

1 Cover Page

# RF Exposure Evaluation Report

**Application No.:** KSEM2108001384CR  
**FCC ID:** 2ADTD-K1T690MW  
**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.  
 4. Chongqing Hikvision 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  
 4. NO.118. Haikang Road, Area C, Jianqiao Industrial Park, Dadukou District, Chongqing, 401325, China

**Equipment Under Test (EUT):**

**EUT Name:** Face Recognition Terminal  
**Model No.:** DS-K1T690MW  
**Add Model No.:** DS-K1T690MWUHK, DS-K1T690MWCKV, DS-K1T690MWUVS, DS-K1T690MWKVO, DS-K1T690MWHUN  
**Trade mark:** HIKVISION  
**Standard(s) :** FCC Rules 47 CFR §2.1091  
 KDB447498 D01 General RF Exposure Guidance v06  
**Date of Receipt:** 2021-08-12  
**Date of Test:** 2021-12-24 to 2022-01-11  
**Date of Issue:** 2022-01-11

<b>Test Result:</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

Eric Lin  
Laboratory Manager



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Revision Record			
Version	Description	Date	Remark
00	Original	2022-01-11	/

Authorized for issue by:			
		<i>Damon Zhou</i>	
		<b>Damon Zhou / Project Engineer</b>	
		<i>Eric Lin</i>	
		<b>Eric Lin / Reviewer</b>	



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### 3 General Information

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

Power supply:	DC 12-24V, 4A
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#### 3.2 Technical Specifications

##### 2.4G WiFi

Antenna Gain:	1dBi (Provided by the manufacturer)
Antenna Type:	FPC Antenna
Channel Spacing:	5MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: 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

##### BLE

Antenna Gain:	-5dBi (Provided by the manufacturer)
Bluetooth Version:	V5.0 LE
Channel Spacing:	2MHz
Data Rate:	1Mbps
Modulation Type:	GFSK
Number of Channels:	40
Operation Frequency:	2402MHz to 2480MHz
Antenna Type:	FPC Antenna

##### 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 <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 2.4GHz is 1.0 mW/cm<sup>2</sup>  
 Limit for 13.56MHz is 60.77V/m



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## 5 Measurement and Calculation

### 5.1 Maximum transmit power

The Power Data is based on the RF Test Report KSEM210800138401, KSEM210800138402, KSEM210800138403

#### 2.4G WiFi

Test Mode	Test Channel	Ant	Power [dBm]	Power [mW]
11B	2412	Ant1	15.29	33.81
11B	2437	Ant1	15.94	<b>39.26</b>
11B	2462	Ant1	15.67	36.90
11G	2412	Ant1	15.14	32.66
11G	2437	Ant1	15.47	35.24
11G	2462	Ant1	15.55	35.89
11N20SISO	2412	Ant1	15.12	32.51
11N20SISO	2437	Ant1	15.47	35.24
11N20SISO	2462	Ant1	15.55	35.89
11N40SISO	2422	Ant1	12.82	19.14
11N40SISO	2437	Ant1	14.00	25.12
11N40SISO	2452	Ant1	14.07	25.53

#### BLE

Test Mode	Test Frequency (MHz)	Output Power (dBm)	Reading Power (mW)
1M	2402	-2.59	0.55
	2442	-2.19	0.60
	2480	-2.00	<b>0.63</b>

**13.56MHz: 84.44dBuV/m@3m, @20cm=@3m+40log(3/0.2)= 131.48dBuV/m = 3.75V/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/cm<sup>2</sup>

For 2.4G WiFi:

The max. antenna gain is 1 dBi

Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Result
39.26	1.259	20	0.00983	1	Pass

BLE

The max. antenna gain is -5 dBi

Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Result
0.63	0.316	20	0.00004	1	Pass

For 13.56MHz: 131.48dBuV/m = 3.75V/m < 60.77 V/m.

The 2.4G wifi, BLE and 13.56MHz function can simultaneous transmitting. But the maximum rate of MPE is  $0.00983/1.0+0.00004/1.0+3.75/60.77 = 0.0716 \leq 1.0$ . according to the KDB447498 section 7.2 determine the device is exclusion from SAR test.

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



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