

# 1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

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## 1.1 General Information

### Client Information

Applicant: Shenzhen Chuangwei Electronic Appliance Tech Co.,Ltd.  
Address of applicant: 4F & 6F, Overseas plant south, Skyworth Industrial Park, Shiyan Street, Bao'an District, Shenzhen, China

Manufacturer: Shenzhen Chuangwei Electronic Appliance Tech Co.,Ltd.  
Address of manufacturer: 4F & 6F, Overseas plant south, Skyworth Industrial Park, Shiyan Street, Bao'an District, Shenzhen, China

### General Description of EUT:

Product Name: 10 inch WIFI Digital Photo Frame, 10 inch WIFI Digital Photo Frame  
Calendar  
Trade Name: Skylight  
Model No.: SKY002  
Adding Model(s): /  
Rated Voltage: DC5V  
MODEL: S005A22  
Power Adapter Model: INPUT: AC100-240V, 50/60Hz 0.3A  
OUTPUT: DC5V, 2.0A  
FCC ID: 2AABK-SKY002  
Equipment Type: Fixed device

### Technical Characteristics of EUT:

#### Wi-Fi (2.4G)

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: 14.20 dBm (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: FPC Antenna  
Antenna Gain: 2dBi

#### Wi-Fi (5G)

Support Standards: 802.11a, 802.11n(HT20), 802.11n(HT40)  
Frequency Range: 5150-5250MHz, 5250-5350MHz,  
5470-5725MHz, 5725-5850MHz  
RF Output Power: 10.98dBm (Conducted)  
Type of Modulation: QPSK,16QAM, 64QAM  
Quantity of Channels: /

Type of Antenna: FPC Antenna  
 Antenna Gain: 2dBi

## 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 <sup>2</sup> )	Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> 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 <sup>2</sup> )	Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> 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 equivalent power density

### 1.3 MPE Calculation Method

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

S = power density (in appropriate units, e.g., mw/cm<sup>2</sup>)

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

For Wi-Fi (2.4G)

Maximum Tune-Up output power: 15.0 (dBm)

Maximum peak output power at antenna input terminal: 31.62 (mW)

Prediction distance: >20(cm)

Prediction frequency: 2412 (MHz)

Antenna gain: 2.0 (dBi)

Directional gain (numeric gain): 1.58

The worst case is power density at prediction frequency at 20cm: 0.0100 (mw/cm<sup>2</sup>)

MPE limit for general population exposure at prediction frequency: 1 (mw/cm<sup>2</sup>)

For Wi-Fi (5G)

Maximum Tune-Up output power: 11.0(dBm)

Maximum peak output power at antenna input terminal: 12.59 (mW)

Prediction distance: >20(cm)

Prediction frequency: 5700 (MHz)

Antenna gain: 3.58 (dBi)

Directional gain (numeric gain): 1.58

The worst case is power density at prediction frequency at 20cm: 0.0040 (mw/cm<sup>2</sup>)

MPE limit for general population exposure at prediction frequency: 1 (mw/cm<sup>2</sup>)

Result: Pass