NVLAP Lab Code 200087-0

Test Report

For

Grant of Certification Application

FOR

Model: 05846
2402-2482 MHz
Low Power Transmitter

FCC ID: FIH05846
IC: 1584A-05846

FOR

TRANSCORE

AMTECH TECHNOLOGY CENTER

8600 Jefferson Street, NE
Albuquerque, NM 87113

Test Report Number: 121116

Authorized Signatory: Scot D Rogers

Scot D. Rogers

NVLAP Lab Code 200087-0

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

Engineering Test Report
For Application Of
Grant of Certification

FOR

CFR47, PART 15C - Intentional Radiators Paragraph 15.249
And Industry Canada RSS-210
License Exempt Intentional Radiator Low Power Transmitter

For

TRANSCORE
Amtech Technology Center
8600 Jefferson Street, NE
Albuquerque, NM 87113

Model: 05846

Frequency range: 2402-2482 MHz
FCC ID: FIH05846 IC: 1584A-05846

Test Date: November 16, 2012

Certifying Engineer:

Scot D. Rogers
Rogers Labs, Inc.
4405 West 259th Terrace
Louisburg, KS 66053
Telephone / Facsimile: (913) 837-3214

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Table of Contents

Revisions

Revision 1, Issued December 6, 2012

Forward

The following information is submitted for consideration in obtaining Grant of Certification for a license exempt low power intentional radiator operating under CFR47 Paragraph 15.249 and Industry Canada RSS-210 Issue 8.

Name of Applicant:
TRANSCORE
8600 Jefferson Street, NE
Albuquerque, NM 87113

Model: 05846
FCC I.D.: FIH05846 IC: 1584A-05846
Frequency Range: 2402- 2482 MHz.
Operating Power: 73.6 (peak) dBµV/m @ 3-meters (3 meter radiated measurement) and occupied bandwidth of 392.6 kHz

Opinion / Interpretation of Results

Tests Performed	Margin (dB)	Results
Emissions as per CFR 47 paragraphs 15.205, RSS-210	-15.8	Complies
Emissions as per CFR 47 paragraphs 15.207, RSS-210	N/A	Complies
Emissions as per CFR 47 paragraphs 15.209, RS-210	-23.3	Complies
Transmitter Harmonic Emissions CFR47 15.249, RSS210	-14.9	Complies
Emissions as per CFR 47 paragraphs 15.111, RSS210	N/A	Complies

Environmental Conditions

Ambient Temperature	24.3° C
Relative Humidity	52%
Atmospheric Pressure	1028.0 mb

Statement of Modifications and Deviations

No modifications to the EUT were required for the design to demonstrate compliance with the CFR47 Part 15C emissions requirements. There were no deviations to the specifications.

Application for Certification

(1) Manufacturer: TRANSCORE
8600 Jefferson Street, NE
Albuquerque, NM 87113

(2) Identification: Model: 05846

FCC I.D.: FIH05846 IC: 1584A-05846

(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) Equipment is not a scanning receiver and this section is not applicable.

(11) The equipment does not operate in the 59 – 64 GHz frequency band and this section is not applicable.

(12) The equipment is not software defined and this section is not applicable.

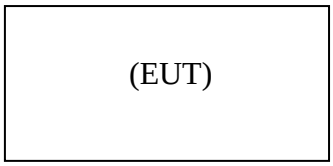
Equipment Tested

Equipment	Model	FCC ID	I.C.
EUT	05846	FIH05846	1584A-05846

Equipment Function and Configuration

The EUT is a 2400-2483.5 MHz low power transmitter used as a low power communications device. The product was designed to interact with compliant remote auxiliary equipment. The EUT operates from replaceable internal 1.5-volt AAA battery only and offers no provision for connection to auxiliary equipment. As the EUT is battery operated, no AC line-conducted emissions testing was required or performed. The samples offered for testing were modified with test software providing test personnel ability to activate transmitter function. Normal operation maintains the device in a low duty cycle state increasing battery life.

Equipment Configuration



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

Sample Calculation:

RFS = Radiated Field Strength, FSM = Field Strength Measured

A.F. = Receive antenna factor, Gain = amplification gains and/or cable losses

RFS (dBµV/m @ 3m) = FSM (dBµV) + A.F. (dB) - Gain (dB)

Test Site Locations

Conducted EMI — The AC power line conducted emissions testing 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 Registration — Refer to Annex for Site Registration Letters

NVLAP Accreditation — Lab code 200087-0

List of Test Equipment

A Rohde and Schwarz ESU40 and/or Hewlett Packard 8591EM was used as the measuring device for the emissions testing of frequencies below 1 GHz. A Rohde and Schwarz ESU40 and/or 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 30-1000 MHz		
RBW	AVG. BW	Detector Function
120 kHz	300 kHz	Peak / Quasi Peak
Radiated Emissions above 1000 MHz		
RBW	Video BW	Detector Function
100 kHz	100 kHz	Peak
1 MHz	1 MHz	Peak / Average

