Advanced Electricity Lab

Introduction

The *Advanced Electricity Lab* (AEL), of **Challenge Industrial Co., Ltd.** (CIC), was established in 2003 in Taoyuan City, Taiwan, for the purpose of performing reliable electrical testing according to various international standards such as IEC, IEEE/ANSI, CNS, etc., both for CIC's own products and for the testing needs of other manufacturers. Since 2003, the laboratory has received accreditation by the Taiwan Accreditation Foundation (TAF), a member of the International Laboratory Accreditation Cooperation (ILAC) and a signatory to the ILAC Mutual Recognition Arrangement (ILAC MRA).

Laboratory Information

Organization	Challenge Industrial Co., Ltd.
Laboratory	Advanced Electricity Lab
TAF Accreditation Number	1181

Address	No. 96, Shueibian 1st Road, Tauyuan City, Taoyuan Hsien 330, Taiwan
Accreditation Criteria	ISO / IEC 17025: 2017; CNS 17025: 2018

Testing Services Available

- **CIC' s Advanced Electricity Lab has been accredited by TAF to perform the following tests:**
  - Routine Tests and Type Tests for Current Transformers and Potential Transformers (72 kV max.)
  - Routine Tests for Distribution Transformers (24 kV max.)
  - Routine Tests for Electricity Meters
  - Routine Tests for Surge Protection Devices (SPD)
  - Damp Heat, Steady State Test for Electrical Products
- **Tests awaiting accreditation include:**
  - Temperature Cycling Test for Electrical Products
- **Standards according to which the above accredited tests are performed may include the following:**

  IEEE / ANSI, IEC, CNS, etc. (Tests for Electricity Meters are according to CNMV 46.)

Detailed Listing of Testing Services

▪ Testing Field Accredited by TAF:

2023.7

Current Transformers (72 kV max.)	Potential Transformers, also called Inductive Voltage Transformers (72 kV max.)	Distribution Transformers (24 kV max.)
◉ Verification of terminal markings	◉ Verification of terminal markings	◉ Measurement of winding resistance
◉ Induced overvoltage test (Inter-turn overvoltage test)	◉ Induced overvoltage test (Inter-turn overvoltage test)	◉ Measurement of voltage ratio and check of phase displacement
◉ Power-frequency withstand tests	◉ Power-frequency withstand tests	◉ Measurement of short-circuit impedance and load loss
◉ Polarity test	◉ Polarity test	◉ Measurement of no-load loss and current
◉ Determination of errors	◉ Determination of errors	◉ Separate source AC withstand voltage test
◉ Partial discharge measurement	◉ Partial discharge measurement	◉ Induced AC voltage tests
◉ Exciting current test (36 kV max.)	◎ Temperature-rise test (36 kV max.)	◉ Design and visual checks
◎ Temperature-rise test (36 kV max.)	◎ Lightning impulse voltage test (36 kV max.)	◉ Measurement of insulation resistance
◎ Lightning impulse voltage test (36 kV max.)	◎ Short-circuit withstand capability test (36 kV max.)	
◎ Secondary winding open-circuited test (36 kV max.)		
◎ Short-time current test (36 kV max.)		

Electricity Meters (60 A max.)	Surge Protection Devices (SPD) 40 kA max. (8×20 μs) 15 kV max. (1.2×50 μs)	Electrical Products 20°C to 85°C 40%RH to 95%RH
◉ Construction check	◉ Residual voltage with current impulses	◎ Damp heat, steady state
◉ Insulation resistance test	◉ Front-of-wave sparkover voltage	
◉ Creeping test	◉ Limiting voltage with the combination wave	
◉ Starting current test		
◉ Accuracy test		

Note: ◉ Routine Test ◎ Type Test

▪ Testing Field Awaiting Accreditation:

2023.7

Electrical Products
◎ Temperature cycling test

Note: ◉ Routine Test ◎ Type Test

Additional tests and services are available upon request.

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