



1 Cover Page

# RF MPE REPORT

**Application No.:** SHEM2102001594CR  
**FCC ID:** 2APV2-CSDB1C  
**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:** Wi-Fi Video Doorbell  
**Model No.:** CS-DB1C  
**Add Model No.:** CS-DB1C-A0-1E2W2FR,CS-DB1C-A1-1E2W2FR  
**Trade mark:** EZVIZ  
**Standard(s) :** FCC Rules 47 CFR §2.1091  
 KDB447498 D01 General RF Exposure Guidance v06  
**Date of Receipt:** 2021-03-03  
**Date of Test:** 2021-03-11 to 2021-03-19  
**Date of Issue:** 2021-03-25

<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	2021-03-25	/

<b>Authorized for issue by:</b>			
		<i>Michael Niu</i>	
		_____	
		<b>Micheal Niu / Project Engineer</b>	
		<i>Parlam zhan</i>	
		_____	
		<b>Parlam Zhan / Reviewer</b>	



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### 3 General Information

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

Power supply:	AC 12-24V by adapter
---------------	----------------------

#### 3.2 Technical Specifications

##### 2.4G WiFi

Antenna Gain:	2.44dBi (Provided by the manufacturer)
Antenna Type:	PIFA antenna
Channel Spacing:	5MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20):11 802.11n(HT40):7
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz 802.11n(HT40): 2422MHz to 2452MHz

##### 5G WiFi

Operation Frequency:	Band	Mode	Frequency Range(MHz)	Number of channels
	U-NII- 1	802.11a/n(HT20)/ac(VHT20)	5180-5240	4
		802.11n(HT40)/ac(VHT40)	5190-5230	2
		802.11ac(VHT80)	5210	1
	U-NII-2A	802.11a/n(HT20)/ac(VHT20)	5260-5320	4
		802.11n(HT40)/ac(VHT40)	5270-5310	2
		802.11ac(VHT80)	5290	1
	U-NII-3	802.11a/n(HT20)/ac(VHT20)	5745-5825	5
		802.11n(HT40)/ac(VHT40)	5755-5795	2
		802.11ac(VHT80)	5775	1
Modulation Type:	802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)			
Channel Spacing:	802.11a/n(HT20)/ac(VHT20): 20MHz 802.11n(HT40)/ac(VHT40): 40MHz 802.11ac(VHT80): 80MHz			
Data Rate:	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: MCS0-7 802.11ac: MCS0-9			
Antenna Gain:	2.99dBi (Provided by the manufacturer)			
Antenna Type:	PIFA antenna			



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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



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## 5 Measurement and Calculation

### 5.1 Maximum transmit power

The Power Data is based on the RF Test Report SHEM210200159401; SHEM210200159402;

#### 2.4G WiFi

Test Mode	Test Channel	Ant	Power [dBm]	Power [mW]
11B	2412	Ant1	17.45	55.59
11B	2437	Ant1	17.66	58.34
11B	2462	Ant1	17.54	56.75
11G	2412	Ant1	16.59	45.60
11G	2437	Ant1	16.72	46.99
11G	2462	Ant1	16.81	47.97
11N20SISO	2412	Ant1	16.09	40.64
11N20SISO	2437	Ant1	16.44	44.06
11N20SISO	2462	Ant1	16.54	45.08
11N40SISO	2422	Ant1	17.59	57.41
11N40SISO	2437	Ant1	17.63	57.94
11N40SISO	2452	Ant1	18.05	<b>63.83</b>



5G

Test Mode	Frequency (MHz)	Ant	Power [dBm]	Power [mW]
802.11a	5180	Ant1	15.09	32.28
	5200	Ant1	15.08	32.21
	5240	Ant1	14.81	30.27
	5260	Ant1	15.66	36.81
	5300	Ant1	15.26	33.57
	5320	Ant1	15.45	35.08
	5745	Ant1	15.44	34.99
	5785	Ant1	15.40	34.67
	5825	Ant1	15.42	34.83
802.11n(HT 20)	5180	Ant1	15.12	32.51
	5200	Ant1	15.10	32.36
	5240	Ant1	15.00	31.62
	5260	Ant1	15.07	32.14
	5300	Ant1	15.55	35.89
	5320	Ant1	15.68	36.98
	5745	Ant1	15.74	37.50
	5785	Ant1	15.59	36.22
	5825	Ant1	15.48	35.32
802.11n(HT 40)	5190	Ant1	15.66	36.81
	5230	Ant1	15.68	36.98
	5270	Ant1	15.44	34.99
	5310	Ant1	15.89	38.82
	5755	Ant1	16.50	<b>44.67</b>
	5795	Ant1	16.44	44.06
802.11ac(V HT20)	5180	Ant1	15.13	32.58
	5200	Ant1	15.14	32.66
	5240	Ant1	14.96	31.33
	5260	Ant1	15.27	33.65
	5300	Ant1	15.52	35.65
	5320	Ant1	15.63	36.56
	5745	Ant1	15.73	37.41



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	5785	Ant1	15.67	36.90
	5825	Ant1	15.65	36.73
802.11ac(V HT40)	5190	Ant1	15.59	36.22
	5230	Ant1	15.65	36.73
	5270	Ant1	15.52	35.65
	5310	Ant1	15.96	39.45
	5755	Ant1	15.34	34.20
	5795	Ant1	15.41	34.75
802.11ac(V HT80)	5210	Ant1	11.91	15.52
	5290	Ant1	12.40	17.38
	5775	Ant1	12.67	18.49



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## 5.2 MPE Calculation

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>

For 2.4G WiFi :

The max. antenna gain is 2.44 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
63.83	1.754	20	0.02227	1	Pass

For 5G WiFi:

The max. antenna gain is 2.99 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
44.67	1.991	20	0.01769	1	Pass

2.4G WiFi and 5G WiFi modules can simultaneous transmitting, so the maximum rate of MPE is  $0.02227/1.0+0.01769/1.0=0.040\leq 1.0$ . according to the KDB447498 section 7.2 determine the device is exclusion from SAR test

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



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