FCC Limit in dBµV
0.15 – 0.5	32.7	33.0	48.0
0.5 – 5.0	26.5	26.7	48.0
5.0 – 10.0	25.4	26.6	48.0
10.0 – 15.0	29.1	30.8	48.0
15.0 – 20.0	29.7	29.3	48.0
20.0 – 25.0	31.9	33.6	48.0
25.0 – 30.0	20.5	21.0	48.0

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

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)
32.0	51.0	47.4	15.2	35	31.5	27.6	40.0
40.0	57.3	57.0	12.5	35	34.8	34.5	40.0
72.0	56.9	55.7	9.3	35	31.2	30.0	40.0
80.0	59.4	57.3	9.1	35	33.5	31.4	40.0
120.0	58.9	53.3	10.9	35	34.8	29.2	43.5
151.4	55.6	50.1	12.4	35	33.0	27.5	43.5

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

Data: General Radiated Emissions from Support Equipment (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)
140.0	58.9	59.4	12.1	35	36.0	36.5	43.5
180.0	52.0	48.9	13.4	35	30.4	27.3	43.5
196.4	52.7	56.8	11.8	35	29.5	33.6	43.5
260.0	60.4	58.4	15.2	35	40.6	38.6	46.0
280.0	60.1	51.0	13.5	35	38.6	29.5	46.0
300.0	61.2	56.2	14.1	35	40.3	35.3	46.0

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

Summary of Results for 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 14.4 dB minimum margin below the limit. Other emissions were present with recorded data representing worst case amplitudes.

Summary of Results for 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 5.2 dB minimum margin below the limit. Other emissions were present with amplitudes at least 10 dB below the limit.

Statement of Modifications

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 to the specifications.

9) Subpart C - Intentional Radiators

As per CFR Part 15, Subpart C, paragraph 15.249 the following information is submitted.

15.203 Antenna Requirements

The unit is produced with a permanently attached tuned antenna. Two versions of the unit are available, one has the antenna mounted to the printed circuit board and the other has the antenna permanently attached to an eight-inch length of coaxial cable, which is soldered to the printed circuit board. The antenna is not replaceable or user serviceable. The requirements of 15.203 are met; 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 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)
= 58.9 + 10.9 - 35
= 34.8

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)
120.0	58.9	53.3	10.9	35	34.8	29.2	43.5
128.0	47.7	49.5	11.6	35	24.3	26.1	43.5
168.0	48.0	48.2	12.6	35	25.6	25.8	43.5
171.9	49.3	47.6	12.8	35	27.1	25.4	43.5
260.0	60.4	58.4	15.2	35	40.6	38.6	46.0
261.8	56.2	55.4	12.9	35	34.1	33.3	46.0
280.0	60.1	51.0	13.5	35	38.6	29.5	46.0
2707.6	22.0	21.3	29.9	16.5	35.4	34.7	54.0
2742.0	24.5	22.4	29.9	16.5	37.9	35.8	54.0
2778.0	24.3	22.4	29.9	16.5	37.7	35.8	54.0
3609.6	24.0	23.0	37.0	16.5	44.5	43.5	54.0
3656.0	26.3	28.4	37.0	16.5	46.8	48.9	54.0
3704.0	24.5	27.0	37.0	16.5	45.0	47.5	54.0
4512.0	22.5	23.4	41.0	16.5	47.0	47.9	54.0
4570.0	22.3	23.4	41.0	16.5	46.8	47.9	54.0
4630.0	22.8	23.0	41.0	16.5	47.3	47.5	54.0

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 5.1 dB minimum margin below the limits. No other emissions where found in the restricted frequency bands. Other emissions were present with amplitudes at least 10 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 30 to 10,000 MHz and plots were made of the frequency spectrum from 30 MHz to 10,000 MHz for the preliminary testing. Refer to figures three through nine for plots of radiated emissions taken at one-meter distance in the screen room. The highest radiated emission was then re-maximized at this location before final radiated emissions measurements were performed. Final data was taken with the EUT located at the open field test site at a distance of 3 meters between the EUT and the receiving antenna. The frequency spectrum from 30 MHz to 10,000 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 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 = 51.0 + 15.2 - 35

