

RF Exposure Considerations for the DONGLE BTLE AIR

FCC ID: 2AMLEDONGLEBTLE

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 DONGLE BTLE AIR covers the 2.4GHz operating band using BTLE technology.

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:

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

Where

S = Power density

EIRP = Effective Isotropic Radiated Power ($\text{EIRP} = P \times G$)

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)

Eliwell Controls srl

Società Unipersonale

Sede legale ed operativa:

15, Via Dell'Industria – Z.I. Paludi

32016 Alpago (BL) Italia

Tel. +39 0437 98 61 11

eliwell@schneider-electric.com

www.eliwell.com

C.F. e P.IVA IT 00987080256

Reg.Impr. BL 00987080256

R.E.A: BL n.87539

Cap. Soc. Euro 10.000.000,00 i.v.

Direzione e coordinamento: Schneider Electric SE

For 2.4GHz

Values:

Transmitter frequency range = 2400 MHz to 2483.5 MHz

P = 1.0dBm max. (1.26mW)

G = -2.1dBi (x0.62)

R = 20cm

Power Density Requirement

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

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

Calculation:

$$S = 1.26 \times 0.62 / 4 \pi R^2$$

$$S = 0.87 / (12.56 \times 20^2)$$

$$S = 0.87 / (5024)$$

$$S < 1.0 \text{ mW/cm}^2$$

Conclusion

The required 20cm RF exposure limits for General Population/ Uncontrolled Exposure will not be exceeded for the DONGLE BTLE AIR using antennas having a maximum gain of -2.1 dBi.

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