Class 2 Permissive Change

Test Report

FOR

Model: DLB 7023
2412-2462 and 5745.0 – 5825.0 MHz
Broadband Wireless Data Transmitter
FCC ID:UB8-DLB7000

FOR

DELIBERANT LLC.

1440 Dutch Valley Place, Suite 105
Atlanta, GA 30324

Test Report Number: 070413

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

ENGINEERING TEST REPORT
FOR
CLASS 2 PERMISSIVE CHANGE

FOR

CFR47, PART 15C - INTENTIONAL RADIATORS
Paragraph 15.247, 15.407, and
Industry Canada RSS-210
Low Power License Exempt Intentional Radiator

For

DELIBERANT LLC.
1440 Dutch Valley Place, Suite 105
Atlanta, GA 30324
Mr. Harold Bledsoe,

BROADBAND WIRELESS DATA TRANSMITTER
Model: DLB 7023
Frequency Range 2412-2462 and 5745-5825 MHz
FCC ID#: UB8-DLB7000

Test Date: April 13, 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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FORWARD

The electromagnetic emissions compatibility tests required for continued compliance with the FCC CFR47 Dated October 1, 2006, Paragraphs 2, 15, 15.247, and 15.407 have been conducted on the DLB 7023 in compliance with the FCC rules for a Class Two Permissible. The results have been reviewed and found to meet all the requirements investigated for this report.

Name of Applicant:
DELIBERANT LLC.
1440 Dutch Valley Place, Suite 105
Atlanta, GA 30324

Model: DLB 7023

FCC I.D.: UB8-DLB7000.

Frequency Range: 2412-2462, and 5745-5825 MHz.

Operating Power: 94.4 mW for 2412-2462MHz, 61.1 mW for 5745-5825 MHz conducted power.

Applicable Standards & Test Procedures

a) 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, 2.925, 2.926, 2.1031 through 2.1057, and applicable parts of paragraph 15, and Part 15C Paragraph 15.247, the following information is submitted.

b) Test procedures used are the established Methods of Measurement of Radio-Noise Emissions as described in the ANSI 63.4-2003 Document FCC, documents DA00-1407 and DA00-705 and/or TIA/EIA 603-1.

2.1033(b) Application for Certification

(1) Manufacturer: DELIBERANT LLC.
1440 Dutch Valley Place, Suite 105
Atlanta, GA 30324

(2) Identification: Model: DLB 7023
FCC I.D.: UB8-DLB7000

(3) Instruction Book:
Refer to original submittal Exhibit for Instruction Manual.

(4) Description of Circuit Functions:
Refer to original submittal Exhibit of Operational Description.

(5) Block Diagram with Frequencies:
Refer to original submittal Exhibit of Operational Description.

(6) Report of Measurements:
Report of measurements follows in this Report.

(7) Photographs: Construction, Component Placement, etc.:
Refer to original submittal Exhibit for photographs of equipment.

(8) Peripheral Equipment included interfacing with a computer system.

(9) Transition Provisions of 15.37 are not being requested.

(10) Not Applicable. The unit is not a scanning receiver.

(11) Not Applicable. The EUT does not operate in the 59 – 64 GHz frequency band.

Equipment Tested

Equipment	Model	FCC I.D.#
EUT	DLB 7023	UB8-DLB7000
CPU	Dell PP02X	DoC

Equipment Function and Testing Procedures

The EUT is a 2412-2462 MHz / 5745-5825 MHz radio transmitter used to transmit data to and from remote locations offering broadband wireless connectivity. The unit is marketed for use to incorporate a wireless link to exchange data information from one point to another. For testing purposes the transceiver was powered from the supplied AC power adapter and set to transmit or receive in a maximum data mode. The unit operates from external supplied direct current supplied from the AC power adapter and "Power Over Ethernet" (POE) connection. The device is professionally installed and thus complies with the antenna connection requirements.

Change to Equipment

The change to the equipment, in relation to the original equipment submittal, included placement of the transmitter inside a metal enclosure and increasing the antenna gain to 23 dBi. Testing was performed to verify the equipment continues to meet all the applicable rules and requirements of the Code of Federal regulation 47. Testing confirmed the changes made do not degrade the characteristics allowable and acceptable by the Commission. No change to transmitter or other specifications were affected by the antenna change.

Equipment and Cable Configurations

Conducted Emission Test Procedure

The unit typically operates from the manufacturer supplied AC power adapter supply. For testing purposes, the manufacturer supplied AC power adapter was used to power the unit. The test setup including the EUT was arranged in a typical equipment configuration and placed on a 1 x 1.5-meter wooden bench, 0.8 meters high located in a screen room. The power lines of the system were isolated from the power source using a standard LISN with a 50 - µHy choke. EMI was coupled to the spectrum analyzer through a 0.1 µF 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.

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. 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.

List of Test Equipment

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

HP 8591 EM ANALYZER SETTINGS		
CONDUCTED EMISSIONS:		
RBW	AVG. BW	DETECTOR FUNCTION
9 kHz	30 kHz	Peak / Quasi Peak
RADIATED EMISSIONS:		
RBW	AVG. BW	DETECTOR FUNCTION
120 kHz	300 kHz	Peak / Quasi Peak
HP 8562A ANALYZER SETTINGS		
RBW	VIDEO BW	DETECTOR FUNCTION
100 kHz	100 kHz	PEAK
1 MHz	1 MHz	Peak / Average

EQUIPMENT	MFG.	MODEL	CAL. DATE	DUE.
LISN	Comp. Design	FCC-LISN-2-MOD.CD	10/06	10/07
LISN	FCC	FCC-LISN-50-16-2-08	6/06	6/07
LISN	Comp. Design	1762	2/07	2/08
Antenna	ARA	BCD-235-B	10/06	10/07
Antenna	EMCO	3147	10/06	10/07
Antenna	EMCO	3143	5/06	5/07
Analyzer	HP	8591EM	5/06	5/07
Analyzer	HP	8562A	2/07	2/08

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 tests were 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 Approval — Refer to Appendix for FCC Site Approval Letter, Reference # 90910.

