

DISRUPTIVE

TECHNOLOGIES

RF Exposure and Transmitter Power Considerations for DT-RFIO-Module (US)

FCC ID: 2ATFX-101941

The FCC requires that the calculated MPE be equal to or less than a given limit dependent on frequency at a distance of 20 cm from a device to the body of a user.

The Cloud Connector US equipment operates in the 902 MHz – 928 MHz band.

The following FCC Rule Parts and procedures are applicable:

Part 1.1310 – Radiofrequency radiation exposure limits

Part 2.1091 – Radiofrequency radiation exposure evaluation: mobile devices

MPE CALCULATIONS

The MPE calculation used to calculate the safe operating distance for the user is:

$$S = \text{EIRP} / 4 \pi R^2$$

Where

S = Power density

EIRP = Effective Isotropic Radiated Power (EIRP = P x G)

P = Conducted Transmitter Power

G = Antenna Gain (relative to an isotropic radiator)

R = distance to the centre of radiation of the antenna (safe operating distance)

Values:

Transmitter frequency range = 902 MHz – 928 MHz

Power = 25 dBm (316.2 mW)

G = 0 dBi

EIRP = 25 dBm (316.2 mW)

R = 20cm

Power Density Requirement

From table 1 (b) - Limits for General Population/ Uncontrolled Exposure of
FCC Rule Part 1.1310 for 902 – 928 MHz

$$S = f/1500 \text{ mW/cm}^2 \text{ (f = operating frequency)}$$

$$S_{\text{req}} = 902/1500 = 0.60 \text{ mW/cm}^2$$

Calculation:

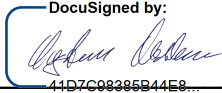
$$S = \text{EIRP}/4 \pi R^2$$

$$S = 316.2 / (12.56 \times 20^2)$$

$$S = 316.2 / (5024)$$

$$S = 0.063 \text{ mW/cm}^2 (<0.60 \text{ mW/cm}^2)$$

This equates to a safe operating distance of 6.5 cm

Signature:  Date: 2020-07-08