



1 Cover Page

RF Exposure Evaluation Report

Application No.: SHEM2008006846CR
FCC ID: 2APV2-CSW2DAPC
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: Wire-Free Camera Base Station
Model No.: CS-W2D
Standard(s) : FCC Rules 47 CFR §2.1091
 KDB447498 D01 General RF Exposure Guidance v06

Date of Receipt: 2020-08-25
Date of Test: 2020-08-25 to 2020-08-28
Date of Issue: 2020-09-10

Test Result:	Pass*
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* 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



Revision Record			
Version	Description	Date	Remark
00	Original	2020-09-10	/

Authorized for issue by:			
			
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		Micheal Niu / Project Engineer	
			
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		Parlam Zhan /Reviewer	



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3 General Information

3.1 General Description of E.U.T.

Power supply:	DC 5V by Adapter
Test voltage:	AC 120V/60Hz

3.2 Technical Specifications

2.4G WiFi

Antenna Gain:	Antenna 1:2dBi Antenna 2:2dBi Directional gain:5.012dBi
Antenna Type:	Antenna 1:PIFA Antenna Antenna 2: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

433MHz

Modulation Type	ASK
Number of Channels	1
Operation Frequency	433.3MHz
Antenna Type	PIFA Antenna

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

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.

4 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure limits:

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

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

Note: Limit for 2.4GHz is 1.0 mW/cm²

5 Measurement and Calculation

5.1 Maximum transmit power

The 2.4GHz WiFi Power Data is based on the RF Test Report SHEM200800684601

Test Mode	Test Channel	Power [dBm]			Power [mW]		
		Ant1	Ant2	MIMO	Ant1	Ant2	MIMO
11B	2412	17.25	16.85	NA	53.09	48.42	NA
11B	2437	17.14	17.13	NA	51.76	51.64	NA
11B	2462	16.97	16.97	NA	49.77	49.77	NA
11G	2412	17.49	17.62	NA	56.10	57.81	NA
11G	2437	17.52	17.52	NA	56.49	56.49	NA
11G	2462	17.92	17.87	NA	61.94	61.24	NA
11N20MIMO	2412	16.50	16.25	19.39	44.67	42.17	86.90
11N20MIMO	2437	16.90	16.77	19.85	48.98	47.53	96.61
11N20MIMO	2462	16.85	16.65	19.76	48.42	46.24	94.62
11N40MIMO	2422	15.56	15.33	18.46	35.97	34.12	70.15
11N40MIMO	2437	15.77	15.63	18.71	37.76	36.56	74.30
11N40MIMO	2452	15.60	15.49	18.56	36.31	35.40	71.78

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/cm²

For WiFi:

For Antenna 1

The max. antenna gain is 2 dBi

Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
61.94	1.585	20	0.01953	1	Pass

For Antenna 2

The max. antenna gain is 2 dBi

Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
61.24	1.585	20	0.01931	1	Pass

For MIMO:

The max. antenna gain is 5.012 dBi

Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
96.61	3.171	20	0.06095	1	Pass

So the device is exclusion from SAR test.

--End of the Report--