

FCC ID: **IPH-0271501**IC ID: **1792A-0271501**Model: **GMN-01410-02****MPE Calculator**

RF Exposure uses EIRP for calculation. EIRP is based on TX power added to the antenna gain in dBi.

Measured Values		
Transmitter Output Power	19.11	W
Operating Duty Cycle	50	%
Transmit Frequency (f)	118.000	MHz
Cable Loss	0	dB
Antenna Gain (Isotropic)	2.2	dBi
Antenna Linear Gain	1.66	
Antenna Gain (Dipole)	0.05	dBd
Final Antenna Gain (dBi)**	2.2	dBi
Final Antenna Linear Gain (G _N)**	1.66	
Operating Output Power*	9.56	W
Operating Output Power (EIRP)*	42.00	dBm
Operating Output Power (ERP)*	39.85	dBm
Operating EIRP*	15,857.35	mW
Operating ERP (P _A)*	9,665.64	mW

*duty cycle (%) applied.

** Antenna gain minus cable loss.

Equations
$\text{Antenna Gain (linear)} = 10^{\text{Antenna Gain (dBi)}/10}$
$\text{Antenna Gain (dBd)} = \text{Antenna Gain dBi} - 2.15$
$\text{EIRP} = \text{ERP (dBm)} + \text{Antenna Gain (dBi)}$
$\text{Power Density (S) mW/cm}^2 = \frac{P_A G_N}{4\pi r^2}$
$\text{Minimum Distance (r)} = \sqrt{\frac{P_A G_N}{4\pi S}}$
$S = \text{Power Density in mW/cm}^2.$
$r = \text{distance to radiating element in cm.}$
$P_A = \text{Operating ERP in mW with Duty Cycle Applied.}$
$G_N = \text{Total Antenna Linear Gain.}$

Exposure Limits		
FCC radio frequency radiation exposure limits per 1.1310		
Frequency (MHz)	Occupational Limit (mW/cm ²)	Public Limit (mW/cm ²)
30-300	1	0.2
300-1,500	f/300	f/1500
1,500-100,000	5	1
IC radio frequency radiation exposure limits per RSS-102		
Frequency (MHz)	Occupational Limit (W/m ²)	Public Limit (W/m ²)
10-20	10	2
20-48	44.72/f ^{0.5}	8.944/f ^{0.5}
48-100	6.455	N/A
48-300	N/A	1.291
100-6,000	0.6455*f ^{0.5}	N/A
300-6,000	N/A	0.02619* f ^{0.6834}
6,000-15,000	50	10
15,000-50,000	50	10
150,000-300,000	3.33×10 ⁻⁴ *f	6.67×10 ⁻⁵ *f

Applied Exposure Limit***			
FCC	Occupational	mW/cm2	W/m2
	Public	0.2	2
Canada	Occupational	0	0.000
	Public	0.1291	1.291

***Limits determined by listed transmit frequency (f)

Minimum Distance Calculations								
		Frequency (MHz)	Duty Cycle (%)	Output Power - ERP (mW)	Antenna Gain (Linear)	Exposure Limit (mW/cm2)	Minimum Distance (cm)	Minimum Distance (Inches)
FCC	Occupational	118.000	50	9,665.64	1.66	1	35.72814051	14.06619705
	Public	118.000	50	9,665.64	1.66	0.2	79.89055089	31.45297279
Canada	Occupational	118.000	50	9,665.64	1.66	0.70119925	42.66676268	16.79793806
	Public	118.000	50	9,665.64	1.66	0.1291	99.43683499	39.14836023

Overall Minimum Limit Public	
99.43683499	cm
39.14836023	Inches

Overall Minimum Limit Occupational	
42.66676268	cm
16.79793806	Inches

Equipment is installed in a controlled environment and is subject to the Occupational Minimum Limit.

Minimum separation distance is 42.67 cm / 16.80 inches.