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 1mW/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 cm (Separation distance)

Power Density Result S = **0.01849 mW/cm^2**

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[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 = 0.84 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 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/cm^2 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 mW/cm^2**

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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/cm^2 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 mW/cm^2**

Therefore, if WLAN 2.4GHz and Bluetooth Low Energy transmit simultaneously,

S=0.01849 mW/cm^2 + 0.00084 mW/cm^2

=0.01933 mW/cm^2

Therefore, if WLAN 2.4GHz and Bluetooth transmit simultaneously,

S=0.01849 mW/cm^2 + 0.00108 mW/cm^2

=0.01957 mW/cm^2

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

S=0.00084 mW/cm^2 + 0.02044 mW/cm^2

=0.02128 mW/cm^2

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

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