

ROGERS LABS, INC.

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TEST REPORT For APPLICATION of CERTIFICATION

For

THE RADAR SHOP
1601 South Grove
Wichita, KS 67211

Barry Cole,
President

MODEL: STEALTH TRACKER MODEL ST-M-S
Field Disturbance Monitor
Frequency 10.525 GHz
FCC ID: Q5J ST-M-S

Test Date: April 24, 2003

Certification Date: April 24, 2003

Certifying Engineer: *Scot D Rogers*

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TABLE OF CONTENTS

FORWARD:	3
1) APPLICABLE STANDARDS & TEST PROCEDURES	3
2.1033(b) Application for Certification.....	4
2) EQUIPMENT TESTED.....	5
3) EQUIPMENT FUNCTION AND TESTING PROCEDURES.....	5
4) EQUIPMENT AND CABLE CONFIGURATIONS	5
Conducted Emission Test Procedure.....	5
Radiated Emission Test Procedure.....	5
5) LIST OF TEST EQUIPMENT.....	6
6) UNITS OF MEASUREMENTS.....	7
7) TEST SITE LOCATIONS.....	7
8) SUBPART B – UNINTENTIONAL RADIATORS.....	7
Conducted EMI.....	7
Radiated EMI.....	7
Data: EUT with DC power cable and System Radiated Emissions (10 Highest):	10
Data: EUT with internal battery and System Radiated Emissions (12 Highest):	10
Summary of Results for Conducted Emissions:	11
Summary of Results for Radiated Emissions:	11
Statement of Modifications:.....	11
9) SUBPART C - INTENTIONAL RADIATORS.....	11
15.203 Antenna Requirements.....	11
Restricted Bands of Operation Per 15.205.....	11
Data 15.205:.....	12
Radiated Emissions in Restricted Bands, EUT with DC power cable:	12
Radiated Emissions in Restricted Bands, EUT with DC power cable:	13
15.209 Radiated Emissions Limits; General Requirements.....	13
Radiated EMI.....	13
Data 15.209:.....	14
Data: EUT with DC power cable and System Radiated Emissions (10 Highest):	14
Data: EUT with internal battery and System Radiated Emissions (12 Highest):	15
Summary of Results for Radiated Emissions:	15
15.245 Operation in the Band 10,500-10,550 MHz.....	16
Data: Intentional Radiated Emissions:.....	17
Data: Harmonic Radiated Emissions:	18
Data: EUT with DC power cable and System Radiated Emissions (10 Highest):	18
Data: EUT with internal battery and System Radiated Emissions (12 Highest):	19
Radiated Emissions of Intentional Radiator:	19
Statement of Modifications:.....	19

FORWARD:

The following is submitted for consideration in obtaining a Grant of Certification for low power intentional radiators operated under CFR 47, paragraph 15.245.

Name of Applicant:

THE RADAR SHOP
1601 South Grove
Wichita, KS 67211

Model: STEALTH TRACKER MODEL ST-M-S

FCC I.D.: Q5J ST-M-S

Frequency Range: 10,500 MHz to 10,550 MHz

Maximum Operating Power: 2,500 mV/m @ 3 Meters (128 dB_{mv}/m @ 3 meters)

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, Part 15C Paragraph 15.245 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:
THE RADAR SHOP
1601 South Grove
Wichita, KS 67211
- (2) Identification: Model: STEALTH TRACKER MODEL ST-M-S
FCC I.D.: Q5J ST-M-S
- (3) Instruction Book:
Refer to the instruction manual furnished with this application for details.
- (4) Description of Circuit Functions:
Refer to the circuit description furnished with this application for details.
- (5) Block Diagram with Frequencies:
Refer to exhibit for blockdiagram furnished with this application for details
- (6) Report of Measurements:
Follows in this Report.
- (7) Photographs: Construction, Component Placement, etc.:
Refer to appendix of this report and exhibits furnished with this application for photographs of equipment.
- (8) Brief description of peripheral equipment used with EUT.
The EUT has a remote control unit to enable operation if the unit is fix mounted. The EUT was tested with and without the remote control feature. The EUT has no other provision to interface with any other device.
- (9) Transition Provisions of 15.37 are not being requested.
- (10) Scanning receiver operation:
Not Applicable.
- (11) Application for unit operating in the 59- 64 GHz band:
Not Applicable.

