RF Exposure / MPE Calculation

No.	:	12517307H-B
Applicant	:	TandD Corporation
Type of Equipment	:	Data Logger
Model No.	:	TR-75wb
FCC ID	:	SRD50090

TandD Corporation declares that Model: TR-75wb 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-75wb" 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/cm^2 uncontrolled exposure limit. The Friis formula used was:

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

Where

P = 0.95 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 = **0.00027 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/cm^2 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)

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

☑ 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)

Power Density Result S = **0.04303 mW/cm^2**

Therefore, if Bluetooth and WLAN 2.4GHz transmit simultaneously,
S=0.00027 mW/cm^2+0.04303 mW/cm^2
=0.04330 mW/cm^2

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

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