# FCC PART 15 Subpart C

# EMI MEASUREMENT AND TEST REPORT

FOR

## Sunrise Company Ltd.

Huasheng Industrial Area, Dalang Shuiwei Village
Longhua Town, Baoan District, Shenzhen, Guangdong, P.R. China

## FCC ID: PTE1161181

August 7, 2001

| **This Report Concerns:** | **Equipment Type:** |
|---|---|
| ☒ Original Report | Duplex Headset Walkie Talkie-ITE |

| | |
|---|---|
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| **Test Date:** | July 27, 2001 |
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# 1 - GENERAL INFORMATION

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

The *Sunrise Company Ltd.*'s product, model no.: *1161181* or "EUT" as referred to in this report is a Duplex Headset Walkie Talkie which measures 14.00"L x 6.25" W x 0.5" H.

## 1.2 Purpose

This report is prepared on behalf of *Sunrise Company Ltd.* in accordance with Part 2, Subpart J, and Part 15, Subparts A and B of the Federal Communication Commissions Rules.

The objective of the manufacturer is to demonstrate compliance with FCC rules, Part 15, section 235 for radiated margin.

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

No related submittals

## 1.4 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4 –1992, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz. All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory, Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

## 1.5 Test Facility

The Open Area Test site used by Bay Area Compliance Laboratory Corporation to collect radiated and conducted emission measurement data is located in the back parking lot of the building at 230 Commercial Street, Suite 2, Sunnyvale, California, USA.

Test sites at Bay Area Compliance Laboratory Corporation 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 on February 11 and December 10, 1997 and Article 8 of the VCCI regulations on December 25, 1997. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-1992.

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 sites has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratory Corporation is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (NVLAP). The scope of the accreditation covers the FCC Method - 47 CFR Part 15 - Digital Devices, IEC/CISPR 22: 1998, and AS/NZS 3548: Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment test methods under NVLAP Lab Code 200167-0.

## 1.6 Test Equipment List

| Manufacturer | Description | Model | Serial Number | Cal. Due Data |
|---|---|---|---|---|
| HP | Spectrum Analyzer | 8566B | 2610A02165 | 12/6/2001 |
| HP | Spectrum Analyzer | 8593B | 2919A00242 | 12/20/2001 |
| HP | Amplifier | 8349B | 2644A02662 | 12/20/2001 |
| HP | Quasi-Peak Adapter | 85650A | 917059 | 12/6/2001 |
| HP | Amplifier | 8447E | 1937A01046 | 12/6/2001 |
| A.H. System | Horn Antenna | SAS0200/571 | 261 | 12/27/2001 |
| Com-Power | Log Periodic Antenna | AL-100 | 16005 | 11/2/2001 |
| Com-Power | Biconical Antenna | AB-100 | 14012 | 11/2/2001 |
| Solar Electronics | LISN | 8012-50-R-24-BNC | 968447 | 12/28/2001 |
| Com-Power | LISN | LI-200 | 12208 | 12/20/2001 |
| Com-Power | LISN | LI-200 | 12005 | 12/20/2001 |
| BACL | Data Entry Software | DES1 | 0001 | 12/20/2001 |

## 1.7 Equipment Under Test (EUT)

| Manufacturer | Description | Model | Serial Number | FCCID |
|---|---|---|---|---|
| Sunrise Company Ltd. | Duplex Headset Walkie Talkie | 1161181 | None | PTE1161181 |

# 2 - SYSTEM TEST CONFIGURATION

## 2.1 Description of Test Configuration

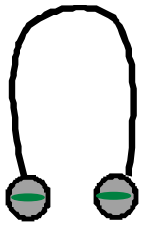
The EUT was configured for testing in a typical fashion (as normally used by a typical user).