2) Equipment Tested

<u>EQUIPMENT</u>	<u>MODEL/PART#</u>	<u>FCC I.D.</u>
EUT	STEALTH TRACKER MODEL ST-M-S	Q5J ST-M-S

3) Equipment Function and Testing Procedures

The EUT is a 10.525 GHz field disturbance sensor, radio frequency transmitter used to monitor, measure, and display the speed of a moving object. It was designed for use in measuring the speed of traffic by police personnel. The unit uses the 10.525 GHz radio frequency field in its vicinity to detect and measure changes in that field resulting from the movement of objects within its range. Changes to the field are used to measure projectile speed and display the information on the LCD screen located at the rear of the device. The EUT is operated from an internal battery pack or auxiliary power outlet adapter and has no provision for connection to the utility power system. Since the EUT is battery operated, no line-conducted emissions testing was performed.

4) Equipment and Cable Configurations

Conducted Emission Test Procedure

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. Since the EUT is battery operated, no line-conducted emissions testing was performed.

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 a distance of 3 meters from the FSM antenna. EMI energy was maximized by

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4405 W. 259th Terrace The Radar Shop
Louisburg, KS 66053 MODEL: Stealth Tracker Model ST-M-S
Phone/Fax: (913) 837-3214 Test #:030424 FCCID#: Q5J ST-M-S
Test to: FCC Parts 2 and 15.245 Page 5 of 23
CERTIFICATION Q5JSTMSTstRpt.doc 5/12/2003

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 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. DATE	DUE.
LISN	Comp. Design	1762	2/03	2/03
Antenna	ARA	BCD-235-B	10/02	10/03
Antenna	EMCO	3147	10/02	10/03
Antenna	EMCO	3143	5/02	5/03
Analyzer	HP	8591EM	7/02	7/03
Analyzer	HP	8562A	7/02	7/03

6) Units of Measurements

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

Radiated EMI: Data is in dB μ V/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 Rogers Labs, Inc. 3 meter Open Area Test Site (OATS).

Site Approval: Refer to Appendix for FCC Site Approval FCC registration number 90910

NVLAP Accredited: Lab Code 200087-0.

8) SUBPART B – Unintentional Radiators

Conducted EMI

The EUT is battery operated only and has no provision to connect to utility power. Therefore no AC line conducted emissions testing was performed.

Radiated EMI

The EUT was arranged in a typical equipment configuration and operated in a standard mode. 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 1200 MHz and for the fundamental and related harmonics for the preliminary testing. Refer to figures 1 and 2 for plots of the frequency spectrum produced by the EUT taken at a distance of 1 meter located in the screen room. The EUT location and orientation was noted and reconfigured at the open area test site. 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 1200 MHz was searched for radiated emissions. Measured emission levels were maximized by EUT placement on the table, changing cable location, 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, Log Periodic from 200 MHz to 5 GHz, and or a Biconi Log from 30 to 1000 MHz, and pyramidal horns and/or mixers from 4 GHz to 100 GHz.

Sample Calculations:

$$\begin{aligned} \text{RFS} &= \text{Radiated Field Strength} \\ \text{dB}\mu\text{V/m} @ 3\text{m} &= \text{dB}\mu\text{V} + \text{A.F.} - \text{Amplifier Gain} \\ \text{dB}\mu\text{V/m} @ 3\text{m} &= 59.7 + 16.1 - 35 \\ &= 40.8 \end{aligned}$$