= 31.5

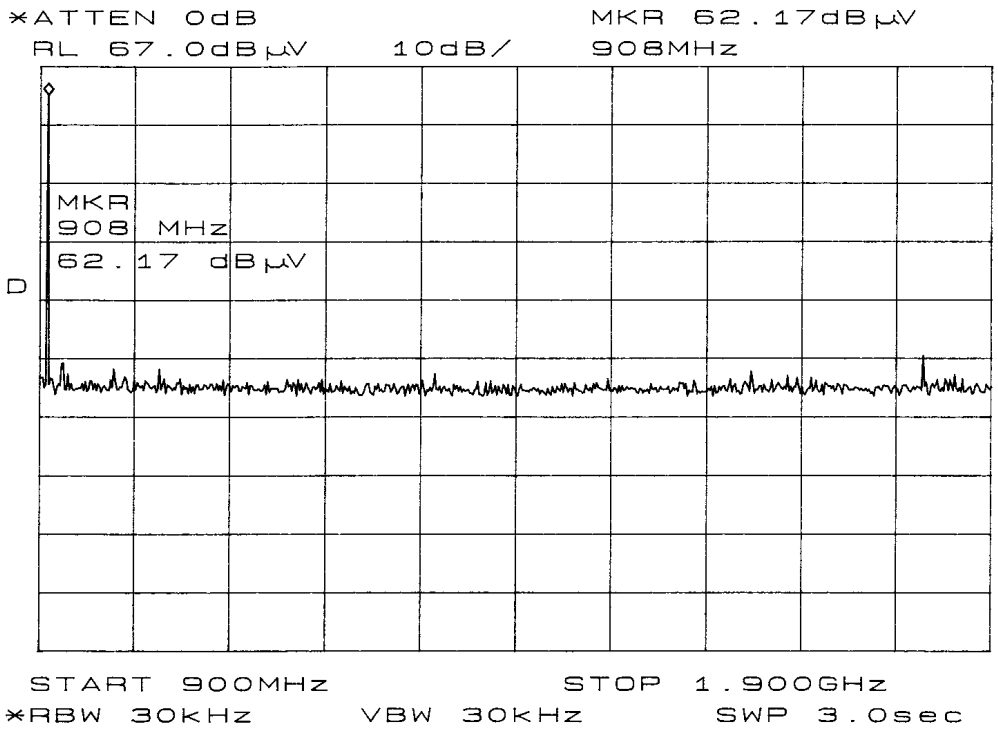


Figure 5. Radiated Emissions taken at 1 meter in screen room.

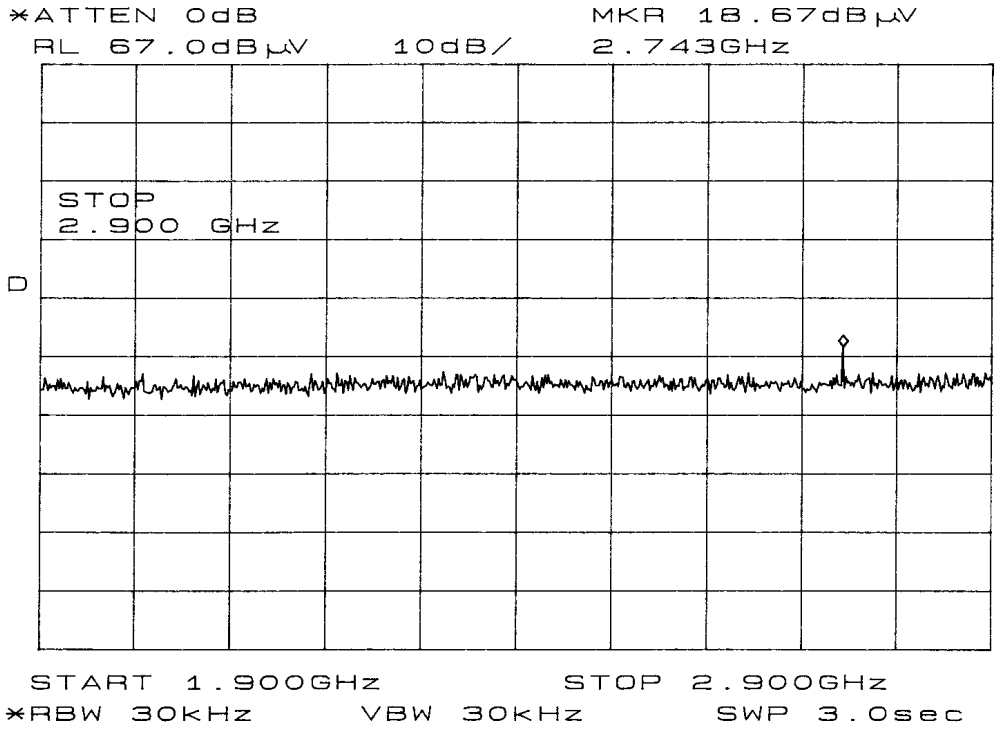


Figure 6. Radiated Emissions taken at 1 meter in screen room.

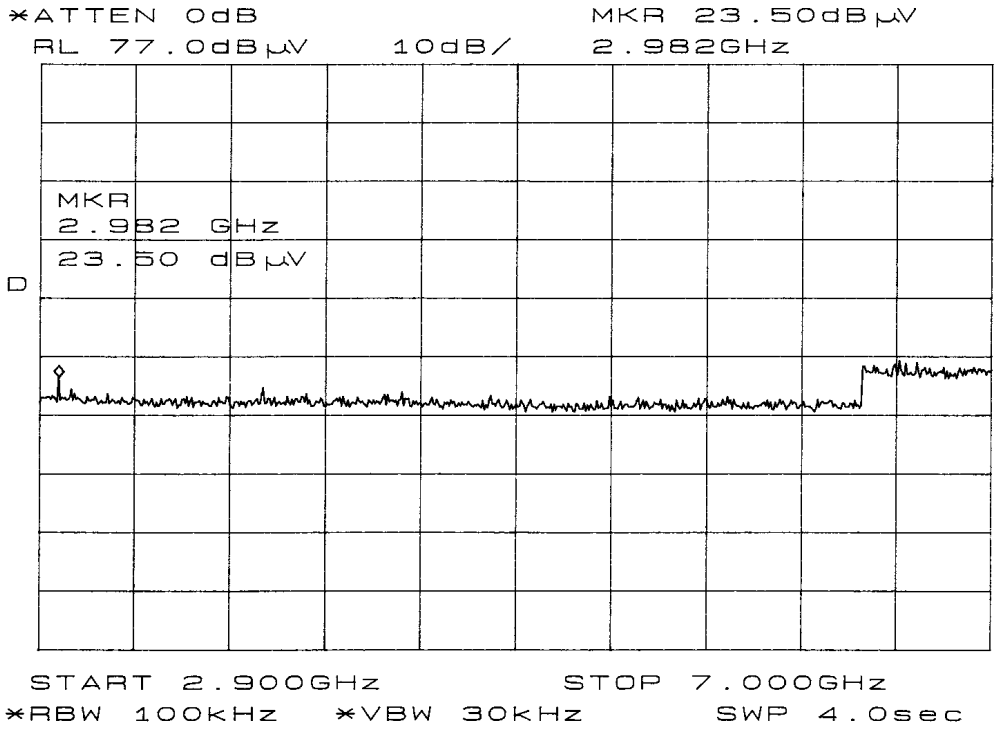


Figure 7. Radiated Emissions taken at 1 meter in screen room.

