

**SUBMITTAL  
APPLICATION  
REPORT  
FOR  
GRANT OF CERTIFICATION**

FOR

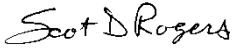
**Model: 05443  
915 MHz  
Low Power Transmitter**

**FCC ID: FIH05443  
IC: 1584A-05443**

FOR

**TRANSCORE  
AMTECH TECHNOLOGY CENTER  
8600 Jefferson Street, NE  
Albuquerque, NM 87113**

**Test Report Number: 110712**

Authorized Signatory:   
Scot D. Rogers



**ROGERS LABS, INC.**

4405 West 259<sup>th</sup> 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  
Low Power Transmitter**

For

**TRANSCORE**

**Amtech Technology Center**

8600 Jefferson Street, NE  
Albuquerque, NM 87113

**Model: 05443**

Frequency 915.0 MHz

FCC ID: FIH05443 IC: 1584A-05443

Test Date: July 12, 2011

Certifying Engineer:

A handwritten signature in black ink that reads "Scot D. Rogers".

Scot D. Rogers  
Rogers Labs, Inc.  
4405 West 259<sup>th</sup> Terrace  
Louisburg, KS 66053  
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## 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: 05443  
FCC I.D.: FIH05443 IC: 1584A-05443  
Frequency Range: 915.0 MHz.  
Operating Power: 88.4 (peak) dBμV/m @ 3-meters (3 meter radiated measurement) and occupied bandwidth of 1,548.1 kHz

## Opinion / Interpretation of Results

| Tests Performed                                       | Margin (dB) | Results  |
|---|-------------|----------|
| Emissions as per CFR 47 paragraph s2, 15.205, RSS-210 | -17.6       | Complies |
| Emissions as per CFR 47 paragraph s2, 15.207, RSS-210 | N/A         | Complies |
| Emissions as per CFR 47 paragraphs 2, 15.209, RS-210  | -29.8       | Complies |
| Emissions as per CFR 47 paragraph s2, 15.249, RSS210  | -6.1        | Complies |
| Emissions as per CFR 47 paragraphs 2, 15.111, RSS210  | N/A         | Complies |

## Environmental Conditions

|                      |           |
|----------------------|-----------|
| Ambient Temperature  | 25.3 C    |
| Relative Humidity    | 50%       |
| Atmospheric Pressure | 1010.9 mb |



## Application for Certification

- (1) Manufacturer:           TRANSCORE  
                                  8600 Jefferson Street, NE  
                                  Albuquerque, NM 87113
  
- (2) Identification:         Model: 05443  
  
                                  FCC I.D.: FIH05443           IC: 1584A-05443
  
- (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.



## Applicable Standards & Test Procedures

In accordance with the Federal Communications Code of Federal Regulations, dated October 1, 2010, Part 2, Subpart J, Paragraphs 2.907, 2.911, 2.913, 2.925, 2.926, 2.1031 through 2.1057, and applicable parts of Part 15C Paragraph 15.249 and Industry Canada RSS-210 the following information is submitted for consideration in obtaining grant of certification.

Test procedures used are the established Methods of Measurement of Radio-Noise Emissions as described in the ANSI 63.4-2003 document.

## Equipment Tested

| <u>Equipment</u> | <u>Model</u> | <u>FCC ID</u> | <u>I.C.</u> |
|------------------|--------------|---------------|-------------|
| EUT              | 05443        | FIH05443      | 1584A-05443 |

## Equipment Function and Testing Procedures

The EUT is a 915 MHz low power transmitter used as an active tag for use in the location and monitoring service market. The product was designed to interact with location and monitoring systems offering information about the tag while in the reader field. The EUT operates from internal 3-volt 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 temporarily modified with the addition of switches to provide means to manually activate transmitter function. Normal operation maintains the tag in a low-power state until the time that the tag is being actively interrogated by a reader (such as at toll plazas or under open-road-tolling gantries).

## Equipment and Cable Configurations

### ***AC Line Conducted Emission Test Procedure***

The unit operates from internal battery DC power only and offers no provision to connect to utility AC power systems. Therefore, no AC line conducted emissions testing was required or performed. The equipment complies with requirements of CFR47 15.207 and RSS-210.

## **Radiated Emission Test Procedure**

Testing for the radiated emissions was performed as defined in section 13.1.4 of ANSI C63.4. 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 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 during testing.

## **Units of Measurements**

Conducted EMI      Data is in dB $\mu$ V; dB referenced to one microvolt.

Radiated EMI      Data is in dB $\mu$ V/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

$RFS (dB\mu V/m @ 3m) = FSM (dB\mu V) + A.F. (dB) - Gain (dB)$

## **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. 259<sup>th</sup> 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. 259<sup>th</sup> Terrace, Louisburg, KS.

