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Report No.: SHEM180400313203
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1 Cover Page

MPE REPORT

Application No.:	SHEM1804003132CR
Applicant:	Hangzhou Hikvision Digital Technology Co., Ltd
FCC ID:	2ADTD-K1A802MF
Equipment Under Test (EUT):	
NOTE: The following sample(s) was/were submitted and identified by the client as	
Product Name:	Fingerprint Time Attendance Terminal
Model No.(EUT):	DS-K1A802MF
Add Model No.:	DS-K1A802MF-1, DS-K1A802MF-B, DS-K1A802MF-E, DS-K1A8503MF, DS-K1A8503MF-B, DS-K1A802MFHGO, DS-K1A802MFOQU, DS-K1A802MFGPR, DS-K1A802MFROG, DS-K1A802MFURG
Standards:	FCC Rules 47 CFR §2.1091 KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt:	2018-04-26
Date of Test:	2018-05-04 to 2018-05-10
Date of Issue:	2018-05-21
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

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	2018-05-21	/

Authorized for issue by:				
				
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		Vincent Zhu /Project Engineer		
				
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		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 City, Zhejiang Province, 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 12V-1A by Adapter Adapter: Model: DSA-12PFT-12 FEU 120100 INPUT: 100~240V ~50/60Hz 0.5A OUTPUT: +12V-1A
Test voltage:	AC 120V 60Hz
Cable:	DC Cable 150cm for Adapter

3.2 Technical Specifications

2.4G WiFi

Antenna Gain	2dBi
Antenna Type	Connector Antenna
Channel Spacing	5MHz
Modulation Type	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) 802.11n(HT20 and HT40): OFDM(64QAM, 16QAM, QPSK, BPSK)
Number of Channels	802.11b/g/n(HT20):11 802.11n(HT40):7
Operation Frequency	802.11b/g/n(HT20): 2412MHz to 2462MHz 802.11n(HT40): 2422MHz to 2452MHz

13.56MHz

Operation Frequency:	13.56MHz
Modulation Type:	ASK
Antenna Type	Loop Antenna



3.3 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

3.4 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.

- **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 range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
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
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

Note: Limit for 13.56MHz is 60.77 V/m



5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report SHEM180400313201 & SHEM180400313202

Test Mode	Test Channel	Power[dBm]	Power[mW]
11B	2412	15.25	33.50
11B	2437	15.13	32.58
11B	2462	14.92	31.05
11G	2412	12.32	17.06
11G	2437	12.40	17.38
11G	2462	11.87	15.38
11N20SISO	2412	11.95	15.67
11N20SISO	2437	11.52	14.19
11N20SISO	2462	11.49	14.09
11N40SISO	2422	11.82	15.21
11N40SISO	2437	12.02	15.92
11N40SISO	2452	11.68	14.72

13.56MHz: 52.79dBuV/m



5.2 MPE Calculation

The Max Conducted Average Output Power is 15.25dBm (33.50mW);

The best case gain of the antenna is 2dBi. 2dB logarithmic terms convert to numeric result is nearly 1.58

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

For WiFi: $S = \frac{PG}{4R^2\pi} = \frac{33.50 \times 1.58}{4 \times 400 \times 3.14} = 0.011\ mW/cm^2$

For 13.56MHz: 52.79dBuV/m = 0.000436 V/m < 60.77 V/m.

13.56MHz and WiFi modules can simultaneous transmitting, so the maximum rate of MPE is $\frac{0.000436}{60.77} + \frac{0.011}{1} = 0.011 \leq 1.0$. according to the KDB447498 section 7.2 determine the device is exclusion from SAR test.

--End of the Report--