

Maximum Permissible Exposure Evaluation

FCC ID: 2AT5D-ZS-GX5

1. Client Information

Applicant	:	Shenzhen CTV video intelligence Co.,Ltd
Address	:	6F,P building,Weikangde Industrial Park,Shangxue Hi-Tech Park,BanTian Road,longgang District,Shenzhen,P.R China
Manufacturer	:	Shenzhen CTV video intelligence Co.,Ltd
Address	:	6F,P building,Weikangde Industrial Park,Shangxue Hi-Tech Park,BanTian Road,longgang District,Shenzhen,P.R China

2. General Description of EUT

EUT Name	:	Smart WIFI Camera with Battery	
Models No.	:	ZS-GX5,ZS-GX1S,ZS-GX2S,ZS-GX3S,ZS-GX4S,ZS-GX5S, ZS-GX6S,ZS-GQ1,ZS-GQ2,ZS-GQ3,ZS-GQ4,ZM-Q1	
Model Different	:	All these models are identical in the same PCB layout and electrical circuit, Only the color is different for commercial.	
Product Description	:	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
		RF Output Power:	802.11b: 15.80dBm 802.11g: 14.81dBm 802.11n (HT20): 14.10dBm 802.11n (HT40): 12.83dBm
		Antenna Gain:	3dBi Dipole Antenna
		Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK,QPSK,16QAM, 64QAM)
Power Supply	:	DC 5 Voltage by AC/DC Adapter supplied DC 3.6V by 11.5Wh Li-ion battery*2.	
Software Version	:	ppstrong-c2-neutral-2.6.2.20190128-upgrade	
Hardware Version	:	PCB-C80S-MAIN-F23-REV1.0	

TB-RF-075-1.0

MPE Calculations for WIFI

1. Antenna Gain:

FPC Antenna: 3dBi.

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:

Mode	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	15.80	15±1	16	3	20	0.015803
802.11g	14.81	15±1	16	3	20	0.015803
802.11n (HT20)	14.10	14±1	15	3	20	0.012553
802.11n (HT40)	12.83	13±1	14	3	20	0.009971

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 802.11b/g/n(HT20):2412~2462 MHz

802.11n(HT40): 2422MHz~2452MHz

MPE limit S: 1mW/ cm²

The MPE is calculated as $0.015803mW / cm^2 < limit 1mW / cm^2$. 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.

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