FCC

| FCC | | | | | | | | | |
|---|---|--------------------------------------|---|--|------------------------------------|---|-------------------------------------|---------------------|----------------------------------|
| MPE Calculator | RF Exposure uses EIRP for o | calculation. EIRP | is based on | TX power added to the antenna g | ain in dBi. | | | | |
| | dBi = dB gain compared to a | in isotropic radiato | r. | | | | | | |
| | S = power density in mW/cm | r^2 | | | | | | | |
| | ansmitter Output p | ower (mW) | 2317.4 | | | | | | |
| | | Fransmitter Output | | 2.32 | | | | | |
| Output Power for % | | | 2.32 | | Antenna Gain (dBi) | 10 | | | |
| | | duty Cycle operation (Watts) | | 2.32 | Ante | nna Gain (Numeric) | 10.00 | | |
| | Sulput I Swel for 10070 | duty Cycle operation (watts) | | | | ina Gan (Tvankik) | 10.00 | | |
| Tx Frequency (MHz) | equency (MHz) 915 Calculation power (Watt | | wer (Watts) | 2.32 | dBd + 2.17 = dBi | dBi to dBd | 2.2 | | |
| | | | | | | Antenna Gain (dBd) | 7.83 | | |
| Cable Loss (dB) | 0.0 | .0 Adjusted Power (dBm | | 33.65 | Antenna minus cable (dBi) | | 10.00 | | |
| | | | | | Antenna Gain (Numeric) | | 10.00 | | |
| | Calculated ERP (mw) | 14060.475 | | | EIRP = Po(dBm) + Gain (dB) | | | | |
| | Calculated EIRP (mw) 23173.946 | | | Radiated (EIRP) dBm | | 43.650 | | | |
| | | | | | F | | ERP = EIRP - 2.17 dB | | |
| | Power density (S) mW/cm ² = | | | | R | diated (ERP) dBm 41.480 | | | |
| | Power density (S) mw/ | 4 p r^2 | | | | | | | |
| | | 4 p 1 · · 2 | | | | | | | |
| | r (cm) EIRP (mW) | | | | | | | | |
| | | | | | | | | | |
| | Occupational Limit | FCC radio fi | | requency radiation exposure limits | per 1.1310 | | | | |
| 3.05 | mW/cm ² | Frequency (| MHz) | Occupational Limit (mW/cm ²) | Public Limit (mW/cm ²) | | | | |
| 31 | W/m ² | 30-300 | | 1 | 0.2 | | | | |
| - | General Public Limit | 300-1,5 | | f/300 | f/1500 | | | | |
| 0.61 | | 1,500-10 | | 5 | 1 | | | | |
| | III () CIII | 1,300-10 | ,000 | 3 | 1 | | | | |
| 6.1 | W/m ² | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | Occupational Limit | it | | | | | | | |
| $0.6455 f^{0.5}$ | W/m ² IC radio freq | | quency radiation exposure limits pe | er RSS-102 | | | | | |
| 24.3 | | Frequency (MHz) | | Occupational Limit (W/m²) | Public Limit (W/m ²) | | | | |
| 24.3 | | 100-6,000 | | | 1 done Limit (w/m) | | | | |
