MPE CALCULATION

FCC ID: 2AOTVCU003020
FCC ID: 2AOTVCU002927

RF Exposure Requirements: 47 CFR §1. 1307(b)

RF Radiation Exposure Limits: 47 CFR §1. 1310

RF Radiation Exposure Guidelines: FCC OST/OET Bulletin Number 65

EUT Frequency Band: 2402MHz-2480MHz, 1850 MHz to 1910 MHz.

1710 MHz to 1755 MHz, 699 MHz to 716 MHz

Limits for General Population/Uncontrolled Exposure in the band of:

Frequency Range (MHz)	Power Density (mW/cm^2)
1,500-100,000	1.0
300-1,500	f/1500

Equation: $S = PG / 4\pi R^2$ or $R = \sqrt{PG / 4\pi S}$

Where, S = Power Density

P = Power Input to Antenna

G = Antenna Gain

R = distance to the center of radiated antenna

LTE Module Model: SARA-R410M (FCC ID: 2AOTVCU003020)

Bluetooth Module Model: CU002927 (FCC ID: 2AOTVCU002927)

Host Model: Connect 4M

Prediction distance 20cm

(Bluetooth-LE): Output Power = -0.06 dBm, Antenna Gain = 1.5dBi , Power density = 0.000349mW/cm^2

(LTE-M): Output Power = 24.8 dBm, Antenna Gain = 3.2dBi , Power density = 0.158mW/cm^2

Type	CH Freq (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Tune-Up Tolerance	Tolerance Max Power (dBm)	Measurement Distance (cm)	Calculated MPE (mW/cm^2)	MPE Limit (mW/cm^2)	Pass/Fail
Bluetooth LE	2402	-0.06	1.5	±1dB	0.94	20	0.000349	1	Pass
LTE-M	1850.7	24.8	3.2	±1dB	25.8	20	0.158	1	Pass

BLE Colocation with LTE-M
BLE = (0.000349/1) x 100 = 0.0349%
LTE-M = (0.158/1) x 100 = 15.8%
Total MPE Percentage = 0.0349% + 15.8% = 15.83%

The Above Result had shown that the Device complied with MPE requirement.

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