

Advanced  
Compliance Laboratory

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## ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

of

RF CORDLESS HEADPHONE RECEIVER

MODEL: SRF2010

FCC ID: LPV-SRF2010

February 25, 2004

This report concerns (check one): Original grant ☒ Class II change ☐  
Equipment type: 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: ALFORD INDUSTRIES LTD.  
Report prepared by: Advanced Compliance Lab  
Report number: 0048-040217-01-RX



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

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# 1. GENERAL INFORMATION

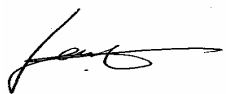
## 1.1 Verification of Compliance

EUT: RF CORDLESS HEADPHONE RECEIVER  
 Model: SRF2010  
 Applicant: ALFORD INDUSTRIES LTD.  
 Unit 201, 2<sup>nd</sup> Fl., Park Building, 476 Castle Peak Rd.,  
 Kowloon, Hong Kong  
 Test Type: FCC Part 15C CERTIFICATION  
 Result: PASS  
 Tested by: ADVANCED COMPLIANCE LAB  
 Test Date: February 25, 2004  
 Report Number: 0048-040217-01-RX

The above equipment was tested by Advanced 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 Advanced 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  
 Advanced Compliance Laboratory

Date: February 25, 2004

## **1.2 Equipment Modifications**

N/A

### 1.3 Product Information

#### System Configuration

| ITEM            | DESCRIPTION             | FCC ID         | CABLE |
|-----------------|-------------------------|----------------|-------|
| Product         | RECEIVER                | LPV-SRF2010(1) |       |
| Housing         | PLASTICS                |                |       |
| Power Supply    | DC3V                    |                |       |
| Operation Freq. | 49.86MHz                |                |       |
| Device Type     | Continuous Operation    |                |       |
| Transmitter     | FCC Part 15 Certificate | LPV-STF2010    |       |

(1) EUT submitted for grant.

### 1.4 Test Methodology

Radiated tests were performed according to the procedures in ANSI C63.4-2001 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 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 Due<br>dd/mm/yy |
|-----------------|---------|------------|---------------------------------------|----------------------|---------------------|
| Hewlett-Packard | HP8546A | 3625A00341 | EMI Receiver                          | 23/10/03             | 23/10/04            |
| EMCO            | 3104C   | 9307-4396  | 20-300MHz Biconical Antenna           | 11/03/03             | 11/03/04            |
| EMCO            | 3146    | 9008-2860  | 200-1000MHz Log-Periodic Antenna      | 09/02/04             | 09/02/05            |
| Fischer Custom  | LISN-2  | 900-4-0008 | Line Impedance Stabilization Networks | 03/07/03             | 03/07/04            |
| Fischer Custom  | LISN-2  | 900-4-0009 | Line Impedance Stabilization Networks | 03/07/03             | 03/07/04            |
| EMCO            | 3115    | 4945       | Double Ridge Guide Horn Antenna       | 15/09/03             | 15/09/04            |

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.

## **2. PRODUCT LABELING**

**FCC ID: LPV-SRF2010**

**This device complies with part 15 of the FCC Rules. Operating is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.**

**Figure 2.1 FCC ID Label**



**Figure 2.2 Location of the Label**

### **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 with maximum length, 15 inches.

When the power is ON, the red LED on the right side of EUT is lit.

Testing was performed as EUT was receiving the signal continuously.

