

## Transmitters

- 1) Cellular TRP LTE FDD B2 (high band) @ MHz
  - a) Max Output Power: 18.7 dBm or 74.13 mW
  - b) Avg Duty Cycle: .5% (device duty cycle from above)
  - c) Source based Time Avg Output Power: 74.13mW \* .005 = .0.3707mW
  - d) KDB 447498 D01 4.3.1a calculation for 10-g extremity condition:

$$\frac{\text{Max Chan Pwr (mW)}}{\text{min sep distance (mm)}} * \sqrt{\text{Chan f (GHz)}} \leq 7.5 \text{ limit}$$

$$\frac{0.3707 \text{ mW}}{10 \text{ mm}} * \sqrt{1.908 \text{ GHz}} = 0.051 \leq 7.5 \text{ (for 10 g)}$$

- 2) Cellular TRP LTE FDD B13 (low band) @ MHz
  - a) Max Output Power: 18.6 dBm or 72.44 mW (from VZW TRP)
  - b) Avg Duty Cycle: .5% (device duty cycle from above)
  - c) Source based Time Avg Output Power: 72.44mW \* .005 = .0.3622mW
  - d) KDB 447498 D01 4.3.1a calculation for 10-g extremity condition:

$$\frac{\text{Max Chan Pwr (mW)}}{\text{distance (mm)}} * \sqrt{\text{Chan f (GHz)}} \leq 7.5 \text{ limit}$$

$$\frac{0.3622 \text{ mW}}{10 \text{ mm}} * \sqrt{0.778 \text{ GHz}} = .1 * 0.319 = 0.0319 \leq 7.5$$

- 3) Cellular TRP WCDMA FDD B2 @ 1907.6 MHz
  - a) Max Output Power: 19 dBm or 79.43mW
  - b) Avg Duty Cycle: .5% (device duty cycle from above)
  - c) Source based Time Avg Output Power: 79.43mW \* .005 = .39715mW
  - d) KDB 447498 D01 4.3.1a calculation for 10-g extremity condition:

$$\frac{\text{Max Chan Pwr (mW)}}{\text{distance (mm)}} * \sqrt{\text{Chan f (GHz)}} \leq 7.5 \text{ limit}$$

$$\frac{0.3972 \text{ mW}}{10 \text{ mm}} * \sqrt{1.907 \text{ GHz}} = .1 * 0.548 = 0.0548 \leq 7.5$$

- 4) 900MHz FHSS RF @927MHz
- Max Output Power: 10.05 dBm or 10.00 mW (after rounding to 10.00 dBm)
  - Avg Duty Cycle: (1.25ms TX Time)/(15.9ms Total Time) \* 100% = 7.9%
  - Source Based Time Avg Output Power: 10.00mW \* 0.079 = 0.790mW
  - KDB 447498 D01 4.3.1a calculation for 10-g extremity condition:

$$\frac{\text{Max Chan Pwr (mW)}}{\text{distance (mm)}} * \sqrt{\text{Chan f(GHz)}} \leq 7.5 \text{ limit}$$

$$\frac{0.790 \text{ mW}}{26 \text{ mm}} * \sqrt{.927\text{GHz}} = 0.0303 * .962 = 0.0291 \leq 7.5$$

Simultaneous transmission SAR test exclusion considerations

Per KDB 447498 D01 4.3.2 “When the sum of 1-g or 10-g SAR of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit, SAR test exclusion applies to that simultaneous transmission configuration.”

$$0.051 + .029 = 0.080 \leq 7.5 \text{ limit (for LTE only unit)}$$