

# MPE Calculation

$$S = \text{EIRP} / (4R^2\pi)$$

S = Maximum power density (mW/cm<sup>2</sup>)

P = Power input to the antenna (mW)

G = Numeric power gain of the antenna

R = Distance to the center of the radiation of the antenna

EIRP = Equivalent Isotropic Radiated Power(mW) (=P\*G)

| Frequency range (MHz) | Electric Field strength (V/m) | Magnetic field strength (A/m) | Power Density (mW/cm <sup>2</sup> ) | Averageing time (minutes) |
|-----------------------|-------------------------------|-------------------------------|-------------------------------------|---------------------------|
| 0.3 ~ 1.34            | 614                           | 1.63                          | *100                                | 30                        |
| 1.34 ~ 30             | 824 / f                       | 2.19 / f                      | *180 / f <sup>2</sup>               | 30                        |
| 30 ~ 300              | 27.5                          | 0.073                         | 0.2                                 | 30                        |
| 300 ~ 1,500           |                               |                               | f / 1500                            | 30                        |
| 1,500 ~ 100,000       |                               |                               | 1                                   | 30                        |

Model Name : **RFID Mini**

FCC ID : **2AWMDMINI**

Separation distance (R) : **20.0 cm**

| Modulation | Frequency (MHz) | Measured Maximum Average power | Tune-up tolerance | Max. Power with tune-up tolerance ( P ) |        | Antenna Gain ( G ) |           | Power Density ( S )   | Limit of Power Density ( S ) | Result      |
|------------|-----------------|--------------------------------|-------------------|---|--------|--------------------|-----------|-----------------------|------------------------------|-------------|
|            |                 | (dBm)                          | (dB)              | (dBm)                                   | (mW)   | (dBi)              | (numeric) | (mW/cm <sup>2</sup> ) | (mW/cm <sup>2</sup> )        |             |
| RFID       | 902.75          | 21.64                          | ± 1.00            | 22.64                                   | 183.65 | 0.88               | 1.22      | 0.0447                | 0.60                         | <b>PASS</b> |
|            | 914.75          | 21.16                          |                   | 22.16                                   | 164.44 | 0.88               | 1.22      | 0.0401                | 0.60                         | <b>PASS</b> |
|            | 927.25          | 20.85                          |                   | 21.85                                   | 153.11 | 0.88               | 1.22      | 0.0373                | 0.61                         | <b>PASS</b> |

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user.