

**Giant Electronics Limited**

Application  
For  
Certification  
**(FCC ID: K7GT8270D)**

September 13, 2004

0413297  
TL/ Ann Choy  
September 13, 2004

- The test results reported in this report shall refer only to the sample actually tested and shall not refer or be deemed a refer to bulk from which such a sample may be said to have been obtained.
- This report shall not be reproduced except in full without prior authorization from Intertek Testing Services Hong Kong Limited
- For Terms And Conditions of the services, it can be provided upon request.
- The evaluation data of the report will be kept for 3 years from the date of issuance.

**Intertek Testing Services Hong Kong Ltd.**

2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.  
Tel: (852) 2173 8888 Fax: (852) 2371 0521 Website: [www.hk.intertek-etlsemko.com](http://www.hk.intertek-etlsemko.com)

---

## INTERTEK TESTING SERVICES

---

### SUMMARY OF CONTENTS

#### LIST OF EXHIBITS

|                    |                            |
|--------------------|----------------------------|
| <i>EXHIBIT 1:</i>  | General Description        |
| <i>EXHIBIT 2:</i>  | System Test Configuration  |
| <i>EXHIBIT 3:</i>  | RF Power Output            |
| <i>EXHIBIT 4:</i>  | Modulation Characteristics |
| <i>EXHIBIT 5:</i>  | Occupied Bandwidth         |
| <i>EXHIBIT 6:</i>  | Spurious Emission          |
| <i>EXHIBIT 7:</i>  | Frequency Stability        |
| <i>EXHIBIT 8:</i>  | Technical Specifications   |
| <i>EXHIBIT 9:</i>  | Product Labelling          |
| <i>EXHIBIT 10:</i> | Photographs                |
| <i>EXHIBIT 11:</i> | Instruction Manual         |
| <i>EXHIBIT 12:</i> | Tune Up Procedure          |
| <i>EXHIBIT 13:</i> | Part List                  |
| <i>EXHIBIT 14:</i> | Input Current              |
| <i>EXHIBIT 15:</i> | RF Exposure Info           |
| <i>EXHIBIT 16:</i> | Confidentiality Request    |

## INTERTEK TESTING SERVICES

---

### MEASUREMENT/TECHNICAL REPORT

**Application** : Giant Electronics Limited  
**Trade Name/Model No** : Giant/ T8270D  
Team Realtree/ T8270D  
Team Realtree/ RT210  
Giant RT210  
**Date** : September 13, 2004

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

Equipment Type: GMRS + FRS

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:

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

---

# INTERTEK TESTING SERVICES

---

## Table of Contents

|                                                           |    |
|-----------------------------------------------------------|----|
| <b>1.0 General Description</b>                            | 2  |
| 1.1 Product Description                                   | 2  |
| 1.2 Related Submittal(s) Grants                           | 3  |
| 1.3 Test Methodology                                      | 3  |
| 1.4 Test Facility                                         | 3  |
| <b>2.0 System Test Configuration</b>                      | 5  |
| 2.1 Justification                                         | 5  |
| 2.2 EUT Exercising Software                               | 6  |
| 2.3 Special Accessories                                   | 6  |
| 2.4 Measurement Uncertainty                               | 6  |
| 2.5 Equipment Modification                                | 6  |
| <b>3.0 RF Output Power (Section 95.639(d))</b>            | 8  |
| <b>4.0 Modulation Characteristics (Section 95.637(a))</b> | 12 |
| 4.1 Modulation Frequency Response                         | 13 |
| 4.2 Modulation Limiting Characteristic                    | 15 |
| 4.3 Audio Low Pass Filter Response                        | 17 |
| <b>5.0 Occupied Bandwidth (Section 95.633(c))</b>         | 19 |
| <b>6.0 Spurious Emission (Section 95.635(b))</b>          | 21 |
| 6.1 Field Strength of Spurious Radiation                  | 22 |
| <b>7.0 Frequency Stability (Section 95.627)</b>           | 28 |
| 7.1 Frequency Tolerance                                   | 29 |
| 7.2 Temperature Extreme Condition                         | 31 |
| 7.3 Voltage Extreme Condition                             | 34 |
| <b>8.0 Technical Specifications</b>                       | 37 |
| <b>9.0 Product Labelling</b>                              | 41 |
| <b>10.0 Equipment Photographs</b>                         | 44 |
| <b>11.0 Instruction Manual</b>                            | 46 |
| <b>12.0 Tune Up Procedure</b>                             | 48 |
| <b>13.0 Part List</b>                                     | 50 |
| <b>14.0 Input Current</b>                                 | 52 |
| <b>15.0 RF Exposure Info</b>                              | 54 |
| <b>16.0 Confidentiality Request</b>                       | 56 |

