

APPLICATION  
FOR  
GRANT of CERTIFICATION  
REPORT  
FOR

MODEL: External Tx Unit  
PN 1475 383-101-SSS

FOR

HONEYWELL FMT. LLC  
2000 East 95th Street  
Kansas City, MO 64141-6159  
Test Report Number 070712A

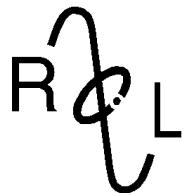
Authorized Signatory *Scot D Rogers*

Scot D. Rogers

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

Honeywell FMT. LLC  
MODEL: External Tx Unit  
Test #: 070712A  
Test to: FCC Parts 2 and 15.249  
Report Revision 1

FCC ID: VGKSSSEXT  
SN: BBN-01102-I 06  
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# Rogers Labs, Inc.

4405 West 259<sup>th</sup> Terrace

Louisburg, KS 66053

Telephone / Fax (913) 837-3214

## TEST REPORT

For

## APPLICATION of CERTIFICATION

For

## HONEYWELL FMT. LLC

2000 East 95th Street

Kansas City, MO 64141-6159

Phone: (816) 997-4556

Mr. Leonard H Moore

Compliance Engineer

Model: External Tx Unit

Low Power Transmitter

Frequency: 916.5 MHz

FCC ID: VGKSSSEXT

Test Date: July 12, 2007

Certifying Engineer: *Scot D. Rogers*

Scot D. Rogers

ROGERS LABS, INC.

4405 West 259th Terrace

Louisburg, KS 66053

Phone: (913) 837-3214

FAX: (913) 837-3214

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Louisburg, KS 66053  
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## Forward

In accordance with the Federal Communications Code of Federal Regulations, dated October 1, 2006, Part 2 Subpart J, Paragraphs 2.907, 2.911, 2.913, 2.915, 2.925, 2.926, 2.1031 through 2.1057, applicable paragraphs of Part 15C, the following report is submitted.

Applicant Honeywell FMT. LLC  
2000 East 95th Street  
Kansas City, MO 64141-6159

Model External Tx Unit

FCC ID VGKSSSEXT

## Opinion / Interpretation of Results

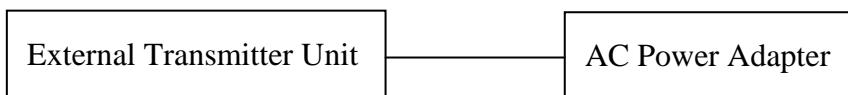
Emissions Testing Standard Referenced	Results
Emissions per CFR47, 15.249	Complies

## Equipment Function and Configuration

### Equipment Function

The EUT operates as a low power license exempt intentional radiator operating at 916.5 MHz and governed under CFR47 15.249 for low power point to point transmitter operating in the frequency band of 902-928 MHz. The device design allows the EUT to transmit door/drawer position of a secure facility inside a safe to a remote receiver-signaling device. The EUT transmits the status of the door/drawer after receiving status information of door/drawer position transmitting a signal to alert a remote receiver indicating an open door/drawer state. The EUT allows for connection to an AC/DC power adapter for power and is functional once power is supplied. The EUT offers no transmitter power adjustment to the end user and utilizes a permanently affixed antenna.

### Equipment Configuration



## List of Test Equipment

A Hewlett Packard 8591EM and or 8562A Spectrum Analyzer was used as the measuring device for the emissions testing. The analyzer settings used are described in the following table. Refer to the Appendix for a complete list of Test Equipment.

HP 8591EM SPECTRUM 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
HP 8562A SPECTRUM ANALYZER SETTINGS		
RADIATED EMISSIONS (1 – 40 GHz)		
RBW	AVG. BW	DETECTOR FUNCTION
1 MHz	1 MHz	Peak/Average
ANTENNA CONDUCTED EMISSIONS:		
RBW	AVG. BW	DETECTOR FUNCTION
120 kHz	300 kHz	Peak

## Environmental Conditions

Ambient Temperature	22.2° C
Relative Humidity	58%
Atmospheric Pressure	29.95 in Hg

**CFR47 2.1033(b) Application for Certification**

(1) Manufacturer: HONEYWELL FMT. LLC  
2000 East 9th Street  
Kansas City, MO 64131-3095  
Phone: (816) 997-4556

(2) FCC Identification: Model: External Tx Unit  
FCC ID: VGKSSSEXT S/N: BBN-01102-I 06

(3) Copy of the installation and operating manual:  
Refer to exhibit for Draft Instruction Manual.

(4) Description of circuits: Refer to Exhibit for Circuit description and Theory of operation.

(5) Block Diagram: Refer to Exhibit for Block Diagram.

(6) Test report of measurements as required are contained in this document.

(7) Photographs or drawing of the Equipment and Identification information: Refer to Exhibit for required Photographs.

(8) Peripheral Equipment required. The EUT offers no connection to other equipment.

(9) Transition Provisions of 15.37: The transition provisions of 15.37 are not requested.

(10) Scanning receiver certification: The equipment is not a scanning receiver.

(11) Application for certification of transmitter operating within the 59-64 GHz range: Not applicable to this certification request as the equipment does not operate in the 59-64 GHz frequency band.

