RF Exposure / MPE Calculation

No.	:	13753617H
Applicant	:	T&D Corporation
Type of Equipment	:	Data Logger
Model No.	:	TR71A
FCC ID	:	SRD50110

T&D Corporation declares that Model: TR71A 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 "TR71A" 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 = 0.82 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 = **0.00024 mW/cm^2**

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Reference:
[WLAN Part (Built-in module)]

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 tune-up peak conducted output power)
The value of Conducted power evaluation by the approved module (FCC ID:YOPGS2200M) is used.

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=0.00024 mW/cm^2+0.04303 mW/cm^2
=0.04327 mW/cm^2

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

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