December 21, 2007

Giant Electronics Ltd.
7/F., Elite Industrial Building,
135-137 Hoi Bun Road, Kwun Tong,
Kowloon, Hong Kong.

Dear Mr. Y. K. Ling:

Enclosed you will find your file copy of a Part 95 Certification (FCC ID: K7GEM1000).

For your reference, TCB will normally take another 15-20 days for reviewing the report. Approval will then be granted when no query is sorted.

Please contact me if you have any questions regarding the enclosed material.

Sincerely,

Leung Wai Leung, Tommy
Senior Manager

Enclosure

Giant Electronics Ltd.

Application
For
Certification

Two Way Radio with GMRS, FRS, and Weather Band Receiver

(FCC ID: K7GEM1000)

07280671
TL/ ac
December 21, 2007

Intertek Testing Services Hong Kong Ltd.
2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.
Tel: (852) 2173 8888 Fax: (852) 2785 5487 Website: www.hk.intertek-etlsemko.com

SUMMARY OF CONTENTS

LIST OF EXHIBITS

MEASUREMENT/TECHNICAL REPORT

Application	**:**	**Giant Electronics Ltd.**
Trade Name/Model No	**:**	**Motorola EM1000** **Motorola EM1010** **Motorola EM1020** **Motorola EM1050**
Date	**:**	**December 21, 2007**

This report concerns (check one:)Original Grant X Class II Change _____

Equipment Type: FRF – Part 95 Family Radio Face Held Transmitter
CXX - Communications Rcvr for use w/ licensed Tx and CBs

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes _____ No X
If yes, defer until: _____
date

Company Name agrees to notify the Commission by: _____
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Report prepared by:

Leung Wai Leung, Tommy
Intertek Testing Services Hong Kong Ltd.
2/F., Garment Centre,
576 Castle Peak Road,
Kowloon, Hong Kong.
Phone: 852-2173-8538
Fax: 852-2741-1693

Table of Contents

List of attached file

Exhibit type	File Description	Filename
Operation Description	Technical Description	descri.pdf
Test Report	Bandwidth Plot	bw.pdf
Test Report	Modulation Frequency Response	mfr.pdf
Test Report	Modulation Limit Characteristic	mlc.pdf
Test Report	Spurious Emission	spurious.pdf
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
ID Label/Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
Test Report	Test Report	report.pdf
Test Setup Photo	Radiated Emission - Transmitter	radiated photo_t.doc
	Radiated Emission - Weather Band Receiver	radiated photo_w.doc
Internal Photo	Internal Photo	internal photos.doc
External Photo	External Photo	external photos.doc
Part List/Tune Up Info	Tune Up Procedure	tuneup.pdf
Part List/Tune Up Info	Part List	partlist.pdf
Test Report	Audio Low Pass Filter Response	lpf.pdf
RF Exposure Info	SAR Test Report	SAR report 1 of 2.pdf SAR report 2 of 2.pdf
Cover Letter	Letter of Agency	letter of agency.pdf
Cover Letter	Confidentiality Request	request.pdf

EXHIBIT 1

GENERAL DESCRIPTION

1.0 General Description

1.1 Product Description

The Equipment Under Test (EUT) is a Two Way Radio with GMRS, FRS, and Weather Band Receiver, operating between 462.5500MHz and 467.7125MHz. In addition, the EUT equipped a weather band receiver operating between 161.650MHz and 162.550MHz. The EUT is powered by 3.6V (1 x 3.6V "Ni-MH" type rechargeable battery) or 4.5V (3 x "AA" size 1.5V alkaline batteries). There is an USB port which is for charging the battery only. According to the manual/ instruction on the charging tray, the EUT is turned off while charging.

Transmitter Portion

(i) Type of Emission	:	GMRS: 5K68F3E; FRS: 5K68F3E
(ii) Frequency Range	:	GMRS 15 Channels from 462.5500MHz to 462.7250MHz FRS 7 Channels from 467.5625MHz to 467.7125MHz
(iii) Maximum Power Rating	:	GMRS: 1.92W ERP; FRS: 0.35W ERP
(iv) Antenna Type	:	Integral

The Model: Motorola EM1010, Motorola EM1020 and Motorola EM1050 are the same as the Model: Motorola EM1000 in hardware aspect except the front panel cosmetic and color difference. The difference in model number serves as marketing strategy.

The brief circuit description is saved with filename: descri.pdf

1.2 Related Submittal(s) Grants

This is an Application for Certification of the transmitter portion of a GMRS + FRS Transceiver and the weather band receiver. The receiver section of this Transceiver is subject to verification process.