(12) Application for certification of software defined equipment: Not applicable as the equipment is not software defined.

**CFR47 15 Subpart C - Intentional Radiators**

As per CFR47 Part 15, Subpart C the following information is submitted for consideration in obtaining a grant of certification for unlicensed low power intentional radiators operating under provision of CFR47 15.249.

## CFR47 15.203 Antenna Requirements

The unit is produced with a permanently attached antenna inside the plastic case. No provisions for modification or alterations of the antenna configuration are available to the end user. The requirements of 15.203 are met there are no deviations or exceptions to the specification.

## CFR47 15.205 Restricted Bands of Operation Requirements

Spurious emissions falling in the restricted frequency bands of operation were measured at the OATS. The EUT utilizes frequency, determining circuitry, which generates harmonics falling in the restricted bands. Emissions were checked at the OATS, using appropriate antennas or pyramidal horns, amplification stages, and a spectrum analyzer. Peak and average amplitudes of frequencies above 1000 MHz were compared to the required limits with worst-case data presented below. Test procedures of ANSI 63.4-2003 paragraphs 13.1 and 8.3.1.2 were used during testing. No other significant emission was observed which fell into the restricted bands of operation. Computed emission values take into account the measured radiated field strength, receive antenna correction factor, amplifier gain stage, and test system cable losses.

Sample Calculations:

$$\begin{aligned}\text{Computed Peak (dB}\mu\text{V/m @ 3m)} &= \text{FSM (dB}\mu\text{V)} + \text{A.F. (dB)} - \text{Gain (dB)} \\ &= 26.7 + 34.1 - 30 \\ &= 30.8\end{aligned}$$

### CFR47 15.205 Emissions Data in Restricted Bands

Emission Frequency (MHz)	Peak FSM Horz. (dB $\mu$ V)	Peak FSM Vert. (dB $\mu$ V)	Ant. Factor (dB)	Amp. Gain (dB)	RFS Horz. @ 3m (dB $\mu$ V/m)	RFS Vert. @ 3m (dB $\mu$ V/m)	Limit @ 3m (dB $\mu$ V/m)
2749.6	26.7	31.3	34.1	30	30.8	35.4	54.0
3666.2	27.3	29.5	39.1	30	36.4	38.6	54.0
4582.7	26.8	27.5	32.5	30	29.3	30.0	54.0

Other emissions present presented amplitudes at least 20 dB below the required limits.

## CFR47 15.205 Summary of Results for Radiated Emissions in Restricted Bands

The radiated emissions for the EUT meet the requirements for FCC CFR47 Part 15.205 restricted bands of operation. The EUT had a 15.4 dB minimum margin below the limits. No other emissions found in the restricted bands.

## CFR47 15.207 Conducted emissions limits; general requirements

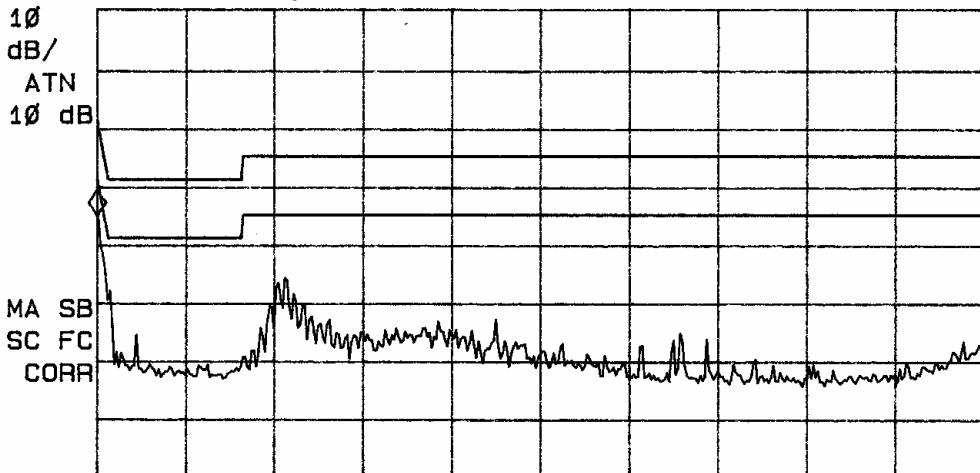
### CFR47 15.207 AC Line Conducted EMI

Testing for the AC line-conducted emissions testing was performed as defined in section 13.1.3 of ANSI C63.4. The EUT was arranged in a typical equipment configuration and placed on a 1 x 1.5- meter wooden bench 80 cm above the conducting ground plane, floor of a screen room. The bench was positioned 40 cm away from the wall of the screen room. The LISN was positioned on the floor of the screen room 80-cm from the rear of the EUT. The manufacturer supplied AC power adapter for the EUT was connected to the LISN. A second LISN was positioned on the floor of the screen room 80-cm from the rear of the supporting equipment of the EUT. All power cords except the EUT were then powered from the second LISN. EMI was coupled to the spectrum analyzer through a 0.1  $\mu$ F capacitor, internal to the LISN. Power line conducted emissions testing were carried out individually for each current carrying conductor of the EUT. The excess length of lead between the system and the LISN receptacle was folded back and forth to form a bundle not exceeding 40 cm in length. The screen room, conducting ground plane, analyzer, and LISN were bonded together to the protective earth ground. Preliminary testing was performed to identify the frequency of each radio frequency emission displaying the highest amplitude. The cables were repositioned to obtain maximum amplitude of measured EMI level. Once the worst-case configuration was identified, plots were made of the EMI from 0.15 MHz to 30 MHz then the data was recorded with maximum conducted emissions levels. Refer to figures one and two for plots of the AC Line conducted emissions.

