Section 15.247(i) – Radio Frequency Hazard Information

As per Section 15.247 (i) spread spectrum transmitters operating in the 2400.0 – 2483.5 MHz band are required to be operated in a manner that ensures that the public is not exposed to RF energy levels in accordance with CFR 47, Section 1.1307(b)(1).

The device when in operation is fixed inside a host device and a safe distance could be maintained when it is operated as a IoT Bridge.

In accordance with Section 1.1310 the Maximum Permissible Exposure (MPE) limits for the General Population / Uncontrolled Exposure of 1.0 mW/cm^2 has been applied.

Power density, mW/cm^2 = E^2/3770
E for MPE: 0.615 = E^2/3770

$E = \sqrt{1.0 * 3770}$

E = 61.4 V/m

The maximum distance from the antenna at which the MPE is met or exceeded is calculated from the equation relating field strength in V/m, transmit power in watts, transmit antenna gain and separation distance in metres.

The highest radiated power has been measured to be +14.4 dBm or 0.0275 watts (27.5 mW) EIRP from the WiFi transmitter.

The power output of the Bluetooth transmitter was not considered as the measured radiated power of -11.5 dBm (0.07 mW) is not significant and would not make a significant contribution to the overall power output of the device.

Therefore:

$E = \sqrt{(30 * P * G)} / d$

$d = \sqrt{(30 * P * G)} / E$

$d = \sqrt{(30 * 0.0245)} / 61.4$

d = 0.0148 m or 1.5 cm

Result: Complies if a minimum safe distance of 20 cm is specified in the set up instructions for this system.