

Class 2 Permissive Change Test Report For Certified Equipment

FOR

Model: RM024
2400.7-2470.9 MHz
FHSS Transmission System

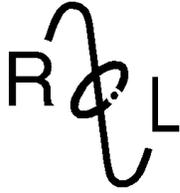
FCC ID: KQL-RM024
IC: 2268C-RM024

FOR

Laird Technologies
11160 Thompson Avenue
Lenexa KS 66219

Test Report Number: 141021
IC Test Site Registration: 3041A-1

Authorized Signatory: *Scot D. Rogers*
Scot D. Rogers



ROGERS LABS, INC.

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

**Class 2 Permissive Change
 Test Report**

FOR
 47CFR, Part 15C - Intentional Radiators Paragraph 15.247
 And Industry Canada, RSS-210
 License Exempt Intentional Radiator

For

Laird Technologies

11160 Thompson Avenue
 Lenexa KS 66219

Model: RM024
 FHSS Transmission System
 Frequency Range 2400.7-2470.9 MHz
 FCC ID#: KQL-RM024
 IC: 2268C-RM024

Test Date: October 21, 2014

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

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 This report must not be used by the client to claim product endorsement by NVLAP, NIST, or
 any agency of the U.S. Government.



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Revisions

Revision 1, Report Issued November 13, 2014



Forward

The electromagnetic emissions compatibility tests required for demonstration of compliance with 47CFR Part 15C and Industry Canada RSS-210 have been conducted on the RM024 in compliance with the requirements for permissible change. This report documents a new antenna style and request to add alternative antenna option. The submitted exhibits and this document offer supporting information and demonstration of continued compliance for use of additional antenna. The results have been reviewed and found equipment remains in compliance with the regulations and requirements.

Name of Applicant: Laird Technologies
11160 Thompson Avenue
Lenexa KS 66219

Change: Add Taoglas 2 dBi Slot antenna

Model: RM024 FCC I.D.: KQL-RM024 IC: 2268C-RM024

Frequency Range: 2400.7-2470.9 MHz

Opinion / Interpretation of Results

Test Performed	Minimum Margin (dB)	Results
Antenna requirement per CFR 47 15.203	N/A	Complies
Restricted Bands (General Emissions) from Support Equipment (* Note1)		Complies
Restricted Bands (Tx) Emissions as per CFR 47 15.205 and RSS-210		Complies
AC Line Conducted Emissions as per CFR 47 15.207		Complies
Radiated Emissions as per CFR 47 15.209 and RSS-210 (* Note 1)		Complies
Radiated Emissions per CFR 47 15.247 and RSS-210 (harmonics)		Complies

Equipment Tested

<u>Equipment</u>	<u>Model</u>	<u>FCC I.D. #</u>
EUT	RM024	KQL-RM024
CPU	HP CRVSA-02T1-75	TW24416178
2 dBi Slot	INT01.07.0100C	N/A

Test results in this report relate only to the items tested.

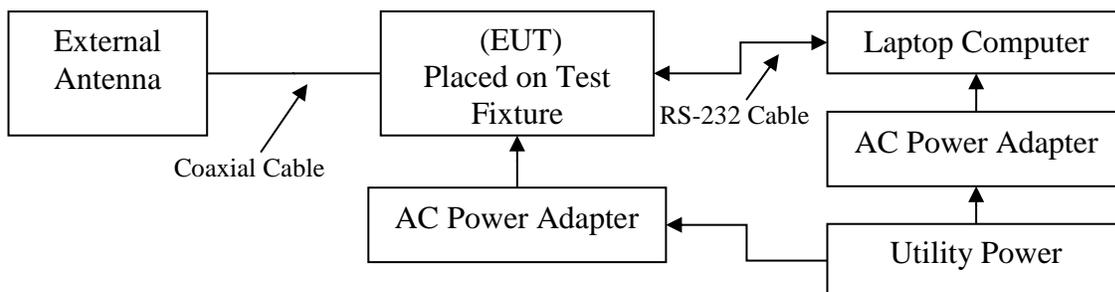
Change to Equipment

The change from original equipment authorization offers alternative antenna option. The addition of the additional antenna offers flexibility for module mounting. All transmitter specifications remain as originally authorized. There is no change to the original transmitter hardware or design. Testing was performed to verify the change in antenna continues to comply with applicable rules and requirements of the 47CFR and Industry Canada RSS-210. The modification provided no change to the certified operating power or frequency band.