MARKER  
150 kHz  
49.80 dB  $\mu$ V

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 150 KHz  
49.80 dB<sub>μ</sub>V

REF OFFSET 7.0 dB  
LOG REF 85.0 dB $\mu$ V



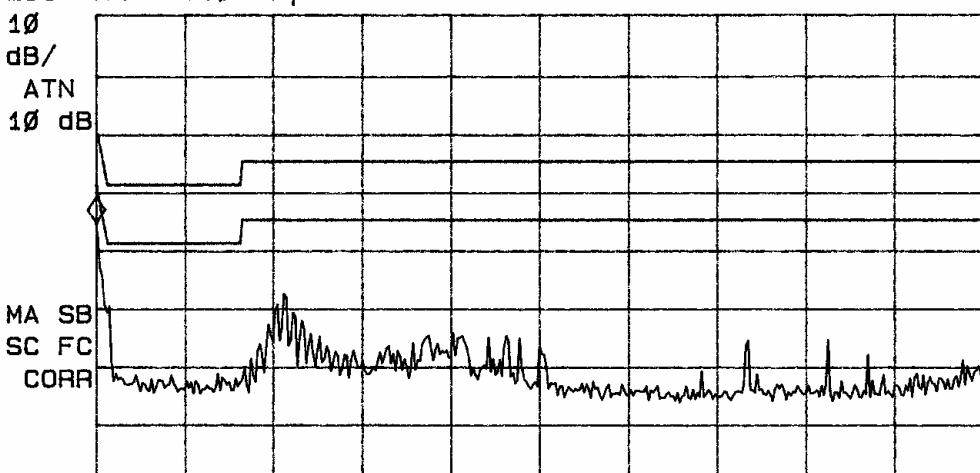
START 150 kHz #IF BW 9.0 kHz AVG BW 30 kHz STOP 30.00 MHz SWP 1.11 sec

Figure one AC Line Conducted Emissions Plot of Line 1

MARKER  
150 kHz  
49.53 dB  $\mu$ V

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 150 kHz  
49.53 dB $\mu$ V

REF OFFSET 7.0 dB  
LOG REF 85.0 dBuV



START 150 kHz #IE BW 90 kHz AVG BW 30 kHz STOP 30.00 MHz SWP 1 11 sec

Figure two AC Line Conducted Emissions Plot of Line 2

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MODEL: External Tx Unit  
Test #: 070712A  
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## CFR47 15.207 Conducted Emissions Data (7 Highest Emissions)

Frequency band (MHz)	L1 Level (dB $\mu$ V)			L2 Level (dB $\mu$ V)			CISPR 22 Limit Q.P. Ave(dB $\mu$ V)
	Peak	Q.P.	AVE	Peak	Q.P.	AVE	
0.15 – 0.5	49.8	43.4	28.5	49.5	42.8	19.3	66 / 56
0.5 – 5	37.0	30.6	12.7	36.1	28.9	12.4	56 / 46
5 – 10	35.6	30.7	27.6	35.5	27.0	16.9	60 / 50
10 – 15	27.6	23.8	11.8	26.6	25.0	11.8	60 / 50
15 – 20	21.7	16.7	11.0	28.0	20.7	10.4	60 / 50
20 – 25	20.9	19.2	9.1	20.3	17.2	9.8	60 / 50
25 – 30	34.3	30.0	6.8	30.6	26.3	7.1	60 / 50

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

## CFR47 15.207 Summary of Results for AC Line Conducted General Emissions

The conducted emissions for the EUT meet the requirements for CFR47 15C Intentional Radiators. The EUT had a 22.6 dB (Quasi-Peak) minimum margin below the Quasi-Peak limit, and a 22.4 dB (average) minimum margin below the CISPR average limit. Measurements taken using the peak, quasi peak, and average, measurement function for each emissions amplitude and were below the limits stated in the specification. Other emissions were present with recorded data representing worst-case amplitudes.

## Statement of Modifications and Deviations

No modifications to the EUT were required for the unit to meet the CFR47 Part 15C emissions standards. There were no deviations or exceptions to the specifications.

## CFR47 15.209 Radiated emissions limits; general requirements

### CFR47 15.209 General Radiated EMI

Test procedures of ANSI 63.4-2003 paragraphs 13.1 and 8.3.1.2 were used during radiated emissions testing. The EUT was arranged in all typical equipment configurations and operated through all of its various modes. 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. Plots were made of the radiated emission frequency spectrum from 30 MHz to 10,000 MHz for the preliminary testing. Refer to figures 3 through 7 showing the worst-case radiated emission spectrum displayed on the spectrum analyzer taken in a screen room. The highest radiated emission was then re-maximized at the OATS site before final radiated emissions measurements were performed. Final data was taken with the EUT located at the open field test site at a distance of 3 meters between the EUT and the receiving antenna. The frequency spectrum from 30 MHz to 10,000 MHz was searched for radiated emissions. Peak and average amplitudes of frequencies above 1000 MHz were compared to the required limits with worst-case data presented below. Measured emission levels were maximized by EUT placement on the table, changing cable location, rotating the turntable through 360 degrees, varying the antenna height between 1 and 4 meters above the ground plane and changing antenna polarization between horizontal and vertical. Antennas used were Broadband Biconical from 30 MHz to 200 MHz, Log Periodic from 200 MHz to 5 GHz, and/or Biconilog from 30 MHz to 1000 MHz, Pyramidal Horns from 5 GHz to 25 GHz, and amplification stages.