1.3 Test Methodology

Radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003) and ANSI/TIA-603-B-2002. All measurement were performed in Open Area Test Sites. Preliminary scans were performed in the Open Area Test Sites only to determine worst case modes. For each scan, the procedure of maximizing emissions in Appendices D and E were followed. All Radiated tests were performed at an antenna the EUT distance of 3 meters, unless stated otherwise in the **"Justification Section"** of this Application.

1.4 Test Facility

The open area test site used to collect the emission data is located at Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. The test facility and site measurement data have been fully placed on file with the FCC.

EXHIBIT 2

SYSTEM TEST CONFIGURATION

2.0 System Test Configuration

2.1 Justification

The device was configured for testing in a typical fashion (as a customer would normally use it). The device was placed on a turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes. The device has been tested with headset and without headset when the radiated emissions are measured.

The device was powered by 3 new "AA" size 1.5V alkaline batteries.

The frequency range from 30 MHz to 4.69 GHz was searched for spurious emissions from the device. Only those emissions reported were detected. All other emissions were at least 20 dB below the applicable limits.

2.2 EUT Exercising Software

There was no special software to exercise the device. Once the PTT button is pushed, a signal is transmitted.

2.3 Special Accessories

No special accessory is needed for compliance of this device.

2.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

2.5 Equipment Modification

Any modification installed previous to testing by Giant Electronics Ltd. will be incorporated in each production model sold/leased in the United States.

No modification were installed by Intertek Testing Services Hong Kong Ltd.

2.6 Support Equipment

A headset with 1.2m unshielded cable.

Confirmed by:

Leung Wai Leung, Tommy
Senior Manager
Intertek Testing Services Hong Kong Ltd.
Agent for Giant Electronics Ltd.

_____ Signature

December 21, 2007 Date

EXHIBIT 3

RF POWER OUTPUT

3.0 **RF Power Output (Section 2.1046(a))**

A. Equipment Used

Equipment	**Brand Name**	**Model No.**
Log Periodic Antenna	EMCO	3148
Test receiver	Rohde & Schwarz	ESVS30
Tuned Dipole Antenna	CDI	A100
Signal Generator	IFR	2023B

B. Testing Procedure

1. On a test site, the EUT shall be placed at 1.5m height on a wooden turntable, and in the position closest to normal use as declared by the applicant.

2. The test antenna shall be oriented initially for vertical polarisation located 3m from EUT to correspond to the frequency of the transmitter.

3. The output of the test antenna shall be connected to the measuring receiver and the quasi-peak detector is used for the measurement.

4. The transmitter shall be switched on, if possible, without modulation and the measuring receiver shall be tuned to the frequency of the transmitter under test.

5. The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.

6. The transmitter shall then the rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.

7. The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.

8. The maximum signal level detected by the measuring receiver shall be noted.

9. The transmitter shall be replaced by a tuned dipole (substitution antenna).

10. The substitution antenna shall be orientated for vertical polarisation and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.

11. The substitution antenna shall be connected to a calibrated signal generator.

12. If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.

13. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.

14. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring received, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.

15. The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.

16. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarisation.

17. The measure of the effective radiated power is the larger of the two levels recorded, at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.

Table 1

Giant Electronics Ltd.
Motorola EM1000

Transmission Power

Channel	Frequency (MHz)	Effective Radiated Power		Limit (W)	Margin (W)
		(dBm)	(W)		
1	462.5625	32.8	1.92	2.0	-0.08
2	462.5875	32.8	1.92	2.0	-0.08
3	462.6125	32.8	1.92	2.0	-0.08
4	462.6375	32.8	1.92	2.0	-0.08
5	462.6625	32.8	1.92	2.0	-0.08
6	462.6875	32.8	1.92	2.0	-0.08
7	462.7125	32.8	1.92	2.0	-0.08
8	467.5625	25.4	0.35	0.5	-0.15
9	467.5875	25.4	0.35	0.5	-0.15
10	467.6125	25.4	0.35	0.5	-0.15
11	467.6375	25.4	0.35	0.5	-0.15
12	467.6625	25.4	0.35	0.5	-0.15
13	467.6875	25.4	0.35	0.5	-0.15
14	467.7125	25.4	0.35	0.5	-0.15
15	462.5500	32.8	1.92	2.0	-0.08
16	462.5750	32.8	1.92	2.0	-0.08
17	462.6000	32.8	1.92	2.0	-0.08
18	462.6250	32.8	1.92	2.0	-0.08
19	462.6500	32.8	1.92	2.0	-0.08
20	462.6750	32.8	1.92	2.0	-0.08
21	462.7000	32.8	1.92	2.0	-0.08
22	462.7250	32.8	1.92	2.0	-0.08

Notes: Negative sign in the margin column shows the value below limits.