Equipment	Manufacturer	Model	Band	Cal Date	Due
☐ LISN	Comp. Design	FCC-LISN-2-MOD.CD	.15-30MHz	10/12	10/13
☐ Antenna	ARA	BCD-235-B	20-350MHz	10/12	10/13
☐ Antenna	EMCO	3147	200-1000MHz	10/12	10/13
☒ Antenna	Com Power	AH-118	1-18 GHz	10/11	10/13
☐ Antenna	Com Power	AH-840	18-40 GHz	10/12	10/13
☒ Antenna	Standard	FXRY638A	10-18 GHz	3/12	5/13
☒ Antenna	EMCO	6509	.001-30 MHz	2/12	2/13
☐ Antenna	EMCO	3143	20-1200 MHz	5/12	5/13
☒ Antenna	Sunol	JB-6	30-1000 MHz	5/12	5/13
☐ Analyzer	HP	8591EM	9kHz-1.8GHz	5/12	5/13
☐ Analyzer	HP	8562A	9kHz-110GHz	5/12	5/13
☒ Analyzer	Rohde & Schwarz	ESU40	20Hz-40GHz	5/12	5/13
☒ Amplifier	Com-Power	PA-010	100Hz-30MHz	10/12	10/13
☒ Amplifier	Com-Power	CPPA-102	1-1000 MHz	10/12	10/13
☒ Amplifier	Com-Power	PA-122	0.5-22 GHz	10/12	10/13

Applicable Standards & Test Procedures

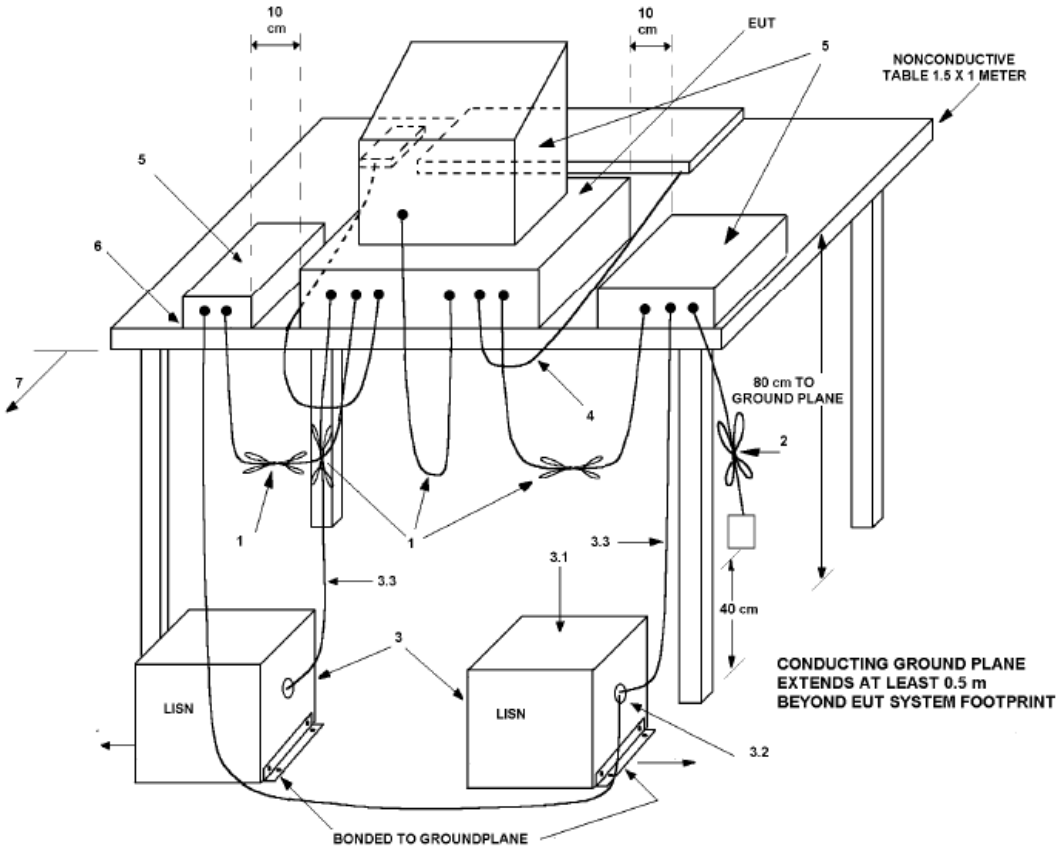
In accordance with the Federal Communications CFR47, dated October 1, 2011, Part 2, Part 15C, RSS-210, and RSS-GEN, the following information is submitted. Test procedures used are the established Methods of Measurement of Radio-Noise Emissions as described in the ANSI C63.4-2009 Document. Testing procedures may include testing AC line-conducted emissions as defined in sections 7 and 13.1.3, testing radiated emissions as defined in sections 8 and 13.1.4 of ANSI C63.4-2009. Testing of the intentional radiated emissions was performed as defined in section 13 of ANSI C63.4-2009.

