



RadioShack Corporation

Application
For
Certification
(FCC ID: AAO2101679A)

Handheld CB Radio with Weather Alert

07240172
TL/ ac
December 3, 2007

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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

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LIST OF EXHIBITS

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MEASUREMENT/TECHNICAL REPORT

RadioShack Corporation - MODEL: 21-1679 [A]

FCC ID: AAO2101679A

December 3, 2007

This report concerns (check one:) Original Grant <input checked="" type="checkbox"/> Class II Change <input type="checkbox"/>	
Equipment Type: <u>CXX- Communications Rcvr for use w/ licensed Tx and CBS</u>	
Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
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.	
Transition Rules Request per 15.37? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [05-04-07 Edition] provision.	
Report prepared by:	Leung Wai Leung, Tommy Intertek Testing Services Hong Kong Ltd. 2/F., Garment Center, 576, Castle Peak Road, Kowloon, Hong Kong. Phone: 852-2173-8538 Fax: 852-2741-1693
	

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List of attached file

Exhibit type	File Description	filename
Test Report	Test Report	report.pdf
Operation Description	Technical Description	descri.pdf
Test Setup Photo	Radiated and Conducted Emission	config photos.pdf
Test Report	Conducted Emission Test Result	conduct.pdf
External Photo	External Photo	external photos.doc
Internal Photo	Internal Photo	internal photos.doc
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

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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 40 Channel mobile Citizen Band (CB) transceiver with 7 channels weather receiver. The CB Radio receives and transmits between 26.965 MHz and 27.405 MHz, while, it, additionally, can receive weather service between 162.400 MHz and 162.550 MHz. The EUT is powered by 12 Vdc.

Antenna Type : BNC Connector, External

For electronic filing, 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 CB Transceiver. The receiver section of this Transceiver and digital device portion are subject to verification process.

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1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003). All measurements 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 for maximizing emissions in Appendices D and E were followed. All Radiated tests were performed at an antenna to 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. This 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 system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.4 (2003).

The EUT was powered by a "Ni-Cd" type rechargeable battery.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The unit was operated standalone and placed in the center of the turntable.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was placed on turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes. For simplicity of testing, the unit was wired to transmit continuously.

All relevant operation modes have been tested, and the worst case data is included in this report.

The frequency range from the lowest radio frequency signal generated in the device which is greater than 9kHz to 500MHz 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.

2.3 Special Accessories

There are no special accessories necessary for compliance of this product.

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2.4 Equipment Modification

Any modifications installed previous to testing by RadioShack Corporation will be incorporated in each production model sold/leased in the United States.

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

2.5 Measurement Uncertainty

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

Uncertainty and Compliance - Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

2.6 Support Equipment List and Description

This product was tested in a standalone configuration.

DC Power Supply, Model: GPS-3030 (Supplied by Intertek)

Car Plug Adaptor (Supplied by Client)

All the items listed under section 2.0 of this report are

Confirmed by:

*Leung Wai Leung, Tommy
Senior Manager
Intertek Testing Services Hong Kong Ltd.
Agent for RadioShack Corporation*



_____ Signature

December 3, 2007 Date

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EXHIBIT 3
EMISSION RESULTS

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3.0 Emission Results

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.

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3.1 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 dB μ V/m

RA = Receiver Amplitude (including preamplifier) in dB μ V

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:

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

Assume a receiver reading of 62.0 dB μ V 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 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

$$RA = 62.0 \text{ dB}\mu\text{V}$$

$$AF = 7.4 \text{ dB}$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$PD = 0 \text{ dB}$$

$$AV = -10 \text{ dB}$$

$$FS = 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32 \text{ dB}\mu\text{V/m}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm} [(32 \text{ dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m}$$

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3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
at
162.020 MHz

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

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3.3 Radiated Emission Data

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 11.1 dB

TEST PERSONNEL:



Signature

Ken Sit, Supervisor

Typed/Printed Name

December 3, 2007

Date

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Company: RadioShack Corporation
Model: 21-1679 [A]
Mode: Weather Band (Channel 04)

Date of Test: November 19-30, 2007

Table 1

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre- Amp (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
V	162.020	32.4	16	16.0	32.4	43.5	-11.1
V	324.040	25.6	16	24.0	33.6	46.0	-12.4
V	486.060	24.0	16	26.0	34.0	46.0	-12.0
V	648.080	21.2	16	29.0	34.2	46.0	-11.8
V	810.100	19.8	16	31.0	34.8	46.0	-11.2
V	972.120	18.0	16	33.0	35.0	54.0	-19.0

- NOTES:
1. Peak detector is used for the emission measurement.
 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative value in the margin column shows emission below limit.

Test Engineer: Ken Sit

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3.4 Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration
at
0.245 MHz

For electronic filing, the worst case line-conducted configuration photograph are saved with filename: config photos.doc.

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3.5 Conducted Emission Data

The data on the following pages list the significant emission frequencies, the limit, and the margin of compliance.

Judgement: Passed by 2.5 dB

For electronic filing, the graph and data table of conducted emission is saved with filename: conduct.pdf.

TEST PERSONNEL:



Signature

Ken Sit, Supervisor
Typed/Printed Name

December 3, 2007
Date

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EXHIBIT 4

EQUIPMENT PHOTOGRAPHS

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4.0 Equipment Photographs

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

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EXHIBIT 5

PRODUCT LABELLING

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5.0 **Product Labelling**

For electronic filing, the FCC ID label artwork and the label location are saved with filename: label.pdf.

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EXHIBIT 6

TECHNICAL SPECIFICATIONS

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6.0 Technical Specifications

For electronic filing, the block diagram and schematics of the tested EUT are saved with filename: block.pdf and circuit.pdf respectively.

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EXHIBIT 7
INSTRUCTION MANUAL

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7.0 Instruction Manual

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

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

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EXHIBIT 8
CONFIDENTIALITY REQUEST

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8.0 Confidentiality Request

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