

Maximum Permissible Exposure Evaluation

FCC ID: 2APRB-BWNIP-2TA-BS

1. Client Information

Applicant	:	Guangzhou Juan Intelligent Tech Joint Stock Co.,Ltd
Address	:	No.2 Plant, West of Shanxi country, Dashi street, Panyu District, Guangzhou City, China
Manufacturer	:	Guangzhou Juan Intelligent Tech Joint Stock Co.,Ltd
Address	:	No.2 Plant, West of Shanxi country, Dashi street, Panyu District, Guangzhou City, China

2. General Description of EUT

EUT Name	:	Smart IP Camera with Battery	
Models No.	:	BWNIP-2TA-BS, BWNIP2, WM-2BWNIP1-32B, BWNIP2-32B1, BWNIP2-32B1-B, CL-BWNIP2-32B1, BWNIP-2TA-BS-V2	
Model Different	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is model name.	
Brand Name	:	NIGHT OWL	
Product Description	:	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
		Number of Channel:	802.11b/g/n(HT20):11 channels 802.11n(HT40):7 channels
		RF Output Power:	802.11b:13.70dBm 802.11g: 11.47dBm 802.11n (HT20): 11.17dBm 802.11n (HT40): 10.74dBm
		Antenna Gain:	2.5dBi FPC Antenna
Power Rating	:	Input: DC 5V DC 3.7V by 2600mAh Li-ion battery	
Software Version	:	BWNIP-2TA-BS_20200804	
Hardware Version	:	Hi3518EV300_V281	
Connecting I/O Port(S)	:	Please refer to the User's Manual	
Remark	:	the MPE report used the EUT(TBBJ-20200630-03-4#).	

MPE Calculations for WIFI

1. Antenna Gain:

FPC Antenna:2.5dBi.

2. EUT Operation Condition:

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3. Exposure Evaluation:

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=(PG)/4\pi R^2$$

Where

S: power density

P: power input to the antenna

G: power gain of the antenna in the direction of interest relative to an isotropic radiator.

R: distance to the center of radiation of the antenna

4. Test Result:

Worst Maximum MPE Result								
Mode	N _{TX}	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm ²) [S]
802.11b	1	2412	13.56	13±1	14	2.5	20	0.0089
		2437	13.70	13±1	14	2.5	20	0.0089
		2462	13.61	13±1	14	2.5	20	0.0089
802.11g	1	2412	11.44	11±1	12	2.5	20	0.0056
		2437	11.47	11±1	12	2.5	20	0.0056
		2462	11.25	11±1	12	2.5	20	0.0056
802.11n(HT20)	1	2412	11.17	11±1	12	2.5	20	0.0056
		2437	11.10	11±1	12	2.5	20	0.0056
		2462	10.92	10±1	11	2.5	20	0.0044
802.11n(HT40)	1	2422	10.33	10±1	11	2.5	20	0.0044
		2437	10.74	10±1	11	2.5	20	0.0044
		2452	9.94	10±1	11	2.5	20	0.0044
Note: (1) N _{TX} = Number of Transmit Antennas (2) RF Output power specifies that Maximum Conducted Peak Output Power.								

5. Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

Limits for General Population/ Uncontrolled Exposure

Frequency Range (MHz)	Power density (mW/ cm ²)
300-1,500	F/1500
1,500-100,000	1.0

For 2.4WIFI:2412~2462 MHz
2422~2452 MHz

MPE limit S: 1mW/ cm²

The MPE is calculated as $0.0089 \text{ mW} / \text{cm}^2 < \text{limit } 1\text{mW} / \text{cm}^2$. So, RF exposure limit warning or SAR test are not required.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR2.1091 (b).

The RF Exposure Information page from the manual is included here for reference.

Note

For a more detailed features description, please refer to the RF Test Report.

6. Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

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