AC Line Conducted Emission Test Procedure

The design operates from direct current battery power only and offers no provision for connection to utility AC power systems. Therefore, no AC line conducted emissions testing is required. Testing for the AC line-conducted emissions testing would be performed as defined in sections 7 and 13.1.3 of ANSI C63.4-2009. The test setup including the EUT would be arranged in typical equipment configurations 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 would be isolated from the power source using a standard

LISN with a 50-µHy choke. EMI would be coupled to the spectrum analyzer through a 0.1 µF capacitor internal to the LISN. The LISN is positioned on the floor beneath the wooden bench supporting the EUT. The power lines and cables would be draped over the back edge of the table. Refer to diagram 1 showing typical test arrangement and photographs in the test setup exhibits for specific EUT placement during testing.

Diagram 1 Test arrangement for Conducted emissions



1. Interconnecting cables that hang closer than 40 cm to the ground plane were folded back and forth in the center forming a bundle 30 cm to 40 cm long.
2. Input/output (I/O) cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
3. EUT connected to one LISN. Unused LISN measuring port connectors are terminated into 50 Ω loads. LISN is placed on top of and bonded to reference ground plane.

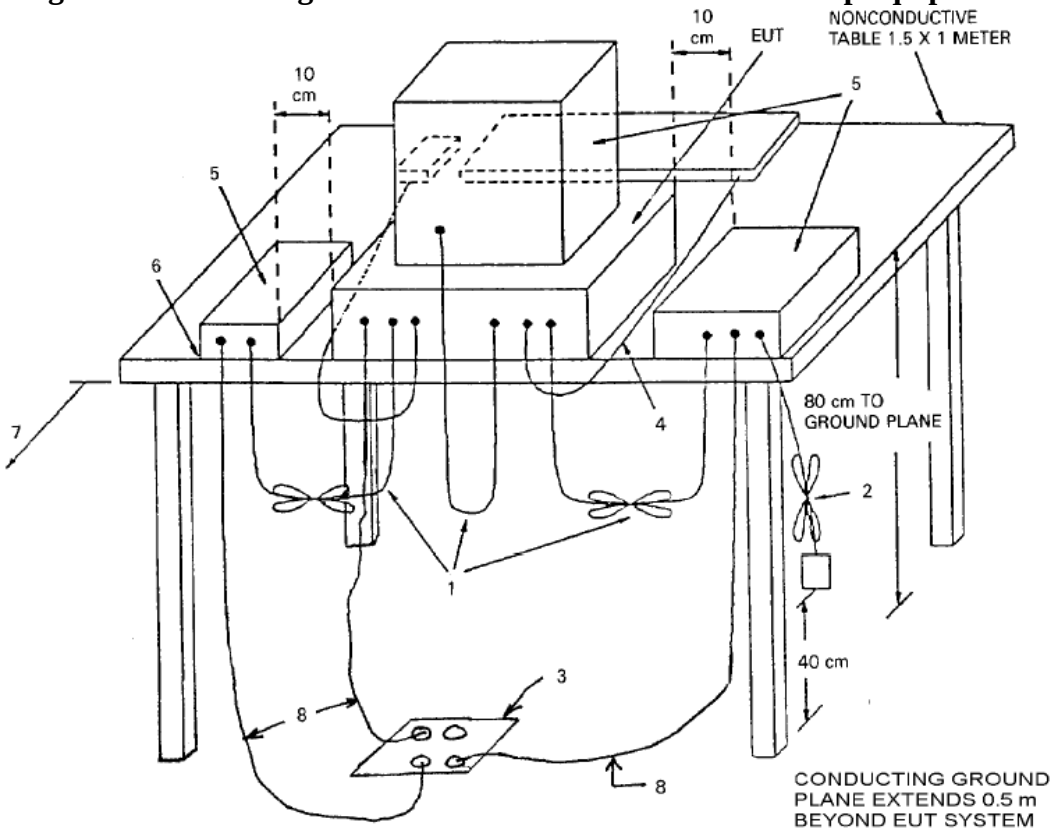
3.1 All other equipment powered from additional LISN(s).
3.2 Multiple outlet strips can be used for multiple power cords of non-EUT equipment.
3.3 LISN is positioned at least 80 cm from nearest part of EUT chassis.

4. Cables of hand-operated devices, such as keyboards, mice, and so on, shall be placed as for normal use.
5. Non-EUT components of EUT system being tested.
6. Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
7. Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane (see 5.2.2 for options).

