RF Exposure / MPE Calculation

No.	14178415H
Customer	silex technology, Inc.
Description of EUT	Embedded Wireless Module
Model Number of EUT	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 = 2.113 Numerical Antenna gain; equal to 3.25dBi

r = 20 cm (Separation distance)

Power Density Result S = **0.04283 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 = 2.113 Numerical Antenna gain; equal to 3.25dBi

r = 20 cm (Separation distance)

Power Density Result S = **0.00050 mW/cm^2**

【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 = 2.113 Numerical Antenna gain; equal to 3.25 dBi

r = 20 cm (Separation distance)

Power Density Result S = **0.00084 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 = 3.162 Numerical Antenna gain; equal to 5 dBi

r = 20 cm (Separation distance)

Power Density Result S = **0.01599 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=0.00084 mW/cm^2 + 0.01599 mW/cm^2

=0.01683 mW/cm^2