

Maximum Permissible Exposure Evaluation

FCC ID: 2AU4DDCB

1. Client Information

Applicant	:	X-Sense Innovations Co., Ltd.
Address	:	B4 503D, Tower B, Kexing Science Park, No15 Keyuan Road, Technology Park Community, Yuehai Avenue, Nanshan District, Shenzhen, China
Manufacturer	:	X-Sense Innovations Co., Ltd.
Address	:	B4 503D, Tower B, Kexing Science Park, No15 Keyuan Road, Technology Park Community, Yuehai Avenue, Nanshan District, Shenzhen, China

2. General Description of EUT

EUT Name	:	Smart Driveway Alarm	
Model(s) No.	:	SDA51	
Model Difference	:	----	
Product Description	:	Operation Frequency:	912.375 MHz
	:	Antenna Gain:	1dBi Spring Antenna
Power Supply	:	DC 4.2V by 2000mAh Rechargeable Li-ion battery	
Software Version	:	SDA51_V1.1.0	
Hardware Version	:	SDA51_V1.3	
Remark: The antenna gain provided by the applicant, the adapter and verified for the RF conduction test and adapter provided by TOBY test lab.			

Note: More test information about the EUT please refer the RF Test Report.

MPE Calculations

1. Antenna Gain:

Spring Antenna for 912.375: 1dBi.

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:

$$E = EIRP - 20\log D + 104.8$$

where:

E = electric field strength in dB μ V/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

$$EIRP=E-104.8+20\log D=77.64-104.8+20\log 3 = -17.62\text{dBm}$$

Frequency (MHz)	Measured Power (dBm)	Tune up Tolerance \pm (dB)	Output power (Max. Turn-up Procedure) (mW)	Limit (mW)
912.375	-17.62	-18 \pm 1	0.020	0.61

Note: At separation distance of >20 mm

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 912.375

MPE limit S: 0.60825mW/ 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.

6. Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

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