RF Exposure / MPE Calculation

No.	:	13521383H
Applicant	:	silex technology, Inc.
Type of Equipment	:	Embedded Wireless Module
Model No.	:	SX-USBAC
FCC ID	:	N6C-USBAC

silex technology, Inc. declares that Model: SX-USBAC 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 "SX-USBAC" 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 band 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 = 101.86 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 = 1.585 Numerical Antenna gain; equal to 2dBi

r = 20 cm (Separation distance)

Power Density Result S = **0.03212 mW/cm^2**

【Bluetooth (BT LE) 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 = 1.20 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 = 1.585 Numerical Antenna gain; equal to 2dBi

r = 20 cm (Separation distance)

Power Density Result S = **0.00038 mW/cm^2**

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【Bluetooth (BR/EDR) 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 = 1.99 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 = 1.585 Numerical Antenna gain; equal to 2 dBi

r = 20 cm (Separation distance)

Power Density Result S = **0.00063 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/cm^2 uncontrolled exposure limit. The Friis formula used was:

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

Where

P = 25.41 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 = 1.995 Numerical Antenna gain; equal to 3 dBi

r = 20 cm (Separation distance)

Power Density Result S = **0.01009 mW/cm^2**

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

Therefore, if Bluetooth (BR/EDR) + WLAN 5 GHz transmit simultaneously,
S=0.00063 mW/cm^2 + 0.01009 mW/cm^2
=0.01072 mW/cm^2

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