## 2.2 Equipment Modifications

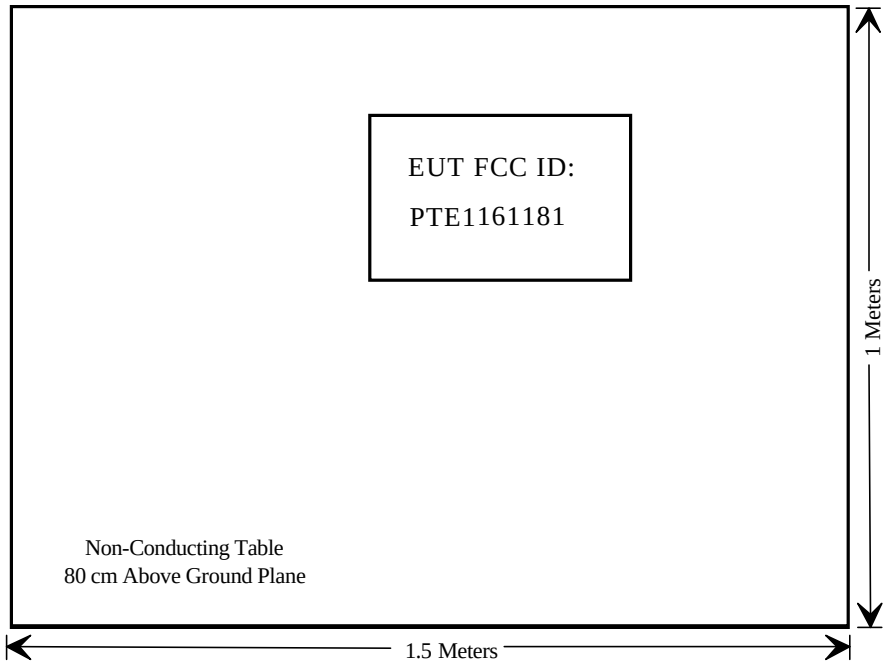
No modification(s) to the EUT were made to comply with the applicable limits and requirements.

## 2.3 Configuration of Test System

EUT: 1161181



## 2.4 Configuration of Test System



# 3-CONDUCTED EMISSIONS TEST DATA

No applicable because of battery operation.

# 4 - RADIATED EMISSION DATA

## 4.1 EUT Setup

The radiated emission tests were performed in the open area 3 meter test site, using the setup in accordance with the ANSI C63.4 - 1992. The specification used was the FCC 15, section 235 limits.

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

The EUT used new battery.

## 4.2 Spectrum Analyzer Setup

According to FCC Rules, the system was tested to 1000 MHz.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

| | |
|---|---|
| Start Frequency | 30 MHz |
| Stop Frequency | 1000 MHz |
| Sweep Speed | Auto |
| IF Bandwidth | 1 MHz |
| Video Bandwidth | 1 MHz |
| Quasi-Peak Adapter Bandwidth | 120 kHz |
| Quasi-Peak Adapter Mode | Normal |
| Resolution Bandwidth | 1MHz |

## 4.3 Test Procedure

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations.

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

The EUT was operating at normal to represent the worst case result during the final qualification test. Therefore, this configuration was used for final test data recorded in the table listed under section 4.7 of this report.

## 4.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBµV means the emission is 7dBµV below the maximum limit for FCC Part 15, Subpart C, section 235. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15, Subpart C, section 235 Limit

## 4.5 Summary of Test Results

According to the data in section 4.7, the EUT: *1161181* complied with the FCC Title 47, Part 15, Subpart C, section 15.235 and had the worst margin of:

