

Evenflo Company, Inc.

Application
For
Certification
(FCC ID: EHK900646RTRIA)

900MHz Transceiver

04077421(S1)
TL/ Ann Choy
June 29, 2004

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LIST OF EXHIBITS

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MEASUREMENT/TECHNICAL REPORT

Evenflo Company, Inc. - MODEL: 6461600
FCC ID: EHK900646RTRIA

June 29, 2004

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

Equipment Type: DXT

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.

Transition Rules Request per 15.37? Yes _____ No X

If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [12-08-03 Edition] provision.

Report prepared by:

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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 Emission	radiated photos.pdf
Test Setup Photo	Conducted Emission	conducted photos.pdf
Test Report	Conducted Emission Test Result	conduct.pdf
Test Report	Emission Plot	emission.pdf
External Photo	External Photo	external photos.pdf
Internal Photo	Internal Photo	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
ID Label/Location	Label Artwork and Location	label.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 Transceiver operating at 902.5MHz and 903.3MHz. The EUT is powered by 120VAC to 6VDC 150mA adaptor or 3.6VDC 600mAh Ni-MH rechargeable battery. It is a parent unit of RF Baby Monitor System with Walkie-talkie feature, and it has a channel switch for selecting channel A or B. It receives a baby's voice to corresponding baby unit with the same channel selection. During the Walkie-talkie mode, it transmit a parent's voice to the corresponding baby unit, another parent unit, or both by pressing a baby Talk button, a parent Talk button, or both buttons respectively.

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 a transmitter. The baby unit, has FCC ID: EHK900646TTRIA and has been filed at the same time. The receivers are subject to the verification authorization process, in accordance with 15.101(b). A verification report has been prepared for the receiver sections of each device.

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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 (2001). 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 (2001).

The EUT was powered by 120VAC to 6VDC 150mA adaptor (Model: KU28-6-150D).

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.

The frequency range from the lowest radio frequency signal generated in the device which is greater than 9kHz to 10GHz was searched for spurious emissions from the device. Only those emissions reported were detected. All other emissions were at least 20 dB below the applicable limits.

2.2 EUT Exercising Software

There was no special software to exercise the device. Once the button is depressed, the unit transmits the typical signal. For simplicity of testing, the unit was wired to transmit continuously.

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 Evenflo Company, Inc. will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services.

2.5 Measurement Uncertainty

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

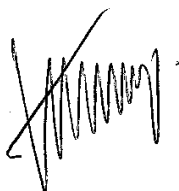
2.6 Support Equipment List and Description

This product was tested in a standalone configuration.

All the items listed under section 2.0 of this report are

Confirmed by:

*Tommy Leung
Supervisor
Intertek Testing Services Hong Kong Ltd.
Agent for Evenflo Company, Inc.*



Signature

June 29, 2004 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:

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

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3.1 Field Strength Calculation (cont'd)

Example

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
903.300 MHz

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

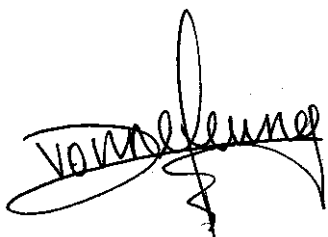
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3.3 Radiated Emission Data

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 3.9 dB

TEST PERSONNEL:



Signature

Yvonne Leung, Engineer
Typed/Printed Name

June 29, 2004
Date

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Company: Evenflo Company, Inc.
Model: 6461600

Date of Test: May 6-21, 2004

Table 1

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB μ V)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
V	903.300	95.7	33.0	16	90.1	94	-3.9
V	1806.600	76.2	27.2	34	42.9	54	-11.1
V	*2709.900	74.3	30.4	34	41.6	54	-12.4
V	*3613.200	74.7	33.3	34	41.2	54	-12.8
V	*4516.500	73.7	34.9	34	40.6	54	-13.4

Notes: 1. Peak Detector Data unless otherwise stated.

2. All measurements were made at 3 meter. Harmonic 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 harmonic 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.

4. Horn antenna and average detector are used for the emission over 1000MHz.

* Emission within the restricted band fulfil the requirement of Section 15.209. The corresponding limit as Section 15.209 is based on Quasi peak detector data for frequencies below 1000 MHz and average detector data for frequencies over 1000 MHz.

Test Engineer: Yvonne Leung

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3.4 Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration

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

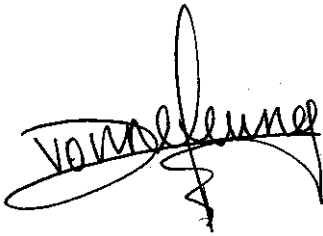
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3.5 Conducted Emission Data

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

Judgement: Passed by more than 20 dB

TEST PERSONNEL:



Signature

Yvonne Leung, Engineer
Typed/Printed Name

June 29, 2004
Date

3.6 Radiated Emission on the bandedge

For electronic filing, the plot shows the fundamental emission when modulated with 1kHz and 100 dBSPL, 10cm from the Microphone of EUT and unmodulated. From the plot, the field strength of any emissions appearing between the band edges and up to 10kHz above and below the band edges are attenuated at least 50dB below the level of the unmodulated carrier. It fulfils the requirement of 15.249(d).

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Emission Plot

For electronic filing, the emission plots are saved with filename: emission.pdf

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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.