

# SUBMITTAL **APPLICATION** REPORT

# FOR **GRANT OF CERTIFICATION**

**FOR** 

Model: 05684 915 MHz Low Power Transmitter

FCC ID: FIH05684 IC: 1584A-05684

**FOR** 

# **TRANSCORE** AMTECH TECHNOLOGY CENTER

8600 Jefferson Street, NE Albuquerque, NM 87113

Test Report Number: 090912

Authorized Signatory: Scot DRogers

Scot D. Rogers

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

Phone/Fax: (913) 837-3214

Revision 1

Transcore Amtech Technology Center

Model: 05684 Test #: 090912

Test to: FCC 15c (15.245), IC RSS-210

File: Transcore 05684 TstRpt

FCC ID#: FIH05684 IC: 1584A-05684

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# 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: 05684

Frequency 915.0 MHz

FCC ID: FIH05684 IC: 1584A-05684

Test Date: September 12, 2009

Certifying Engineer: Sort Rogers

Scot D. Rogers Rogers Labs, Inc.

4405 West 259<sup>th</sup> Terrace Louisburg, KS 66053

Telephone / Facsimile: (913) 837-3214

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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 7, Annex 2.

Name of Applicant:

TRANSCORE

8600 Jefferson Street, NE

Albuquerque, NM 87113

Model: 05684

FCC I.D.: FIH05684 IC: 1584A-05684

Frequency Range: 915.0 MHz.

Operating Power: 92.9 dBµV/m @ 3-meters (3 meter radiated measurement) and

occupied bandwidth of 7.31 MHz

# **Opinion / Interpretation of Results**

| Tests Performed                                | Results  |  |  |
|--|----------|--|--|
| Emissions Tests                                |          |  |  |
| Emissions as per CFR47 paragraphs 2 and 15.205 | Complies |  |  |
| Emissions as per CFR47 paragraphs 2 and 15.209 | Complies |  |  |
| Emissions as per CFR47 paragraphs 2 and 15.245 | Complies |  |  |
| Emissions as per RSS-210 Annex 2               | Complies |  |  |

#### **Environmental Conditions**

Ambient Temperature 22.8° C

**Relative Humidity** 46%

**Atmospheric Pressure** 1017.4 mb

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Date: September 18, 2009

FCC ID#: FIH05684

IC: 1584A-05684



# **Application for Certification**

(1) Manufacturer: TRANSCORE

8600 Jefferson Street, NE

Albuquerque, NM 87113

(2) Identification: Model: 05684

FCC I.D.: FIH05684 IC: 1584A-05684

(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.

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# **Applicable Standards & Test Procedures**

In accordance with the Federal Communications Code of Federal Regulations, dated October 1, 2008, 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**

Equipment Model FCC ID I.C.

EUT 05684 FIH05684 1584A-05684

# **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.

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#### 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 dBµV; dB referenced to one microvolt.

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

#### **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. 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

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# **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 |  |  |  |
| Rad                           | Radiated Emissions Below 1000 MHz |                   |  |  |  |
| RBW AVG. BW Detector Function |                                   | Detector Function |  |  |  |
| 120 kHz                       | 120 kHz 300 kHz Peak / Quasi Peak |                   |  |  |  |
| Aı                            | nalyzer Settings Above 1000 M     | Hz                |  |  |  |
| RBW                           | Video BW                          | Detector Function |  |  |  |
| 100 kHz                       | 100 kHz                           | Peak              |  |  |  |
| 1 MHz                         | 1 MHz                             | Peak / Average    |  |  |  |

| <u>Equipment</u> | Manufacturer    | <u>Model</u>      | <u>Calibration</u> | <u>Due</u> |
|------------------|-----------------|-------------------|--------------------|------------|
| LISN             | Comp. Design    | FCC-LISN-2-MOD.CD | 10/09              | 10/09      |
| Antenna          | ARA             | BCD-235-B         | 10/09              | 10/09      |
| Antenna          | EMCO            | 3147              | 10/09              | 10/09      |
| Antenna          | EMCO            | 3143              | 5/10               | 5/10       |
| Analyzer         | Rohde & Schwarz | ESU40             | 2/10               | 2/10       |
| Analyzer         | HP              | 8591EM            | 5/10               | 5/10       |
| Analyzer         | HP              | 8562A             | 5/10               | 5/10       |

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**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 7 Annex 2 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.