## INTERTEK TESTING SERVICES

---

### 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               | radiated 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        |
| Test Report           | Audio Low Pass Filter Response  | lpf.pdf             |
| Cover Letter          | Confidentiality Request         | request.pdf         |

# **INTERTEK TESTING SERVICES**

---

## **EXHIBIT 1**

### **GENERAL DESCRIPTION**

## INTERTEK TESTING SERVICES

---

### 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 3.6Vd.c. (1 x 3.6V rechargeable Ni-MH battery or 4.5Vd.c. (3 x 1.5V "AA" size alkaline batteries).

##### Transmitter Portion

- (i) Type of Emission : 10K4F3E
- (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 - 0.52W ERP
- (iv) Antenna Type : Integral

The Model: Team Realtree T8270D, Team Realtree RT210 and Giant RT210 are the same as the Model: Giant T8270D in hardware aspect. The difference in model number serves as marketing strategy and for cosmetic changes only.

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

## INTERTEK TESTING SERVICES

---

### 1.2 Related Submittal(s) Grants

This is an Application for Certification of the transmitter portion of a GMRS + FRS Transceiver. 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 (2001) and ANSI/TIA/EIA-603-1992. 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.

**INTERTEK TESTING SERVICES**

---

**EXHIBIT 2**  
**SYSTEM TEST CONFIGURATION**

## INTERTEK TESTING SERVICES

---

### 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 3 new 1.5V "AA" size alkaline batteries.

The frequency range from 30 MHz to 10<sup>th</sup> harmonics 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.

## INTERTEK TESTING SERVICES

---

### 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

A special headset is provided by client 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 Limited will be incorporated in each production model sold/leased in the United States.

No modification were installed by Intertek Testing Services.

*Confirmed by:*

*Tommy Leung  
Supervisor  
Intertek Testing Services  
Agent for Giant Electronics Limited*



\_\_\_\_\_ Signature

\_\_\_\_\_ September 13, 2004 \_\_\_\_\_ Date

## **INTERTEK TESTING SERVICES**

---

### **EXHIBIT 3**

### **RF POWER OUTPUT**

---

## INTERTEK TESTING SERVICES

---

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

#### A. Equipment Used

| Equipment            | Brand Name      | Model No. |
|----------------------|-----------------|-----------|
| Biconical Antenna    | EMCO            | 3104C     |
| Log Periodic Antenna | EMCO            | 3148      |
| Test receiver        | Rohde & Schwarz | ESVS30    |
| RF Filter            | Tailithic       | 3VF       |
| Signal Generator     | Maconi          | 2024      |

#### B. Testing Procedure

1. On a test site, the EUT shall be placed at 1.5m height on a turn table, 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.

## INTERTEK TESTING SERVICES

---

6. The transmitter shall then be 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 receiver, 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.

---

## INTERTEK TESTING SERVICES

---

**Table 1**

**Giant Electronics Limited  
GIANT T8270D**

**Transmission Power**

| Channel | Frequency<br>(MHz) | Effective Radiated Power |      | Limit<br>(W) | Margin<br>(W) |
|---------|--------------------|--------------------------|------|--------------|---------------|
|         |                    | (dBm)                    | (W)  |              |               |
| 1       | 462.5625           | 27.1                     | 0.52 | 2.0          | -1.48         |
| 2       | 462.5875           | 27.1                     | 0.52 | 2.0          | -1.48         |
| 3       | 462.6125           | 27.1                     | 0.52 | 2.0          | -1.48         |
| 4       | 462.6375           | 27.1                     | 0.52 | 2.0          | -1.48         |
| 5       | 462.6625           | 27.1                     | 0.52 | 2.0          | -1.48         |
| 6       | 462.6875           | 27.1                     | 0.52 | 2.0          | -1.48         |
| 7       | 462.7125           | 27.1                     | 0.52 | 2.0          | -1.48         |
| 8       | 467.5625           | 22.4                     | 0.17 | 0.5          | -0.33         |
| 9       | 467.5875           | 22.4                     | 0.17 | 0.5          | -0.33         |
| 10      | 467.6125           | 22.4                     | 0.17 | 0.5          | -0.33         |
| 11      | 467.6375           | 22.4                     | 0.17 | 0.5          | -0.33         |
| 12      | 467.6625           | 22.4                     | 0.17 | 0.5          | -0.33         |
| 13      | 467.6875           | 22.4                     | 0.17 | 0.5          | -0.33         |
| 14      | 467.7125           | 22.4                     | 0.17 | 0.5          | -0.33         |
| 15      | 462.5500           | 27.1                     | 0.52 | 2.0          | -1.48         |
| 16      | 462.5750           | 27.1                     | 0.52 | 2.0          | -1.48         |
| 17      | 462.6000           | 27.1                     | 0.52 | 2.0          | -1.48         |
| 18      | 462.6250           | 27.1                     | 0.52 | 2.0          | -1.48         |
| 19      | 462.6500           | 27.1                     | 0.52 | 2.0          | -1.48         |
| 20      | 462.6750           | 27.1                     | 0.52 | 2.0          | -1.48         |
| 21      | 462.7000           | 27.1                     | 0.52 | 2.0          | -1.48         |
| 22      | 462.7250           | 27.1                     | 0.52 | 2.0          | -1.48         |

