

MPE CALCULATION

FCC ID: S9GR750

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

EUT Frequency Band: 5 GHz

2402-2480MHz, 2412-2462MHz, 2405-2480MHz
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 / cm²

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: R750 Access Point, Model No.: R750

Max Conducted Power for each Band:

Type	Test mode	Freq (MHz)	CH	Conducted Power (dBm)
Output power	BLE	2402	Low	19.81
	Zigbee	2405	Low	20.24

Type	Test mode	Freq (MHz)	CH	Conducted Power (dBm)					
				Chain 0	Chain 1	Chain 2	Chain 3	Combined Power	
				V	H	V	H	V	H
Output	802.11n-40	2437	Mid	21.22	20.76	20.19	20.28	23.75	23.54

Type	Test mode	Freq (MHz)	CH	Conducted Power (dBm)					
				Chain 0	Chain 1	Chain 2	Chain 3	Combined Power	
				V	H	H	V	V	H
Output	802.11ax-40	5230	High	22.89	23.55	21.84	23.68	26.31	25.79

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
2.4 GHz BLE	2402	19.81	2	2	±1dB	20.81	20	0.038	1	Pass
2.4G Zigbee	2405	20.24	2	2	±1dB	21.24	20	0.042	1	Pass
2.4G WLAN	2437	23.75	2	5	±1dB	24.75	20	0.188	1	Pass
5 GHz WLAN	5230	26.31	3	6	±1dB	27.31	20	0.427	1	Pass

If 2.4GHz and 5GHz transmit simultaneously (BLE or Zigbee + 2.4G WLAN + 5G WLAN).

Max Total MPE= 0.042 + 0.188 + 0.427 = 0.657 mW/cm²

The Above Result had shown that the device complied with MPE requirement at a prediction distance of 20cm.

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