**RF Exposure**

<u>Reference:</u>     CFR 47 FCC Part 1.1310

<u>Description:</u>     The worse-case of each power setting and frequency were investigate to report the worse-case power density at the specified distance.

All measurements were peak or RMS power readings taken from test reports from accredited test labs.  Antenna gains were taken from the manufacturer's specifications.

<u>Limits:</u>     Maximum exposure limits from CFR 47, FCC Part 1.1310:

**Table 1 - Limits for Maximum Permissible Exposure (MPE)**

| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm²) | Averaging time (minutes) |
|---|---|---|---|---|
| **(A) Limits for Occupational/Controlled Exposure** | | | | |
| 0.3-3.0 | 614 | 1.63 | *100 | 6 |
| 3.0-30 | 1842/f | 4.89/f | *900/f² | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1,500 | | | f/300 | 6 |
| 1,500-100,000 | | | 5 | 6 |
| **(B) Limits for General Population/Uncontrolled Exposure** | | | | |
| 0.3-1.34 | 614 | 1.63 | *100 | 30 |
| 1.34-30 | 824/f | 2.19/f | *180/f² | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1,500 | | | f/1500 | 30 |
| 1,500-100,000 | | | 1.0 | 30 |

**RF Exposure**

Calculations:

| Transmitter | Frequency | Antenna Gain | Duty cycle | Power | Power | Power + 10% | Power Density | Limit at specified distance | % of limit | Type |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | numerical | | dBm | mW | mW | mW/cm^2 | mW/cm^2 | Percent of limit | |
| 1 | 902.3 | 1 | 100% | 20.23 | 105.44 | 115.98 | 0.02309 | 0.60 | 3.84% | Peak |
| 1 | 908.5 | 1 | 100% | 19.98 | 99.54 | 109.49 | 0.02179 | 0.61 | 3.60% | Peak |
| 1 | 914.9 | 1 | 100% | 20.38 | 109.14 | 120.06 | 0.02390 | 0.61 | 3.92% | Peak |

| PASS? | YES |
|---|---|

| Distance | 20 | cm |
|---|---|---|

The power density is calculated as shown below:

$S = (P \times G \times DC)/(4 \times \pi \times d^2)$ – used to calculate exposure at 20 cm

$d = \sqrt{(S/(P \times G) \times 4 \times \pi)}$ – used to calculate minimum distance to meet limits

1 mW/cm^2 = 10 W/m^2

S= power density       P = transmitter power (in mw).       G = antenna numeric gain       d = distance to radiation center

DC = Duty Cycle       *Power values taken from EIRP, so antenna gain was set to 1 (numeric)