SUBPART B – UNINTENTIONAL RADIATORS

Conducted EMI

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 μF 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 showing plots of the conducted emissions spectrum as displayed on the spectrum analyzer for the DLB 7023.

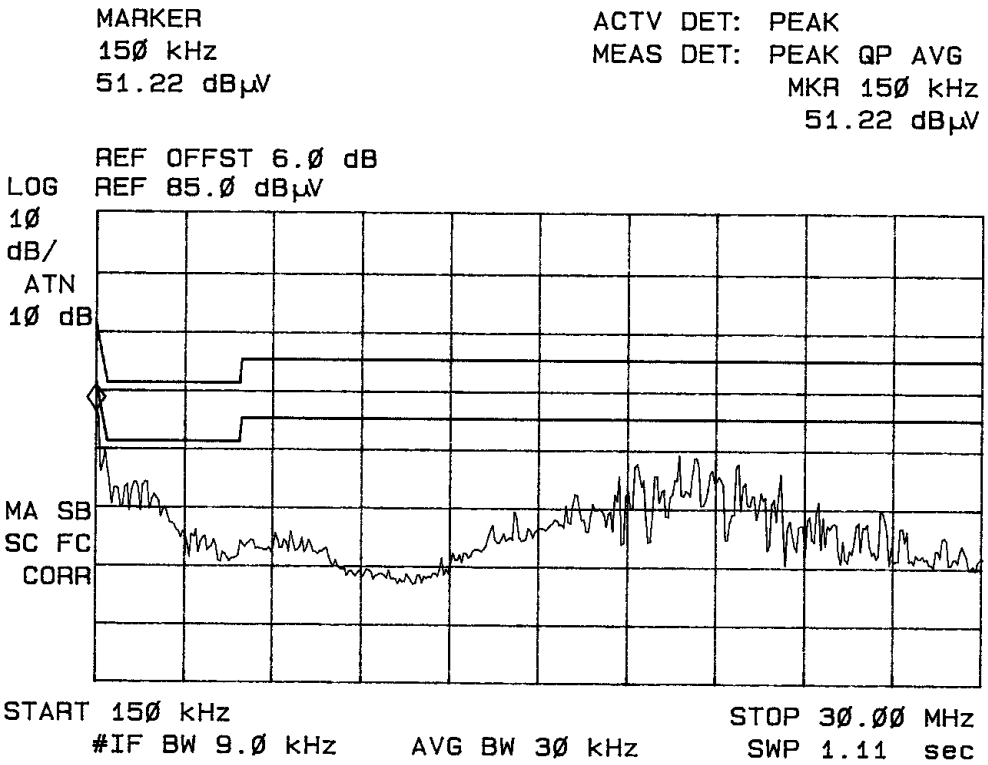

Figure 1 Conducted Emissions Line 1 (DLB 7023).

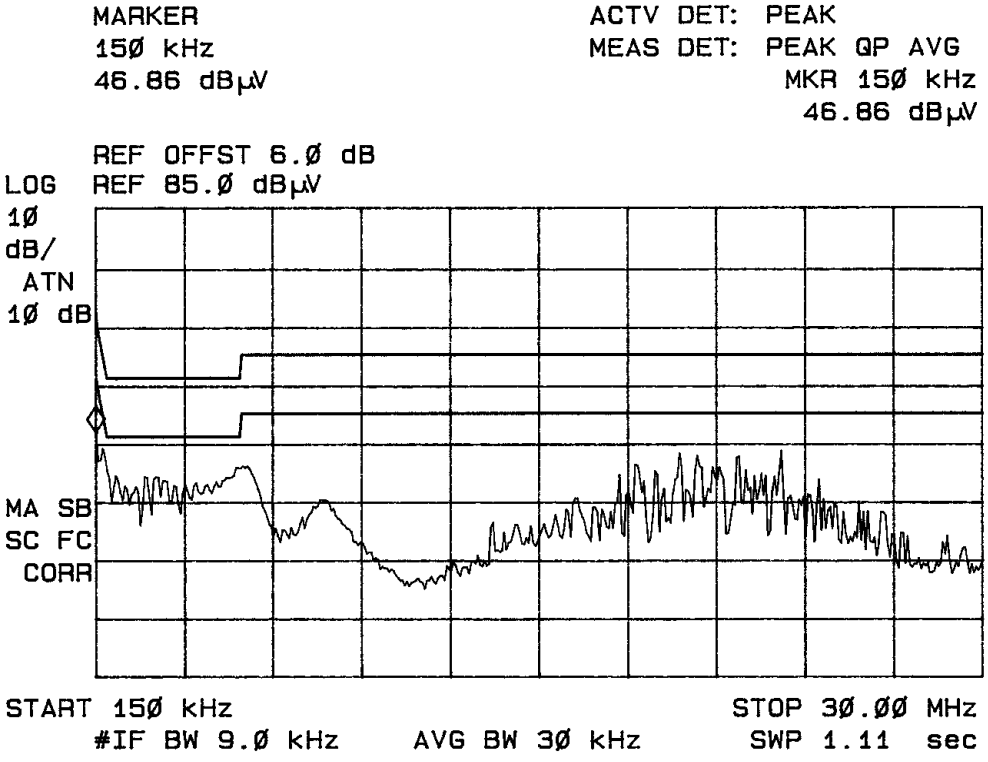

Figure 2 Conducted Emissions Line 2 (DLB 7023).

