

APPENDIX 2

TRANSMISSION SYSTEM CONNECTION POINT PERFORMANCE STANDARDS

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Ref	Item	Requirement		
1	Voltage variations	Transmission voltages of 500 kV, 230 kV and 115 kV shall be maintained in accordance with the Market Rules. Voltages below 50 kV shall be maintained in accordance with CSA 235		
2	Fault Levels ¹ Higher values may exist for short times during switching	Nominal Voltage (kV)	Maximum 3-Phase Fault (kA)	Maximum SLG Fault (kA)
		500	80 (usually limited to 63 kA)	80 (usually limited to 63 kA)
		230	63	80 (usually limited to 63 kA)
		115	50	50
		44	20	19 (usually limited to 8 kA)
		27.6 (4-wire)	17	12
		27.6 (3-wire)	17	0.45
		13.8	21	10
3	Circuit Breaker Interrupting and Automatic Single Shot Reclose Time	Nominal Voltage (kV)	Rated Interrupting Time (cycles)	Automatic Reclose Time (Seconds)
		500	≤2	10-15
		230	≤3	5-15
		115	≤5	3-6
		< 50	≤8	varies significantly
4	Unbalance	Voltage unbalance is limited to 2% (CAN/CSA E 1000 2-2-97)		
5	Flicker	Voltage flicker shall be limited as tabulated.		
		Magnitude (%)	Limit	
		0.5	3 per second	
		1.0	20 per minute	
		2.0	45 per hour	
		3.0	4 per day	
		A higher flicker may be acceptable for infrequent starts.		
6	Switching Surges	All equipment shall be able to withstand capacitor switching surges that transiently increase voltage to twice normal levels.		

¹ Maximum fault values referred to in this Appendix are symmetrical fault values.

7	Voltage Harmonics	Voltage harmonics shall respect limitations described in Table 11.1 Voltage Distortion Limits IEEE Std 519-1992
8	Current Harmonics	Current harmonics shall respect limitations described in Tables 10.3 to 10.5 Current Distortion Limits IEEE Std 519-1992.
9	Telephone Interference	I.T. Product balanced (in phase conductors) shall be less than 5,000 amperes I.T. Product residual (in ground return path) shall be less than 250 amperes