#### Sample Calculations:

$$\begin{aligned} \text{RFS} &= \text{Radiated Field Strength} \\ \text{dB}\mu\text{V/m} @ 3\text{m} &= \text{dB}\mu\text{V} + \text{A.F.} - \text{Amplifier Gain} \\ \text{dB}\mu\text{V/m} @ 3\text{m} &= 38.6 + 5.2 - 30 \\ &= 13.8 \end{aligned}$$

MARKER  
55.5 MHz  
21.29 dB $\mu$ V

ACTV DET: PEAK  
MEAS DET: PEAK QP  
MKR 55.5 MHz  
21.29 dB $\mu$ V

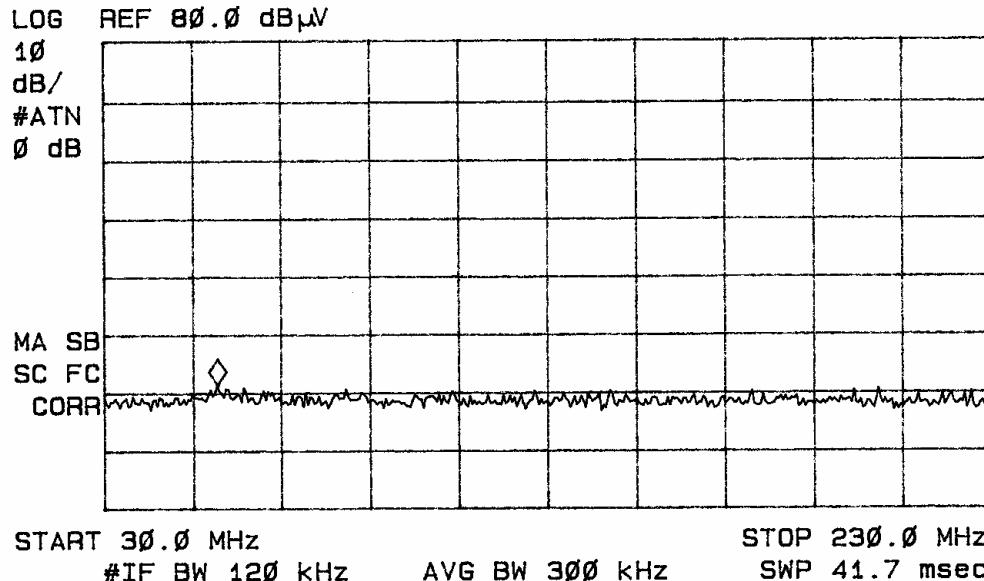


Figure three Peak Radiated Emissions taken at 1 meter in screen room.

MARKER  
920 MHz  
63.40 dB $\mu$ V

ACTV DET: PEAK  
MEAS DET: PEAK QP  
MKR 920 MHz  
63.40 dB $\mu$ V

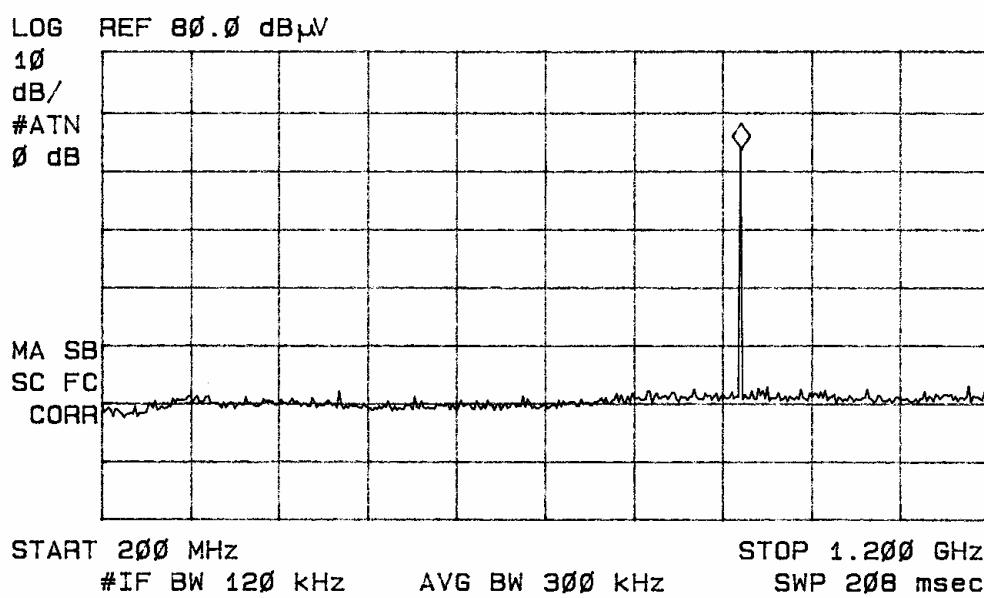


Figure four Peak Radiated Emissions taken at 1 meter in screen room.

