

FCC PART 18

MEASUREMENT AND TEST REPORT

FOR

**Steril – Aire USA**

11100 E. Artesia Blvd., Unit D, Cerritos, CA 90703

|                     |
|---------------------|
| FCC ID: R2344001400 |
|---------------------|

2004-04-14

|                                                                                                                                                                                          |                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>This Report Concerns:</b><br><input checked="" type="checkbox"/> Original Report                                                                                                      | <b>Equipment Type:</b><br>Indoor RLF |
| <div style="text-align: right; margin-bottom: 5px;"></div> <b>Test Engineer:</b> <u>Jerry Wang/</u>    |                                      |
| <b>Report Number:</b> <u>R0403185</u>                                                                                                                                                    |                                      |
| <b>Test Date:</b> <u>2004-04-09</u>                                                                                                                                                      |                                      |
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**Note:** The test report is specially limited to the use of the above client company and the product model. It may not be duplicated without prior written consent of Bay Area Compliance Laboratory Corporation. This report **must not** be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government

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## 1 - GENERAL INFORMATION

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### 1.1 Product Description for Equipment Under Test (EUT)

The *Steril-Aire USA Model: 44001400* or the "EUT" as referred to in this report is a Indoor RLF, which measures 57cmL x 9cmW x 8cmH.

*\*The test data gathered are from production sample, serial number:UVLXXRPL1020, provided by the manufacturer.*

### 1.2 Objective

This Following test report is prepared on behalf of *Steril-Aire USA* in accordance with Part 2, Subpart J, and Part 18, Subparts A and B of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 18 limit requirements for Industrial, Scientific, and Medical Equipment.

### 1.3 Related Submittal(s)/Grant(s)

No Related Submittals.

### 1.4 Test Methodology

All measurements contained in this report were conducted in accordance with MP-5, FCC Methods of Measurements of Radio Noise Emissions from Industrial, Scientific, and Medical Equipment. All radiated and conducted emission measurements were performed at Bay Area Compliance Laboratory Corp. (BACL).

### 1.5 Test Facility

The Open Area Test site used by BACL to collect radiated and conducted emission measurement data is located in the back parking lot of the building at 230 Commercial Street, Sunnyvale, California, USA.

Test site at BACL has been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules and Article 8 of the VCCI regulations. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2001.

The Federal Communications Commission and Voluntary Control Council for Interference has the reports on file and is listed under FCC file 31040/SIT 1300F2 and VCCI Registration No.: C-1298 and R-1234. The test site has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, BACL is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200167-0). The scope of the accreditation covers the FCC Method - 47 CFR Part 15 - Digital Devices, CISPR 22: 1997 Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment test methods under NVLAP Lab Code 200167-0.

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## 2 - SYSTEM TEST CONFIGURATION

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### 2.1 Justification

The EUT is configured for testing according to MP-5.

### 2.2 EUT Exercise Program

The sequence used is as follows:

The EUT was switched on after being connected to the mains power supply.

### 2.3 Schematics/Block Diagram

The EUT's block diagram is presented in Appendix D.

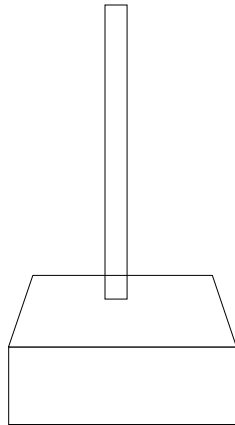
### 2.4 Equipment Modifications

The EUT samples provided were reported by the manufacturer to be unmodified production samples.