| 0.100 | General Public Limit | | | $0.6455f^{0.5}$ | | | | | |
| $0.02619f^{0.6834}$ | | 6,000-15,000 | | 50 | | | | | |
| 8.8 | W/m ² | 48-300 300-6,000 | | | $\frac{1.291}{0.02619f^{0.6834}}$ | | | | |
| | | | | | | | | | |
| | | 6,000-15,000 | | 50 | 10 | | | | |
| f - Teans mit Feaguanay (MHz) | | | | | f (MHz) = | 015 | MUz | | |
| f = Transmit Frequency (MHz) | | | | | | | | | |
| | = Power Input to Antenna (mW) | | | | P_{T} (mW) = | | | | |
| Duty cycle (percentage of operation) | | | | % = | 100 | | | | |
| P _A = Adjusted Power due to Duty cycle or Cable Loss (mW) | | | | | $P_{A}(mW) =$ | 2,317.39 | mW | | |
| G _N = Numeric Gain of the Antenna | | | | | GN (numeric) = | 10.00 numeric | | | |
| S_{20} = Power Density of device at 20 cm (mW/m ²) | | | | $S_{20} = (P_A G_N)/(4\pi R_{20})^2$ | $S_{20} (mW/m^2) =$ | 4.61 mW/m^2 | | | |
| S_{20} = Power Density of device at $20 \text{cm} (\text{W/m}^2)$ | | $S_{20} = (P_A G_N)/(4\pi R_{20})^2$ | $S_{20} (W/m^2) =$ | 46.10 | | | | | |
| | | | | S ₂₀ (I AGN)/(IMIC20) | | 6.100 W/m^2 | | | |
| S _L = Power Density Limit (W/m ²) FCC | | | | $S_L (W/m^2) =$ | | | | | |
| $S_L = Power Density Limit (W/m^2) Canada$ | | | | $S_L (W/m^2) =$ | 8.766 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) = | 55.0 cm | | 21.6 | in | |
| $R_C = M$ inimum distance to the Radiating Element for Compliance (cm) Canada | | | $R_C = \sqrt{(P_A G_N / 4\pi s_L)}$ | R _C (cm) = | | | 18.1 | in | |
| S_C = Power Density of the device at | Power Density of the device at the Compliance Distance $R_C(W/m^2)$ | | | $S_C = (P_A G_N)/(4\pi R_C)^2$ | $S_C(W/m^2) =$ | $8.77 \mathrm{W/m^2}$ | | | |
| $R_{20} = 20cm$ | For Compliance with Canada General Population Limits | | | R20= 20 cm | | cm | 7.9 | in | |
| | | | . User Manual must indicate a min | imum separation distance of | 45.9 cm | | | | |
| | | | a General Population Limits, a minimum separation distance of | | | | | | |
| Summary: Standalone MPE Ca | alculations and Summary | | | | | | | | |
| | | Tx Frequency | (MII-) | Down Total (mW) | Antonno Goir (manaria) | C (111/2) | G (3777 ²) | D (ama) | 0 (337) |
| Band (MHZ) | Tx Duty Cycle (%) | 1x Frequency 915 | (IVITIZ) | Power Total (mW) 2,317 | Antenna Gain (numeric) 10.00 | S _L (W/m ²) 8.766 | S ₂₀ (W/m ²) | R _C (cm) | S _C (W/m ² |
| 902-928 | 100 | | | | | | 46.10 | 55.0 | 6.10 |