Radiated Emission Test Procedure

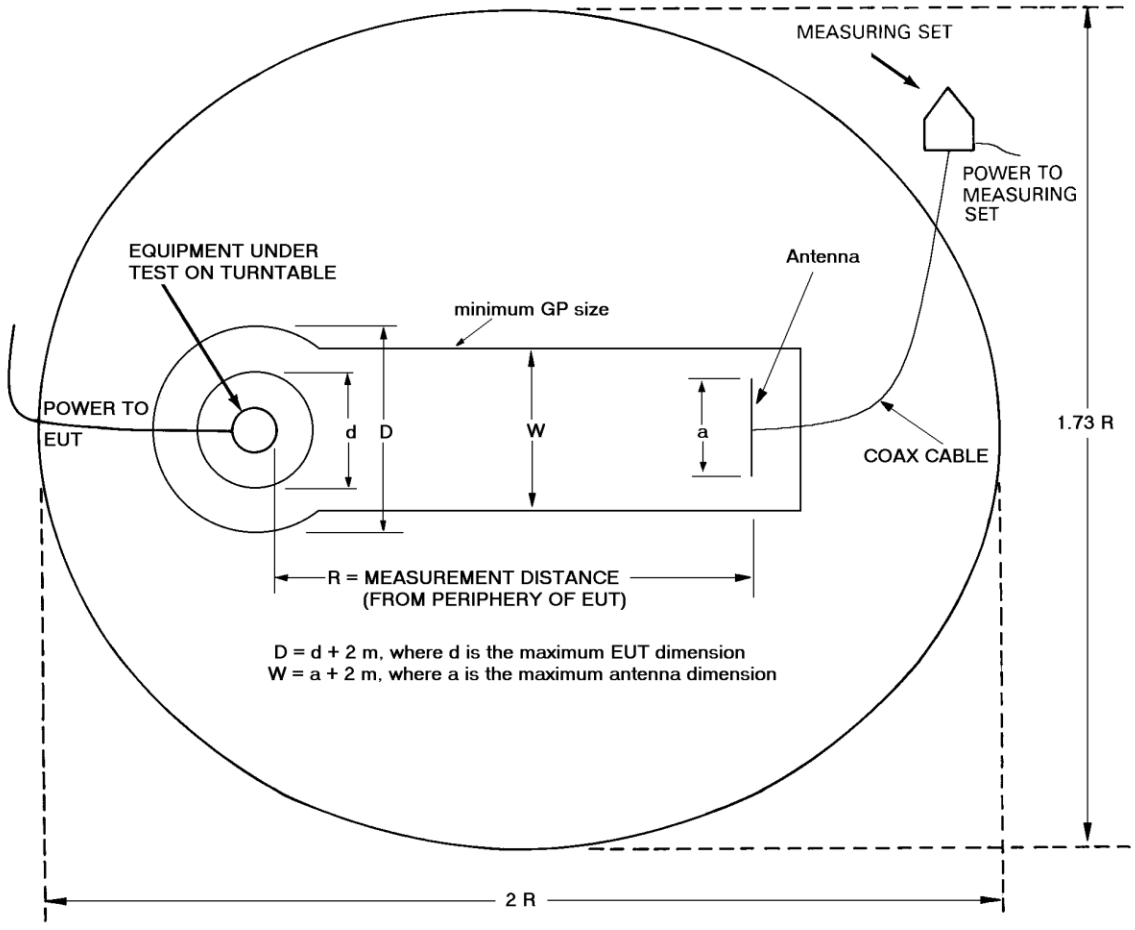
The EUT was placed on a rotating 1 x 1.5-meter wooden platform, 0.8 meters above the ground plane at a distance of 3 meters from the FSM antenna. Testing for the radiated emissions was performed as required by CFR47 15, RSS-210 and specified in sections 8 and 13.1.4 of ANSI C63.4-2009. EMI energy was 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. The frequency spectrum from 9 kHz to 25,000 MHz was searched for during preliminary investigation. Refer to diagrams 2 and 3 showing typical test arrangement and photographs in the test setup exhibits for specific EUT placement during testing.

Diagram 2 Test arrangement for radiated emissions of tabletop equipment



1. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center, forming a bundle 30 cm to 40 cm long.
2. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated if required using the correct terminating impedance. The total length shall not exceed 1 m.
3. If LISNs are kept in the test setup for radiated emissions, it is preferred that they be installed under the ground plane with the receptacle flush with the ground plane.
4. Cables of hand-operated devices, such as keyboards, mice, and so on, shall be placed as for normal use.
5. Non-EUT components of EUT system being tested.
6. Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop (possibly center of table for transmitter equipment).
7. No vertical conducting plane used.
8. Power cords drape to the floor and are routed over to receptacle.

Diagram 3 Test arrangement for radiated emissions tested on Open Area Test Site (OATS)



AREA DIMENSIONS =

R = 3m	R = 10 m	R = 30 m
6 m x 5.2 m	20 m x 17.3 m	60 m x 52 m

Intentional Radiators

As per CFR47 Part 15, Subpart C, paragraphs 15.203, 15.205, 15.209, and 15.249 and Industry Canada RSS-210 Issue 8 the following information are submitted for consideration.

Antenna Requirements

The unit is produced with a permanently attached antenna located inside the sealed plastic case and offers no provision for user service, replacement, or antenna modification. The requirements of CFR47 15.203 and RSS-210 are fulfilled and there are no deviations or exceptions to the specification.

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.

