Giant Electronics Limited

Application
For
Certification

Two ways radio with GMRS and FRS and weather band receiver

(FCC ID: K7GMTCEJ)

HK11120821-1
KS/ KY
February 21, 2012

Intertek Testing Services Hong Kong Ltd.
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INTERTEK TESTING SERVICES

MEASUREMENT/TECHNICAL REPORT

Applicant	**:**	**Giant Electronics Limited**
Trade Name/Model No	**:**	**Motorola/MT350R MT351R, MT350TPR, MT350MR, MT352R, MT352TPR, MT355R, MT356R MT352MR**
Date	**:**	**February 21, 2012**

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:

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EXHIBIT 1

GENERAL DESCRIPTION

1.0 General Description

1.1 Product Description

The Equipment Under Test (EUT) is a Two Way Radio with GMRS and FRS, and Weather Band 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).

Transmitter Portion

(i) Type of Emission : GMRS:5K68F3E ; FRS:5K72F3E
(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:1.67W ERP; FRS: 0.39W ERP
(iv) Antenna Type : Integral , vertically polarized with 0dBi gain
(iv) dc voltage of radio frequency amplifying device: 4.5V
dc current of radio frequency amplifying device: 1000mA

The Model: MT351R, MT350TPR, MT350MR, MT352R, MT352TPR, MT355R, MT356R, MT352MR are the same as the Model: MT350R in hardware aspect. 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 / Purpose of Application

This is an Application for Certification of the transmitter portion of a GMRS + FRS Transceiver. The receiver section of this Transceiver and digital device portion 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-C-2004. Conducted emission measurement were performed according to the procedures in ANSI C63..4 (2003). All radiated measurement were performed in Open Area Test Sites. Preliminary scans were performed in the Open Area Test Sites only to determine worst case modes. 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 and conducted emission 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 x new "AA" 1.5V alkaline batteries.

The frequency range of transmitter from 30MHz to 10^{th} harmonics was searched for spurious emissions from the device. The frequency range of weather band receiver from 30MHz to 2GHz 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.

For transmitter radiated spurious measurement, the spectrum analyzer resolution bandwidth was 10kHz for emissions below 1GHz, and 1MHz for emissions above 1GHz. Video bandwidth was 300kHz for emissions below 1GHz, and 3MHz for emissions above 1GHz. For receiver radiated spurious measurement, the spectrum analyzer resolution bandwidth was 100kHz for emission below 1GHz, and 1MHz for emissions above 1GHz. Video bandwidth was 3 times greater than resolution bandwidth.

The following are all the test modes (only the worst-case was reported):
GMRS, Tx without headset
GMRS, Tx with headset
FRS (same as the all above cases)
Weather band receiver, with/without headset

2.2 EUT Exercising Software

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

No modifications by Giant Electronics Limited will be incorporated in each production model sold/leased in the United States.

2.6 Support Equipment

1. A headset with 1.2m unshielded cable. (Supplied by Client)
2. Operated Battery: 3 x “AA” 1.5V battery
3. A “Ni-MH” Type Rechargeable Battery 3.6V 650mAh (Supplied by Client)

Confirmed by:

Sit Kim Wai, Ken
Manager
Intertek Testing Services Hong Kong Ltd.
Agent for Giant Electronics Limited

Digitally signed by Sit Kim Wai, Ken
Location: Intertek Testing Services Hong Kong Ltd.

