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Report No.: SHEM180200133502
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1 Cover Page

RF MPE REPORT

Application No.:	SHEM1802001335CR
Applicant:	Hangzhou Hikvision Digital Technology Co., Ltd.
FCC ID:	2ADTD-MP5504
Equipment Under Test (EUT):	NOTE: The following sample(s) was/were submitted and identified by the client as
Product Name:	Mobile DVR
Model No.(EUT):	DS-M5504HM-T/GW/WI58, DS-M5504HM-T/GLF/WI58
Add Model No.:	DS-MP5504/GW/WI58, DS-MP5604/GW/WI58, DS-MP5504/GLF/WI58, DS-MP5604/GLF/WI58, DS-MP5YYY-WW/AAA/BBBB
Standards:	FCC Rules 47 CFR §2.1091 KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt:	2018-02-24
Date of Test:	2018-03-27 to 2018-03-29
Date of Issue:	2018-05-17
Test Result:	Pass*

* In the configuration tested, the EUT 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.

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Revision Record			
Version	Description	Date	Remark
00	Original	2018-05-17	/

Authorized for issue by:				
		Vincent Zhu		
		Vincent Zhu /Project Engineer		
		Parlam Zhan		
		Parlam Zhan /Reviewer		



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3 General Information

3.1 Client Information

Applicant:	Hangzhou Hikvision Digital Technology Co., Ltd.
Address of Applicant:	No. 555 Qianmo Road, Binjiang District, Hangzhou 310052, China
Manufacturer:	Hangzhou Hikvision Digital Technology Co., Ltd.
Address of Manufacturer:	No. 555 Qianmo Road, Binjiang District, Hangzhou 310052, China
Factory:	1. Hangzhou Hikvision Technology Co., Ltd. 2. Hangzhou Hikvision Electronics Co., Ltd. 3. Hangzhou Hikvision Digital Technology 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, No. 555 Qianmo Road, Binjiang District, Hangzhou 310052, China

3.1 General Description of E.U.T.

Power supply:	DC 9V~32V
Test voltage:	DC 24V
Internal source:	620MHz
Antenna Gain	3.5 dBi
Antenna Type	Monopole Antenna

3.2 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

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3.3 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.

- **NVLAP (Certificate No. 201034-0)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program(NVLAP). Certificate No. 201034-0.

- **FCC –Designation Number: CN5033**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

- **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-12221, G-10830 respectively.

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 850MHz Band: the limit of worse case is 0.550 mW/cm²

For 700MHz Band: the limit of worse case is 0.471 mW/cm²

5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report SHEM180200133501.

Test Mode	Test Channel	Power [dBm]		Power [mW]	
		ANT0	ANT1	ANT0	ANT1
11A	5745	13.51	11.39	22.44	13.77
11A	5785	12.75	10.84	18.84	12.13
11A	5825	12.55	10.58	17.99	11.43
11N20	5745	13.56	11.20	22.70	13.18
11N20	5785	12.49	10.64	17.74	11.59
11N20	5825	13.68	10.36	23.33	10.86
11N40	5755	13.53	10.34	22.54	10.81
11N40	5795	13.15	10.02	20.65	10.05
11AC20	5745	13.60	11.08	22.91	12.82
11AC20	5785	13.03	10.50	20.09	11.22
11AC20	5825	12.48	10.32	17.70	10.76
11AC40	5755	12.79	10.24	19.01	10.57
11AC40	5795	12.45	9.92	17.58	9.82
11AC80	5775	12.60	10.67	18.20	11.67

The power of 3G band & 4G band base on the FCC Certificate module of UC20(3G): FCC ID: XMR201510UC20 and the module of ME909u-523(4G): FCC ID:QISME909u-523.

5.2 MPE Calculation

For WiFi function, the max conducted output power is 22.70mW.

Based on original module grantee,

For 3G module (UC20):

850MHz band: the max output power is 0.179W;

1900MHz band: the max output power is 0.192W.

For 4G module (ME909u-523):

700MHz band: the max output power is 0.241W;

850MHz band: the max output power is 0.229W;

1900MHz band: the max output power is 0.427W.

The best case antenna gain for 5.8G WiFi band, 3G module (UC20), 4G module (ME909u-523) is 3.5dBi, 1dBi, and 2dBi. the logarithmic terms convert to numeric result is nearly 2.24, 1.26, 1.58;

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

For WiFi:

$$S = \frac{PG}{4R^2\pi} = \frac{22.70 \times 2.24}{4 \times 400 \times 3.14} = 0.01\ mW/cm^2$$

For 3G module (UC20):

$$850MHz\ band: S = \frac{PG}{4R^2\pi} = \frac{179 \times 1.26}{4 \times 400 \times 3.14} = 0.045\ mW/cm^2$$

$$1900MHz\ band: S = \frac{PG}{4R^2\pi} = \frac{192 \times 1.26}{4 \times 400 \times 3.14} = 0.048\ mW/cm^2$$

For 4G module (ME909u-523):

$$700MHz\ band: S = \frac{PG}{4R^2\pi} = \frac{241 \times 1.58}{4 \times 400 \times 3.14} = 0.076\ mW/cm^2$$

$$850MHz\ band: S = \frac{PG}{4R^2\pi} = \frac{229 \times 1.58}{4 \times 400 \times 3.14} = 0.072\ mW/cm^2$$

$$1900MHz\ band: S = \frac{PG}{4R^2\pi} = \frac{427 \times 1.58}{4 \times 400 \times 3.14} = 0.134\ mW/cm^2$$

3G module and WiFi module can simultaneous transmitting, so the maximum rate of MPE is,

$$\text{For 850MHz band: } \frac{0.01}{1} + \frac{0.045}{0.55} = 0.091 \leq 1.0.$$

$$\text{For 1900MHz band: } \frac{0.01}{1} + \frac{0.048}{1} = 0.058 \leq 1.0.$$

4G module and WiFi module can simultaneous transmitting, so the maximum rate of MPE is,

$$\text{For 700MHz band : } \frac{0.01}{1} + \frac{0.076}{0.471} = 0.171 \leq 1.0.$$

$$\text{For 850MHz band: } \frac{0.01}{1} + \frac{0.072}{0.55} = 0.141 \leq 1.0.$$

$$\text{For 1900MHz band: } \frac{0.01}{1} + \frac{0.134}{1} = 0.144 \leq 1.0.$$

So the device is exclusion from SAR test.

--End of the Report--