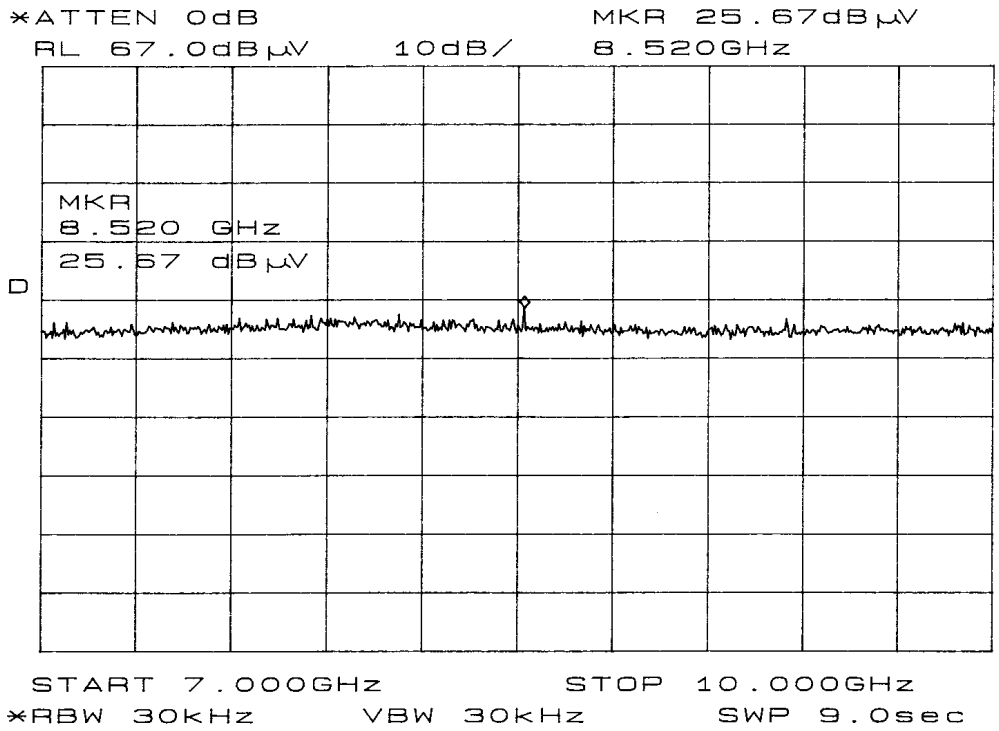


Figure 8. Radiated Emissions taken at 1 meter in screen room.

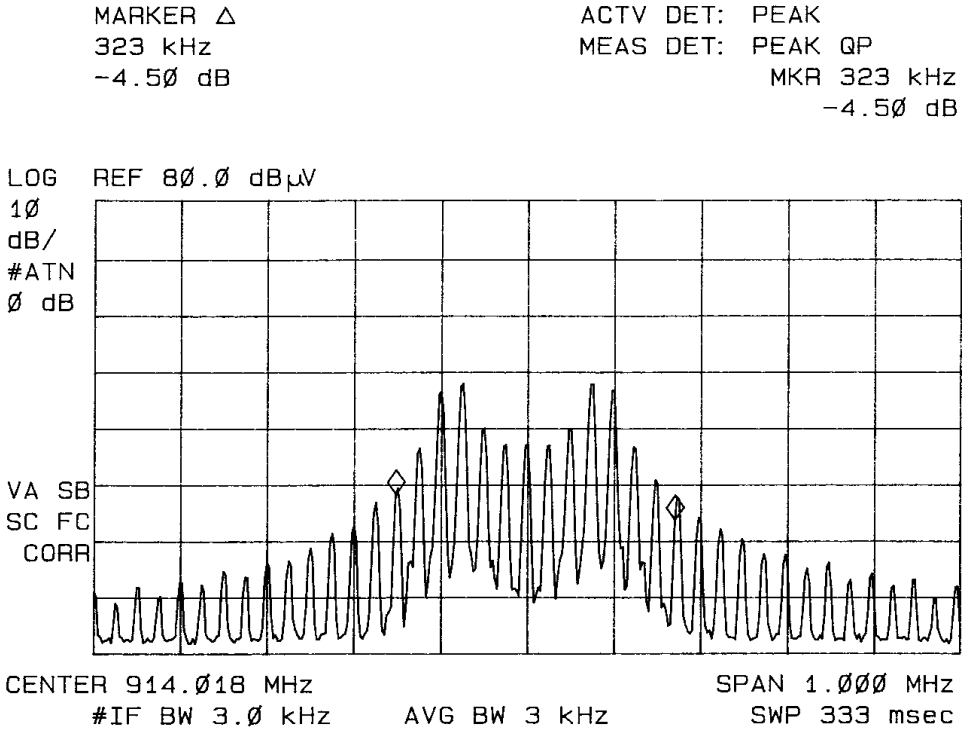


Figure 9. Radiated Emissions taken at 1 meter in screen room.

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)
32.0	51.0	47.4	15.2	35	31.5	27.6	40.0
40.0	57.3	57.0	12.5	35	34.8	34.5	40.0
72.0	56.9	55.7	9.3	35	31.2	30.0	40.0
80.0	59.4	57.3	9.1	35	33.5	31.4	40.0
120.0	58.9	53.3	10.9	35	34.8	29.2	43.5
151.4	55.6	50.1	12.4	35	33.0	27.5	43.5

Other emissions present had amplitudes at least 10 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 5.2 dB minimum margin below the limits. Other emissions were present with amplitudes at least 10 dB below the FCC Limits.