**-4.5 dBmV** at **149.58 MHz** in the **Vertical** polarization, 30 to 1000MHz, 3 meters

## 4.6 Radiated Emissions Test Result Data

### 4.6.1 Final Test Data, 30 to 1000MHz, 3 meters

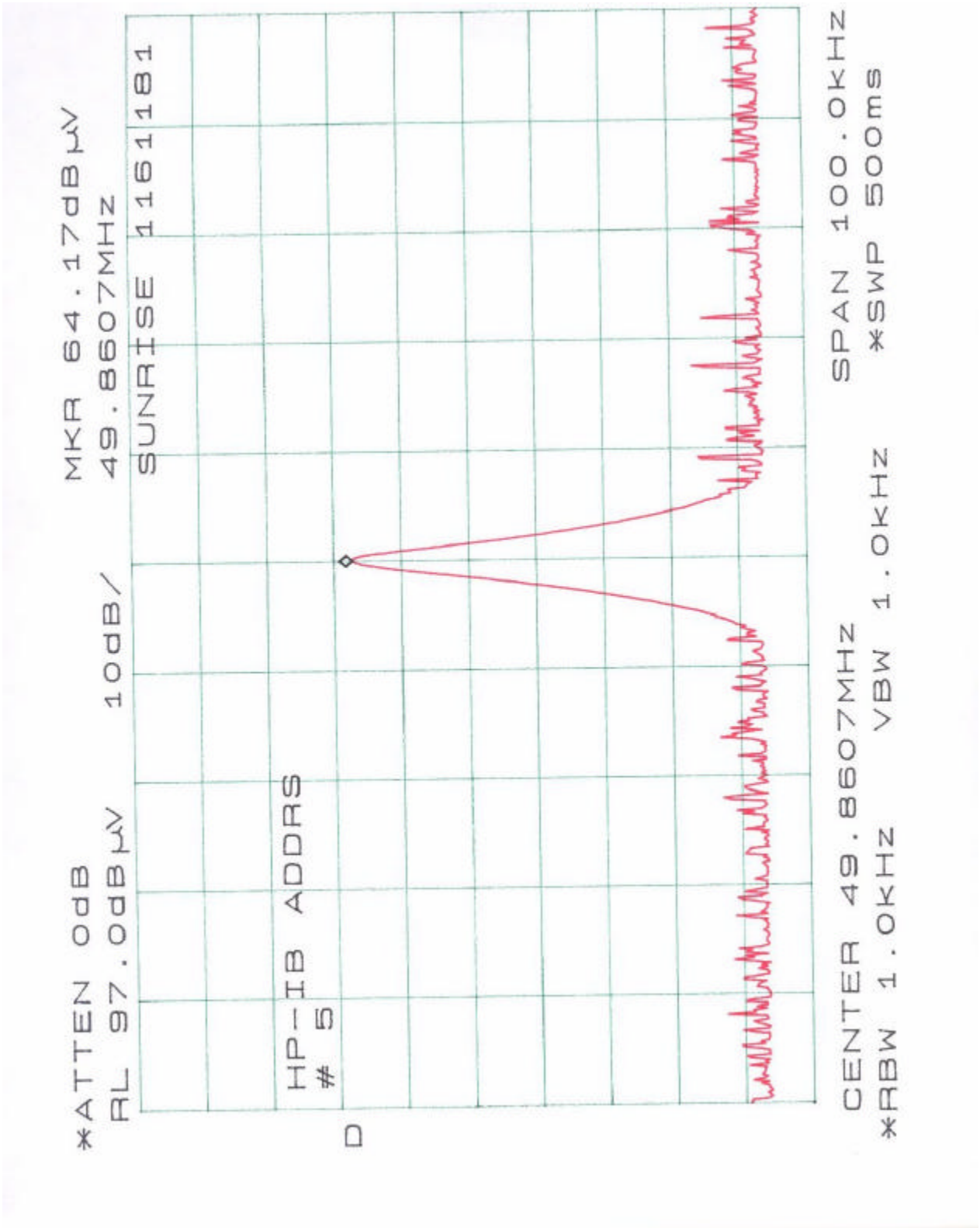
| INDICATED | | | TABLE | ANTENNA | | CORRECTION FACTOR | | | CORRECTED AMPLITUDE | FCC 15 Subpart C | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Frequency MHz | Ampl. dBmV/m | Comments | Angle Degree | Height Meter | Polar H/ V | Antenna dBmV/m | Cable dB | Amp. dB | Corr. Ampl. dBmV/m | Limit dBmV/m | Margin dB |
| 149.58 | 36.9 | Peak | 90 | 1.2 | V | 19.5 | 8.2 | 23.1 | 41.5 | 46.0 | -4.5 |
| 149.58 | 31.2 | Peak | 340 | 1.2 | V | 23.1 | 10.4 | 23.2 | 41.5 | 46.0 | -4.5 |
| 249.30 | 32.4 | Peak | 90 | 1.2 | V | 21.8 | 8.8 | 22.8 | 40.2 | 46.0 | -5.8 |
| 299.16 | 44.0 | Peak | 180 | 1.2 | V | 12.6 | 5.3 | 22.6 | 39.3 | 46.0 | -6.7 |
| 349.02 | 31.0 | Peak | 180 | 1.2 | V | 22.2 | 9.5 | 23.8 | 38.9 | 46.0 | -7.1 |
| 398.88 | 35.3 | Peak | 145 | 1.2 | V | 18.6 | 7.8 | 22.9 | 38.8 | 46.0 | -7.2 |
| 448.74 | 25.0 | Peak | 270 | 1.2 | V | 22.5 | 11.0 | 21.4 | 37.1 | 46.0 | -8.9 |
| 498.60 | 31.0 | Peak | 90 | 1.2 | V | 20.1 | 8.3 | 23.2 | 36.2 | 46.0 | -9.8 |
