

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

Telephone: +86 (0) 21 6191 5666 Fax: +86 (0) 21 6191 5678

ee.shanghai@sgs.com

Report No.: SHEM170100040504

### 1 Cover Page

### RF MPE REPORT

Application No.:	SHEM1701000405CR				
Applicant:	Zhejiang Dahua Vision Technology Co., Ltd.				
FCC ID:	SVNDH-PFM889				
Equipment Under Tes	t (EUT):				
NOTE: The following sa	imple(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				
<b>Date of Test:</b> 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.



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.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms\_and\_conditions.htm">www.sgs.com/terms\_and\_conditions.htm</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms\_edocument.htm">www.sgs.com/terms\_edocument.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction. documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to thesample(s) tested and such sample(s) are retained for 90 days only



Report No.: SHEM170100040504

Page: 2 of 9

### 2 Version

Revision Record							
Version	Chapter	Remark					
00	/	2017-06-07	1	Original			

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



Report No.: SHEM170100040504

Page: 3 of 9

### 3 Contents

		Pa	ge
1	C	COVER PAGE	1
2	$\mathbf{V}$	TERSION	2
3	C	CONTENTS	3
4	G	ENERAL INFORMATION	4
	4.1	CLIENT INFORMATION	4
	4.1	GENERAL DESCRIPTION OF E.U.T.	4
	4.2	TECHNICAL SPECIFICATIONS	4
	4.3	TEST LOCATION	5
	4.4	TEST FACILITY	5
5	Т	EST STANDARDS AND LIMITS	6
	5.1	FCC RADIOFREQUENCY RADIATION EXPOSURE LIMITS:	
6	M	IEASUREMENT AND CALCULATION	7
	6.1	MAXIMUM TRANSMIT POWER	7
	6.2	MPE CALCULATION	9
7	E	UT CONSTRUCTIONAL DETAILS	9



Report No.: SHEM170100040504

Page: 4 of 9

### 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

	<del>_</del>
	2.4GHz
	802.11 b/g/n(HT20): 2412MHz~2462MHz
	802.11 n(HT40): 2422MHz~2452MHz
Operation Frequency:	5GHz:
	802.11a/n(HT20)/ac(HT20): 5745MHz-5825MHz
	802.11n(HT40)/ac(HT40): 5755MHz-5795MHz
	802.11ac(HT80): 5775MHz
	2.4GHz:
	802.11 b: DSSS(CCK, DQPSK, DBPSK)
Modulation Technique:	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
	2.4GHz
	802.11b: 1/2/5.5/11Mbps,
	802.11g: 6/9/12/18/24/36/48/54Mbps
Data Rate:	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
	802.11n. MCS0-7 802.11ac: MCS0-9
	2.4GHz:
	802.11 b/g/n(HT20): 11
	802.11 n/g/n(1120). 11 802.11 n(HT40): 7
Number of Channel:	5GHz:
Number of Channel.	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
	2.4GHz & 5GHz:
Antenna Type:	Antenna 1:PCB Antenna, Antenna 2:PCB Antenna
	2.4GHz & 5GHz:
Antenna Gain:	Antenna 1: 3 dBi, Antenna 2: 3 dBi
	Automa 1. o dbi, Automa 2. o dbi

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms\_and\_conditions.htm">www.sgs.com/terms\_and\_conditions.htm</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction. documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to thesample(s) tested and such sample(s) are retained for 90 days only



Report No.: SHEM170100040504

Page: 5 of 9

#### 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.



Report No.: SHEM170100040504

Page: 6 of 9

#### 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 <sup>2</sup> )	Averaging time(minutes)		
300MHz~1.5GHz	f/1500	30		
1.5GHz~100GHz	1.0	30		



Report No.: SHEM170100040504

Page: 7 of 9

#### 6 Measurement and Calculation

#### 6.1 Maximum transmit power

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

		Antenna 1	Antenna 2	MIMO	Antenna 1	Antenna 2	MIMO
Test Mode	Channel	Power[dBm]	Power[dBm]	Power[dBm]	Power[mW]	Power[mW]	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



Report No.: SHEM170100040504

Page: 8 of 9

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



Report No.: SHEM170100040504

Page: 9 of 9

#### 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

dBm

- 1) P (Watts) = Power Input to antenna =  $10^{10}$  / 1000
- 2) G (Antenna gain in numeric) = 10<sup>^</sup> (Antenna gain in dBi /10)
- 3) R = distance to the center of radiation of antenna (in meter) = 20cm
- 4) MPE limit = 1mW/cm<sup>2</sup>

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

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--