

RF Exposure / MPE Calculation

No. : 11774441H
Applicant : Murata Manufacturing Co., Ltd.
Type of Equipment : Communication Module
Model No. : 1MW
FCC ID : VPYLB1MW
*WLAN (2.4 GHz), Bluetooth Low Energy part

Murata Manufacturing Co., Ltd. declares that Model: 1MW 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 "1MW" 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

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

$P =$ 3.44 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.
 $G =$ 1.000 Numerical Antenna gain; equal to 0dBi
 $r =$ 20 cm (Separation distance)

$$\text{Power Density Result } S = \mathbf{0.00068 \text{ mW/cm}^2}$$

WLAN (2.4 GHz)

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

$P =$ 49.89 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.
 $G =$ 1.000 Numerical Antenna gain; equal to 0dBi
 $r =$ 20 cm (Separation distance)

$$\text{Power Density Result } S = \mathbf{0.00993 \text{ mW/cm}^2}$$

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

UL Japan, Inc.

Ise EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124