Sample Calculation:

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

=20.6+28.2-30

= 25.1

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#### **Data Radiated Emissions in Restricted Bands**

| Frequency in MHz | FSM<br>Horz.<br>(dBµV) | FSM<br>Vert.<br>(dBµV) | A.F. (dB/m) | Amp.<br>Gain<br>(dB) | RFS Horz.<br>@ 3m<br>(dBµV/m) | RFS Vert. @ 3m (dBµV/m) | FCC Class B<br>Limit @ 3m<br>(dBµV/m) |
|------------------|------------------------|------------------------|-------------|----------------------|-------------------------------|-------------------------|---------------------------------------|
| 2745.2           | 20.6                   | 28.2                   | 34.5        | 30                   | 25.1                          | 32.7                    | 54.0                                  |
| 2744.9           | 27.8                   | 27.8                   | 34.5        | 30                   | 32.3                          | 32.3                    | 54.0                                  |
| 2745.3           | 22.8                   | 27.2                   | 34.5        | 30                   | 27.3                          | 31.7                    | 54.0                                  |
| 3660.3           | 14.8                   | 18.3                   | 39.2        | 30                   | 24.0                          | 27.5                    | 54.0                                  |
| 3659.8           | 21.1                   | 15.6                   | 39.2        | 30                   | 30.3                          | 24.8                    | 54.0                                  |
| 3660.4           | 15.8                   | 13.9                   | 39.2        | 30                   | 25.0                          | 23.1                    | 54.0                                  |
| 4575.4           | 14.6                   | 15.1                   | 41.6        | 30                   | 26.2                          | 26.7                    | 54.0                                  |
| 4574.8           | 16.8                   | 15.4                   | 41.6        | 30                   | 28.4                          | 27.0                    | 54.0                                  |
| 4575.5           | 15.1                   | 14.7                   | 41.6        | 30                   | 26.7                          | 26.3                    | 54.0                                  |

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

#### **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 21.3 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.

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#### 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 10,000 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 5 GHz, and/or Pyramidal Horns and mixers from 4 GHz to 10 GHz. Refer to figures one through five for plots of emissions in the frequency spectrum.

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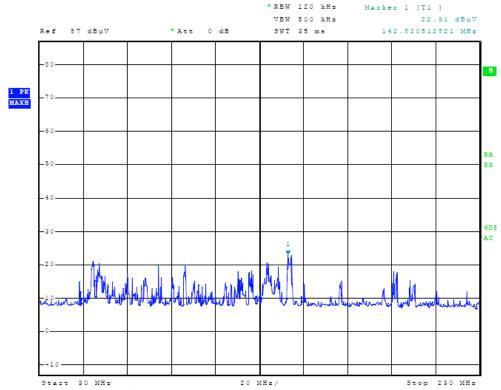


Figure One Plot of Radiated Emissions Taken in screen room

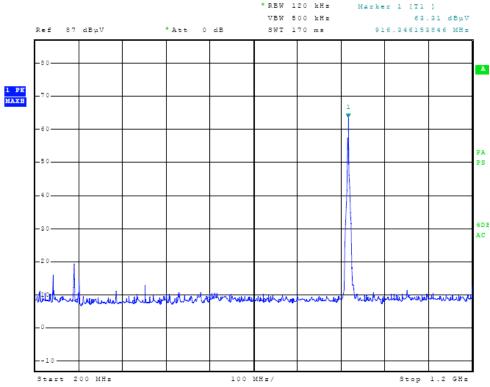


Figure Two Plot of Radiated Emissions Taken in screen room

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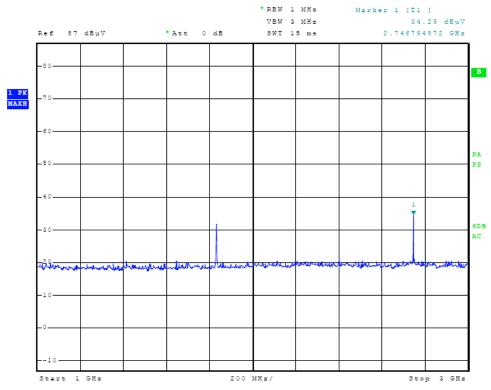


