

# **ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION**



TESTING OF TRANSMISSION & DISTRIBUTION COMPONENTS

Electrical Research and Development Association (ERDA) is a not for profit autonomous organization offering its services under three verticals namely, Testing and Evaluation, Field Services and R&D and Expert Services to Power Utilities, Process Plants and Manufacturing Industries.

Transmission & Distribution (T&D) play a vital role in the power sectors. The main emphasis of evaluation of T&D items is their durability under all possible operational and environmental conditions. These components are evaluated for mechanical strength, material specifications, coating/plating specifications, correctness of geometry, etc. ERDA has comprehensive facilities for the determination of physical, chemical, metallurgical, mechanical and electrical characteristics of all hardware items.

#### **TESTING AND EVALUATION**

# **Key Test Capability at a Glance**

Complete testing facility for type test, acceptance test, routine test as well as special test are available in accordance with national and international standards.

#### **Mechanical**

- Universal Testing Machine (UTM): 10T, 20T, 40T Vertical and 20T Horizontal (upto 15m span length)
- Vertical Bending machine: 30kN (upto 3.5m span length)
- CT PT mechanical test setup: (upto 6m height upcoming test facility)
- Brittle Fracture test setup: (upto 5m span and upto 30T loading capacity)

#### **Environmental**

- Electrodynamic vibration shaker: upto 600kgf and 30m vibration damper test span
- Bi-axial seismic machine: 600mm X 600mm table size having 400 kg pay load capacity
- Walk in thermal chamber: 2500mm X 2500mm X 2500mm (WxDxH) (upcoming test facility)
- Salt spray chamber: 1500mm X 1000mm X 1000mm
- Thermo-mechanical chamber: Tensile loading capacity upto 30T, Cantilever loading capacity upto 30kN & Temperature range -40° C to 60° C (2m span length)







400 kgf Electrodynamic Vibration Shaker

Universal Testing Machine (UTM) 10T

Salt Spray Chamber

## **Electrical Test Facility**

- 120 kA, 570V online short circuit lab
- Dry & Wet power frequency voltage withstand test
- Lighting impulse voltage withstand test
- · Corona extinction voltage
- · Radio interference voltage

- Fault current test
- · Steep wave front test
- · Reference dry power frequency test
- Dry & Wet power frequency voltage flash overtest

### **PRODUCTS EVALUATED**

#### 1. Conductors

- 1. Aluminum Conductors Galvanized Steel Reinforced (ACSR) conductor (As per IS: 398 Pt. 2 and Pt. 5, IEC: 61089, BS: 215 Pt. 1 & 2)
- 2. Aluminum Stranded Conductors (AA) (as per IS: 398 Pt. 1) & All Aluminum Alloy Stranded Conductor (AAAC) (as per IS: 398 Pt. 4)
- 3. G.I. Stay Wire, G.I. Plain wire, G.S. Earth wire (as per IS: 2141, 280, 12776)
- 4. Optical Ground Wire (OPGW) (upcoming test facility as per IEEE 1138)
- 5. High Temperature Low sag (HTLS) Conductors (upcoming test facility)

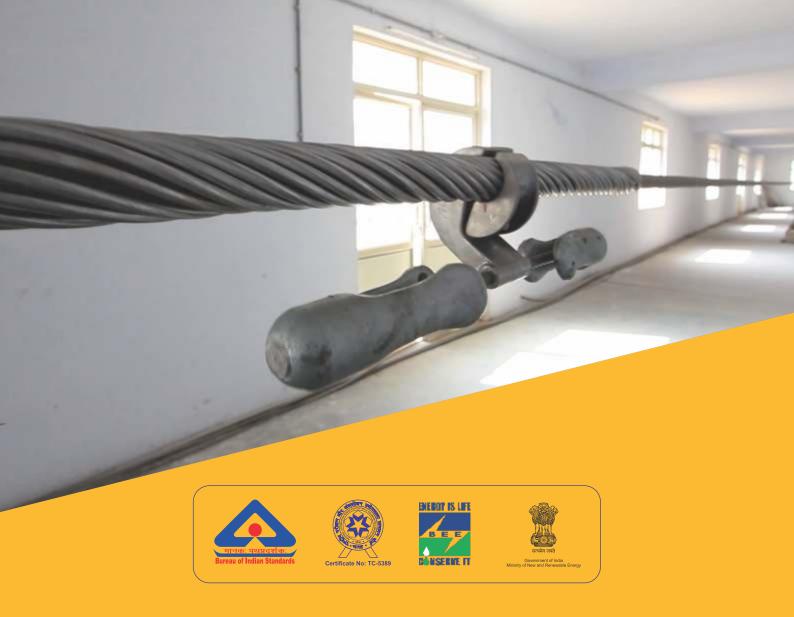
#### 2. Insulators

- 1. Ceramic Insulators (as per IS:731, 2544, 5621, IEC: 60383, 60168, 62155)
- 2. Composite Polymer Insulators (as per IEC: 61109)

#### 3. General Hardware

- T&D Hardware (as per IS: 2486, IS: 2121 Pt. 1 to 4)
- Structural Steel (as per IS: 2062 & 1786)
- Vibration damper (as per IS: 9708)
- Spacer damper (as per IS: 10162)







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