



FOUNTAIN TECHNOLOGIES, INC.

## COMPLIANCE LABORATORY

50 Randolph Rd.  
Somerset, NJ 08873

Tel: (732) 560-9010  
Fax: (732) 560-9173

# ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

of

B/O WIRELESS DOOR CHIME RECEIVER

MODEL: RC3110R

FCC ID: DE4RC3110R

JUNE 18, 1998

This report concerns (check one): Original grant ☒ Class II change ☐  
Equipment type: Superregenerative Receiver

Deferred grant requested per 47 CF 0.457(d)(1)(ii)? yes ☐ no ☒  
If yes, defer until: \_\_\_\_\_ (date)  
Company 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 ☒  
If no, assumed Part 15, Subpart B for unintentional radiators - the new 47 CFR  
[10-1-90 Edition] provision.

Report prepared for: Lamson&Sessions  
Report prepared by: Fountain Compliance Lab  
Report number: 0048-980603-04



The test result in this report IS supported and covered by the NVLAP accreditation

# 1. GENERAL INFORMATION

## 1.1 Verification of Compliance

EUT: B/O WIRELESS DOOR CHIME RECEIVER  
 Model: RC3110R  
 Applicant: LAMSON&SESSIONS  
 Test Type: CERTIFICATION  
 Result: PASS  
 Tested by: FOUNTAIN COMPLIANCE LABORATORY  
 Test Date: 06/11/98  
 Report Number: 0048-980603-04

The above equipment was tested by Fountain Technologies, Inc. Compliance Laboratory for compliance with the requirement set forth in the FCC rules and regulations Part 15, subpart C. This said equipment in the configuration described in the report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

The estimated uncertainty of the test result is given as following. The method of uncertainty calculation is provided in Fountain Compliance Lab. Doc. No. 0048-01-01.

|                                 | Prob. Dist. | Uncertainty(dB) | Uncertainty(dB) | Uncertainty(dB) |
|---------------------------------|-------------|-----------------|-----------------|-----------------|
|                                 |             | 30-1000MHz      | 1-6.5GHz        | Conducted       |
| Combined Std. Uncertainty $u_c$ | norm.       | $\pm 2.36$      | $\pm 2.99$      | $\pm 1.83$      |

  
 Wei Li  
 Lab Manager  
 Fountain Compliance Lab  
 Fountain Technologies, Inc.

8-12-98  
 Date



FOUNTAIN TECHNOLOGIES, INC.

COMPLIANCE LABORATORY

50 Randolph Rd.  
Somerset, NJ 08873

Tel: (732) 560-9010  
Fax: (732) 560-9173

|                                                    |                     |
|----------------------------------------------------|---------------------|
| TO: Ms. Jaunice Green                              | DATE: Aug. 12, 1998 |
| ORGANIZATION: FCC                                  |                     |
| REFERENCE NUMBER: <b>2343</b> / FCC ID: DE4RC3110R |                     |
| TOTAL # PAGES INCLUDING COVER SHEET: 7             |                     |

Dear Ms. Green,

Thank you very much for your attention on our applications. Enclosed please find the correct information of Form 731 and test report for LAMSON&SESSIONS. I appreciate that you could replace the Form 731, Authorization Letter and Page. 1 & Page 4 of the test report with corrected materials.

Should you need more information, please contact me at 732-560-9010.

Regards,

Wei Li  
Manager of FCL

Aug 17 1998

FCC LABORATORY



FOUNTAIN TECHNOLOGIES, INC.

COMPLIANCE LABORATORY

50 Randolph Rd.  
Somerset, NJ 08873

Tel: (732) 560-9010

Fax: (732) 560-9173

---

**ELECTROMAGNETIC EMISSION COMPLIANCE REPORT**

of

B/O WIRELESS DOOR CHIME RECEIVER

MODEL: RC3110R

FCC ID: DE4RC3110R

*JUNE 18, 1998*

This report concerns (check one): Original grant ☒ Class II change ☐  
Equipment type: Superregenerative Receiver

Deferred grant requested per 47 CF 0.457(d)(1)(ii)? yes ☐ no ☒

If yes, defer until: \_\_\_\_\_ (date)

Company 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 ☒

If no, assumed Part 15, Subpart B for unintentional radiators - the new 47 CFR [10-1-90 Edition] provision.

Report prepared for:

LMS ASIA LIMITED

Report prepared by:

Fountain Compliance Lab

Report number:

0048-980603-04



The test result in this report IS supported and covered by the NVLAP accreditation