Figure Three Plot of Radiated Emissions Taken in screen room

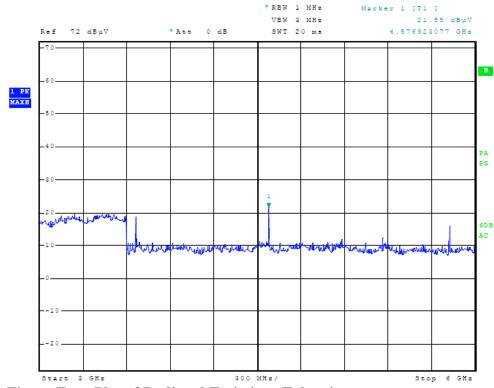


Figure Four Plot of Radiated Emissions Taken in screen room

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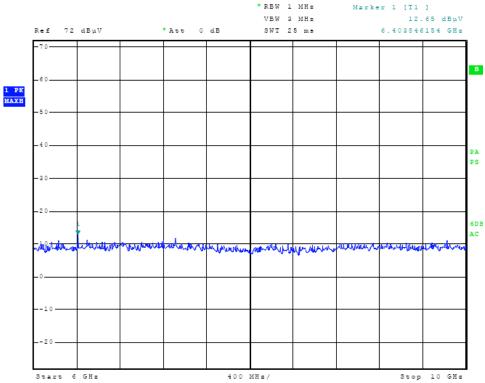


Figure Five Plot of Radiated Emissions Taken in screen room

#### **Data General Radiated Emissions from EUT**

| Frequency in MHz | FSM<br>Horz.<br>(dBµV) | FSM<br>Vert.<br>(dBµV) | A.F. (dB/m) | Amp.<br>Gain<br>(dB) | RFS Horz. @<br>3m<br>(dBµV/m) | RFS Vert. @<br>3m<br>(dBµV/m) | FCC Class B<br>Limit @ 3m<br>(dBµV/m) |
|------------------|------------------------|------------------------|-------------|----------------------|-------------------------------|-------------------------------|---------------------------------------|
|                  |                        |                        |             |                      |                               |                               | 40.0                                  |
|                  |                        |                        |             |                      |                               |                               | 40.0                                  |

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

#### **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 at least a 20 dB minimum margin below the general radiated emissions limits. Other emissions were present with amplitudes at least 20 dB below the limit.

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#### 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 was 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.

Sample Calculation

RFS (dB
$$\mu$$
V/m @ 3m) = FSM (dB $\mu$ V) + A.F. (dB) - Gain (dB)  
= 99.5 + 23.4 -30  
= 92.9

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Figure Six Plot of in Frequency Band Emissions

#### **Data Transmitter Radiated Emissions**

| Emission<br>Frequency<br>(GHz) | FSM<br>Horz.<br>(dBµV) | FSM<br>Vert.<br>(dBµV) | Ant.<br>Factor<br>(dB) | Amp<br>Gain<br>(dB) | RFS Horz.<br>@ 3m<br>(dBµV/m) | RFS Vert.<br>@ 3m<br>(dBµV/m) | Limit<br>@ 3m<br>(dBµV/m) |
|--------------------------------|------------------------|------------------------|------------------------|---------------------|-------------------------------|-------------------------------|---------------------------|
| 915.1                          | 99.5                   | 89.3                   | 23.4                   | 30                  | 92.9                          | 82.7                          | 94.0                      |
| 1830.2                         | 18.9                   | 36.5                   | 29.2                   | 30                  | 18.1                          | 35.7                          | 54.0                      |
| 2745.2                         | 20.6                   | 28.2                   | 34.5                   | 30                  | 25.1                          | 32.7                          | 54.0                      |
| 3660.3                         | 14.8                   | 18.3                   | 39.2                   | 30                  | 24.0                          | 27.5                          | 54.0                      |
| 4575.4                         | 14.6                   | 15.1                   | 41.6                   | 30                  | 26.2                          | 26.7                          | 54.0                      |
| 5490.5                         | 14.6                   | 15.1                   | 41.6                   | 30                  | 26.2                          | 26.7                          | 54.0                      |

