

RF Exposure / MPE Calculation

No. : 12219844H-C
Applicant : Sony Interactive Entertainment Inc.
Type of Equipment : Wireless communication module
Model No. : AW-CB319
 *WLAN (5 GHz) part
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 (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)

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

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

Reference:

[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)

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

Therefore, if WLAN 5GHz and Bluetooth transmit simultaneously,

$$\begin{aligned} S &= 0.02044 \text{ mW/cm}^2 + 0.00108 \text{ mW/cm}^2 \\ &= 0.02152 \text{ mW/cm}^2 \end{aligned}$$

Therefore, if WLAN 5GHz and Bluetooth Low Energy transmit simultaneously,

$$\begin{aligned} S &= 0.02044 \text{ mW/cm}^2 + 0.00084 \text{ mW/cm}^2 \\ &= 0.02128 \text{ mW/cm}^2 \end{aligned}$$

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

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