## Table of Contents

|                                           |           |
|-------------------------------------------|-----------|
| <b>Report Cover Page.....</b>             | <b>1</b>  |
| <b>Table of Contents .....</b>            | <b>2</b>  |
| <b>Figures.....</b>                       | <b>3</b>  |
| <b>1. GENERAL INFORMATION .....</b>       | <b>4</b>  |
| 1.1 Verification of Compliance .....      | 4         |
| 1.2 Equipment Modifications.....          | 5         |
| 1.3 Product Information.....              | 6         |
| 1.4 Test Methodology.....                 | 6         |
| 1.5 Test Facility .....                   | 6         |
| 1.6 Test Equipment .....                  | 7         |
| 1.7 Statement of the Document Use.....    | 7         |
| <b>2. PRODUCT LABELING.....</b>           | <b>8</b>  |
| <b>3. SYSTEM TEST CONFIGURATION .....</b> | <b>9</b>  |
| 3.1 Justification .....                   | 9         |
| 3.2 Special Accessories.....              | 9         |
| 3.3 Configuration of Tested System .....  | 9         |
| <b>4. SYSTEM SCHEMATICS .....</b>         | <b>12</b> |
| <b>5. RADIATED EMISSION DATA.....</b>     | <b>13</b> |
| 5.1 Field Strength Calculation .....      | 13        |
| 5.2 Test Methods and Conditions .....     | 13        |
| 5.3 Test Data .....                       | 13        |
| <b>6. PHOTOS OF TESTED EUT .....</b>      | <b>15</b> |

## Figures

|                                                              |           |
|--------------------------------------------------------------|-----------|
| <b>Figure 2.1 FCC ID Label.....</b>                          | <b>8</b>  |
| <b>Figure 2.2 Location of Label on Back of the EUT .....</b> | <b>8</b>  |
| <b>Figure 3.1 Radiated Test Setup, Position1.....</b>        | <b>10</b> |
| <b>Figure 3.1 Radiated Test Setup, Position2.....</b>        | <b>10</b> |
| <b>Figure 3.1 Radiated Test Setup, Position3.....</b>        | <b>11</b> |
| <b>Figure 4.1 EUT Schematics .....</b>                       | <b>12</b> |
| <b>Figure 6.1 Top View.....</b>                              | <b>16</b> |
| <b>Figure 6.2 Bottom View .....</b>                          | <b>17</b> |
| <b>Figure 6.3 Top View, Cover Opened.....</b>                | <b>18</b> |
| <b>Figure 6.4 PC Board, Component Side.....</b>              | <b>19</b> |
| <b>Figure 6.5 PC Board, Foil Side .....</b>                  | <b>20</b> |
| <b>Figure 6.6 Cover, Inside View.....</b>                    | <b>21</b> |

## 1. GENERAL INFORMATION

### 1.1 Verification of Compliance

EUT: B/O WIRELESS DOOR CHIME RECEIVER  
 Model: RC3110R  
 Applicant: LMS ASIA LIMITED  
 Test Type: CERTIFICATION  
 Result: PASS  
 Tested by: FOUNTAIN COMPLIANCE LABORATORY  
 Test Date: 06/11/98  
 Report Number: 0048-980603-04

The above equipment was tested by Fountain Technologies, Inc. Compliance Laboratory for compliance with the requirement set forth in the FCC rules and regulations Part 15, subpart C. This said equipment in the configuration described in the report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

The estimated uncertainty of the test result is given as following. The method of uncertainty calculation is provided in Fountain Compliance Lab. Doc. No. 0048-01-01.

|                                 | Prob. Dist. | Uncertainty(dB) | Uncertainty(dB) | Uncertainty(dB) |
|---------------------------------|-------------|-----------------|-----------------|-----------------|
|                                 |             | 30-1000MHz      | 1-6.5GHz        | Conducted       |
| Combined Std. Uncertainty $u_c$ | norm.       | $\pm 2.36$      | $\pm 2.99$      | $\pm 1.83$      |

  
 Wei Li  
 Lab Manager  
 Fountain Compliance Lab  
 Fountain Technologies, Inc.

7-1-98  
 Date

## **1.2 Equipment Modifications**

N/A

### 1.3 Product Information

#### System Configuration

| ITEM            | DESCRIPTION                                     | FCC ID     | CABLE |
|-----------------|-------------------------------------------------|------------|-------|
| Product         | B/O WIRELESS DOOR CHIME RECEIVER <sup>(1)</sup> | DE4RC3110R |       |
| Housing         | PLASTICS                                        |            |       |
| Power Supply    | BATTERY                                         |            |       |
| Clock/OSC Freq. | 314.8MHz                                        |            |       |
| Device Type     | SUPERREGENERATIVE RECEIVER                      |            |       |

(1) EUT submitted for grant.

### 1.4 Test Methodology

Both conducted and radiated tests were performed according to the procedures in ANSI C63.4-1992. Radiated test was performed at an antenna to EUT distance of 3 meters.

### 1.5 Test Facility

The open area test site and conducted measurement facility used to collect the radiated and conducted data are located at 50 Randolph Road, Somerset, New Jersey. This site has been accepted by FCC to perform measurements under Part 15 or 18 in a letter dated May 19, 1997 (Refer to: 31040/PRV 1300F2). The NVLAP Lab code for accreditation of FCC EMC Test Method is: 200101-0.