Equipment Function and Configuration

The EUT is a 2400.7-2470.9 MHz Frequency Hopping Spread Spectrum Transceiver Module used to transmit data in applications offering wireless connectivity. The design offer operation in either 43 hop set or 79 hop set mode. The equipment is marketed for use to incorporate a wireless link to exchange data information from one point to another. The design offers two antenna connection options (PCB mounted chip antenna or u.fl connection). For testing purposes the RM024 transceiver was connected to the manufacturer supplied test fixture, AC/DC power adapter, and communicating to the laptop computer allowing for data communications and operational control of the transmitter. The RM024 received power from the test fixture and offers no other provision for connection to I/O or utility power systems. Preliminary investigation was performed for all channel bandwidths and modes of operation. Testing of the RM024 and support equipment was performed with the EUT placed on the test fixture, powered from the AC/DC power adapter, and set to transmit in all available data modes and channels.

Equipment Configuration



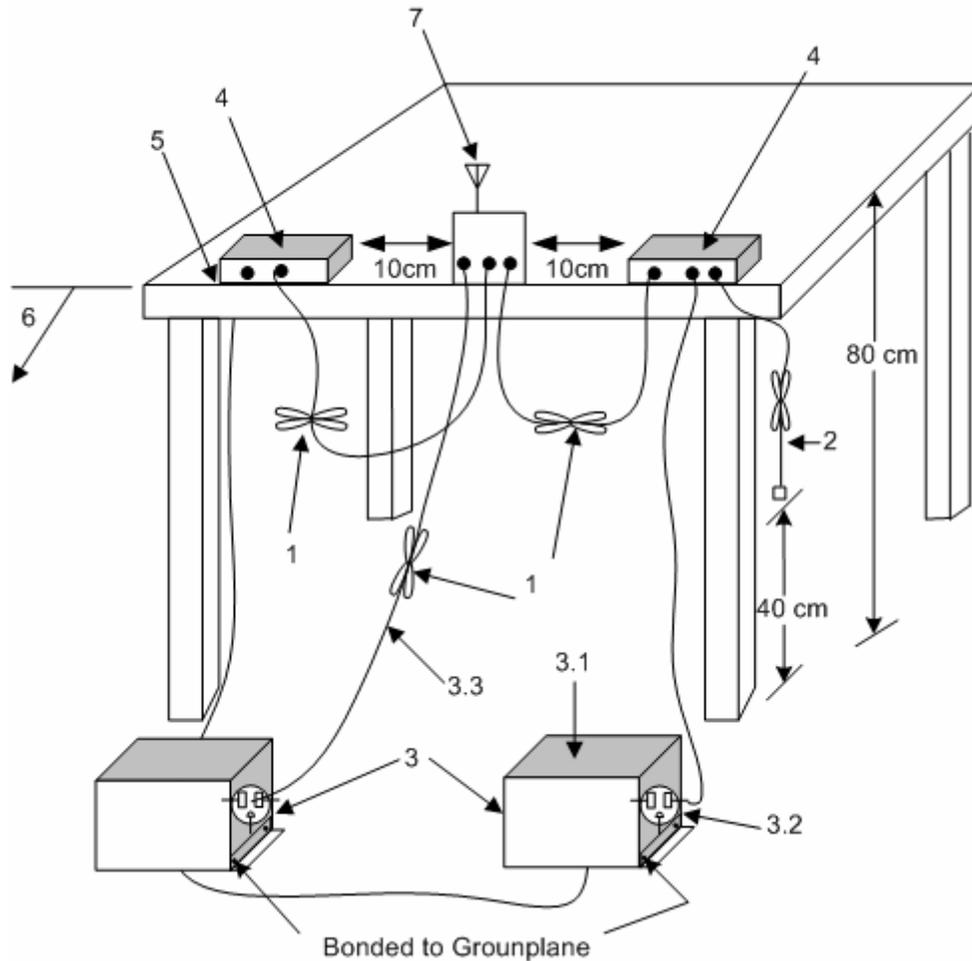
Equipment Testing Procedures

AC Line Conducted Emission Test Procedure

Testing for the AC line-conducted emissions was performed as defined in ANSI C63.10-2009. The test setup, including the EUT, was arranged in the test configurations as presented during testing. The test configuration was placed on a 1 x 1.5-meter wooden bench, 0.8 meters high located in a screen room. The power lines of the system were isolated from the power source using a standard LISN with a 50- μ Hy choke. EMI was coupled to the spectrum analyzer through a 0.1 μ F capacitor internal to the LISN. The LISN was positioned on the floor beneath the wooden bench supporting the EUT. The power lines and cables were draped over the back edge of the table. Refer to diagram 1 showing typical test arrangement and photographs in exhibits for EUT placement used during testing.