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

Test Engineer: Ken Sit

Date of Test: July 9-August 31, 2004

**EXHIBIT 4**

**MODULATION CHARACTERISTICS**

## INTERTEK TESTING SERVICES

---

### 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

---

## INTERTEK TESTING SERVICES

---

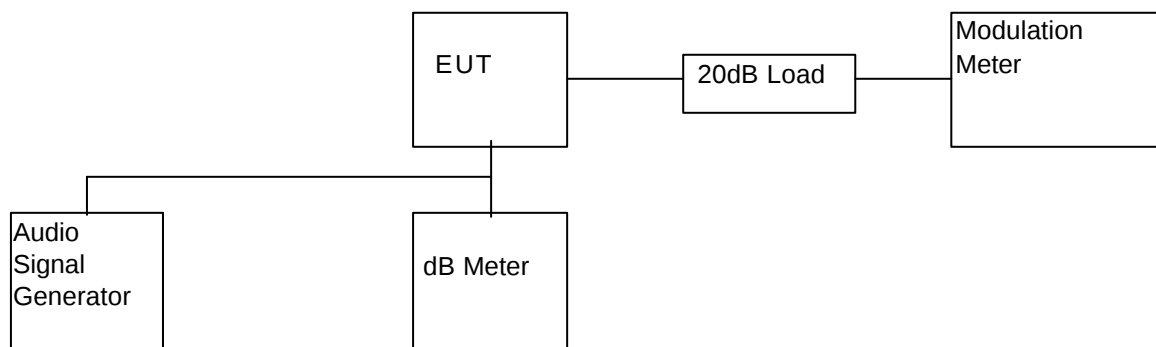
### 4.1 Modulation Frequency Response

#### A. Test Equipment

| Equipment              | Brand Name         | Model No.  |
|------------------------|--------------------|------------|
| Audio Signal Generator | Leader             | LFG-1300S  |
| dB meter               | Leader             | LMV-182A   |
| 20 dB RF Load          | Bird               | 8304-200-N |
| Modulation Meter       | Marconi Instrument | 2945       |

#### 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 104dB SPL at the microphone of the EUT.
- 3) The frequency of the audio signal generator is changed from 300Hz to 5kHz.
- 4) Record the frequency deviation.

---

## INTERTEK TESTING SERVICES

---

### C. Test Result

Table 2

Giant Electronics Limited  
Giant T8270D

### Modulation Frequency Response

Test Channel : 4

Input level = 104dB SPL

| Modulation Frequency (Hz) | Modulation index (%) |
|---------------------------|----------------------|
| 300                       | 0.12                 |
| 400                       | 0.12                 |
| 500                       | 0.19                 |
| 600                       | 0.32                 |
| 700                       | 0.65                 |
| 800                       | 0.86                 |
| 900                       | 0.84                 |
| 1000                      | 1.02                 |
| 1250                      | 0.82                 |
| 1500                      | 0.48                 |
| 1750                      | 0.22                 |
| 2000                      | 0.32                 |
| 2250                      | 0.47                 |
| 2500                      | 0.50                 |
| 2750                      | 0.41                 |
| 3000                      | 0.31                 |
| 3125                      | 0.31                 |
| 3250                      | 0.21                 |
| 3500                      | 0.14                 |
| 4000                      | 0.04                 |
| 5000                      | 0.00                 |