Site Registration      Refer to Annex for FCC Site Registration Letter, # 90910 Industry Canada Site Registration Reference 3041A-1

## List of Test Equipment

A Rohde and Schwarz ESU40 and or Hewlett Packard 8591EM Spectrum Analyzer 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.

| Analyzer Settings                 |          |                   |
|-----------------------------------|----------|-------------------|
| Conducted Emissions               |          |                   |
| RBW                               | AVG. BW  | Detector Function |
| 9 kHz                             | 30 kHz   | Peak / Quasi Peak |
| Radiated Emissions Below 1000 MHz |          |                   |
| RBW                               | AVG. BW  | Detector Function |
| 120 kHz                           | 300 kHz  | Peak / Quasi Peak |
| Analyzer Settings Above 1000 MHz  |          |                   |
| RBW                               | Video BW | Detector Function |
| 100 kHz                           | 100 kHz  | Peak              |
| 1 MHz                             | 1 MHz    | Peak / Average    |

| <u>Equipment</u> | <u>Manufacturer</u> | <u>Model</u>      | <u>Calibration Date</u> | <u>Due</u> |
|------------------|---------------------|-------------------|-------------------------|------------|
| LISN             | Comp. Design        | FCC-LISN-2-MOD.CD | 10/10                   | 10/11      |
| Antenna          | ARA                 | BCD-235-B         | 10/10                   | 10/11      |
| Antenna          | EMCO                | 3147              | 10/10                   | 10/11      |
| Antenna          | EMCO                | 3143              | 5/11                    | 5/12       |
| Analyzer         | HP                  | 8591EM            | 5/11                    | 5/12       |
| Analyzer         | HP                  | 8562A             | 5/11                    | 5/12       |
| Analyzer         | Rohde & Schwarz     | ESU40             | 5/11                    | 5/12       |





## 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 is 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.

### Data Radiated Emissions in Restricted Bands

| 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) |
|------------------|------------------------|------------------------------|---------------------------|----------------------|----------------------------|-------------------------|---------------------|
| 2745.5           | 45.1                   | N/A                          | 32.7                      | 48.2                 | N/A                        | 36.2                    | 54.0                |
| 3660.6           | 45.2                   | N/A                          | 32.8                      | 46.0                 | N/A                        | 32.8                    | 54.0                |
| 4575.8           | 50.3                   | N/A                          | 36.1                      | 49.0                 | N/A                        | 36.3                    | 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.

