SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

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1 Cover Page

RF MPE REPORT

Application No.:	SHEM1701000405CR
Applicant:	Zhejiang Dahua Vision Technology Co., Ltd.
FCC ID:	SVNDH-PFM889
Equipment Under Test (EUT): **NOTE:** The following sample(s) was/were submitted and identified by the client as	
Product Name:	Wireless Transmission Device
Model No.(EUT):	DH-PFM889-IM
Add Model No.:	PFM889-IM, DH-PFM889-I, PFM889-I, DH-PFM889-O, PFM889-O, DH-PFM889-OM, PFM889-OM, DH-PFM889-OA, PFM889-OA
Standards:	FCC Rules 47 CFR §2.1091 KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt:	2017-01-27
Date of Test:	2016-02-27 to 2017-05-23
Date of Issue:	2017-06-07
Test Result:	**Pass***

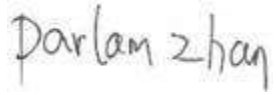
* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Parlam Zhan
E&E Section Manager
SGS-CSTC (Shanghai) Co., Ltd.

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.

2 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
00	/	2017-06-07	/	Original

Authorized for issue by:				
Engineer		Eddy Zong **Print Name**		
Clerk		Susie Liu **Print Name**		
Reviewer		Parlam Zhan **Print Name**		

3 Contents

4 General Information

4.1 Client Information

Applicant:	Zhejiang Dahua Vision Technology Co., Ltd.
Address of Applicant:	No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China
Manufacturer:	Zhejiang Dahua Vision Technology Co., Ltd.
Address of Manufacturer:	No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China
Factory:	Zhejiang Dahua Vision Technology Co., Ltd.
Address of Factory:	No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China

4.1 General Description of E.U.T.

Product Description:	Fixed product with 5.8GHz WiFi function
Power Supply:	48V 0.25A by POE or DC 48V 1A
Test Voltage:	AC 120V 60Hz

4.2 Technical Specifications

Operation Frequency:	2.4GHz 802.11 b/g/n(HT20): 2412MHz~2462MHz 802.11 n(HT40): 2422MHz~2452MHz 5GHz: 802.11a/n(HT20)/ac(HT20): 5745MHz-5825MHz 802.11n(HT40)/ac(HT40): 5755MHz-5795MHz 802.11ac(HT80): 5775MHz
Modulation Technique:	2.4GHz: 802.11 b: DSSS(CCK, DQPSK, DBPSK) 802.11 g/n(HT20/n(HT40): OFDM(64QAM, 16QAM, QPSK, BPSK) 5GHz: OFDM(256QAM, 64QAM, 16QAM, QPSK, BPSK) Remark: 256QAM for 802.11 ac only
Data Rate:	2.4GHz 802.11b: 1/2/5.5/11Mbps, 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: MCS0-15 up to 300Mbps (2T X 2R MIMO) 5GHz: 802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: MCS0-7 802.11ac: MCS0-9
Number of Channel:	2.4GHz: 802.11 b/g/n(HT20): 11 802.11 n(HT40): 7 5GHz: 802.11 a/n(HT20) /ac(HT20): 5 Channel 149, 153, 157, 161, 165 802.11 n(HT40) /ac(HT40): 2 Channel 151, 159 802.11 ac(HT80): 1 Channel 155
Antenna Type:	2.4GHz & 5GHz: Antenna 1:PCB Antenna, Antenna 2:PCB Antenna
Antenna Gain:	2.4GHz & 5GHz: Antenna 1: 3 dBi, Antenna 2: 3 dBi

4.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

4.4 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.

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683.

- **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-3868, C-4336, T-2221, G-830 respectively.

