



## 1 Cover Page

# RF Exposure REPORT

**Application No.:** SHEM2009007651CR  
**FCC ID:** 2AXYS-HR01  
**Applicant:** Evoco Labs Co., Ltd.  
**Address of Applicant:** Room 315, 2nd Floor, Building 1, No.58 Xiangke Road, Pudong New Area  
Shanghai ,China  
**Manufacturer:** Evoco Labs Co., Ltd.  
**Address of Manufacturer:** Room 315, 2nd Floor, Building 1, No.58 Xiangke Road, Pudong New Area  
Shanghai ,China  
**Factory:** Evoco Labs Co., Ltd.  
**Address of Factory:** Room 315, 2nd Floor, Building 1, No.58 Xiangke Road, Pudong New Area  
Shanghai ,China  
**Equipment Under Test (EUT):**  
**EUT Name:** Orka One  
**Model No.:** EL-HR01  
**Standard(s) :** FCC Rules 47 CFR §2.1093  
KDB447498 D01 General RF Exposure Guidance v06  
**Date of Receipt:** 2020-09-09  
**Date of Test:** 2020-09-25 to 2020-10-27  
**Date of Issue:** 2020-10-28

|                     |              |
|---------------------|--------------|
| <b>Test Result:</b> | <b>Pass*</b> |
|---------------------|--------------|

\* In the configuration tested, the EUT complied with the standards specified above.

Parlan Zhan

Parlan Zhan  
E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.



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**Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.  
Testing Center EMC Lab

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| Revision Record |             |            |        |
|-----------------|-------------|------------|--------|
| Version         | Description | Date       | Remark |
| 00              | Original    | 2020-10-28 | /      |
|                 |             |            |        |
|                 |             |            |        |

|                             |  |                            |  |
|-----------------------------|--|----------------------------|--|
| Authorized for issue<br>by: |  |                            |  |
|                             |  | Bill Wu                    |  |
|                             |  | Bill Wu / Project Engineer |  |
|                             |  | Parlam Zhan                |  |
|                             |  | Parlam Zhan / Reviewer     |  |



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### 3 General Information

#### 3.1 General Description of E.U.T.

|               |                                    |
|---------------|------------------------------------|
| Power supply: | DC 3.7V 60mAh rechargeable battery |
| Test voltage: | DC 3.7V                            |

#### 3.2 Details of E.U.T.

BT:

|                                |                                         |
|--------------------------------|-----------------------------------------|
| Antenna Gain:                  | -0.98dBi                                |
| Antenna Type:                  | Monopole Antenna                        |
| Bluetooth Version:             | V5.0 Dual mode                          |
| Data Rate:                     | 1Mb/s, 2Mb/s, 3Mb/s                     |
| Channel Spacing:               | 1MHz                                    |
| Modulation Type:               | GFSK, $\pi/4$ DQPSK, 8DPSK              |
| Number of Channels:            | 79                                      |
| Operation Frequency:           | 2402MHz to 2480MHz                      |
| Spectrum Spread<br>Technology: | Frequency Hopping Spread Spectrum(FHSS) |

BLE:

|                      |                    |
|----------------------|--------------------|
| Antenna Gain:        | -0.98dBi           |
| Antenna Type:        | Monopole Antenna   |
| Bluetooth Version:   | V5.0 Dual mode     |
| Data Rate:           | 1Mb/s              |
| Channel Spacing:     | 2MHz               |
| Modulation Type:     | GFSK               |
| Number of Channels:  | 40                 |
| Operation Frequency: | 2402MHz to 2480MHz |



### 3.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shanghai Branch

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

No tests were sub-contracted.

### 3.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **NVLAP (LAB CODE: 201034-0)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

- **FCC (Designation Number: CN5033)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

- **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

## 4 Test Standards and Limits

### 4.1 FCC Radiofrequency radiation exposure limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:

$[(\text{max power of channel})/(\text{min test separation distance})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$  for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR, where

- $f(\text{GHz})$  is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.

The practical use condition for this device is as a head accessories. So the applicable limit is 1-g extremity SAR,  $P_{\text{max}} \leq 3.0 \cdot D_{\text{min}} / \sqrt{f} = 3.0 \cdot 5 / \sqrt{2.480} = 9.525 \text{ mW}$



## 5 Measurement and Calculation

### 5.1 Maximum transmit power

The BT Power Data is based on the RF Test Report SHEM200900765101 & SHEM200900765102.

**Test Data:**

**For BT Classic mode**

| Test mode     | Channel | Peak Power (dBm) | Peak Power (mW) |
|---------------|---------|------------------|-----------------|
| GFSK          | 2402    | -5.75            | 0.27            |
|               | 2441    | -5.37            | <b>0.29</b>     |
|               | 2480    | -5.61            | 0.27            |
| $\pi/4$ DQPSK | 2402    | -5.69            | 0.27            |
|               | 2441    | -5.37            | 0.29            |
|               | 2480    | -5.6             | 0.28            |
| 8DPSK         | 2402    | -5.66            | 0.27            |
|               | 2441    | -5.33            | 0.29            |
|               | 2480    | -5.58            | 0.28            |

**For BT BLE mode**

| Test mode | Channel | Peak Power (dBm) | Peak Power (mW) |
|-----------|---------|------------------|-----------------|
| GFSK      | 2402    | -9.87            | 0.10            |
|           | 2440    | -9.2             | 0.12            |
|           | 2480    | -7.85            | 0.16            |

### 5.2 RF Exposure Calculation

Max Conducted Peak Output Power = 0.29mW < 9.525mW

So the SAR report is not required.

**--End of the Report--**