MARKER
48.5 MHz
43.62 dB μ V

ACTV DET: PEAK
MEAS DET: PEAK QP
MKR 48.5 MHz
43.62 dB μ V

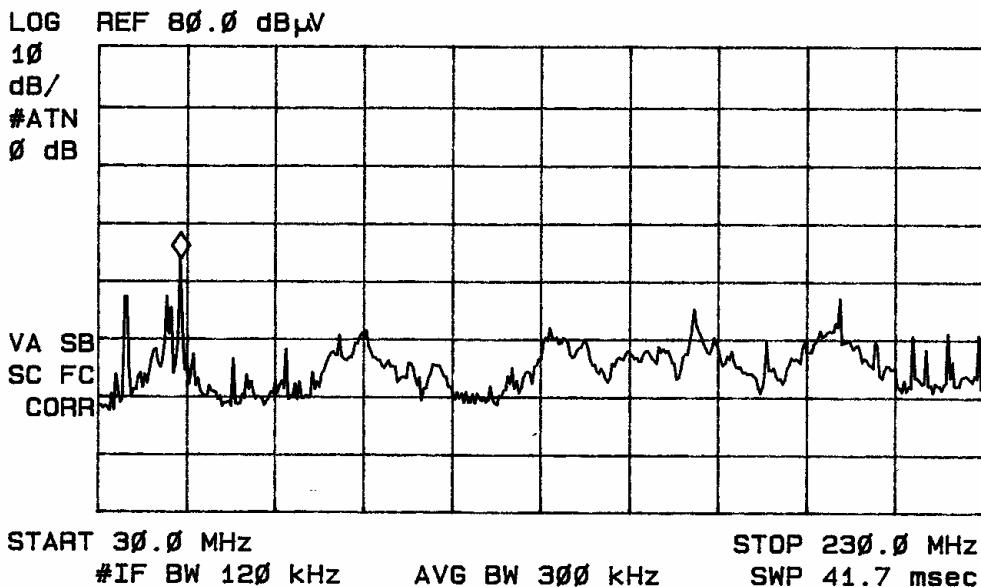


Figure one Radiated Emissions taken in screen room.

MARKER
388 MHz
42.45 dB μ V

ACTV DET: PEAK
MEAS DET: PEAK QP
MKR 388 MHz
42.45 dB μ V

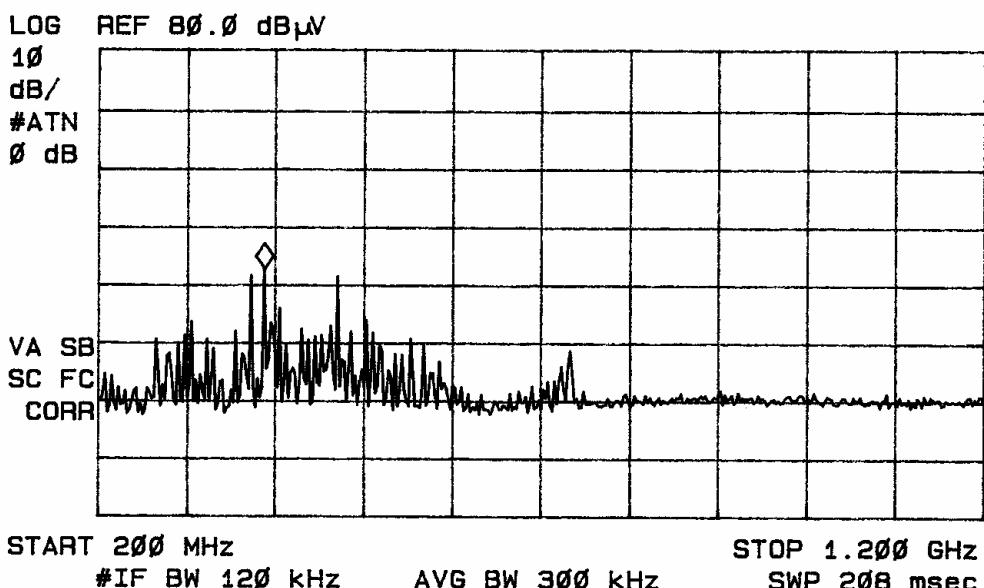


Figure two Radiated Emissions taken in screen room.