Test Engineer: Ken Sit Date of Test: November 29-December 14, 2007

EXHIBIT 4

MODULATION CHARACTERISTICS

4.0 **Modulation Characteristics**

In order to satisfy the 95.637(a) requirement, Modulation Frequency Response and Modulation Limit Characteristics are attached in Exhibit 4.1 & 4.2.

Plots for each tests are saved with filename: mfr.pdf and mlc.pdf

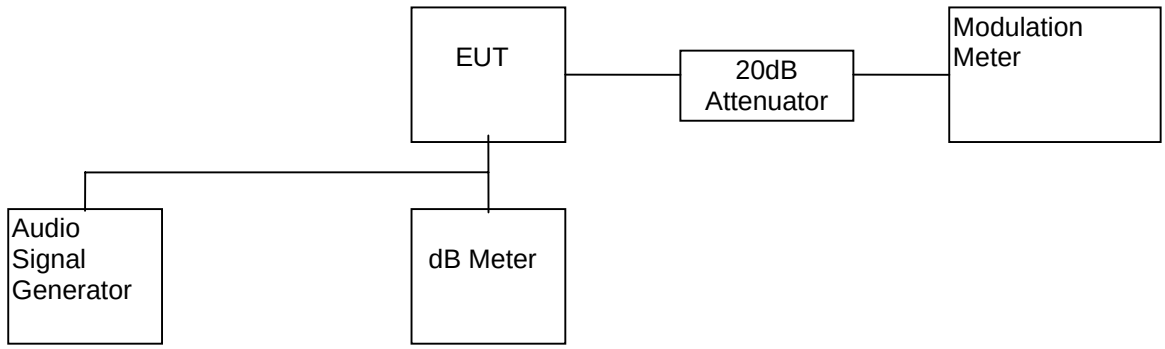
4.1 Modulation Frequency Response

A. Test Equipment

Equipment	Brand Name	Model No.
Audio Signal Generator	HP	HP8904A
AC Millivoltmeter	Leader	LMV-182A
20 dB RF Attenuator	Bird	8304-200-N
Radiocommunication Service Monitor	R&S	CMS54

B. Testing Procedure

1) Set-up the test equipment in the following configuration:



2) Set the audio signal generator frequency to the sound pressure level 107dBSPL at the microphone of the EUT.
3) The frequency of the audio signal generator is changed from 100Hz to 5kHz.
4) Record the frequency deviation.
5) The peak frequency deviation must not exceed ±2.5kHz.

C. Test Result

Table 2

Giant Electronics Ltd.
Motorola EM1000

Modulation Frequency Response

Test Channel : 4
Input level = 107dBSPL

Modulation Frequency (Hz)	Modulation index (%)
100	5.30
200	3.20
300	3.99
400	5.41
500	4.16
600	3.42
700	2.82
800	2.41
900	2.20
1000	2.07
1250	1.76
1500	1.47
1750	1.27
2000	1.14
2250	1.02
2500	0.90
2750	0.75
3000	0.61
3125	0.54
3250	0.47
3500	0.36
4000	0.22
5000	0.09

Test Engineer: Ken Sit Date of Test: November 29-December 14, 2007

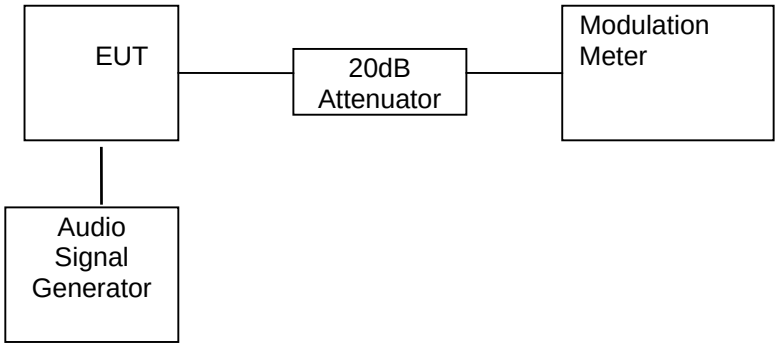
4.2 Modulation Limiting Characteristics (Section 2.1047(b))