Radiated EMI

The EUT was arranged in a typical equipment configuration and operated through all available modes with worst-case data recorded. 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. Plots were made of the radiated frequency spectrum from 30 MHz to 60,000 MHz for the preliminary testing. Refer to figures three through twelve showing plots of the worst-case radiated emissions spectrum taken in a screen room of the DLB 7023. The highest radiated mission was then re-maximized at the OATS location before final radiated emissions measurements were performed. Final data was taken with the EUT located at the OATS at a distance of 3 meters between the EUT and the receiving antenna. The frequency spectrum from 30 MHz to 60,000 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 position between horizontal and vertical polarization. Antennas used were Broadband Biconical from 30 to 200 MHz, Biconilog from 30 to 1000 MHz, Log Periodic from 200 MHz to 5 GHz and or, pyramidal horns and mixers from 4 GHz to 40 GHz, notch filters and appropriate amplifiers were utilized.

Sample Calculations:

RFS = Radiated Field Strength
dBµV/m @ 3 m = dBµV + A.F. - Amplifier Gain
dBµV/m @ 3 m = 61.0 + 6.9 - 30
= 37.9

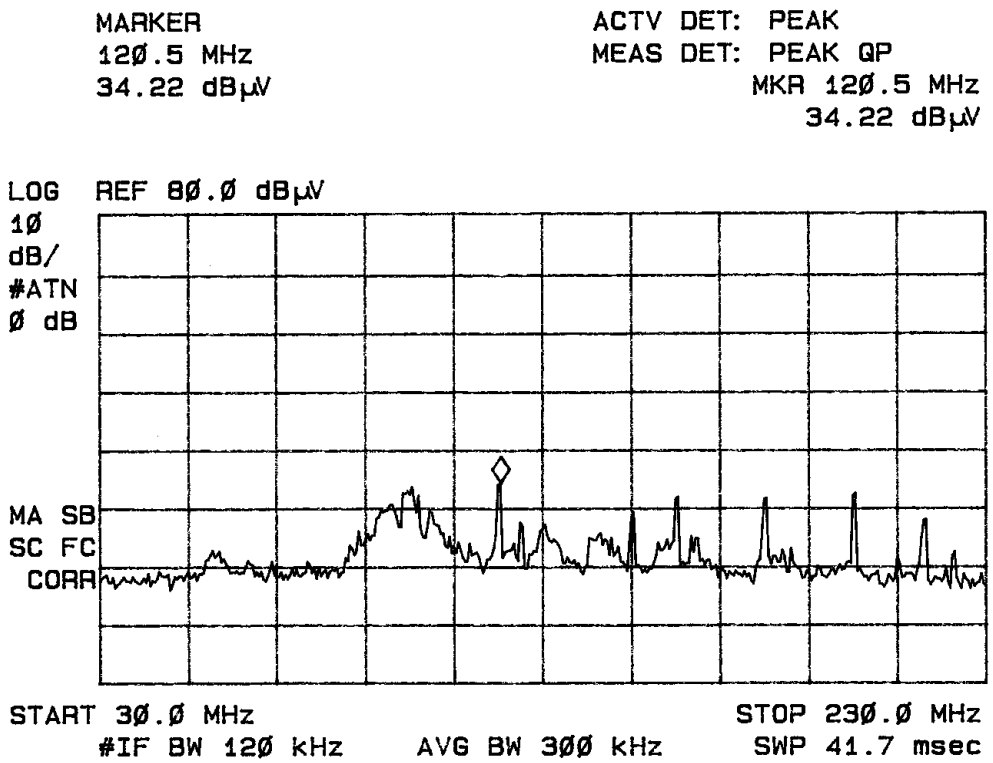

Figure three Radiated Emissions taken at 1 meter in screen room (DLB 7023).

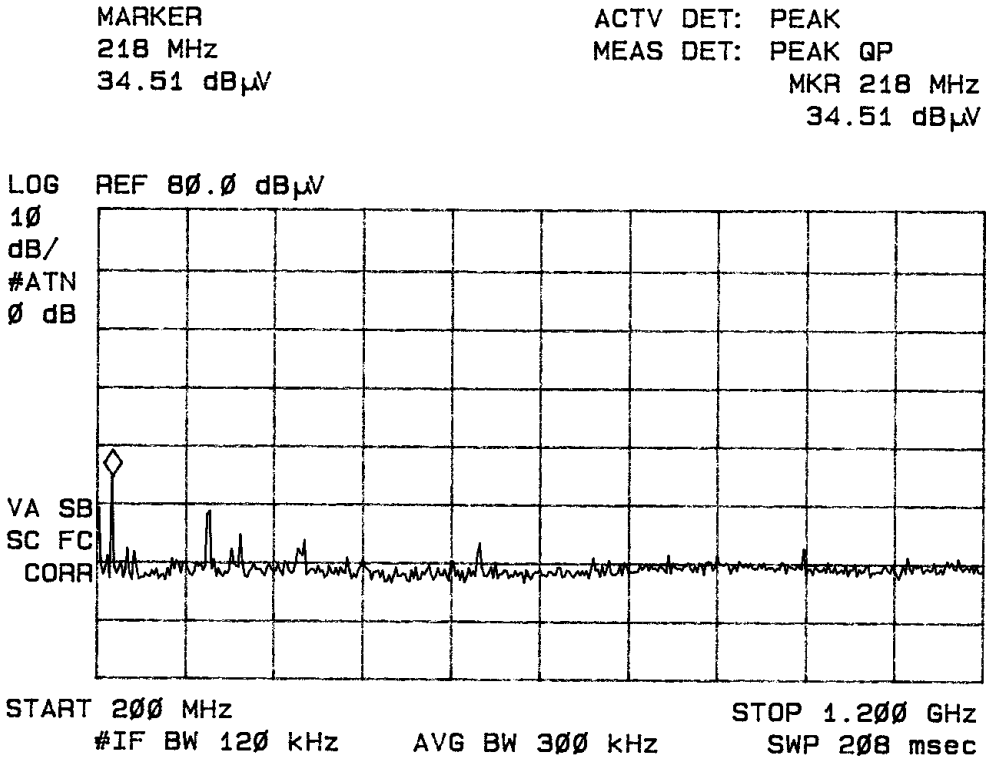

Figure four Radiated Emissions taken at 1 meter in screen room (DLB 7023).