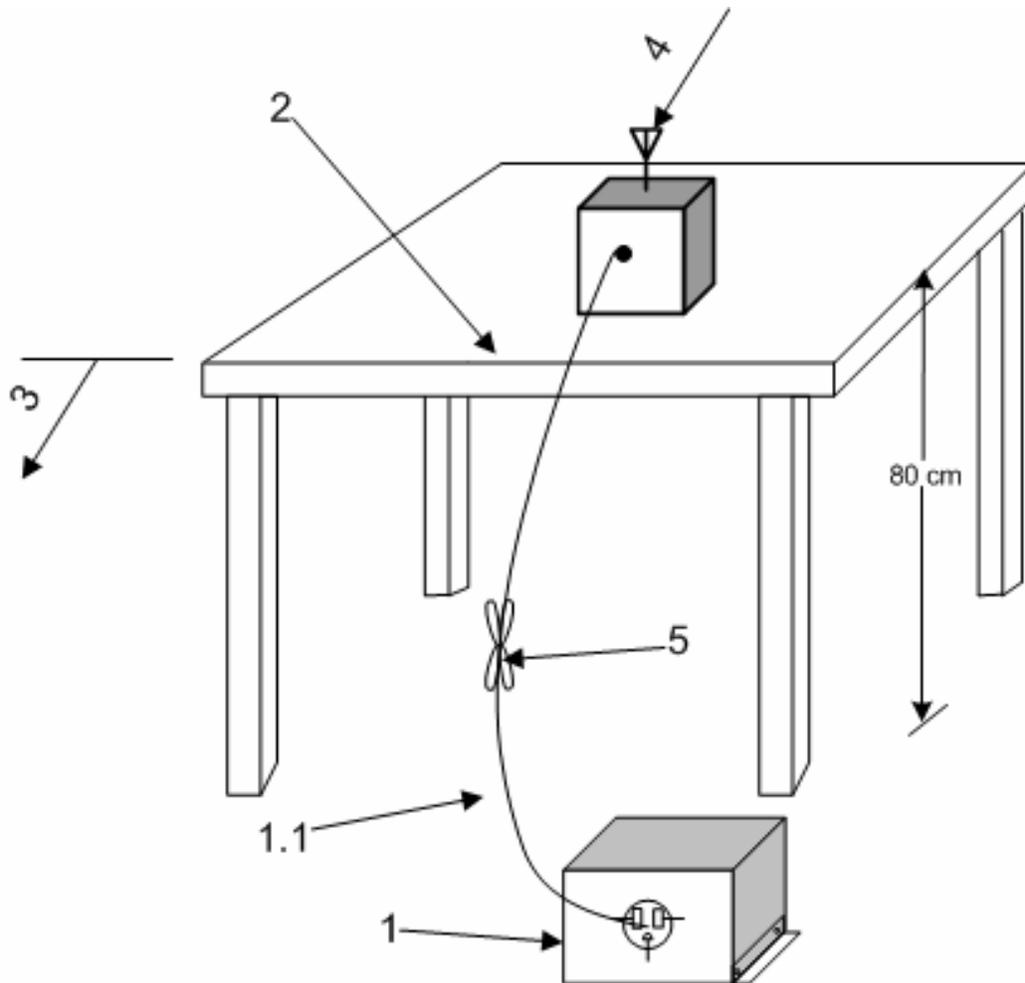
Radiated Emission Test Procedure

The EUT was placed on a rotating 1 x 1.5-meter wooden platform, 0.8 meters above the ground plane at a distance of 3 meters from the FSM antenna. Radiated emissions testing was performed as required in CFR47 15, RSS-210 and specified in sections 6 and 7 of ANSI C63.10-2009. EMI energy was maximized by equipment placement permitting orientation in three orthogonal axis, raising and lowering the FSM antenna, changing the antenna polarization, and by rotating the turntable. Each emission was maximized before data was taken using a spectrum analyzer. The frequency spectrum from 9 kHz to 25,000 MHz was searched for during preliminary investigation. Refer to diagrams 2 and 3 showing typical test arrangement and photographs in the test setup exhibits for specific EUT placement during testing.



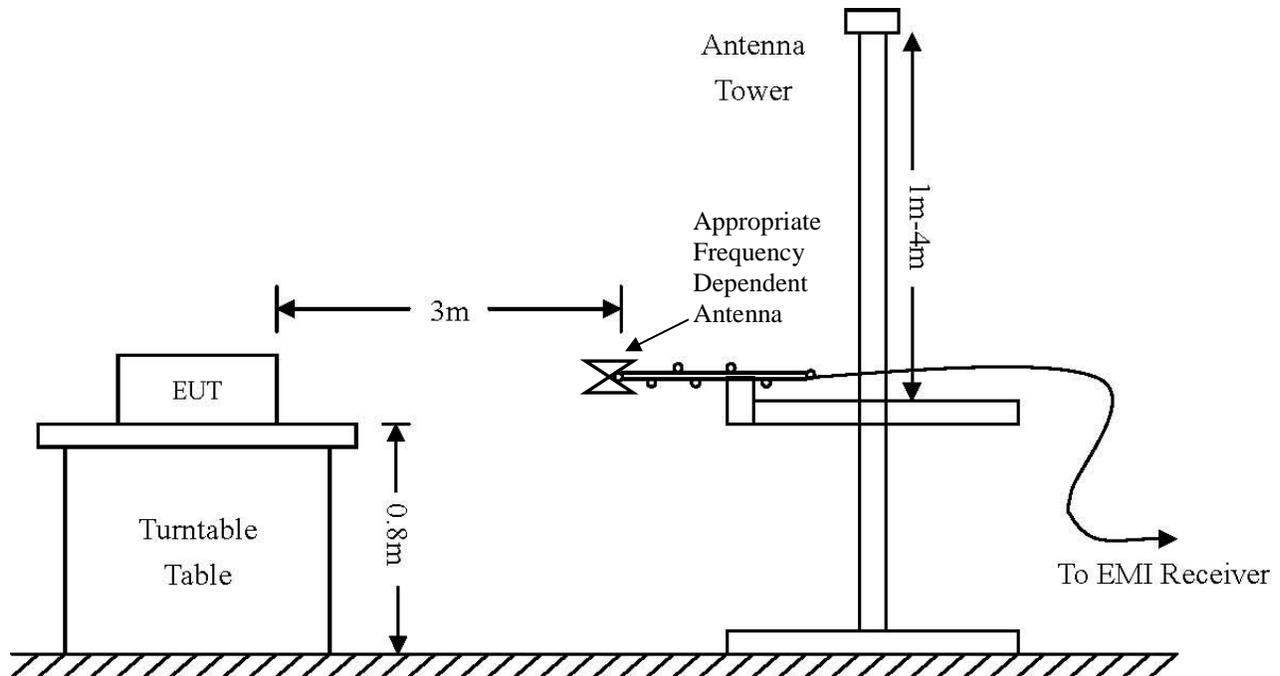
1. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long see (see 6.2.3.1).
2. I/O cables that are not connected to an accessory shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m (see 6.2.2).
3. EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω loads. LISN can be placed on top of, or immediately beneath, reference ground plane (see 6.2.2 and 6.2.3).
 - 3.1 All other equipment powered from additional LISN(s).
 - 3.2 Multiple-outlet strip can be used for multiple power cords of non-EUT equipment.
 - 3.3 LISN at least 80 cm from nearest part of EUT chassis.
4. Non-EUT components of EUT system being tested.
5. Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop (see 6.2.3.1).
6. Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane (see 6.2.2 for options).
7. Antenna may be integral or detachable. If detachable, the antenna shall be attached for this test.