#### **3.2 Special Accessories**

N/A

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

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

N/A

### **Figure 3.1 Cable Interlink Configuration**

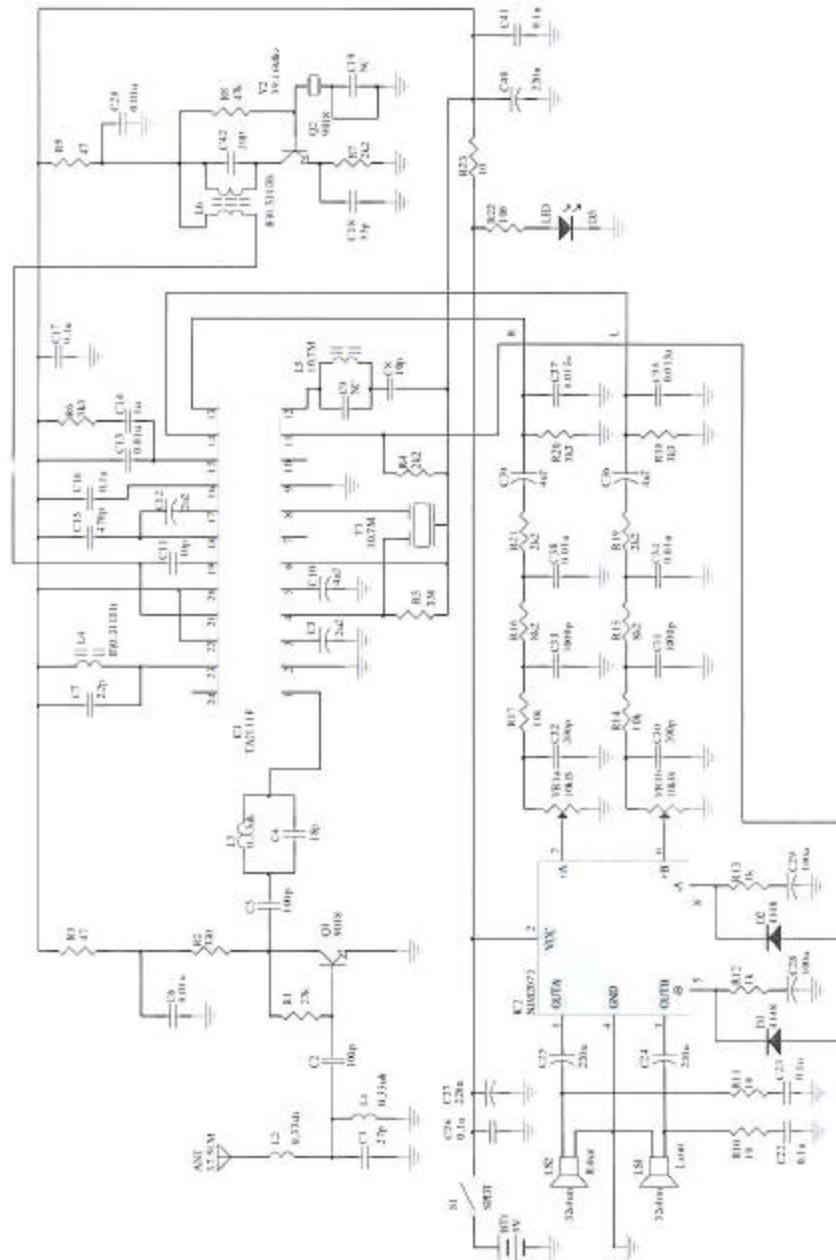


**Figure 3.2 Radiated Front**



**Figure 3.3 Radiated Rear**

#### 4. SYSTEM BLOCK DIAGRAM/SCHEMATICS



### Figure 4.1 EUT Block Diagram /Schematics

## 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)

### 5.2 Test Methods and Conditions

The initial step in collecting radiated data is a EMI Receiver scan of the measurement range below 30MHz using peak detector and 9KHz IF bandwidth / 30KHz video bandwidth. For the range 30MHz - 1GHz, 120KHz, IF bandwidth / 30KHz video bandwidth are used. Both bandwidths are 1MHz for above 1GHz measurement. The highest radiated emissions below 10GHz are recorded.

### 5.3 Test Data

The following data lists the significant emission frequencies, polarity and position, peak reading of the EMI Receiver, the FCC limit, and the difference between the peak reading and the limit. Explanation of the correction and calculation are given in section 5.1.

Testing was performed as EUT was receiving the signal continuously.

Test Personnel:

Tester Signature: 

Typed/Printed Name: Edward Lee

Date: February 25, 2004

## Radiated Test Data

**Worst Case : receiving frequency=49.86MHz**

| <b>Frequency<br/>(MHz)</b> | <b>Polarity<br/>[H, V]<br/>Position</b> | <b>Height<br/>(m)</b> | <b>Azimuth<br/>(Degree)</b> | <b>Peak<br/>Reading<br/>(dBmV/m)</b> | <b>Part 15<br/>3m Limit<br/>(dBmV/m)</b> | <b>Difference<br/>from limit<br/>(dB)</b> |
|----------------------------|-----------------------------------------|-----------------------|-----------------------------|--------------------------------------|------------------------------------------|-------------------------------------------|
| 117.48                     | H                                       | 1.6                   | 180                         | 27.9                                 | 43.5                                     | -15.6                                     |
| 156.64                     | H                                       | 1.6                   | 180                         | 31.0                                 | 43.5                                     | -12.5                                     |
| 195.80                     | H                                       | 1.5                   | 180                         | 39.0                                 | 43.5                                     | -4.5                                      |
| 234.96                     | H                                       | 1.4                   | 45                          | 36.4                                 | 46.0                                     | -9.6                                      |
| 274.12                     | H                                       | 1.4                   | 90                          | 36.5                                 | 46.0                                     | -9.5                                      |
| 313.30                     | H                                       | 1.2                   | 270                         | 34.1                                 | 46.0                                     | -11.9                                     |
| 117.48                     | V                                       | 1.1                   | 270                         | 26.6                                 | 43.5                                     | -16.9                                     |
| 195.80                     | V                                       | 1.4                   | 180                         | 35.6                                 | 43.5                                     | -7.9                                      |
| 234.96                     | V                                       | 1.2                   | 0                           | 36.1                                 | 46.0                                     | -9.9                                      |

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

The following photos show the inside details of the EUT.