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# RF EXPOSURE CALCULATIONS

## Requirement:

According to USA CFR 15 §1.1307 (b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to radio frequency energy level in excess of the Commission's guidelines. For Canada, RSS-102 sets out the requirements and measurement techniques used to evaluate radio frequency (RF) exposure compliance of radiocommunication apparatus designed to be used within the vicinity of the human body.

## Maximum Permissible Exposure Calculations:

| | Level | Units |
|---|---|---|
| **MPE Field Strength Limit** | 61 | V/m |
| **MPE Power Density Limit** | 1.0 | mW/cm2 |

**Test Date:** 12-Feb-24
**Test Engineer:** J. Brunett
**EUT Mode:** Max All - Worst Case
**Meas. Distance:** 3m

| R0 | Freq. MHz | Temp / Hum. °C, % | EIRP (Pk) dBm | Exposure Duty dB | EIRP (Avg) dBm | RS-102 2.5.2 EIRP dBm Limit | EUT Ant. Dim. cm | Far-field Distance m | S = 1mW/cm2 Dist.* cm | S @ 20 cm Distance mW/cm2 | MPE S Limit mW/cm2 | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R1 | 78473 | 20, 49 | 33.2 | -11.2 | 22.0 | 37.0 | 6.00 | 1.88 | **3.6** | 0.032 | 1.000 | |
| R2 | 79000 | 20, 49 | 32.8 | -11.2 | 21.6 | 37.0 | 6.00 | 1.90 | **3.4** | 0.029 | 1.000 | |
| R3 | 79432 | 20, 49 | 33.4 | -11.2 | 22.2 | 37.0 | 6.00 | 1.91 | **3.6** | 0.033 | 1.000 | |
| # | C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 | C12 |

| (ROW) | (COLUMN) | NOTE: |
|---|---|---|
| R1-R3 | C10 | S @ 20cm = EIRP – 10*log10( 4 * PI * 20^2) |
| R1-R3 | C9 | S = 1mW/cm2 Distance = sqrt(EIRPmW/(4*PI*1mW/cm2)) |
| R1-R3 | C9 | S = 1mW/cm2 Distance is an overestimated value when smaller than the EUT far field distance, and demonstrates compliance with FCC Part 1.1307, 1.1310, 2.1091, and 2.0193 requirements when the EUT is mounted into the motor vehicle. EUT is a Forward Looking radar used when the vehicle is in motion. |

## Summary:

The EUT with all transmitters is compliant with both the FCC power density limit and the ISED Exposure Evaluation limits.