

MPE REPORT

FCC ID: 2AP56-SD5W1080PSHX

Date of issue: Dec. 12, 2018

Report Number:	MTi181211E050
Sample Description:	IP Camera
Model(s):	SD5W-1080PS-HX, SD5BW-1080PS-HX, SD6W-1080PS-HX, SD6BW-1080PS-HX, SD7W-1080PS-HX, SD7BW-1080PS-HX, SD8W-1080PS-HX, SD8BW-1080PS-HX, SD9W-1080PS-HX, SD9BW-1080PS-HX
Applicant:	Shenzhen Zhaoyang Tianxia Technology CO., Ltd.
Address:	Room 217, Building C1, Bantian International Center, Bantian Street, Longgang District, Shenzhen, China
Date of Test:	Nov. 23, 2018 to Dec. 12, 2018

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

TEST RESULT CERTIFICATION	
Applicant's name:	Shenzhen Zhaoyang Tianxia Technology CO., Ltd.
Address:	Room 217, Building C1, Bantian International Center, Bantian Street, Longgang District, Shenzhen, China
Manufacture's name:	Shenzhen Zhaoyang Shidai Technology CO., Ltd.
Address:	F6, Block F, JIN HENG RUN Industrial Park, Xintang, Fucheng Street, Longhua District, Shenzhen, China
Product name:	IP Camera
Trademark:	SV3C
Model name:	SD5W-1080PS-HX
Series model:	SD5BW-1080PS-HX, SD6W-1080PS-HX, SD6BW-1080PS-HX, SD7W-1080PS-HX, SD7BW-1080PS-HX, SD8W-1080PS-HX, SD8BW-1080PS-HX, SD9W-1080PS-HX, SD9BW-1080PS-HX
Difference in series models:	All the model are the same circuit and RF module, except the appearance.
RF Exposure Procedures:	KDB 447498 D01 v06

This device described above has been tested by Shenzhen Microtest Co., Ltd. and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Tested by:



Demi Mu

Dec. 12, 2018

Reviewed by:



Blue Zheng

Dec. 12, 2018

Approved by:



Smith Chen

Dec. 12, 2018

1. RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

MPE Calculation Method

Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π = 3.14115926

R = distance between observation point and center of the radiator in cm(20cm)

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

Operation Frequency: WIFI 802.11b/g/n20:2412~2462MHz

Power density limited: 1mW/ cm²

Antenna Type: External Antenna;

Antenna gain: 5dBi

R=20cm

$mW=10^{(dBm/10)}$

Antenna gain Numeric= $10^{(dBi/10)}= 10^{(5/10)}=3.16$

2. SAR Test Exclusion Thresholds

We use 5mm as separation distance to calculated.

Bluetooth DTS:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density(mW/cm ²)	(mW/cm ²)
				(dBm)	(mW)	Numeric		
Ant A	Ant A	Ant A	Ant A	Ant A	Ant A	Ant A		
2412	802.11b	13.69	13±1	14	25.118864	3.16	0.01579	1
2437		13.93	13±1	14	25.118864	3.16	0.01579	1
2462		13.69	13±1	14	25.118864	3.16	0.01579	1
2412	802.11g	13.39	13±1	14	25.118864	3.16	0.01579	1
2437		13.33	13±1	14	25.118864	3.16	0.01579	1
2462		13.28	13±1	14	25.118864	3.16	0.01579	1
2412	802.11n H20	10.99	10±1	11	12.589254	3.16	0.00791	1
2437		10.96	10±1	11	12.589254	3.16	0.00791	1
2462		10.42	10±1	11	12.589254	3.16	0.00791	1

Conclusion:

For the max result: $0.01579 \leq 1.0$ for 1g SAR, No SAR is required.

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