

RF Exposure / MPE Calculation

No.	14173112H
Customer	Sony Interactive Entertainment Inc.
Description of EUT	Wireless communication module
Model Number of EUT	J20H100
FCC ID	AK8M19DFR1

Sony Interactive Entertainment Inc. declares that Model: J20H100 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 “J20H100” 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.

IWLAN 2.4 GHz band 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

$P =$ 11.95 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.

$G =$ 6.324 Numerical Antenna gain; equal to 8.01dBi

$r =$ 20 cm (Separation distance)

Power Density Result $S = 0.01503 \text{ mW/cm}^2$

[WLAN 5 GHz band 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

$P =$ 12.29 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.

$G =$ 7.482 Numerical Antenna gain; equal to 8.74dBi

$r =$ 20 cm (Separation distance)

Power Density Result $S = 0.01829 \text{ mW/cm}^2$

[Bluetooth part (BT1)]

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

$P =$ 1.03 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.

$G =$ 3.802 Numerical Antenna gain; equal to 5.8dBi

$r =$ 20 cm (Separation distance)

Power Density Result $S = 0.00078 \text{ mW/cm}^2$

[Bluetooth part (BT2)]

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

$P =$ 1.20 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.

$G =$ 3.802 Numerical Antenna gain; equal to 5.8dBi

$r =$ 20 cm (Separation distance)

Power Density Result $S = 0.00091 \text{ mW/cm}^2$

Therefore, if WLAN 2.4 GHz, Bluetooth (BR/EDR/LE) (BT1) and Bluetooth (BR/EDR/LE) (BT2) transmit simultaneously,

$$\begin{aligned} S &= 0.01503 \text{ W/m}^2 + 0.00078 \text{ W/m}^2 + 0.00091 \text{ W/m}^2 \\ &= 0.01672 \text{ W/m}^2 \end{aligned}$$

Therefore, if WLAN 5 GHz, Bluetooth (BR/EDR/LE) (BT1) and Bluetooth (BR/EDR/LE) (BT2) transmit simultaneously,

$$\begin{aligned} S &= 0.01829 \text{ W/m}^2 + 0.00078 \text{ W/m}^2 + 0.00091 \text{ W/m}^2 \\ &= 0.01998 \text{ W/m}^2 \end{aligned}$$