

Maximum Permissible Exposure Evaluation

FCC ID: 2AEUS-C53

1. Client Information

Applicant : Shenzhen Sunshine Technology Development Co.,Ltd
Address : 3/F Block 8 & 4/F Block 4, HongHuaLing Industrial Park(Zone 2),
Taoyuan Str., NanShan District, Shenzhen, China
Manufacturer : Shenzhen Sunshine Technology Development Co.,Ltd
Address : 3/F Block 8 & 4/F Block 4, HongHuaLing Industrial Park(Zone 2),
Taoyuan Str., NanShan District, Shenzhen, China

2. General Description of EUT

EUT Name	:	Backup Camera	
Models No.	:	C53, C51, C52	
Brand Name	:	SUNSHINE	
Model Difference	:	All models are identical in the same PCB layout, interior structure and electrical circuits, the only difference is match different display of receiving.	
Product Description	:	Operation Frequency: 2414MHz~2468MHz	
		Number of Channel:	4 channels see note(3)
		Max Peak Output Power:	10.89 dBm
		Antenna Gain:	2 dBi Integral Antenna
		Modulation Type:	FM
		Bit Rate of Transmitter:	8Mbps
Power Supply	:	DC Supply by DC Battery.	
Power Rating	:	DC 10-20V by DC Battery.	
Connecting I/O Port(S)	:	Please refer to the User's Manual	
Note:More detail information about Equipment, please refer to User's manual, more information about the RF, please refer to test report.			

TB-RF-075-1.0

MPE Calculations for 2.4G

1. Antenna Gain:

Ant.	Brand	Model Name	Antenna Type	Gain (dBi)
1	N/A	N/A	Integral Ant.	2

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 _{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]
2.4G TX mode	1	2414	10.89	10±1	11	2	20	0.0040
		2432	10.38	10±1	11	2	20	0.0040
		2468	9.156	10±1	11	2	20	0.0040
Note: (1) N _{TX} = 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 ²)
300-1,500	F/1500
1,500-100,000	1.0

For : 2.4G: 2414MHz~2468MHz

MPE limit S: 1 mW/ cm²

The MPE is calculated as 0.0040 mW / cm² < limit 1 mW / 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.

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