| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | HVIN: E6V2 | | | Test Number: 240416 | | | | |
| MPE Calculator | RF Exposure uses EIRP for calculation. EIRP is based on TX power added to the antenna gain in dBi. | | | | | | | |
| | dBi = dB gain compared to an isotropic radiator. | | | | | | | |
| | S = power density in mW/cm^2 | | | | | | | |
| | | | Transmitter Output power (mW) | 1977.0 | | | | |
| | | | Transmitter Output power (W) | 1.98 | | | | |
| | Output Power for % duty Cycle operation (Watts) | 100 | 1.98 | | Antenna Gain (dBi) | 14 | | |
| | Output Power for 100% duty Cycle operation (Watts) | | 1.98 | | Antenna Gain (Numeric) | 25.12 | | |
| Tx Frequency (MHz) | 915 | Calculation power (Watts) | 1.98 | dBd + 2.17 = dBi | dBi to dBd | 2.17 | | |
| | | | | | Antenna Gain (dBd) | 11.83 | | |
| Cable Loss (dB) | 0.0 | Adjusted Power (dBm) | 32.96 | | Antenna minus cable (dBi) | 14.00 | | |
| | | | | | Antenna Gain (Numeric) | 25.12 | | |
| | Calculated ERP (mw) | 30130.060 | | | EIRP = Po(dBm) + Gain (dB) | | | |
| | Calculated EIRP (mw) | 49659.232 | | | Radiated (EIRP) dBm | 46.960 | | |
| | | | | | ERP = EIRP - 2.17 dB | | | |
| | | | | | Radiated (ERP) dBm | 44.790 | | |

Power density (S) $mW/cm^2$ = $\frac{EIRP}{4 \pi r^2}$

r (cm) EIRP (mW)

| | | | | |
|---|---|---|---|---|
| | **Occupational Limit** | FCC radio frequency radiation exposure limits per 1.1310 | | |
| 3.05 | $mW/cm^2$ | Frequency (MHz) | Occupational Limit ($mW/cm^2$) | Public Limit ($mW/cm^2$) |
| 30.5 | $W/m^2$ | 30-300 | 1 | 0.2 |
| | **General Public Limit** | 300-1,500 | f/300 | f/1500 |
| 0.61 | $mW/cm^2$ | 1,500-10,000 | 5 | 1 |
| 6.1 | $W/m^2$ | | | |

| | | | | |
|---|---|---|---|---|
| | **Occupational Limit** | | | |
| $0.6455f^{0.5}$ | $W/m^2$ | IC radio frequency radiation exposure limits per RSS-102 | | |
| 19.5 | $W/m^2$ | Frequency (MHz) | Occupational Limit ($W/m^2$) | Public Limit ($W/m^2$) |
| | **General Public Limit** | 100-6,000 | $0.6455f^{0.5}$ | |
| $0.02619f^{0.6834}$ | $W/m^2$ | 6,000-15,000 | 50 | |
| 2.77 | $W/m^2$ | 48-300 | | 1.291 |
| | | 300-6,000 | | $0.02619f^{0.6834}$ |
| | | 6,000-15,000 | 50 | 10 |

| | | | | | |
|---|---|---|---|---|---|
| | | | | General Public | Occupational |
| f = Transmit Frequency (MHz) | | | f (MHz) = | 915 | 915 MHz |
| $P_T$ = Power Input to Antenna (mW) | | | $P_T$ (mW) = | 1,976.9696 | 1,976.9696 mW |
| Duty cycle (percentage of operation) | | | % = | 100 | 100 % |
| $P_A$ = Adjusted Power due to Duty cycle or Cable Loss (mW) | | | $P_A$ (mW) = | 1,976.97 | 1,976.97 mW |
| $G_N$ = Numeric Gain of the Antenna | | | GN (numeric) = | 25.12 | 25.12 numeric |
| $S_{20}$ = Power Density of device at 20cm ($mW/m^2$) | | $S_{20}=(P_A G_N)/(4\pi R_{20})^2$ | $S_{20}$ ($mW/m^2$) = | 9.88 | 9.88 $mW/m^2$ |
| $S_{20}$ = Power Density of device at 20cm ($W/m^2$) | | $S_{20}=(P_A G_N)/(4\pi R_{20})^2$ | $S_{20}$ ($W/m^2$) = | 98.79 | 98.79 $W/m^2$ |
| $S_L$ = Power Density Limit ($W/m^2$) FCC | | | $S_L$ ($W/m^2$)= | 6.100 | 30.500 $W/m^2$ |
| $S_L$ = Power Density Limit ($W/m^2$) Canada | | | $S_L$ ($W/m^2$)= | 2.767 | 19.526 $W/m^2$ |
| $R_C$ = Minimum distance to the Radiating Element for Compliance (cm) FCC | | $R_C=\sqrt{(P_A G_N/4\pi S_L)}$ | $R_C$ (cm) = | 80.5 | 36.0 cm |
| $R_C$ = Minimum distance to the Radiating Element for Compliance (cm) Canada | | $R_C=\sqrt{(P_A G_N/4\pi S_L)}$ | $R_C$ (cm) = | 119.5 | 45.0 cm |
| $S_C$ = Power Density of the device at the Compliance Distance $R_C$ ($W/m^2$) FCC | | $S_C=(P_A G_N)/(4\pi R_C)^2$ | $S_C$ ($W/m^2$) = | 6.10 | 30.50 $W/m^2$ |
| $S_C$ = Power Density of the device at the Compliance Distance $R_C$ ($W/m^2$) Canada | | $S_C=(P_A G_N)/(4\pi R_C)^2$ | $S_C$ ($W/m^2$) = | 2.77 | 19.53 $W/m^2$ |
| $R_{20}$ = 20cm | | | R20= | 20 | 20 cm |

For Compliance with Canada General Population Limits, User Manual must indicate a minimum separation distance of 119.5 cm

Or in Meters for Compliance with Canada General Population Limits, a minimum separation distance of 1.20 Meters

| Summary: Standalone MPE Calculations and Summary | | | | | Public Limit | | Public | |
|---|---|---|---|---|---|---|---|---|
| | Tx Duty Cycle (%) | Tx Frequency (MHz) | Power Total (mW) | Antenna Gain (numeric) | $S_L$ ($W/m^2$) | $S_{20}$ ($W/m^2$) | $R_C$ (cm) | $S_C$ ($W/m^2$) |
| FCC | 100 | 915 | 1,977 | 25.12 | 6.100 | 98.79 | 80.5 | 6.10 |
| Canada | 100 | 915 | 1,977 | 25.12 | 2.767 | 98.79 | 119.5 | 2.77 |

| | | Limit | Overall Minimum (cm) | Overall Minimum (inches) |
|---|---|---|---|---|
| | Public | Occupational | | |
| FCC (cm) | 80.5 | 36.0 | | |
| FCC (inches) | 32.0 | 15.0 | | |
| Canada (cm) | 119.5 | 45.0 | | |
| Canada (inches) | 48.0 | 18.0 | | |

| Overall Minimum Limit Public | Overall Minumu Limit Occuppational |
|---|---|
| 120 cm | 45 cm |
| 48 inches | 18 inches |