

SAR Evaluation Report

Applicant:	Guangzhou Juan Optical & Electronical Tech Joint Stock Co., LTD.
Address of Applicant:	NO.9, street 3, HengLing industrial zone, Tangdong, tianhe district, Guangzhou, China
Manufacturer:	Guangzhou Juan Optical & Electronical Tech Joint Stock Co., LTD.
Address of Manufacturer:	NO.9, street 3, HengLing industrial zone, Tangdong, tianhe district, Guangzhou, China
Product name:	IP Camera
Model:	WCM-PWNVR20W-BU-JUN, WNVR201-44P, WNVR201-88P, C-W841-PIR2MP, WNVR201-84P, CAN-WNVR201-44P, WM-WNVR-421, C-WNVR861P-B, WNVR201-86P-B, WNVR201-88PD, WNVR201-88PA, WNVR201-88PH, WNVR201-44P, CAN-WNVR201-44P, C-W841-PIPR2MP
Rating(s):	12Vdc, 1A
Trademark:	NIGHT OWL
Standards:	47 CFR Part 1.1307 (2013) 47 CFR Part 2.1093 (2013) KDB447498D01 General RF Exposure Guidance v06
FCC ID:	2AFPL-WCM-20P-BU
Date of Receipt:	2017-07-01
Date of Test:	2017-07-01~2017-07-10
Date of Issue:	2017-07-11
Test Result	Pass*

* In the configuration tested, the test item complied with the standards specified above.

Authorized for issue by:

Test by:

Jul.11, 2017 Eleven Liang

Project Engineer



Reviewed by:

Jul.11, 2017

Pauler Li

Project Manager



Date

Name/Position

Signature

Date

Name/Position

Signature

Possible test case verdicts:

test case does not apply to the test object ..: N/A

test object does meet the requirement: P (Pass)

test object does not meet the requirement ..: F (Fail)

Testing Laboratory information:

Testing Laboratory Name: I-Test Laboratory

Address: 1-2 floor, South Block, Building A2 , No 3 Keyan Lu,
Science City, Guangzhou, Guangdong Province, P.R. China

Testing location : Same as above

Tel : 0086-20-32209330

Fax : 0086-20-62824387

E-mail : itl@i-testlab.com

General remarks:

The test results presented in this report relate only to the object tested.

The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.

This report would be invalid test report without all the signatures of testing technician and approver.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

General product information:

The models WCM-PWNVR20W-BU-JUN, WNVR201-44P, WNVR201-88P, C-W841-PIR2MP, WNVR201-84P, CAN-WNVR201-44P, WM-WNVR-421, C-WNVR861P-B, WNVR201-86P-B, WNVR201-88PD, WNVR201-88PA, WNVR201-88PH, WNVR201-44P, CAN-WNVR201-44P, C-W841-PIPR2MP are identical to each other except for the model designations

All tests were performed on the model WCM-PWNVR20W-BU-JUN as representative.

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2 General Information

2.1 Client Information

Applicant: Guangzhou Juan Optical & Electronical Tech Joint Stock Co., LTD.
Address of Applicant: NO.9, street 3, HengLing industrial zone, Tangdong, tianhe district, Guangzhou, China

2.2 General Description of E.U.T.

Name: IP Camera
Model No.: WCM-SD2POU-BU-JUN
Trade Mark: NIGHT OWL
Operating Frequency: 802.11 b/g/n(HT20): 2412MHz-2462MHz
Channels: 802.11b, 802.11g, 802.11n(20MHz): 11
Type of Modulation: DQPSK, DBPSK, CCK, OFDM, 64-QAM, 16-QAM, QPSK, BPSK
Antenna Reference: Reverse SMA type
Function: IP Camera

2.3 Details of E.U.T.

EUT Power Supply: 12Vdc, 1A

Test mode for WIFI: The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, and to measure its highest possible emissions level, more detailed description as follows:

Test Mode List		
Test Mode	Description	Remark
TM1	802.11b	2412MHz, 2437MHz, 2462MHz,
TM2	802.11g	2412MHz, 2437MHz, 2462MHz,
TM3	802.11n(HT20)	2412MHz, 2437MHz, 2462MHz,

2.4 Description of Support Units

The EUT has been tested as an independent unit for fixed frequency by testing lab.

2.5 Test Location

All tests were performed at:

I-Test Laboratory

1-2 floor, South Block, Building A2 , No 3 Keyan Lu, Science City, Guangzhou, Guangdong Province, P.R. China

0086-20-32209330

itl@i-testlab.com

No tests were sub-contracted.

2.6 Deviation from Standards

Biconical and log periodic antennas were used instead of dipole antennas.

2.7 Abnormalities from Standard Conditions

None.

2.8 Other Information Requested by the Customer

None.

2.9 Test Facility

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

- **CNAS(Lab code:L4957)**
- **FCC (Registration No.:935596)**
- **IC (Registration NO.:8368A)**

3 SAR Evaluation

3.1 RF Exposure Compliance Requirement

3.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

3.1.2 Limits

1. The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,

So,

Numeric Threshold = $(\text{max. power of channel}) / (\text{Min Test separation Distance}) \times [\sqrt{f(\text{GHz})}]$

max. power of channel = $(\text{Numeric Threshold}) \times (\text{Min Test separation Distance}) / [\sqrt{f(\text{GHz})}]$

Where,

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation

The result is rounded to one decimal place for comparison

2. For 100 MHz to 6 GHz and test separation distances > 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$\{[\text{Power allowed at numeric threshold for 50 mm in step 1}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot 10]\}$ mW, for > 1500 MHz and ≤ 6 GHz

3.1.3 EUT RF Exposure

For WiFi:

The Max Conducted peak Output Power is 19.65dBm in 802.11b Lowest channel (2.412GHz);

The best case gain of the antenna is 5dBi

EIRP = 19.65 + 5 = 24.65dBm

24.65dBm logarithmic terms convert to numeric result is nearly 291.74 mW

EIRP = 291.74 mW

According to the formula, calculate the EIRP test result:

$\{[\text{Power allowed at numeric threshold for 50 mm}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot 10]\}$

SAR Exclusion Threshold = $(3.0 \times 50) / \sqrt{2.412 + [(200-50) \times 10]} = 1596.58$ mW

So the SAR report is not required.