

1 Cover Page

RF Exposure Evaluation Report

Application No.: KSCR2201000017AT
FCC ID: 2AL8S-0235C5YY
IC ID: 25987-0235C5YY
Applicant: Zhejiang Uniview Technologies Co., Ltd.
Address of Applicant: 88 Jiangling Road, Xixing Town, Binjiang District, Hangzhou City
Manufacturer: Zhejiang Uniview Technologies Co., Ltd.
Address of Manufacturer: 88 Jiangling Road, Xixing Town, Binjiang District, Hangzhou City
Factory: Zhejiang Uniview Systems Technology Co., Ltd.
Address of Factory: No.1277 South Qingfeng South Road, Tongxiang City, Jiaxing City, Zhejiang Province, China

Equipment Under Test (EUT):

EUT Name: IP Camera
Model No.: IPC322LB-AF28WK-G
Add Model No.: IPC322LB-xxxxxWxxx-yyy-yyyyy-zzz(where x y z may be 0-9 A-Z a-z or blank, a may be 0-9 or blank. "-" is optional. The differences no impact safety related constructions and EMC)
Standard(s) : FCC Rules 47 CFR §2.1091
 KDB447498 D01 General RF Exposure Guidance v06
 RSS-102 Issue 5 Amendment 1 (February 2, 2021)
Date of Receipt: 2021-12-28
Date of Test: 2022-01-04 to 2022-01-18
Date of Issue: 2022-01-18

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

Eric Lin
Laboratory Manager



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For IC Model No.: IPC322LB-AF28WK-G



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Revision Record			
Version	Description	Date	Remark
00	Original	2022-01-18	/

Authorized for issue by:			
		<i>Damon Zhou</i>	
		Damon Zhou / 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,1A
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3.2 Technical Specifications

2.4G WiFi

Antenna Gain:	2.45dBi (Provided by the manufacturer)
Antenna Type:	Integral 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
Serial Number:	210235C5YY321C000064
Firmware Version:	DIPC-B1216.2.63.211208.211220



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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	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 KSCR220100001701

2.4GHz

Test Mode	Test Channel	Ant	Power [dBm]	Power [mW]
11B	2412	Ant1	16.15	41.21
11B	2437	Ant1	16.70	46.77
11B	2462	Ant1	16.49	44.57
11G	2412	Ant1	16.19	41.59
11G	2437	Ant1	15.86	38.55
11G	2462	Ant1	16.47	44.36
11N20SISO	2412	Ant1	16.15	41.21
11N20SISO	2437	Ant1	16.31	42.76
11N20SISO	2462	Ant1	15.93	39.17
11N40SISO	2422	Ant1	16.38	43.45
11N40SISO	2437	Ant1	15.98	39.63
11N40SISO	2452	Ant1	16.16	41.30



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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 FCC

2.4G WiFi:

The max. antenna gain is 2.45 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
46.77	1.758	20	0.01636	1	Pass

According to the KDB447498 section 7.2 determine the device is exclusion from SAR test

For IC:

$$E.I.R.P. = P * G = 0.04677 * 1.758 = 0.082W < 2.68W$$

So the device is exclusion from SAR test

--End of the Report--



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