## Compliance with 47 CFR 15.247(i)

> "*Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter*."

In the following configurations, the radios will only be used with a separation distance of 20 centimeters or greater between the antenna and the body of the user or nearby persons, and can therefore be considered mobile transmitters per 47 CFR 2.1091(b). The following MPE estimates are for the following collocated configuration:

- Bluetooth module (FCC ID: POOWML-C40) and a Cellular Module (FCC ID: W56MTSMCH54000) the Zoll Lifecor Corp. LifeVest System

The radios can transmit simultaneously. Each radio transmits through its own antenna.

## COMPLIANCE WITH FCC KDB 447498 D01 General RF Exposure Guidance v05r02

"KDB 447498 D01 General RF Exposure Guidance v05r02" provides the procedures, requirements, and authorization policies for mobile and portable devices. Section 7.2 best fits the exposure condition described in this report. Since these mobile devices are categorically excluded from routine evaluation; simple calculations may be used to estimate the power density to demonstrate compliance with 47 CFR 1.1310 requirements. The following estimate shows MPE limits are met for simultaneous transmission at a 20 cm boundary.

The MPE estimates are as follows:

Table 1 in 47 CFR 1.1310 defines the maximum permissible exposure (MPE) for the general population. The exposure level at a 20 cm distance from the EUT's transmitting antenna is calculated using the general equation:

$S = (PG)/4\pi R^2$
Where: S = power density ($mW/cm^2$)
P = power input to the antenna (mW)
G = numeric power gain relative to an isotropic radiator
R = distance to the center of the radiation of the antenna (20 cm = limit for MPE estimates)
PG = EIRP

Solving for S, the maximum power densities 20 cm from the transmitting antennas are summarized in the tables on the following page:

## MPE Estimates for Self Co-located Device

## FCC ID: POOWML-C40

**Bluetooth Radio**

| Antenna Type | Antenna Part No. | Transmit Frequency (MHz) | Max Peak Conducted Output Power (mW) | Antenna Gain (dBi) | Minimum Antenna Cable Loss (dB) | Power Density @ 20 cm ($mW/cm^2$) | General Population Exposure Limit from 1.1310 ($mW/cm^2$) | Ratio of Power Density to the Exposure Limit |
|---|---|---|---|---|---|---|---|---|
| Chip | ANT8030-2R4-01A | 2400 | 13.03 | 2 | 0 | 0.00411 | 1.000 | 0.004 |

**Worst Case Ratio of Power Density to the Exposure Limit = 0.004**

## FCC ID: W56MTSMCH54000

**Cellular Radio**

| Transmit Frequency (MHz) | Max Peak Conducted Output Power (mW) | Duty Cycle | Duty Cycle Corrected Output Power (mW) | Antenna Gain (dBi) | Minimum Antenna Cable Loss (dB) | Power Density @ 20 cm ($mW/cm^2$) | General Population Exposure Limit from 1.1310 ($mW/cm^2$) | Ratio of Power Density to the Exposure Limit |
|---|---|---|---|---|---|---|---|---|
| 850 | 1995 | 0.125 | 249.375 | 5.22 | 0 | 0.16504 | 0.567 | 0.291 |
| 850 | 997 | 0.5 | 498.5 | 5.22 | 0 | 0.32991 | 0.567 | 0.582 |
| 850 | 446 | 1 | 446 | 5.22 | 0 | 0.29517 | 0.567 | 0.521 |
| 1700 | 226 | 1 | 226 | 6.45 | 0 | 0.19854 | 1.000 | 0.199 |
| 1900 | 993 | 0.125 | 124.125 | 3.31 | 0 | 0.05292 | 1.000 | 0.053 |
| 1900 | 380 | 0.5 | 190 | 3.31 | 0 | 0.08100 | 1.000 | 0.081 |
| 1900 | 243 | 1 | 243 | 3.31 | 0 | 0.10359 | 1.000 | 0.104 |

**Worst Case Ratio of Power Density to the Exposure Limit = 0.582 (850 MHz Band)**
**Worst Case Ratio of Power Density to the Exposure Limit = 0.199 (1700 MHz Band)**
**Worst Case Ratio of Power Density to the Exposure Limit = 0.104 (1900 MHz Band)**

## Worst Case Co-located Exposure Condition

Per KDB 447498 D01v05 Section 7.2, the Sum of Worst Case Power Ratios cannot exceed 1.0

| **Bluetooth Radio** Worst Case Ratio of Power Density to the Exposure Limit | **Cellular Radio** Worst Case Ratio of Power Density to the Exposure Limit | | | Sum of Worst Case Ratios (Power Density to the Exposure Limit) | FCC Limit for Sum of Worst Case Ratios | |
|---|---|---|---|---|---|---|
| 0.004 | 0.582 | | | 0.586 | 1.0 | PASS |

The results shown in the above table are equivalent to the Sum of the EIRP of the Two Co-located Transmitters (EIRP TX1 + EIRP TX2) compared to the exposure limit. The benefit of this method, is that accounts for transmitters operating at different frequencies