Signature

February 21, 2012 Date

EXHIBIT 3

RF POWER OUTPUT

3.0 **RF Power Output (Section 2.1046(a), 95.639(d))**

A. Equipment Used

Equipment	**Brand Name**	**Model No.**
Log Periodic Antenna	EMCO	3148
Biconical Antenna	EMCO	3104C
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 0.8m 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 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 Limited
MT350R

Transmission Power

Channel	Frequency	Effective Radiated Power		FCC 95.639 Limit	Margin	RSS-210 Limit	Margin
	(MHz)	(dBm)	(W)	(W)	(W)	(W)	(W)
1	462.5625	32.2	1.67	5.00	-3.33	2.00	-0.33
2	462.5875	32.2	1.67	5.00	-3.33	2.00	-0.33
3	462.6125	32.2	1.67	5.00	-3.33	2.00	-0.33
4	462.6375	32.2	1.67	5.00	-3.33	2.00	-0.33
5	462.6625	32.2	1.67	5.00	-3.33	2.00	-0.33
6	462.6875	32.2	1.67	5.00	-3.33	2.00	-0.33
7	462.7125	32.2	1.67	5.00	-3.33	2.00	-0.33
8	467.5625	25.9	0.39	0.50	-0.11	0.50	-0.11
9	467.5875	25.9	0.39	0.50	-0.11	0.50	-0.11
10	467.6125	25.9	0.39	0.50	-0.11	0.50	-0.11
11	467.6375	25.9	0.39	0.50	-0.11	0.50	-0.11
12	467.6625	25.9	0.39	0.50	-0.11	0.50	-0.11
13	467.6875	25.9	0.39	0.50	-0.11	0.50	-0.11
14	467.7125	25.9	0.39	0.50	-0.11	0.50	-0.11
15	462.5500	32.2	1.67	5.00	-3.33	2.00	-0.33
16	462.5750	32.2	1.67	5.00	-3.33	2.00	-0.33
17	462.6000	32.2	1.67	5.00	-3.33	2.00	-0.33
18	462.6250	32.2	1.67	5.00	-3.33	2.00	-0.33
19	462.6500	32.2	1.67	5.00	-3.33	2.00	-0.33
20	462.6750	32.2	1.67	5.00	-3.33	2.00	-0.33
21	462.7000	32.2	1.67	5.00	-3.33	2.00	-0.33

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

Verdict: Passed

Test Engineer: Koo Wai Ip Date of Test: January 10 - February 03, 2012

EXHIBIT 4

MODULATION CHARACTERISTICS

4.0 **Modulation Characteristics (Section 2.1047(a)(b), 95.637(a))**

In order to satisfy the 95.637(a) and 2.1047(b) requirements, Modulation Frequency Response and Modulation Limiting Characteristics are attached in Exhibit 4.1 & 4.2.

In order to satisfy the 2.1047(a) requirement, Audio Low Pass Filter Response is attached in Exhibit 4.3.

For electronic filing, the modulation frequency response curve and modulation limiting characteristic curve are saved with filename: mfr.pdf and mlc.pdf respectively.

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

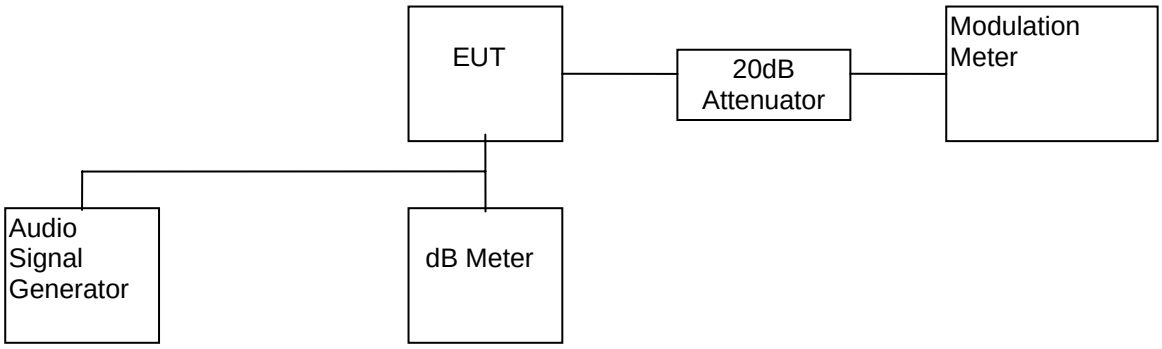
4.1 Modulation Frequency Response (Section 2.1047(a), 95.637(a))

