This standard is designed to verify that a low voltage solid state thermal overload relay is in a safe and reliable operating condition based upon the design of the original manufacturer at the time of manufacturing. PEARL testing does not verify the claims of the original equipment manufacturer as to the validity of its design criteria. In the event that the device is not in this condition then this standard cannot be used and the PEARL Reconditioning Standard needs to be followed.

PEARL does not warrant, guarantee or make any representation regarding the correctness of specifications, use for any particular purpose, quality or extent of testing, accuracy, or reliability as to any equipment, products or documentation referenced herein.

REFERENCES

The following references are use in this standard. Each of these references can be found in their respective listed locations.

Table References: Section 6000

Table 2	Insulation resistance and test values for electrical apparatus.
Table 6	Transformer Insulation Resistance Test Value
Table 11	Insulation resistance and test temperature conversion to 20°C values.

National Electrical Code – NEC 2002 Edition

Article 310	Conductors for General Wiring
Table 310.17	Allowable Ampacities of Single-Insulated Conductors Rates 0 Through 2000 Volts in Free Air, Based on Ambient Air Temperatures of 30°C (86°F).

I TEST EQUIPMENT

The following test equipment is required to perform the testing requirements of this standard:

1. Insulation Resistance Test Set (Megohmeter) 1000 Vdc minimum

One or more of the following pieces of test equipment may be required to perform the testing requirements of this standard depending on the accessories:

1. AC Current Supply with means to perform timing test
2. VOM (Digital or analog volt/ohmmeter)

II EVALUATION

The following procedures shall be used to determine the condition of a low voltage solid state thermal overload relay under this standard.

1 INSPECTION

1.1 Relay

1.1.1 Ensure that the nameplate data is legible.
1.1.2 Ensure that the third party listing service label is legible.
1.1.3 Inspect for missing screws, bolts, nuts, fasteners, retainers and keepers.
1.1.4 Inspect for rust and corrosion.
1.1.5 Inspect for cracks, chipped or broken plastic moldings.
1.1.6 Inspect wires for cracks, overheating, loose terminals, missing or damaged insulation and deterioration.
1.1.7 Check operation of trip mechanisms.
1.1.8 Check trip contact for continuity.
1.1.9 Check Reset arm
1.1.10 Check Interlocks
1.1.11 Inspect and Verify all indicating lights
1.1.12 Record results on an approved PEARL Evaluation Form.

2 TESTING

2.1 Insulation Resistance

Consult manufacturer's instructions for any precautions before performing this test.

2.1.1 Perform an insulation resistance test at test values specified in Table 2 of Section 6000. Correct for temperature, if necessary (Table 11).
2.1.1.1 Phase to ground
2.1.1.2 Phase to phase
2.1.1.3 Record results on an approved PEARL Evaluation Form.
2.1.1.4 Compare test results to manufacturer's recommendations or Table 2 of Section 6000.

2.2 Time Overcurrent Trip Test

2.2.1 Perform a pickup test, if applicable.
2.2.2 Perform a time overcurrent trip test using 300% of rated current rating to verify the proper operation on each phase.
2.2.3 Use specific length and size of wire that meet or exceeds manufacturer's guidelines or NEC, Article 310, Table 310.17.
2.2.4 Record results on an approved PEARL Evaluation Form.
2.2.5 Compare results to manufacturer's overload relay curve.

2.3 Checks and Adjustments

2.3.1 Make all checks and adjustments per manufacturer's recommendations. In the absence of a manufacturer's recommendations, any check or adjustment made will be based upon procedures that will ensure the original manufacturer's design.

2.3.2 All checks and adjustments must be within the guidelines recommended in order for the product to become a PEARL labeled product.

2.3.3 Record results on an approved PEARL Evaluation Form.

2.4 Torque

2.4.1 Check all screw and bolt connections for the proper torque per manufacturer's recommendations or Table 1 of Section 6000.

2.4.2 Record results on an approved PEARL Evaluation Form.

2.5 Final Operation

2.5.1 Ensure that all components, structures, devices and assemblies are complete and equipment is ready for service prior to beginning operations.

2.5.2 Manually operate the device a minimum of ten (10) times while checking for proper operation of the quick-make and quick-break feature.

2.5.3 All devices must operate properly in order for the product to become a PEARL labeled product.

2.5.4 Record results on appropriate PEARL Evaluation Form.

3 EVALUATION REVIEW

In order for the device to be eligible for the Inspect & Test Quality Seal, the device needs to have passed all of the preceding Inspection (1) and Testing (2) points. Any failures in the process will require that the device be "Reconditioned" at which time the PEARL Reconditioning Standard needs to be followed.

III PEARL CERTIFICATION

This product has now been inspected and tested and has passed all tests under the PEARL Inspect & Test Standard. The green PEARL Inspect & Test Quality Seal may now be placed on the device.