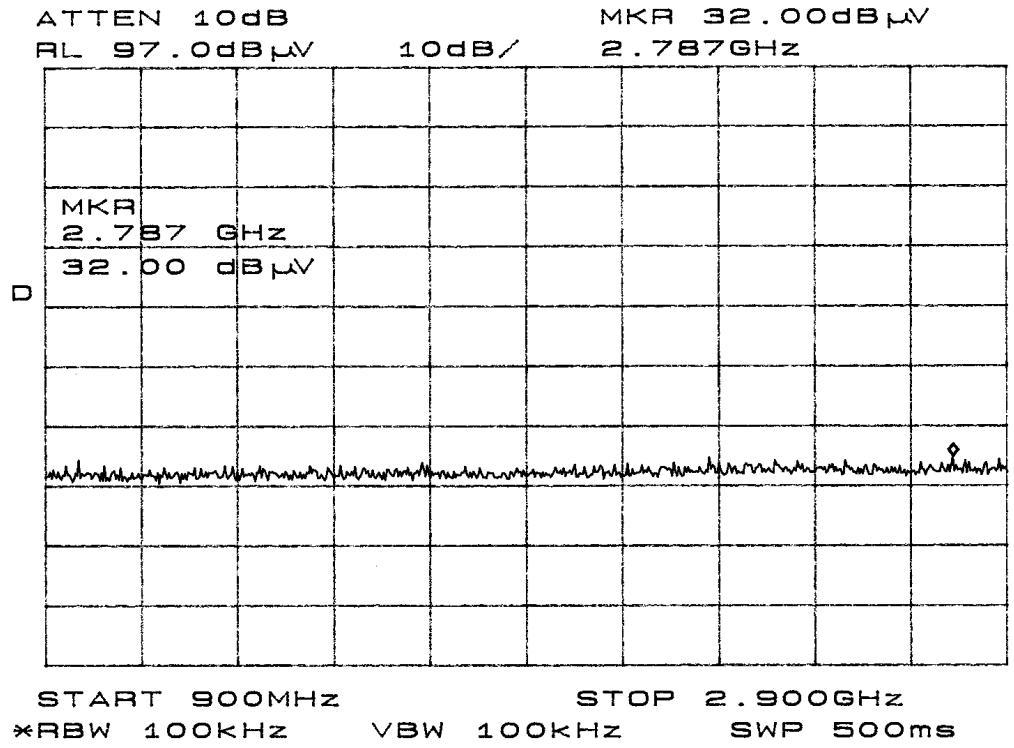

Figure five Radiated Emissions taken at 1 meter in screen room (DLB 7023).

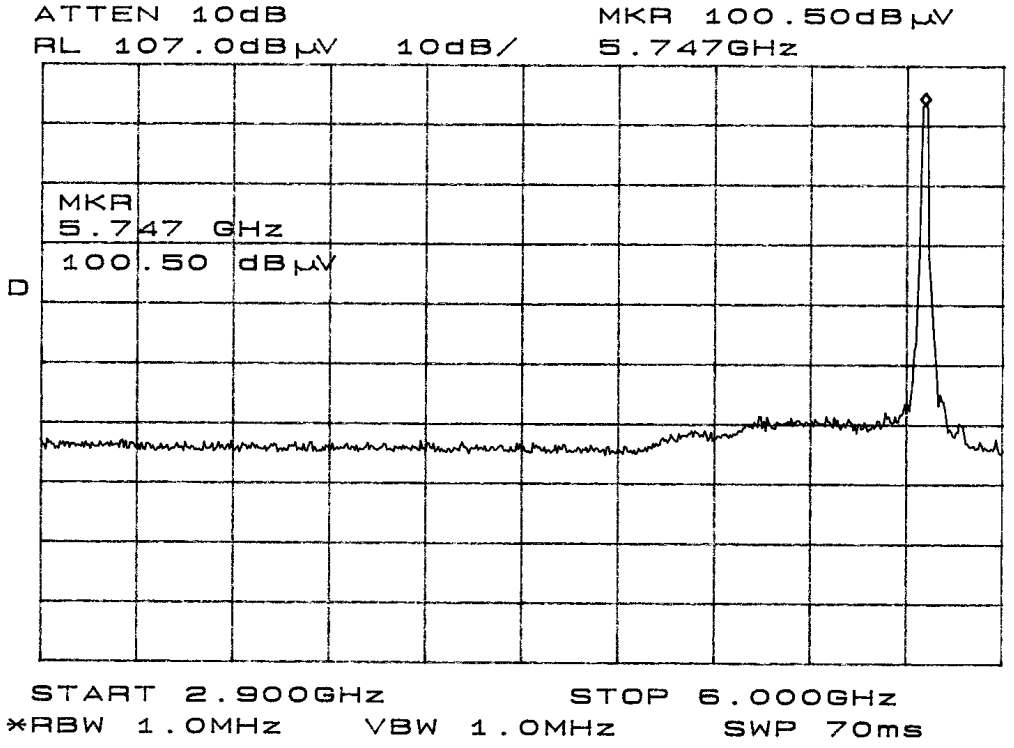

Figure six Radiated Emissions taken at 1 meter in screen room (DLB 7023).