A. Test Equipment

Equipment	Brand Name	Model No.
Audio Signal Generator	HP	HP8904A
AC Millivoltmeter	Leader	LMV-182A
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 117dBSPL 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:

   GMRS + FRS : ±2.5kHz

6) Calculate the audio frequency response at each frequency as:

   response = $20 \log_{10}(DEV_{FREQ} / DEV_{REF})$;

   DEV_{REF} = Frequency deviation at 1000Hz ;
   DEV_{FREQ} = Frequency deviation at 100 - 5000Hz ;

7) From the plot, audio frequency response rolls off before 3.125kHz.

C. Test Result

Table 2

Giant Electronics Limited
MT350R

Modulation Frequency Response

Test Channel : 4
Input level = 117dBSPL

Modulation Frequency(Hz)	Frequency Deviation(kHz)	Audio Frequency Response
100	0.508	-12.74
200	0.688	-10.10
300	0.882	-7.95
400	1.193	-5.32
500	1.521	-3.21
600	1.913	-1.22
700	1.997	-0.85
800	2.017	-0.76
900	2.134	-0.27
1000	2.202	0.00
1250	2.166	-0.14
1500	2.214	0.05
1750	2.274	0.28
2000	2.418	0.81
2250	2.397	0.74
2500	2.320	0.45
2750	2.060	-0.58
3000	1.943	-1.09
3125	1.940	-1.10
3250	1.936	-1.12
3500	1.886	-1.35
4000	1.434	-3.73
5000	1.153	-5.62

Verdict: Passed

Test Engineer: Koo Wai Ip Date of Test: January 10 - February 03, 2012

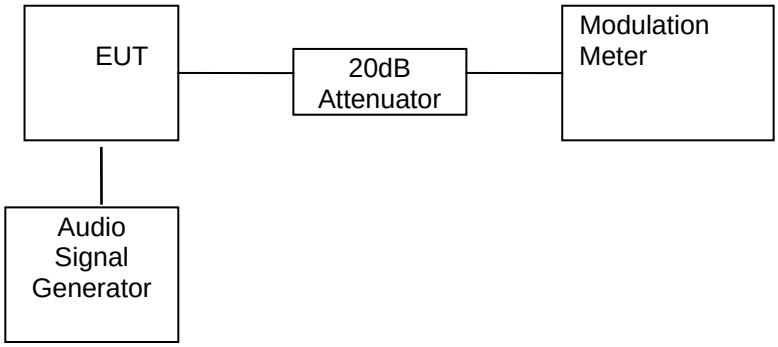
4.2 Modulation Limiting Characteristics (Section 2.1047(b), 95.637(a))

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:

   GMRS + FRS : ±2.5kHz

C. Test Result

Table 3

Giant Electronics Limited
MT350R

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	0.056	0.056	0.056	0.056
57	0.056	0.056	0.056	0.056
67	0.426	0.438	0.446	0.470
77	0.472	0.575	0.571	0.517
87	0.512	0.655	0.675	0.621
97	0.613	0.976	0.972	0.789
107	0.814	1.790	1.655	1.204
117	1.521	2.202	2.320	1.940
127	2.185	2.247	2.482	2.183
137	2.182	2.245	2.482	2.180

Verdict: Passed

Test Engineer: Koo Wai Ip Date of Test: January 10 - February 03, 2012

4.3 Audio Low Pass Filter Response (Section 2.1047(a), 95.637(b))

A. Test Equipment

Equipment	Brand Name	Model No.
Audio Signal Generator	HP	HP8904A
AC Millivoltmeter	Leader	LMV-182A
Radiocommunication Service Monitor	R&S	CMS54