Table 1 Radiated Emissions in Restricted Bands Data

Frequency in MHz	Horizontal Peak (dBµV)	Horizontal Quasi-Peak (dBµV)	Horizontal Average (dBµV)	Vertical Peak (dBµV)	Vertical Quasi-Peak (dBµV)	Vertical Average (dBµV)	Limit @ 3m (dBµV/m)
132.9	25.4	19.3	N/A	20.5	16.4	N/A	43.5
150.0	26.2	20.2	N/A	19.9	13.8	N/A	43.5
2390.0	41.5	N/A	30.2	43.0	N/A	30.2	54.0
2483.5	44.5	N/A	30.6	52.4	N/A	30.7	54.0
4804.0	45.7	N/A	32.0	45.0	N/A	31.9	54.0
4884.0	45.6	N/A	32.5	45.1	N/A	32.3	54.0
4964.0	45.8	N/A	32.7	45.3	N/A	32.3	54.0
7206.0	50.0	N/A	36.9	49.8	N/A	36.9	54.0
7326.0	50.0	N/A	36.6	49.4	N/A	36.6	54.0
7446.0	49.2	N/A	36.3	48.9	N/A	36.3	54.0
12010.0	49.9	N/A	37.4	50.8	N/A	37.4	54.0
12210.0	51.0	N/A	38.2	51.3	N/A	38.2	54.0
12410.0	49.7	N/A	37.2	50.3	N/A	37.2	54.0

Other emissions present had amplitudes at least 20 dB below the limit.
Quasi-Peak amplitude emissions are recorded above for frequency range of 30-1000 MHz. Average amplitude emissions are recorded above for frequency range above 1000 MHz.

Summary of Results for Radiated Emissions in Restricted Bands

The EUT demonstrated compliance with the radiated emissions requirements for restricted frequency bands of CFR47 Part 15C and RSS-210 Intentional Radiators. The EUT demonstrated minimum margin of -15.8 dB below the limits. Both average and peak amplitudes above 1000 MHz were checked for compliance with the regulations. No other emissions less than 20 dB below the requirements were found in the restricted frequency bands. Other emissions present with amplitudes at least 20 dB below the Limits.

Radiated Emissions Limits; General Requirements

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 investigations were performed to identify the frequencies, which produced the highest emissions. Preliminary investigations of radiated emissions were performed in the screen room from 9 kHz to 12,000 MHz. Final data was taken with the EUT located on the open area test site at a distance of 3 meters between the EUT and the receiving antenna. Each emission was then re-maximized at this location before final radiated emissions measurements were performed. The frequency spectrum from 9 kHz to 12,000 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 9 kHz to 30 MHz, Broadband Biconical from 30 MHz to 200 MHz, Biconilog from 30 MHz to 1000 MHz, Log Periodic from 200 MHz to 1 GHz, and/or Pyramidal Horns and mixers from 1 GHz to 12 GHz.

Table 2 General Radiated Emissions Data

Frequency in MHz	Horizontal Peak (dBµV)	Horizontal Quasi-Peak (dBµV)	Horizontal Average (dBµV)	Vertical Peak (dBµV)	Vertical Quasi-Peak (dBµV)	Vertical Average (dBµV)	Limit @ 3m (dBµV/m)
132.9	25.4	19.3	N/A	20.5	16.4	N/A	43.5
150.0	26.2	20.2	N/A	19.9	13.8	N/A	43.5
300.0	16.6	12.0	N/A	-3.4	11.9	N/A	46.0

Other emissions present had amplitudes at least 20 dB below the limit.
Quasi-Peak amplitude emissions are recorded above for frequency range of 30-1000 MHz. Average amplitude emissions are recorded above for frequency range above 1000 MHz.

Summary of Results for General Radiated Emissions

The EUT demonstrated compliance with the radiated emissions requirements of CFR47 Part 15C, and Industry Canada RSS-210 requirements. The EUT demonstrated a minimum margin of -23.7 dB below the requirements. Other emissions were present with amplitudes at least 20 dB below the limit.

Operation in the Band 2400 – 2483.5 MHz

The power output was measured on an Open Area Test Site at a 3 meters distance. The EUT was placed on a wooden turntable 0.8 meters above the ground plane at a distance of 3 meters from the FSM antenna. The peak and average amplitude of emissions above 1000 MHz including spurious emissions were measured using a spectrum analyzer then data was recorded from the analyzer display. 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 of CFR47 15.209 and RSS-210, whichever is the lesser attenuation. The amplitude of each 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 to1000 MHz, and Pyramidal Horn Antennas from 1 GHz to 25 GHz. Emissions were measured in dBµV/m @ 3 meters. Plots were made of radiated emission of the transmitter for reference. Refer to figures one through three demonstrating operation in the frequency band and compliance with requirements.