Test Engineer: Ken Sit

Date of Test: July 9-August 31, 2004

---

## INTERTEK TESTING SERVICES

---

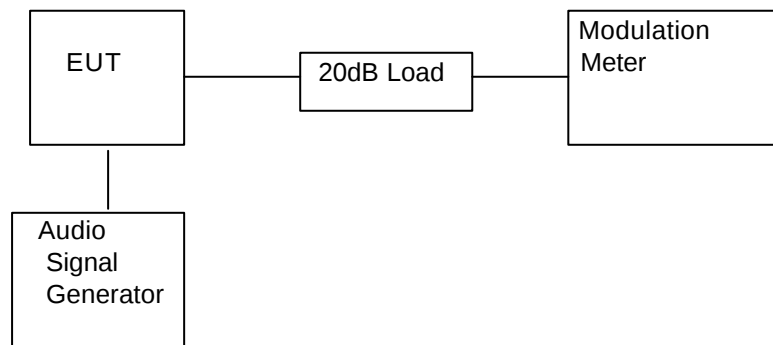
### 4.2 Modulation Limiting Characteristics (Section 2.1047(b))

#### A. Test Equipment

| Equipment              | Brand Name | Model No.  |
|------------------------|------------|------------|
| Audio Signal Generator | Leader     | LFG-1300S  |
| 20 dB RF Load          | Bird       | 8304-200-N |
| Modulation Meter       | Marconi    | 2950       |

#### 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 47dB SPL to 137dB SPL.
- 3) Record the maximum value of plus or minus peak frequency deviation.
- 4) Repeat the above procedure with frequency 1000Hz, 2500Hz & 3125Hz.

---

## INTERTEK TESTING SERVICES

---

### C. Test Result

Table 3

Giant Electronics Limited  
Giant T8270D

#### Modulation Limiting Characteristics

Test Channel : 4

| Modulation<br>Input<br>(dBSPL) | Peak Frequency<br>Deviation (kHz)<br>at 500Hz | Peak Frequency<br>Deviation (kHz)<br>at 1000Hz | Peak Frequency<br>Deviation (kHz)<br>at 2500Hz | Peak Frequency<br>Deviation (kHz)<br>at 3125Hz |
|--------------------------------|-----------------------------------------------|------------------------------------------------|------------------------------------------------|------------------------------------------------|
| 47                             | 0.01                                          | 0.01                                           | 0.01                                           | 0.01                                           |
| 57                             | 0.01                                          | 0.01                                           | 0.01                                           | 0.01                                           |
| 67                             | 0.01                                          | 0.02                                           | 0.02                                           | 0.02                                           |
| 77                             | 0.01                                          | 0.04                                           | 0.04                                           | 0.04                                           |
| 87                             | 0.02                                          | 0.14                                           | 0.17                                           | 0.13                                           |
| 97                             | 0.06                                          | 0.64                                           | 0.77                                           | 0.62                                           |
| 107                            | 0.34                                          | 1.83                                           | 1.70                                           | 1.35                                           |
| 117                            | 1.43                                          | 2.04                                           | 1.75                                           | 1.22                                           |
| 127                            | 2.17                                          | 2.02                                           | 1.78                                           | 1.21                                           |
| 137                            | 2.15                                          | 1.91                                           | 1.88                                           | 1.32                                           |

Test Engineer: Ken Sit

Date of Test: July 9-August 31, 2004

---

## INTERTEK TESTING SERVICES

---

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

#### A. Test Equipment

| Equipment              | Brand Name | Model No. |
|------------------------|------------|-----------|
| Audio Signal Generator | Leader     | LFG-1300S |
| dB meter               | 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:

$$low\ pass\ filter\ response = LEV_{FREQ} - LEV_{REF}$$

- 1) 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.