A. Test Equipment

Equipment	Brand Name	Model No.
Audio Signal Generator	HP	HP8904A
20 dB RF Attenuator	Bird	8304-200-N
Radiocommunication Service Monitor	R&S	CMS54

B. Testing Procedure

1) Set-up the test equipment in the following configuration:



2) Set the frequency of the audio signal generator to 500Hz and adjust the level from 47dBSPL to 137dBSPL.
3) Record the maximum value of plus or minus peak frequency deviation.
4) Repeat the above procedure with frequency 1000Hz, 2500Hz & 3125Hz.
5) The peak frequency deviation must not exceed ±2.5kHz.

C. Test Result

Table 3

Giant Electronics Ltd.
Motorola EM1000

Modulation Limiting Characteristics

Test Channel : 4

Modulation Input (dBSPL)	Peak Frequency Deviation (kHz) at 500Hz	Peak Frequency Deviation (kHz) at 1000Hz	Peak Frequency Deviation (kHz) at 2500Hz	Peak Frequency Deviation (kHz) at 3125Hz
47	0.037	0.036	0.039	0.036
57	0.040	0.039	0.043	0.039
67	0.041	0.064	0.090	0.075
77	0.071	0.176	0.480	0.417
87	0.197	0.867	1.258	1.023
97	0.959	2.005	2.192	1.656
107	2.081	2.074	2.249	1.676
117	2.081	1.989	2.262	1.669
127	2.097	1.956	2.282	1.696
137	2.088	1.976	2.279	1.686

Remark: The peak frequency deviation must not exceed ±2.5kHz.

Test Engineer: Ken Sit Date of Test: November 29-December 14, 2007

4.3 Audio Low Pass Filter Response (Section 95.637(b))

A. Test Equipment

Equipment	Brand Name	Model No.
Audio Signal Generator	HP	HP8904A
AC Millivoltmeter	Leader	LMV-182A

B. Testing Procedure

1) Connect the audio signal generator to the input of the post limiter low pass filter and the dB meter to the output of the post limiter low pass filter.
2) Apply a 1000 Hz tone from the audio signal generator and adjust the level per manufacturer's specifications. Record the dB level of the 1000 Hz tone as LEV_{REF}.
3) Set the audio signal generator to the desired test frequency between 3000 Hz and the upper low pass filter limit. Record the dB level at the test frequency as LEV_{FREQ}.
4) Calculate the audio frequency response at the test frequency as:

   low pass filter response **=** LEV_{FREQ} **-** LEV_{REF}

5) Repeat the above procedure for all the desired test frequencies.

C. Test Result

For electronic filing, the audio low pass frequency response is saved with filename: lpf.pdf.

EXHIBIT 5

OCCUPIED BANDWIDTH

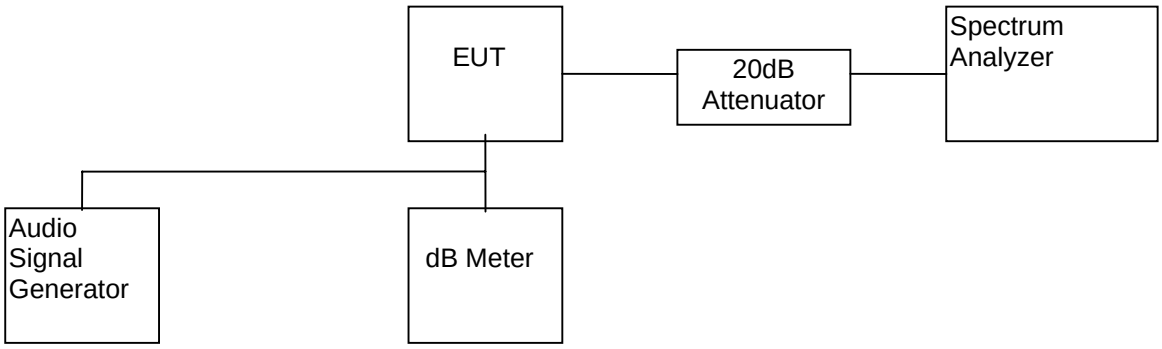
5.0 Occupied Bandwidth (Section 95.633(c))

A. Test Equipment

Equipment	Brand Name	Model No.
Audio Signal Generator	HP	HP8904A
AC Millivoltmeter	Leader	LMV-182A
20 dB RF Attenuator	Bird	8304-200-N
Spectrum Analyzer	HP	8951EM

B. Testing Procedure

1) Set-up the test equipment in the following configuration:



2) Set the level of audio signal generator to obtain 16 dB greater than required for 50% modulation.
3) The occupied bandwidth is measured with the spectrum analyzer set at 2kHz/div scan and 10dB/div.