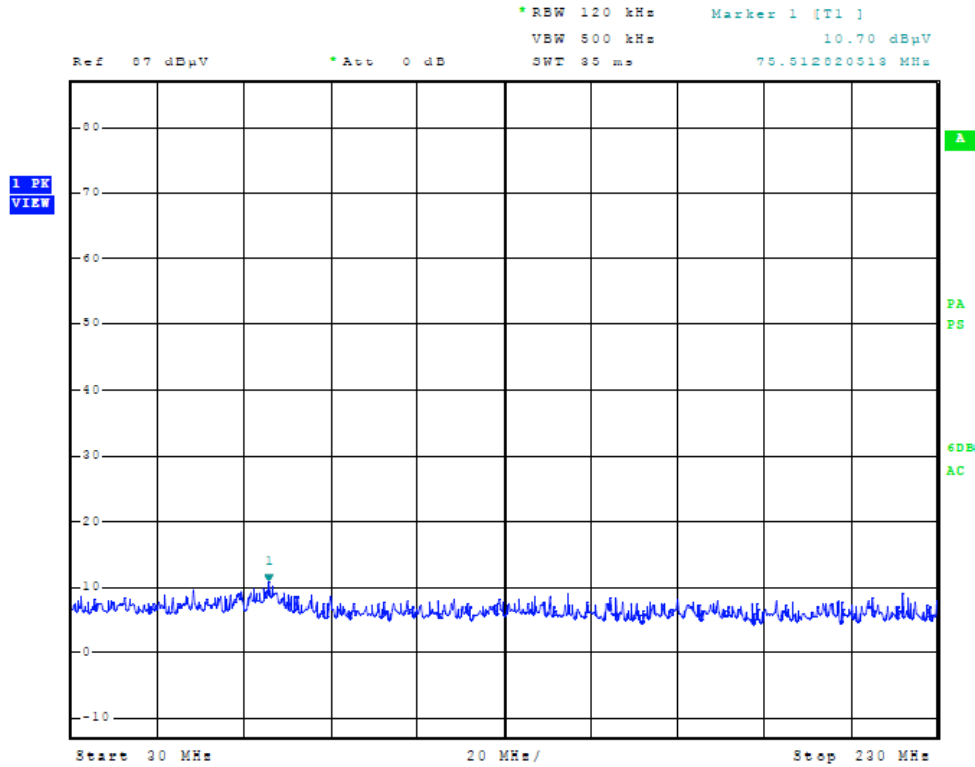


## **Summary of Results for Radiated Emissions in Restricted Bands**

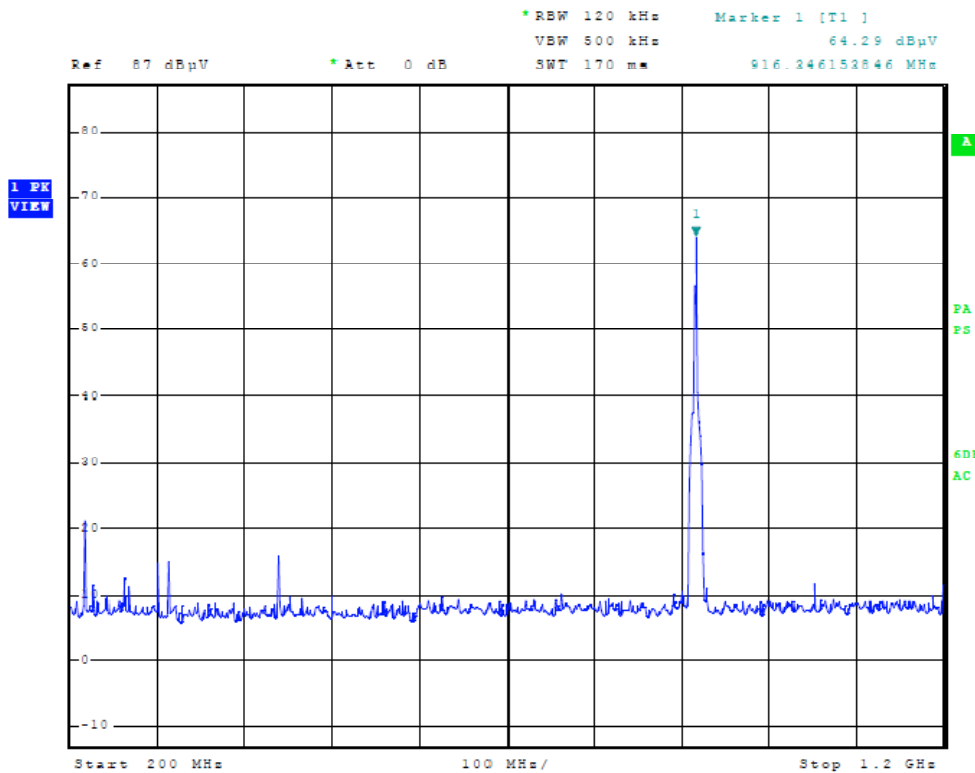
The EUT demonstrated compliance with the radiated emissions for the requirements for restricted frequency bands of CFR47 Part 15C and RSS-210 Intentional Radiators. The EUT demonstrated minimum margin of -17.7 dB below the limits. Both average and peak amplitudes above 1000 MHz were checked for compliance 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***

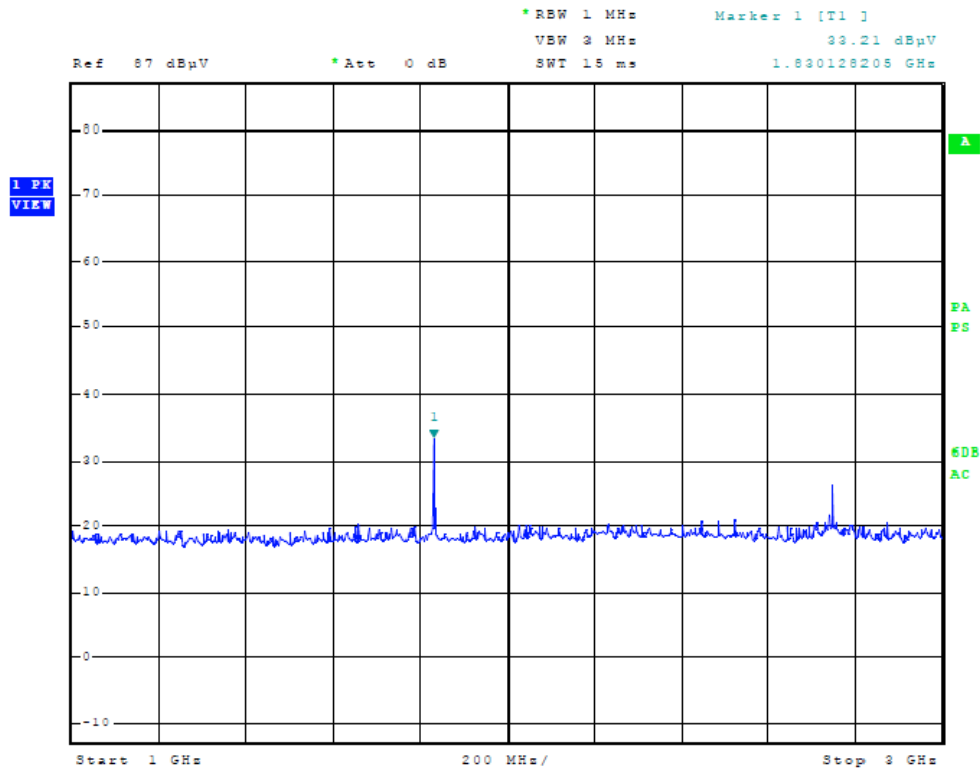
The EUT was arranged in a typical equipment configuration and operated through all of its various modes. Preliminary testing was performed in a screen room with the EUT positioned 1 meter from the FSM. Radiated emissions measurements were performed to identify the frequencies, which produced the highest 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 12,000 MHz for the preliminary testing. 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 area 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 1 GHz, and/or Pyramidal Horns and mixers from 1 GHz to 10 GHz. Refer to figures one through five for plots of emissions in the frequency spectrum taken in the screen room.



