

Title: Update on NWL qualification status for 15.7 mF, 900 Vdc capacitor.

Date: 4-16-2010

Overview: NWL is qualifying the capacitor to meet the [REDACTED] specification 3EST000218-9994. The type tests per the [REDACTED] paragraph 9 are in accordance with IEC 61071 with increased pulse current per IEC 61881 as requested by [REDACTED] on the endurance test.

Bombardier Specification Paragraph	Test Description	Required Results	Actual Results	Notation
9.1	Mechanical Tests	Per IEC 61373	Completed. Complies. Two <u>full scale</u> units.	Report Sent 3-18-2010
9.2	Voltage test between terminals	1350 Vdc, 10 seconds	Completed. Complies. <u>Model and full scale.</u>	Report Sent 3-24-2010
9.3	Voltage test between terminals and case.	3800 Vac, 60 seconds	Completed. Complies. <u>Model and full scale.</u>	Report Sent 3-24-2010
9.4	Surge Discharge test	After 5 cycles at 400 kA, $\Delta T \leq 1\%$ and $DF \leq 120\%$ original +.0001	Completed. Complies. <u>One full scale unit.</u>	Report Sent 4-16-2010
9.5	Climatic tests	According to IEC 60068	Completed. Complies. <u>One full scale unit.</u>	Report Sent 3-24-2010
9.6	Power Dissipation factor.	10 $V_{rms}/\mu m$, 50 Hz, or TBD	Completed. Complies. Two <u>full scale</u> units.	Report Sent 3-24-2010
9.7	Thermal Stability test	1.1 I_{max} at 75°C	<u>One full scale unit.</u>	Report Sent 4-16-2010
9.8	Endurance test.	Apply voltage for 500 hours, pulse 1000 cycles at the equivalent of 2000 amps for a full scale capacitor. Apply voltage another 500 hours. Final requirement is $\Delta C/C \leq 3\%$	Completed. Complies. <u>Four model units</u>	Report Sent 3-24-2010
9.9	Self healing test.	10 sec at 1485 Vdc, $\Delta C \leq 0.5\%$, $DF \leq 110\%$ of original +.0001	Completed. Complies. <u>Two model units</u>	Report Sent 3-24-2010
9.10	Destruction test.	Demonstrate the ability to remove 90% of capacitance.	<u>One model unit.</u>	Report Sent 3-24-2010
3.1.6	Inductance	≤ 30 nH	<u>One full scale unit.</u>	Report Sent 4-16-2010

Reported by: Ralph Kerrigan- NWL, Bob Kropiewnicki - NWL