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TEST REPORT

Report No.: 14091179HKG-002

Binatone Electronics International Ltd.

Application
For
Certification
(Original Grant)
(FCC ID: VLJ-T25C)

Receiver

Prepared and Checked by:

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Date: December 01, 2014

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GENERAL INFORMATION

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Manufacturer:	Foshan Shunde Alford Electronics Co. Ltd
Manufacturer Address:	Xinjiao Industrial Park, DaLiang, ShunDe, Foshan City, Guangdong Province, China
Brand Name:	Motorola
Model:	SCOUTTRAINER25CU
Type of EUT:	Superheterodyne Receiver
Description of EUT:	Pet Training Product
Serial Number:	N/A
FCC ID:	VLJ-T25C
Date of Sample Submitted:	September 29, 2014
Date of Test:	September 30, 2014 to November 12, 2014
Report No.:	14091179HKG-002
Report Date:	December 01, 2014
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

SUMMARY OF TEST RESULT

TEST SPECIFICATION	REFERENCE	RESULTS
Receiver / Digital Device Radiated Emissions	15.109	Pass

The equipment under test is found to be complying with the following standards:
FCC Part 15, October 1, 2012 Edition

Table of Contents

1.0 General Description

1.1 Product Description

The Equipment Under Test (EUT) is a wireless collar unit of pet training system. It operates at frequency of 434MHz. The device was powered by a new 3.0V CR2032 battery.

Antenna Type: Internal, Integral

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

1.2 Related Submittal(s) Grants

This is a single application for certification of a receiver.

1.3 Test Methodology

Radiated emission measurements was performed according to the procedures in ANSI C63.4 (2009). Preliminary scans were performed to determine worst case modes. 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 radiated measurement facility used to collect the radiated data is located at 6/F., Block D, Huahan Building, Langshan Road, Nanshan District, Shenzhen, China 518057. This test facility and site measurement data have been placed on file with the FCC.

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 (2009).

The device was powered by a new 3.0V CR2032 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 mounted to a plastic stand if necessary and placed on the wooden turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

2.2 EUT Exercising Software

There was no special software to exercise the device. Once the unit is powered up, it receives the RF signal continuously until key released.

2.3 Special Accessories

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

2.4 Measurement Uncertainty

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

2.5 Support Equipment List and Description

N/A.

3.0 Emission Results

Data is included of the 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.

3.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any), Average Factor (optional) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG - 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
AV = Average Factor in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

FS = RR + LF

where FS = Field Strength in dBµV/m
RR = RA - AG - AV in dBµV
LF = CF + AF in dB

Assume a receiver reading of 52.0 dBµV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB are added. The amplifier gain of 29 dB and average factor of 5 dB are subtracted, giving a field strength of 27 dBµV/m. This value in dBµV/m was converted to its corresponding level in µV/m.

RA = 52.0 dBµV/m
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
AV = 5.0 dB
RR = 18.0 dBµV
LF = 9.0 dB
FS = RR + LF
FS = 18 + 9 = 27 dBµV/m

Level in µV/m = Common Antilogarithm [(27 dBµV/m)/20] = 22.4 µV/m

3.2 Radiated Emission Configuration Photograph

The worst case in radiated emission was found at 312.360 MHz

For electronic filing, the worst case radiated emission configuration photographs are saved with filename: radiated photos.pdf.

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.

Judgment: Passed by 6.3 dB

Applicant: Binatone Electronics International Ltd. Date of Test: November 12, 2014
Model: SCOUTTRAINER25CU
Worst-Case Operating Mode: Rx

Table 1

Radiated Emissions
Pursuant to FCC Part 15 Section 15.109 Requirement

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
V	32.231	28.2	16	10.0	22.2	40.0	-17.8
V	90.780	28.3	16	11.0	23.3	43.5	-20.2
V	257.812	18.1	16	21.0	23.1	46.0	-22.9
H	272.909	29.1	16	22.0	35.1	46.0	-10.9
H	312.360	32.7	16	23.0	39.7	46.0	-6.3
H	332.810	25.6	16	24.0	33.6	46.0	-12.4

NOTES: 1. Peak Detector Data unless otherwise stated.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances 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 sign in the column shows value below limit.

4. Horn antenna is used for the emission over 1000MHz.

4.0 Equipment Photographs

For electronic filing, the photographs are saved with filename: external photos.pdf and internal photos.pdf.

5.0 Product Labelling

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

6.0 Technical Specifications

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

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.

8.0 Miscellaneous Information

This miscellaneous information includes details of the test procedure.

8.1 Discussion of Pulse Desensitization

This device is a Superheterodyne receiver. No desensitization of the measurement equipment is required as the received signals are continuously.

8.2 Calculation of Average Factor

This device is a Superheterodyne receiver. It is not necessary to apply average factor to the measurement result.

8.3 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services Hong Kong Ltd. in the measurements of Superheterodyne receivers operating under the Part 15, Subpart B rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.4 (2009). A typical or an unmodulated CW signal at the operating frequency of the EUT has been supplied to the EUT for all measurements. Such a signal is supplied by a signal generator and an antenna in close proximity to the EUT. The signal level is sufficient to stabilize the local oscillator of the EUT.

The equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter and approximately one meter in height above the groundplane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The antenna height and polarization are also varied during the testing to search for maximum signal levels. The height of the antenna is varied from one to four meters.

Detector function for radiated emissions is in peak mode. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings.

The frequency range scanned is from 30 MHz to 1000 MHz.

8.3 Emissions Test Procedures (cont'd)

The EUT is warmed up for 15 minutes prior to the test.

The IF bandwidth used for measurement of radiated signal strength was 10 kHz for emission below 30 MHz and 120 kHz for emission from 30 MHz to 1000 MHz. Above 1000 MHz, a resolution bandwidth of 1 MHz is used.

Measurements are normally conducted at a measurement distance of three meters. All measurements are extrapolated to three meters using inverse scaling, unless otherwise reported. Measurements taken at a closer distance are so marked.

9.0 **Equipment List**

1) Radiated Emissions Test

Equipment	EMI Test Receiver	Biconical Antenna	Pyramidal Horn Antenna
Registration No.	SZ061-03	SZ061-03	SZ061-07
Manufacturer	R&S	ETS	ETS
Model No.	ESCI	3142C	3160-09
Calibration Date	Mar. 10, 2014	Jun. 28, 2014	Sep. 03, 2014
Calibration Due Date	Mar. 10, 2015	Jun. 28, 2015	Sep. 03, 2015

Equipment	Spectrum Analyzer	Active Loop Antenna	Horn Antenna
Registration No.	SZ056-03	SZ061-06	SZ061-08
Manufacturer	R&S	Electro-Metric	ETS
Model No.	FSV 40	EM-6876	3115
Calibration Date	Jun. 09, 2014	May 13, 2014	Oct. 19, 2014
Calibration Due Date	Jun. 09, 2015	May. 15, 2015	Oct. 19, 2015

2) Bandwidth Measurement

Equipment	Spectrum Analyzer
Registration No.	SZ056-03
Manufacturer	R&S
Model No.	FSV 40
Calibration Date	Jun. 09, 2014
Calibration Due Date	Jun. 09, 2015

END OF TEST REPORT