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

Table 4

Giant Electronics Limited
MT350R

Low-Pass Filter Response

Test Channel : 4

Audio Input Strength = 500 mVrms

Frequency (kHz)	dB relative to 1 kHz	TIA/EIA-603C
1	0.0	0.0
3	-7.5	0.0
4	-13.5	-7.5
5	-17.5	-13.3
6	-21.5	-18.1
8	-28.0	-25.6
10	-33.5	-31.4
15	-43.5	-41.9
20	-50.5	-50.0
30	-61.0	-50.0
40	-67.5	-50.0
50	-69.5	-50.0
60	-70.5	-50.0
70	-74.5	-50.0
80	-74.5	-50.0
90	-74.5	-50.0
100	-74.5	-50.0

Audio Output at 1kHz: -5.5 dBV

Verdict: Passed

Test Engineer: Koo Wai Ip Date of Test: January 10 - February 03, 2012

EXHIBIT 5

OCCUPIED BANDWIDTH

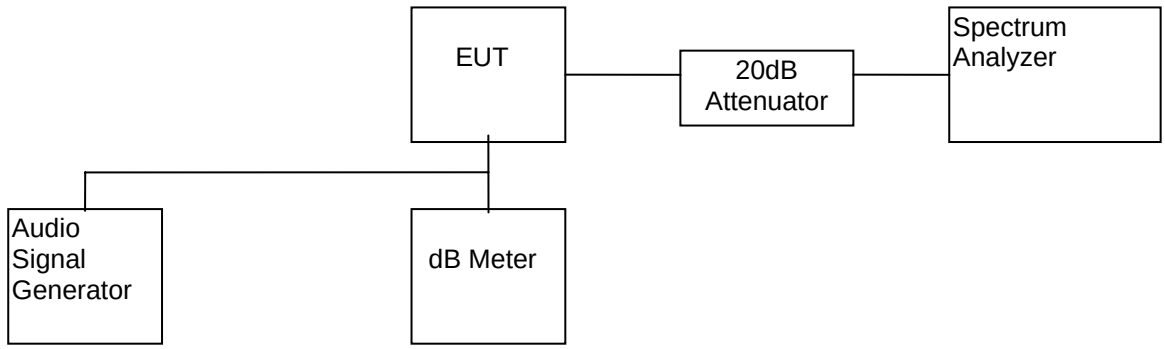
5.0 Occupied Bandwidth (Section 2.1049, 95.633(c))

A. Test Equipment

Equipment	Brand Name	Model No.
Audio Signal Generator	HP	HP8904A
Radiocommunication Service Monitor	R&S	CMS54
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

Table 5

Giant Electronics Limited
MT350R

System	Channel	Measured Bandwidth (kHz)	Limit (kHz)
GMRS	4	5.68	≤20
FRS	11	5.72	≤12.5

Verdict: Passed

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

Test Engineer: Koo Wai Ip Date of Test: January 10 - February 03, 2012

EXHIBIT 6

SPURIOUS EMISSION

6.0 **Spurious Emission**

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

6.1 Power of Spurious Radiation (Section 2.1053, 95.635(b))

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/TIA-603-C-2004. 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

Worst Case Radiated Emission

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

C. Test Result

Giant Electronics Limited
MT350R

Table 6(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 6(b): Channel 4

Frequency (MHz)	Effective Radiated Power (dBm)	Transmission Power (dBm)	Attenuation (dBc)	Limit (dB)	Margin (dB)
231.319	-40.2	32.2	72.4	45.2	-27.2
693.956	-39.0	32.2	71.2	45.2	-26.0
925.274	-34.0	32.2	66.2	45.2	-21.0
1156.593	-37.0	32.2	69.2	45.2	-24.0
1387.911	-39.0	32.2	71.2	45.2	-26.0
1619.230	-37.2	32.2	69.4	45.2	-24.2
1850.548	-37.5	32.2	69.7	45.2	-24.5
2081.867	-38.0	32.2	70.2	45.2	-25.0
2313.185	-37.8	32.2	70.0	45.2	-24.8
2544.504	-39.0	32.2	71.2	45.2	-26.0
2775.822	-35.5	32.2	67.7	45.2	-22.5
3007.141	-37.8	32.2	70.0	45.2	-24.8
3238.459	-37.2	32.2	69.4	45.2	-24.2
3469.778	-36.0	32.2	68.2	45.2	-23.0
3701.096	-36.2	32.2	68.4	45.2	-23.2
3932.415	-36.5	32.2	68.7	45.2	-23.5
4163.733	-33.2	32.2	65.4	45.2	-20.2
4395.652	-35.0	32.2	67.2	45.2	-22.0
4626.370	-36.5	32.2	68.7	45.2	-23.5

Remark: 1. Transmission power is 32.2 dBm or 2.2 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 45.2 dB.

