

RF Exposure Considerations for the TPS/UPS Radio

FCC ID: 2ACNC-607XXXX-XXX

The TPS/UPS Radio equipment is a fixed device and operates using a 2.4GHz Bluetooth transmitter.

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

MPE CALCULATION

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 = 2402 - 2480MHz

P = 0.5dBm max.

G = 5.0dBi (ASB Slot antenna), 2.0dBi (FlexPIFA antenna)

PG = 5.5dBm = 3.55mW (maximum EIRP)

R = 20 cm

From FCC Part 1.1310 (e)(1) Table 1:

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

Calculation:

$$S = 3.55 / 4 \pi R^2$$

$$S = 3.55 / (12.56 \times 20^2)$$

$$S = 3.55 / (5024)$$

$$S = 7.1 \times 10^{-4} \text{ mW/cm}^2$$

(Equivalent to 0.53 cm safe operating distance)

Conclusion

The required 20 cm RF exposure limits for General Population/ Uncontrolled Exposure will not be exceeded for the TPS/UPS Radio using an antenna having a maximum gain of 5 dBi.

Yours faithfully,

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