| 548.46 | 36.0 | Peak | 140 | 1.2 | V | 15.2 | 6.4 | 22.8 | 34.8 | 46.0 | -11.2 |
| 598.32 | 33.5 | Peak | 90 | 1.2 | V | 16.2 | 6.8 | 22.9 | 33.6 | 46.0 | -12.4 |
| 648.18 | 34.8 | Peak | 340 | 1.2 | V | 13.4 | 3.2 | 21.4 | 30.0 | 43.5 | -13.5 |
| 698.04 | 34.8 | Peak | 90 | 1.8 | H | 13.4 | 3.2 | 21.4 | 30.0 | 43.5 | -13.5 |
| 747.90 | 29.8 | Peak | 90 | 1.2 | V | 17.9 | 7.4 | 22.9 | 32.2 | 46.0 | -13.8 |
| 797.76 | 32.4 | Peak | 180 | 1.2 | V | 15.4 | 5.7 | 22.4 | 31.1 | 46.0 | -14.9 |
| 847.62 | 37.2 | Peak | 90 | 1.2 | V | 11.3 | 4.4 | 22.4 | 30.5 | 46.0 | -15.5 |
| 49.86 | 49.3 | Ave | 180 | 1.2 | V | 11.3 | 1.5 | 21.6 | 40.5 | 80.0 | -39.5 |
| 49.86 | 41.2 | Ave | 180 | 1.2 | H | 11.3 | 1.5 | 21.6 | 32.4 | 80.0 | -47.6 |
| 49.86 | 50.9 | Peak | 180 | 1.2 | V | 11.3 | 1.5 | 21.6 | 42.1 | 100.0 | -57.9 |
| 49.86 | 43.0 | Peak | 180 | 1.8 | H | 11.3 | 1.5 | 21.6 | 34.2 | 100.0 | -65.8 |

## APPENDIX A

Measurement of Emissions within Band Edges

**Requirements**: the Measurement of Emissions within Band Edges shall be operating within the band 49.82-49.90 MHz.

**Results**: Complies with the requirements.


MKR 64.17dBµV
49.8607MHz
SUNRISE 116111811
*ATTEN 0dB
RL 97.0dBµV
10dB/
HP-IB ADDRS
# 5
D
SPAN 100.0KHz
*SWP 500ms
CENTER 49.8607MHz
VBW 1.0KHz
*RBW 1.0KHz