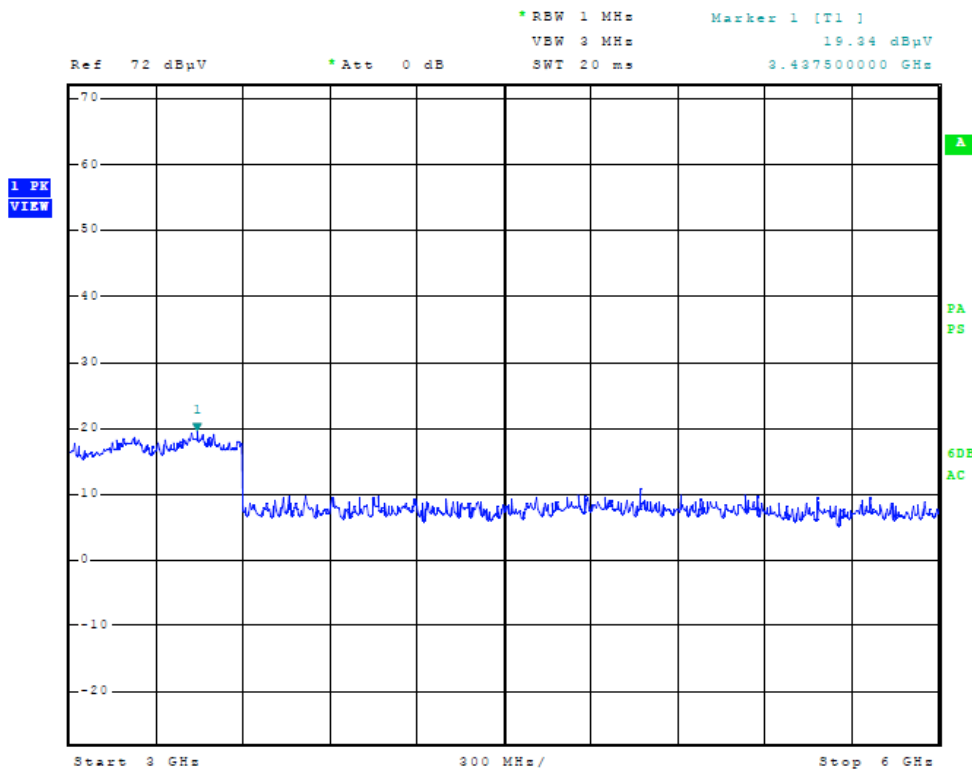
**Figure One Plot of Radiated Emissions Taken in screen room**



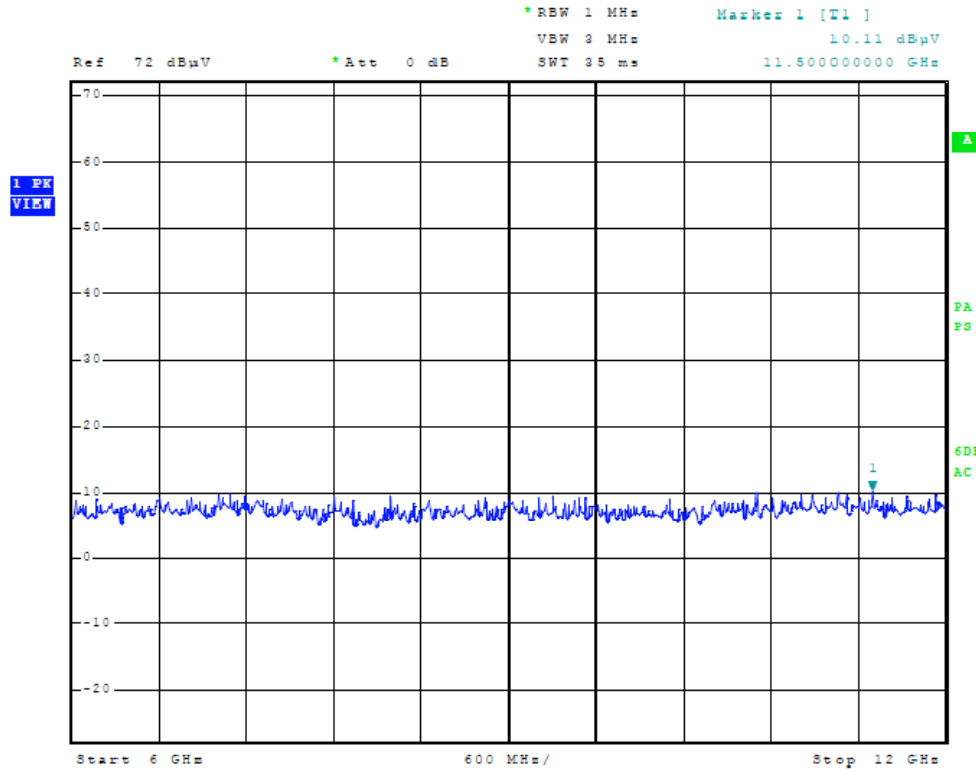
**Figure Two Plot of Radiated Emissions Taken in screen room**