15.249 Operation in the Band 902-928 MHz

The power output was measured on an open field test site at a three-meter distance. Data was taken per Paragraph 2.1046(a) and 15.249. The 902 and 928 MHz band edges are protected due to the 902.4 - 926 MHz channels used for frequency of operation.

(a) The EUT was placed on a wooden turntable 0.8 meters above the ground plane and at a distance of three-meters from the FSM antenna. The amplitude of the carrier frequency was measured using a spectrum analyzer. The

amplitude of the emission was then recorded from the analyzer display.

(b) Emissions radiated outside of the specified bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in 15.209, whichever is the lesser attenuation. The amplitudes of each spurious emission were measured at a distance of 3 meters from the FSM antenna at the OATS. The amplitude of each spurious emission was maximized by varying the FSM antenna height, polarization, and by rotating the turntable. A Biconilog Antenna was used for measuring emissions from 30 to 1000 MHz, Log Periodic Antenna for 200 to 5000 MHz, Pyramidal Horn Antennas from 4 GHz to 10 GHz. Emissions were measured in dBµV/m at three-meters.

Sample calculation.

$dB\mu v/m @ 3m = FSM + A.F.$

$= 66.8 + 23.2 - 2.5$

$= 92.5$

$\mu V/M = 10^{((dB\mu v/M)/20)}$

$= 42,169.7$

Data: Radiated Emissions from EUT (Gray Permanent Antenna)

Emission Frequency (MHz)	FSM Horz. (dBµV)	FSM Vert. (dBµV)	Ant. Factor (dB)	Amp. Gain (dB)	RFS Horz. @ 3m (dBµV/m)	RFS Vert. @ 3m (dBµV/m)	Limit @ 3m (dBµV/m)
902.4	66.8	66.6	23.2	-2.5	92.5	92.3	94
1804.8	35.1	30.5	29.4	16.5	48.0	43.4	54
2707.6	21.8	20.5	29.9	16.5	35.2	33.9	54
3609.6	23.3	22.3	37.0	16.5	43.8	42.8	54
4512.0	21.8	23.0	41.0	16.5	46.3	47.5	54
914.0	66.9	66.5	23.2	-2.5	92.6	92.2	94
1828.0	32.6	28.3	29.4	16.5	45.5	41.2	54
2742.0	23.5	20.3	29.9	16.5	36.9	33.7	54
3656.0	25.8	27.1	37.0	16.5	46.3	47.6	54
4570.0	20.8	21.8	41.0	16.5	45.3	46.3	54
926.0	66.9	66.8	23.2	-2.5	92.6	92.5	94
1850.0	29.3	31.7	29.4	16.5	42.2	44.6	54
2778.0	22.6	20.8	29.9	16.5	36.0	34.2	54
3704.0	23.7	26.5	37.0	16.5	44.2	47.0	54
4630.0	23.0	21.8	41.0	16.5	47.5	46.3	54

Data: Radiated Emissions from EUT (Black Permanent Antenna)

Emission Frequency (MHz)	FSM Horz. (dBµV)	FSM Vert. (dBµV)	Ant. Factor (dB)	Amp. Gain (dB)	RFS Horz. @ 3m (dBµV/m)	RFS Vert. @ 3m (dBµV/m)	Limit @ 3m (dBµV/m)
902.4	68.0	68.1	23.2	-2.5	93.7	93.8	94
1804.8	34.8	31.2	29.4	16.5	47.7	44.1	54
2707.6	22.0	21.3	29.9	16.5	35.4	34.7	54
3609.6	24.0	23.0	37.0	16.5	44.5	43.5	54
4512.0	22.5	23.4	41.0	16.5	47.0	47.9	54
914.0	68.0	68.1	23.2	-2.5	93.7	93.8	94
1828.0	31.6	28.9	29.4	16.5	44.5	41.8	54
2742.0	24.5	22.4	29.9	16.5	37.9	35.8	54
3656.0	26.3	28.4	37.0	16.5	46.8	48.9	54
4570.0	22.3	23.4	41.0	16.5	46.8	47.9	54
926.0	67.9	68.0	23.2	-2.5	93.6	93.7	94
1850.0	30.5	32.4	29.4	16.5	43.4	45.3	54
2778.0	24.3	22.4	29.9	16.5	37.7	35.8	54
3704.0	24.5	27.0	37.0	16.5	45.0	47.5	54
4630.0	22.8	23.0	41.0	16.5	47.3	47.5	54

Data: Radiated Emissions from EUT (Permanent Antenna on Coaxial Cable)

Emission Frequency (MHz)	FSM Horz. (dBµV)	FSM Vert. (dBµV)	Ant. Factor (dB)	Amp. Gain (dB)	RFS Horz. @ 3m (dBµV/m)	RFS Vert. @ 3m (dBµV/m)	Limit @ 3m (dBµV/m)
902.4	65.0	65.1	23.2	-2.5	90.7	90.8	94
1804.8	31.2	28.4	29.4	16.5	44.1	41.3	54
2707.6	21.3	20.3	29.9	16.5	34.7	33.7	54
3609.6	22.4	21.9	37.0	16.5	42.9	42.4	54
4512.0	23.1	23.0	41.0	16.5	47.6	47.5	54
914.0	64.9	64.6	23.2	-2.5	90.6	90.3	94
1828.0	29.8	27.5	29.4	16.5	42.7	40.4	54
2742.0	23.7	22.5	29.9	16.5	37.1	35.9	54
3656.0	25.7	26.8	37.0	16.5	46.2	47.3	54
4570.0	23.0	23.7	41.0	16.5	47.5	48.2	54
926.0	64.8	64.7	23.2	-2.5	90.5	90.4	94
1850.0	30.7	31.8	29.4	16.5	43.6	44.7	54
2778.0	23.9	23.4	29.9	16.5	37.3	36.8	54
3704.0	23.7	26.4	37.0	16.5	44.2	46.9	54
4630.0	23.4	24.0	41.0	16.5	47.9	48.5	54