## **INTERTEK TESTING SERVICES**

---

### **EXHIBIT 5**

### **OCCUPIED BANDWIDTH**

---

## INTERTEK TESTING SERVICES

---

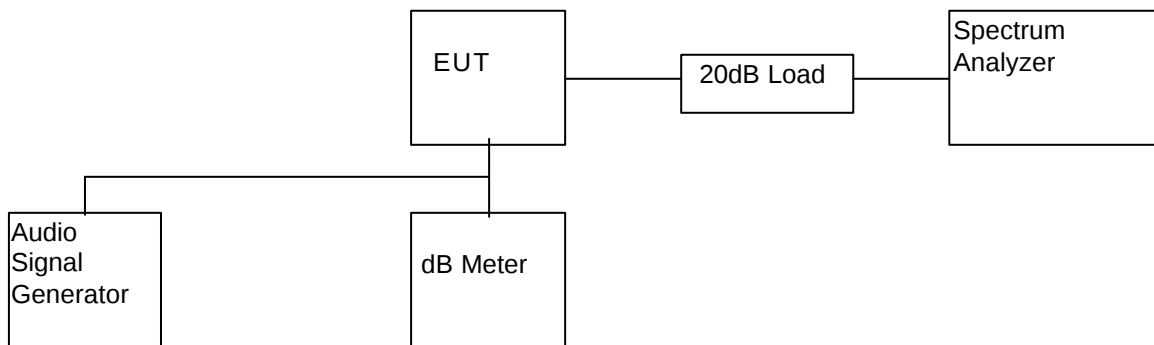
### 5.0 Occupied Bandwidth (Section 95.633(c))

#### A. Test Equipment

| Equipment              | Brand Name      | Model No.  |
|------------------------|-----------------|------------|
| Audio Signal Generator | Leader          | LFG-1300S  |
| dB meter               | Leader          | LMV-182A   |
| 20 dB RF Load          | Bird            | 8304-200-N |
| Spectrum Analyzer      | Hewlett Packard | 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 10.35 kHz.

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

Test Engineer: Ken Sit

Date of Test: July 9-August 31, 2004

## **INTERTEK TESTING SERVICES**

---

### **EXHIBIT 6**

### **SPURIOUS EMISSION**

## INTERTEK TESTING SERVICES

---

### 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.

---

## INTERTEK TESTING SERVICES

---

### 6.1 Field Strength of Spurious Radiation (Section 95.635)

#### A. Test Equipment

| Equipment     | Brand Name      | Model No.         |
|---------------|-----------------|-------------------|
| Antenna       | EMCO            | 3148, 3104C, 3115 |
| Test receiver | Rohde & Schwarz | ESVS30            |
| RF Filter     | Tailithic       | 3VF               |

#### 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.

## INTERTEK TESTING SERVICES

---

### **C. Radiated Emission Configuration Photograph**

#### Worst Case Radiated Emission

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

---

## INTERTEK TESTING SERVICES

---

### C. Test Result

**Giant Electronics Limited  
Giant T8270D**

**Table 4(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      |

---

## INTERTEK TESTING SERVICES

---

Table 4(b): Channel 4

| Frequency<br>(MHz) | Effective<br>Radiated<br>Power<br>(dBm) | Transmission<br>Power<br>(dBm) | Attenuation<br>(dB) | Limit<br>(dB) | Margin<br>(dB) |
|--------------------|-----------------------------------------|--------------------------------|---------------------|---------------|----------------|
| 231.319            | -54.3                                   | 27.1                           | 81.4                | 40.1          | -41.3          |
| 693.956            | -33.8                                   | 27.1                           | 60.9                | 40.1          | -20.8          |
| 925.274            | -32.1                                   | 27.1                           | 59.2                | 40.1          | -19.1          |
| 1156.593           | -24.2                                   | 27.1                           | 51.3                | 40.1          | -11.2          |
| 1387.911           | -26.3                                   | 27.1                           | 53.4                | 40.1          | -13.3          |
| 1619.230           | -24.5                                   | 27.1                           | 51.6                | 40.1          | -11.5          |
| 1850.548           | -35.3                                   | 27.1                           | 62.4                | 40.1          | -22.3          |
| 2081.867           | -34.7                                   | 27.1                           | 61.8                | 40.1          | -21.7          |
| 2313.185           | -40.2                                   | 27.1                           | 67.3                | 40.1          | -27.2          |
| 2544.504           | -32.4                                   | 27.1                           | 59.5                | 40.1          | -19.4          |
| 2775.822           | -39.6                                   | 27.1                           | 66.7                | 40.1          | -26.6          |
| 3007.141           | -39.2                                   | 27.1                           | 66.3                | 40.1          | -26.2          |
| 3238.459           | -46.1                                   | 27.1                           | 73.2                | 40.1          | -33.1          |
| 3469.776           | -47.1                                   | 27.1                           | 74.2                | 40.1          | -34.1          |
| 3701.096           | -44.6                                   | 27.1                           | 71.7                | 40.1          | -31.6          |
| 3932.416           | -50.6                                   | 27.1                           | 77.7                | 40.1          | -37.6          |
| 4163.733           | -38.5                                   | 27.1                           | 65.6                | 40.1          | -25.5          |
| 4395.052           | -47.1                                   | 27.1                           | 74.2                | 40.1          | -34.1          |
| 4626.370           | -50.6                                   | 27.1                           | 77.7                | 40.1          | -37.6          |

- Remark: 1. Transmission power is 27.1 dBm or -2.9 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 40.1 dB.
3. The test is performed according to ANSI/TIA/EIA-603-1992.