**Figure Three Plot of Radiated Emissions Taken in screen room**



**Figure Four Plot of Radiated Emissions Taken in screen room**



**Figure Five Plot of Radiated Emissions Taken in screen room**

**Data General Radiated Emissions from EUT**

| 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) |
|------------------|------------------------|------------------------------|---------------------------|----------------------|----------------------------|-------------------------|---------------------|
| 217.4            | 14.9                   | 9.3                          | N/A                       | 14.8                 | 9.4                        | N/A                     | 43.6                |
| 437.6            | 20.3                   | 16.2                         | N/A                       | 20.1                 | 14.9                       | 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**

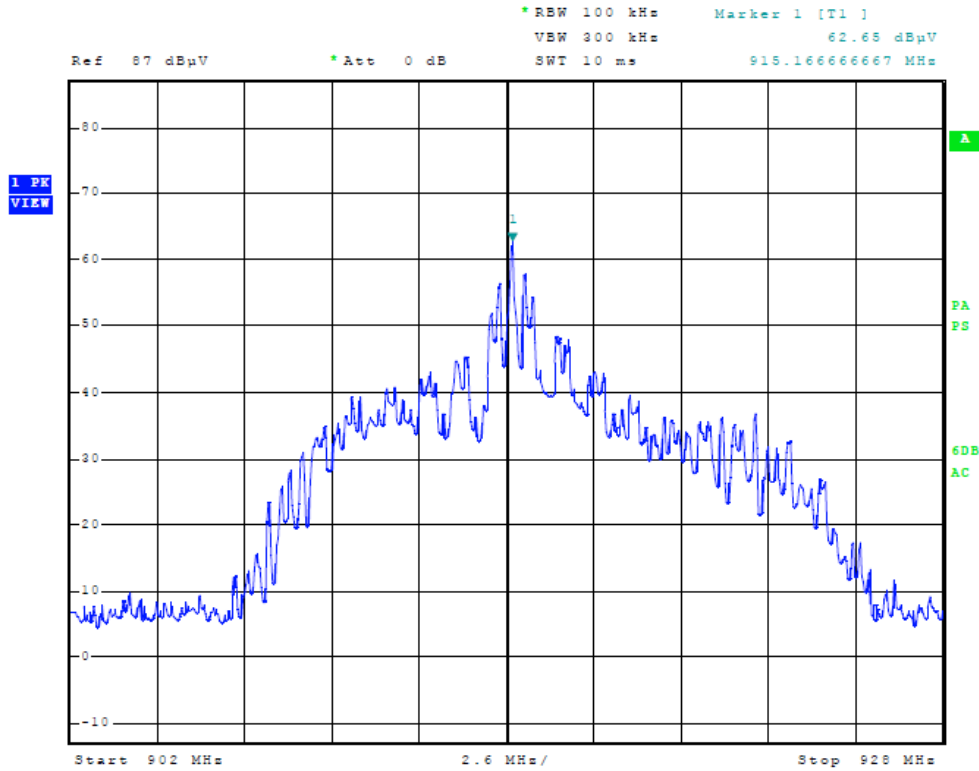
The EUT demonstrated compliance with the radiated emissions requirements of CFR47 Part 15C, and Industry Canada RSS-210 requirements. The EUT demonstrated a minimum margin of -29.8 dB below the requirements. Other emissions were present with amplitudes at least 20 dB below the limit.