5 Test Standards and Limits

5.1 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

6 Measurement and Calculation

6.1 Maximum transmit power

The Power Data is based on the RF Test Report SHEM170100040502 & SHEM170100040503

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	20.64	19.85	N/A	115.88	96.61	N/A
11B	2437	20.17	18	N/A	103.99	63.10	N/A
11B	2462	19.6	19.43	N/A	91.20	87.70	N/A
11G	2412	21.5	21.27	N/A	141.25	133.97	N/A
11G	2437	21.29	21.27	N/A	134.59	133.97	N/A
11G	2462	21.04	21.08	N/A	127.06	128.23	N/A
11N20SISO	2412	21.26	21.25	N/A	133.66	133.35	N/A
11N20SISO	2437	21.02	20.79	N/A	126.47	119.95	N/A
11N20SISO	2462	21.85	21.14	N/A	153.11	130.02	N/A
11N40SISO	2422	22.14	21.47	N/A	163.68	140.28	N/A
11N40SISO	2437	22.21	21.4	N/A	166.34	138.04	N/A
11N40SISO	2452	21.91	21.02	N/A	155.24	126.47	N/A
11N20MIMO	2412	21.97	20.38	**24.26**	157.40	109.14	**266.69**
11N20MIMO	2437	21.04	18.31	22.90	127.06	67.76	194.98
11N20MIMO	2462	20.95	18.88	23.05	124.45	77.27	201.84
11N40MIMO	2422	20.94	18.78	23.00	124.17	75.51	199.53
11N40MIMO	2437	20.83	18.71	22.91	121.06	74.30	195.43
11N40MIMO	2452	20.62	19.02	22.90	115.35	79.80	194.98

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]
11A	5745	20.44	19.33	N/A	110.66	85.70	N/A
11A	5785	21.47	21.01	N/A	140.28	126.18	N/A
11A	5825	20.42	19.01	N/A	110.15	79.62	N/A
11N20	5745	19.62	17.57	N/A	91.62	57.15	N/A
11N20	5785	20.21	19.52	N/A	104.95	89.54	N/A
11N20	5825	17.12	17.45	N/A	51.52	55.59	N/A
11N40	5755	20.71	18.77	N/A	117.76	75.34	N/A
11N40	5795	21.23	20.87	N/A	132.74	122.18	N/A
11AC20	5745	18.72	18.93	N/A	74.47	78.16	N/A
11AC20	5785	21.32	20.03	N/A	135.52	100.69	N/A
11AC20	5825	20.01	18.54	N/A	100.23	71.45	N/A
11AC40	5755	19.92	19.79	N/A	98.17	95.28	N/A
11AC40	5795	21.88	21.13	N/A	154.17	129.72	N/A
11AC80	5775	19.94	19.75	N/A	98.63	94.41	N/A
11N20MIMO	5745	18.59	17.03	20.89	72.28	50.47	122.74
11N20MIMO	5785	19.10	18.01	21.60	81.28	63.24	144.54
11N20MIMO	5825	18.09	18.81	21.48	64.42	76.03	140.60
11N40MIMO	5755	19.51	17.82	21.76	89.33	60.53	149.97
11N40MIMO	5795	19.72	18.72	22.26	93.76	74.47	168.27
11AC20MIMO	5745	17.88	17.42	20.67	61.38	55.21	116.68
11AC20MIMO	5785	20.02	22.97	24.75	100.46	198.15	298.54
11AC20MIMO	5825	19.04	19.01	22.04	80.17	79.62	159.96
11AC40MIMO	5755	20.14	18.51	22.41	103.28	70.96	174.18
11AC40MIMO	5795	20.58	23.56	**25.33**	114.29	226.99	**341.19**
11AC80MIMO	5775	19.76	18.64	22.25	94.62	73.11	167.88

6.2 MPE Calculation

The Max Conducted Peak Output Power is 25.33dBm (341.19mW);
The best case gain of the antenna is 3dBi. 3dB logarithmic terms convert to numeric result is nearly 2.
the two antennas completelycorrelated with each other ,so in MIMO mode is nearly 4.

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= $\frac{PG}{4R^2\pi}$ = $\frac{341.19\times 4}{4\times 400\times 3.14}$ =0.2716 mW/cm^2

2.4GHz and 5GHz WiFi modules can't simultaneous transmitting,

So the device is exclusion from SAR test.

7 EUT Constructional Details

Refer to the < External Photos > & < Internal Photos >.

--End of the Report--