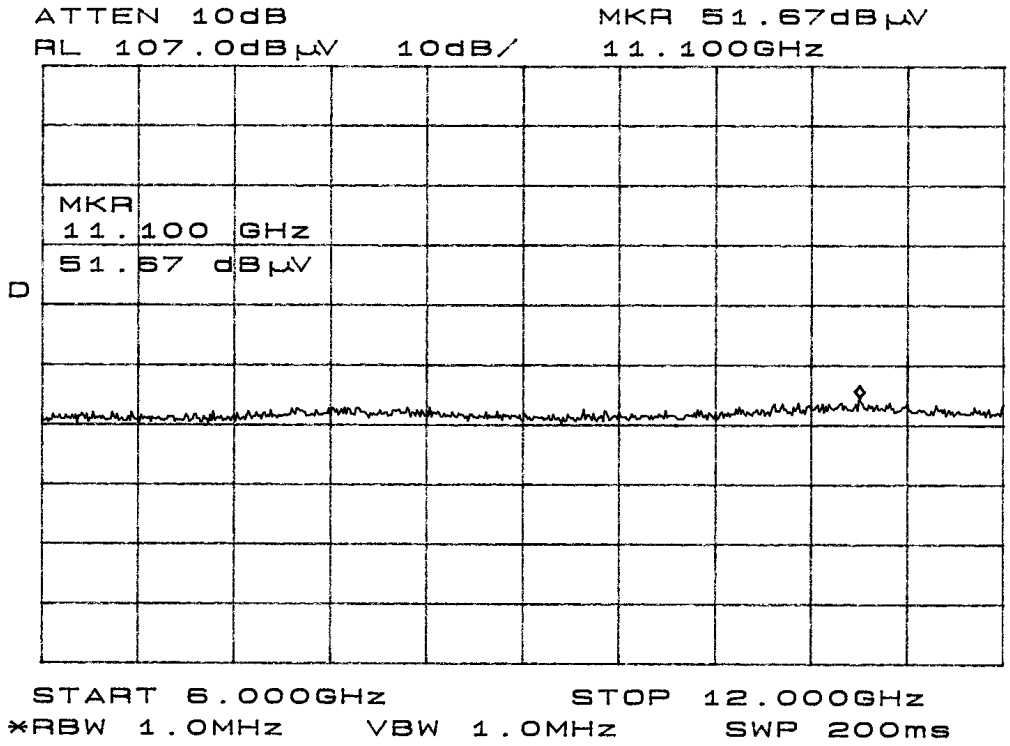

Figure seven Radiated Emissions taken at 1 meter in screen room (DLB 7023).

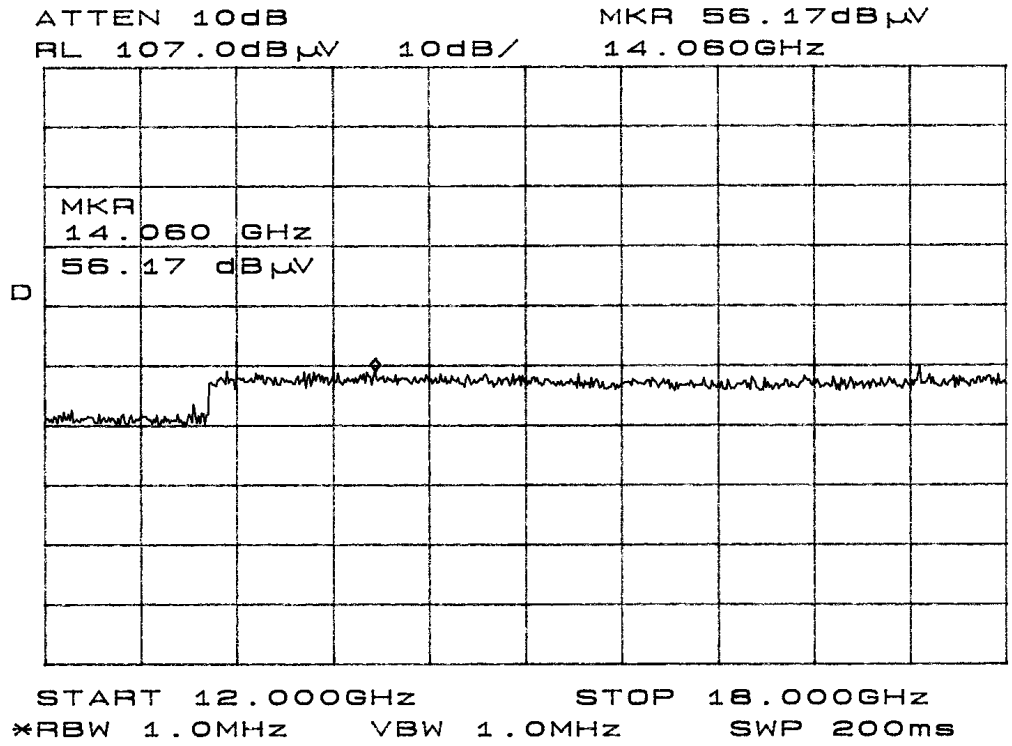

Figure eight Radiated Emissions taken at 1 meter in screen room (DLB 7023).

