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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:

USA REF: 2.1091/1093, 447498 D01 General RF Exposure Guidance v06											
IC REF: RSS-102 Issue 5											
Min. Sep. Distance: <5mm											
Canada					Calculated SAR Threshold (Avg)	1-g SAR Power Threshold Exclusion Limit (Avg)	10-g SAR Power Threshold Exclusion Limit (Avg)	USA			
Mode	Freq. MHz	Efield (Pk) dBuV/m @ 3m	Duty dB	EIRP (Pk) dBm	EIRP (Avg)** mW	SAR Threshold = EIRP (Avg) mW	1-g SAR Power Threshold Exclusion Limit (Avg) mW	Calculated SAR Threshold (Avg)	1-g SAR Power Threshold Exclusion Limit (Avg)	10-g SAR Power Threshold Exclusion Limit (Avg)	
UHF	315	75.6	0	-19.6	.01	.011	69.1	172.8	0.001	3.0	7.5
UHF	434	80.8	0	-14.4	.04	.036	54.0	135.1	0.005	3.0	7.5
UHF	868	81.9	0	-13.3	.05	.047	16.7	41.7	0.009	3.0	7.5
UHF	915	81.9	0	-13.3	.05	.047	16.2	40.6	0.009	3.0	7.5
Canada					Calculated SAR Threshold (Avg)	1-g SAR Power Threshold Exclusion Limit (Avg)	10-g SAR Power Threshold Exclusion Limit (Avg)	USA			
Mode	Freq. MHz	EIRP (Pk) / Po (Pk) dBm	Duty dB	EIRP (Pk) dBm	EIRP (Avg)** mW	SAR Threshold = EIRP (Avg) mW	1-g SAR Power Threshold Exclusion Limit (Avg) mW	Calculated SAR Threshold (Avg)	1-g SAR Power Threshold Exclusion Limit (Avg)	10-g SAR Power Threshold Exclusion Limit (Avg)	
BLE	2402	4.6	.0	4.6	2.85	2.85	4.0	10.0	0.88	3.0	7.5
BLE	2440	4.8	.0	4.8	3.01	3.01	4.0	10.0	0.94	3.0	7.5
BLE	2480	5.6	.0	5.6	3.60	3.60	4.0	10.0	1.13	3.0	7.5
UHF WORST CASE RATIO					0.003			0.003			
BLE WORST CASE RATIO					0.899	Limit	Pass/Fail	0.378	Limit	Pass/Fail	
TOTAL ACCUMULATED RATIO (UHF + BLE)					0.902	1	Pass	0.381	1	Pass	

*As Measured / Computed from highest fundamental emission, see fundamental emission section of this report.

**Only RMS level is required, RMS/6min << Pk. Peak emission employed to demonstrate compliance.

Worst Case Ratio = SAR Threshold / 1-g SAR Threshold Exclusion

Total Accumulated Ratio = UHF Worst Case Ratio + BLE Worst Case Ratio

Summary:

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