C. Test Result

The occupied Bandwidth is measured to be 5.68 kHz for GMRS and 5.68 kHz for FRS.

For the electronic filing, the bandwidth plot is saved with filename: bw.pdf

Test Engineer: Ken Sit Date of Test: November 29-December 14, 2007

EXHIBIT 6

SPURIOUS EMISSION

6.0 **Spurious Emission (Section 95.635)**

In order to satisfy the 95.635 requirement, the spurious emission from the EUT are measured and shown in the Exhibit 6.1.

6.1 Field Strength of Spurious Radiation (Section 95.635) - Transmitter

A. Test Equipment

Equipment	Brand Name	Model No.
Antenna	EMCO	A100, 3148, 3104C, 3115
Spectrum Analyzer	ADVANTEST	U3661
Test receiver	Rohde & Schwarz	ESVS30
RF Filter	Trilithic	3VF500/1000-5-50-CC
Signal Generator	IFR	2023B

B. Testing Procedure

Radiated emission measurements were performed according to the procedures in ANSI C63.4(2003). All measurements were performed in Open Area Test Sites located at Roof Top of Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.

C. Radiated Emission Configuration Photograph - Transmitter

Worst Case Radiated Emission

For electronic filing, the radiated emission configurations photograph is saved with filename: config photos.doc

C. Test Result

Giant Electronics Ltd.
Motorola EM1000

Table 4(a)

1) Unwanted emission from CARRIER ±6.25kHz to CARRIER ±31.25kHz

(Refer to the plots which is saved with filename: spurious.pdf)

Region	Unwanted emission	
	Channel 4	Channel 11
CARRIER ±6.25kHz to ±12.5kHz	<25dB	<25dB
CARRIER ±12.5kHz to ±31.25kHz	<35dB	<35dB

Table 4(b): Channel 4

Frequency (MHz)	Effective Radiated Power (dBm)	Transmission Power (dBm)	Attenuation (dBc)	Limit (dBc)	Margin (dB)
231.319	-35.3	32.8	68.1	45.8	-22.3
693.956	-34.0	32.8	66.8	45.8	-21.0
925.274	-32.2	32.8	65.0	45.8	-19.2
1156.593	-37.8	32.8	70.6	45.8	-24.8
1387.911	-32.6	32.8	65.4	45.8	-19.6
1619.230	-36.0	32.8	68.8	45.8	-23.0
1850.548	-29.0	32.8	61.8	45.8	-16.0
2081.867	-33.5	32.8	66.3	45.8	-20.5
2313.185	-28.8	32.8	61.6	45.8	-15.8
2544.504	-32.8	32.8	65.6	45.8	-19.8
2775.822	-23.5	32.8	56.3	45.8	-10.5
3007.141	-21.5	32.8	54.3	45.8	-8.5
3238.459	-18.8	32.8	51.6	45.8	-5.8
3469.778	-37.0	32.8	69.8	45.8	-24.0
3701.096	-26.2	32.8	59.0	45.8	-13.2
3932.096	-38.8	32.8	71.6	45.8	-25.8
4163.733	-40.2	32.8	73.0	45.8	-27.2
4395.052	-41.8	32.8	74.6	45.8	-28.8
4626.370	-42.8	32.8	75.6	45.8	-29.8

Remark: 1. Transmission power is 32.8 dBm or 2.8 dB(W).

2. According to Section 95.635(b7), the unwanted emission should be attenuated below TP by at least $43 + 10 \log_{10}$ (TP) dB or 45.8 dB.

