

# Maximum Permissible Exposure Evaluation

## FCC ID: 2AXEK-X09

### 1. Client Information

<b>Applicant</b>	:	SHENZHEN GENERAL TECHNOLOGY CO., LTD
<b>Address</b>	:	Floor 1-3, Building A, NO.11 Xiantian Road, Longgang District, Shenzhen, China 518000
<b>Manufacturer</b>	:	SHENZHEN GENERAL TECHNOLOGY CO., LTD
<b>Address</b>	:	Floor 1-3, Building A, NO.11 Xiantian Road, Longgang District, Shenzhen, China 518000

### 2. General Description of EUT

<b>EUT Name</b>	:	Smart Pan-tilt camera
<b>Models No.</b>	:	X09, X01, X02, X03, X04, X05, X06, X07, X08, X10, X11, X12, X13, X14, X15, X16, X17, X18, X19
<b>Model Difference</b>	:	All PCB boards and circuit diagrams are the same, the only difference is that names.
<b>Product Description</b>	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: 17.40dBm 802.11g: 17.40dBm 802.11n (HT20): 17.46dBm 802.11n (HT40): 17.63dBm
	Antenna Gain:	2dBi PCB Antenna
<b>Power Rating</b>	:	For adapter Input: AC 100-240V~ 50/60Hz 0.2A Output: DC 5V 1.0A
<b>Software Version</b>	:	V0.2.1
<b>Hardware Version</b>	:	CB340
<b>Connecting I/O Port(S)</b>	:	Please refer to the User's Manual
<b>Remark</b>	:	the MPE report used the EUT (202201-0066-1-02).



### MPE Calculations for WIFI

**1. Antenna Gain:**

PCB Antenna:2dBi.

**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 <sub>TX</sub>	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 <sup>2</sup> ) [S]
802.11b	1	2412	16.61	16±1	17	2	20	0.0158
		2437	16.21	16±1	17	2	20	0.0158
		2462	17.40	17±1	18	2	20	0.0199
802.11g	1	2412	17.01	17±1	18	2	20	0.0199
		2437	17.40	17±1	18	2	20	0.0199
		2462	16.44	16±1	17	2	20	0.0158
802.11n(HT20)	1	2412	17.46	17±1	18	2	20	0.0199
		2437	17.39	17±1	18	2	20	0.0199
		2462	16.52	16±1	17	2	20	0.0158
802.11n(HT40)	1	2422	17.63	17±1	18	2	20	0.0199
		2437	17.39	17±1	18	2	20	0.0199
		2452	16.99	17±1	18	2	20	0.0199

**Note:**  
 (1) N<sub>TX</sub>= 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 <sup>2</sup> )
300-1,500	F/1500
1,500-100,000	1.0

For 2.4WIFI:2412~2462 MHz

MPE limit S: 1mW/ cm<sup>2</sup>

The MPE is calculated as **0.0199 mW / cm<sup>2</sup> < limit 1mW / cm<sup>2</sup>**. 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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