3. The test is performed according to ANSI/TIA-603-C-2004.

Verdict: Passed

Test Engineer: Koo Wai Ip Date of Test: January 10, 2012

Table 6(b): Channel 11

Frequency (MHz)	Effective Radiated Power (dBm)	Transmission Power (dBm)	Attenuation (dBc)	Limit (dB)	Margin (dB)
233.819	-42.2	25.9	68.1	38.9	-29.2
701.456	-41.0	25.9	66.9	38.9	-28.0
935.274	-40.0	25.9	65.9	38.9	-27.0
1169.093	-39.0	25.9	64.9	38.9	-26.0
1402.911	-38.5	25.9	64.4	38.9	-25.5
1636.730	-38.2	25.9	64.1	38.9	-25.2
1870.548	-39.0	25.9	64.9	38.9	-26.0
2104.367	-38.0	25.9	63.9	38.9	-25.0
2338.185	-37.2	25.9	63.1	38.9	-24.2
2572.004	-37.6	25.9	63.5	38.9	-24.6
2805.822	-36.5	25.9	62.4	38.9	-23.5
3039.641	-38.5	25.9	64.4	38.9	-25.5
3273.459	-36.9	25.9	62.8	38.9	-23.9
3507.278	-40.2	25.9	66.1	38.9	-27.2
3741.096	-36.2	25.9	62.1	38.9	-23.2
3974.915	-38.8	25.9	64.7	38.9	-25.8
4208.733	-35.8	25.9	61.7	38.9	-22.8
4442.512	-37.2	25.9	63.1	38.9	-24.2
4676.370	-38.0	25.9	63.9	38.9	-25.0

Remark: 1. Transmission power is 25.9 dBm or -4.1 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 38.9 dB.

3. The test is performed according to ANSI/TIA-603-C-2004.

Verdict: Passed

Test Engineer: Koo Wai Ip Date of Test: January 10, 2012

6.2 Field Strength of Radiation Emission (Section 15.109)

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
141.049 MHz

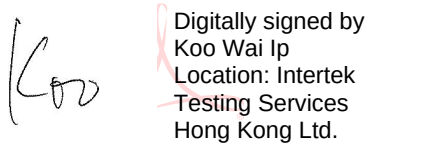
For electronic filing, the worst case radiated emission configuration photograph is saved with filename: config photos.doc.

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 8.9 dB margin

TEST PERSONNEL:



Signature

Koo Wai Ip, Senior Lead Engineer
Typed/Printed Name

February 21, 2012

Date

Company: Giant Electronics Limited
Model: MT350R
Mode: Weather Band receiver

Date of Test: January 10, 2012

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	141.049	36.6	16	14.0	34.6	43.5	-8.9
V	282.098	28.8	16	22.0	34.8	46.0	-11.2
V	423.147	25.2	16	25.0	34.2	46.0	-11.8
V	564.196	23.1	16	28.0	35.1	46.0	-10.9
V	705.245	20.6	16	30.0	34.6	46.0	-11.4
V	846.294	19.3	16	31.0	34.3	46.0	-11.7

