

Testing of THERMOLIGN® Repair Splice

For

795-kcmil 3M™ Composite Conductor

Prepared by:

Robert Whapham

Preformed Line Products, Principal Investigator



Scope

This report will cover the description and results of laboratory testing of PLP's THERMOLIGN® Repair Splice and 795-kcmil 3M™ Composite Conductor (also known as ACCR – Aluminum Conductor Composite Reinforced) manufactured by 3M Company.

The specific tests included in this report are:

- Sustained Load Test

Sustained Load Test

The PLP Repair Splice is intended for repair of conductor with up to 1/3 of the aluminum strands broken. After completing the design of the Repair Splice for the 795 ACCR conductor, a room temperature sustained load test was conducted to verify the holding strength.

The purpose of this test is to determine that the 795 ACCR Repair Splice will hold at a high tension level (77% RBS) at room temperature (20°C) for an extended period of time (168 continuous hours), per ANSI C119.4.

The test sample consisted of a 65 ft. length of 795 ACCR conductor terminated on both ends with PLP Dead-End Assemblies. To simulate the maximum repairable damage, 8 strands (31% of the 26 aluminum strands) were cut. The PLP Repair Splice consists of one layer of aluminum alloy rods. These were directly applied over the ACCR conductor in the region to be repaired.

The tension (23,970 lbs) was maintained throughout the test period with the 55K Tensile Equipment. The test sample successfully completed the 168 continuous hours, and then was tensioned in the same 55K Tensile Equipment until a failure occurred. The sample failed at a load of 30,250 lbs (97% RBS). ANSI C119.4 requires the connector to hold at least 95% RBS, therefore the repair splice satisfies this requirement.

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