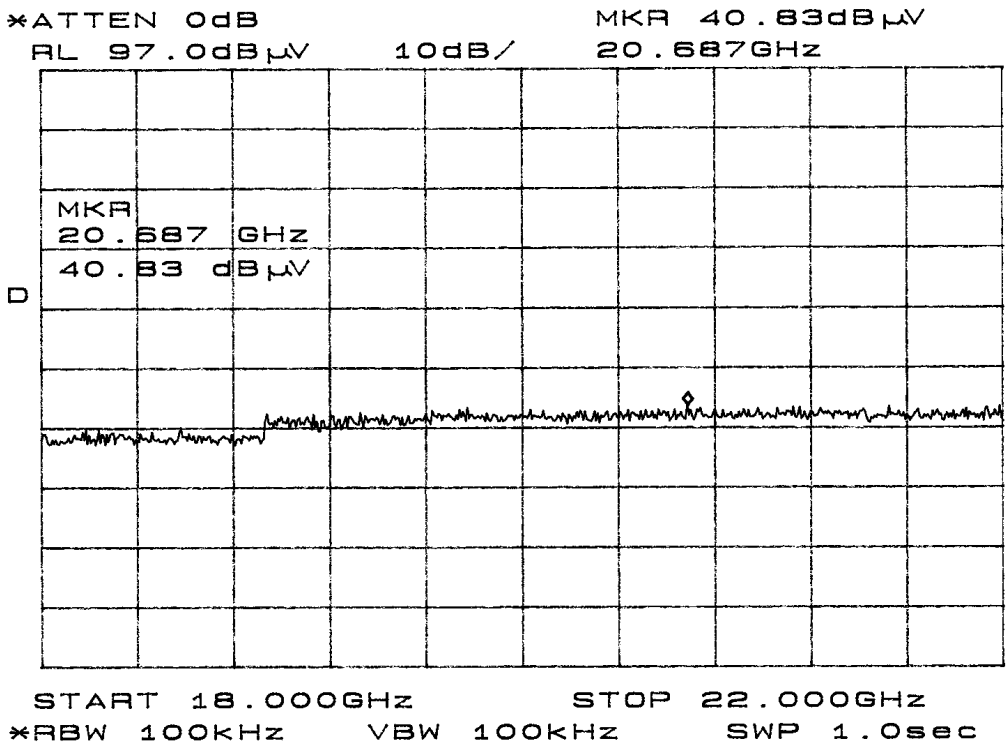

Figure nine Radiated Emissions taken at 1 meter in screen room (DLB 7023).

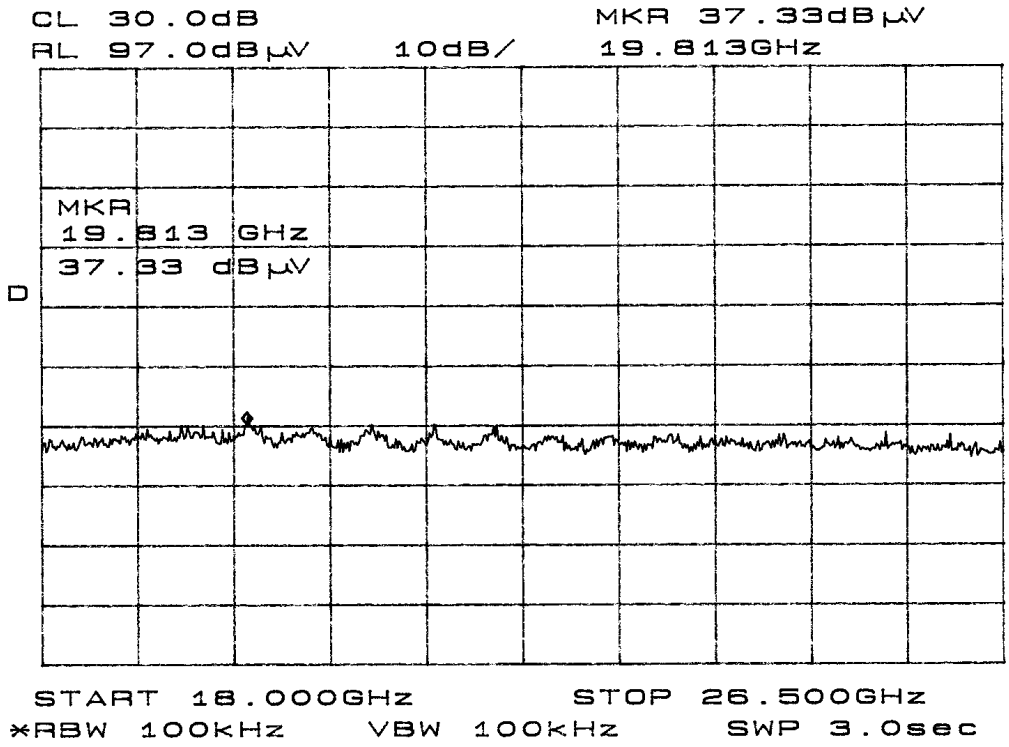

Figure ten Radiated Emissions taken at 1 meter in screen room (DLB 7023).