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: Koo Wai Ip

EXHIBIT 7

FREQUENCY STABILITY

7.0 Frequency Stability (Section 2.1055(a)(b)(d), 95.627(b) for FRS, 95.621(b) for GMRS)

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

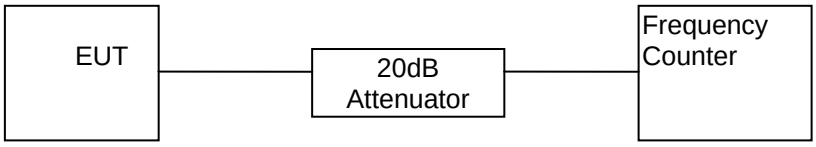
7.1 Frequency Tolerance (Section 95.627(b) for FRS, 95.621(b) for GMRS)

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 7

Giant Electronics Limited
MT350R

Frequency Tolerance

Channel	Frequency (MHz)	Measured Frequency (MHz)	Tolerance (%)
1	462.5625	462.56207	-0.000093
2	462.5875	462.58703	-0.000102
3	462.6125	462.61200	-0.000108
4	462.6375	462.63695	-0.000119
5	462.6625	462.66195	-0.000119
6	462.6875	462.68696	-0.000117
7	462.7125	462.71196	-0.000117
8	467.5625	467.56193	-0.000122
9	467.5875	467.58695	-0.000118
10	467.6125	467.61196	-0.000115
11	467.6375	467.63698	-0.000111
12	467.6625	467.66199	-0.000109
13	467.6875	467.68699	-0.000109
14	467.7125	467.71201	-0.000105
15	462.5500	462.54955	-0.000097
16	462.5750	462.57455	-0.000097
17	462.6000	462.59953	-0.000102
18	462.6250	462.62452	-0.000104
19	462.6500	462.64945	-0.000119
20	462.6750	462.67456	-0.000095
21	462.7000	462.69955	-0.000097
22	462.7250	462.72452	-0.000104

FCC Limit for FRS (95.627(b)): ≤±0.00025%
RSS-210 Limit for GMRS and FRS (A6.2.6, A6.1.6): <±5ppm

Verdict: Passed

Test Engineer: Koo Wai Ip Date of Test: January 10 - February 03, 2012

7.2 Frequency Stability - Temperature (Section 2.1055(a)(b), 95.627(b) for FRS, 95.621(b) for GMRS)

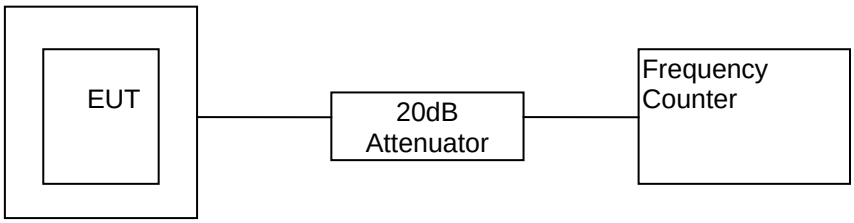
A. Test Equipment

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:

Temperature Chamber



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 8(a)

Giant Electronics Limited
MT350R

Frequency Tolerance with Temperature Variation

Channel : 4

Temperature (°C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (%)	*Frequency Tolerance with reference to its value at +20°C (ppm)
#-30	462.63750	462.63769	0.000041	1.6
-20	462.63750	462.63780	0.000065	1.8
-10	462.63750	462.63800	0.000108	2.3
0	462.63750	462.63780	0.000065	1.8
10	462.63750	462.63778	0.000061	1.8
20	462.63750	462.63695	-0.000119	0.0
30	462.63750	462.63688	-0.000134	-0.2
40	462.63750	462.63680	-0.000151	-0.3
50	462.63750	462.63685	-0.000140	-0.2

Remark: 1) For GMRS, frequency tolerance must be maintained within a frequency tolerance of 0.0005%.
2) *This column is presentable for Industry Canada Certification only.
3) #Data is for GMRS compliance, not for FRS.