NOTE: No conducted emissions measurements taken for this battery operated device.

ROGERS LABS, INC.
4405 W. 259th Terrace The Radar Shop
Louisburg, KS 66053 MODEL: Stealth Tracker Model ST-M-S
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Test to: FCC Parts 2 and 15.245 Page 9 of 23
CERTIFICATION Q5JSTMSTstRpt.doc 5/12/2003

Data: EUT with DC power cable and System Radiated Emissions (10 Highest):

Frequency In MHz	FSM Hor. (dB μ V) Quasi-Peak	FSM Vert. (dB μ V) Quasi-Peak	Ant. Fact. (dB)	Amp. Gain (dB)	Comp. Hor. (dB μ V/m) @ 3m	Comp. Vert. (dB μ V/m) @ 3 m	FCC Limit (dB μ V)
385.1	59.7	64.3	16.1	35	40.8	45.4	46.0
401.5	52.2	62.7	17.0	35	34.2	44.7	46.0
426.1	59.7	59.5	17.5	35	42.2	42.0	46.0
434.3	53.3	52.8	16.9	35	35.2	34.7	46.0
442.5	57.9	60.2	16.5	35	39.4	41.7	46.0
450.6	60.5	59.8	16.8	35	42.3	41.6	46.0
467.0	58.5	59.8	17.7	35	41.2	42.5	46.0
499.8	62.0	58.7	17.7	35	44.7	41.4	46.0
507.9	56.2	50.1	18.5	35	39.7	33.6	46.0
548.9	57.6	54.4	19.5	35	42.1	38.9	46.0

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

Data: EUT with internal battery and System Radiated Emissions (12 Highest):

Frequency In MHz	FSM Hor. (dB μ V) Quasi-Peak	FSM Vert. (dB μ V) Quasi-Peak	Ant. Fact. (dB)	Amp. Gain (dB)	Comp. Hor. (dB μ V/m) @ 3m	Comp. Vert. (dB μ V/m) @ 3 m	FCC Limit (dB μ V)
303.2	62.1	64.2	14.3	35	41.4	43.5	46.0
368.8	55.3	64.5	15.8	35	36.1	45.3	46.0
385.1	54.3	63.8	16.1	35	35.4	44.9	46.0
401.5	55.4	62.7	17.0	35	37.4	44.7	46.0
426.1	57.3	55.6	17.5	35	39.8	38.1	46.0
434.3	49.8	53.0	16.9	35	31.7	34.9	46.0
442.5	55.3	59.5	16.5	35	36.8	41.0	46.0
450.6	58.8	61.3	16.8	35	40.6	43.1	46.0
467.0	61.2	60.3	17.7	35	43.9	43.0	46.0
499.8	62.1	58.8	17.7	35	44.8	41.5	46.0
507.9	59.5	48.7	18.5	35	43.0	32.2	46.0
548.9	57.8	59.5	19.5	35	42.3	44.0	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 FCC Part 15B CLASS B Digital Devices.

Summary of Results for Radiated Emissions:

The radiated emissions for the EUT meet the requirements for FCC Part 15B CLASS B Digital Devices. The EUT had a 0.6 dB minimum margin below the paragraph 15.109 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 FCC Part 15B CLASS B emissions standards. There were no deviations to the specifications.

9) Subpart C - Intentional Radiators

The following information is submitted per CFR Part 15, Subpart C.

15.203 Antenna Requirements

The unit is produced with a permanently attached antenna. The antenna is not replaceable or user serviceable. The requirements of 15.203 are met; there are no deviations or exceptions to the specification.