Rogers Labs, Inc. Transcore SN: 21321992

 4405 West 259th Terrace
 HVIN: AI1422
 FCC ID: FIH1422PT90V45

 Louisburg, KS 66053
 Test: 211018
 IC: 1584A-1422R137V45

Phone/Fax: (913) 837-3214 Test to: 47CFR Parts 2, 90 and RSS-137 Date: November 3, 2021

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ISED

| ISED | | | | | | | | | |
|--|--|-----------------------------|--|--|--|-----------------------------------|------------------------|---------|----|
| MPE Calculator | RF Exposure uses EIRP for | calculation. EIRP | is based on | TX power added to the antenna ga | in in dBi. | | | | |
| | dBi = dB gain compared to an isotropic radiator. | | | | | | | | |
| | S = power density in mW/cm | n^2 | | | | | | | |
| | Transmitter Output power (mW) | | | | | | | | |
| | Transmitter Output | power (W) | 2.32 | | | | | | |
| Output Power for % | | 100 | 2.32 | | Antenna Gain (dBi) | 10 | | | |
| | Output Power for 100% | duty Cycle opera | tion (Watts) | 2.32 | Ante | enna Gain (Numeric) | 10.00 | | |
| Tx Frequency (MHz) | 915 | 5 Calculation power (Watts) | | 2.32 | dBd + 2.17 = dBi | dBi to dBd | 2.2 | | |
| | | | | | | Antenna Gain (dBd) | 7.83 | | |
| Cable Loss (dB) | 0.0 Adjusted Power (dBm) | | 33.65 | Antenna minus cable (dBi) | | 10.00 | | | |
| | | | | | Antenna Gain (Numeric) | | 10.00 | | |
| | Calculated ERP (mw) 14060.475 Calculated EIRP (mw) 23173.946 | | | | EIRP = Po(dBm) + Gain (dB) | | | | |
| | | | | | R | adiated (EIRP) dBm | 43.650 | | |
| | | EIDD | | | | ERP = EIRP - 2.17 | dB | | |
| | Power density (S) mW/ | EIRP /cm ² = | | | Radiated (ERP) d | | 41.480 | | |
| | Tower density (b) mw/ | 4 p r^2 | | | | | | | |
| | | | | | | | | | |
| | r (cm) EIRP (mW) | | | | | | | | |
| | Occupational Limit | 1 | FCC radio 6 | requency radiation exposure limits p | per 1 1310 | | | | |
| -2.05 | • • | | | | 2 | | | | |
| 3.05 | | Frequency (| | Occupational Limit (mW/cm ²) | Public Limit (mW/cm ²) | | | | |
| 31 | 117.444 | 30-300 300-1,500 | | 1 f/300 | 0.2 | | | | |
| | General Public Limit | | | | f/1500 | | | | |
| 0.61 | mW/cm ² | 1,500-10 | ,000 | 5 | 1 | | | | |
| 6 | W/m ² | | | | | | | | |
| | , | | | | | | | | |
| | | | | | | | | | |
| | Occupational Limit | | | | | | | | |
| $0.6455f^{0.5}$ | | | juency radiation exposure limits per | · RSS-102 | | | | | |
| , | \ | | | | | | | | |
| 24.3 | | Frequency (| | Occupational Limit (W/m²) | Public Limit (W/m ²) | | | | |
| | General Public Limit | 100-6,0 | 000 | $0.6455 f^{0.5}$ | | | | | |
| $0.02619f^{0.6834}$ | $0.02619 f^{0.6834}$ W/m ² | | ,000 | 50 | | | | | |
| 8.8 | W/m ² | 48-300 | | | 1.291 | | | | |
| | | 300-6,000 | | | $0.02619f^{0.6834}$ | | | | |
| | | 6,000-15 | | 50 | 10 | | | | |
| | | 0,000-13 | ,000 | 30 | 10 | | | | |
| f = Transmit Frequency (MHz) | | | | | f (MHz) = | 915 | MHz | | |
| P _T = Power Input to Antenna (mW) | | | | | P_{T} (mW) = | 2,317.3946 | | | |
| | | | | | % = | | | | |
| Duty cycle (percentage of operation) | | | | | | | | | |
| P _A = Adjusted Power due to Duty cycle or Cable Loss (mW) | | | | | $P_A(mW) =$ | 2,317.39 | | | |
| G _N = Numeric Gain of the Antenna | | | | 2 | GN (numeric) = | | numeric | | |
