NVLAP Lab Code 200087-0

APPLICATION
For
GRANT OF CERTIFICATION

FOR

Model:
011-02034-00
Low Power Transmitter

FCC ID: IPH-01422
IC: 1792A-01422

FOR

Garmin International, Inc.
1200 East 151st Street
Olathe, KS 66062

Test Report number 080930

Authorized Signatory: Scot D Rogers
Scot D. Rogers

NVLAP Lab Code 200087-0

ROGERS LABS, INC.

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

TEST REPORT

For

Application for Grant of Certification

For

Garmin International, Inc.

1200 East 151st Street
Olathe, KS 66062
Phone: (913) 397-8200

Mr. Van Ruggles
Director of Quality Assurance

Model: 011-02034-00

Low Power Transmitter
Frequency Range: 2402 - 2480 MHz

FCC ID: IPH-01422
IC: 1792A-01422

Test Report Number: 080930

Test Date: September 30, 2008

Certifying Engineer: Scot D Rogers

Scot D. Rogers
Rogers Labs, Inc.
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Forward

The following information is submitted for consideration in obtaining a Grant of Certification for low power intentional radiator per CFR47 Paragraph 15.249, and Industry Canada RSS-210 Low Power Transmitter, operation in the 2400 – 2483.5 MHz band.

Name of Applicant: Garmin International, Inc.
1200 East 151st Street
Olathe, KS 66062

Model: 011-02034-00

FCC ID: IPH-01422

Industry Canada ID: 1792A-01422

Frequency Range: 2402 - 2480 MHz

Operating Power: 1 mW (as design specification, measured peak amplitude of 96.8 and average power of 46.4 dBµV/m @ 3 meters), for operation in the 2402-2480 MHz band

Opinion / Interpretation of Results

Tests Performed	Results
Radiated Emissions as per CFR47 15.205, 15.209, and 15.249	Complies
Radiated Emissions as per RSS-210	Complies

Applicable Standards & Test Procedures

In accordance with the Federal Communications Commission, Code of Federal Regulations CFR47, dated October 1, 2007, Part 2, Subpart J, Paragraphs 2.907, 2.911, 2.913, 2.925, 2.926, 2.1031 through 2.1057, applicable parts of paragraph 15, Part 15C paragraph 15.249, and Industry Canada RSS-210, the following information is submitted.

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

Environmental Conditions

Ambient Temperature	21.7° C
Relative Humidity	44%
Atmospheric Pressure	29.98 in Hg

Equipment Tested

Equipment	Serial Number	FCC I.D.#
011-02034-00	3507260042	IPH-01422

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

Equipment	Manufacturer	Model	Calibration Date	Due
LISN	Comp. Design	FCC-LISN-2-MOD.CD	10/07	10/08
LISN	Comp. Design	1762	2/08	2/09
Antenna	ARA	BCD-235-B	10/07	10/08
Antenna	EMCO	3147	10/07	10/08
Antenna	EMCO	3143	5/08	5/09
Analyzer	HP	8591EM	5/08	5/09
Analyzer	HP	8562A	5/08	5/09

2.1033(b) Application for Certification

(1) Manufacturer: Garmin International, Inc.
1200 East 151st Street
Olathe, KS 66062
Telephone: (913) 397-8200

(2) FCC Identification: FCC I.D.: IPH-01422 IC: 1792A-01422

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

(4) Description of Circuit Functions, Device Operation: The 011-02034-00 is a remote control transmitter for operation in the marine environment. The equipment incorporates a wireless interface allowing control functions other compliant equipment from short distances. The transmitter was designed to communicate with compliant remote equipment. This device features communications operation in the 2400-2483.5 MHz frequency band.

(5) Block Diagram with Frequencies: Refer to exhibit for the Block Diagram

(6) Report of measurements showing compliance with the pertinent FCC/IC technical requires are provided in this report.

(7) Photographs of equipment are provided in application exhibits.

(8) Peripheral equipment or accessories for the equipment. No optional equipment was available other than that shown in the configuration diagram. The available configuration options were investigated for this report with worst-case data presented.

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

(10) The equipment is not a scanning receiver.

(11) The equipment is not a transmitter operating in the 59-64 GHz frequency range.

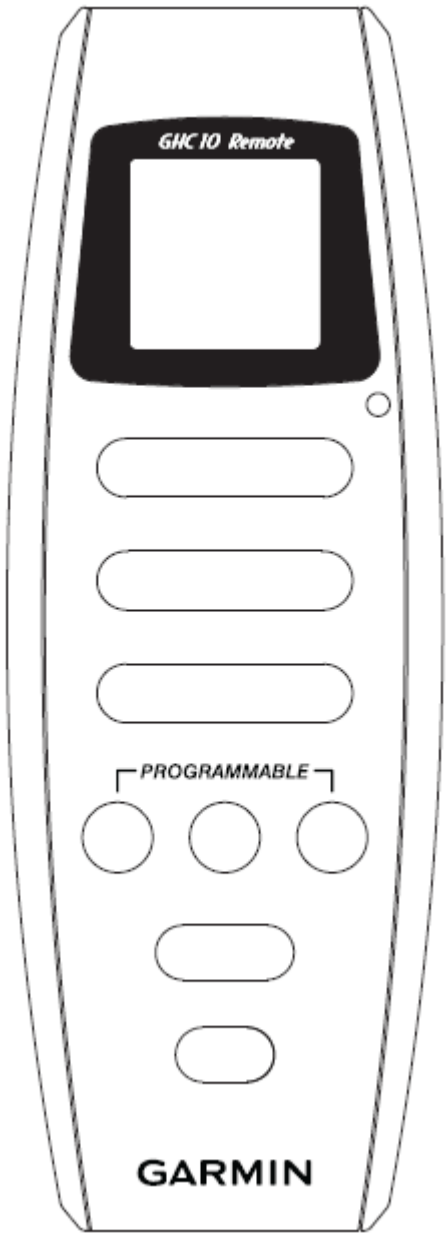
Equipment Function and Testing Procedures

The EUT is a low power transmitter with operation capability in the 24020-2480 MHz frequency band (CFR47, 15.249). The unit allows for communications to other 2400-2483.5 MHz compliant equipment. The design is offered for the outdoor enthusiast allowing remote control function to other complaint equipment. The design allows for control function information be sent to complaint equipment through wireless interface.

