FCC

The LoRa module is designed to be installed into fixed pieces of civil engineering equipment and not used within 20cm of the body.

According to FCC part 15 §1.1310 the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled Exposure from equipment operating in the frequency range 902 - 928 MHz is $\frac{f}{1500}$ mW/cm^2, which gives 0.60 mW/cm^2 at the worst case frequency of 902 MHz

Following installation and commissioning, the safe distance from the antenna is the greater of:

20cm

Or

r cm, where r = √ (PG/4πS)

P: power input to antenna(s) in mW

G: numeric gain of antenna relative to isotropic radiator

S: power density in mW/cm^2 = 0.60 mW/cm2 (from module calculation)

The safe distance from the antenna shall be the greater of:

20 cm or √ (PG/4πS)

Worst case values are:

P = 74.64 mW   (bottom channel)

G = 1.0 (1.0 dBi)

So, safe distance

r = √ ((74.64 *1.0) / (4 * 3.142 * 0.60))

r = 3.53 cm

So, 20.0 cm is a suitable safe distance

Industry Canada: RSS-102 Issue 6

According to clause 6.6, RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;

Using the lowest frequency of 902 MHz, the maximum permitted EIRP is 1.37W

The module has a maximum transmit power of 74.64 mW with an antenna gain of 1.0 (linear)

This maximum EIRP of 74.6 mW is << the exemption limit of 1.37 W, so the device is exempt from routine evaluation