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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

R0	Mode	Freq.	Po	Duty	Po	Tune Up	Po + Tune	Canada			USA		
		MHz	(Pk)		(Avg)		(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)
								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 = $\{(max.\ power\ of\ channel,\ including\ tune-up\ tolerance,\ mW) / (min.\ test\ separation\ distance,\ mm)\} \cdot [\sqrt{f(GHz)}] \leq 3.0$ for SAR 1-g. $(0.15mW/5mm)/\sqrt{(2.402)} = 0.05 \leq 3.0$. 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.