Test Engineer: Ken Sit

Date of Test: July 9-August 31, 2004

---

## INTERTEK TESTING SERVICES

---

Table 4(b): Channel 11

| Frequency<br>(MHz) | Effective<br>Radiated<br>Power<br>(dBm) | Transmission<br>Power<br>(dBm) | Attenuation<br>(dB) | Limit<br>(dB) | Margin<br>(dB) |
|--------------------|-----------------------------------------|--------------------------------|---------------------|---------------|----------------|
| 233.818            | -53.1                                   | 22.4                           | 75.5                | 35.4          | -40.1          |
| 701.454            | -37.1                                   | 22.4                           | 59.5                | 35.4          | -24.1          |
| 935.272            | -32.3                                   | 22.4                           | 54.7                | 35.4          | -19.3          |
| 1169.090           | -31.0                                   | 22.4                           | 53.4                | 35.4          | -18.0          |
| 1402.908           | -25.2                                   | 22.4                           | 47.6                | 35.4          | -12.2          |
| 1636.726           | -21.1                                   | 22.4                           | 43.5                | 35.4          | -8.1           |
| 1870.544           | -34.3                                   | 22.4                           | 56.7                | 35.4          | -21.3          |
| 2104.362           | -34.1                                   | 22.4                           | 56.5                | 35.4          | -21.1          |
| 2338.180           | -41.1                                   | 22.4                           | 63.5                | 35.4          | -28.1          |
| 2571.998           | -32.2                                   | 22.4                           | 54.6                | 35.4          | -19.2          |
| 2805.816           | -38.7                                   | 22.4                           | 61.1                | 35.4          | -25.7          |
| 3039.634           | -39.1                                   | 22.4                           | 61.5                | 35.4          | -26.1          |
| 3273.452           | -47.3                                   | 22.4                           | 69.7                | 35.4          | -34.3          |
| 3507.270           | -47.0                                   | 22.4                           | 69.4                | 35.4          | -34.0          |
| 3741.088           | -49.1                                   | 22.4                           | 71.5                | 35.4          | -36.1          |
| 3974.906           | -51.1                                   | 22.4                           | 73.5                | 35.4          | -38.1          |
| 4208.724           | -39.1                                   | 22.4                           | 61.5                | 35.4          | -26.1          |
| 4442.542           | -46.2                                   | 22.4                           | 68.6                | 35.4          | -33.2          |
| 4676.360           | -50.6                                   | 22.4                           | 73.0                | 35.4          | -37.6          |

- Remark: 1. Transmission power is 22.4 dBm or -7.6 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 35.4 dB.
3. The test is performed according to ANSI/TIA/EIA-603-1992.

Test Engineer: Ken Sit

Date of Test: July 9-August 31, 2004

## **INTERTEK TESTING SERVICES**

---

### **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.

---

## INTERTEK TESTING SERVICES

---

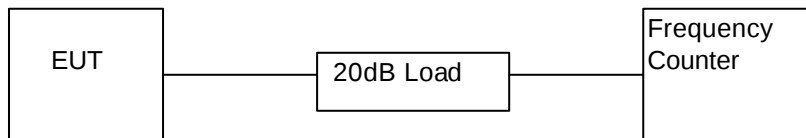
### 7.1 Frequency Tolerance (Section 95.627)

#### A. Test Equipment

| Equipment              | Brand Name | Model No.  |
|------------------------|------------|------------|
| Regulated Power Supply | PAD        | 30-35L     |
| 20 dB RF Load          | Bird       | 8304-200-N |
| Frequency Counter      | Phillips   | PM6668     |

#### B. Testing Procedure

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



- 2) Measure all transmit channel frequencies in MHz.

