

RF Exposure / MPE Calculation

No. : 12517307H-A
Applicant : TandD Corporation
Type of Equipment : Data Logger
Model No. : TR-71wb
FCC ID : SRD50080

TandD Corporation declares that Model: TR-71wb complies with FCC radiation exposure requirement specified in the FCC Rule 2.1091 (for mobile).

RF Exposure Calculations:

The following information provides the minimum separation distance for the highest gain antenna provided with the “TR-71wb” as calculated from (B) Limits for General Population / Uncontrolled Exposure of TABLE 1- LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE) of §1.1310 Radiofrequency radiation exposure limits.

[Bluetooth Low Energy part]

This calculation is based on the highest EIRP possible from the system, considering maximum power and antenna gain, and considering a 1mW/cm² uncontrolled exposure limit. The Friis formula used was:

$$S = \frac{P \times G}{4 \times \pi \times r^2}$$

Where

$P =$ 0.88 mW (Maximum average output power)
☐ Time average was used for the above value in consideration of 6-minutes time-averaging
☒ Burst power average was used for the above value in consideration of worst condition.
 $G =$ 1.445 Numerical Antenna gain; equal to 1.6dBi
 $r =$ 20 cm (Separation distance)

Power Density Result $S = 0.00025 \text{ mW/cm}^2$

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Reference:**[WLAN Part]**

This calculation is based on the highest EIRP possible from the system, considering maximum power and antenna gain, and considering a 1mW/cm² uncontrolled exposure limit. The Friis formula used was:

$$S = \frac{P \times G}{4 \times \pi \times r^2}$$

Where

$P =$ 100.00 mW (Maximum average output power)

☐ Time average was used for the above value in consideration of 6-minutes time-averaging

☒ Burst power average was used for the above value in consideration of worst condition.

$G =$ 2.163 Numerical Antenna gain; equal to 3.35dBi

$r =$ 20 cm (Separation distance)

$$\text{Power Density Result } S = 0.04303 \text{ mW/cm}^2$$

Therefore, if Bluetooth and WLAN 2.4GHz transmit simultaneously,

$$S = 0.00025 \text{ mW/cm}^2 + 0.04303 \text{ mW/cm}^2$$

$$= 0.04328 \text{ mW/cm}^2$$

Even taking into account the tolerance, this device can be satisfied with the limits.

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