

MPE Calculation for ST1480

The Maximum Permissible Exposure (MPE) power density per ANSI C95.1 Table 2 is $f/1500 \text{ mW/cm}^2$, where f is measured in MHz.

The maximum EIRP of the ST1480 is extrapolated from the highest conducted measurement of 24dBm along with the peak gain of -1dBi of the antenna to yield a maximum numerical EIRP of $0.252\text{W} \times 0.8 = 0.202\text{W}$.

As described in Section 4.2 of the ST1480 Test Report, there is a duty cycle correction factor of 4.266% which will be multiplied to the maximum numerical EIRP, thus yielding a $\text{EIRP} = 8.6\text{mW}$.

The Zigbee module has a maximized field strength of 93dBuV/m at 3m, based on their FCC report, which equates to $0.040\text{mW/m} \times 3\text{m} = 0.12\text{mW}$ of EIRP.

$$S = \text{EIRP} / 4\pi R^2$$
$$915 / 1500 = (8.6 + 0.12) / 4\pi R^2$$
$$R = 1.06\text{cm}.$$

The ST1480 is operated and housed inside a thermostat mounted on a wall. Typically occupants of the building in which the ST1480 is installed are many times farther than the 1.06cm as required per the MPE calculations. Typical exposures are expected to be at distances greater than 1 meter.