



Appendix E. RF Exposure Evaluation

1. The (FCC ID: EJE-WB0105) can be used with (FCC ID: EJE-SBC001), the following MPE analysis was performed on (FCC ID: EJE-WB0105) collocation with (FCC ID: EJE-SBC001).

1. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm ²) | Averaging time (minutes) |
|--|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| (A) Limits for Occupational/Controlled Exposures | | | | |
| 0.3-3.0 | 614 | 1.63 | *(100) | 6 |
| 3.0-30 | 1842/f | 4.89/f | *(900/f ²) | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | | | f/300 | 6 |
| 1500-100,000 | | | 5 | 6 |
| (B) Limits for General Population/Uncontrolled Exposure | | | | |
| 0.3-1.34 | 614 | 1.63 | *(100) | 30 |
| 1.34-30 | 824/f | 2.19/f | *(180/f ²) | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | | | f/1500 | 30 |
| 1500-100,000 | | | 1.0 | 30 |

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = Power Density

P = Output Power at Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna



2. RF Exposure Evaluation

2.1 Standalone Power Density Calculations for FCC ID: EJE-WB0105.

| Band | Antenna Gain (dBi) | Maximum Power (dBm) | Maximum EIRP (dBm) | Maximum EIRP (W) | Average EIRP (mW) | Power Density at 20cm (mW/cm ²) | Limit (mW/cm ²) | Power Density / Limit |
|-------------|--------------------|---------------------|--------------------|------------------|-------------------|---|-----------------------------|-----------------------|
| Bluetooth | -1.25 | 6.00 | 4.75 | 0.0030 | 2.9854 | 0.0006 | 1.0000 | 0.0006 |
| 2.4GHz WLAN | -1.25 | 15.0 | 13.75 | 0.0237 | 23.7137 | 0.0047 | 1.0000 | 0.0047 |
| 5GHz WLAN | 1.92 | 15.0 | 16.92 | 0.0492 | 49.2040 | 0.0098 | 1.0000 | 0.0098 |
| WiGig | | | -1.40 | 0.0007 | 0.7244 | 0.0001 | 1.0000 | 0.0001 |

2.2 Standalone Power Density Calculations for FCC ID: EJE-SBC001.

| Band | Antenna Gain (dBi) | Maximum Power (dBm) | Maximum EIRP (dBm) | Maximum EIRP (W) | Average EIRP (mW) | Power Density at 20cm (mW/cm ²) | Limit (mW/cm ²) | Power Density / Limit |
|-------|--------------------|---------------------|--------------------|------------------|-------------------|---|-----------------------------|-----------------------|
| WiGig | | | -2.65 | 0.0005 | 0.5433 | 0.0001 | 1.0000 | 0.0001 |

2.3 Collocated Power Density Calculation

| FCC ID: EJE-WB0105 | | | FCC ID : EJE-SBC001 | | Σ (Power Density / Limit) |
|---------------------------------|--|-----------------------------|-----------------------------|--|---------------------------|
| Bluetooth Power Density / Limit | 2.4GHz / 5GHz WLAN Maximum Power Density / Limit | WiGig Power Density / Limit | WiGig Power Density / Limit | | |
| 0.0006 | 0.0098 | 0.0001 | 0.0001 | | 0.0107 |

Note:

- For FCC ID: EJE-WB0105:
 - Bluetooth, 2.4GHz WLAN and WiGig can transmit simultaneously
 - Bluetooth, 5GHz WLAN and WiGig can transmit simultaneously
- Σ (Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission) / (corresponding MPE limit)], for (Bluetooth + 2.4GHz/5GHz WLAN + WiGig) of (FCC ID : EJE-WB0105) with WiGig of (FCC ID : EJE-SBC001).
- Considering all antenna collocation of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of all collocated transmitters is compliant

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.