Tracker: TARA05-4

Maximum Permissible Exposure
FCC, Part 90 Subpart C §90.1217

Calculations for Maximum Permissible Exposure Levels
Power Density = Pd (mW/cm2) = EIRP/($4\pi d^2$)
EIRP = P * G
P = Peak output power (mW)
G = Antenna numeric gain (numeric)
d = Separation distance (cm)
Numeric Gain = 10 ^ (G (dBi)/10)

The Tarana Wireless AbsoluteAir2 has 16 antenna ports which are split into the following cross polarized offering;

8 horizontally polarized
8 vertically polarized

The AbsoluteAir2 operates on two continuous data streams and per KDB 662911 section F(2)e(i) permits the reduction of antennas used for power calculations to 4 directional antennas. For all antennas to be considered, 6 dB will be added to the effective gain of the antenna.

Antenna Gain = 12.0 dBi (Numeric 15.85)
Effective Antenna Gain = 12.0 + 6.0 = 18.0 (Numeric 63.1)
Maximum Power Measured (4 Chains BW 20 MHz, Channel 3660 MHz) = +29.13 dBm
EIRP (4 Chains) dBm = 29.13 + 12.0 = 41.13 dBm

The EUT belongs to the Controlled Exposure the limit of power density is 5.0 mW/cm^2

						Distance (cm)	
Freq. Band (MHz)	**Antenna Gain (dBi)**	**Effective Numeric Gain (numeric)**	**Max Peak Output Power (dBm)**	**Peak Output Power (mW/EIRP)**	**Calculated Power Density @ 20cm**	**Calculated Safe Distance @ 5mW/cm^2 Limit(cm)**	**Minimum Separation Distance (cm)**
3,660.0	12	63.1	818.5	51,647.4	2.05	28.7	28.7

Note: for mobile or fixed location transmitters the minimum separation distance is 20cm, even if calculations indicate the MPE distance to be less.

Specification
Maximum Permissible Exposure Limits

§90.1217 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 levels in excess of the Commission's guidelines. See §1.1307 (b)(1) of this chapter.

Limit = 1 mW / cm^2 from 1.310 Table 1

Laboratory Measurement Uncertainty for Power Measurements

Measurement uncertainty	±1.33dB