Diagram 1 Test arrangement for Conducted emissions



1. A LISN is optional for radiated measurements between 30 MHz to 1000 MHz, but not allowed for measurements below 30 MHz and above 1000 MHz. (See 6.4.3, 6.5.1, and 6.6.3.) If used, connect EUT to one LISN. Unused LISN measuring port connectors shall be terminated in 50Ω. LISN can be placed on top of, or immediately beneath, reference ground plane (see 6.2.2 and 6.2.3.1).
 - 1.1 LISN spaced at least 80 cm from nearest part of EUT chassis.
2. The EUT shall be placed in the center of the table to the extent possible. (See 6.2.3.1 and 6.3.4).
3. A vertical conducting plane, if used for conducted tests per 6.2.2, shall be removed for radiated emission tests.
4. Antenna may be integral or detachable, depending on the EUT.
5. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.

Diagram 2 Test arrangement for radiated emissions of tabletop equipment



Frequency: 9 kHz-30 MHz	Frequency: 30 MHz- 1 GHZ	Frequency: Above 1 GHZ
RBW = 9 kHz	RBW = 120 kHz	RBW = 1 MHz
VBW = 30 kHz	VBW = 120 kHz	VBW = 1 MHz
Sweep time = Auto	Sweep time = Auto	Sweep time = Auto
Detector = PK, QP	Detector = PK, QP	Detector = PK, AV

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

Test Site Locations

Conducted EMI The AC power line conducted emissions testing performed in a shielded screen room located at Rogers Labs, Inc., 4405 W. 259th Terrace, Louisburg, KS

Radiated EMI The radiated emissions tests were performed at the 3 meters, Open Area Test Site (OATS) located at Rogers Labs, Inc., 4405 W. 259th Terrace, Louisburg, KS

Site Registration Refer to Annex for Site Registration Letters (FCC: 90910, IC 3041A-1)

NVLAP Accreditation Lab code 200087-0

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

Laird Technologies
Model: RM024
Test #: 141021
Test to: FCC (15.247), RSS-210
File: Laird RM024 C2PC TstRpt 141021

FCC ID: KQL-RM024
IC: 2268C-RM024
SN: B
Date: November 13, 2014
Page 10 of 22

List of Test Equipment

A Rohde and Schwarz ESU40 and/or Hewlett Packard 8591EM was used as the measuring device for the emissions testing of frequencies below 1 GHz. A Rohde and Schwarz ESU40 and/or Hewlett Packard 8562A Spectrum Analyzer was used as the measuring device for testing the emissions at frequencies above 1 GHz. The analyzer settings used are described in the following table. Refer to the appendix for a complete list of test equipment.

AC Line Conducted Emissions (0.150 -30 MHz)		
RBW	AVG. BW	Detector Function
9 kHz	30 kHz	Peak / Quasi Peak
Emissions (30-1000 MHz)		
RBW	AVG. BW	Detector Function
120 kHz	300 kHz	Peak / Quasi Peak
Emissions (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 (SN)</u>	<u>Band</u>	<u>Cal Date</u>	<u>Due</u>
<input checked="" type="checkbox"/> LISN	Comp. Design	FCC-LISN-2-MOD.CD (126)	.15-30MHz	10/14	10/15
<input checked="" type="checkbox"/> Cable	Time Microwave	750HF290-750 (L10M)	9kHz-40 GHz	10/14	10/15
<input checked="" type="checkbox"/> Cable	Belden	RG-58 (L1-CAT3-11509)	9kHz-30 MHz	10/14	10/15
<input checked="" type="checkbox"/> Cable	Belden	RG-58 (L2-CAT3-11509)	9kHz-30 MHz	10/14	10/15
<input type="checkbox"/> Antenna	ARA	BCD-235-B (169)	20-350MHz	10/14	10/15
<input type="checkbox"/> Antenna	EMCO	3147 (40582)	200-1000MHz	10/14	10/15
<input checked="" type="checkbox"/> Antenna	Com Power	AH-118 (10110)	1-18 GHz	10/14	10/15
<input checked="" type="checkbox"/> Antenna	Com Power	AH-840 (101046)	18-40 GHz	5/14	5/15
<input checked="" type="checkbox"/> Antenna	EMCO	6509 (9502-1374)	.001-30 MHz	10/14	10/15
<input checked="" type="checkbox"/> Antenna	Sunol	JB-6 (A100709)	30-1000 MHz	10/14	10/15
<input checked="" type="checkbox"/> Antenna	Standard	FXRY638A (621786)	10-18 GHz	5/14	5/15
<input type="checkbox"/> Antenna	EMCO	3143 (9607-1277)	20-1200 MHz	5/14	5/15
<input type="checkbox"/> Analyzer	HP	8591EM (3628A00871)	9kHz-1.8GHz	5/14	5/15
<input type="checkbox"/> Analyzer	HP	8562A (3051A05950)	9kHz-110GHz	5/14	5/15
<input checked="" type="checkbox"/> Analyzer	Rohde & Schwarz	ESU40 (100108)	20Hz-40GHz	5/14	5/15
<input checked="" type="checkbox"/> Amplifier	Com-Power	PA-010 (171003)	100Hz-30MHz	10/14	10/15
<input checked="" type="checkbox"/> Amplifier	Com-Power	CPPA-102 (01254)	1-1000 MHz	10/14	10/15
<input checked="" type="checkbox"/> Amplifier	Com-Power	PAM-118A (551014)	0.5-18 GHz	10/14	10/15