3. The test is performed according to ANSI/TIA-603-B-2002.

Test Engineer: Ken Sit Date of Test: November 29-December 14, 2007

Table 4(b): Channel 11

Frequency (MHz)	Effective Radiated Power (dBm)	Transmission Power (dBm)	Attenuation (dBc)	Limit (dBc)	Margin (dB)
233.818	-37.1	25.4	62.5	38.4	-24.1
701.456	-40.5	25.4	65.9	38.4	-27.5
935.274	-38.8	25.4	64.2	38.4	-25.8
1169.093	-42.2	25.4	67.6	38.4	-29.2
1402.911	-39.0	25.4	64.4	38.4	-26.0
1636.730	-42.8	25.4	68.2	38.4	-29.8
1870.548	-37.2	25.4	62.6	38.4	-24.2
2104.367	-40.5	25.4	65.9	38.4	-27.5
2338.185	-36.2	25.4	61.6	38.4	-23.2
2572.004	-36.0	25.4	61.4	38.4	-23.0
2805.822	-32.5	25.4	57.9	38.4	-19.5
3039.641	-35.8	25.4	61.2	38.4	-22.8
3273.459	-29.5	25.4	54.9	38.4	-16.5
3507.278	-37.0	25.4	62.4	38.4	-24.0
3741.096	-34.5	25.4	59.9	38.4	-21.5
3974.915	-40.5	25.4	65.9	38.4	-27.5
4208.733	-41.0	25.4	66.4	38.4	-28.0
4442.552	-42.2	25.4	67.6	38.4	-29.2
4676.370	-42.8	25.4	68.2	38.4	-29.8

Remark: 1. Transmission power is 25.4 dBm or -4.6 dB(W).

2. According to Section 95.635(b7), the unwanted emission should be attenuated below TP by at least $43 + 10 \log_{10}$ (TP) dB or 38.4 dB.

3. The test is performed according to ANSI/TIA-603-B-2002.

Test Engineer: Ken Sit Date of Test: November 29-December 14, 2007

6.2 Field Strength of Radiation Emission (Section 15.109) - Weather Band Receiver

Data is included worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

A. Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

FS = RA + AF + CF - AG + PD + AV

where FS = Field Strength in dBµV/m
RA = Receiver Amplitude (including preamplifier) in dBµV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
PD = Pulse Desensitization in dB
AV = Average Factor in -dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF - AG + PD + AV

A. Field Strength Calculation (cont'd)

Example

Assume a receiver reading of 62.0 dBµV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB, and the resultant average factor was -10 dB. The net field strength for comparison to the appropriate emission limit is 32 dBµV/m. This value in dBµV/m was converted to its corresponding level in µV/m.

RA = 62.0 dBµV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0 dB

AV = -10 dB

FS = 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32 dBµV/m

Level in µV/m = Common Antilogarithm [(32 dBµV/m)/20] = 39.8 µV/m

B. Radiated Emission Configuration Photograph - Weather Band Receiver

Worst Case Radiated Emission
at
141.025 MHz

For electronic filing, the worst case radiated emission configuration photograph is saved with filename: config photos.doc.

C. Radiated Emission Data - Weather Band Receiver

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgement: Passed by 9.6 dB margin

TEST PERSONNEL:

Signature

Ken Sit, Supervisor
Typed/Printed Name

December 21, 2007
Date

Company: Giant Electronics Ltd. Date of Test: November 29-December 14, 2007
Model: EM1000
Mode: Weather Band Receiver (with headset)

Table 4(c)

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	141.025	35.9	16	14.0	33.9	43.5	-9.6
V	282.050	26.6	16	22.0	32.6	46.0	-13.4
V	423.075	23.4	16	25.0	32.4	46.0	-13.6
V	564.100	21.8	16	28.0	33.8	46.0	-12.2
V	705.125	18.5	16	30.0	32.5	46.0	-13.5

NOTES: 1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters.

3. Negative value in the margin column shows emission below limit.

Test Engineer: Ken Sit

EXHIBIT 7

FREQUENCY STABILITY

7.0 **Frequency Stability**

The frequency tolerance was tested in normal condition & over extreme ambient conditions with respect to voltage and temperature variation.

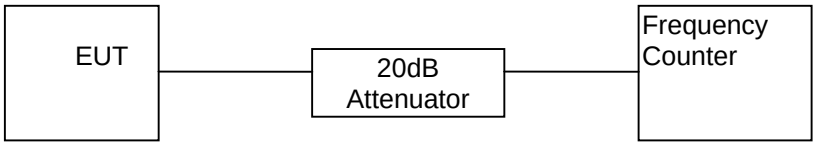
7.1 Frequency Tolerance (Section 95.627)

A. Test Equipment

Equipment	Brand Name	Model No.
20 dB RF Attenuator	Bird	8304-200-N
Frequency Counter	OPTOELECTRONICS	3000A

B. Testing Procedure

1) Set-up the test equipment in the following configuration:



2) Measure all transmit channel frequencies in MHz.

