

MPE CALCULATION

FCC ID: S9GHR730

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: 2.4GHz	2412-2462 MHz
EUT Frequency Band: 5 GHz	5180- 5320MHz, 5500-5720MHz, 5745-5825MHz 5210-5290MHz, 5530-5610MHz, 5690-5775MHz
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

EUT: R730 Access Point, Model No.: R730

- (2.4GHz BLE): Power = 18.65 dBm, Directional Gain = 0.55 dBi, Power density = 0.009 mW/ cm²
- (2.4GHz Zigbee): Power = 20.93 dBm, Directional Gain = 0.55 dBi, Power density = 0.015 mW/ cm²
- (2.4GHz WLAN): Power = 28.54 dBm, Directional Gain = 4.77 dBi, Power density = 0.238 mW/ cm²
- (5 GHz Band) 8X8 Mode: Power = 26.64 dBm, Directional Gain = 9.28 dBi, Power density = 0.435 mW/ cm²
- (5 GHz Band) 4x4 Mode: Power = 28.24 dBm, Directional Gain = 6.27 dBi, Power density = 0.314 mW/ cm²

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
BLE	2402	18.65	0.55	0.55	±1dB	19.65	30	0.009	1	Pass
Zigbee	2405	20.93	0.55	0.55	±1dB	21.93	30	0.015	1	Pass
2.4G WLAN	2462	28.54	0	4.77	±1dB	29.54	30	0.238	1	Pass
5 GHz WLAN 8x8 mode	5240	26.69	1.5	9.28	±1dB	27.64	30	0.435	1	Pass
5 GHz WLAN 4x4 mode	5230	29.05	1.5	6.27	±1dB	29.24	30	0.314	1	Pass

4x4 mode co-location:

Total MPE= $0.009 + 0.015 + 0.238 + 0.435 = 0.697$ mW/cm²

8x8 mode co-location:

Total MPE= $0.009 + 0.015 + 0.238 + 0.314 = 0.576$ mW/cm²

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



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