## 1.6 Test Equipment

| Manufacture     | Model   | Serial No. | Description                           | Last Cal<br>dd/mm/yy | Cal<br>Due<br>dd/mm/yy |
|-----------------|---------|------------|---------------------------------------|----------------------|------------------------|
| Hewlett-Packard | HP8546A | 3625A00341 | EMI Receiver                          | 12/11/97             | 12/11/98               |
| Fischer Custom  | LISN-2  | 900-4-008  | Line Impedance Stabilization Networks | 05/05/98             | 05/05/99               |
| Fischer Custom  | LISN-2  | 900-4-009  | Line Impedance Stabilization Networks | 01/04/98             | 01/04/99               |
| EMCO            | 3115    | 4945       | Double Ridge Guide Horn Antenna       | 03/10/97             | 03/10/98               |
| EMCO            | 3104C   | 4396       | 30-200MHz Biconical Antenna           | 16/06/97             | 16/06/98               |
| EMCO            | 3146    | 3350       | 200-1000MHz Log-Periodic Antenna      | 16/06/97             | 16/06/98               |

All Test Equipment Used are Calibrated Traceable to NIST Standards.

## 1.7 Statement for the Document Use

This report shall not be reproduced except in full, without the written approval of the laboratory. And this report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

### **3. SYSTEM TEST CONFIGURATION**

#### **3.1 Justification**

The system was configured for testing in a typical fashion (as a customer would normally use it). And its antenna was permanently attached to the EUT.

A ROHDE&SCHWARZ SMH signal generator was used during the test to radiate an unmodulated CW signal to cohered the receiver at 314.8 MHz. The level was adjusted to let this occur.

#### **3.2 Special Accessories**

N/A

#### **3.3 Configuration of Tested System**

Figure 3.1 through Figure 3.3 illustrate this system, which is tested standing along.

## 5. RADIATED EMISSION DATA

### 5.1 Field Strength Calculation

The corrected field strength is automatically calculated by EMI Receiver using following:

$$FS = RA - AF - CF - AG$$

where FS: Corrected Field Strength in dB $\mu$ V/m

RA: Amplitude of EMI Receiver before correction in dB $\mu$ V

AF: Antenna Factor in dB/m

CF: Cable Attenuation Factor in dB

AG: Built-in Preamplifier Gain in dB (Stored in receiver as part of the calibration data)

So the receiver readings are recorded without further correction.

### 5.2 Test Methods and Conditions

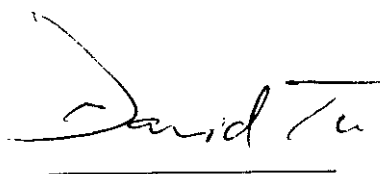
The initial step in collecting radiated data is a EMI Receiver scan of the measurement range 30MHz - 5GHz. Significant peaks are then marked down and these signals are then measured with quasi-peak detector conform with CISPR 16. IF bandwidth is 120kHz and video bandwidth is 300kHz for measuring 30MHz-1GHz. Both bandwidth are 1MHz for above 1GHz measurement.

### 5.3 Test Data

The following data lists the significant emission frequencies, polarity and position, corrected amplitude reading of the EMI Receiver, the Class B limit, and the difference between the corrected reading and the Class B limit. Explanation of the correction is given in section 5.1.

Test Personnel:

Tester Signature



Date

6-11-98

Typed/Printed Name: David Tu

**Radiated Emission Data**

| Frequency<br>(MHz) | Polarity<br>[H or V]<br>Position | Height<br>(m) | Azimuth<br>(Degree) | Amplitude<br>Reading<br>(dB $\mu$ V/m) | Class B<br>3m Limit<br>(dB $\mu$ V/m) | Difference<br>from limit<br>(dB) |
|--------------------|----------------------------------|---------------|---------------------|----------------------------------------|---------------------------------------|----------------------------------|
| 313.8              | H1                               | 1             | 000                 | 35.8                                   | 46.0                                  | -10.2                            |
| 313.8              | H2                               | 1             | 353                 | 33.2                                   | 46.0                                  | -12.8                            |
| 314.3              | H1                               | 1             | 000                 | 36.5                                   | 46.0                                  | -9.5                             |
| 314.3              | H2                               | 1             | 000                 | 34.8                                   | 46.0                                  | -11.2                            |
| 314.8              | H1                               | 1             | 353                 | 41.3                                   | 46.0                                  | -4.7                             |
| 314.8              | V1                               | 1             | 330                 | 38.9                                   | 46.0                                  | -2.1                             |
| 314.8              | H2                               | 1             | 168                 | 43.9                                   | 46.0                                  | -2.1                             |
| 314.8              | V2                               | 1             | 000                 | 41.9                                   | 46.0                                  | -4.1                             |
| 314.8              | H3                               | 1             | 000                 | 41.8                                   | 46.0                                  | -4.9                             |
| 315.4              | H1                               | 1             | 353                 | 36.7                                   | 46.0                                  | -9.3                             |
| 315.4              | H2                               | 1             | 353                 | 34.8                                   | 46.0                                  | -11.2                            |
| 315.9              | H1                               | 1             | 353                 | 36.9                                   | 46.0                                  | -9.1                             |
| 315.9              | H2                               | 1             | 000                 | 34.9                                   | 46.0                                  | -11.1                            |

## **6. PHOTOS OF TESTED EUT**

The following photos show the inside details of the EUT.