C. Test Result

Table 5

Giant Electronics Ltd.
Motorola EM1000

Frequency Tolerance

Channel	Frequency (MHz)	Measured Frequency (MHz)	Tolerance (%)
1	462.5625	462.56270	0.000043
2	462.5875	462.58770	0.000043
3	462.6125	462.61270	0.000043
4	462.6375	462.63770	0.000043
5	462.6625	462.66270	0.000043
6	462.6875	462.68770	0.000043
7	462.7125	462.71270	0.000043
8	467.5625	467.56270	0.000043
9	467.5875	467.58770	0.000043
10	467.6125	467.61270	0.000043
11	467.6375	467.63770	0.000043
12	467.6625	467.66270	0.000043
13	467.6875	467.68770	0.000043
14	467.7125	467.71270	0.000043
15	462.5500	462.55020	0.000043
16	462.5750	462.57520	0.000043
17	462.6000	462.60020	0.000043
18	462.6250	462.62520	0.000043
19	462.6500	462.65020	0.000043
20	462.6750	462.67520	0.000043
21	462.7000	462.70020	0.000043
22	462.7250	462.72520	0.000043

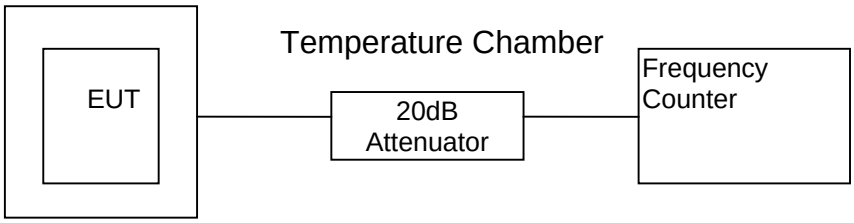
7.2 Frequency Stability - Temperature (Section 2.1055)

A. Test Equipment

Equipment	Brand Name	Model No.
20 dB RF Attenuator	Bird	8304-200-N
Frequency Counter	OPTOELECTRONICS	3000A

B. Testing Procedure

1) Set-up the test equipment in the following configuration:



2) Set the Temperature Chamber to 20°C and stabilize the EUT temperature for one hour. Set transmitter ON for two minutes.
3) Measure the channel frequency of channel 4, 11 in MHz.
4) Turn the EUT OFF.
5) Repeat the above procedure from -30°C to 50°C with 10°C increment for GMRS.
6) Repeat the above procedure from -20°C to 50°C with 10°C increment for FRS.

C. Test Result

Table 6(a)

Giant Electronics Ltd.
Motorola EM1000

Frequency Deviation with Temperature Variation

Channel : 4

Temperature (°C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Deviation (%)	*Frequency Tolerance with reference to its value at +20°C (ppm)
-30	462.6375	462.63642	-0.000233	-2.8
-20	462.6375	462.63754	0.000009	-0.3
-10	462.6375	462.63796	0.000099	0.6
0	462.6375	462.63840	0.000195	1.5
10	462.6375	462.63843	0.000201	1.6
20	462.6375	462.63770	0.000043	0.0
30	462.6375	462.63780	0.000065	0.2
40	462.6375	462.63744	-0.000013	-0.6
50	462.6375	462.63781	0.000067	0.2

Remark: 1) For FRS, frequency tolerance must be maintained within a frequency tolerance of 0.00025%
2)For GMRS, frequency tolerance must be maintained within a frequency tolerance of 0.0005%.
3)*This column is presentable for Industry Canada Certification only.

Test Engineer: Ken Sit Date of Test: November 29-December 14, 2007

C. Test Result

Table 6(b)

Giant Electronics Ltd.
Motorola EM1000

Frequency Deviation with Temperature Variation

Channel : 11

Temperature (°C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Deviation (%)	*Frequency Tolerance with reference to its value at +20°C (ppm)
-20	467.6375	467.63755	0.000011	-0.3
-10	467.6375	467.63797	0.000101	0.6
0	467.6375	467.63841	0.000195	1.5
10	467.6375	467.63844	0.000201	1.6
20	467.6375	467.63770	0.000043	0.0
30	467.6375	467.63781	0.000066	0.2
40	467.6375	467.63745	-0.000011	-0.5
50	467.6375	467.63782	0.000068	0.3

Remark: 1) For FRS, frequency tolerance must be maintained within a frequency tolerance of 0.00025%
2)For GMRS, frequency tolerance must be maintained within a frequency tolerance of 0.0005%.
3)*This column is presentable for Industry Canada Certification only.

