Resolution Products, Inc.

Wireless Security Sensor and Zwave Repeater
FCC ID: U5X-RE220-LS

Certification Test Report

August 5, 2014

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1. Introduction

The RE220-LS is a device intended for use in a wireless security system. The unit is powered by a 5VDC power supply and is backed up by a rechargeable Li-ion battery. The device measures 9 x 5 x 1.375" and weighs approximately 13.2 ounces.

The device is a dual purpose/dual frequency wireless repeater. The device retransmits security sensor messages for the purpose of alerting a security system on frequency 345MHz. It also retransmits Zwave messages on a Zwave local network on frequency 908.415MHz.

This report pertains to the 908.415MHz frequency transceiver, a DSR Remote Control. A separate report will cover the 345MHz transmitter.

Certification is requested under FCC Rules, Part 15, Subpart C, Paragraph 15.249.

2. Statement of Compliance

Specific sections of FCC Rules Part 2 that require information or listing are given below.

2.1. FCC Part 2 §2.907

This is an application for certification of original equipment

2.2. FCC Part 2 §2.911

a) This application has been filed electronically using form 731.
b) All required information has been supplied in this application and its attachments.
c) This application has been electronically signed by an officer of Resolution Products, Inc.
d) The technical test data has been signed by the agency performing the testing.
e) Signature supplied in appropriate block on form 731.
f) Processing fee has been paid.
g) Signatures have been supplied electronically.

2.3. FCC Part 2 §2.913

a) This application has been filed electronically.
b) Appropriate fees have been filed electronically.
c) Equipment samples shall be supplied as requested.

2.4. FCC Part 2 §2.915

We are requesting a grant of certification. This application shows compliance with the technical standards.

2.5. FCC Part 2 §2.925

A label shall be affixed to each piece of equipment, showing the FCC identifier. The label shall read "FCC ID: U5X-RE220-LS". See Exhibit B for a photograph showing the label and location on the device.

2.6. FCC Part 2 §2.943, 2.945

Sample production equipment shall be submitted to the FCC upon request.

2.7. FCC Part 2 §2.947

a) Measurement procedure follows ANSI C63.4: 2009.
b) A description of utilized test equipment is contained in the report.

2.8. FCC Part 2 §2.948

Radiated measurements were taken at the following FCC-approved facility:
Rhein Tech Laboratories, Inc.
360 Herndon Parkway, Suite 1400
Herndon, VA 20170 USA
Contact: Rick McMurray
703-689-0368

Photographs of the test site are shown in Exhibit J.

2.9. FCC Part 2 §2.1033

a) Form 731 has been filed electronically.
b) The technical report, along with its exhibits, contains the information as follows:
   (1) full name and mailing address of the manufacturer of the device and the applicant for certification:
   Resolution Products, Inc.
   1402 Heggen Street
   Hudson, WI 54016
   (2) FCC Identifier is U5X-RE220-LS
   (3) Copy of the installation/user instructions is furnished as Exhibit E.
   (4) A brief description of the device and operation is furnished in Exhibit F. Schematic is furnished in Exhibit G.
   (5) Block diagram furnished in Exhibit L.
   (6) This document constitutes a technical test report.
   (7) Internal and external photographs have been furnished in Exhibits A and C.
   (8) Not applicable. There are no peripheral or accessory devices used with this device. It is a standalone device.
   (9) This application not pursuant to the transition rules of section 15.37
   (10) Not applicable. This device does not include a scanning receiver.
   (11) Not applicable.
   (12) Not applicable.
c) Not applicable. This device shall operate under Part 15 of the rules.
d) Not applicable.
e) Not applicable. This is not a composite system.

3. Discussion of Laboratory Measurements and Rules Compliance

3.1. FCC Part 15 §15.249(a)

3.1.1. Raw Field Strength Limits

The following field strength limits are specified in §15.249(a) for 908.415Mhz:
Fundamental: 94dBuV/m
Harmonics: 74dBuV/m

3.1.2. Measured Radiated Field Strength Data

Radiated fundamental and spurious emissions were tested at three meters. The EUT was tested in the three orthogonal planes with the receive antenna in both polarities. The emissions were maximized per ANSI C63.4:2003 8.3.1.2; that is, the measurement antenna height was varied between 1 and 4m, and the EUT was rotated through 360 degrees on a rotating turntable until the maximum emissions were found. Both horizontal and vertical measurement antenna polarizations were used. A resolution bandwidth of 100kHz was used for frequencies less than 1000MHz, and a resolution bandwidth of 1MHz was used for frequencies greater than or equal to 1000MHz. The video bandwidth was set to a value at least three times greater than the resolution bandwidth.

Radiated emissions was also performed with both the 908.415 MHz transmitter as well as a co-located 345 MHz transmitter located on the same PCB. No additional emissions were identified as a result of both transmitters transmitting simultaneously.

All spurious emissions in the applicable frequency range were investigated, only harmonic emissions were present as noted in the test report.

The ETU was adapted to continuously transmit for testing purposes.

The fundamental signal 908.415MHz, at 92.7dBuV/m, passed by 1.3dB.
The highest spurious signal was the eighth harmonic, which passed by 21.4dB.
The next highest spurious signal was the third harmonic, which passed by 27.8dB.

Measured radiated field strength data is shown in Exhibit K.

3.2. FCC Part 15 §15.249(d)

§15.249(d) states that all emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuate by at least 50dB below the level of the fundamental or to the general radiated emissions limits in 15.209, which ever is the lesser attenuation. 15.209 is the lesser attenuation in this case. 15.209 states a limit of 200uV/m, or 46dBuV/m.

The measured radiated field strength data is shown in Exhibit K. As stated in Exhibit K, data is presented for all spurious, non-harmonic radiated emissions and complies with 15.209.

3.3. FCC Part 15 §15.207

Conducted line emissions are shown in Exhibit I and show compliance with the limits.