| S_{20} = Power Density of device at 20 cm (mW/m ²) | | | | $S_{20} = (P_A G_N)/(4\pi R_{20})^2$ | $S_{20} (mW/m^2) =$ | | mW/m ² | | |
| S_{20} = Power Density of device at $20 \text{cm} (W/\text{m}^2)$ | | | $S_{20}=(P_AG_N)/(4\pi R_{20})^2$ | $S_{20} (W/m^2) =$ | 46.10 | W/m ² | | | |
| $S_L = Power Density Limit (W/m^2) FCC$ | | | | $S_L (W/m^2) =$ | 6.100 | W/m ² | | | |
| $S_L = Power Density Limit (W/m^2) Canada$ | | | | $S_L(W/m^2)=$ | | | | | |
| | | | $R_C = \sqrt{(P_A G_N / 4\pi S_L)}$ | $R_{\rm C}$ (cm) = | | 8.766 W/m ² 55.0 cm | | in | |
| D - Minimum distance to the D-1: | | FCC | R _C = Minimum distance to the Radiating Element for Compliance (cm) FCC | | | 55.0 | CIII | 21.6 in | |
| | ating Element for Compliance (cm) | | | | | | | | |
| R _C = Minimum distance to the Radia | ating Element for Compliance (cm) ating Element for Compliance (cm) | Canada | | $R_C = \sqrt{(P_A G_N / 4\pi S_L)}$ | R_{C} (cm) = | | | 18.1 | ın |
| $R_C = M$ inimum distance to the Radia | ating Element for Compliance (cm) ating Element for Compliance (cm) | Canada | | | $R_{C} (cm) = $ $S_{C} (W/m^{2}) = $ | 8.77 | W/m ² | | |
| | ating Element for Compliance (cm) ating Element for Compliance (cm) | Canada | | $R_C = \sqrt{(P_A G_N / 4\pi S_L)}$ | R_{C} (cm) = | 8.77 | | 7.9 | |
| $R_C = Minimum distance to the Radia $ $S_C = Power Density of the device at$ | ting Element for Compliance (cm) ting Element for Compliance (cm) the Compliance Distance R _C (W/n | Canada m²) | ılation Limits | $\begin{split} R_C &= \!\! \sqrt{(\mu_A G_A/4\pi s_b)} \\ S_C &= \!\! (P_A G_N)/(4\pi R_C)^2 \end{split}$. User Manual must indicate a minin | $R_{C} (cm) = $$S_{C} (W/m^{2}) = $$R20 = $$$ mum separation distance of | 8.77 20 45.9 | W/m ² cm | | |
| $R_C = Minimum distance to the Radia $ $S_C = Power Density of the device at$ | ting Element for Compliance (cm) ting Element for Compliance (cm) the Compliance Distance R _C (W/n | Canada m²) | ılation Limits | $\begin{split} R_{C} &= \sqrt{(P_A G_N / 4\pi s_L)} \\ S_{C} &= (P_A G_N) / (4\pi R_C)^2 \end{split}$ | $R_{C} (cm) = $$S_{C} (W/m^{2}) = $$R20 = $$$ mum separation distance of | 8.77 20 45.9 | W/m ² cm | | |
| $R_C = Minimum distance to the Radia $ $S_C = Power Density of the device at$ | ting Element for Compliance (cm) ting Element for Compliance (cm) the Compliance Distance R _C (W/n For Compliance with Can Or in Mete | Canada m²) | ılation Limits | $\begin{split} R_C &= \!\! \sqrt{(\mu_A G_A/4\pi s_b)} \\ S_C &= \!\! (P_A G_N)/(4\pi R_C)^2 \end{split}$. User Manual must indicate a minin | $R_{C} (cm) = $$S_{C} (W/m^{2}) = $$R20 = $$$ mum separation distance of | 8.77 20 45.9 | W/m ² cm | | |
| R_C = Minimum distance to the Radia S_C = Power Density of the device at R_{20} = 20cm | ting Element for Compliance (cm) ting Element for Compliance (cm) the Compliance Distance R _C (W/n For Compliance with Can Or in Mete | Canada m²) | ılation Limits with Canada | $\begin{split} R_C &= \!\! \sqrt{(\mu_A G_A/4\pi s_b)} \\ S_C &= \!\! (P_A G_N)/(4\pi R_C)^2 \end{split}$. User Manual must indicate a minin | $R_{C} (cm) = $$S_{C} (W/m^{2}) = $$R20 = $$$ mum separation distance of | 8.77 20 45.9 | W/m ² cm | | |

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