ROGERS LABS, INC.  
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Louisburg, KS 66053  
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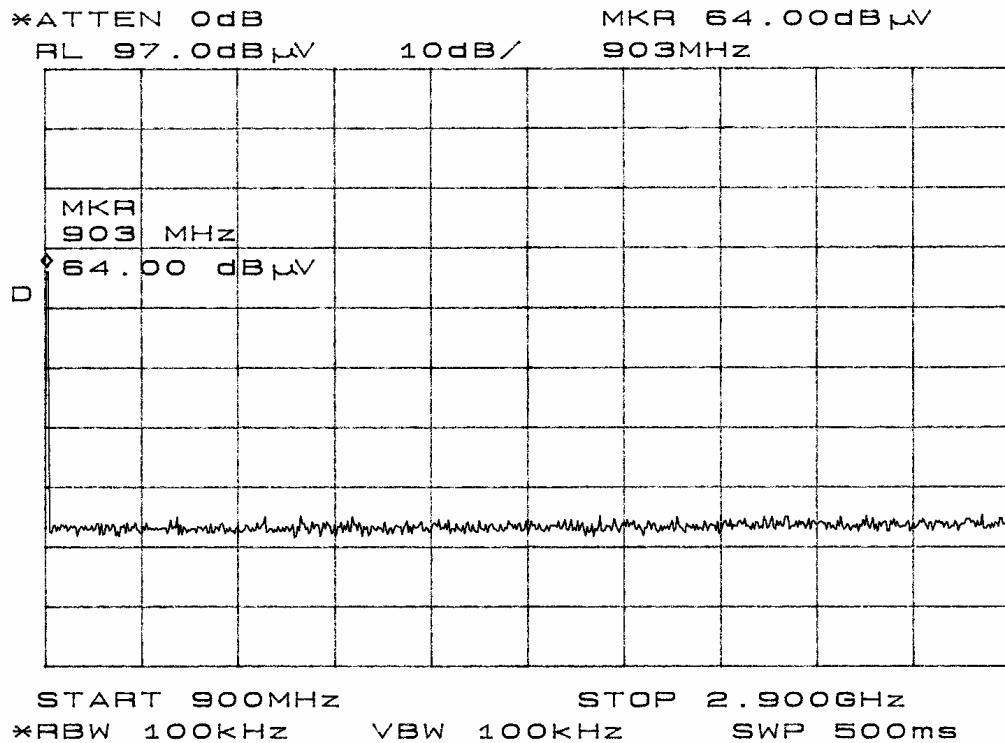


Figure five Peak Radiated Emissions taken at 1 meter in screen room.

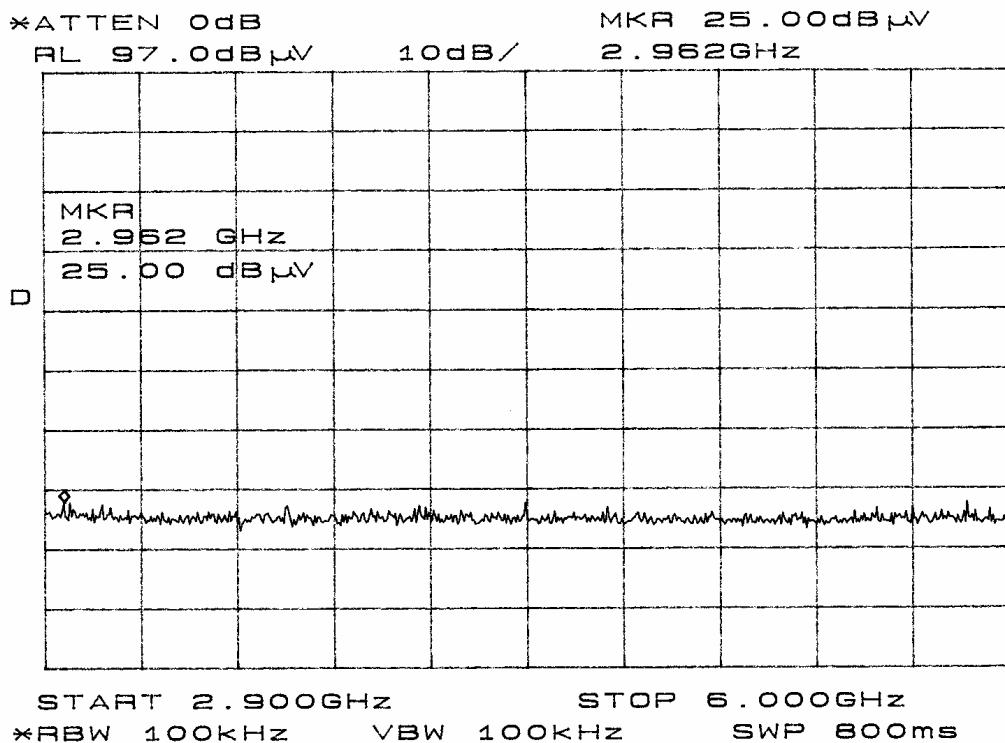


Figure six Peak Radiated Emissions taken at 1 meter in screen room.