Test Setup

The 011-02034-00 is a hand held remote control unit used to interface with complaint equipment. The design incorporates a low power transmitter allowing short-range communications in the 2402-2480 MHz band. The EUT was arranged in all typical user equipment configurations during testing. The transmitter offers no other interface connections than those in the configuration options shown below. The EUT receives power from internal batteries only and offers no alternative power source options. As requested by the manufacturer and required by the regulations, the unit was tested for emissions compliance using the available configurations with the worst-case data presented. Test results in this report relate only to the products described in this report.

Configuration options for the EUT



AC Line Conducted Emission Test Procedure

The equipment operates solely from direct current power and offers no provision to connect to utility AC power. Therefore, no AC power line conducted emissions testing were performed for this report.

Radiated Emission Test Procedure

The EUT was arranged in the test configurations as shown above for testing. 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 final data was taken using a spectrum analyzer. Refer to photographs in exhibits for EUT placement used 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.

Radiated Emissions Calculations:

Note: The limit is expressed for a measurement in dBµV/m when the measurement is taken at a distance of 3 meters. Data taken for this report was taken at a distance of 3 meters.

Test Site Locations

Conducted EMI: Rogers Labs, Inc. located at 4405 W. 259th Terrace, Louisburg, KS.

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

Site Approval: Refer to Annex for FCC Site Registration Letter, Reference 90910, Industry Canada Site Registration Reference IC 3041A-1.

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 intentional radiators.

15.203 Antenna Requirements

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

15.205 Restricted Bands of Operation

Spurious emissions falling in the restricted frequency bands of operation were measured at the 3-meter OATS. The EUT utilizes frequency, determining circuitry, which generates harmonics falling in the restricted bands. Emissions were investigated 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 received radiated field strength, receive antenna correction factor, amplifier gain stage, and test system cable losses.

Sample Calculations:

Computed Peak (dBµV/m @ 3m) = FSM (dBµV) + A.F. (dB) - Gain (dB)

= 20.8 + 32.9 - 30

= 23.7

Radiated Emissions in Restricted Bands Data per 15.205

Emission Frequency (MHz)	FSM Horz. (dBµV)	FSM Vert. (dBµV)	Ant. Factor (dB)	Amp. Gain (dB)	RFS Horz. @ 3m (dBµV/m)	RFS Vert. @ 3m (dBµV/m)	Limit @ 3m (dBµV/m)
4804.0	20.8	20.8	32.9	30	23.7	23.7	54.0
4914.0	20.7	20.8	32.9	30	23.6	23.7	54.0
4960.0	20.3	20.4	32.9	30	23.2	23.3	54.0
7371.0	19.6	19.8	36.4	30	26.0	26.2	54.0
7440.0	19.1	19.3	36.7	30	25.8	26.0	54.0
12010.0	19.3	19.2	40.0	30	29.3	29.2	54.0
12285.0	19.9	20.0	40.4	30	30.3	30.4	54.0
12400.0	19.5	19.5	40.7	30	30.2	30.2	54.0

No other emissions found in the restricted bands.

Summary of Results for Radiated Emissions in Restricted Bands 15.205

The radiated emissions for the EUT meet the requirements for FCC CFR47 Part 15.205 restricted bands of operation. The EUT had a 23.6 dB minimum margin below the limits. Other emissions were present with amplitudes at least 20 dB below the required limits.

15.209 Radiated emissions limits; general requirements

General Radiated EMI per 15.209

Testing was performed with the EUT arranged in all typical equipment configurations and operated through available 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 22,000 MHz for the preliminary transmitter testing. Refer to figures one through seven showing the worst-case radiated emission spectrum displayed on the spectrum analyzer taken in a screen room. Each 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. Test procedures of ANSI 63.4-2003 paragraphs 13.1 and 8.3.1.2 were used during radiated emissions testing. The frequency spectrum from 30 MHz to 25,000 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, Double-Ridge horn and/or Pyramidal Horns from 5 GHz to 25 GHz, and amplification stages.

