

PEARL Inspect & Test Standards		
<b>LOW VOLTAGE WIRE AND CABLE UNSHIELDED – MULTIPLE CONDUCTORS</b>	Revision	
	Standard	Number
	Date	Date
	<b>4115-I</b>	3 6-2009

This standard is designed to verify that some low voltage unshielded multiple conductor cable or wire 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 wire or cable is not in this condition then this standard cannot be used and the wire or cable should be destroyed so it can not be put into service.

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 9: Wire and Cable Insulation Resistance Test Values
- Table 10: Medium Voltage Wire and Cable Maximum Test Voltage Values
- Table 11: Insulation resistance and test temperature conversion to 20°C values.

## 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 of the following pieces of test equipment is required to perform the overpotential testing requirements of this standard if it is required by the customer:

1. AC Overpotential Test Set
2. DC Overpotential Test Set

One of the following pieces of test equipment is required to perform the measuring requirements of this standard:

1. Mechanical Cable Measuring System
2. Electronic (Resistance Type) Cable Measuring System

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## **II EVALUATION**

The following procedures shall be used to determine the condition of the low voltage unshielded multiple conductor cable or wire under this standard.

### **1 INSPECTION**

#### **1.1 Reel**

- 1.1.1** Inspect for signs of damage.
- 1.1.2** Inspect for missing screws, bolts and nuts.
- 1.1.3** Inspect for damaged ends.
- 1.1.4** Inspect for damaged core.
- 1.1.5** Inspect for rust and corrosion, if applicable.
- 1.1.6** Record Results on an approved PEARL Evaluation Form.

#### **1.2 Insulation**

- 1.2.1** Ensure that the surface markings are legible.
- 1.2.2** Ensure that the third party listing service label is legible.
- 1.2.3** Inspect for signs of damage
- 1.2.4** Inspect for signs of overheating, swelling and deterioration.
- 1.2.5** Inspect for discolored, cracked or brittle insulation and/or jacket.
- 1.2.6** Inspect for signs of sharp bends.
- 1.2.7** Inspect ends of cable for proper seals.
- 1.2.8** Record results on an approved PEARL Evaluation Form.

#### **1.3 Conductor(s)**

- 1.3.1** Inspect for signs of corrosion, discoloration and oxidation.
- 1.3.2** Record Results on an approved PEARL Evaluation Form.

#### **1.4 Wire and Cable**

- 1.4.1** Remove and discard damaged or defective wire and cable.
- 1.4.2** Measure length.
- 1.4.3** Seal wire and cable ends.
- 1.4.4** Record results on an approved PEARL Evaluation Form.

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## 2 TESTING

### 2.1 Insulation Resistance

**2.1.1** Perform an insulation resistance test at test voltage given in Table 9 of Section 6000.

**2.1.1.1** Conductor to ground

**2.1.1.2** Conductor to conductor

**2.1.2** Correct for temperature, if necessary (Table 11).

**2.1.3** Record results on an approved PEARL Evaluation Form.

**2.1.4** Compare test results to manufacturer's recommendations or Table 9 of Section 6000.

### 2.2 Overpotential Test

**2.2.1** Perform an overpotential test for 1 minute at test values given in Table 10 of Section 6000.

**2.2.1.1** Conductor to ground

**2.2.1.2** Conductor to conductor

**2.2.2** Record results on an approved PEARL Evaluation Form.

**2.2.3** Compare results to manufacturer's recommendations or Table 10 of Section 6000.

### 2.3 Final check

**2.3.1** Ensure that the reel is sturdy.

**2.3.1.1** Repair or replace damaged or defective reel.

**2.3.2** Ensure that the surface markings are complete, correct and legible

**2.3.3** Labeling

**2.3.3.1** Ensure that the nameplate/label data is complete, correct and legible.

**2.3.3.2** Ensure that the third party listing service marking is legible.

## 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 wire or cable be destroyed so it can not be put into service.

## 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.