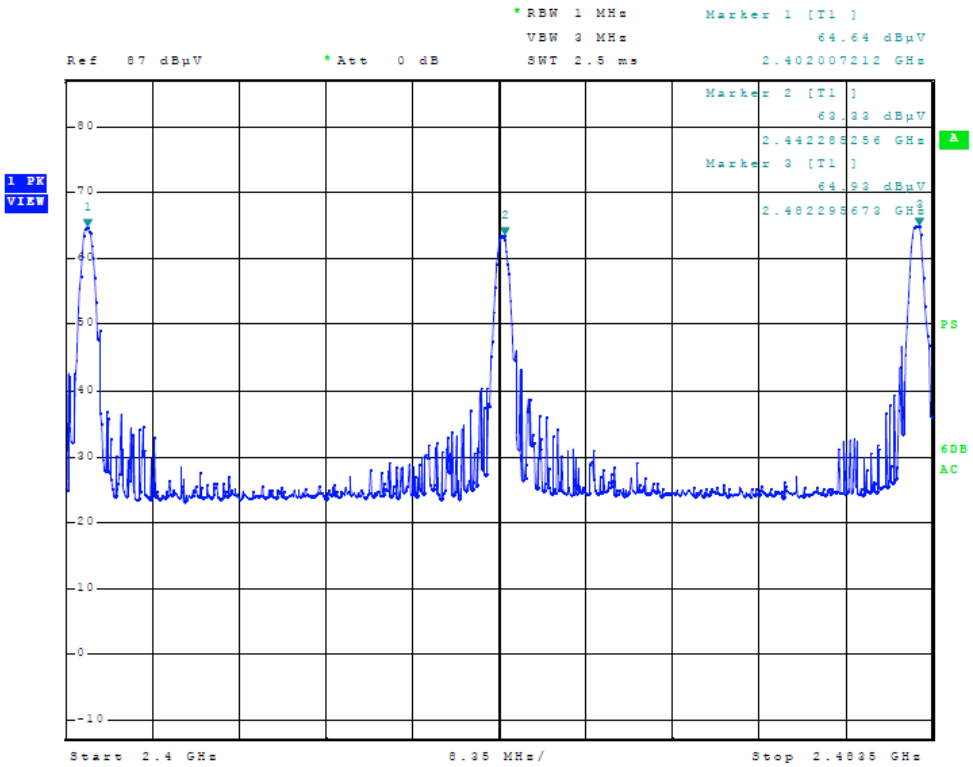


Figure 1 Plot of in Operation in Frequency Band

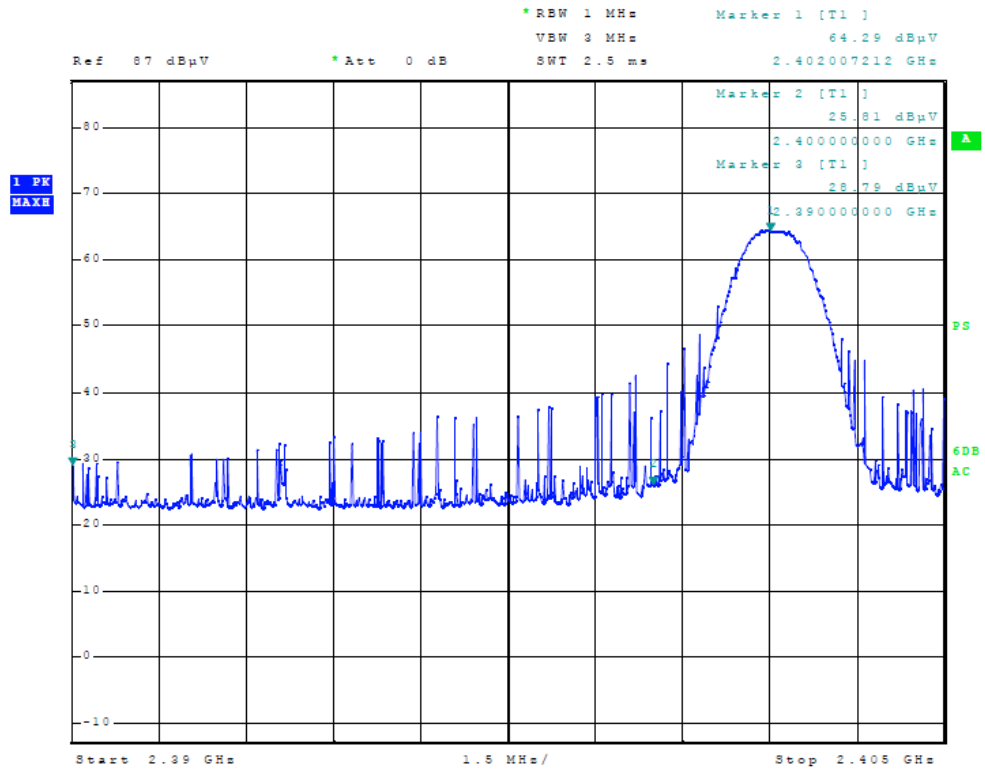


Figure 2 Plot of Lower Band Edge

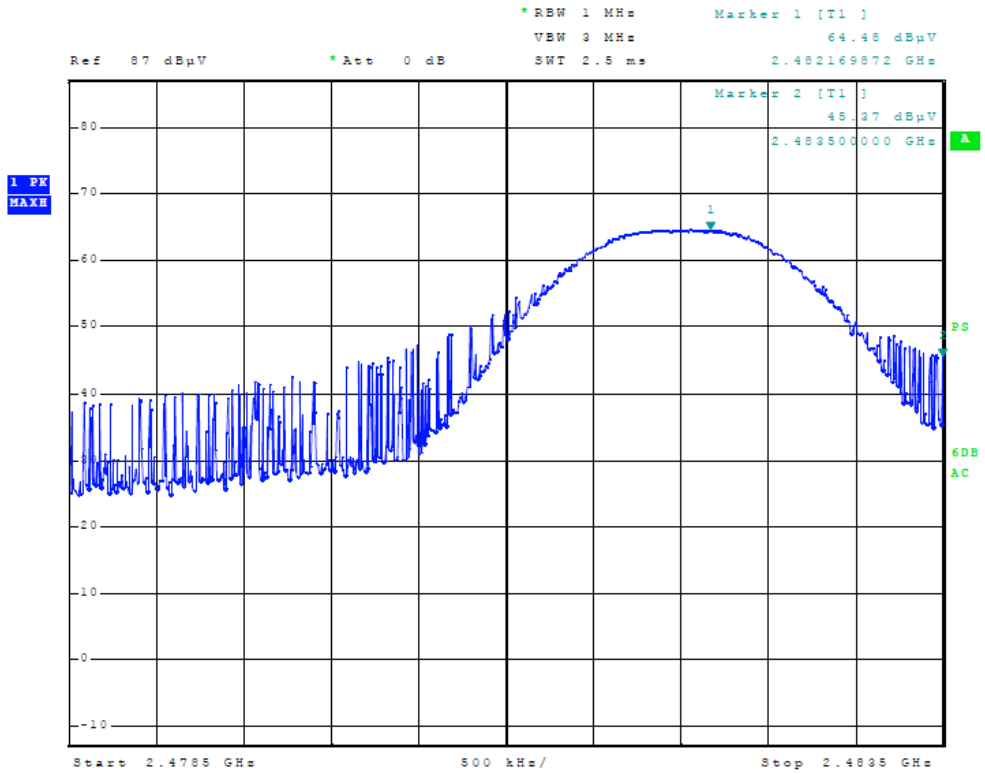


Figure 3 Plot of Higher Band Edge

Table 3 Transmitter Radiated Emissions Data

Frequency in MHz	Horizontal Peak (dBµV)	Horizontal Average (dBµV)	Vertical Peak (dBµV)	Vertical Average (dBµV)	Limit @ 3m (dBµV/m)
2402.0	71.9	36.4	73.6	37.9	94.0
4804.0	45.7	32.0	45.0	31.9	54.0
7206.0	50.0	36.9	49.8	36.9	54.0
9608.0	51.7	39.1	52.0	39.0	54.0
12010.0	49.9	37.4	50.8	37.4	54.0
2442.0	72.3	35.3	72.3	34.7	94.0
4884.0	45.6	32.5	45.1	32.3	54.0
7326.0	50.0	36.6	49.4	36.6	54.0
9768.0	51.0	38.2	51.3	38.2	54.0
12210.0	51.0	38.2	51.3	38.2	54.0
2482.0	71.3	36.2	72.0	36.6	94.0
4964.0	45.8	32.7	45.3	32.3	54.0
7446.0	49.2	36.3	48.9	36.3	54.0
9928.0	51.5	38.5	51.7	38.6	54.0
12410.0	49.7	37.2	50.3	37.2	54.0

Other emissions present had amplitudes at least 20 dB below the limit.
Quasi-Peak amplitude emissions are recorded above for frequency range of 30-1000 MHz. Average amplitude emissions are recorded above for frequency range above 1000 MHz.

Summary of Results for Intentional Radiator

The power output was measured at the open area test site at a three-meter distance. Data was taken per Paragraph 2.1046(a), 15.249 and RSS-210. The EUT fundamental frequency of operation demonstrated the highest peak emission of 73.6 dBµV/m at 3 meters. The EUT demonstrated a minimum margin of -14.9 dB below the harmonic emissions