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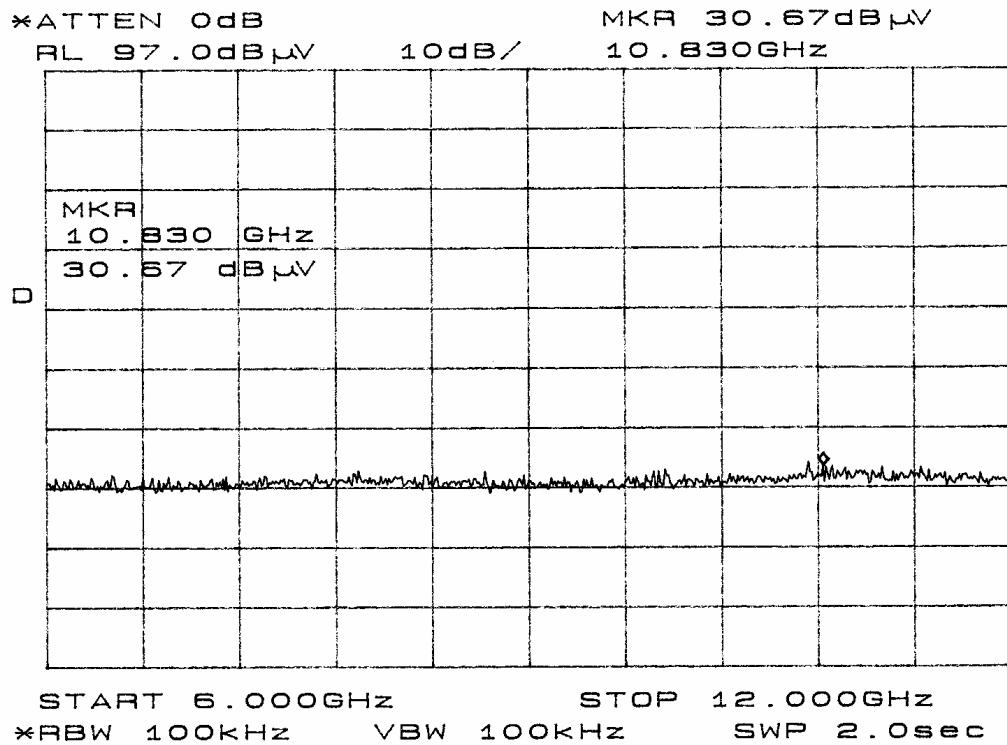


Figure seven Peak Radiated Emissions taken at 1 meter in screen room.

#### CFR47 15.209 General Radiated Emissions Data

Emission Freq. (MHz)	FSM Horz. (dB $\mu$ V)	FSM Vert. (dB $\mu$ V)	Ant. Factor	Amp Gain (dB)	RFS Horz. @ 3m (dB $\mu$ V/m)	RFS Vert. @ 3m (dB $\mu$ V/m)	Limit @ 3m (dB $\mu$ V/m)
55.5	38.6	32.5	5.2	30	13.8	7.7	40.0

Other emissions present presented amplitudes at least 20 dB below limits.

#### Statement of Modifications and Deviations

No modifications to the EUT were required for the unit to meet the CFR47 Part 15C emissions standards. There were no deviations or exceptions to the specifications.

#### CFR47 15.209 Summary of Results for General Radiated Emissions

The radiated emissions for the EUT meet the requirements for FCC Part 15C Intentional Radiators. The EUT had a 26.2 dB minimum margin below the limits. Other emissions were present with amplitudes at least 20 dB below the FCC Limits.

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## 15.249 Operation in the Band 902 - 928 MHz

Test procedures of ANSI 63.4-2003 paragraphs 13.1 and 8.3.1.2 were used during testing. The power output was measured on an open area test site @ 3 meters distance. The EUT was placed on a wooden turntable 0.8 meters above the ground plane and at a distance of 3 meters from the FSM antenna. The peak and quasi-peak amplitude of frequencies below 1000 MHz were measured using a spectrum analyzer. The peak and average amplitude of frequencies above 1000 MHz were measured using a spectrum analyzer. The amplitude of the emission was then 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 in 15.209, whichever is the lesser attenuation. Refer to figures 8 and 9 showing the spectral emission displayed on the spectrum analyzer demonstrating compliance with the requirements. The amplitudes of each spurious emission were measured at the OATS at a distance of 3 meters from the FSM antenna. The amplitude of each radiated spurious emission was maximized by varying the FSM antenna height, polarization, and by rotating the turntable. A Biconilog Antenna was used for measuring emissions from 30 to 1000 MHz, a Log Periodic Antenna for 200 to 5000 MHz, and Double-ridge horn and/or Pyramidal Horn Antennas from 4 GHz to 25 GHz. Emissions were measured in dB $\mu$ V/m @ 3 meters.

