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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

Test Date: 31-Jul-23
Test Engineer: J. Nantz
EUT: WSKR PT1
EUT Mode: Worst Case
Meas. Distance: Cond

								Canada			USA		
R0	Mode	Freq.	Po (Pk)	Duty	Po (Avg)	Tune Up	Po + Tune (Avg)	SAR Threshold = Po (Avg)	1-g SAR Power Threshold Exclusion Limit (Avg)	10-g SAR Power Threshold Exclusion Limit (Avg)	Calculated SAR Threshold (Avg)	1-g SAR Power Threshold Exclusion Limit (Avg)	10-g SAR Power Threshold Exclusion Limit (Avg)
		MHz	dBm	dB	dBm	dBm	mW	mW	mW	mW			
R1	BLE	2402	-10.7		-10.7	1.0	.11	.11	3.9	9.8	0.03	3.0	7.5
R2	BLE	2440	-11.4		-11.4	1.0	.09	.09	3.9	9.8	0.03	3.0	7.5
R3	BLE	2480	-12.0		-12.0	1.0	.08	.08	3.9	9.8	0.02	3.0	7.5
#	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13

(ROW)	(COLUMN)	NOTE:
R0	C3	As Measured / Computed from highest fundamental emission, see fundamental emission section of this report.
R0	C7	Only RMS level is required, RMS/6min << Pk, Peak emission employed to demonstrate compliance.
R0	C8	SAR threshold EIRP computed = 10^(Maximum conducted power (dBm) + tune up tolerance (dBm))/10
R0	C9-C10	ref. RSS-102, section 2.5.1, worst case value of 3.9 mW is used to demonstrate compliance for all channels.
R0	C11	ref. KDB publication 447498 D01 General RF Exposure Guidance v06, section 4.3.1(a), SAR Threshold = [(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for SAR 1-g. (0.15mW/5mm)/√(2.402) = **0.05 ≤ 3.0**. Meets SAR test exclusion requirements.

Summary:

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