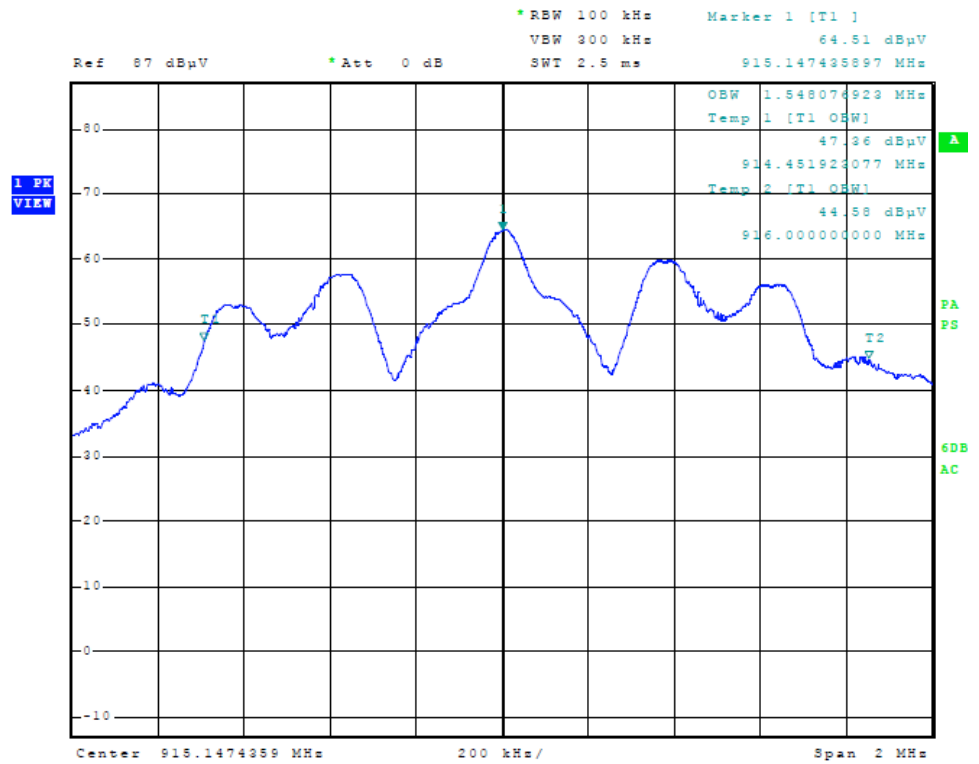
### **Operation in the Band 902 – 928 MHz**

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 quasi-peak amplitude of the frequencies including carrier frequency were measured using a spectrum analyzer. 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 to 5000 MHz, and Pyramidal Horn Antennas from 4 GHz to 25 GHz. Emissions were measured in dB $\mu$ V/m @ 3 meters.

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 902 and 928 MHz band edges are protected due to the 915 MHz frequency of operation. Refer to figure six for a plot of the in band radiated emissions in band and figure seven for occupied bandwidth.



**Figure Six Plot of in Frequency Band Emissions**



**Figure Seven Plot of Occupied Bandwidth**



## Data Transmitter Radiated Emissions

| Frequency in MHz | Horizontal Peak (dB $\mu$ V) | Horizontal Average (dB $\mu$ V) | Vertical Peak (dB $\mu$ V) | Vertical Average (dB $\mu$ V) | Limit @ 3m (dB $\mu$ V/m) |
|------------------|------------------------------|---------------------------------|----------------------------|-------------------------------|---------------------------|
| 915.15           | 88.4                         | 87.9                            | 67.0                       | 66.5                          | 94.0                      |
| 1830.30          | 40.2                         | 27.8                            | 42.9                       | 30.3                          | 54.0                      |
| 2745.45          | 45.1                         | 32.7                            | 48.2                       | 36.2                          | 54.0                      |
| 3660.60          | 45.2                         | 32.8                            | 46.0                       | 32.8                          | 54.0                      |
| 4575.75          | 50.3                         | 36.1                            | 49.0                       | 36.3                          | 54.0                      |
| 5490.90          | 49.2                         | 35.2                            | 47.1                       | 34.6                          | 54.0                      |
| 6406.05          | 49.3                         | 36.3                            | 48.8                       | 36.4                          | 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 EUT fundamental frequency of operation demonstrated the highest emission of 88.4 dB $\mu$ V/m at 3 meters. The EUT demonstrated a minimum margin of -17.6 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 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.