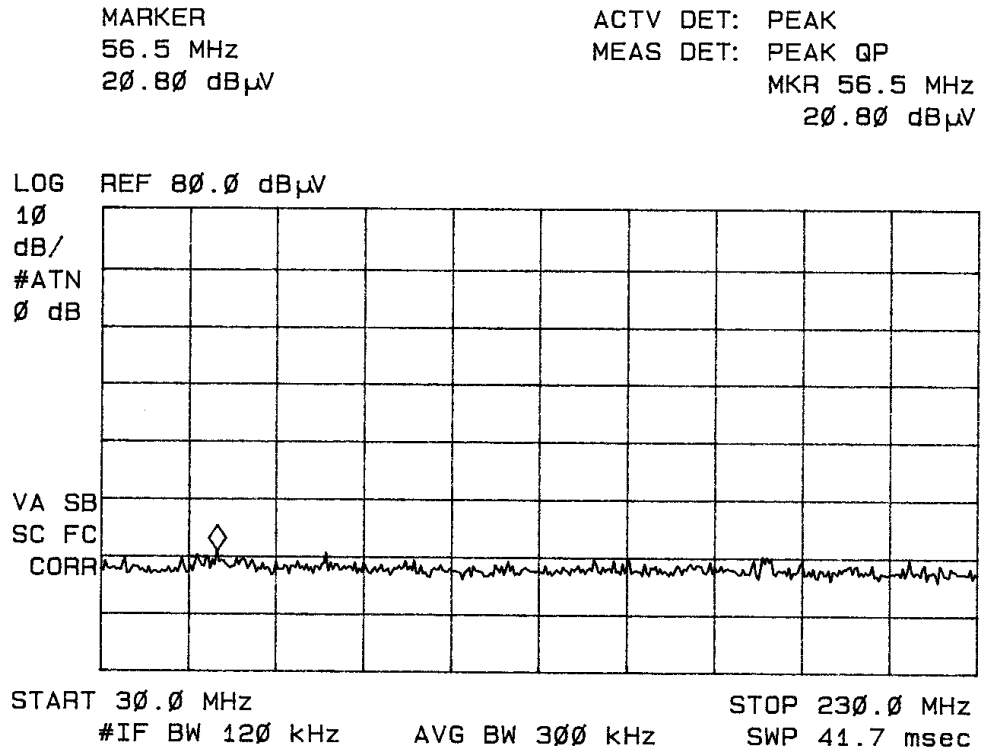


Figure one Radiated Emissions Plot

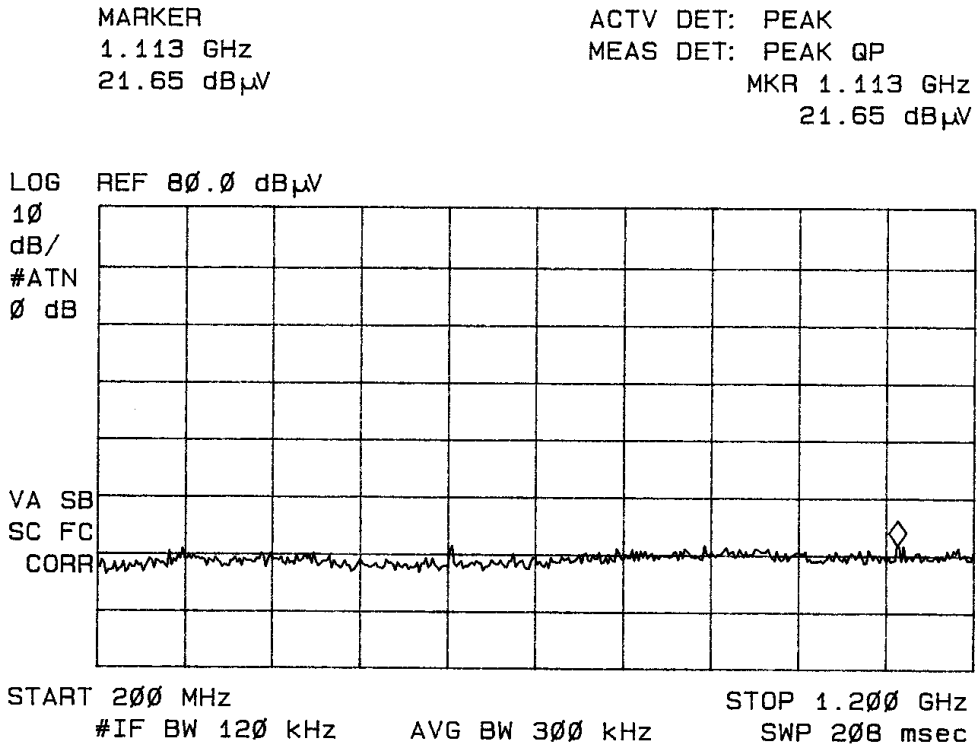


Figure two Radiated Emissions Plot

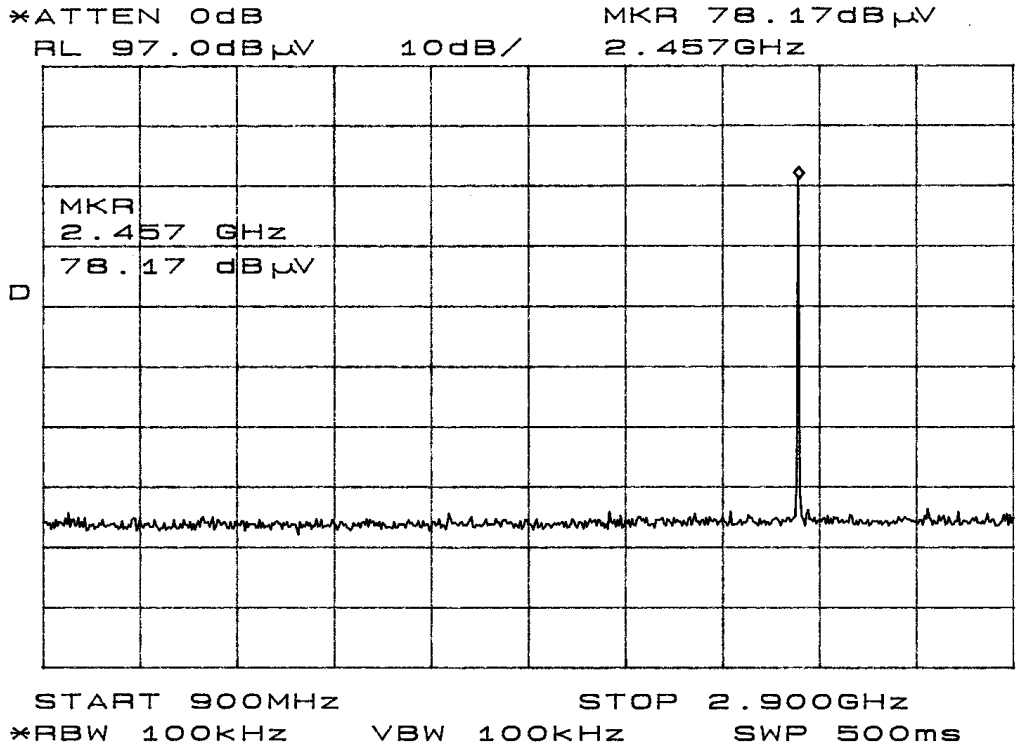


Figure three Radiated Emissions Plot

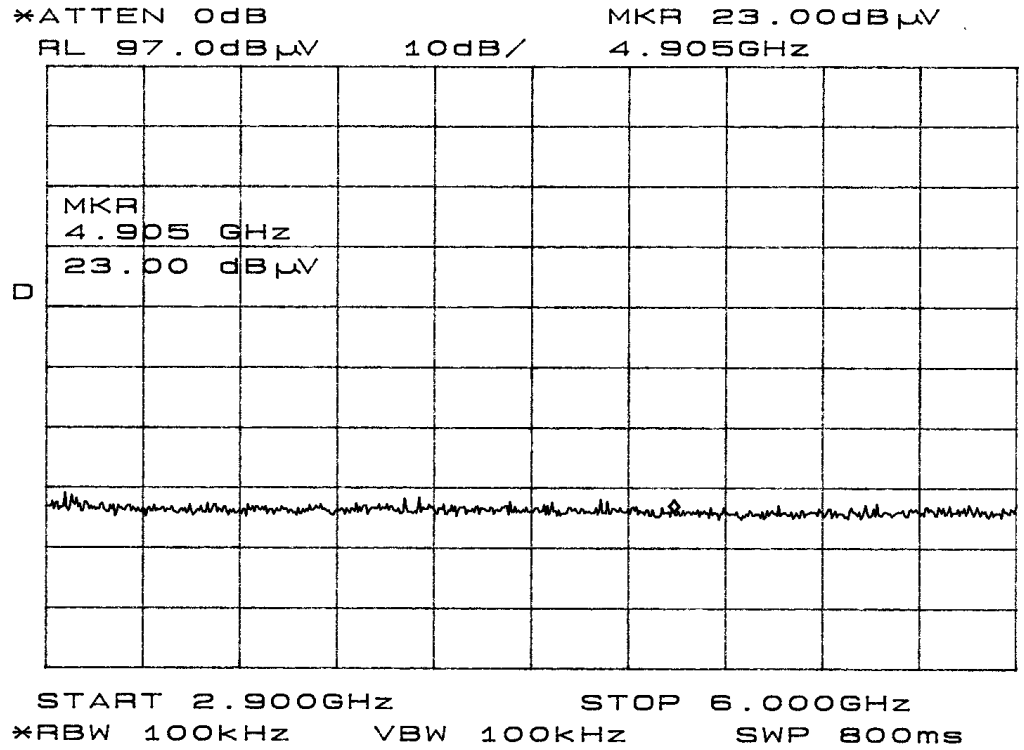


Figure four Radiated Emissions Plot

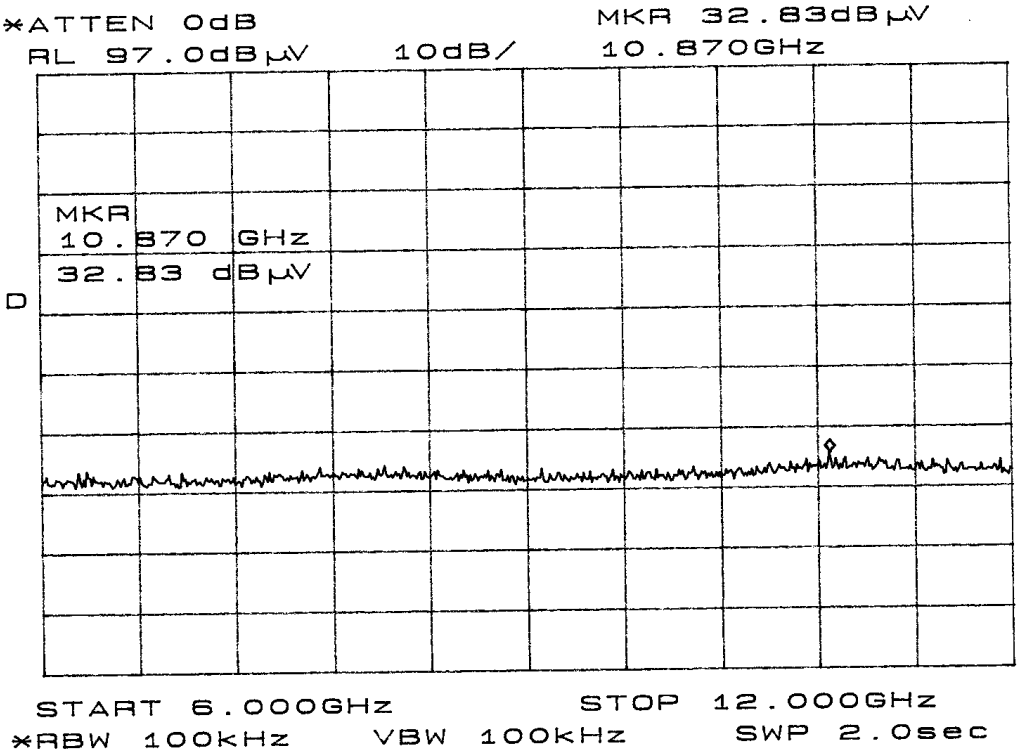


Figure five Radiated Emissions Plot

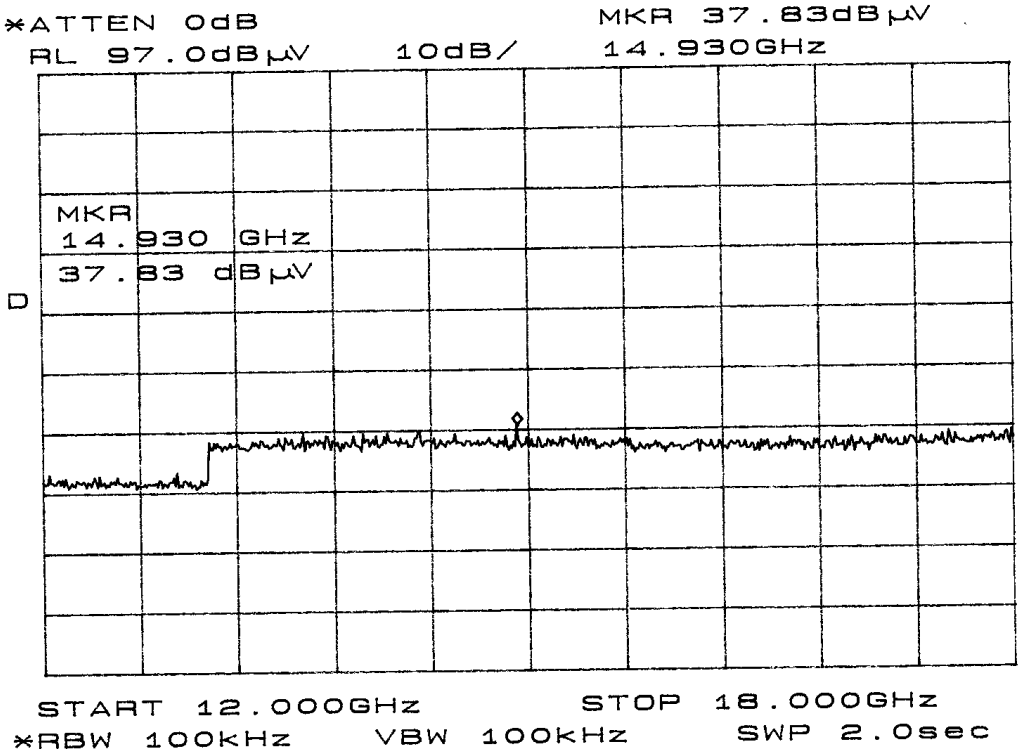


Figure six Radiated Emissions Plot

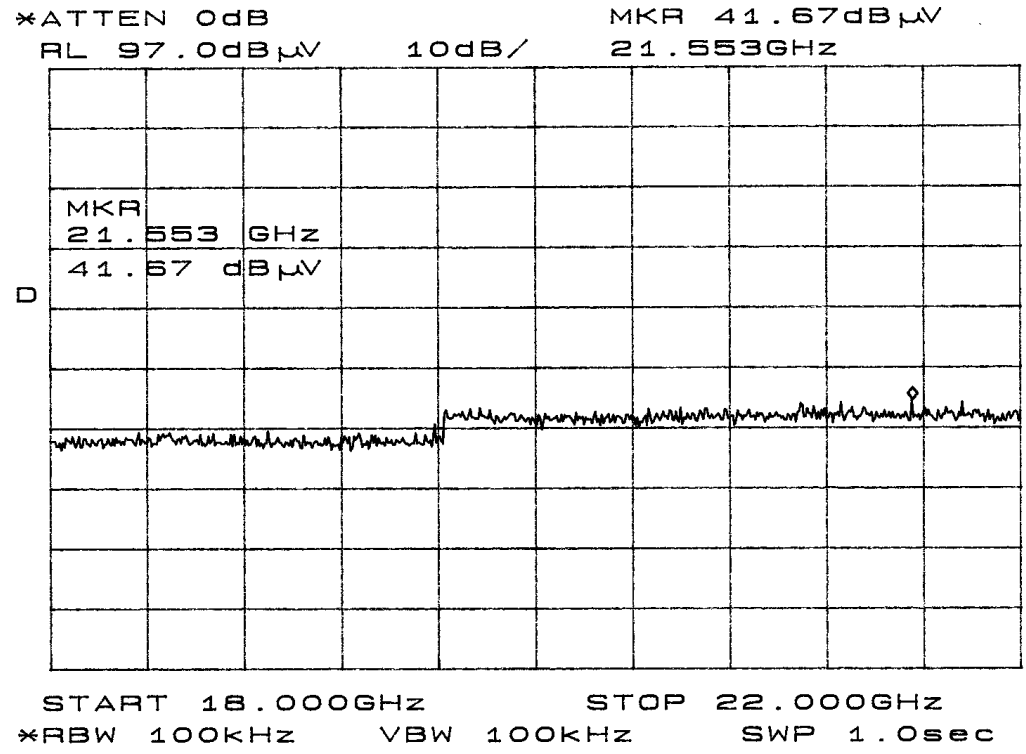


Figure seven Radiated Emissions Plot

General Radiated Emissions Data per 15.209

Emission Freq. (MHz)	FSM Horz. (dBµV)	FSM Vert. (dBµV)	Ant. Factor (dB)	Amp. Gain (dB)	RFS Horz. @ 3m (dBµV/m)	RFS Vert. @ 3m (dBµV/m)	Limit @ 3m (dBµV/m)
