

Maximum Permissible Exposure Evaluation

FCC ID: 2A3GI-EDGW1302S1

1. Client Information

Applicant	:	EDA Technology Shanghai Co.,Ltd
Address	:	Room 301, Building 24, Shengchuang Enterprise Park, No.1661 Jialuo Road, Jiading District, Shanghai, PRC
Manufacturer	:	EDA Technology Shanghai Co.,Ltd
Address	:	Room 301, Building 24, Shengchuang Enterprise Park, No.1661 Jialuo Road, Jiading District, Shanghai, PRC

2. General Description of EUT

EUT Name	:	LoRaWan Concentrator Gateway Module	
Models No.	:	ED-GW1302S-915M	
Model Different	:	----	
Product Description	:	Operation Frequency:	DTS: LoRa(500KHz): 923.3MHz-927.5MHz DSS: LoRa(125KHz): 902.3MHz-914.9MHz
	:	Number of Channel:	DTS: 8 channels DSS: 64 channels
	:	RF Output Power:	DTS: 27.52dBm (MAX) DSS: 24.94dBm (MAX)
	:	Antenna Gain:	2.5dBi Dipole Antenna
Power Rating	:	Input: DC 3.3V/500mA	
Software Version	:	N/A	
Hardware Version	:	V1.0	
Connecting I/O Port(S)	:	Please refer to the User's Manual	
Remark	:	the evaluation report used the EUT (C-202202-0035-2#).	

MPE Calculations for LoRa

1. Antenna Gain:

2.5dBi Dipole 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:

LoRa FHSS

Channel	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]	Limit of Power Density (mW/ cm ²) (S)
Channel 01	23.78	23±1	24	2.5	20	0.0889	0.6013
Channel 32	24.94	24±1	25	2.5	20	0.1119	0.6013
Channel 64	24.54	24±1	25	2.5	20	0.1119	0.6013

LoRa DTS

Channel	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]	Limit of Power Density (mW/ cm ²) (S)
Channel 01	27.52	27±1	28	2.5	20	0.2232	0.6153
Channel 04	27.48	27±1	28	2.5	20	0.2232	0.6153
Channel 08	27.34	27±1	28	2.5	20	0.2232	0.6153

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

The MPE is calculated as $(0.1119 \text{ for DSS}) \text{ mW} / \text{cm}^2 < \text{limit } (0.6013 \text{ for DSS}) \text{ mW} / \text{cm}^2$
 $(0.2232 \text{ for DTS}) \text{ mW} / \text{cm}^2 < \text{limit } (0.6153 \text{ for DTS}) \text{ mW} / \text{cm}^2$

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.

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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