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

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1 Cover Page

RF MPE REPORT

Application No.:	SZEM1710011019CR (SHEM1706003867CR)
Applicant:	Hangzhou Ezviz Network Co., Ltd
FCC ID:	2ALZF-C3A
Equipment Under Test (EUT): **NOTE:** The following sample(s) was/were submitted and identified by the client as	
Product Name:	Wire-free Indoor/Outdoor Battery Camera
Model No.(EUT):	CS-CV316
Standards:	FCC Rules 47 CFR §2.1091 KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt:	2017-06-19
Date of Test:	2017-06-20 to 2017-06-29
Date of Issue:	2017-10-26
Test Result:	**Pass***

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

Jack Zhang
EMC Laboratory 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	**Chapter**	**Date**	**Modifier**	**Remark**
00	/	2017-10-26	/	Original

Authorized for issue by:				
Engineer		Foray Chen **Foray Chen /Project Engineer**		2017-06-29 **Date**
Reviewer		Eric Fu **Eric Fu /Reviewer**		2017-10-26 **Date**

2 Contents

3 General Information

3.1 Client Information

Applicant:	Hangzhou Ezviz Network Co., Ltd
Address of Applicant:	Floor 7, Building 1, No.700, Dongliu Road, Binjiang District, Hangzhou
Manufacturer:	Hangzhou Ezviz Network Co., Ltd
Address of Manufacturer:	Floor 7, Building 1, No.700, Dongliu Road, Binjiang District, Hangzhou
Factory:	Hangzhou Hikvision Electronics Co., Ltd.
Address of Factory:	No.299, Qiushi Road, Tonglu Economic Development Zone, Tonglu County, Hangzhou.

3.1 General Description of E.U.T.

Brand Name:	eZVIZ
Product Description:	Fixed product with WiFi and 915MHz function
Rated Input:	DC 12V by Lithium battery*4 Remark: Supply the EUT with new battery during the testing.
Test Voltage:	DC 12V

3.2 Technical Specifications

Operation Frequency:	WiFi: 2412MHz-2462MHz 915MHz: 902MHz-928MHz (906MHz, 908MHz, 910MHz, 912MHz, 914MHz, 916MHz, 918MHz, 920MHz, 922MHz, 924MHz)
Modulation Technique:	WiFi: 802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(64QAM, 16QAM, QPSK, BPSK) 915MHz: FSK
Channel Space:	915MHz: 2MHz
Data Rate:	WiFi: 802.11b: 1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n20: 13/26/39/52/78/104/117/135Mbps
Number of Channel:	WiFi: 11 915MHz: 10
Antenna Type	Integral Antenna
Antenna Gain:	WiFi: 4 dBi

3.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch
No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.
Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

3.4 Test Facility

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

• CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab 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.

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• VCCI

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

• FCC –Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.
Designation Number: CN1178. Test Firm Registration Number: 406779.

• Industry Canada (IC)

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

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

For 915MHz band, the limit of worse case is 0.604 mW/cm^2

5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report SZEM171001101902.

Test Mode	Test Channel	Power[dBm]	Power (mW)
11B	2412	16.42	43.85
11B	2437	16.89	48.87
11B	2462	15.7	37.15
11G	2412	20.35	108.39
11G	2437	20.73	118.30
11G	2462	19.84	96.38
11N20SISO	2412	20.59	114.55
11N20SISO	2437	20.96	**124.74**
11N20SISO	2462	20.2	104.71

915MHz

Frequency (MHz)	Level (dBuV/m)	Output Power (dBm)	Output Power (mW)
906	91.44	-3.86	0.41
	86.24	-9.06	0.12
914	91.42	-3.88	0.41
	82.02	-13.28	0.05
924	91.75	-3.55	0.44
	77.86	-17.44	0.02

5.2 MPE Calculation

The best case gain of the antenna is 4dBi. 4dB logarithmic terms convert to numeric result is nearly 2.51.

For 2.4GHz WiFi:The Max Conducted Peak Output Power is 124.74mW;

For 915MHz: The Max E.I.R.P is 0.44mW(0.00044W).

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

WiFi: S= $\frac{PG}{4R^2\pi}$ = $\frac{124.74\times 2.51}{4\times 400\times 3.14}$ =0.062 mW/cm²

915MHz: S= $\frac{PG}{4R^2\pi}$ = $\frac{0.44}{4\times 400\times 3.14}$ =0.00009 mW/cm²

915MHz and WiFi modules can simultaneous transmitting, so the maximum rate of MPE is $\frac{0.062}{1.0}+\frac{0.00009}{0.604}$ =0.062<=1.0. according to the KDB447498 section 7.2 determine the device is exclusion from SAR test.

So the device is exclusion from SAR test.

--End of the Report--