



## **MPE calculation for FCC ID: 2ADAO-BPRE-V110**

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 of the Kontakt Micro-Location Sp. z o.o. covers the frequency range of 2402-2480MHz.

The following FCC Rule Parts are applicable:

Part 1.1310 – Radiofrequency radiation exposure limits

Part 2.1091(c) – Radiofrequency radiation exposure evaluation: mobile devices

### **CALCULATION**

The following far field power density equation is applicable:

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

**Where**

- S = Power density
- EIRP = Effective Isotropically 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)

### **Calculation for 2.4GHz BT LE:**

#### Values:

Transmitter frequency range = 2402 – 2480MHz

P = 8.8dBm

G = 2.5dBi (x 2.24)

EIRP = 11.3dBm (13.5mW)

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:

$$\begin{aligned} S &= EIRP/4 \pi R^2 \\ &= 13.5/(12.56 \times 20^2) \\ &= 13.5/(5024) \end{aligned}$$

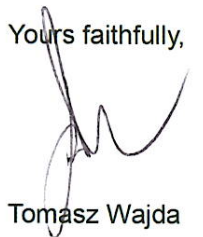
$$S_1 = 0.0027$$

(Equivalent to 1.0cm safe operating distance)

### Conclusion

The required 20cm RF exposure limits for General Population/ Uncontrolled Exposure FCC Rule Part 1.1310 limits will not be exceeded for the Kontakt Micro-Location Sp. z o.o. using an antenna having a maximum gain of 2.5dBi.

Yours faithfully,



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