

1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 Client Information

Client Information

Applicant:	Huizhou Xincheng Optoelectronics Co., Ltd.
Address of applicant:	Building B, Floor 3, Juye Company, No. 50 Community, Pingnan Industrial Zone, Zhongkai High tech Zone, Huizhou, Guangdong Province, China
Manufacturer:	Huizhou Xincheng Optoelectronics Co., Ltd.
Address of manufacturer:	Building B, Floor 3, Juye Company, No. 50 Community, Pingnan Industrial Zone, Zhongkai High tech Zone, Huizhou, Guangdong Province, China

General Description of EUT

Product Name:	Visual online camera
Trade Name:	/
Model No.:	U2
Adding Model(s):	/
Rated Voltage:	DC 5V
Power Adapter Model:	/
Serial number:	S-01
FCC ID:	2BEO6-U2

Technical Characteristics of EUT

Support Standards:	802.11b, 802.11g, 802.11n
Frequency Range:	2412-2462MHz for 802.11b/g/n(HT20) 2422-2452MHz for 802.11n(HT40)
RF Output Power:	12.16dBm (Conducted)
Type of Modulation:	DBPSK, BPSK, DQPSK, QPSK, 16QAM, 64QAM
Quantity of Channels:	11 for 802.11b/g/n(HT20); 7 for 802.11n(HT40)
Channel Separation:	5MHz
Type of Antenna:	Integral Antenna
Antenna Gain:	-1.59dBi

1.2 Standard Applicable

According to §1.1307(b)(1) and KDB 447498 D01 General RF Exposure Guidance v06, system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

(a) Limits for Occupational / Controlled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	F/300	6
1500-100000	/	/	5	6

(b) Limits for General Population / Uncontrolled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-100000	/	/	1	30

Note: f = frequency in MHz; * = Plane-wave equivalents power density

1.3 MPE Calculation Method

$$S = (30*P*G) / (377*R^2)$$

S = power density (in appropriate units, e.g., mw/cm²)

P = power input to the antenna (in appropriate units, e.g., mw)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator,
the power gain factor is normally numeric gain.

R = distance to the center of radiation of the antenna (in appropriate units, e.g., cm)

1.4 MPE Calculation Result

Maximum peak output power: 12.16(dBm)

Tune-Up output power: 13(dBm), 19.95(mW)

Prediction distance: >20(cm)

Prediction frequency: 2437 (MHz)

Antenna gain: -1.59 (dBi)

Directional gain: 0.69(numeric)

The worst case is power density at prediction frequency at 20cm: 0.0027(mw/cm²)

MPE limit for general population exposure at prediction frequency: 1 (mw/cm²)

$0.0027(\text{mw/cm}^2) < 1 (\text{mw/cm}^2)$

So the transmitter complies with the RF exposure requirements and the SAR is not required.