Sample calculation.

$$\text{dB}\mu\text{V/m}@ 3\text{m} = \text{FSM} + \text{A.F.} + \text{cable loss} - \text{amplifier Gain}$$

$$= 97.7 + 23.4 - 30 = 91.1$$

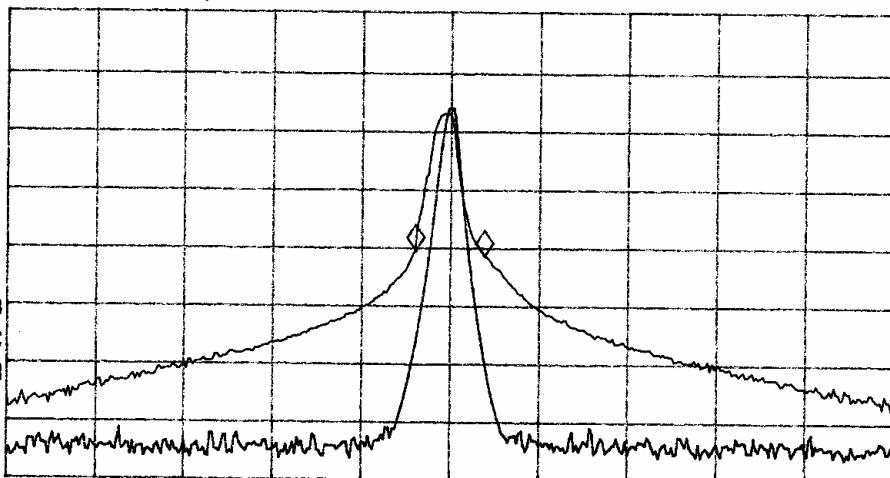
MARKER  $\Delta$   
78 kHz  
-.93 dB

ACTV DET: PEAK  
MEAS DET: PEAK QP  
MKR 78 kHz  
-.93 dB

LOG REF 80.0 dB $\mu$ V

10  
dB/  
#ATN  
0 dB

VA VB  
SC FC  
CORR



CENTER 916.445 MHz  
#IF BW 10 kHz

AVG BW 10 kHz

SPAN 1.000 MHz  
SWP 30.0 msec

Figure eight Occupied Band Width

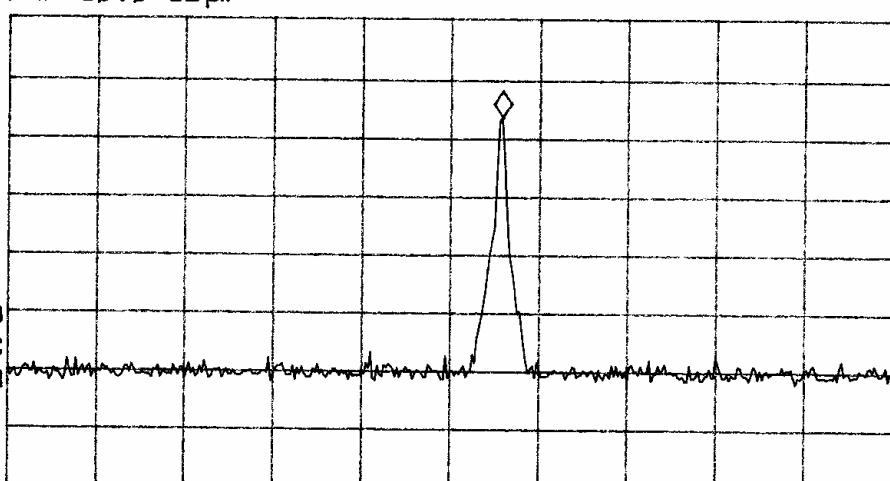
MARKER  
916.50 MHz  
63.35 dB $\mu$ V

ACTV DET: PEAK  
MEAS DET: PEAK QP  
MKR 916.50 MHz  
63.35 dB $\mu$ V

LOG REF 80.0 dB $\mu$ V

10  
dB/  
#ATN  
0 dB

VA SB  
SC FC  
CORR



START 902.00 MHz  
#IF BW 120 kHz

AVG BW 300 kHz

STOP 928.00 MHz  
SWP 20.0 msec

Figure nine Band Edges

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## CFR47 15.249 Radiated Emissions Data

Emission Frequency (MHz)	Hori. FSM Peak (dB $\mu$ V)	Vert. FSM Peak (dB $\mu$ V)	Ant. Factor (dB)	Amp. Gain (dB)	RFS Peak @ 3m (dB $\mu$ V/m)	RFS Average @ 3m (dB $\mu$ V/m)	Limit @ 3m (dB $\mu$ V/m)
916.5	97.7	99.7	23.4	30	91.1	93.1	94.0
1833.0	28.0	28.3	29.0	30	27.0	27.3	54.0
2749.6	26.7	31.3	34.1	30	30.8	35.4	54.0
3666.2	27.3	29.5	39.1	30	36.4	38.6	54.0
4582.7	26.8	27.5	32.5	30	29.3	30.0	54.0
5499.2	26.7	27.2	33.1	30	29.8	30.3	54.0
6415.8	27.0	28.5	34.2	30	31.2	32.7	54.0

Note: Peak Emission Levels were measured @ 3-meter OATS site.

### Summary of Results for Transmitter Radiated Emissions per 15.249

The EUT had a peak amplitude emission of 0.9 dB margin below the limit of CFR47 15.249.

