



# Maximum Permissible Exposure Evaluation

## FCC ID: 2AUDF-CQ12Y

### 1. Client Information

<b>Applicant</b>	:	Shenzhen ADDX Innovation Technology co., LTD.
<b>Address</b>	:	NO.2902, Building 9A-1. Shenzhen Bay Technology and Ecological Park, Nanshan District, Shenzhen, China
<b>Manufacturer</b>	:	Shenzhen ADDX Innovation Technology co., LTD
<b>Address</b>	:	NO.2902, Building 9A-1. Shenzhen Bay Technology and Ecological Park, Nanshan District, Shenzhen, China

### 2. General Description of EUT

<b>EUT Name</b>	:	Smart PTZ Battery Camera	
<b>Models No.</b>	:	CQ1, DX1	
<b>Model Different</b>	:	All PCB boards and circuit diagrams are the same, the only difference is that model names.	
<b>Product Description</b>	:	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz Bluetooth 5.0(BLE): 2402~2480MHz
		Number of Channel:	802.11b/g/n(HT20): 11 channels 40 channels for BLE
		Antenna Gain:	2.62dBi Dipole Antenna for 2.4G WiFi 0.5dBi PCB Antenna for BLE
<b>Power Rating</b>	:	Input: DC 5V, 1.5A	
<b>Li-ion Polymer Battery</b>	:	DC 3.7V by 7200mAh Rechargeable Li-ion battery#1 DC 3.7V by 9000mAh Rechargeable Li-ion battery#2	
<b>Software Version</b>	:	V0.14.1	
<b>Hardware Version</b>	:	CQ123_C01_V2	
<b>Connecting I/O Port(S)</b>	:	Please refer to the User's Manual	
<b>Remark</b>	:	the evaluation report used the EUT(RW-C-202304-0103-6-2#).	

## MPE Calculations for WIFI

**1. EUT Operation Condition:**

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

**2. 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

**3. Simultaneous transmission MPE Considerations**

According to KDB447498: All transmitters and antennas in the host must be either evaluated for MPE compliance, by measurement or computational modeling, or qualify for the standalone MPE test exclusion in section 7.1. Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is  $\leq 1.0$ .

This means that:

$$\sum \text{ of MPE ratios } \leq 1.0$$

**4. Test Result:**

**2.4G WiFi & Bluetooth LE worst reported.**

Mode	Frequency (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]	Limit of Power Density (mW/ cm <sup>2</sup> ) (S)
Bluetooth LE	2402	-3.778	-3±1	-2	0.5	20	0.0001	1
	2440	-4.471	-4±1	-3	0.5	20	0.0001	1
	2480	-4.194	-4±1	-3	0.5	20	0.0001	1



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802.11b	2412	15.106	15±1	16	2.62	20	0.0145	1
	2437	15.394	15±1	16	2.62	20	0.0145	1
	2462	15.114	15±1	16	2.62	20	0.0145	1
802.11g	2412	14.638	14±1	15	2.62	20	0.0115	1
	2437	14.897	14±1	15	2.62	20	0.0115	1
	2462	15.408	15±1	16	2.62	20	0.0145	1
802.11n(HT20)	2412	14.003	14±1	15	2.62	20	0.0115	1
	2437	14.459	14±1	15	2.62	20	0.0115	1
	2462	14.651	14±1	15	2.62	20	0.0115	1

Maximum Simultaneous transmission MPE Ratios for 2.4GHz WiFi and Bluetooth LE.

Maximum MPE ratio 2.4GWIFI	Maximum MPE ratio Bluetooth LE	ΣMPE	Limit	Results
0.0145	0.0001	0.0146	1.0	PASS

**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 and Bluetooth LE

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

The MPE is calculated as **0.0146 < 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.

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