Summary of Results for Radiated Emissions of Intentional Radiator

The EUT had a 0.2 dB margin below the limit at the fundamental frequency of operation and 5.1 dB margin below the limit for the harmonic emissions. The radiated emissions for the EUT meet the requirements for FCC Part 15C Intentional Radiators. There are no measurable emissions in the restricted bands other than those recorded in this report. Other emissions were present with amplitudes at least 10 dB below the FCC Limits. The specification of 15.249 are

met, there are no deviations or exceptions to the requirements.

Statement of Modifications

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

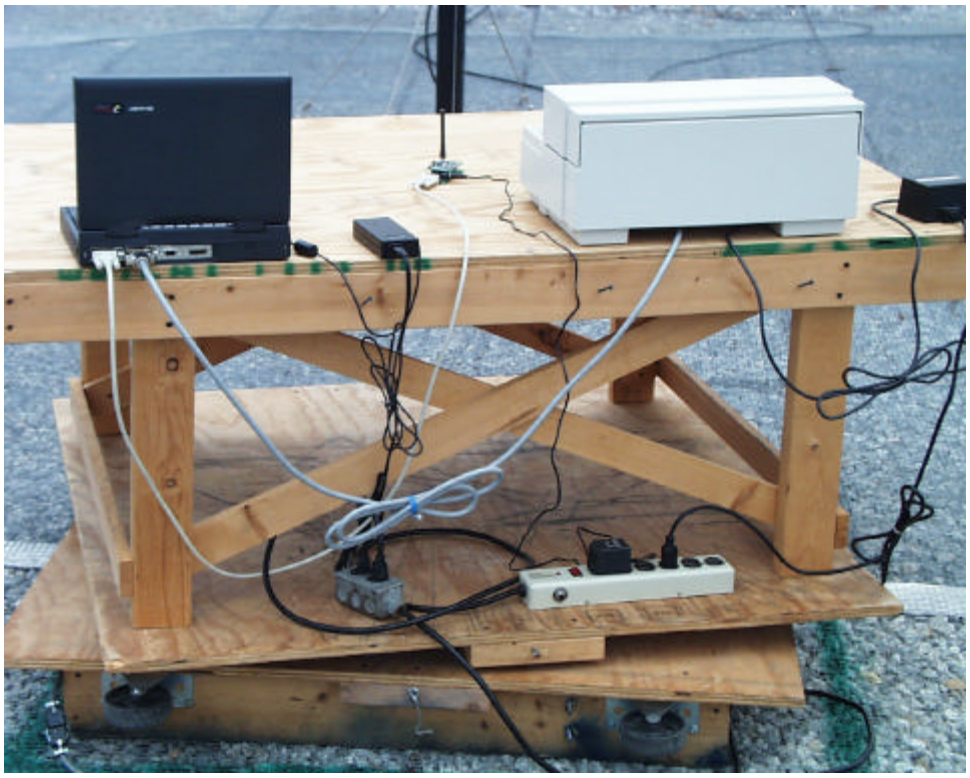
APPENDIX

Model: DR-915L, DR-915LT DATA TRANSMITTER

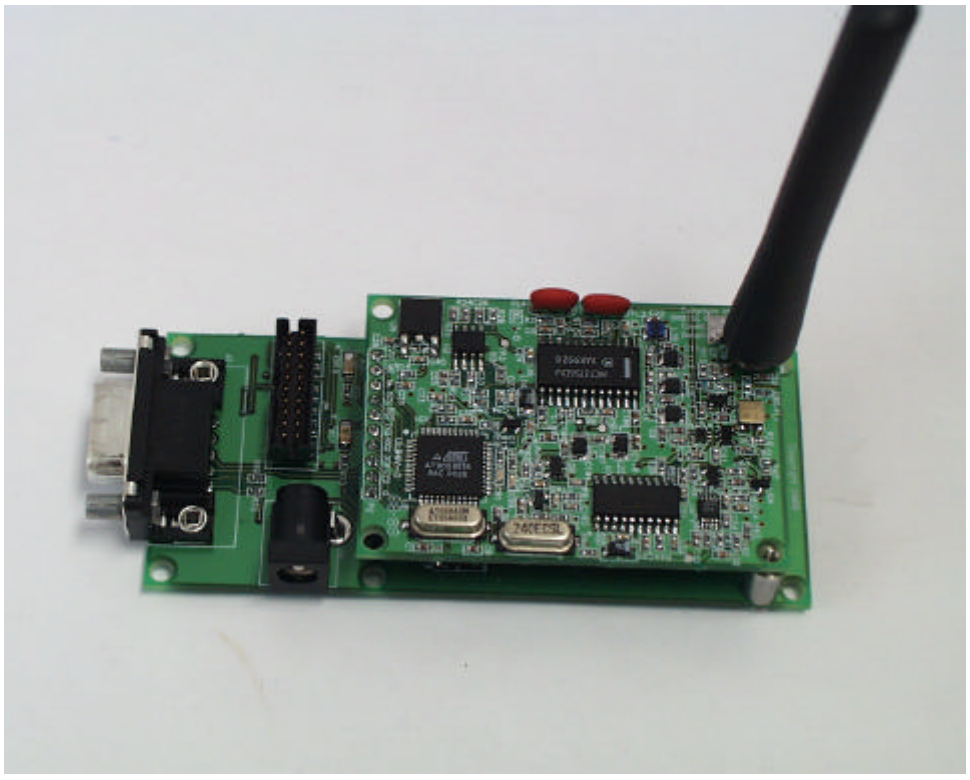
1. Photos of Conducted Emissions Test Set Up
2. Photos of Radiated Emissions Test Set Up
3. Photos of EUT Mounted on Development Board
4. Photos RF PC Board
5. Photo FCC ID Label Location
6. Rogers Qualifications
7. Test Equipment List
8. FCC Site Approval Letter