Restricted Bands of Operation Per 15.205

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 measured 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:

$$\begin{aligned}
 \text{Computed Quasi-Peak (dB}\mu\text{V/m} @ 3\text{m}) &= \text{FSM(dB}\mu\text{V)} + \text{A.F.(dB)} - \text{Gain(dB)} \\
 &= 51.4 + 8.1 - 35 \\
 &= 24.5
 \end{aligned}$$

Data 15.205:

Radiated Emissions in Restricted Bands, EUT with DC power cable:

Emission Frequency (MHz)	FSM Horz. (dB μ V)	FSM Vert. (dB μ V)	Ant. Factor (dB)	Amp. Gain (dB)	RFS Horz. @ 3m (dB μ V/m)	RFS Vert. @ 3m (dB μ V/m)	Limit @ 3m (dB μ V/m)
131.1	51.4	52.7	8.1	35	27.8	28.3	43.5
163.8	48.5	43.5	8.8	35	22.3	17.3	43.5
401.5	52.2	62.7	17.0	35	34.2	44.7	46.0
21,050	54.5	54.3	22.0	0	76.5	76.3	77.5
31,575	45.1	45.0	23.0	0	68.1	68.0	77.5
42,100	37.1	37.0	25.0	0	62.1	62.0	77.5
52,625	36.3	36.3	22.0	0	58.3	58.3	77.5
63,150	28.1	28.1	34.4	0	62.5	62.5	77.5
73,675	26.3	26.3	34.7	0	61.0	61.0	77.5
84,200	27.8	27.8	37.7	0	65.5	65.5	77.5
94,725	26.1	26.1	39.5	0	65.6	65.5	77.5

No other emissions found in the restricted bands

Radiated Emissions in Restricted Bands, EUT with internal battery:

Emission Frequency (MHz)	FSM Horz. (dB μ V)	FSM Vert. (dB μ V)	Ant. Factor (dB)	Amp. Gain (dB)	RFS Horz. @ 3m (dB μ V/m)	RFS Vert. @ 3m (dB μ V/m)	Limit @ 3m (dB μ V/m)
131.1	41.4	40.5	8.1	35	14.5	13.6	43.5
163.8	46.6	40.2	8.8	35	20.4	14.0	43.5
401.5	55.4	62.7	17.0	35	37.4	44.7	46.0
21,050	54.5	54.3	22.0	0	76.5	76.3	77.5
31,575	45.1	45.0	23.0	0	68.1	68.0	77.5
42,100	37.1	37.0	25.0	0	62.1	62.0	77.5
52,625	36.3	36.3	22.0	0	58.3	58.3	77.5
63,150	28.1	28.1	34.4	0	62.5	62.5	77.5
73,675	26.3	26.3	34.7	0	61.0	61.0	77.5
84,200	27.8	27.8	37.7	0	65.5	65.5	77.5
94,725	26.1	26.1	39.5	0	65.6	65.5	77.5

No other emissions found in the restricted bands

15.209 Radiated Emissions Limits; General Requirements

Radiated EMI

The EUT was arranged in a typical equipment configuration and operated in a standard mode. 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. 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 field test site at a distance of 3 meters between the EUT and the receiving antenna. The frequency spectrum from 30 MHz to 100 GHz was searched for radiated emissions. Measured emission levels were maximized by EUT placement on the table, changing cable location, 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, Log Periodic from 200 MHz to 5 GHz and/or Biconilog from 30 MHz to 1000 MHz; and pyramidal horns and or mixers from 4 GHz to 100 GHz.

Sample Calculations:

RFS = Radiated Field Strength

dB μ V/m @ 3m = dB μ V + A.F. - Amplifier Gain

$$\text{dB}\mu\text{V}/\text{m} @ 3\text{m} = 59.7 + 16.1 - 35$$

$$= 40.8$$

Data 15.209:

Data: EUT with DC power cable and System Radiated Emissions (10 Highest):

Frequency In MHz	FSM Hor. (dB μ V) Quasi-Peak	FSM Vert. (dB μ V) Quasi-Peak	Ant. Fact. (dB)	Amp. Gain (dB)	Comp. Hor. (dB μ V/m) @ 3m	Comp. Vert. (dB μ V/m) @ 3 m	FCC Limit (dB μ V)
385.1	59.7	64.3	16.1	35	40.8	45.4	46.0
401.5	52.2	62.7	17.0	35	34.2	44.7	46.0
426.1	59.7	59.5	17.5	35	42.2	42.0	46.0
434.3	53.3	52.8	16.9	35	35.2	34.7	46.0
442.5	57.9	60.2	16.5	35	39.4	41.7	46.0
450.6	60.5	59.8	16.8	35	42.3	41.6	46.0
467.0	58.5	59.8	17.7	35	41.2	42.5	46.0
499.8	62.0	58.7	17.7	35	44.7	41.4	46.0
507.9	56.2	50.1	18.5	35	39.7	33.6	46.0
548.9	57.6	54.4	19.5	35	42.1	38.9	46.0

