

1 Cover Page

RF Exposure Evaluation Report

Application No.: SHCR2112000976AT
FCC ID: 2ADTD-MP1460
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.Chongqing Hikvision 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. 118, Haikang Road, Area C, Jianqiao Industrial Park, Dadukou District, Chongqing, 401325,China
Equipment Under Test (EUT):
EUT Name: Mobile Wireless Component
Model No.: DS-MP1460, DS-MP1460/GW, DS-MP1460/GW/WI, DS-MP1460/GW/WI58, DS-MP1460/GLF, DS-MP1460/GLF/WI, DS-MP1460/GLF/WI58, DS-MP1460/YY/ZZ, DS-MP1460UHK, DS-MP1460CKV, DS-MP1460UVS, DS-MP1460KVO, DS-MP1460HUN, DS-83152HM, DS-83152HM/GW, DS-83152HM/GW/WI, DS-83152HM/GLF, DS-83152HM/GLF/WI, DS-83152HM/YY/ZZ
Add Model No.: AE-MP1460, AE-MP1460/GLF/S, AE-MP1460/GLF/WI58/S, AE-MP1460/GLF/WI/S, AE-MP1460/WI58, AE-MP1460/WI
 ☐ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade mark: HIKVISION
Standard(s) : FCC Rules 47 CFR §2.1091
 KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt: 2021-12-10
Date of Test: 2021-12-13 to 2022-01-25
Date of Issue: 2022-05-10

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Parlam Zhan

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.


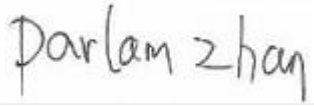


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Revision Record			
Version	Description	Date	Remark
00	Update report	2022-05-10	Base on SHEM190101016502

Authorized for issue by:			
			
		<hr/> Micheal Niu / Project Engineer	
			
		<hr/> Parlam Zhan / Reviewer	



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3 General Information

3.1 General Description of E.U.T.

Power supply: DC 5V
 Test voltage: DC 5V
 Operation Frequency: 802.11a/n(HT20)/ac(HT20): 5745MHz-5825MHz
 802.11n(HT40)/ac(HT40): 5755MHz-5795MHz
 802.11ac(HT80): 5775MHz
 Modulation Technique: OFDM(256QAM, 64QAM, 16QAM, QPSK, BPSK)
 Remark: 256QAM for 802.11 ac only
 Data Rate: 802.11a: 6/9/12/18/24/36/48/54Mbps
 802.11n: MCS0-7
 802.11ac: MCS0-9
 Number of Channel: 802.11 a/n(HT20)/ac(HT20): 5 Channel 149, 153, 157, 161, 165
 802.11 n(HT40)/ac(HT40): 2 Channel 151, 159
 802.11 ac(HT80): 1 Channel 155
 Antenna Type Dipole Antenna
 Antenna Gain 3.0dBi

LTE Module:

	Band	TX Frequency(MHz)
Operation Frequency:	GSM 850	824.2-848.8
	GSM1900	1850.2-1909.8
	WCDMA Band II	1852.4-1907.6
	WCDMA Band V	826.4-846.6
	LTE Band 2	1850.7-1909.3
	LTE Band 4	1710.7-1754.3
	LTE Band 5	825.5-847.5
	LTE Band 66	1710.7-1779.3
Antenna Type:	Diople	
Antenna Gain	Max 0.91dBi at 850MHz band Max 3.12dBi at 1700MHz band Max 1.87dBi for 1900MHz band	

3.2 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

3.3 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 (Kunshan) 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 Canada (ISED) as an accredited testing laboratory.

Company Number: 2324E

• **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.