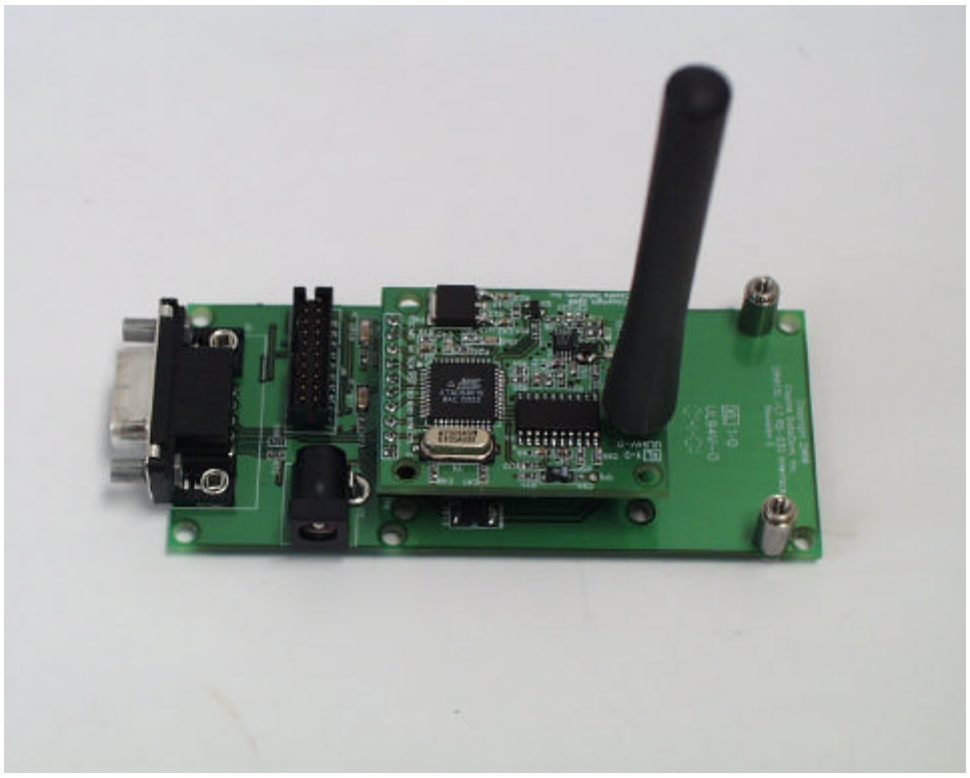
Coyote DataCom, Inc.
MODEL: DR-915L, DR-915LT DATA TRANSMITTER
PHOTOS OF CONDUCTED EMISSIONS TEST SET UP

