

Maximum Permissible Exposure Evaluation

FCC ID: 2AUAG-S80-A3-GTZ

1. Client Information

Applicant	:	Shenzhen United Innovation Auto-control Systems Co.,Ltd
Address	:	16/F Block A, Bank of China Buildings, CaiTian Road, FuTian District, Shenzhen, China
Manufacturer	:	Shenzhen United Innovation Auto-control Systems Co.,Ltd
Address	:	16/F Block A, Bank of China Buildings, CaiTian Road, FuTian District, Shenzhen, China

2. General Description of EUT

EUT Name	:	Gateway device	
Models No.	:	S80-A3-GTZ	
Model Difference	:	N/A	
Product Description	:	Operation Frequency:	Zigbee: 2405MHz~2480MHz
	:	Max Output Power:	Zigbee: -12.059dBm
	:	Antenna Gain:	5dBi SMA Antenna
Power Supply	:	Input: DC 12V by battery.	
Software Version	:	V4.0	
Hardware Version	:	ZNC100V1.2 +CC2530 V2.1+D200V3.4	
Connecting I/O Port(S)	:	Please refer to the User's Manual	

MPE Calculations for Zigbee

1. Antenna Gain:

Zigbee: 5dBi SMA Antenna

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]
Zigbee	-12.059	-12±1	-11	5	20	0.00005

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 Zigbee:2405-2480 MHz

MPE limit S: 1mW/ cm²

The MPE is calculated as $0.00005 \text{ mW} / \text{cm}^2 < \text{limit } 1 \text{ mW} / \text{cm}^2$. 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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