Units of Measurements

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

Radiated EMI Data is in dB μ V/m; dB/m referenced to one microvolt per meter

Sample Calculation:

RFS = Radiated Field Strength, FSM = Field Strength Measured

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

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

Environmental Conditions

Ambient Temperature	22.9° C
Relative Humidity	47%
Atmospheric Pressure	1018.8 mb

Statement of Modifications and Deviations

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

Intentional Radiators

As per CFR47, Subpart C, paragraph 15.247 and RSS-210 the following information is submitted.

Antenna Requirements

The product is produced with U.FL antenna connector to be used with approved antenna structures or PCB mounted Chip antenna as described in accompanying documentation. The antenna connection point complies with the unique antenna connection requirements as submitted in the original filing. The requirements 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 on the OATS. The EUT utilizes frequency, determining circuitry, which generates harmonics falling in the restricted bands. Emissions were measured at the OATS, using appropriate antennas or pyramidal horns, amplification stages, and a spectrum analyzer. Refer to table 1 providing radiated emissions in the restricted bands of operation. No other significant emission was observed which fell into the restricted bands of operation.

Table 1 Radiated Emissions in Restricted Bands Data

Frequency in MHz	Horizontal Peak (dBµV/m)	Horizontal Quasi-Peak (dBµV/m)	Horizontal Average (dBµV/m)	Vertical Peak (dBµV/m)	Vertical Quasi-Peak (dBµV/m)	Vertical Average (dBµV/m)	Limit @ 3m (dBµV/m)
2390.0	38.2	N/A	20.8	24.6	N/A	10.2	54.0
2483.5	27.6	N/A	14.4	35.0	N/A	22.0	54.0
4801.4	30.4	N/A	13.1	76.6	N/A	15.4	54.0
4871.6	28.6	N/A	19.0	27.1	N/A	15.7	54.0
4941.8	27.1	N/A	15.2	28.5	N/A	17.3	54.0
7202.1	28.0	N/A	14.8	27.8	N/A	15.5	54.0
7307.4	27.6	N/A	15.1	28.2	N/A	15.9	54.0
7412.7	29.1	N/A	16.5	29.9	N/A	15.9	54.0
12003.5	36.1	N/A	22.8	35.8	N/A	22.5	54.0
12179.0	35.0	N/A	22.6	36.2	N/A	23.3	54.0
12354.5	36.9	N/A	23.7	39.4	N/A	25.9	54.0
14404.2	41.7	N/A	28.8	41.8	N/A	28.8	54.0

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



Summary of Results for Radiated Emissions in Restricted Bands

The EUT demonstrated compliance with the radiated emissions requirements of 47CFR Part 15C and RSS-210 Intentional Radiators. The EUT demonstrated a minimum margin of -25.2 dB below the requirements. Peak, Quasi-peak, and average amplitudes were checked for compliance with the regulations. Worst-case emissions are reported with other emissions found in the restricted frequency bands at least 20 dB below the requirements.