2400.0	26.6	29.0	32.9	30	29.5	31.9	54.0
2483.5	27.3	27.1	33.3	30	30.6	30.4	54.0
4804.0	20.8	20.8	32.9	30	23.7	23.7	54.0
4914.0	20.7	20.8	32.9	30	23.6	23.7	54.0
4960.0	20.3	20.4	32.9	30	23.2	23.3	54.0
7371.0	19.6	19.8	36.4	30	26.0	26.2	54.0
7440.0	19.1	19.3	36.7	30	25.8	26.0	54.0
12010.0	19.3	19.2	40.0	30	29.3	29.2	54.0
12285.0	19.9	20.0	40.4	30	30.3	30.4	54.0
12400.0	19.5	19.5	40.7	30	30.2	30.2	54.0

Only Harmonic emissions were present. Other emissions were present with amplitudes at least 20 dB below limits.

Summary of Results for General Radiated Emissions per 15.209

The radiated emissions for the EUT meet the requirements for FCC Part 15C and other applicable standards for Intentional Radiators. The EUT had a 22.1 dB minimum margin below the limits. Other emissions were present with amplitudes at least 20 dB below the FCC Limits.

15.249 Operation in the Band 2,400-2,483.5 MHz

The power output was measured on an open field test site @ 3-meters. Test procedures of ANSI 63.4-2003 paragraphs 13.1 and 8.3.1.2 were used during testing. 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 eight through eleven showing the occupied bandwidth, frequency, and amplitude of fundamental emissions as displayed on the spectrum analyzer demonstrating compliance. 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 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 dBµV/m @ 3 meters.

