

1 Cover Page

RF Exposure Evaluation Report

Application No.: KSEM2108001465CR
FCC ID: 2ADTD-K1T981MF
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 Ctiy,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

Equipment Under Test (EUT):
EUT Name: Access Control Terminal
Model No.: DS-K1T981MF; DS-K1T981M; DS-K1T981MFUHK; DSK1T981MFCKV; DS-K1T981MFUVS; DS-K1T981MFKVO; DS-K1T981MFHUN; DS-K1T981MUHK; DS-K1T981MCKV; DS-K1T981MUVS; DS-K1T981MKVO; DSK1T981MHUN
Add Model No.: DS-K1T981MF
Standard(s) : FCC Rules 47 CFR §2.1091
 KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt: 2021-08-20
Date of Test: 2021-08-20 to 2021-09-25
Date of Issue: 2021-09-26

| | |
|---------------------|--------------|
| Test Result: | Pass* |
|---------------------|--------------|

* In the configuration tested, the EUT complied with the standards specified above.

Eric Lin
 Laboratory 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.

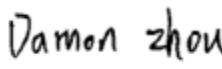
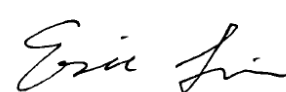


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| Revision Record | | | |
|-----------------|-------------|------------|--------|
| Version | Description | Date | Remark |
| 00 | Original | 2021-09-26 | / |
| | | | |
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| | | | |
|--------------------------|--|--|--|
| Authorized for issue by: | | | |
| | |  <hr/> Damon Zhou / Project Engineer | |
| | |  <hr/> Eric Lin / Reviewer | |



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2 Contents

| | Page |
|---|----------|
| 1 COVER PAGE..... | 1 |
| 2 CONTENTS | 3 |
| 3 GENERAL INFORMATION..... | 4 |
| 3.1 GENERAL DESCRIPTION OF E.U.T..... | 4 |
| 3.2 TECHNICAL SPECIFICATIONS | 4 |
| 3.3 TEST LOCATION..... | 5 |
| 3.4 TEST FACILITY | 5 |
| 4 TEST STANDARDS AND LIMITS | 6 |
| 4.1 FCC RADIOFREQUENCY RADIATION EXPOSURE LIMITS: | 6 |
| 5 MEASUREMENT AND CALCULATION | 7 |
| 5.1 MAXIMUM TRANSMIT POWER | 7 |
| 5.2 MPE CALCULATION | 8 |



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3 General Information

3.1 General Description of E.U.T.

| | |
|---------------|-------------------|
| Power supply: | DC 12V by adapter |
|---------------|-------------------|

3.2 Technical Specifications

2.4G

| | |
|----------------------|--|
| Antenna Gain: | 1.05dBi (Provided by the manufacturer) |
| Antenna Type: | PIFA Antenna |
| Channel Spacing: | 5MHz |
| Modulation Type: | 802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK) |
| Data Rate: | 802.11b:1/2/5.5/11Mbps 802.11g:6/9/12/18/24/36/48/54Mbps 802.11n:MCS0-MCS7 |
| 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

| | |
|---------------------|--------------|
| Antenna Type | Loop Antenna |
| Modulation Type | ASK |
| Number of Channels | 1 |
| Operation Frequency | 13.56MHz |



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3.3 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

3.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L4354)**

CNAS has accredited Compliance Certification Services (Kunshan) Inc. to ISO/IEC 17025:2017 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.

- **A2LA (Certificate No. 2541.01)**

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

- **FCC (Designation Number: CN1172)**

Compliance Certification Services Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

- **ISED (CAB Identifier: CN0072)**

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development (ISED) Canada as an accredited testing laboratory.

CAB Identifier: CN0072.

- **VCCI (Member No.: 1938)**

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600,C-11707, T-11499, G-10216 respectively.



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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 2.4GHz is 1.0 mW/cm²
 Limit for 13.56MHz is 60.77 V/m



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5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report KSEM210800146501, KSEM210800146502

2.4G WiFi

| Test Mode | Test Channel | Ant | Power [dBm] | Power [mW] |
|-----------|--------------|------|-------------|--------------|
| 11B | 2412 | Ant1 | 15.06 | 32.06 |
| 11B | 2437 | Ant1 | 15.39 | 34.59 |
| 11B | 2462 | Ant1 | 15.34 | 34.20 |
| 11G | 2412 | Ant1 | 14.50 | 28.18 |
| 11G | 2437 | Ant1 | 15.19 | 33.04 |
| 11G | 2462 | Ant1 | 14.43 | 27.73 |
| 11N20SISO | 2412 | Ant1 | 14.55 | 28.51 |
| 11N20SISO | 2437 | Ant1 | 15.25 | 33.50 |
| 11N20SISO | 2462 | Ant1 | 15.43 | 34.91 |
| 11N40SISO | 2422 | Ant1 | 13.45 | 22.13 |
| 11N40SISO | 2437 | Ant1 | 13.90 | 24.55 |
| 11N40SISO | 2452 | Ant1 | 14.18 | 26.18 |

13.56MHz: 58.93dBuV/m@3m, @20cm=@3m+40log(3/0.2)= 105.97dBuV/m



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5.2 MPE Calculation

For WiFi:

According to the formula $S=P/4\pi R^2$, we can calculate S which is MPE.

Note:

- 1) P (mW)
- 2) R = distance to the center of radiation of antenna (in meter) = 20cm
- 3) MPE limit = 1mW/cm²

For WIFI

The max. antenna gain is 1.05 dBi

| Max. Conducted Power P(mW) | Gain in Linear Scale G | Operation Distance R(cm) | Power Density (mW/cm ²) | Limit (mW/cm ²) | Result |
|----------------------------|------------------------|--------------------------|-------------------------------------|-----------------------------|--------|
| 34.91 | 1.274 | 20 | 0.00884 | 1 | Pass |

For 13.56MHz: 105.97dBuV/m=0.20V/m< 60.77 V/m.

The 2.4G band and 13.56MHz function can simultaneous transmitting. But the maximum rate of MPE is 0.009/1.0+0.20/60.77=0.01<=1.0. according to the KDB447498 section 7.2 determine the device is exclusion from SAR test.

--End of the Report--



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