



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

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Report No.: SZEM170900939703
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1 Cover Page

RF MPE REPORT

Application No.:	SZEM1709009397CR
Applicant:	Hangzhou Ezviz Network Co., Ltd.
FCC ID:	2ALZF-X5C
Equipment Under Test (EUT): NOTE: The following sample(s) was/were submitted and identified by the client as	
Product Name:	Wireless NVR
Model No.(EUT):	CS-X5C-8
Add Model No.:	CS-X5C-4
Standards:	FCC Rules 47 CFR §2.1091 KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt:	2017-07-25
Date of Test:	2017-07-25 to 2017-08-31
Date of Issue:	2017-09-19
Test Result:	Pass*

* In the configuration tested, the EUT detailed in this report 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.

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Revision Record				
Version	Chapter	Date	Modifier	Remark
00	/	2017-09-19	/	Original

Authorized for issue by:				
Engineer		 _____ Foray Chen /Project Engineer		2017-09-04 _____ Date
Reviewer		 _____ Eric Fu /Reviewer		2017-09-04 _____ Date

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3 General Information

3.1 Client Information

Applicant:	Hangzhou Ezviz Network Co., Ltd.
Address of Applicant:	Floor7,Building1,No.700,Dongliu,Road,Binjiang District, Hangzhou, Zhejiang, 310052, China.
Manufacturer:	Hangzhou Ezviz Network Co., Ltd.
Address of Manufacturer:	Floor7,Building1,No.700,Dongliu,Road,Binjiang District, Hangzhou, Zhejiang, 310052, China.
Factory:	1. Hangzhou Hikvision Technology Co., Ltd. 2. Hangzhou Hikvision Electronics Co., Ltd.
Address of Factory:	1. No.700, Dongliu Road, Binjiang District, Hangzhou City, Zhejiang, 310052, China 2. No.299, Qiushi Road, Tonglu Economic Development Zone, Tonglu County, Hangzhou, Zhejiang, 310052, China.

3.1 General Description of E.U.T.

Brand Name:	EZVIZ		
Product Description:	Fixed product with 2.4G WiFi function		
Rated Input:	DC 12V 1A		
Test Voltage:	AC 120V 60Hz for adapter		
Adapter	Rated Input:	AC 100V-240V 50/60Hz 0.7A	
	Rated Output:	DC 12V 2A	
	Cable length:	AC port:	2 wires
		DC port:	100 cm
Test Voltage:	AC 120V 60Hz for adapter		

3.2 Technical Specifications

Operation Frequency:	802.11 b/g/n(HT20): 2412MHz~2462MHz 802.11 n(HT40): 2422MHz~2452MHz
Modulation Technique:	802.11 b: DSSS(CCK, DQPSK, DBPSK) 802.11 g/n(HT20/n(HT40): OFDM(64QAM, 16QAM, QPSK, BPSK)
Data Rate:	802.11 b: 1/2/5.5/11Mbps 802.11 g: 6/9/12/18/24/36/48/54Mbps 802.11 n: MCS0-7
Number of Channel:	802.11 b/g/n(HT20): 11 802.11 n(HT40): 7
Antenna Type:	Integral Antenna(2*2 MIMO)
Antenna Gain:	4.5 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

5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report SZEM170900939703.

Test Mode	Channel	Antenna 1 Power[dBm]	Antenna 2 Power[dBm]	MIMO Power[dBm]	Antenna 1 Power[mW]	Antenna 2 Power[mW]	MIMO Power[mW]
11B	2412	21.08	20.91	N/A	128.23	123.31	N/A
11B	2437	20.94	20.61	N/A	124.17	115.08	N/A
11B	2462	22.13	21.79	N/A	163.31	151.01	N/A
11G	2412	18.13	17.65	N/A	65.01	58.21	N/A
11G	2437	23.76	23.67	N/A	237.68	232.81	N/A
11G	2462	19.03	18.55	N/A	79.98	71.61	N/A
11N20SISO	2412	17.58	17.12	N/A	57.28	51.52	N/A
11N20SISO	2437	23.21	23.11	N/A	209.41	204.64	N/A
11N20SISO	2462	18.43	17.97	N/A	69.66	62.66	N/A
11N40SISO	2422	23.58	23.2	N/A	228.03	208.93	N/A
11N40SISO	2437	23.66	23.36	N/A	232.27	216.77	N/A
11N40SISO	2452	24.28	23.93	N/A	267.92	247.17	N/A
11N20MIMO	2412	17.66	17.1	20.40	58.34	51.29	109.63
11N20MIMO	2437	23.4	23.14	26.28	218.78	206.06	424.84
11N20MIMO	2462	18.64	17.95	21.32	73.11	62.37	135.49
11N40MIMO	2422	23.82	23.55	26.70	240.99	226.46	467.45
11N40MIMO	2437	23.78	23.52	26.66	238.78	224.91	463.69
11N40MIMO	2452	24.4	23.95	27.19	275.42	248.31	523.74

5.2 MPE Calculation

The Max Conducted Peak Output Power is 27.19dBm (523.74 mW);

The best case gain of the antenna is 4.5dBi. 4.5dB logarithmic terms convert to numeric result is nearly 2.82

The best case gain of the antenna is 4.5dBi. 4.5dB logarithmic terms convert to numeric result is nearly 2.82. The two antennas completely correlated with each other, so the best case gain of the two antenna in MIMO mode is 7.51dBi, 7.51dB logarithmic terms convert to numeric result is nearly 5.64

For FCC:

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

$$S = \frac{PG}{4R^2\pi} = \frac{523.74 \times 5.64}{4 \times 400 \times 3.14} = 0.588\ mW/cm^2$$

So the device is exclusion from SAR test.

--End of the Report--