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RF Exposure Considerations for the XYD-2TXD

FCC ID: XYD-2TXD

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 transmitter operation for the XYD-2TXD is in the 902 to 928MHz frequency 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

KDB447498 D01 v06
Mobile and Portable Devices RF Exposure Procedures and Equipment Authorisation Policies

MPE CALCULATIONS

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

$$S = EIRP/4\,\pi\,R^2$$

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)

For 902 to 928MHz

Values:

Transmitter frequency range = 910.5 to 919.975MHz

P = +20dBm (100.0mW)

G = 5dBi (x3.16)

R = 20cm

Power Density Requirement

From table 1 (b) - Limits for General Population/ Uncontrolled Exposure of FCC Rule Part 1.1310 for 910.5MHz

S_{req1} = 0.61 mW/cm^2.

Calculation:

S = 100 x 3.16/ (4 π R^2)

S = 316/ (12.56 x 20^2)

S = 316/ (5024)

S = 0.063 mW/cm^2

(Note: In addition, taking into account the 1% duty cycle of the device, the power density is reduced further to 0.00063 mW/cm^2).

Conclusion

The required 20cm RF exposure limits for General Population/ Uncontrolled Exposure will not be exceeded for the XYD-2TXD using antennas having a maximum gain of 5.0 dBi.

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