4 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure limits:

According to §1.1310, the limit for general population/uncontrolled exposures

Frequency	Power density(mW/cm ²)	Averaging time(minutes)
300MHz~1.5GHz	f/1500	30
1.5GHz~100GHz	1.0	30

5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report SHEM190101016501

Test Mode	Test Channel	Power [dBm] Ant1	Power [dBm] Ant2	Power [dBm] MIMO	Power [mW] Max
11A	5745	13.7	13.27	/	23.44
11A	5785	13.16	14.28	/	26.79
11A	5825	13.33	14.64	/	29.11
11N20	5745	12.38	11.88	15.15	32.73
11N20	5785	11.65	12.95	15.36	34.36
11N20	5825	12.04	13.26	15.70	37.15
11N40	5755	11.21	11.36	14.30	26.92
11N40	5795	10.46	12.44	14.57	28.64
11AC20	5745	12.93	11.54	15.30	33.88
11AC20	5785	10.91	12.61	14.85	30.55
11AC20	5825	11.05	12.96	15.12	32.51
11AC40	5755	10.58	11.04	13.83	24.15
11AC40	5795	10.34	12.14	14.34	27.16
11AC80	5775	9.48	10.65	13.11	20.46



The power for modular SIM7600SA-H Module refer certificate of FCC ID: 2AJYU-8PYA002.

Band	TX Frequency(MHz)	Max Power(dBm)	Highest Frame-Averaged Output Power (dBm)	Antenna Gain (dBi)
GSM 850	824.2-848.8	33.70	24.67	0.91
GSM1900	1850.2-1909.8	30.30	21.27	1.87
WCDMA Band II	1852.4-1907.6	23.27	23.27	1.87
WCDMA Band V	826.4-846.6	23.33	23.33	0.91
LTE Band 2	1850.7-1909.3	23.38	23.38	1.87
LTE Band 4	1710.7-1754.3	23.76	23.76	3.12
LTE Band 5	825.5-847.5	23.77	23.77	0.91
LTE Band 66	1710.7-1779.3	23.16	23.16	3.12

Notes:

1) Division Factors

To average the power, the division factor is as follows:

1TX-slot = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB

2TX-slots = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB

3TX-slots = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB

4TX-slots = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB

2) According to the conducted power as above, the measurements are performed with 1Txslots for 850MHz and 1900MHz.

5.2 MPE Calculation

For WiFi

The Max Conducted Peak Output Power is 37.15mW;

Based on original module grantee,

For SIM7600SA-H Module:

Frequency for 824.2-848.8MHz: the max output power is 2.14W;

Frequency for 1710.7-1779.3MHz: the max output power is 0.238W

Frequency for 1850.2-1909.8MHz:: the max output power is 1.025W.

The best case antenna gain for 5.8G WiFi band is 3dBi. the logarithmic terms convert to numeric result is nearly 2.00;

According to the formula $S = \frac{PG}{4R^2\pi}$, we can calculate S which is MPE.

Note:

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

For WiFi:

$$S = \frac{PG}{4R^2\pi} = \frac{37.15 \times 2.00}{4 \times 400 \times 3.14} = 0.01 \text{ mW/cm}^2$$

For SIM7600SA-H Module:

$$\text{Frequency for 824.2-848.8MHz: } S = \frac{PG}{4R^2\pi} = \frac{361.41}{4 \times 400 \times 3.14} = 0.072 \text{ mW/cm}^2$$

$$\text{Frequency for 1710.7-1779.3MHz: } S = \frac{PG}{4R^2\pi} = \frac{487.53}{4 \times 400 \times 3.14} = 0.097 \text{ mW/cm}^2$$

$$\text{Frequency for 1850.2-1909.8MHz: } S = \frac{PG}{4R^2\pi} = \frac{334.97}{4 \times 400 \times 3.14} = 0.067 \text{ mW/cm}^2$$

SIM7600SA-H Module and WiFi module can simultaneous transmitting, so the maximum rate of MPE is,

$$\text{Frequency for 824.2-848.8MHz: } \frac{0.01}{1} + \frac{0.072}{0.55} = 0.082 \leq 1.0.$$

$$\text{Frequency for 1710.7-1754.3MHz: } \frac{0.01}{1} + \frac{0.097}{1} = 0.107 \leq 1.0.$$

$$\text{Frequency for 1850.2-1909.8MHz: } \frac{0.01}{1} + \frac{0.067}{1} = 0.077 \leq 1.0.$$

So the device is exclusion from SAR test.

--End of the Report--