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

Data: EUT with internal battery and System Radiated Emissions (12 Highest):

Frequency In MHz	FSM Hor. (dB μ V) Quasi-Peak	FSM Vert. (dB μ V) Quasi-Peak	Ant. Fact. (dB)	Amp. Gain (dB)	Comp. Hor. (dB μ V/m) @ 3m	Comp. Vert. (dB μ V/m) @ 3 m	FCC Limit (dB μ V)
303.2	62.1	64.2	14.3	35	41.4	43.5	46.0
368.8	55.3	64.5	15.8	35	36.1	45.3	46.0
385.1	54.3	63.8	16.1	35	35.4	44.9	46.0
401.5	55.4	62.7	17.0	35	37.4	44.7	46.0
426.1	57.3	55.6	17.5	35	39.8	38.1	46.0
434.3	49.8	53.0	16.9	35	31.7	34.9	46.0
442.5	55.3	59.5	16.5	35	36.8	41.0	46.0
450.6	58.8	61.3	16.8	35	40.6	43.1	46.0
467.0	61.2	60.3	17.7	35	43.9	43.0	46.0
499.8	62.1	58.8	17.7	35	44.8	41.5	46.0
507.9	59.5	48.7	18.5	35	43.0	32.2	46.0
548.9	57.8	59.5	19.5	35	42.3	44.0	46.0

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 0.6 dB minimum margin below the paragraph 15.209 limits. Other emissions were present with amplitudes at least 10 dB below the FCC Limits.

15.245 Operation in the Band 10,500-10,550 MHz

The power output was measured on an open field test site @ 3 meters. Data was taken per Paragraph 2.1046(a) and 15.245.

(a) The EUT was placed on a wooden turntable 0.8 meters above the ground plane and at a distance of 3 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) Harmonic emissions radiated outside of the specified bands below 17.7 GHz, as specified in 15.205, shall not exceed the field strength limits shown in 15.209. Harmonic emissions above 17.7 GHz shall not exceed the following field strength limits: For field disturbance sensors, 7.5 mV/m (77.5 dB μ V/m). The amplitude of each spurious emission was 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, a Log Periodic Antenna for 200 to 5000 MHz; and/or Pyramidal Horn Antennas from 4 to 18 GHz, and appropriate mixers from 18 GHz to 100 GHz. Emissions were measured in dB μ V/m and converted to dB μ V/m @ 3 meters using the following equation. Refer to figure three showing compliance with bandedges and occupied bandwidth.