limit. The EUT demonstrated compliance to the radiated emissions requirements of CFR47 Part 15.249 Intentional Radiators and RSS-210. There are no other 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 limits. The specifications of 15.249 and RSS-210 were met; there are no deviations or exceptions to the requirements.

Statement of Modifications and Deviations

No modifications to the EUT were required for the unit to demonstrate compliance with the CFR47 Part 15C and RSS-210 requirements. There were no deviations to the specifications.

Annex

- Annex A Measurement Uncertainty Calculations
- Annex B Test Equipment List
- Annex C Rogers Qualifications
- Annex D FCC Site Registration Letter
- Annex E Industry Canada Site Registration Letter

Annex A Measurement Uncertainty Calculations

Measurement uncertainty calculations were made for the laboratory. Result of measurement uncertainty calculations are recorded below for AC line conducted and radiated emission measurements.

Measurement Uncertainty	$U_{(E)}$	$U_{(lab)}$
3 Meter Horizontal 30-200 MHz Measurements	2.08	4.16
3 Meter Vertical 30-200 MHz Measurements	2.16	4.33
3 Meter Vertical Measurements 200-1000 MHz	2.99	5.97
10 Meter Horizontal Measurements 30-200 MHz	2.07	4.15
10 Meter Vertical Measurements 30-200 MHz	2.06	4.13
10 Meter Horizontal Measurements 200-1000 MHz	2.32	4.64
10 Meter Vertical Measurements 200-1000 MHz	2.33	4.66
3 Meter Measurements 1-6 GHz	2.57	5.14
3 Meter Measurements 6-18 GHz	2.58	5.16
AC Line Conducted	1.72	3.43

