

## 1 Cover Page

# ***RF Exposure Evaluation Report***

**Application No.:** SHEM2106005831CR  
**FCC ID:** 2APV2-CST2C  
**IC:** 23928-CST2C  
**Applicant:** Hangzhou Ezviz Software Co., Ltd.  
**Address of Applicant:** Room 302, Unit B, Building 2,399 Danfeng Road, Binjiang District, Hangzhou, Zhejiang  
**Manufacturer:** Hangzhou Ezviz Software Co., Ltd.  
**Address of Manufacturer:** Room 302, Unit B, Building 2,399 Danfeng Road, Binjiang District, Hangzhou, Zhejiang  
**Equipment Under Test (EUT):**  
**EUT Name:** Open/Close Sensor  
**Model No.:** CS-T2C  
**Standard(s) :** FCC Rules 47 CFR §2.1091  
 KDB447498 D01 General RF Exposure Guidance v06  
 RSS-102 Issue 5 Amendment 1 (February 2, 2021)  
**Date of Receipt:** 2021-06-11  
**Date of Test:** 2021-06-12 to 2021-06-15  
**Date of Issue:** 2021-06-28

<b>Test Result:</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

*Parlam Zhan*

Parlam 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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Revision Record			
Version	Description	Date	Remark
00	Original	2021-06-28	/

Authorized for issue by:			
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		Parlam Zhan / Reviewer	



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## 2 Contents

	Page
1 COVER PAGE.....	1
2 CONTENTS .....	3
3 GENERAL INFORMATION.....	4
3.1 GENERAL DESCRIPTION OF E.U.T. ....	4
3.2 TECHNICAL SPECIFICATIONS .....	4
3.3 TEST LOCATION .....	5
3.4 TEST FACILITY.....	5
4 TEST STANDARDS AND LIMITS .....	6
4.1 FCC RADIOFREQUENCY RADIATION EXPOSURE LIMITS: .....	6
4.2 IC RADIOFREQUENCY RADIATION EXPOSURE LIMITS: .....	6
5 MEASUREMENT AND CALCULATION .....	7
5.1 MAXIMUM TRANSMIT POWER .....	7
5.2 MPE CALCULATION .....	8



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### 3 General Information

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

Power supply:	DC 3V by Lithium Battery
Serial Number:	D43510809
Firmware Version:	V1.0.0 Build 210308

#### 3.2 Technical Specifications

Antenna Gain:	1.85dBi (Provided by the manufacturer)
Antenna Type:	PCB Antenna
Channel Spacing:	5MHz
Modulation Type:	O-QPSK
Number of Channels:	16
Operation Frequency:	2405MHz to 2480MHz



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### 3.3 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

### 3.4 Test Facility

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

- **CNAS (No. CNAS L4354)**

CNAS has accredited Compliance Certification Services (Kunshan) Inc. 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.

- **A2LA (Certificate No. 2541.01)**

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

- **FCC (Designation Number: CN1172)**

Compliance Certification Services Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

- **ISED (CAB identifier: CN0072)**

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

CAB Identifier: CN0072.

- **VCCI (Member No.: 1938)**

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-1600, C-1707, T-1499, G-10216 respectively.



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## 4 Test Standards and Limits

### 4.1 FCC Radiofrequency radiation exposure limits:

According to §1.1310, the limit for general population/uncontrolled exposures

Frequency	Power density(mW/cm <sup>2</sup> )	Averaging time(minutes)
300MHz~1.5GHz	f/1500	30
1.5GHz~100GHz	1.0	30

### 4.2 IC Radiofrequency radiation exposure limits:

According to RSS-102 section 2.5.2, RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);

- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than  $4.49/f^{0.5}$  W (adjusted for tune-up tolerance), where  $f$  is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than  $1.31 \times 10^{-2} f^{0.6834}$  W (adjusted for tune-up tolerance), where  $f$  is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

For 2.4G device, the limit of worse case is 2.68 W



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## 5 Measurement and Calculation

### 5.1 Maximum transmit power

The Power Data is based on the RF Test Report SHEM210600583101

Test Mode	Channel	Antenna Power[dBm]	Antenna Power[mW]
Zigbee	2405	11.85	15.31
Zigbee	2440	11.98	<b>15.78</b>
Zigbee	2480	11.91	15.52



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## 5.2 MPE Calculation

For FCC:

According to the formula  $S=P/4\pi R^2$ , we can calculate S which is MPE.

Note:

- 1) P (mW)
- 2) R = distance to the center of radiation of antenna (in meter) = 20cm
- 3) MPE limit = 1mW/cm<sup>2</sup>

The max. antenna gain is		1.85	dBi		
Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Result
15.78	1.531	20	0.00481	1	Pass

according to the KDB447498 section 7.2 determine the device is exclusion from SAR test

For IC:

For 2.4GHz ZigBee:

$$E.I.R.P.= P \cdot G = 0.01578 \times 1.531 = 0.024W < 2.68W$$

So the device is exclusion from SAR test

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



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