The Device is a **mobile** BLE Tracker Gen2 for IoT applications. BLE Tracker Gen2 is suitable for commercial application.

BLE Tracker evaluated for RF radiation exposure according to the provisions of FCC §2.1091, MPE guidelines identified in FCC §1.1310 and FCC KDB 447498:2015.

Limits for General Population/Uncontrolled Exposure: 47 CFR 1.1310 Table 1 (B)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f^2	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

Where *f* is in MHz

The worst-case scenario is provided at 902 MHz.

The maximum power density exposure is f/1500:

S = 0.60133 mW/cm^2, for uncontrolled exposure

LoRa and BLE RF conducted power measurement and antenna gain as per ETC test reports t29e20a289-DTS_FCC and t29e20a289-DSS_FCC section 2.3.5 are reported below. The maximum duty cycle of the radio is stated in the Operation Description exhibit to be 33%. The worst-case value is in bold below

TX	Frequency (MHz)	Conducted RF Output 100% Duty Cycle (dBm)	Max. antenna gain (dBi)	Conducted EIRP 100% duty Cycle(dBm)	EIRP 100% Duty Cycle (mW)	EIRP 33% Duty Cycle (mW)
LoRa 500 KHz	903	18.59	2.8	21.39	72.3	23.9
	907.8	18.64	2.8	21.44	73.1	24.1
	914.2	18.67	2.8	21.47	73.6	24.3
LoRa 125 KHz	902.3	18.55	2.8	21.35	71.6	23.6
	908.7	18.68	2.8	21.48	73.8	24.4
	914.9	18.68	2.8	21.48	73.8	24.4
BLE	2402	0.79	1.1	1.89	1.55	-
	2438	0.42	1.1	1.52	1.42	-
	2480	0.38	1.1	1.48	1.41	-
Using a worse case scenario after tuning procedure						
Tx Power		**22**	**2.8**	**24.8**	**302**	**99.7**

Using worst case scenario, the highest measured EIRP or [P*G(numeric gain)] value for the LoRa transmitter was rounded up to **100 mW**.

Using the highest transmitted power at a distance of 20 cm in the equation below:

$$S = EIRP / (4 \pi R^2)$$

Where: S, power density in 'mW/cm^2' (we use the value for the LoRa band of 0.60153 W/m^2)
EIRP, Effective Isotropic Radiated Power in 'mW'
R, distance to the center of the radiation of the antenna in 'cm'

The RF exposure from the radio is less than the limit specified as shown below and meets the exemption criteria.

$$S (mW/cm^2) = (100 \text{ mW}) / (4 \text{ x } \pi \text{ x } 20^2)$$

S = 0.0198944367 mW/cm^2 <<< 0.60133 mW/cm^2 (max limit)

Rounded up   **S = 0.02 mW/cm^2 <<<   0.60133 mW/cm^2 (max limit)**

The manufacturer manual specified a minimum safe distance of **20 cm**.