



# SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

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Report No.: SZEM170800864804  
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## 1 Cover Page

# RF MPE REPORT

Application No.:	SZEM1708008648CR
Applicant:	Hangzhou Hikvision Digital Technology Co., Ltd
FCC ID:	2ADTD-K1A801MF
<b>Equipment Under Test (EUT):</b> <b>NOTE:</b> The following sample(s) was/were submitted and identified by the client as	
Product Name:	Fingerprint Time Attendance Terminal
Model No.(EUT):	DS-K1A801MF
Add Model No.:	DS-K1A801MF-1, DS-K1A801MF-B, DS-K1A802MF, DS-K1A802MF-1, DS-K1A802MF-B, DS-K1A802MF-E, DS-K1A801XYZ-UVW, DS-K1A802XYZ-UVW
Standards:	FCC Rules 47 CFR §2.1091 KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt:	2017-03-29
Date of Test:	2017-07-30 to 2017-08-10
Date of Issue:	2017-08-21
Test Result:	Pass*

\* In the configuration tested, the EUT detailed in this report complied with the standards specified above.


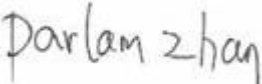


**Parlam Zhan**  
**E&E Section Manager**  
**SGS-CSTC (Shanghai) Co., Ltd.**

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	Chapter	Date	Modifier	Remark
00	/	2017-08-21	/	Original

Authorized for issue by:				
Engineer		 _____ <b>Eddy Zong /Project Engineer</b>		2017-08-10 _____ <b>Date</b>
Reviewer		 _____ <b>Parlam Zhan /Reviewer</b>		2017-08-21 _____ <b>Date</b>

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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.
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.
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.

#### 3.1 General Description of E.U.T.

Brand Name:	HIKVISION		
Product Description:	Fixed product with WiFi and 13.56MHz RF ID function		
Rated Input:	DC 12V		
Test Voltage:	AC 120V 60Hz		
Adapter:	Model No.:	DSA-12PFT-12	
	Rated Input:	AC 100V-240V 50/60Hz 0.5A	
	Rated Output:	DC 12V 1A	
	Cable length:	AC port:	2 wires
		DC port:	100 cm

#### 3.2 Technical Specifications

Operation Frequency:	WiFi: 802.11 b/g/n(HT20): 2412MHz~2462MHz 802.11 n(HT40): 2422MHz~2452MHz RF ID: 13.56MHz
Modulation Technique:	WiFi: 802.11 b: DSSS(CCK, DQPSK, DBPSK) 802.11 g/n(HT20/n(HT40): OFDM(64QAM, 16QAM, QPSK, BPSK) RF ID: ASK
Data Rate:	802.11 b: 1/2/5.5/11Mbps 802.11 g: 6/9/12/18/24/36/48/54Mbps 802.11 n(HT20): 13/26/39/52/78/104/117/135Mbps 802.11 n(HT40): 27/54/81/108/162/216/243/270Mbps
Number of Channel:	802.11 b/g/n(HT20): 11 802.11 n(HT40): 7
Antenna Type:	WiFi: Integral RF ID: Integral Loop Antenna
Antenna Gain:	2.4 dBi

### 3.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China.  
518057.

Tel: +86 755 2601 2053

Fax: +86 755 2671 0594

### 3.4 Test Facility

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

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab 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.

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 3816.01.

- **VCCI**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

## 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 <sup>2</sup> )	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 <sup>2</sup> )	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 SZEM170800864802 & SZEM170800864803

Test Mode	Test Channel	Power[dBm]	Power[mW]	Limit[dBm]	Verdict
11B	2412	21.53	142.23	30	PASS
11B	2437	22.31	<b>170.22</b>	30	PASS
11B	2462	22.12	162.93	30	PASS
11G	2412	21.2	131.83	30	PASS
11G	2437	21.77	150.31	30	PASS
11G	2462	21.64	145.88	30	PASS
11N20SISO	2412	20.93	123.88	30	PASS
11N20SISO	2437	21.71	148.25	30	PASS
11N20SISO	2462	21.33	135.83	30	PASS
11N40SISO	2422	21.9	154.88	30	PASS
11N40SISO	2437	22.12	162.93	30	PASS
11N40SISO	2452	21.87	153.82	30	PASS

The test level of the fundamental signal is 52.08dBuV/m based on the RF Test Report SZEM170800864803

## 5.2 MPE Calculation

The Max Conducted Peak Output Power is 22.31dBm (170.22mW);

The best case gain of the antenna is 2.4dBi. 2.4dB logarithmic terms convert to numeric result is nearly 1.74

WiFi:

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/cm<sup>2</sup>

$$\text{For WiFi: } S = \frac{PG}{4R^2\pi} = \frac{170.22 \times 1.74}{4 \times 400 \times 3.14} = 0.059 \text{ mW/cm}^2$$

For 13.56MHz: 52.08 dBuV/m = 0.0004 V/m < 60.77 V/m

13.56MHz and WiFi modules can simultaneous transmitting, so the maximum rate of MPE is  $\frac{0.0004}{60.77} + \frac{0.059}{1} = 0.059 \leq 1.0$ . according to the KDB447498 section 7.2 determine the device is exclusion from SAR test.

## 6 EUT Constructional Details

Refer to the < External Photos > & < Internal Photos >.

**--End of the Report--**