

**Prediction of MPE Limit  
47 CFR § 2.1091/ § 2.1093**

$$S_{20} = \frac{P_A G_N}{4\pi R_{20}^2}$$

$$S_C = \frac{P_A G_N}{4\pi R_C^2}$$

$$R_C = \sqrt{\frac{P_A G_N}{4\pi S_L}}$$

$$S_L = \frac{180}{f^2} \text{ (mW/cm}^2\text{)}$$

**S<sub>20</sub>** = Power Density of the Device at 20cm

**S<sub>L</sub>** = Power Density Limit

**S<sub>C</sub>** = Power Density of the Device at the Compliance Distance R<sub>C</sub>

**R<sub>20</sub>** = 20cm

**R<sub>C</sub>** = Minimum Distance to the Radiating Element to Meet Compliance

**P<sub>T</sub>** = Power Input to Antenna

**P<sub>A</sub>** = Adjust Power

**G<sub>N</sub>** = Numeric Gain of the Antenna

**f** = Transmit Frequency

**Transmit Duty Cycle = 75%**


**Use Group = General Population**

Transmit Duty Cycle:	75.00	(%)
Tx Frequency (f):	27.40	(MHz)
RF Power at Antenna Input Port (P <sub>T</sub> ):	4000.00	(mW)
Antenna Gain:	3.00	(dBi)
Numeric Antenna Gain (G <sub>N</sub> ):	2.00	(numeric)
Cable or Other Loss:	0.00	(dB)
Duty Cycle/Loss Adjusted Power (P <sub>A</sub> ):	3000.00	(mW)

<b>S<sub>L</sub></b> =	0.240	(mW/cm <sup>2</sup> )
<b>S<sub>20</sub> at 20cm</b> =	1.191	(mW/cm <sup>2</sup> )
<b>R<sub>C</sub></b> =	44.6	(cm)
<b>S<sub>C</sub></b> =	0.24	(mW/cm <sup>2</sup> )

User's Manual must indicate a minimum separation distance of: **45cm**

**Art Voss**



**Senior Engineer**

**Celltech Labs Inc.**