NVLAP Lab Code 200087-0

## 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

### Radiated Emissions Measurement Uncertainty Calculation

Measurement of vertically polarized radiated field strength over the frequency range 30 MHz to 1 GHz on an open area test site at 3m and 10m includes following uncertainty:

| Contribution                              | Probability Distribution | Uncertainty (dB) |
|---|--------------------------|------------------|
| Antenna factor calibration                | normal (k = 2)           | ±0.58            |
| Cable loss calibration                    | normal (k = 2)           | ±0.2             |
| Receiver specification                    | rectangular              | ±1.0             |
| Antenna directivity                       | rectangular              | ±0.1             |
| Antenna factor variation with height      | rectangular              | ±2.0             |
| Antenna factor frequency interpolation    | rectangular              | ±0.1             |
| Measurement distance variation            | rectangular              | ±0.2             |
| Site Imperfections                        | rectangular              | ±1.5             |
| Combined standard uncertainty $u_c(y)$ is |                          |                  |

$$U_c(y) = \pm \sqrt{\left[\frac{1.0}{2}\right]^2 + \left[\frac{0.2}{2}\right]^2 + \left[\frac{1.0^2 + 0.1^2 + 2.0^2 + 0.1^2 + 0.2^2 + 1.5^2}{3}\right]}$$

$$U_c(y) = \pm 1.6 \text{ dB}$$

It is probable that  $u_c(y) / s(q_k) > 3$ , where  $s(q_k)$  is estimated standard deviation from a sample of  $n$  readings unless the repeatability of the EUT is particularly poor, and a coverage factor of  $k = 2$  will ensure that the level of confidence will be approximately 95%, therefore:

$$s(q_k) = \sqrt{\frac{1}{(n-1)} \sum_{k=1}^n (q_k - \bar{q})^2}$$

$$U = 2 U_c(y) = 2 \times \pm 1.6 \text{ dB} = \pm 3.2 \text{ dB}$$

#### Notes:

- 1.1 Uncertainties for the antenna and cable were estimated, based on a normal probability distribution with  $k = 2$ .
- 1.2 The receiver uncertainty was obtained from the manufacturer's specification for which a rectangular distribution was assumed.
- 1.3 The antenna factor uncertainty does not take account of antenna directivity.
- 1.4 The antenna factor varies with height and since the height was not always the same in use as when the antenna was calibrated an additional uncertainty is added.
- 1.5 The uncertainty in the measurement distance is relatively small but has some effect on the received signal strength. The increase in measurement distance as the antenna height is increased is an inevitable consequence of the test method and is therefore not considered a contribution to uncertainty.
- 1.6 Site imperfections are difficult to quantify but may include the following contributions:
  - Unwanted reflections from adjacent objects.
  - Ground plane imperfections: reflection coefficient, flatness, and edge effects.
  - Losses or reflections from "transparent" cabins for the EUT or site coverings.
  - Earth currents in antenna cable (mainly effect Biconical antennas).



The specified limits for the difference between measured site attenuation and the theoretical value ( $\pm 4$  dB) were not included in total since the measurement of site attenuation includes uncertainty contributions already allowed for in this budget, such as antenna factor.

*Conducted Measurements Uncertainty Calculation*

Measurement of conducted emissions over the frequency range 9 kHz to 30 MHz includes following uncertainty:

| Contribution                              | Probability Distribution | Uncertainty (dB) |
|---|--------------------------|------------------|
| Receiver specification                    | rectangular              | $\pm 1.5$        |
| LISN coupling specification               | rectangular              | $\pm 1.5$        |
| Cable and input attenuator calibration    | normal (k=2)             | $\pm 0.5$        |
| Combined standard uncertainty $u_c(y)$ is |                          |                  |

$$U_c(y) = \pm \sqrt{\left[\frac{0.5}{2}\right]^2 + \frac{1.5^2 + 1.5^2}{3}}$$

$$U_c(y) = \pm 1.2 \text{ dB}$$

As with radiated field strength uncertainty, it is probable that  $u_c(y) / s(q_k) > 3$  and a coverage factor of  $k = 2$  will suffice, therefore:

$$U = 2 U_c(y) = 2 \times \pm 1.2 \text{ dB} = \pm 2.4 \text{ dB}$$



**Annex B Rogers Labs Test Equipment List**

The test equipment 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 |
|---|------------------|
| Spectrum Analyzer: Rohde & Schwarz ESU40  | 5/11             |
| Spectrum Analyzer: HP 8562A, HP Adapters: 11518, 11519, and 11520<br>Mixers: 11517A, 11970A, 11970K, 11970U, 11970V, 11970W | 5/11             |
| Spectrum Analyzer: HP 8591EM  | 5/11             |
| Antenna: EMCO Biconilog Model: 3143   | 5/11             |
| Antenna: Sunol Biconilog Model: JB6   | 10/10            |
| Antenna: EMCO Log Periodic Model: 3147  | 10/10            |
| Antenna: Antenna Research Biconical Model: BCD 235  | 10/10            |
| LISN: Compliance Design Model: FCC-LISN-2.Mod.cd, 50 µHy/50 ohm/0.1 µf  | 10/10            |
| R.F. Preamp CPPA-102  | 10/10            |
| Attenuator: HP Model: HP11509A  | 10/10            |
| Attenuator: Mini Circuits Model: CAT-3  | 10/10            |
| Attenuator: Mini Circuits Model: CAT-3  | 10/10            |
| Cable: Belden RG-58 (L1)  | 10/10            |
| Cable: Belden RG-58 (L2)  | 10/10            |
| Cable: Belden 8268 (L3)   | 10/10            |
| Cable: Time Microwave: 4M-750HF290-750  | 10/10            |
| Cable: Time Microwave: 10M-750HF290-750   | 10/10            |
| Frequency Counter: Leader LDC825  | 2/11             |
| Oscilloscope Scope: Tektronix 2230  | 2/11             |
| Wattmeter: Bird 43 with Load Bird 8085  | 2/11             |
| Power Supplies: Sorensen SRL 20-25, SRL 40-25, DCR 150, DCR 140   | 2/11             |
| R.F. Generators: HP 606A, HP 8614A, HP 8640B  | 2/11             |
| R.F. Power Amp 65W Model: 470-A-1010  | 2/11             |
| R.F. Power Amp 50W M185- 10-501   | 2/11             |
| R.F. Power Amp A.R. Model: 10W 1010M7   | 2/11             |
| R.F. Power Amp EIN Model: A301  | 2/11             |
| LISN: Compliance Eng. Model 240/20  | 2/11             |
| LISN: Fischer Custom Communications Model: FCC-LISN-50-16-2-08  | 2/11             |
| Antenna: EMCO Dipole Set 3121C  | 2/11             |
| Antenna: C.D. B-101   | 2/11             |
| Antenna: Solar 9229-1 & 9230-1  | 2/11             |
| Antenna: EMCO 6509  | 2/11             |
| Audio Oscillator: H.P. 201CD  | 2/11             |
| Peavey Power Amp Model: IPS 801   | 2/11             |
| ELGAR Model: 1751   | 2/11             |
| ELGAR Model: TG 704A-3D   | 2/11             |
| ESD Test Set 2010i  | 2/11             |
| Fast Transient Burst Generator Model: EFT/B-101   | 2/11             |
| Field Intensity Meter: EFM-018  | 2/11             |
| KEYTEK Ecat Surge Generator   | 2/11             |
| 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



NVLAP Lab Code 200087-0

**Annex D FCC Site Registration Letter**

**FEDERAL COMMUNICATIONS COMMISSION**

**Laboratory Division  
7435 Oakland Mills Road  
Columbia, MD 21046**

May 18, 2010

Registration Number: 90910

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

Attention: Scot Rogers,

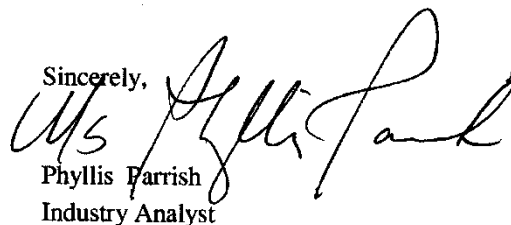
Re: Measurement facility located at Louisburg  
3 & 10 meter site  
Date of Renewal: May 18, 2010

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](http://www.fcc.gov) under E-Filing, OET Equipment Authorization Electronic Filing, Test Firms.

Sincerely,



Phyllis Farrish  
Industry Analyst

Rogers Labs, Inc.  
4405 W. 259th Terrace  
Louisburg, KS 66053  
Phone/Fax: (913) 837-3214  
Revision 1

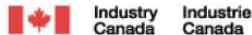
Transcore Amtech Technology Center  
Model: 05443  
Test #: 110712  
Test to: FCC 15c (15.245), IC RSS-210  
File: Transcore 05443 TstRpt

FCC ID#: FIH05443  
IC: 1584A-05443  
SN: ENGI  
Page 22 of 23  
Date: August 5, 2011



NVLAP Lab Code 200087-0

## Annex E Industry Canada Site Registration Letter



May 26, 2010

OUR FILE: 46405-3041  
Submission No: 140719

**Rogers Labs Inc.**  
4405 West 259<sup>th</sup> Terrace  
Louisburg, KY, 66053  
USA

**Attention:** Mr. Scot D. Rogers

Dear Sir/Madame:

The Bureau has received your application for the renewal of a 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 (**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;

- Your primary code is: **3041**

- The company number 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 two 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](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](mailto: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  
3701 Carling Ave., Building 94  
P.O. Box 11490, Station "H"  
Ottawa, Ontario K2H 8S2  
Email: dalwinder.gill@ic.gc.ca  
Tel. No. (613) 998-8363  
Fax. No. (613) 990-4752

Rogers Labs, Inc.  
4405 W. 259th Terrace  
Louisburg, KS 66053  
Phone/Fax: (913) 837-3214  
Revision 1

Transcore Amtech Technology Center  
Model: 05443  
Test #: 110712  
Test to: FCC 15c (15.245), IC RSS-210  
File: Transcore 05443 TstRpt

FCC ID#: FIH05443  
IC: 1584A-05443  
SN: ENGI  
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Date: August 5, 2011