Verdict: Passed

Test Engineer: Koo Wai Ip Date of Test: January 10 - February 03, 2012

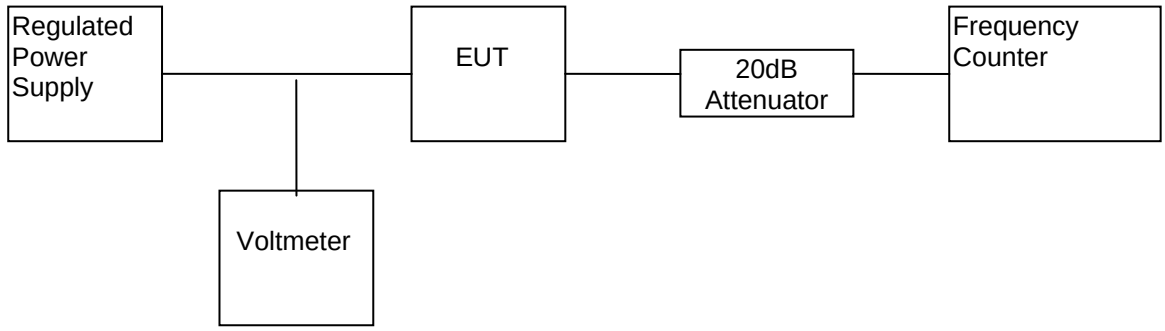
7.3 Frequency Stability - Voltage (Section 2.1055(d), 95.627(b) for FRS, 95.621(b) for GMRS)

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 9

Giant Electronics Limited
MT350R

Frequency Tolerance with Voltage Variation

The manufacturer specified battery end point = 3.1V

Channel	Frequency (MHz)	Measured Frequency (MHz)	Tolerance (%)
4	462.63750	462.6368	-0.000151

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 primary supply voltage to 3.1V

Test Engineer: Koo Wai Ip Date of Test: January 10 - February 03, 2012

8.0 **Equipment List**

1) Radiated Emissions Test

Equipment	EMI Test Receiver	Spectrum Analyzer (9kHz to 26.5GHz)	Biconical Antenna
Registration No.	EW-2500	EW-2188	EW-0571
Manufacturer	ROHDESCHWARZ	AGILENTTECH	EMCO
Model No.	ESCI	E4407B	3104C
Calibration Date	Jan. 25, 2011	Sep. 26, 2011	Sep. 28, 2010
Calibration Due Date	Jan. 25, 2012	Sep. 26, 2012	Mar. 28, 2012

Equipment	Log Periodic Antenna	Robrets Antennas	Robrets Antennas
Registration No.	EW-0446	EW-0159	EW-0160
Manufacturer	EMCO	CDI	CDI
Model No.	3146	A100	A100
Calibration Date	Oct. 31, 2011	Mar. 04, 2011	Mar. 04, 2011
Calibration Due Date	Apr. 30, 2013	Sep. 04, 2012	Sep. 04, 2012

Equipment	Double Ridged Guide Antenna (1GHz - 18GHz)	Signal Generator (250kHz to 40GHz)
Registration No.	EW-1133	EW-1983
Manufacturer	EMCO	AGILENTTECH
Model No.	3115	E8247C
Calibration Date	Mar. 20, 2011	Mar. 29, 2011
Calibration Due Date	Sep. 02, 2012	Mar. 29, 2013

2) Other RF Measurement Test

Equipment	Communication Service Monitor (Radio)	Frequency Counter	Function Generator
Registration No.	EW-1443	EW-1069	EW-2100
Manufacturer	ROHDESCHWARZ	OPTOELECTRON	GRUNDIG
Model No.	CMS54	3000A/TCXO	FG100
Calibration Date	Apr. 08, 2011	Apr. 11, 2011	Aug. 04, 2011
Calibration Due Date	Apr. 08, 2012	Apr. 11, 2012	Aug. 04, 2012

Equipment	Spectrum Analyzer
Registration No.	EW-2466
Manufacturer	ROHDESCHWARZ
Model No.	FSP30
Calibration Date	Apr. 11, 2011
Calibration Due Date	Apr. 11, 2012

APPENDIX

EXHIBITS OF APPLICATION FOR CERTIFICATION