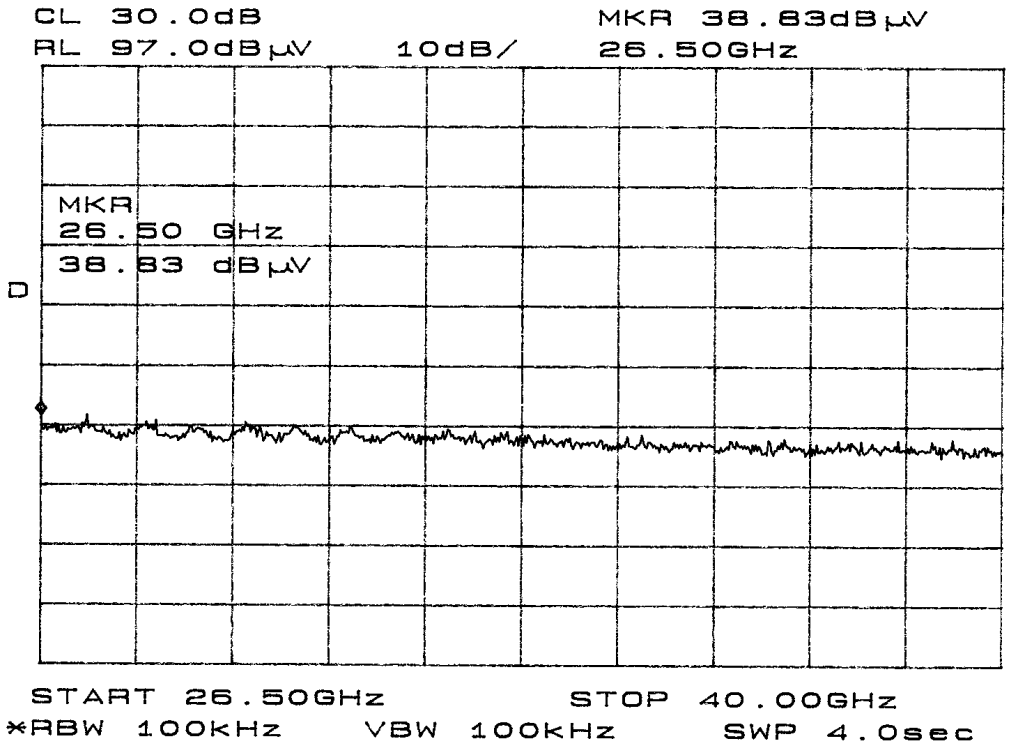

Figure eleven Radiated Emissions taken at 1 meter in screen room (DLB 7023).

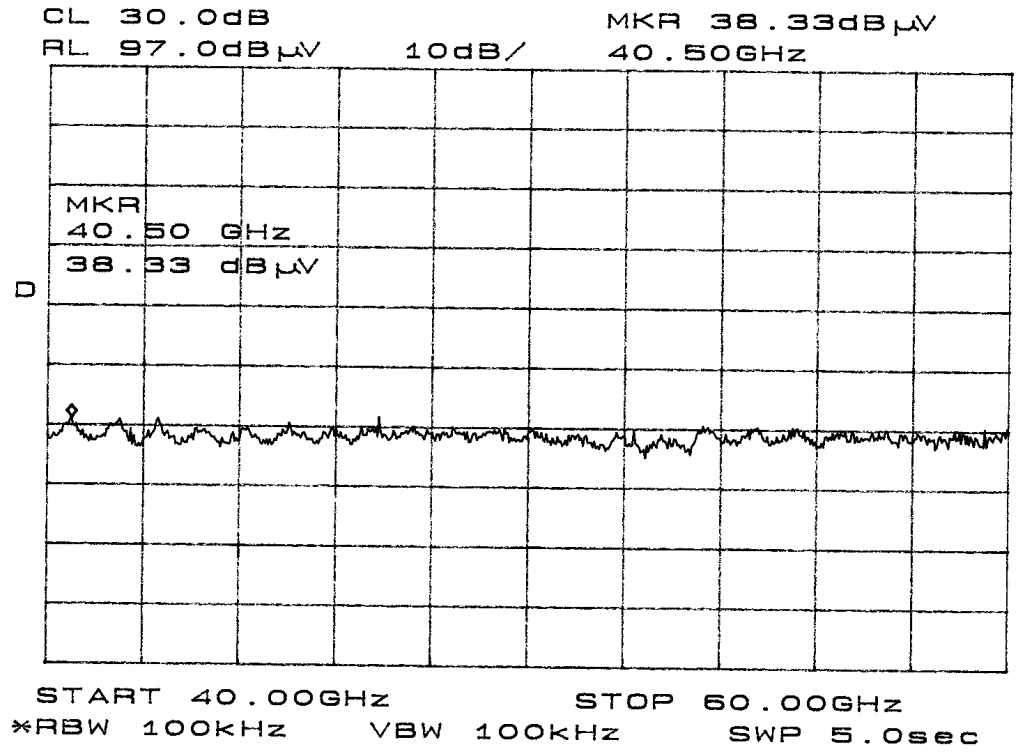

Figure twelve Radiated Emissions taken at 1 meter in screen room (DLB 7023).

Data: Conducted Emissions (7 Highest Emissions) model DLB 7023

Frequency band (MHz)	L1 Level (dBµV)			L2 Level (dBµV)			CISPR 22 Limit Q.P. Ave(dBµV)
	Peak	Q.P.	AVE	Peak	Q.P.	AVE	
0.15 – 0.5	51.2	45.4	35.3	46.9	46.2	35.6	66 / 56
0.5 – 5	39.1	38.1	32.1	40.9	39.9	37.6	56 / 46
5 – 10	29.9	27.4	23.9	41.3	40.5	38.5	60 / 50
10 – 15	32.6	29.0	24.9	33.1	30.0	24.5	60 / 50
15 – 20	43.9	43.0	39.5	43.3	42.1	38.7	60 / 50
20 – 25	44.2	43.0	39.6	44.3	43.1	39.6	60 / 50
25 – 30	34.1	31.3	27.5	34.4	31.9	28.1	60 / 50

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

Data: General Radiated Emissions from EUT model DLB 7023

Frequency in MHz	FSM Horz. (dBµV)	FSM Vert. (dBµV)	A.F. (dB/m)	Amp. Gain (dB)	RFS Horz. @ 3 m (dBµV/m)	RFS Vert. @ 3 m (dBµV/m)	FCC Class B Limit @ 3 m (dBµV/m)
120.0	61.0	55.8	6.9	30	37.9	32.7	43.5
125.0	56.6	49.5	7.5	30	34.1	27.0	43.5
150.0	58.7	45.6	10.1	30	38.8	25.7	43.5
160.0	58.9	48.5	8.8	30	37.7	27.3	43.5
180.0	60.9	54.8	9.2	30	40.1	34.0	43.5
200.0	58.3	52.6	10.6	30	38.9	33.2	43.5
216.1	55.9	44.9	11.0	30	36.9	25.9	46.0
324.0	50.5	47.5	15.2	30	35.7	32.7	46.0
360.0	43.7	41.0	15.3	30	29.0	26.3	46.0
431.8	48.9	47.8	16.5	30	35.4	34.3	46.0