Sample calculation

dBµV/m @ 3m = FSM + A.F. + cable loss - amplifier Gain

= 94.0 + 28.1 –30

= 92.1

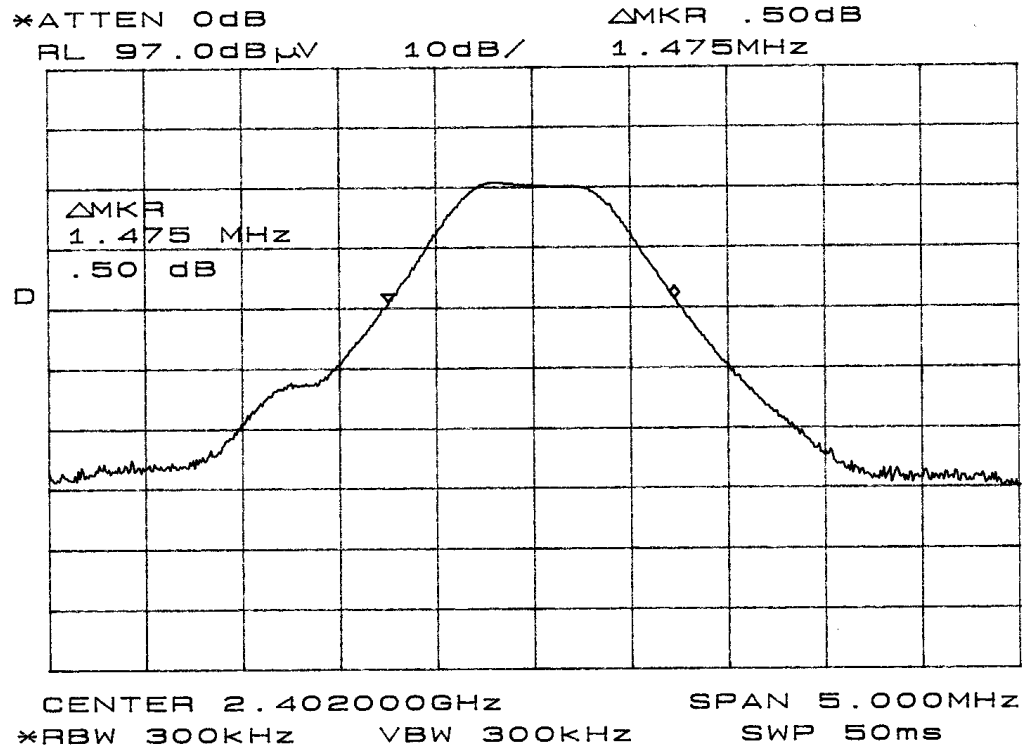


Figure eight Occupied Bandwidth

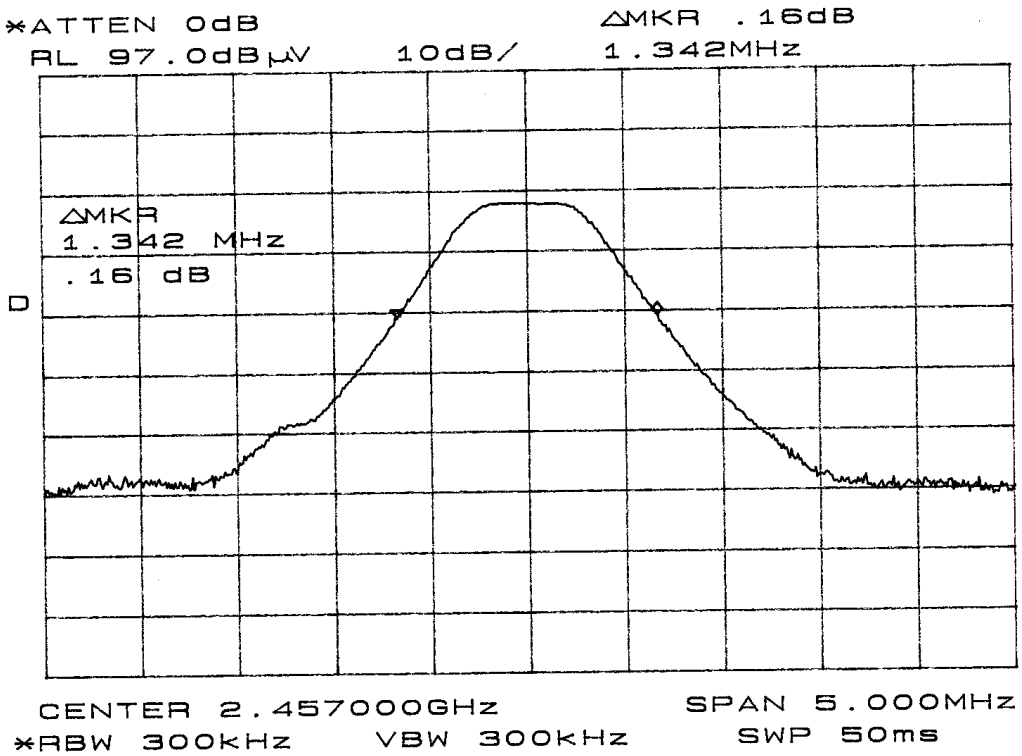


Figure nine Occupied Bandwidth

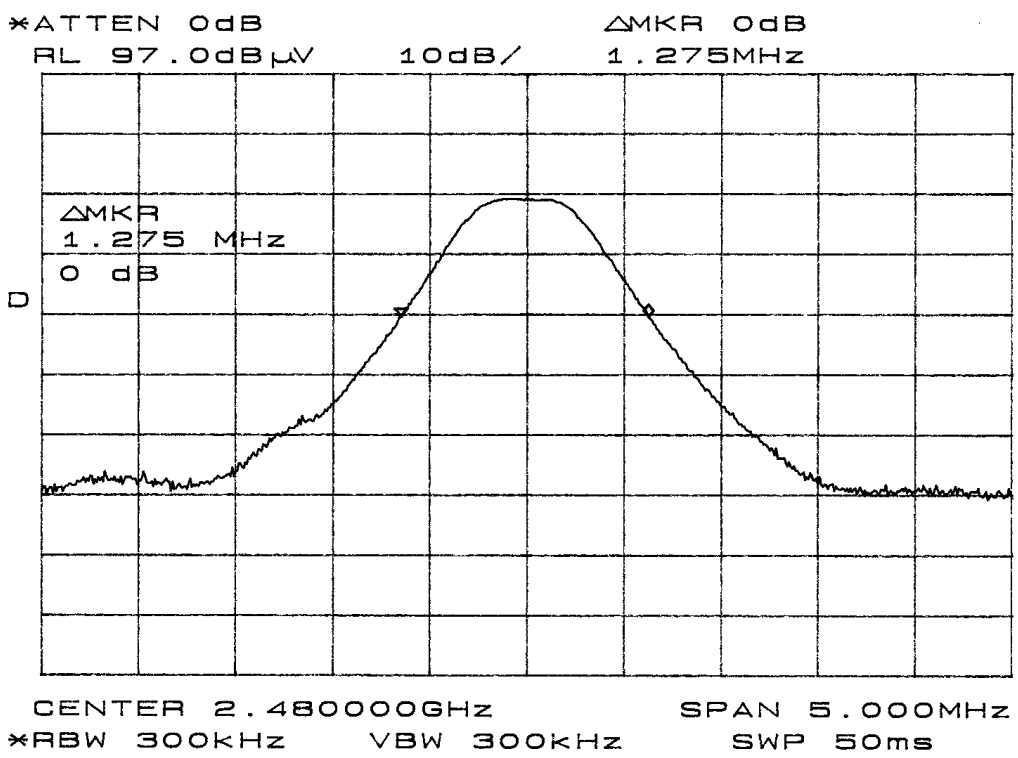


Figure ten Occupied Bandwidth

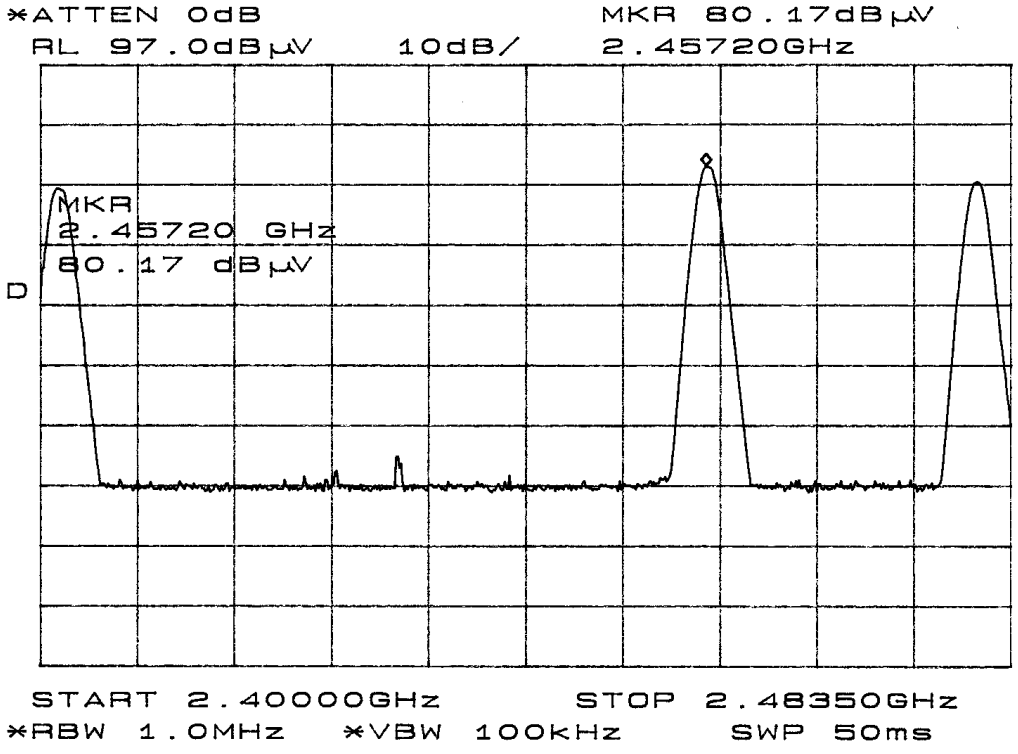


Figure eleven Operation in Frequency Band

Transmitter Radiated Emissions Data per 15.249

Frequency	Peak	Average	Peak	Average			Peak	Ave	Peak	Ave	3M
MHz	FSM Hor	FSM Hor	FSM Vert	FSM Vert	AF	Amp Gain	CFS @ 3 m Hor	CFS @ 3 m Hor	CFS @ 3 m Vert	CFS @ 3 m Vert	Limit
2402.0	94.0	42.8	98.7	46.0	28.1	30	92.1	40.9	96.8	44.1	94.0
4804.0	32.4	20.8	32.5	20.8	32.9	30	35.3	23.7	35.4	23.7	54.0
7206.0	30.8	19.5	31.3	19.6	36.0	30	36.8	25.5	37.3	25.6	54.0
9608.0	32.7	19.7	30.8	19.7	38.1	30	40.8	27.8	38.9	27.8	54.0
12010.0	30.8	19.3	31.7	19.2	40.0	30	40.8	29.3	41.7	29.2	54.0
2457.0	91.9	43.3	93.8	48.3	28.1	30	90.0	41.4	91.9	46.4	94.0
4914.0	31.7	20.7	32.5	20.8	32.9	30	34.6	23.6	35.4	23.7	54.0
7371.0	31.7	19.6	31.9	19.8	36.4	30	38.1	26.0	38.3	26.2	54.0
9828.0	30.8	19.6	31.7	19.7	38.2	30	39.0	27.8	39.9	27.9	54.0
12285.0	31.3	19.9	31.8	20.0	40.4	30	41.7	30.3	42.2	30.4	54.0
2480.0	89.6	43.8	97.4	47.3	28.1	30	87.7	41.9	95.5	45.4	94.0
4960.0	31.0	20.3	32.1	20.4	32.9	30	33.9	23.2	35.0	23.3	54.0
7440.0	30.9	19.1	31.3	19.3	36.7	30	37.6	25.8	38.0	26.0	54.0
9920.0	30.4	19.6	31.3	19.5	38.3	30	38.7	27.9	39.6	27.8	54.0
12400.0	30.7	19.5	31.3	19.5	40.7	30	41.4	30.2	42.0	30.2	54.0

