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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			Test Date:	10-Mar-22
MPE Field Strength Limit		61	V/m			Test Engineer:	John Nantz
MPE Power Density Limit		1.0	mW/cm ²			EUT Mode:	CW/CM
						Meas. Distance:	3m

Freq. MHz	Temp °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/cm ² Dist.* cm	S @ 20 cm Distance mW/cm ²	MPE S Limit mW/cm ²	Comments
76011	18	31.7	-8.4	23.2	37.0	6.00	1.82	4.1	0.042	1.000	Peak max all orientations, CW mode
76500	18	32.8	-8.4	24.4	37.0	6.00	1.84	4.7	0.055	1.000	Peak max all orientations, CW mode
76991	18	30.7	-8.4	22.3	37.0	6.00	1.85	3.7	0.034	1.000	Peak max all orientations, CW mode

$S @ 20\text{cm} = \text{EIRP} - 10 \cdot \log_{10}(4 \cdot \pi \cdot \text{PI} \cdot 20^2)$

$S = 1\text{mW/cm}^2 \text{ Distance} = \sqrt{\text{EIRPmW}/(4 \cdot \pi \cdot 1\text{mW/cm}^2)}$

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.