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

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**Summary of Results for Intentional Radiator** 

The EUT fundamental frequency of operation demonstrated the highest emission of 92.9

dBμV/m at 3 meters. The EUT demonstrated a minimum margin of 18.3 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.

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- 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

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### 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:

| Probability      | Uncertainty  |
|------------------|--|
| Distribution     | (dB)   |
| normal(k = 2)    | $\pm 0.58$   |
| normal $(k = 2)$ | ±0.2   |
| rectangular      | $\pm 1.0$  |
| rectangular      | $\pm 0.1$  |
| rectangular      | $\pm 2.0$  |
| rectangular      | $\pm 0.1$  |
| rectangular      | ±0.2   |
| rectangular      | ±1.5   |
|                  | Distribution normal (k = 2) normal (k = 2) rectangular rectangular rectangular rectangular rectangular |

Combined standard uncertainty  $u_{c}(y)$  is

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

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

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:

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

$$U = 2 U_c(y) = 2 x \pm 1.6 dB = \pm 3.2 dB$$

#### Notes:

- 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).

Rogers Labs, Inc.

Transcore Amtech Technology Center

4405 W. 259th Terrace

Model: 05684

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Totat #, 000012

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The specified limits for the difference between measured site attenuation and the theoretical value (± 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:

|  | Probability  | Uncertainty |
|--|--------------|-------------|
| Contribution                           | Distribution | (dB)        |
| Receiver specification                 | rectangular  | ±1.5        |
| LISN coupling specification            | rectangular  | ±1.5        |
| Cable and input attenuator calibration | normal (k=2) | ±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:

$$U = 2 U_c(y) = 2 x \pm 1.2 dB = \pm 2.4 dB$$

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# Annex B Test Equipment List

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

| List of Test Equipment  | Calibration Date |
|---|------------------|
| Oscilloscope Scope: Tektronix 2230                              | 2/09             |
| Wattmeter: Bird 43 with Load Bird 8085                          | 2/09             |
| Power Supplies: Sorensen SRL 20-25, SRL 40-25, DCR 150, DCR 140 | 2/09             |
| H/V Power Supply: Fluke Model: 408B (SN: 573)                   | 2/09             |
| R.F. Generator: HP 606A   | 2/09             |
| R.F. Generator: HP 8614A  | 2/09             |
| R.F. Generator: HP 8640B  | 2/09             |
| Spectrum Analyzer: Rohde & Schwarz ESU40                        | 2/09             |
| Spectrum Analyzer: HP 8562A,                                    | 5/09             |
| Mixers: 11517A, 11970A, 11970K, 11970U, 11970V, 11970W          |                  |
| HP Adapters: 11518, 11519, 11520                                |                  |
| Spectrum Analyzer: HP 8591EM                                    | 5/09             |
| Frequency Counter: Leader LDC825                                | 2/09             |
| Antenna: EMCO Biconilog Model: 3143                             | 5/09             |
| Antenna: EMCO Log Periodic Model: 3147                          | 10/08            |
| Antenna: Antenna Research Biconical Model: BCD 235              | 10/08            |
| Antenna: EMCO Dipole Set 3121C                                  | 2/09             |
| Antenna: C.D. B-101   | 2/09             |
| Antenna: Solar 9229-1 & 9230-1                                  | 2/09             |
| Antenna: EMCO 6509  | 2/09             |
| Audio Oscillator: H.P. 201CD                                    | 2/09             |
| R.F. Power Amp 65W Model: 470-A-1010                            | 2/09             |
| R.F. Power Amp 50W M185- 10-501                                 | 2/09             |
| R.F. PreAmp CPPA-102  | 2/09             |
| LISN 50 μHy/50 ohm/0.1 μf                                       | 10/08            |
| LISN Compliance Eng. 240/20                                     | 2/09             |
| LISN Fischer Custom Communications FCC-LISN-50-16-2-08          | 2/09             |
| Peavey Power Amp Model: IPS 801                                 | 2/09             |
| Power Amp A.R. Model: 10W 1010M7                                | 2/09             |
| Power Amp EIN Model: A301                                       | 2/09             |
| ELGAR Model: 1751   | 2/09             |
| ELGAR Model: TG 704A-3D   | 2/09             |
| ESD Test Set 2010i  | 2/09             |
| Fast Transient Burst Generator Model: EFT/B-101                 | 2/09             |
| Current Probe: Singer CP-105                                    | 2/09             |
| Current Probe: Solar 9108-1N                                    | 2/09             |
| Field Intensity Meter: EFM-018                                  | 2/09             |
| KEYTEK Ecat Surge Generator                                     | 2/09             |
|   |                  |