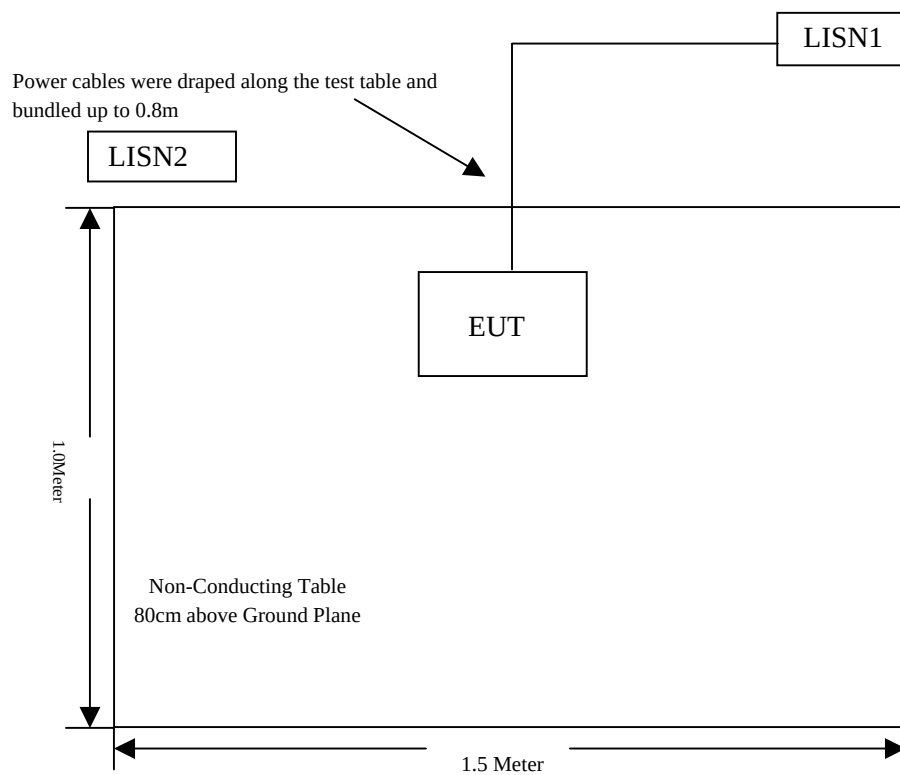
### 2.5 Interface Ports and Cabling

| Cable Description                 | Length (M) | From/Port | To             |
|-----------------------------------|------------|-----------|----------------|
| None-Shielded Power<br>Cord Cable | 1.6        | AC Output | WALL Light/EUT |

## 2.5 Configuration of Test System



## 2.6 Test Setup Block Diagram



### 3 - CONDUCTED EMISSIONS TEST DATA

#### 3.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties. The factors contributing to uncertainties are spectrum analyzer, amplifier, and calibration procedures, LISN etc.

Based on NIS 81, The Treatment of Uncertainty in EMI Measurements, the best estimate of the uncertainty of any conducted emissions measurement at BACL is  $\pm 2.4$  dB.

#### 3.2 EUT Setup

The measurement is performed in the shield room, using the same setup per FCC MP-5 measurement procedure. The specification used was the FCC Part Subpart C 18 limits.

The EUT was placed on the center of the back edge on the test table.

The power cord extension of the EUT was connected with 120 VAC/60 Hz power source.

#### 3.3 EMI Receiver Setup

The spectrum analyzer was set to investigate the spectrum from 450 kHz to 30MHz.

#### 3.4 Equipment List and Details

| Manufacturer    | Description              | Model   | Serial Number | Cal Date   |
|-----------------|--------------------------|---------|---------------|------------|
| Rohde & Schwarz | Artificial-Mains Network | ESH2-Z5 | 871884/039    | 2004-03-28 |
| Rohde & Schwarz | EMI Test Receiver        | ESCS30  | 100176        | 2004-05-06 |
| Fluke           | Calibrated Voltmeter     | 189     | 18485-38      | 2003-07-18 |

#### 3.5 Test Procedure

During the conducted emissions test, the power cord of the power cord extension was connected to the mains outlet of the LISN-1.

The six highest emissions were maximized to ensure the EUT is in compliance in all possible installation configurations.

All data was recorded in the peak detection mode. Quasi-peak readings were only performed when an emission was found to be marginal (within -4 dB of the specification limits). Quasi-peak readings are distinguished with a "Qp".

The EUT was tested under the normal modes during the final qualification test to represent the worst case results.

### 3.6 Summary of Test Results

According to the data in section 3.7, the EUT, was found to be in compliance with the FCC 18 Conducted margin for industry, scientific and medical devices, and with the worst margin reading of:

**-3.1 dB at 0.79 MHz at the Line mode, 0.45-30MHz**

#### Environmental Conditions

|                    |          |
|--------------------|----------|
| Temperature:       | 24°C     |
| Relative Humidity: | 41%      |
| ATM Pressure:      | 1014mbar |

### 3.7 Conducted Emissions Test Data

#### 3.7.1 Conducted Test, 0.45-30MHz.

| LINE CONDUCTED EMISSIONS |           |             |              | FCC PART 18 |        |
|--------------------------|-----------|-------------|--------------|-------------|--------|
| Frequency                | Amplitude | Detector    | Phase        | Limit       | Margin |
| MHz                      | dBμV      | Qp/Ave/Peak | Line/Neutral | dBμV        | dB     |
| 0.79                     | 44.9      | Peak        | Line         | 48          | -3.1   |
| 1.76                     | 44.6      | Peak        | Neutral      | 48          | -3.4   |
| 0.61                     | 43.9      | Peak        | Neutral      | 48          | -4.1   |
| 0.97                     | 43.7      | Peak        | Neutral      | 48          | -4.3   |
| 0.53                     | 42.4      | Peak        | Line         | 48          | -5.6   |
| 0.69                     | 42.1      | Peak        | Line         | 48          | -5.9   |

#### 3.7.2 Plot of Conducted Emissions Test Data

The plot(s) of conducted emission test is presented in the following page as reference.