Coyote DataCom, Inc.
MODEL: DR-915L, DR-915LT DATA TRANSMITTER
PHOTOS OF RADIATED EMISSIONS TEST SET UP

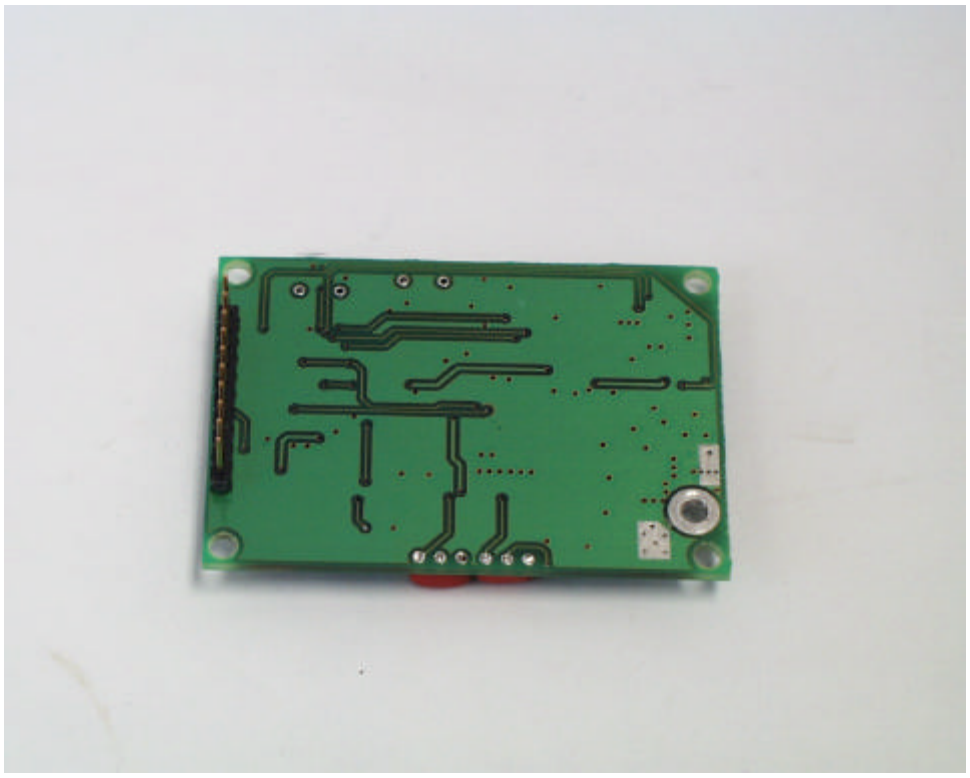


Coyote DataCom, Inc.
MODEL: DR-915L, DR-915LT DATA TRANSMITTER
PHOTOS OF EUT MOUNTED on DEVELOPMENT BOARD

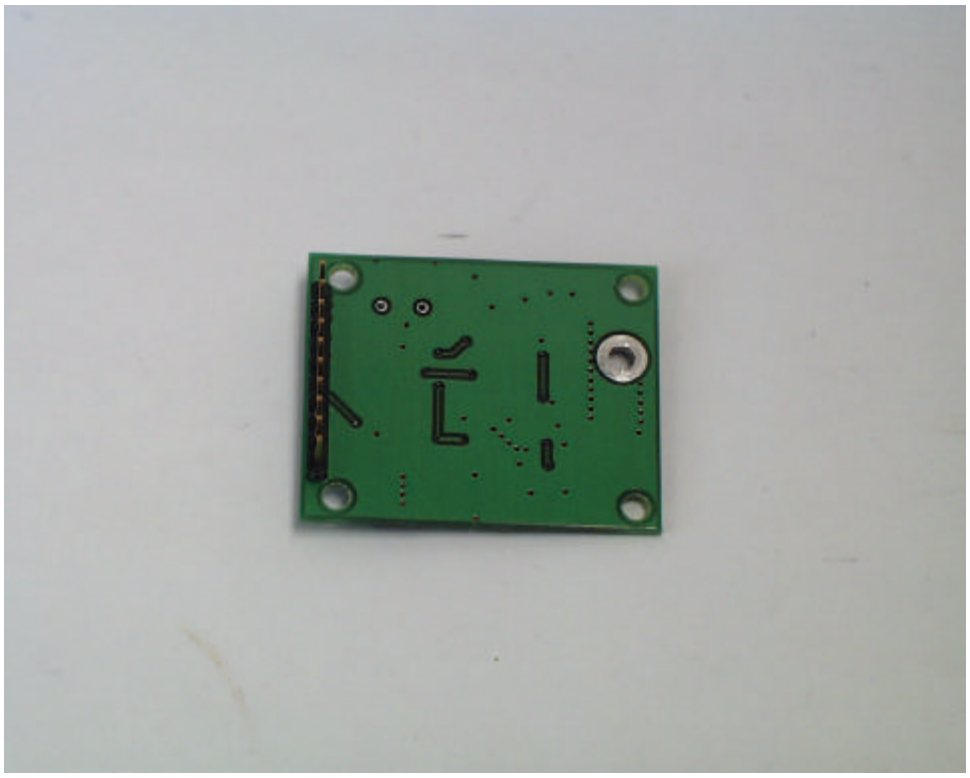




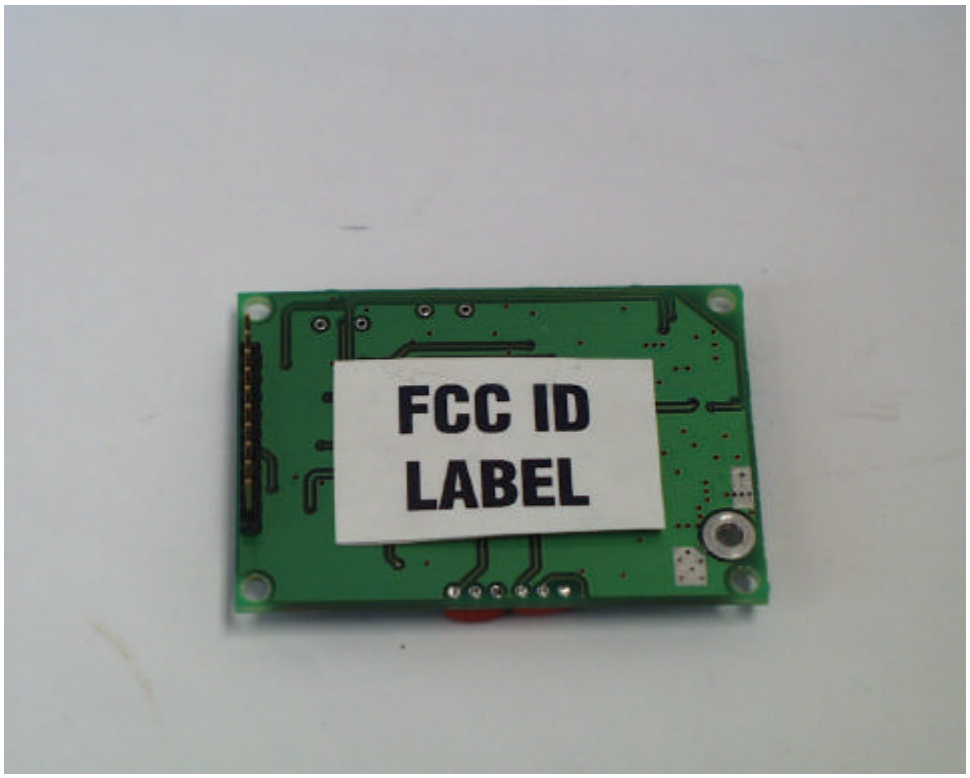
COYOTE DATACOM, INC.
MODEL: DR-915L DATA TRANSMITTER
PHOTOS OF RF PC BOARD

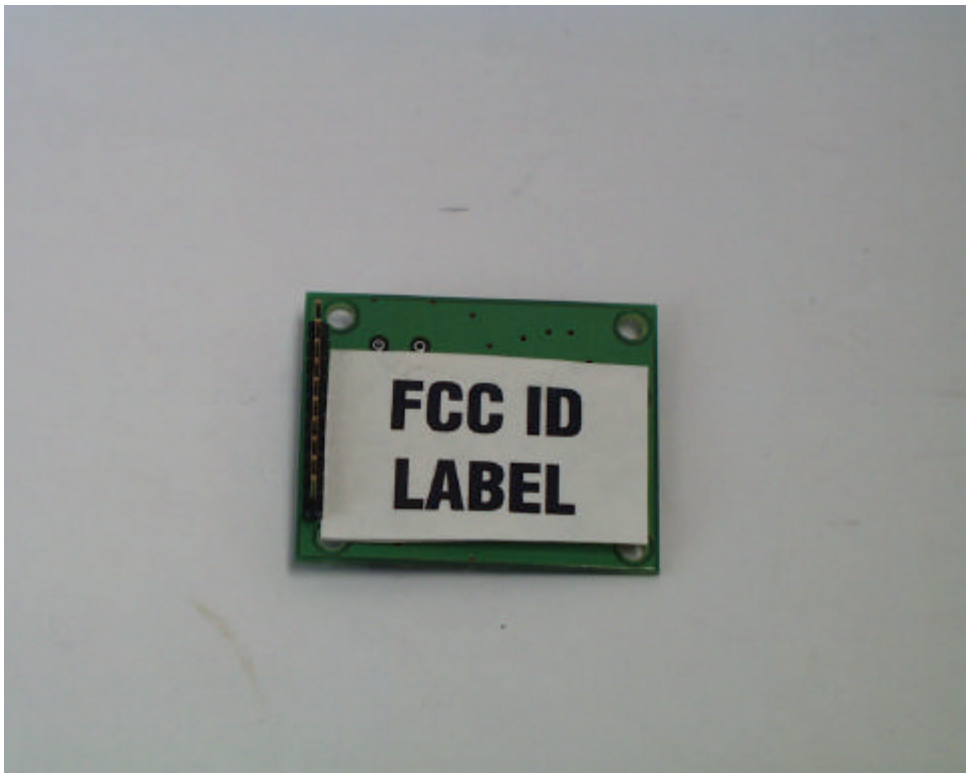


COYOTE DATACOM, INC.
MODEL: DR-915LT DATA TRANSMITTER
PHOTOS OF RF PC BOARD



COYOTE DATACOM, INC.
MODEL: DR-915L, DR-915LT DATA TRANSMITTER
PHOTO FCC ID LABEL LOCATION and LABEL





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	2/00
Wattmeter: Bird 43 with Load Bird 8085	2/00
Power Supplies: Sorensen SRL 20-25, SRL 40-25, DCR 150, DCR 140	2/00
H/V Power Supply: Fluke Model: 408B (SN: 573)	2/00
R.F. Generator: HP 606A	2/00
R.F. Generator: HP 8614A	2/00
R.F. Generator: HP 8640B	2/00
Spectrum Analyzer: HP 8562A, Mixers: 11517A, 11970A, 11970K, 11970U, 11970V, 11970W HP Adapters: 11518, 11519, 11520	2/00
Spectrum Analyzer: HP 8591 EM	7/00
Frequency Counter: Leader LDC 825	2/00
Antenna: EMCO Biconilog Model: 3143	4/00
Antenna: EMCO Log Periodic Model: 3147	10/00
Antenna: Antenna Research Biconical Model: BCD 235	10/00
Antenna: EMCO Dipole Set 3121C	2/00
Antenna: C.D. B-100	2/00
Antenna: Solar 9229-1 & 9230-1	2/00
Antenna: EMCO 6509	2/00
Audio Oscillator: H.P. 200CD	2/00
R.F. Power Amp 65W Model: 470-A-1000	2/00
R.F. Power Amp 50W M185- 10-500	2/00
R.F. PreAmp CPPA-102	2/00
Shielded Room 5 M x 3 M x 3.0 M (100 dB Integrity)	
LISN 50 µHy/50 ohm/0.1 µf	10/00
LISN Compliance Eng. 240/20	2/00
Peavey Power Amp Model: IPS 800	2/00
Power Amp A.R. Model: 10W 1000M7	2/00