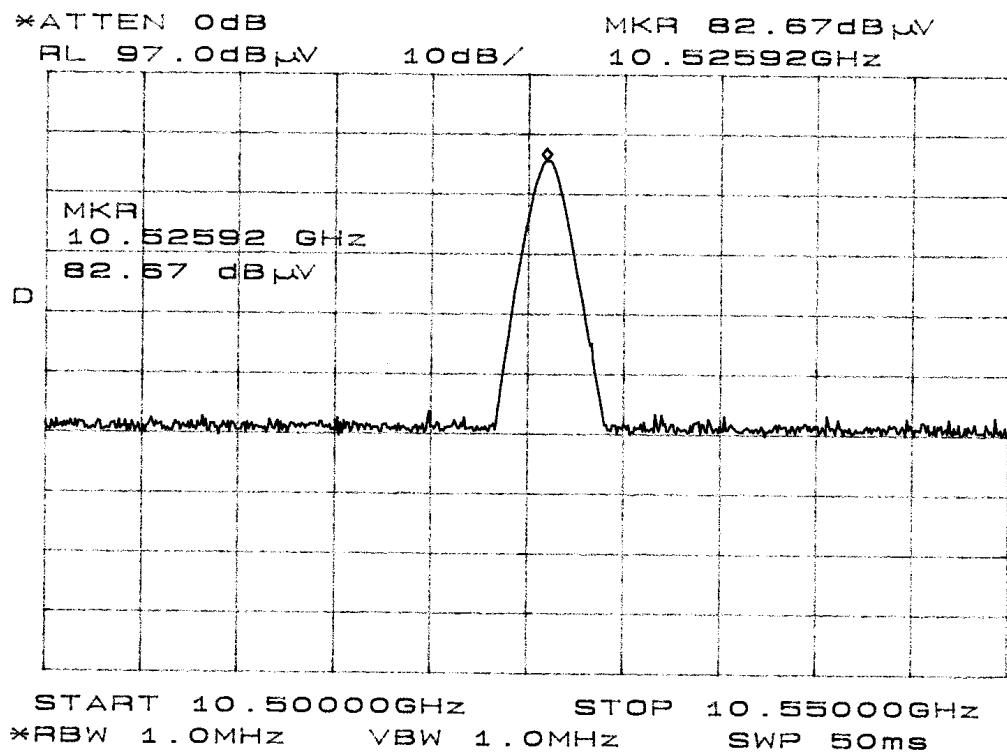


Figure Three, occupied bandwidth and bandedge compliance.

$$\begin{aligned}
 \text{dBμV/m@ 3m} &= \text{FSM} + \text{A.F. GAIN} \\
 &= 88.5 + 33.5 \\
 &= 122.0
 \end{aligned}$$

Data: Intentional Radiated Emissions:

Frequency (MHz)	FSM IN HOR dBμV	FSM IN VERT dBμV	ANT FACT dB	CFS LEVEL IN dBμV/m @ 3m HOR	CFS LEVEL IN dBμV/m @ 3m VERT	Limit dBμV/m @ 3m
10,525	88.5	89.0	33.5	122.0	122.5	128.0

Note: Level was measured @3-meter site. RWB and VBW set at 1 MHz for emission measurements above 1 GHz.

Data: Harmonic Radiated Emissions:

Frequency (MHz)	FSM IN HOR dB μ V	FSM IN VERT dB μ V	ANT FACT dB	CFS LEVEL IN dB μ V/m @ 3m HOR	CFS LEVEL IN dB μ V/m @ 3m VERT	Limit dB μ V/m @ 3m
21,050	54.5	54.3	22.0	76.5	76.3	77.5
31,575	45.1	45.0	23.0	68.1	68.0	77.5
42,100	37.1	37.0	25.0	62.1	62.0	77.5
52,625	36.3	36.3	22.0	58.3	58.3	77.5
63,150	28.1	28.1	34.4	62.5	62.5	77.5
73,675	26.3	26.3	34.7	61.0	61.0	77.5
84,200	27.8	27.8	37.7	65.5	65.5	77.5
94,725	26.1	26.1	39.5	65.6	65.5	77.5

Note: Level was measured @3-meter site.

Per paragraph 15.245(b)(3), emissions radiated outside of the specified frequency 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. This increases the minimum margin below the limit for the following emissions.

Data: EUT with DC power cable and System Radiated Emissions (10 Highest):

Frequency In MHz	FSM Hor. (dB μ V) Quasi-Peak	FSM Vert. (dB μ V) Quasi-Peak	Ant. Fact. (dB)	Amp. Gain (dB)	Comp. Hor. (dB μ V/m) @ 3m	Comp. Vert. (dB μ V/m) @ 3 m	FCC Limit (dB μ V)
385.1	59.7	64.3	16.1	35	40.8	45.4	72.0
401.5	52.2	62.7	17.0	35	34.2	44.7	72.0
426.1	59.7	59.5	17.5	35	42.2	42.0	72.0
434.3	53.3	52.8	16.9	35	35.2	34.7	72.0
442.5	57.9	60.2	16.5	35	39.4	41.7	72.0
450.6	60.5	59.8	16.8	35	42.3	41.6	72.0
467.0	58.5	59.8	17.7	35	41.2	42.5	72.0
499.8	62.0	58.7	17.7	35	44.7	41.4	72.0
507.9	56.2	50.1	18.5	35	39.7	33.6	72.0
548.9	57.6	54.4	19.5	35	42.1	38.9	72.0

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

ROGERS LABS, INC.

