

RF Exposure / MPE Calculation

No.	:	12219844H-B
Applicant	:	Sony Interactive Entertainment Inc.
Type of Equipment	:	Wireless communication module
Model No.	:	AW-CB319
		*WLAN (2.4 GHz) and Bluetooth Low Energy parts
FCC ID	:	AK8M18DAQ1

Sony Interactive Entertainment Inc. declares that Model: AW-CB319 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 “AW-CB319” 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 (2.4 GHz) part]

This calculation is based on the highest EIRP possible from the system, considering maximum power and antenna gain, and considering a 1 mW/cm^2 uncontrolled exposure limit. The Friis formula used was:

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

Where

$P =$ 12.80 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.

$G =$ 7.261 Numerical Antenna gain; equal to 8.61dBi

$$r = 20 \text{ cm (Separation distance)}$$

Power Density Result $S = 0.01849 \text{ mW/cm}^2$

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

[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

$P =$ 0.84 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.

$G =$ 5.012 Numerical Antenna gain; equal to 7.0 dBi

$r =$ 20 cm (Separation distance)

Power Density Result $S = 0.00084 \text{ mW/cm}^2$

Reference:**[Bluetooth 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

$P =$ 1.08 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.

$G =$ 5.012 Numerical Antenna gain; equal to 7.0 dBi

$r =$ 20 cm (Separation distance)

Power Density Result $S = 0.00108 \text{ mW/cm}^2$

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

Reference:**[WLAN (5 GHz) 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

$P =$ 15.13 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.

$G =$ 6.792 Numerical Antenna gain; equal to 8.32 dBi

$r =$ 20 cm (Separation distance)

$$\text{Power Density Result } S = 0.02044 \text{ mW/cm}^2$$

Therefore, if WLAN 2.4GHz and Bluetooth Low Energy transmit simultaneously,
 $S = 0.01849 \text{ mW/cm}^2 + 0.00084 \text{ mW/cm}^2$
 $= 0.01933 \text{ mW/cm}^2$

Therefore, if WLAN 2.4GHz and Bluetooth transmit simultaneously,
 $S = 0.01849 \text{ mW/cm}^2 + 0.00108 \text{ mW/cm}^2$
 $= 0.01957 \text{ mW/cm}^2$

Therefore, if Bluetooth Low Energy and WLAN 5GHz transmit simultaneously,
 $S = 0.00084 \text{ mW/cm}^2 + 0.02044 \text{ mW/cm}^2$
 $= 0.02128 \text{ mW/cm}^2$

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