Note: Levels measured @ 3-meter OATS site.

Summary of Results for Transmitter Radiated Emissions per 15.249

The EUT had a peak amplitude emission of 2.8 dB margin above the average limit of CFR47 15.249 and average amplitude of 47.6 dB below the limit. The EUT had Peak harmonic emission amplitude of 11.8 dB margin below the average 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 were 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.

Annex

- Annex A Measurement Uncertainty Calculations
- Annex B Test Equipment List.
- Annex C Rogers Qualifications.
- Annex D FCC Site Registration Letter.

Annex A Measurement Uncertainty Calculations

Radiated Emissions Measurement Uncertainty Calculation

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

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

Combined standard uncertainty $u_c(y)$ is

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

$U_c(y) = \pm 1.6$ dB

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

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

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

Notes:

1.1 Uncertainties for the antenna and cable were estimated, based on a normal probability distribution with k = 2.

1.2 The receiver uncertainty was obtained from the manufacturer's specification for which a rectangular distribution was assumed.

1.3 The antenna factor uncertainty does not take account of antenna directivity.

1.4 The antenna factor varies with height and since the height was not always the same in use as when the antenna was calibrated an additional uncertainty is added.

1.5 The uncertainty in the measurement distance is relatively small but has some effect on the received signal strength. The increase in measurement distance as the antenna height is increased is an inevitable consequence of the test method and is therefore not considered a contribution to uncertainty.

1.6 Site imperfections are difficult to quantify but may include the following contributions:
-Unwanted reflections from adjacent objects.
-Ground plane imperfections: reflection coefficient, flatness, and edge effects.
-Losses or reflections from "transparent" cabins for the EUT or site coverings.
-Earth currents in antenna cable (mainly effect biconical antennas).

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

Conducted Measurements Uncertainty Calculation

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

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

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.

Annex D FCC Test 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 www.fcc.gov under E-Filing, OET Equipment Authorization Electronic Filing, Test Firms.

Sincerely,

Phyllis Parrish
Industry Analyst

Annex E Industry Canada Test Site Registration Letter

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 (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 certification.bureau@ic.gc.ca
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