



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

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.: SHEM180400313903
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1 Cover Page

MPE REPORT

| | |
|--|--|
| Application No.: | SHEM1804003139CR |
| Applicant: | Hangzhou Hikvision Digital Technology Co., Ltd |
| FCC ID: | 2ADTD-K1A802EF |
| 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-K1A802EF |
| Add Model No.: | DS-K1A802F,DS-K1A802EF-1,DS-K1A802F-1,DS-K1A802EF-B,DS-K1A802F-B,DS-K1A802EF-E,DS-K1A802F-E,DS-K1A8503F,DS-K1A8503EF,DS-K1A8503F-B,DS-K1A8503EF-B,DS-K1A802EFHGO,DS-K1A802FHGO,DS-K1A802EFOQU,DS-K1A802FOQU,DS-K1A802EFGPR,DS-K1A802FGPR,DS-K1A802EFROG,DS-K1A802FROG,DS-K1A802EFURG,DS-K1A802FURG |
| Standards: | FCC Rules 47 CFR §2.1091 KDB447498 D01 General RF Exposure Guidance v06 |
| Date of Receipt: | 2018-04-26 |
| Date of Test: | 2018-05-14 |
| 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 | / |
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| 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: | Battery: DC 3.7V by Built-in lithium-ion polymer battery (2000mAh) 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 | 2 dBi |
| Antenna Type | Integral 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 |

125KHz

| | |
|----------------------|--------------|
| Operation Frequency: | 125KHz |
| 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 |



5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report SHEM180400313901 & SHEM180400313902

| Test Mode | Test Channel | Power[dBm] | Power[mW] |
|-----------|--------------|------------|--------------|
| 11B | 2412 | 15.14 | 32.66 |
| 11B | 2437 | 15.01 | 31.70 |
| 11B | 2462 | 14.74 | 29.79 |
| 11G | 2412 | 12.08 | 16.14 |
| 11G | 2437 | 11.58 | 14.39 |
| 11G | 2462 | 11.48 | 14.06 |
| 11N20SISO | 2412 | 11.88 | 15.42 |
| 11N20SISO | 2437 | 11.47 | 14.03 |
| 11N20SISO | 2462 | 11.35 | 13.65 |
| 11N40SISO | 2422 | 11.74 | 14.93 |
| 11N40SISO | 2437 | 11.46 | 14.00 |
| 11N40SISO | 2452 | 10.94 | 12.42 |



5.2 MPE Calculation

The Max Conducted Average Output Power is 15.14dBm (32.66mW);

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: $S = \frac{PG}{4R^2\pi} = \frac{32.66 \times 1.58}{4 \times 400 \times 3.14} = 0.011\ mW/cm^2$

according to the KDB447498 section 7.2 determine the device is exclusion from SAR test.

--End of the Report--