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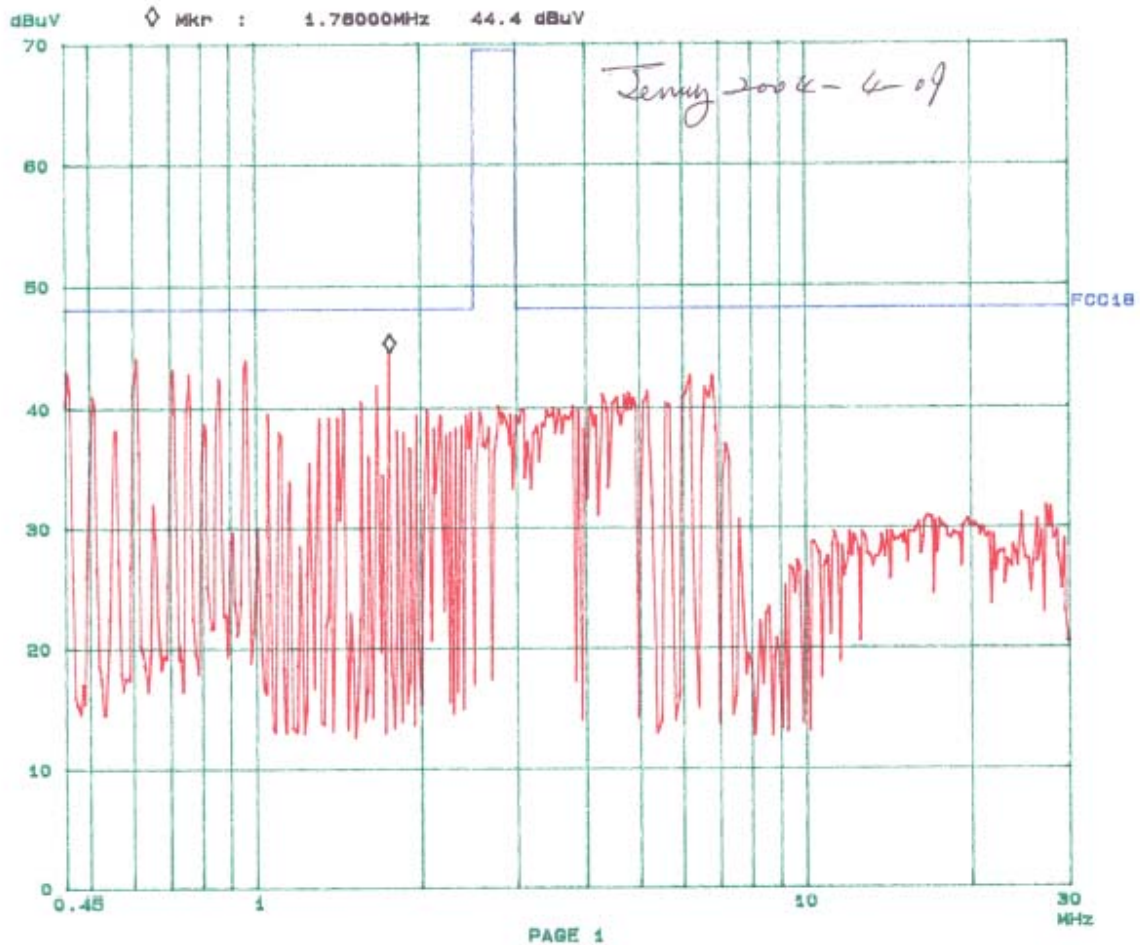
09. Apr 04 15:28

EUT: 44001400  
Manuf: Steril-Aire USA  
Op Cond: Normal  
Operator: Jerry  
Comment: N

## Scan Settings (3 Ranges)

| Start | Stop | Step | IF BW | Detector | M-Time | Atten   | Preamp |
|-------|------|------|-------|----------|--------|---------|--------|
| 450k  | 1M   | 5k   | 9k    | PK       | 20ms   | 15dB LN | OFF    |
| 1M    | 5M   | 10k  | 9k    | PK       | 1ms    | 15dB LN | OFF    |
| 5M    | 30M  | 100k | 9k    | PK       | 1ms    | 15dB LN | OFF    |

Final Measurement: X QP  
Meas Time: 1 s  
Subranges: 25  
Acc Margin: 6dB



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09. Apr 04 15:15

EUT: 44001400  
Manuf: Steril-Aire USA  
Op Cond: Normal  
Operator: Jerry  
Comment: L

## Scan Settings (3 Ranges)

| Frequencies |      |      | Receiver Settings |          |        |         |        |
|-------------|------|------|-------------------|----------|--------|---------|--------|
| Start       | Stop | Step | IF BW             | Detector | M-Time | Atten   | Preamp |
| 450k        | 1M   | 5k   | 9k                | PK       | 20ms   | 15dB LN | OFF    |
| 1M          | 5M   | 10k  | 9k                | PK       | 1ms    | 15dB LN | OFF    |
| 5M          | 30M  | 100k | 9k                | PK       | 1ms    | 15dB LN | OFF    |

Final Measurement: x QP  
Meas Time: 1 s  
Subranges: 25  
Acc Margin: 5dB

