# High Voltage Laboratory (LVN)



As the leading testing laboratory in Slovenia, the High Voltage Laboratory has international accreditation in compliance with the ISO-EN 17025 certification for high voltage testing. The laboratory's main activities include research, development and education as well as testing for the needs of regular operation of important electric power facilities.

# LABORATORY CAPACITIES

- Testing with AC high voltage 50 Hz from 0 to 700 kV
- Testing with standard lightning impulse voltage 1.2/50 µs up to 2400 kV
- ► Testing with standard switching impulse voltage 250/2500 µs up to 1500 kV
- Testing with impulse current 8/20 µs to 40 kA at 30 kV
- Testing with high-voltage DC voltage up to 600 kV
- Testing with high AC currents up to 12 kA

The state-of-the-art measuring and testing equipment, as well as sutable laboratory measurement procedures, are managed by highly qualified and specialised staff, who with the support of science and research divisions provide for top quality analytical processing and proper interpretation of measurement and test results.



www.eimv.si

## LABORATORY MEASUREMENT METHODS

- Measurement of alternating voltages up to 500 kV (IEC-60060)
- Measurement of DC voltages up to 1000 kV
- Measurement of lightning impulse voltages 1.2/50 μs
- Measurement of switching impulse voltages 250/2500 µs
- Measurement of impulse currents to 40 kA
- Measurement of electric currents to 10 kA
- Measurement of high- and low-ohmic resistances
- Dynamic measurement of ohmic resistances
- Measurement of surface resistivity of materials (IEC-62631)
- Measurement of electrostatic properties of materials (IEC-62631)
- Measurement of volume resistance of materials (IEC-62631)
- Measurement of dielectric withstand strength of materials (IEC-60243)
- Measurement of dielectric loss factor (tgδ), capacitance, inductance and impendance
- Determining dielectric constants of materials
- Recovery voltage measurement
- Radio interference voltage measurement (IEC-61284)
- Corona measurement (IEC-61284)
- Partial discharge level measurement (PD) (IEC-60270)
- Partial discharge level measurement applying the UHF and acustic method
- Contact measurement of temperature
- ▶ IR measurement of temperatures and thermography

With regard to the laboratory's capacities and the use of individual sets of standard and non-standard measuring and testing methods, the laboratory enables comprehensive scientific and technological consideration of the issues in high-voltage electrical engineering topics.

From the applicative aspect, the laboratory provides high quality diagnostic assessment of electrical components in various fields for the needs of preventive maintenance, the evaluation of expected life span and operational reliability:

### Industry:

- diagnostic measurements and tests in the industry
- development measurements and tests of new products
- electrical measurements and tests on materials
- ► type testing



#### Overhead power lines:

- electrical testing and dimensioning of insulator strings
- electrical testing of overhead power line conductors and HV cables
- radio interference voltage measurement
- corona measurement on overhead power lines
- protection operation and settings verification
- Power plants:
- diagnostic measurements of generators and electric motors
- protection operation and settings verification
- Substations and distribution:
- diagnostic measurements of power transformers and instrument transformers
- diagnostic measurements of circuit breakers and disconnectors
- diagnostic measurements and tests (GIS)
- diagnostic measurements and tests of MV switchgear
- b diagnostic measurements of surge arresters
- control of operation and settings of protection assemblies
- thermographic investigations of devices
- Work and safety equipment:
- testing of HV indicators and insulating pads
- testing of earthing rods and assemblies
- testing of electrical protection gloves

#### Science and research:

- basic research for own development needs
- applied research carried out independently and in cooperation with similar science and research institutions
- technical and research support to university education and research programmes



## ELEKTROINŠTITUT MILAN VIDMAR

Hajdrihova 2, 1000 Ljubljana, Slovenia Tel.: +386 1 474 36 01, e-mail: info@eimv.si