Maximum Permissible Exposure Evaluation

FCC ID: 2AXEK-X50

1. Client Information

Applicant	:	SHENZHEN GENERAL TECHNOLOGY CO., LTD
Address	:	Floor 1-3, Building A, Floor 1-4, Building B, No. 11 Xiantian Road, Xinsheng Community, Longgang Sub-District, Longgang District, Shenzhen, China
Manufacturer	:	SHENZHEN GENERAL TECHNOLOGY CO., LTD
Address	:	Floor 1-3, Building A, Floor 1-4, Building B, No. 11 Xiantian Road, Xinsheng Community, Longgang Sub-District, Longgang District, Shenzhen, China

2. General Description of EUT

EUT Name	:	Smart PTZ Camera	
Models No.	:	X50, X51, X52, X53, X54, X55, X56, X57, X58, X59	
Model Different	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is model name.	
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
		Antenna Gain:	External antenna, Maximum Gain: 3.0dBi
Power Rating		Input: DC 12V	
Software Version	:	V0.2.3	
Hardware Version	:	CB140_C02_V2	
Connecting I/O Port(S)	:	Please refer to the User's Manual	
Remark	:	the evaluation report used the EUT(RW-C-202209-0141-9-2#).	

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MPE Calculations for WIFI

1. **Antenna Gain:**
   External Antenna: 3.0dBi.

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:**

2.4G WiFi

2.4G WiFi 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	17.23	17±1	18	3.0	20	0.0250
		2437	16.87	16±1	17	3.0	20	0.0199
		2462	16.88	16±1	17	3.0	20	0.0199
802.11g	1	2412	16.57	16±1	17	3.0	20	0.0199
		2437	16.78	16±1	17	3.0	20	0.0199
		2462	16.64	16±1	17	3.0	20	0.0199
802.11n20	1	2412	16.76	16±1	17	3.0	20	0.0199
		2437	16.50	16±1	17	3.0	20	0.0199
		2462	16.12	16±1	17	3.0	20	0.0199
802.11n40	1	2422	16.97	16±1	17	3.0	20	0.0199
		2437	15.42	15±1	16	3.0	20	0.0158
		2452	16.01	16±1	17	3.0	20	0.0199

Note:
N_{TX}= Number of Transmit Antennas
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

MPE limit S: $1mW/ cm^2$

The MPE is calculated as ***0.0250mW / cm² < limit 1mW / cm²***. 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.

-----END OF REPORT-----