

1 Cover Page

RF Exposure Evaluation Report

Application No.: KSCR2201000142AT
FCC ID: 2ADTD-7608L1W
IC : 20199-7608L1W
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 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
 4.NO.118.Haikang Road,Area C,Jianqiao Industrial Park,Dadukou District,Chongqing,401325,China.
Equipment Under Test (EUT):
EUT Name: Network Video Recorder
Model No.: DS-7608NI-L1/W
 DS-7604NI-L1/W,DS-7604NI-L1/WUHK,DS-7604NI-L1/WCKV,DS-7604NI-L1/WUVS,DS-7604NI-L1/WKVO,DS-7604NI-L1/WHUN, DS-7608NI-L1/WUHK,DS-7608NI-L1/WCKV,DS-7608NI-L1/WUVS,DS-7608NI-L1/WKVO,DS-7608NI-L1/WHUN
Add Model No.:
Standard(s) : FCC Rules 47 CFR §2.1091
 KDB 447498 D04 interim General RF Exposure Guidance v01
 RSS-102 Issue 5 Amendment 1 (February 2, 2021)
Date of Receipt: 2022-02-15
Date of Test: 2022-02-17 to 2022-02-21
Date of Issue: 2022-02-23

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

Eric Lin
EMC Lab Manager



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Compliance Certification Services (Kunshan) Inc.

Report No.: KSCR220100014202

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For IC Model No.: DS-7604NI-L1/W, DS-7608NI-L1/W



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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2022-02-23		Original

Authorized for issue by:			
		<i>Tommie Tang</i>	

		Tommie_tang/Project Engineer	
		<i>Eric Lin</i>	

		Eric Lin/Reviewer	



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3 General Information

3.1 General Description of E.U.T.

Power supply:	DC 12V by adapter
Serial Number:	DS-7608NI-L1/W0820211207CCRRJ12873588WVU
Firmware Version:	V4.32.110build 211228

3.2 Technical Specifications

2.4GHz

Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz;802.11n(HT40): 2422MHz to 2452MHz
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
Channel Spacing:	5MHz
Antenna Type:	Antenna 1:Dipole Antenna Antenna 2:Dipole Antenna
Antenna Gain:	Antenna 1:4.96dBi (Provided by manufacturer) Antenna 2:4.96dBi (Provided by manufacturer) Directional gain:7.97dBi



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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 Canada (ISED) 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-1600, C-1707, T-1499, 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	Power density(mW/cm ²)	Averaging time(minutes)
300MHz~1.5GHz	f/1500	30
1.5GHz~100GHz	1.0	30

4.2 IC Radiofrequency radiation exposure limits:

According to RSS-102 section 2.5.2, RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);

- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

For 2.4G device, the limit of worse case is 2.68 W



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5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report KSCR220100014201

Test Mode	Channel	Antenna 1 Power[dBm]	Antenna 2 Power[dBm]	MIMO Power[dBm]	Antenna 1 Power[mW]	Antenna 2 Power[mW]	MIMO Power[mW]
11B	2412	16.85	16.72	NA	48.42	46.99	N/A
11B	2437	16.32	16.21	NA	42.85	41.78	N/A
11B	2462	16.11	15.98	NA	40.83	39.63	N/A
11G	2412	12.48	12.40	NA	17.70	17.38	N/A
11G	2437	12.03	11.97	NA	15.96	15.74	N/A
11G	2462	11.82	11.76	NA	15.21	15.00	N/A
11N20MIMO	2412	7.27	7.12	10.21	5.33	5.15	10.50
11N20MIMO	2437	6.91	6.92	9.93	4.91	4.92	9.84
11N20MIMO	2462	6.73	6.69	9.72	4.71	4.67	9.38
11N40MIMO	2422	7.26	7.10	10.19	5.32	5.13	10.45
11N40MIMO	2437	7.08	6.97	10.04	5.11	4.98	10.09
11N40MIMO	2452	6.95	6.86	9.92	4.95	4.85	9.82



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5.2 MPE Calculation

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 2.4G WiFi –Antenna1:

The max. antenna gain is		4.96	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
48.42	3.133	20	0.03018	1	Pass

For 2.4G WiFi –Antenna2:

The max. antenna gain is		4.96	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
46.99	3.133	20	0.02929	1	Pass

In MIMO mode:

The max. antenna gain is		7.97	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
10.5	6.266	20	0.01309	1	Pass

So the device is exclusion from SAR test

For IC:

For 2.4GHz WiFi SISO mode:

Antenna 1: $E.I.R.P. = P \cdot G = 0.03018 \times 3.133 = 0.095W < 2.68W$

Antenna 2: $E.I.R.P. = P \cdot G = 0.02929 \times 3.133 = 0.092W < 2.68W$

For 2.4GHz WiFi MIMO mode: $E.I.R.P. = P \cdot G = 0.01309 \times 6.266 = 0.082W < 2.68W$

So the device is exclusion from SAR test

--End of the Report--



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