---

## INTERTEK TESTING SERVICES

---

### C. Test Result

Table 5

Giant Electronics Limited  
Giant T8270D

#### Frequency Tolerance

| Channel | Frequency (MHz) | Measured Frequency (MHz) | Tolerance (%) |
|---------|-----------------|--------------------------|---------------|
| 1       | 462.5625        | 462.56260                | 0.000022      |
| 2       | 462.5875        | 462.58763                | 0.000028      |
| 3       | 462.6125        | 462.61250                | 0.000000      |
| 4       | 462.6375        | 462.63765                | 0.000032      |
| 5       | 462.6625        | 462.66275                | 0.000054      |
| 6       | 462.6875        | 462.68783                | 0.000071      |
| 7       | 462.7125        | 462.71305                | 0.000119      |
| 8       | 467.5625        | 467.56298                | 0.000103      |
| 9       | 467.5875        | 467.58805                | 0.000118      |
| 10      | 467.6125        | 467.61310                | 0.000128      |
| 11      | 467.6375        | 467.63820                | 0.000150      |
| 12      | 467.6625        | 467.66275                | 0.000053      |
| 13      | 467.6875        | 467.68750                | 0.000000      |
| 14      | 467.7125        | 467.71250                | 0.000000      |
| 15      | 462.5500        | 462.55013                | 0.000028      |
| 16      | 462.5750        | 462.57513                | 0.000028      |
| 17      | 462.6000        | 462.60000                | 0.000000      |
| 18      | 462.6250        | 462.62513                | 0.000028      |
| 19      | 462.6500        | 462.64995                | -0.000011     |
| 20      | 462.6750        | 462.67500                | 0.000000      |
| 21      | 462.7000        | 462.70000                | 0.000000      |
| 22      | 462.7250        | 462.72500                | 0.000000      |

## INTERTEK TESTING SERVICES

---

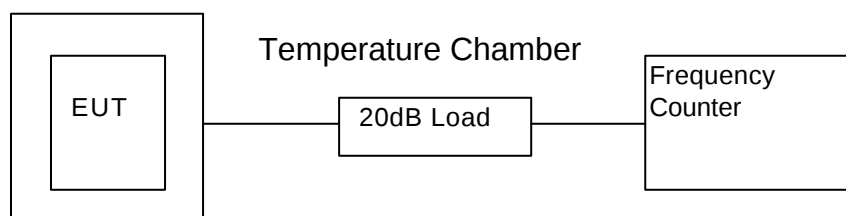
### 7.2 Frequency Stability - Temperature (Section 2.1055)

#### A. Test Equipment

| Equipment         | Brand Name | Model No.  |
|-------------------|------------|------------|
| 20 dB RF Load     | Bird       | 8304-200-N |
| Frequency Counter | Phillips   | PM6668     |

#### 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 -20°C to 50°C with 10°C increment.

---

## INTERTEK TESTING SERVICES

---

### C. Test Result

Table 6(a)

Giant Electronics Limited  
Giant T8270D

#### Frequency Deviation with Temperature Variation

Channel : 4

| Temperature<br>(°C) | Assigned<br>Frequency<br>(MHz) | Measured<br>Frequency<br>(MHz) | Deviation<br>(%) | Frequency Tolerance with<br>reference to its value at +20°C<br>(ppm) |
|---------------------|--------------------------------|--------------------------------|------------------|----------------------------------------------------------------------|
| -20                 | 462.6375                       | 462.63730                      | -0.000043        | -0.8                                                                 |
| -10                 | 462.6375                       | 462.63810                      | 0.000130         | 1.0                                                                  |
| 0                   | 462.6375                       | 462.63850                      | 0.000216         | 1.8                                                                  |
| 10                  | 462.6375                       | 462.63855                      | 0.000227         | 1.9                                                                  |
| 20                  | 462.6375                       | 462.63765                      | 0.000032         | 0.0                                                                  |
| 30                  | 462.6375                       | 462.63763                      | 0.000028         | 0.0                                                                  |
| 40                  | 462.6375                       | 462.63690                      | -0.000130        | -1.6                                                                 |
| 50                  | 462.6375                       | 462.63760                      | 0.000022         | -0.1                                                                 |

Test Engineer: Ken Sit

Date of Test: July 9-August 31, 2004

---

## INTERTEK TESTING SERVICES

---

### C. Test Result

**Table 6(b)**

**Giant Electronics Limited  
Giant T8270D**

### **Frequency Deviation with Temperature Variation**

Channel : 11

| Temperature<br>(°C) | Assigned<br>Frequency<br>(MHz) | Measured<br>Frequency<br>(MHz) | Deviation<br>(%) | Frequency Tolerance with<br>reference to its value at +20°C<br>(ppm) |
|---------------------|--------------------------------|--------------------------------|------------------|----------------------------------------------------------------------|
| -20                 | 467.6375                       | 467.63755                      | 0.000011         | -1.4                                                                 |
| -10                 | 467.6375                       | 467.63810                      | 0.000128         | -0.2                                                                 |
| 0                   | 467.6375                       | 467.63850                      | 0.000214         | 0.6                                                                  |
| 10                  | 467.6375                       | 467.63858                      | 0.000231         | 0.8                                                                  |
| 20                  | 467.6375                       | 467.63820                      | 0.000150         | 0.0                                                                  |
| 30                  | 467.6375                       | 467.63763                      | 0.000028         | -1.2                                                                 |
| 40                  | 467.6375                       | 467.63705                      | -0.000096        | -2.5                                                                 |
| 50                  | 467.6375                       | 467.63755                      | 0.000011         | -1.4                                                                 |

