



## **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 (W x D x H) (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 over test

## 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)



Thermo-Mechanical Chamber



Bend Test



Horizontal Test Facility



## ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION

web: [www.erda.org](http://www.erda.org) | Email: [bd@erda.org](mailto:bd@erda.org)

### Head Office:

ERDA Road, GIDC, Makarpura,  
Vadodara - 390 010, Gujarat.  
Tel: +91-265-2642942, 2642377, 3043128-3043131  
Fax : +91-0265-2638382 | Email: [erda@erda.org](mailto:erda@erda.org)  
Toll Free No.: 1800 233 2668

### ERDA (North) Laboratory:

CBIP Centre of Excellence,  
Plot No: 21, Sector 32, Gurgaon - 122 001, Haryana.  
M.: +91-9999320346 | Tel: +91 (0124) 2580021  
Email.: [erdadel@erda.org](mailto:erdadel@erda.org)

### Registered Office & ERDA (West) Laboratory:

R-336, TTC Industrial Area,  
Near Rabale Railway Station,  
Navi Mumbai - 400 701, Maharashtra.  
Tel: +91-22-27606212-14  
M: +91-9820719041 | Email: [erdarab@erda.org](mailto:erdarab@erda.org)

### ERDA (South) Laboratory:

Plot No: 57A, Auto Nagar, AP Industrial Infrastructure Corp.,  
Rajahmundry - 533 106, Andhra Pradesh.  
M.: +91-9966947627 | Email: [erdarjm@erda.org](mailto:erdarjm@erda.org)