4405 W. 259th Terrace

Louisburg, KS 66053

Phone/Fax: (913) 837-3214

The Radar Shop

MODEL: Stealth Tracker Model ST-M-S

Test #:030424

FCCID#: Q5J ST-M-S

Test to: FCC Parts 2 and 15.245

Page 18 of 23

CERTIFICATION Q5JSTMSTstRpt.doc 5/12/2003

Data: EUT with internal battery and System Radiated Emissions (12 Highest):

Frequency In MHz	FSM Hor. (dB μ V) Quasi-Peak	FSM Vert. (dB μ V) Quasi-Peak	Ant. Fact. (dB)	Amp. Gain (dB)	Comp. Hor. (dB μ V/m) @ 3m	Comp. Vert. (dB μ V/m) @ 3 m	FCC Limit (dB μ V)
303.2	62.1	64.2	14.3	35	41.4	43.5	72.0
368.8	55.3	64.5	15.8	35	36.1	45.3	72.0
385.1	54.3	63.8	16.1	35	35.4	44.9	72.0
401.5	55.4	62.7	17.0	35	37.4	44.7	72.0
426.1	57.3	55.6	17.5	35	39.8	38.1	72.0
434.3	49.8	53.0	16.9	35	31.7	34.9	72.0
442.5	55.3	59.5	16.5	35	36.8	41.0	72.0
450.6	58.8	61.3	16.8	35	40.6	43.1	72.0
467.0	61.2	60.3	17.7	35	43.9	43.0	72.0
499.8	62.1	58.8	17.7	35	44.8	41.5	72.0
507.9	59.5	48.7	18.5	35	43.0	32.2	72.0
548.9	57.8	59.5	19.5	35	42.3	44.0	72.0

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

Radiated Emissions of Intentional Radiator:

The EUT had a 26.6 dB margin below the limits of paragraph 15.245(b)(3). The EUT had a 1.0 dB margin below the limits for harmonic emissions as required per paragraph 15.245(b).

The radiated emissions for the EUT meet the requirements for FCC Part 15C, paragraph 15.245, 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 20 dB below the FCC Limits. The specification of 15.245 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

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.

<u>List of Test Equipment:</u>	<u>Calibration Date:</u>
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,	2/03
Mixers: 11517A, 11970A, 11970K, 11970U, 11970V, 11970W	
HP Adapters: 11518, 11519, 11520	
Spectrum Analyzer: HP 8591 EM	7/02
Frequency Counter: Leader LDC 825	2/03
Antenna: EMCO Biconilog Model: 3143	5/02
Antenna: EMCO Log Periodic Model: 3147	10/02
Antenna: Antenna Research Biconical Model: BCD 235	10/02
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: 470A-1010	2/03
R.F. Power Amp 50W M185 10-501	2/03
R.F. PreAmp CPPA-102	2/03
LISN 50 μ Hy/50 ohm/0.1 μ f	10/02
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/B101	2/03
Current Probe: Singer CP105	2/03
Current Probe: Solar 91081N	2/03
Field Intensity Meter: EFM018	2/03
KEYTEK Ecat Surge Generator	2/03
Shielded Room 5 M x 3 M x 3.0 M (101 dB Integrity)	
02/28/2003	

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. RogersApril 24, 2003
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

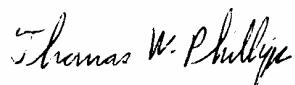
Re: Measurement facility located at Louisburg
3 & 10 meter site
Date of Listing: December 08, 2000

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
Electronics Engineer