



Giant Electronics Ltd.

Application
For
Permissive Change

Two Way Radio with FRS and GMRS

(FCC ID: K7GSX700)

April 21, 2005

0504759
TL/ Ann Choy
April 21, 2005

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MEASUREMENT/TECHNICAL REPORT

Application : Giant Electronics Limited
Trade Name/Model No : Motorola/ SX720
Date : April 21, 2005

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

Equipment Type: FRF - Part 95 Family Radio Face Held Transmitter

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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List of attached file

Exhibit type	File Description	Filename
Operation Description	Technical Descriptive	descri.pdf
Cover Page	Purpose of Application	purpose of change.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	manual1.pdf
		manual2.pdf
		manual3.pdf
Test Report	Test Report	report.pdf
Test Setup Photo	Radiated Emission	config photos.doc
Internal Photo	Internal Photo	internal photos.doc
External Photo	External Photo	external photos.doc
Test Report	Tune Up Procedure	tuneup.pdf
Test Report	Part List	partlist.pdf
Cover Letter	Confidentiality Request	request.pdf

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EXHIBIT 1

GENERAL DESCRIPTION

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1.0 General Description

1.1 Product Description

The Equipment Under Test (EUT) is a Two Way Radio with FRS and GMRS operating between 462.5500MHz and 467.7125MHz. The EUT is powered by 5.2V (1 x 5.2V NiMH rechargeable battery) or 6V (4 x "AAA" size 1.5V alkaline batteries). According to the user manual instructions, the EUT is turned off while in charging tray.

Transmitter Portion

- (i) Type of Emission : FRS - 10K3F3E, GMRS - 10K0F3E
- (ii) Frequency Range : FRS 7 Channels from 467.5625MHz to 467.7125MHz
GMRS 15 Channels from 462.5500MHz to 462.7250MHz
- (iii) Maximum Power Rating : FRS - 0.17W ERP, GMRS - 0.63W ERP
- (iv) Antenna Type : Integral

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

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1.2 Purpose of Application

The purpose of the change is to report changes in the original certified product for reason of removing the weather band radio feature. The main modification is the removal of weather band receiver parts. Due to this change, few components were removed on the two-way radio.

All design including electronic, electrical, mechanical, PCB layout and cosmetics designs remain the same except the above-mentioned change.

The above-mentioned change is not intended for maximum power and change on field strength ratings.

Therefore, the SAR re-test is not required, and only the spurious emission results are included in this report.

The purpose of application is saved with filename: purpose of change.pdf.

1.3 Test Methodology

Radiated emission measurements were performed according to the procedures in ANSI C63.4 (2001) and ANSI/TIA/EIA-603-A-2001. 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 and conducted measurement facility 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.

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EXHIBIT 2

SYSTEM TEST CONFIGURATION

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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. When the radiated emissions are measured.

The device was powered by 4 new "AAA" 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.

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2.2 EUT Exercising Software

There was no special software to exercise the device. Once the unit is powered on, 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.

2.6 Support Equipment

A headset with 1.2m unshielded cable. (Supplied by Client)

Confirmed by:

*Tommy Leung
Assistant Manager
Intertek Testing Services
Agent for Giant Electronics Ltd.*



Signature

April 21, 2005 Date

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EXHIBIT 3

SPURIOUS EMISSION

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3.0 **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 3.1.

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3.1 Field Strength of Spurious Radiation (Section 95.635)

A. Test Equipment

Equipment	Brand Name	Model No.
Antenna	EMCO	A100, 3148, 3104C, 3115
Spectrum Analyzer	ADVANTEST	R3271
Test receiver	Rohde & Schwarz	ESVS30
RF Filter	Trilithic	3VF500/1000-5-50-CC

B. Testing Procedure

Radiated emission measurements were performed according to the procedures in ANSI C63.4(2001). All measurements were performed in Open Area Test Sites located at Roof Top of Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.

