

Maximum Permissible Exposure Evaluation

FCC ID: 2ASAQ-S21

1. Client Information

Applicant	:	Hangzhou Vision Insight Technology Co., Ltd.
Address	:	Room 1009, Zhejiang Middle And Small Enterprise Building, No.553, Wensan Road., Xihu Dist., Hangzhou, Zhejiang, China
Manufacturer	:	Hangzhou Vision Insight Technology Co., Ltd.
Address	:	Room 1009, Zhejiang Middle And Small Enterprise Building, No.553, Wensan Road., Xihu Dist., Hangzhou, Zhejiang, China

2. General Description of EUT

EUT Name	:	Smart Outdoor Camera
Models No.	:	S21, S21F, S21D, S21C, S21S
Model Different	:	All these models are the same PCB, layout and electrical circuit, the only difference is model and external packing.
Product Description	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n (HT40): 2422MHz~2452MHz
	RF Output Power:	802.11b: 17.78dBm 802.11g: 16.76dBm 802.11n (HT20): 16.94dBm 802.11n (HT40): 15.96dBm
	Antenna Gain:	3dBi Internal Antenna
	Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK, QPSK, 16QAM, 64QAM)
Power Supply	:	AC/DC adapter(Model:CS-1201000): Input:AC100-240V, 0.5A, 50/60Hz Output: DC 12V 1A
Software Version	:	N/A
Hardware Version	:	N/A
Connecting I/O Port(S)	:	Please refer to the User's Manual

TB-RF-075-1.0

MPE Calculations for WIFI

1. Antenna Gain:

Internal Antenna: 3dBi.

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:

Mode	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	17.78	17 ± 1	18	3	20	0.02505
802.11g	16.76	16 ± 1	17	3	20	0.01989
802.11n (HT20)	16.94	16 ± 1	17	3	20	0.01989
802.11n (HT40)	15.96	15 ± 1	16	3	20	0.01580

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 802.11b/g/n:2412~2462 MHz

MPE limit S: 1mW/ cm²

The MPE is calculated as $0.02505\text{mW/cm}^2 < \text{limit } 1\text{mW/cm}^2$. 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.

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