# MPE CALCULATION

## FCC ID: 2ALIS–A1 / IC ID: 22555-A1

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| 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, 2412-2462 MHz, 5180-5825MHz |
| Limits for General Population/Uncontrolled Exposure in the band of: | 1500 - 100,000 MHz |
| Power Density Limit: | 1 mW / $cm^2$ |

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

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Prediction distance 20cm

(Bluetooth BDR/EDR): Power = 11.05 dBm, Array Gain + Antenna Gain = 2.6 dBi, Power density =0.0046 mW/$cm^2$

(Bluetooth LE): Power = 1.69 dBm, Array Gain + Antenna Gain = 2.6 dBi, Power density =0.0005 mW/$cm^2$

(WLan 2.4GHz): Power = 14.54 dBm, Array Gain + Antenna Gain = 2.6 dBi, Power density = 0.0103 mW/$cm^2$

(WLan 5GHz): Power = 15.48 dBm, Array Gain + Antenna Gain = 5 dBi, Power density = 0.0227 mW/$cm^2$

| Type | CH Freq (MHz) | Conducted Power (dBm) | Antenna Gain (dBi) | Directional 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 BDR/EDR | 2441 | 11.05 | 2.6 | 2.6 | ±1dB | 12.05 | 20 | 0.0046 | 1 | Pass |
| Bluetooth LE | 2402 | 1.69 | 2.6 | 2.6 | ±1dB | 2.69 | 20 | 0.0005 | 1 | Pass |
| 2.4 GHz WLAN | 2462 | 14.54 | 2.6 | 2.6 | ±1dB | 15.54 | 20 | 0.0103 | 1 | Pass |
| 5 GHz WLAN | 5745 | 15.48 | 5.0 | 5.0 | ±1dB | 16.48 | 20 | 0.0227 | 1 | Pass |

Bluetooth, 2.4GHz and 5GHz radio does not transmit simultaneously.

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

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