Power Amp EIN Model: A300	2/00
ELGAR Model: 1751	2/00
ELGAR Model: TG 704A-3D	2/00
ESD Test Set 2000i	2/00
Fast Transient Burst Generator Model: EFT/B-100	2/00
Current Probe: Singer CP-105	2/00
Current Probe: Solar 9108-1N	2/00
Field Intensity Meter: EFM-018	2/00
KETEK Ecat Surge Generator	2/00

11/01/2000

QUALIFICATIONS

Of

SCOT D. ROGERS, ENGINEER

ROGERS LABS, INC.

Mr. Rogers has approximately 13 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

February 13, 2001
Date

1/11/00

FEDERAL COMMUNICATIONS COMMISSION
Laboratory Division
7435 Oakland Mills Road
Columbia, MD. 21046

December 08, 2000

Registration Number: 90910

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

Attention: Scot D. Rogers

Re: Measurement facility located at Louisburg
3 & 10 meter site
Date of Listing: December 08, 2000

Gentlemen:

Your submission of the description of the subject measurement facility has been reviewed and found to be in compliance with the requirements of Section 2.948 of the FCC Rules. The description has, therefore, been placed on file and the name of your organization added to the Commission's 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 this filing must be updated for any changes made to the facility, and at least every three years from the date of listing the data on file must be certified as current.

If requested, the above mentioned facility has been added to our list of those who perform these measurement services for the public on a fee basis. An up-to-date list of such public test facilities is available on the Internet on the FCC Website at WWW.FCC.GOV, E-Filing, OET Equipment Authorization Electronic Filing.

Sincerely,

Thomas W. Phillips

Thomas W Phillips
Electronics Engineer