



RF Exposure Evaluation for the Paxton Access Ltd Net2Air Bridge

FCC ID: USE477500

The Net2Air Bridge operates at 2.4GHz (IEEE 802.15.4).

Analysis for FCC mobile use

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 following FCC Rule Parts and procedures are applicable:

Part 1.1310 – Radiofrequency radiation exposure limits

Part 2.1091 – Radiofrequency radiation exposure evaluation: mobile devices

KDB447498 D01 v06

Mobile and Portable Devices RF Exposure Procedures and Equipment Authorisation Policies

The following equation applies:

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

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)

Maximum Transmit Power at 2.4GHz:

Power conducted = 13.3dBm max

Antenna Gain: +0.5dBi

EIRP = 13.8dBm = 24.0 mW

Power Density Requirement

From table 1 (b) - Limits for General Population/ Uncontrolled Exposure of FCC Rule Part 1.1310 for 2.4GHz

$$S_{\text{req1}} = 1.0 \text{ mW/cm}^2$$

Calculation for 20cm separation:

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

$$S = 24.0 / (12.56 \times 20^2)$$

$$S = 24.0 / (5024)$$

$$S_1 = 0.0048 \text{ mW/cm}^2 (< 1.0 \text{ mW/cm}^2)$$

This equates to minimum safe operating distance of 1.4 cm (0.5 inch) at the RF exposure limit of 1.0 mW/cm²

Conclusion

The required 20cm RF exposure limits for General Population/ Uncontrolled Exposure will not be exceeded for the Paxton Access Net2Air Bridge using antennas having a maximum gain of +0.5dBi for 2.4GHz 802.15.4 operation.