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C. Radiated Emission Configuration Photograph

Worst Case Radiated Emission

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

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C. Test Result

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Motorola/ SX720**

Table 1(a)

1) Unwanted emission from CARRIER $\pm 6.25\text{kHz}$ to CARRIER $\pm 31.25\text{kHz}$

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

Region	Unwanted emission	
	Channel 4	Channel 11
CARRIER $\pm 6.25\text{kHz}$ to $\pm 12.5\text{kHz}$	<25dB	<25dB
CARRIER $\pm 12.5\text{kHz}$ to $\pm 31.25\text{kHz}$	<35dB	<35dB

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Table 1(b): Channel 4

Frequency (MHz)	Effective Radiated Power (dBm)	Transmission Power (dBm)	Attenuation (dBc)	Limit (dB)	Margin (dB)
231.317	-34.6	28.0	62.6	41.0	-21.6
693.951	-60.8	28.0	88.8	41.0	-47.8
925.268	-26.8	28.0	54.8	41.0	-13.8
1156.585	-39.0	28.0	67.0	41.0	-26.0
1387.902	-17.9	28.0	45.9	41.0	-4.9
1619.219	-39.0	28.0	67.0	41.0	-26.0
1850.536	-29.2	28.0	57.2	41.0	-16.2
2081.853	-37.1	28.0	65.1	41.0	-24.1
2313.170	-43.3	28.0	71.3	41.0	-30.3
2544.487	-32.9	28.0	60.9	41.0	-19.9
2775.804	-38.8	28.0	66.8	41.0	-25.8
3007.121	-30.8	28.0	58.8	41.0	-17.8
3238.438	-39.3	28.0	67.3	41.0	-26.3
3469.755	-39.1	28.0	67.1	41.0	-26.1
3701.072	-48.7	28.0	76.7	41.0	-35.7
3932.389	-48.0	28.0	76.0	41.0	-35.0
4163.706	-47.3	28.0	75.3	41.0	-34.3
4395.023	-47.0	28.0	75.0	41.0	-34.0
4626.340	-47.2	28.0	75.2	41.0	-34.2

- Remark: 1. Transmission power is 28 dBm or -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 41 dB.
3. The test is performed according to ANSI/TIA/EIA-603-A-2001.

Test Engineer: Kenneth C. C. Lam

Date of Test: March 17-April 8, 2005

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Table 1(b): Channel 11

Frequency (MHz)	Effective Radiated Power (dBm)	Transmission Power (dBm)	Attenuation (dBc)	Limit (dB)	Margin (dB)
233.817	-48.5	22.3	70.8	35.3	-35.5
701.451	-60.8	22.3	83.1	35.3	-47.8
935.268	-30.0	22.3	52.3	35.3	-17.0
1169.075	-40.4	22.3	62.7	35.3	-27.4
1402.892	-19.0	22.3	41.3	35.3	-6.0
1636.700	-32.9	22.3	55.2	35.3	-19.9
1870.520	-30.3	22.3	52.6	35.3	-17.3
2104.343	-44.3	22.3	66.6	35.3	-31.3
2338.160	-38.9	22.3	61.2	35.3	-25.9
2571.977	-43.1	22.3	65.4	35.3	-30.1
2805.794	-38.0	22.3	60.3	35.3	-25.0
3039.611	-38.4	22.3	60.7	35.3	-25.4
3273.428	-40.0	22.3	62.3	35.3	-27.0
3507.245	-40.4	22.3	62.7	35.3	-27.4
3741.062	-48.6	22.3	70.9	35.3	-35.6
3974.879	-47.8	22.3	70.1	35.3	-34.8
4208.696	-46.1	22.3	68.4	35.3	-33.1
4442.513	-45.7	22.3	68.0	35.3	-32.7
4676.330	-45.8	22.3	68.1	35.3	-32.8

- Remark: 1. Transmission power is 22.3 dBm or -7.7 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 35.3 dB.
3. The test is performed according to ANSI/TIA/EIA-603-A-2001.

Test Engineer: Kenneth C. C. Lam

Date of Test: March 17-April 8, 2005

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EXHIBIT 4

TECHNICAL SPECIFICATIONS

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4.0 Technical Specifications

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4.1 Block Diagram

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

Figure 4.1 Block Diagram

4.2 Schematic Diagram

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

Figure 4.2 Schematic Diagram

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EXHIBIT 5

PRODUCT LABELLING

5.0 **Product Labelling**

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5.1 Label Artwork & Location

Figure 5.1 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

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EXHIBIT 6

PHOTOGRAPHS

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6.0 Equipment Photographs

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

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EXHIBIT 7

INSTRUCTION MANUAL

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7.0 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

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EXHIBIT 8

TUNE UP PROCEDURE

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8.0 Tune Up Procedure

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

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EXHIBIT 9

PART LIST

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9.0 **Part List**

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

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EXHIBIT 10

RF EXPOSURE INFO

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10.0 RF Exposure Info

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

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EXHIBIT 11

CONFIDENTIALITY REQUEST

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11.0 Confidentiality Request

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