

# 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 : **RED TAB**

FCC ID : **Y3D-REDTAB**

Antenna Gain(dBi) : **-1.61**

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

| Modulation | Frequency (MHz) | Measured Maximum Output 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       | 917.10          | 25.29                         | ± 1.00            | 26.29                                   | 425.60 | -1.61              | 0.69      | 0.0584                | 1.00                       | <b>PASS</b> |
|            | 921.90          | 25.07                         |                   | 26.07                                   | 404.58 | -1.61              | 0.69      | 0.0556                | 1.00                       | <b>PASS</b> |
|            | 926.90          | 25.03                         |                   | 26.03                                   | 400.87 | -1.61              | 0.69      | 0.0550                | 1.00                       | <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.