Test Engineer: Ken Sit

Date of Test: July 9-August 31, 2004

## INTERTEK TESTING SERVICES

---

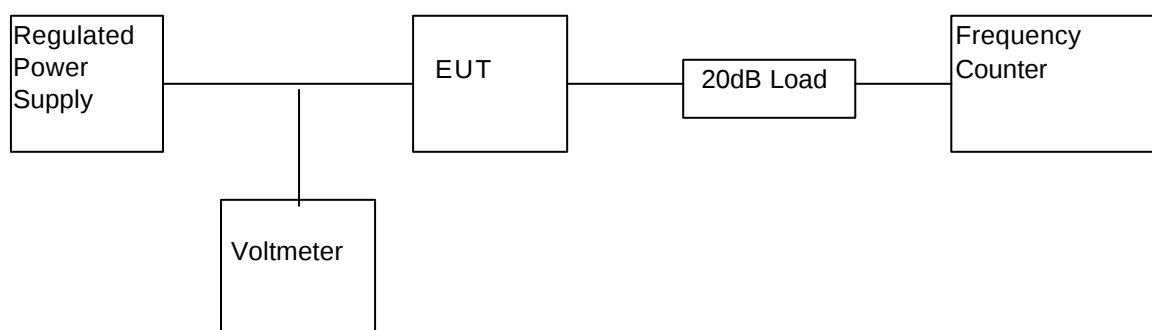
### 7.3 Frequency Stability - Voltage (Section 2.995)

#### A. Test Equipment

| Equipment              | Brand Name | Model No.  |
|------------------------|------------|------------|
| Regulated Power Supply | PAD        | 30-35L     |
| 20 dB RF Load          | Bird       | 8304-200-N |
| Voltage meter          | Fluke      | 87         |
| Frequency Counter      | Phillips   | PM6668     |

#### 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.

---

## INTERTEK TESTING SERVICES

---

### C. Test Result

**Table 7**

**Giant Electronics Limited  
Giant T8270D**

#### **Frequency Deviation with Voltage Variation**

The manufacturer specified battery end point 3.5V

| Channel | Frequency<br>(MHz) | Measured<br>Frequency (MHz) | Tolerance<br>(%) |
|---------|--------------------|-----------------------------|------------------|
| 4       | 462.6375           | 462.63789                   | 0.000084         |
| 11      | 467.6375           | 467.63793                   | 0.000092         |

**INTERTEK TESTING SERVICES**

---

**EXHIBIT 8**

**TECHNICAL SPECIFICATIONS**

## INTERTEK TESTING SERVICES

---

### 8.0 Technical Specifications

## INTERTEK TESTING SERVICES

---

### 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

## **INTERTEK TESTING SERVICES**

---

### **EXHIBIT 9**

### **PRODUCT LABELLING**

9.0 Product Labelling

## INTERTEK TESTING SERVICES

---

### 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

## **INTERTEK TESTING SERVICES**

---

### **EXHIBIT 10**

### **PHOTOGRAPHS**

## INTERTEK TESTING SERVICES

---

### 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**

## INTERTEK TESTING SERVICES

---

### 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

## **INTERTEK TESTING SERVICES**

---

### **EXHIBIT 12**

### **TUNE UP PROCEDURE**

## INTERTEK TESTING SERVICES

---

### 12.0 Tune Up Procedure

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

## **INTERTEK TESTING SERVICES**

---

### **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 4.5V is 0.65A.

**EXHIBIT 15**

**RF EXPOSURE INFO**

## INTERTEK TESTING SERVICES

---

### 15.0 RF Exposure Info

The RF Safety Information is shown on P.2-P.4 of User Manual.

**INTERTEK TESTING SERVICES**

---

**EXHIBIT 16**

**CONFIDENTIALITY REQUEST**

## INTERTEK TESTING SERVICES

---

### 16.0 Confidentiality Request

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