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RF MPE REPORT

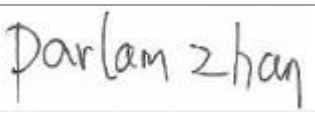
Application No.:	SHEM1812000295CR
FCC ID:	2APV2-CST31
IC:	23928-CST31
Applicant:	Hangzhou Ezviz Software Co., Ltd.
Address of Applicant:	Floor 16, Unit B, Building 1, No. 555, Qianmo Road, Binjiang District, Hangzhou City, Zhejiang Province
Manufacturer:	Hangzhou Ezviz Software Co., Ltd.
Address of Manufacturer:	Floor 16, Unit B, Building 1, No. 555, Qianmo Road, Binjiang District, Hangzhou City, Zhejiang Province
Factory:	Hangzhou Hikvision Electronics Co., Ltd.
Address of Factory:	No.299, Qiushi Road, Tonglu Economic Development Zone, Tonglu County, Hangzhou, Zhejiang, 310052, China.
Equipment Under Test (EUT):	
EUT Name:	SMART PLUG
Model No.:	CS-T31-16B
Add Model No.:	CS-T31-16A, CS-T31-16A-UK, CS-T31-16B-UK
Trade mark:	eZVIZ
Standard(s) :	FCC Rules 47 CFR §2.1091 KDB447498 D01 General RF Exposure Guidance v06 RSS-102 Issue 5 (March 2015)
Date of Receipt:	2019-01-08
Date of Test:	2019-01-16 to 2019-01-20
Date of Issue:	2019-01-31
Test Result:	**Pass***

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

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.

Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2019-01-31	/

Authorized for issue by:				
				
		Vincent Zhu / Project Engineer		
				
		Parlam Zhan /Reviewer		

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3 General Information

3.1 General Description of E.U.T.

Power supply:	AC 100-250V~,16A MAX
Test voltage:	AC 120V 60Hz

3.2 Technical Specifications

Antenna Type	PCB 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
Antenna Gain	2 dBi

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 17025:2005 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 (Certificate No. 201034-0)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program(NVLAP). Certificate No. 201034-0.

• FCC –Designation Number: CN5033

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.
Designation Number: CN5033. Test Firm Registration Number: 479755.

• Industry Canada (IC) – IC Assigned Code: 8617A

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A-1.

• 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:

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

Frequency	Power density(mW/cm^2)	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

5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report SHEM181200029501.

Test Mode	Test Channel	Ant	Power [dBm]	Power [mW]
11B	2412	Ant1	15.80	38.02
11B	2442	Ant1	**15.98**	**39.63**
11B	2472	Ant1	15.77	37.76
11G	2412	Ant1	14.53	28.38
11G	2442	Ant1	14.89	30.83
11G	2472	Ant1	14.86	30.62
11N20SISO	2412	Ant1	13.59	22.86
11N20SISO	2442	Ant1	14.05	25.41
11N20SISO	2472	Ant1	13.98	25.00
11N40SISO	2422	Ant1	13.08	20.32
11N40SISO	2437	Ant1	13.19	20.84
11N40SISO	2452	Ant1	13.23	21.04

5.2 MPE Calculation

For FCC:

The Max Conducted Peak Output Power is 39.63mW

According to the formula S= $\frac{PG}{4R^2\pi}$, we can calculate S which is MPE.

Note:

1) P (Watts) =Power Input to antenna = $10^{\frac{dBm}{10}}$ / 1000

2) G (Antenna gain in numeric) = 10^ (Antenna gain in dBi /10)

3) R = distance to the center of radiation of antenna (in meter) = 20cm

4) MPE limit = 1mW/cm²

$$S= \frac{PG}{4R^2\pi} = \frac{39.63 \times 1.58}{4 \times 400 \times 3.14} =0.01 \text{ mW/cm}^2$$

For IC:

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 x 10^{-2} f0.6834 W (adjusted for tune-up tolerance), where f is in MHz

E.I.R.P.=P*G=0.03963 x 1.58=0.06W＜2.68W

So the device is exclusion from SAR test.

--End of the Report--