Operation in the Band 2400 – 2483.5 MHz

Data presented below represents radiated emissions investigated during testing. Harmonic emissions measurement data presented in table 2 includes Duty Cycle correction Factor (DCF) reduction of -17.7 dB (as authorized in 47CFR paragraph 15.35(b) and RSS –GEN paragraph 4.5). The DCF was calculated using the absolute maximum transmitter on time (13 mS) over a 100 millisecond period ($20 \log [13/100] = -17.7$).

Transmitter Emissions Data

Table 2 Transmitter Radiated Emission Data (2 dBi Slot Antenna)

Frequency in MHz	Horizontal Peak (dBµV/m)	Horizontal Quasi-Peak (dBµV/m)	Horizontal Average (dBµV/m)	Vertical Peak (dBµV/m)	Vertical Quasi-Peak (dBµV/m)	Vertical Average (dBµV/m)	Limit @ 3m (dBµV/m)
2400.7	--	--	--	--	--	--	--
4801.4	30.4	N/A	13.1	26.6	N/A	15.4	54
7202.1	28.0	N/A	14.8	27.8	N/A	15.5	54
9602.8	43.1	N/A	33.2	38.8	N/A	28.1	54
12003.5	36.1	N/A	22.8	35.8	N/A	22.5	54
14404.2	41.7	N/A	28.8	41.8	N/A	28.8	54
16804.9	40.3	N/A	27.4	41.3	N/A	27.2	54
2435.8	--	--	--	--	--	--	--
4871.6	28.6	N/A	19.0	27.1	N/A	15.7	54
7307.4	27.6	N/A	15.1	28.2	N/A	15.9	54
9743.2	43.9	N/A	33.8	38.1	N/A	27.9	54
12179.0	35.0	N/A	22.6	36.2	N/A	23.3	54
14614.8	40.1	N/A	27.5	40.6	N/A	27.5	54
17050.6	40.9	N/A	28.1	41.9	N/A	28.4	54
2470.9	--	--	--	--	--	--	--
4941.8	27.1	N/A	15.2	28.5	N/A	17.3	54
7412.7	29.1	N/A	16.5	29.9	N/A	15.9	54
9883.6	42.5	N/A	32.8	40.2	N/A	28.9	54
12354.5	36.9	N/A	23.7	39.4	N/A	25.9	54
14825.4	40.3	N/A	26.7	39.4	N/A	26.5	54
17296.3	38.5	N/A	25.7	38.0	N/A	25.5	54

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 of Intentional Radiator

The EUT configuration tested presented compliant with the emissions requirements of 47CFR Part 15C and RSS-210 with highest radiated harmonic emission level of 33.8 dB μ V/m. The EUT demonstrated a minimum margin of -20.2 dB below the harmonic emissions requirements. The EUT demonstrated a minimum margin of -25.2 dB below the emissions requirements for restricted bands (transmitter emissions). The change to the certified equipment with 2-dBi slot antenna was observed in compliance with the emissions requirements of 47CFR Part 15.C and RSS-210 Intentional Radiators. There were no other significantly measurable emissions observed in restricted bands other than those recorded in this report. Other emissions were present with amplitudes at least 20 dB below the requirements. There were no deviations or exceptions to the requirements.



