

Environmental Assessment

Per CFR 47, section 1.1307.b(1), Table 1, all applications for experimental operations with an ERP greater than 100 watts require evaluation for compliance with human exposure limits defined in section 1.1310, and if exceeded require submission of an Environmental Assessment as defined in section 1.1311.

The below calculations define the minimum safe working distance for both Occupational and General Public, which are based on the maximum permissible exposure limits of 5 mW/cm² and 1 mW/cm² respectively. These calculations were conducted using the highest gain antenna used in this operation.

| | |
|---------------------------------|-------------|
| TX Peak Power (mW) | 25000000.00 |
| TX Peak Power (dBm) | 73.98 |
| Maximum Antenna Gain dBi | 31.00 |
| EIRP (dBm) | 104.98 |
| Maximum Duty Cycle (Dc) | 1.00 |
| EIRP Watts | 31473135.29 |
| Avg EIRP Watts | 31473135.29 |
| TX Avg Power mW (Pavg) | |
| Pp*Dc | 25000000.00 |

| | | |
|---------------------------------------|---------------------|-----------------------|
| Non Dimensional Antenna Gain | | |
| Gt = 10^{dBi/10} | 1258.925412 | |
| | Occupational | General Public |
| Minimum Safe Distance - Meters | 225 | 510 |

| | | |
|------------------------------------|-------|-------|
| Distance in Centimeters (R) | 22500 | 51000 |
|------------------------------------|-------|-------|

| | | |
|---------------------------------------|--------------------|--------------------|
| AVG Power Density mW/CmCm | | |
| Pd At distance=R | | |
| (Pavg*Gt)/(4*Pi)*R² | 4.947264254 | 0.962919081 |

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| | |
|---------------------------------|------------|
| TX Peak Power (mW) | 1000000.00 |
| TX Peak Power (dBm) | 60.00 |
| Maximum Antenna Gain dBi | 26.10 |
| EIRP (dBm) | 86.10 |
| Maximum Duty Cycle (Dc) | 1.00 |
| | |
| EIRP Watts | 407380.28 |
| Avg EIRP Watts | 407380.28 |
| | |
| TX Avg Power mW (Pavg) | |
| Pp*Dc | 1000000.00 |

| | | |
|---------------------------------------|---------------------|-----------------------|
| Non Dimensional Antenna Gain | | |
| Gt = 10^{dBi/10} | 407.3802778 | |
| | Occupational | General Public |
| Minimum Safe Distance - Meters | 25.5 | 59.5 |

| | | |
|------------------------------------|------|------|
| Distance in Centimeters (R) | 2550 | 5950 |
|------------------------------------|------|------|

| | | |
|---------------------------------------|--------------------|--------------------|
| AVG Power Density mW/CmCm | | |
| Pd At distance=R | | |
| (Pavg*Gt)/(4*Pi)*R² | 4.985512105 | 0.915706305 |

The antenna will be onboard the aircraft in flight. Only authorized occupational workers will be allowed access to the area of operation. In addition the transmitter will be secured prior to conducting maintenance, and the area will be monitored during the operation to ensure that personnel are clear of any radiation hazard area.