Maximum Permissible Exposure Evaluation

FCC ID: 2AUBQ-GS-WFC

1. Client Information

Applicant	:	*SHENZHEN GRANDSECU TECHNOLOGY CO. ,LTD*
Address	:	*No.5 Xiantian Road, Longgang District, Shenzhen, China*
Manufacturer	:	*SHENZHEN GRANDSECU TECHNOLOGY CO. ,LTD*
Address	:	*No.5 Xiantian Road, Longgang District, Shenzhen, China*

2. General Description of EUT

EUT Name	:	2.4G WIFI Camera	
Models No.	:	GS-NPP02-W2S, GS-NPPXX-WXX (X means digital number “0” - “9” or English letter “A” - “Z”)	
Model Different	:	All these models are in the same PCB, layout and electrical circuit, the only difference is Appearance form, It's all plastic.	
Product Description	:	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n (HT40): 2422MHz~2452MHz
		RF Output Power:	802.11b: 15.44 dBm 802.11g: 14.22 dBm 802.11n (HT20): 13.16 dBm 802.11n (HT40): 12.48 dBm
		Antenna Gain:	0dBi Dipole Antenna
		Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK,QPSK,16QAM, 64QAM)
Power Supply	:	Input: AC 100-240V, 50/60Hz, 0.3A Output: DC 5V, 1500mA	
Software Version	:	IPG-5520PCR-AI_V0.4.0_20190725	
Hardware Version	:	A0	
Connecting I/O Port(S)	:	Please refer to the User's Manual	

MPE Calculations for WIFI

1. **Antenna Gain:**
   Dipole Antenna: 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:

Worst Maximum MPE Result										
ANT	Mode	Freq. (MHz)	Conducted Power(max) (dBm) [P]	Tune up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Dista-nce (cm) [R]	Power Density (mW/ cm^2) [S]	Power Density Limit (mW/ cm^2)	Result
ANT 1	B	2412	15.44	15.44±1	16.44	0	20	0.00876	1	PASS
		2437	15.35	15.35±1	16.35			0.00859		
		2462	15.33	15.33±1	16.33			0.00855		
	G	2412	14.08	14.08±1	15.08			0.00641		
		2437	14.22	14.22±1	15.22			0.00662		
		2462	14.07	14.07±1	15.07			0.00639		
	N20	2412	13.16	13.16±1	14.16			0.00518		
		2437	13.13	13.13±1	14.13			0.00515		
		2462	13.04	13.04±1	14.04			0.00504		
	N40	2422	12.45	12.45±1	13.45			0.00440		
		2437	12.28	12.28±1	13.28			0.00423		
		2452	12.48	12.48±1	13.48			0.00443		
Max Power Density(mW/ cm^2)			Power Density=0.00876							
Note: 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 802.11b/g/n:2412~2462 MHz
MPE limit S: $1mW/cm^2$
The MPE is calculated as ***$0.00876mW/cm^2 < limit\ 1mW/cm^2$***. 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.

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