NVLAP Lab Code 200087-0

Annex

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



Annex A Measurement Uncertainty Calculations

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

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



Annex B Rogers Labs Test Equipment List

List of Test Equipment	Calibration Date
Spectrum Analyzer: Rohde & Schwarz ESU40	5/14
Spectrum Analyzer: HP 8562A, HP Adapters: 11518, 11519, and 11520 Mixers: 11517A, 11970A, 11970K, 11970U, 11970V, 11970W	5/14
Spectrum Analyzer: HP 8591EM	5/14
Antenna: EMCO Biconilog Model: 3143	5/14
Antenna: Sunol Biconilog Model: JB6	10/14
Antenna: EMCO Log Periodic Model: 3147	10/14
Antenna: Com Power Model: AH-118	10/14
Antenna: Com Power Model: AH-840	10/14
Antenna: Antenna Research Biconical Model: BCD 235	10/14
Antenna: EMCO 6509	10/14
LISN: Compliance Design Model: FCC-LISN-2.Mod.cd, 50 μ Hy/50 ohm/0.1 μ f	10/14
R.F. Preamp CPPA-102	10/14
Attenuator: HP Model: HP11509A	10/14
Attenuator: Mini Circuits Model: CAT-3	10/14
Attenuator: Mini Circuits Model: CAT-3	10/14
Cable: Belden RG-58 (L1)	10/14
Cable: Belden RG-58 (L2)	10/14
Cable: Belden 8268 (L3)	10/14
Cable: Time Microwave: 4M-750HF290-750	10/14
Cable: Time Microwave: 10M-750HF290-750	10/14
Frequency Counter: Leader LDC825	2/14
Oscilloscope Scope: Tektronix 2230	2/14
Wattmeter: Bird 43 with Load Bird 8085	2/14
Power Supplies: Sorensen SRL 20-25, SRL 40-25, DCR 150, DCR 140	2/14
R.F. Generators: HP 606A, HP 8614A, HP 8640B	2/14
R.F. Power Amp 65W Model: 470-A-1010	2/14
R.F. Power Amp 50W M185- 10-501	2/14
R.F. Power Amp A.R. Model: 10W 1010M7	2/14
R.F. Power Amp EIN Model: A301	2/14
LISN: Compliance Eng. Model 240/20	2/14
LISN: Fischer Custom Communications Model: FCC-LISN-50-16-2-08	2/14
Antenna: EMCO Dipole Set 3121C	2/14
Antenna: C.D. B-101	2/14
Antenna: Solar 9229-1 & 9230-1	2/14
Audio Oscillator: H.P. 201CD	2/14
ELGAR Model: 1751	2/14
ELGAR Model: TG 704A-3D	2/14
ESD Test Set 2010i	2/14
Fast Transient Burst Generator Model: EFT/B-101	2/14
Field Intensity Meter: EFM-018	2/14
KEYTEK Ecat Surge Generator	2/14
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**

June 28, 2013

Registration Number: 90910

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

Attention: Scot Rogers,

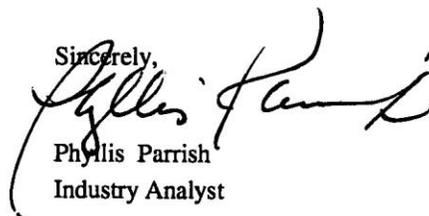
Re: Measurement facility located at Louisburg
3 & 10 meter site
Date of Renewal: June 28, 2013

Dear Sir or Madam:

Your request for renewal of the registration of the subject measurement facility has been received. The information submitted has been placed in your file and the registration has been renewed. The name of your organization will remain on the list of facilities whose measurement data will be accepted in conjunction with applications for Certification under Parts 15 or 18 of the Commission's Rules. Please note that the file must be updated for any changes made to the facility and the registration must be renewed at least every three years.

Measurement facilities that have indicated that they are available to the public to perform measurement services on a fee basis may be found on the FCC website www.fcc.gov under E-Filing, OET Equipment Authorization Electronic Filing, Test Firms.

Sincerely,



Phyllis Parrish
Industry Analyst

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

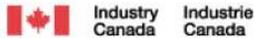
Laird Technologies
Model: RM024
Test #: 141021
Test to: FCC (15.247), RSS-210
File: Laird RM024 C2PC TstRpt 141021

FCC ID: KQL-RM024
IC: 2268C-RM024
SN: B
Date: November 13, 2014
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NVLAP Lab Code 200087-0

Annex E Industry Canada Site Registration Letter



June 19, 2013

OUR FILE: 46405-3041

Submission No: 168037

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

Attention: Mr. Scot D. Rogers

Dear Sir:

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

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

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

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

http://strategis.ic.gc.ca/epic/internet/inceb-bhst.nsf/en/h_tt00052e.html.

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

Yours sincerely,

Bill Payn
For: Wireless Laboratory Manager
Certification and Engineering Bureau
3701 Carling Ave., Building 94
P.O. Box 11490, Station "H"
Ottawa, Ontario K2H 8S2
Email: Bill.Payn@ic.gc.ca
Tel. No. (613) 990-3639
Fax. No. (613) 990-4752

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