Annex B Rogers Labs Test Equipment List

Equipment	Calibration Date
Spectrum Analyzer: Rohde & Schwarz ESU40	5/12
Spectrum Analyzer: HP 8562A, HP Adapters: 11518, 11519, and 11520 Mixers: 11517A, 11970A, 11970K, 11970U, 11970V, 11970W	5/12
Spectrum Analyzer: HP 8591EM	5/12
Antenna: EMCO Biconilog Model: 3143	5/12
Antenna: Sunol Biconilog Model: JB6	10/12
Antenna: EMCO Log Periodic Model: 3147	10/12
Antenna: Antenna Research Biconical Model: BCD 235	10/12
LISN: Compliance Design Model: FCC-LISN-2.Mod.cd, 50 µHy/50 ohm/0.1 µf	10/12
R.F. Preamp PA-010	10/12
R.F. Preamp CPPA-102	10/12
R.F. Preamp PA-122	10/12
Cable assembly: (L1) consisting of Belden RG-58, HP11509A, CAT-3	10/12
Cable assembly: (L2) consisting of Belden RG-58, HP11509A, CAT-3	10/12
Cable: (L3) Belden 8268	10/12
Cable: Time Microwave: 4M-750HF290-750	10/12
Cable: Time Microwave: 10M-750HF290-750	10/12
Frequency Counter: Leader LDC825	2/12
Oscilloscope Scope: Tektronix 2230	2/12
Wattmeter: Bird 43 with 50 Ohm Load 8085	2/12
Power Supplies: Sorensen SRL 20-25, SRL 40-25, DCR 150, DCR 140	2/12
R.F. Generators: HP 606A, HP 8614A, HP 8640B	2/12
R.F. Power Amp 65W Model: 470-A-1010	2/12
R.F. Power Amp 50W M185- 10-501	2/12
R.F. Power Amp A.R. Model: 10W 1010M7	2/12
R.F. Power Amp EIN Model: A301	2/12
LISN: Compliance Eng. Model 240/20	2/12
LISN: Fischer Custom Communications Model: FCC-LISN-50-16-2-08	2/12
Antenna: EMCO Dipole Set 3121C	2/12
Antenna: Compliance Design B-101	2/12
Antenna: Solar 9229-1 & 9230-1	2/12
Antenna: EMCO 6509	2/12
Audio Oscillator: HP 201CD	2/12
Peavey Power Amp Model: IPS 801	2/12
ELGAR Model: 1751	2/12
ELGAR Model: TG 704A-3D	2/12
ESD Test Set 2010i	2/12
Fast Transient Burst Generator Model: EFT/B-101	2/12
Field Intensity Meter: EFM-018	2/12
KEYTEK Ecat Surge Generator	2/12
Shielded Room 5 M x 3 M x 3.0 M	

Annex C Rogers Qualifications

Scot D. Rogers, Engineer

Rogers Labs, Inc.

Mr. Rogers has approximately 17 years' experience in the field of electronics. Engineering experience includes six years in the automated controls industry and remaining 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

Annex D FCC Site Registration Letter

FEDERAL COMMUNICATIONS COMMISSION

Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046

November 01, 2011

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: November 01, 2011

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,

Phyllis Parrish
Industry Analyst

Annex E Industry Canada Site Registration Letter

Industry Canada Industrie Canada

December 28, 2011

OUR FILE: 46405-3041
Submission No: 152685

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

Attention: Mr. Scot D. Rogers

Dear Sir/Madame:

The Bureau has received your application for the renewal of 3/10m OATS. Be advised that the information received was satisfactory to Industry Canada. The following number(s) is now associated to the site(s) for which registration / renewal was sought **(Site# 3041A-1).** Please reference the appropriate site number in the body of test reports containing measurements performed on the site. In addition, please keep for your records the following information;

- The company address code associated to the site(s) located at the above address is: **3041A**

Furthermore, to obtain or renew a unique site number, the applicant shall demonstrate that the site has been accredited to ANSI C63.4-2003 or later. A scope of accreditation indicating the accreditation by a recognized accreditation body to ANSI C63.4-2003 or later shall be accepted. Please indicate in a letter the previous assigned site number if applicable and the type of site (example: 3 metre OATS or 3 metre chamber). If the test facility is not accredited to ANSI C63.4-2003 or later, the test facility shall submit test data demonstrating full compliance with the ANSI standard. The Bureau will evaluate the filing to determine if recognition shall be granted.

The frequency for re-validation of the test site and the information that is required to be filed or retained by the testing party shall comply with the requirements established by the accrediting organization. However, in all cases, test site re-validation shall occur on an interval not to **exceed three years**. There is no fee or form associated with an OATS filing. OATS submissions are encouraged to be submitted electronically to the Bureau using the following URL;
http://strategis.ic.gc.ca/epic/internet/inceb-bhst.nsf/en/h_tt00052e.html.

If you have any questions, you may contact the Bureau by e-mail at certification.bureau@ic.gc.ca Please reference our file and submission number above for all correspondence.

Yours sincerely,

Dalwinder Gill
For: Wireless Laboratory Manager
Certification and Engineering Bureau
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