30 Knightsbridge Road, Suite 301
Piscataway, NJ 08854

T 732-980-3000
americanstandard.com
dxv.com
grohe.us
inax.com
lixil.com

RF Exposure Considerations for the FPS Radio

FCC ID: 2ACNC-7XXBX05-002

The FPS 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:

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

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 = 2.0dBi (FlexPIFA antenna)

PG = 2.5dBm = 1.78mW

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R = 20 cm

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

S_{req} = 1.0 mW/cm^2

Calculation:

$S = 1.78 / 4 \pi R^2$

$S = 1.78 / (12.56 \times 20^2)$

$S = 1.78 / (5024)$

$S = 3.5 \times 10^{-4}$ mW/cm^2

(Equivalent to 0.38 cm safe operating distance)

Conclusion

The required 20 cm RF exposure limits for General Population/ Uncontrolled Exposure will not be exceeded for the FPS Radio using an antenna having a maximum gain of 2.0 dBi.

Yours faithfully,
Mark Malatesta

Mark Malatesta

Manager