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

Data: Transmitter Radiated Emissions model DLB 7023

Frequency in MHz	FSM Horz. (dBµV)	FSM Vert. (dBµV)	A.F. (dB/m)	Amp. Gain (dB)	RFS Horz. @ 3 m (dBµV/m)	RFS Vert. @ 3 m (dBµV/m)	FCC Class B Limit @ 3 m (dBµV/m)
5745.0	92.2	79.2	34.0	0	126.2	113.2	135.2
11490.0	23.2	26.8	39.9	30	33.1	36.7	54.0
17235.0	27.5	28.3	43.6	30	41.1	41.9	54.0
22980.0	26.6	28.1	47.2	30	43.8	45.3	54.0
5785.0	89.8	75.0	34.0	0	123.8	109.0	135.2
11570.0	22.6	27.3	39.9	30	32.5	37.2	54.0
17355.0	28.5	27.5	43.6	30	42.1	41.1	54.0
23140.0	27.0	28.0	47.2	30	44.2	45.2	54.0
5805.0	89.7	76.5	34.0	0	123.7	110.5	135.2
11610.0	23.2	23.5	39.9	30	33.1	33.4	54.0
17415.0	27.8	28.8	43.6	30	41.4	42.4	54.0
23220.0	28.0	28.3	47.2	30	45.2	45.5	54.0

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

Summary of Results for Conducted Emissions

The conducted emissions for the EUT meet the requirements for CISPR 22 and FCC Part 15B CLASS B Digital Devices. The model DLB 7023 had a 16.1 dB (Quasi-Peak) minimum margin below the Quasi-Peak limit, and an 8.4 dB minimum margin below the CISPR average limit. Measurements were 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.

Summary of Results for Radiated Emissions

The general radiated emissions for the EUT meet the requirements for CISPR 22 and FCC Part 15B CLASS B Digital Devices. The model DLB 7023 had a 3.4 dB minimum margin below the quasi-peak limit. The model DLB 7023 had a 9.0 dB at the fundamental and an 8.5 dB margin for harmonic emissions. Other emissions were present with amplitudes at least 20 dB below the limit.

Statement of Modifications and Deviations

No modifications to the EUT were required for the unit to meet the CISPR 22 or FCC Part 15B CLASS B emissions standards. There were no deviations or exceptions to the specifications.

APPENDIX

Model: DLB 7023 DATA TRANSMITTER

1. Test Equipment List
2. Rogers Qualifications
3. FCC Site Approval Letter
4. Industry Canada Site Approval Letter

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:
Scope: Tektronix 2230	2/06
Wattmeter: Bird 43 with Load Bird 8085	2/06
Power Supplies: Sorensen SRL 20-25, SRL 40-25, DCR 150, DCR 140	2/06
H/V Power Supply: Fluke Model: 408B (SN: 573)	2/06
R.F. Generator: HP 606A	2/06
R.F. Generator: HP 8614A	2/06
R.F. Generator: HP 8640B	2/06
Spectrum Analyzer: HP 8562A, Mixers: 11517A, 11970A, 11970K, 11970U, 11970V, 11970W HP Adapters: 11518, 11519, 11520	2/06
Spectrum Analyzer: HP 8591 EM	5/06
Frequency Counter: Leader LDC 825	2/06
Antenna: EMCO Biconilog Model: 3143	5/06
Antenna: EMCO Log Periodic Model: 3147	10/06
Antenna: Antenna Research Biconical Model: BCD 235	10/06
Antenna: EMCO Dipole Set 3121C	2/06
Antenna: C.D. B-101	2/06
Antenna: Solar 9229-1 & 9230-1	2/06
Antenna: EMCO 6509	2/06
Audio Oscillator: H.P. 201CD	2/06
R.F. Power Amp 65W Model: 470-A-1010	2/06
R.F. Power Amp 50W M185- 10-501	2/06
R.F. PreAmp CPPA-102	2/06
LISN 50 µHy/50 ohm/0.1 µf	10/06
LISN Compliance Eng. 240/20	2/06
LISN Fischer Custom Communications FCC-LISN-50-16-2-08	6/06
Peavey Power Amp Model: IPS 801	2/06
Power Amp A.R. Model: 10W 1010M7	2/06
Power Amp EIN Model: A301	2/06
ELGAR Model: 1751	2/06
ELGAR Model: TG 704A-3D	2/06
ESD Test Set 2010i	2/06
Fast Transient Burst Generator Model: EFT/B-101	2/06
Current Probe: Singer CP-105	2/06
Current Probe: Solar 9108-1N	2/06
Field Intensity Meter: EFM-018	2/06
KEYTEK Ecat Surge Generator	2/06
Shielded Room 5 M x 3 M x 3.0 M (101 dB Integrity)	

10/12/2006

QUALIFICATIONS

Of

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

Scot D. Rogers

April 13, 2007
Date

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 under E-Filing, OET Equipment Authorization Electronic Filing, Test Firms.

Sincerely,

Phyllis Parrish
Information Technician

Industry Canada Industrie Canada

May 23rd, 2006

OUR FILE: 46405-3041
Submission No: 115252

Rogers Labs Inc.
4405 West 259th 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
Please reference our file number above for all correspondence.

Yours sincerely,

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

Canada