RF Exposure / MPE Calculation

No.	:	12862749H-A / 12752904H-A
Applicant	:	Murata Manufacturing Co., Ltd.
Type of Equipment	:	Gateway
Model No.	:	LBAC0ZZ1SU
FCC ID	:	VPYLB1SU

Murata Manufacturing Co., Ltd. declares that Model: LBAC0ZZ1SU 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 "LBAC0ZZ1SU" 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.

[WLAN 2.4GHz]

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 = 10.35 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)

Power Density Result S = **0.00206 mW/cm^2**

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[Sub GHz]

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 = 0.84 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 = 1.479 Numerical Antenna gain; equal to 1.7 dBi

r = 20 cm (Separation distance)

Power Density Result S = **0.00025 mW/cm^2**

Therefore, if WLAN 2.4GHz and Sub GHz transmit simultaneously,
S=0.00206 mW/cm^2 + 0.00025 mW/cm^2
=0.00231 mW/cm^2

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

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