Rogers Labs, Inc. Transcore Amtech Technology Center FCC ID#: FIH05684 4405 W. 259th Terrace Model: 05684 IC: 1584A-05684

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### Annex C Rogers Qualifications

Scot D. Rogers, Engineer

Rogers Labs, Inc.

Mr. Rogers has approximately 17 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**

Bachelor of Science Degree in Electrical Engineering from Kansas State University

Bachelor of Science Degree in Business Administration Kansas State University

Several Specialized Training courses and seminars pertaining to Microprocessors and Software programming

Scot DRogers

Scot D. Rogers

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#### Annex D FCC Site Registration Letter

#### FEDERAL COMMUNICATIONS COMMISSION

Laboratory Division 7435 Oakland Mills Road Columbia, MD 21046

June 18, 2008

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: June 18, 2008

#### 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 <a href="www.fcc.gov">www.fcc.gov</a> under E-Filing, OET Equipment Authorization Electronic Filing, Test Firms.

Sincerely

**Industry Analyst** 

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

Phone/Fax: (913) 837-3214

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#### Annex E Industry Canada Site Registration Letter

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Industry Canada Industrie Canada

July 29th, 2008

OUR FILE: 46405-3041 Submission No: 127059

Rogers Labs Inc. 4405 West 259th Terrace Louisburg KY 66053 USA

Attention: Scot D. Rogers

#### Dear Sir/Madame:

The Bureau has received your application for the registration / 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 (3040A-1). Please reference the appropriate site number in the body of test reports containing measurements performed on the site. In addition, please be informed that the Bureau is now utilizing a new site numbering scheme in order to simplify the electronic filing process. Our goal is to reduce the number of secondary codes associated to one particular company. The following changes have been made to your records.

Your primary code is: 3041

The company number associated to the site(s) located at the above address is: 3041A The table below is a summary of the changes made to the unique site registration number(s):

| New Site Number | Obsolete Site Number | Description of Site | Expiry Date<br>(YYYY-MM-DD) |
|-----------------|----------------------|---------------------|-----------------------------|
| 3041A-1         | 3041-1               | 3 / 10m OATS        | 2010-07-29                  |

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 shall be accepted. Please indicate in a letter the previous assigned site number if applicable and the type of site (example: 3 meter OATS or 3 meter 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;

If you have any questions, you may contact the Bureau by e-mail at <a href="mailto:certification.bureau@ic.gc.ca">certification.bureau@ic.gc.ca</a> Please reference our file and submission number above for all correspondence. Yours sincerely,

S. Proulx Wireless Laboratory Manager Certification and Engineering Bureau Industry Canada 3701 Carling Ave., Building 94 Ottawa, Ontario K2H 8S2 Canada

Canada

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

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