Test Engineer: Ken Sit Date of Test: November 29-December 14, 2007

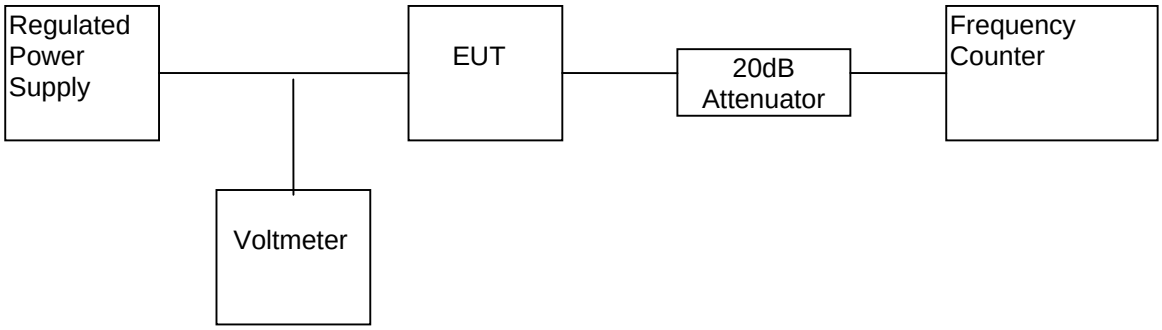
7.3 Frequency Stability - Voltage (Section 2.995)

A. Test Equipment

Equipment	Brand Name	Model No.
Regulated Power Supply	PAD	30-35L
20 dB RF Attenuator	Bird	8304-200-N
Voltage meter	Fluke	87
Frequency Counter	OPTOELECTRONICS	3000A

B. Testing Procedure

1) Set-up the test equipment in the following configuration:



2) Vary the level of regulated power supply to the manufacturer specified battery end point of the EUT.
3) Measure the channel frequency of channel 4 and 11 in MHz.

C. Test Result

Table 7

Giant Electronics Ltd.
Motorola EM1000

Frequency Deviation with Voltage Variation

The manufacturer specified battery end point 3.6V

Channel	Frequency (MHz)	Measured Frequency (MHz)	Tolerance (%)
4	462.63750	462.63750	0.000000
11	467.63750	467.63783	0.000071

Remark: 1) For FRS, frequency tolerance must be maintained within a frequency tolerance of 0.00025%.
2) For GMRS, frequency tolerance must be maintained within a frequency tolerance of 0.0005%.
3) The test voltage is from 4.5V to 3.6V with 0.1V decrement.

EXHIBIT 8

TECHNICAL SPECIFICATIONS

8.0 **Technical Specifications**

8.1 Block Diagram

For electronic filing, the block diagram of the transceiver is saved with filename: block.pdf

Figure 8.1 Block Diagram

8.2 Schematic Diagram

For electronic filing, the schematic diagram of the transceiver is saved with filename: circuit.pdf

Figure 8.2 Schematic Diagram

EXHIBIT 9

PRODUCT LABELLING

9.0 **Product Labelling**

9.1 Label Artwork & Location

Figure 9.1 Label Artwork & Location

An engineering drawing of the label which will be permanently affixed to the unit. For electronic filing, the label artwork & location are saved with filename: label.pdf

EXHIBIT 10

PHOTOGRAPHS

10.0 **Equipment Photographs**

For electronic filing, photographs of the tested EUT are saved with filename: external photos.doc and internal photos.doc

EXHIBIT 11

INSTRUCTION MANUAL

11.0 **Instruction Manual**

This manual will be provided to the end-user with each unit sold/leased in the United States.

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf

EXHIBIT 12

TUNE UP PROCEDURE

12.0 **Tune Up Procedure**

For electronic filing, a preliminary copy of the Tune Up Procedure is saved with filename: tuneup.pdf

EXHIBIT 13

PART LIST

13.0 **Part List**

For electronic filing, a preliminary copy of the Part List is saved with filename: partlist.pdf

EXHIBIT 14

INPUT CURRENT

14.0 **Input Current**

The input current to final r.f. stage at 4.5VDC is 0.63A.

EXHIBIT 15

RF EXPOSURE INFO

15.0 **RF Exposure Info**

The RF Safety Information is shown on P.1 of User Manual.

EXHIBIT 16

LETTER OF AGENCY

16.0 **Letter of Agency**

For electronic filing, a letter of agency is saved with filename: letter of agency.pdf

EXHIBIT 17

CONFIDENTIALITY REQUEST

17.0 **Confidentiality Request**

For electronic filing, a confidentiality request is saved with filename: request.pdf