

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

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

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

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

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

$S_{20}$  = Power Density of the Device at 20cm

$S_L$  = Power Density Limit

$S_C$  = Power Density of the Device at the Compliance Distance  $R_C$

$R_{20}$  = 20cm

$R_C$  = Minimum Distance to the Radiating Element to Meet Compliance

$P_T$  = Power Input to Antenna

$P_A$  = Adjust Power

$G_N$  = Numeric Gain of the Antenna

$f$  = Transmit Frequency

**Transmit Duty Cycle = 75%**

**Use Group = General Population**

Transmit Duty Cycle:	75.00	(%)
Tx Frequency (f):	27.41	(MHz)
RF Power at Antenna Input Port ( $P_T$ ):	4000.00	(mW)
Antenna Gain:	3.00	(dBi)
Numeric Antenna Gain ( $G_N$ ):	2.00	(numeric)
Cable or Other Loss:	0.00	(dB)
Duty Cycle/Loss Adjusted Power ( $P_A$ ):	3000.00	(mW)

$S_L$ =	0.240	(mW/cm <sup>2</sup> )
$S_{20}$ at 20cm =	1.191	(mW/cm <sup>2</sup> )
$R_C$ =	44.6	(cm)
$S_C$ =	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.