The EUT had Peak harmonic emission amplitude of 15.4 dB margin below the limit of 15.209 and 15.249. The radiated emissions for the EUT meet the requirements for FCC CFR47 Part 15.249 and other applicable standards for Intentional Radiators. There are no measurable emissions in the restricted bands other than those recorded in this report. Other emissions were present with amplitudes at least 20 dB below the FCC Limits.

### Statement of Modifications and Deviations

No modifications to the EUT were required for the unit to meet the CFR47 part 15C and Industry Canada RSS-210 emissions standards. 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 Approval Letter.
- Annex E, Industry Canada Approval Letter.

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

Honeywell FMT. LLC  
MODEL: External Tx Unit  
Test #: 070712A  
Test to: FCC Parts 2 and 15.249  
Report Revision 1

FCC ID: VGKSSSEXT  
SN: BBN-01102-I 06  
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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:

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

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

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:

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

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	Uncertainty (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:

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

## Annex B Test Equipment List For Rogers Labs, Inc.

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

List of Test Equipment	Calibration Date
Oscilloscope Scope: Tektronix 2230	2/07
Wattmeter: Bird 43 with Load Bird 8085	2/07
Power Supplies: Sorensen SRL 20-25, SRL 40-25, DCR 150, DCR 140	2/07
H/V Power Supply: Fluke Model: 408B (SN: 573)	2/07
R.F. Generator: HP 606A	2/07
R.F. Generator: HP 8614A	2/07
R.F. Generator: HP 8640B	2/07
Spectrum Analyzer: HP 8562A, Mixers: 11517A, 11970A, 11970K, 11970U, 11970V, 11970W HP Adapters: 11518, 11519, 11520	2/07
Spectrum Analyzer: HP 8591EM	5/07
Frequency Counter: Leader LDC825	2/07
Antenna: EMCO Biconilog Model: 3143	5/07
Antenna: EMCO Log Periodic Model: 3147	10/06
Antenna: Antenna Research Biconical Model: BCD 235	10/06
Antenna: EMCO Dipole Set 3121C	2/07
Antenna: C.D. B-101	2/07
Antenna: Solar 9229-1 & 9230-1	2/07
Antenna: EMCO 6509	2/07
Audio Oscillator: H.P. 201CD	2/07
R.F. Power Amp 65W Model: 470-A-1010	2/07
R.F. Power Amp 50W M185- 10-501	2/07
R.F. PreAmp CPPA-102	2/07
LISN 50 $\mu$ Hy/50 ohm/0.1 $\mu$ f	10/06
LISN Compliance Eng. 240/20	2/07
LISN Fischer Custom Communications FCC-LISN-50-16-2-08	2/07
Peavey Power Amp Model: IPS 801	2/07
Power Amp A.R. Model: 10W 1010M7	2/07
Power Amp EIN Model: A301	2/07
ELGAR Model: 1751	2/07
ELGAR Model: TG 704A-3D	2/07
ESD Test Set 2010i	2/07
Fast Transient Burst Generator Model: EFT/B-101	2/07
Current Probe: Singer CP-105	2/07
Current Probe: Solar 9108-1N	2/07
Field Intensity Meter: EFM-018	2/07
KEYTEK Ecat Surge Generator	2/07
Shielded Room 5 M x 3 M x 3.0 M	
5/2/2007	

## Annex C 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:

- 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

July 12, 2007

Date

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

Honeywell FMT. LLC  
MODEL: External Tx Unit  
Test #: 070712A  
Test to: FCC Parts 2 and 15.249  
Report Revision 1

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## Annex D FCC Site Approval Letter

**FEDERAL COMMUNICATIONS COMMISSION**

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

May 16, 2006

Registration Number: 90910

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

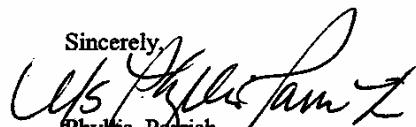
Attention: Scot Rogers

Re: Measurement facility located at Louisburg  
3 & 10 meter site  
Date of Renewal: May 16, 2006

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.

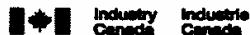
Sincerely,  
  
PhyMie Parish  
Information Technician

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

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## Annex E Industry Canada Site Approval Letter

May 23<sup>rd</sup>, 2006OUR FILE: 46405-3041  
Submission No: 115252

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

Dear Sir/Madame:

The Bureau has received your application for the Alternate Test Site or OATS and the filing is satisfactory to Industry Canada.

Please reference to the file number (3041-1) in the body of all test reports containing measurements performed on the site.

In the future, to obtain or renew a unique registration number, you may demonstrate that the site has been accredited to ANSI C63.4-2003 or later.

If the site is not accredited to ANSI C63.4-2003 or later, the test facility shall submit test data demonstrating conformance with the ANSI standard. The Department 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.

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 number above for all correspondence.

Yours sincerely,

A handwritten signature in black ink, appearing to read "R. Corey".

Robert Corey  
Manager Certification  
Certification and Engineering Bureau  
3701 Carling Ave., Building 94  
Ottawa, Ontario K2H 8S2

**Canada**

ROGERS LABS, INC.  
4405 West 259<sup>th</sup> Terrace  
Louisburg, KS 66053  
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