

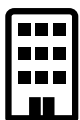


Your passport to success



CORFO 344 B

The backing of an independent expert



2,000 m²
surface area



4 M€ invested
since 2011



30 experts



50 years'
experience

Tesla Lab - Power Testing and Certification is an independent laboratory specialized in testing of LV switchgears, components and switchgear assemblies. Tesla Lab provides a wide range of equipment and experience in electrical, mechanical, climatic and functional tests for low voltage operating, control, safety and measuring equipment.

Capitalising on outstanding expertise and facilities

Created in 1965, the laboratory continuously expanded its activities, starting from electrical component testing to larger equipment testing like switchgear assemblies, busbar trunking, public distribution boards, etc.

In parallel, the surface area has been enlarged in clean and modern buildings providing easy access to the facilities.

As a result of continuous training and staff stability, Tesla Lab draws on a skilled and professional personnel mastering the latest technologies of tools and measurement devices.

The time has now come for the laboratory to share these facilities and expertise with external clients.



“A cutting-edge laboratory”

Established in Benfeld, France, Tesla Lab has a worldwide recognition.

- Founding member of ASEFA which is the French member of LOVAG.
- Accredited by COFRAC (France) to ISO 17025.
- Working in Client Test Data Program with UL (USA).
- Agreed for shared certification by CSA (Canadian Standard Association).
- WMT agreement with DEKRA (IEC and EN standards).

Further to these recognitions, Tesla Lab has concluded partnerships with many other international certification bodies.

Therefore the scope of tests can take into account the specific safety and quality requirements of each country or market segment.



“We are dedicated to continuously improving safety standards through design verification, technical compliance and certification. Continuous investment in the Tesla Lab provides a modern and efficient working environment to do so.”

*Dominique MARBACH
Laboratory Manager
Tesla Lab - Power Testing and Certification*

One of the most modern power testing laboratories in Europe



CORPO 442 A

A permanent commitment

Tesla Lab is governed by a policy of continuous investment and enlargement of his scope of standards in order to permanently offer the most accurate and innovative service to his clients. The quality of the tests carried out by skilled personnel ensures

the reliability and the quality of the tested equipment. Access procedures but also platform layout and facilities guarantee high confidentiality before, during and after testing.



CORPO 450 A



CORPO 354 A

Scope of standards

Tesla Lab has a large scope of standards from the low voltage range main standards:

- low voltage switchgear and controlgear (IEC/EN 60947, UL98 and UL 508 series),
- assemblies (IEC 61439-1 /-2) or busways (IEC 61439-6),
- protective devices: fuses, circuit-breakers,
- components, material (plastics), etc.



CORPO 440 A



CORPO 451 A

Investigation and analysis facilities

The conclusion of Tesla Lab tests is not only 'passed' or 'failed'. Samples investigation and analysis of components, which are part of the laboratory's expertise, enable improvement of technical design, fine tuning of critical parts and innovation.

Our experts bring their experience to investigate and help design engineers to get the best of their product.



CORPO 444 A



CORPO 452 A



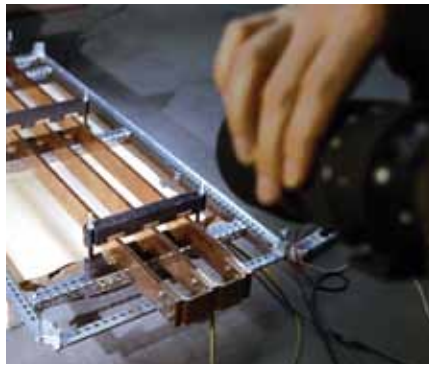
CORPO 453 A

Tailor-made services

Test facilities and competences are aimed to serve the clients. The professional personnel offer custom-made services: availability of tablets to follow tests in progress, copper shape machine, etc. The clients are welcome and recommended

to follow the tests of their equipment. Modern client rooms and facilities located within the laboratory provide a comfortable and practical working environment.

Short-circuit tests



Short-circuit tests are carried out on platforms fitted with modern and high technological control and measurement facilities (30,000 frames/sec camera).

100 MVA

100 kA_{rms} 1 s



Short-circuit testing is a fundamental test to ensure safety when an equipment is stressed by very high currents and energy. Tests are carried out on components, panels, fuses, busways, connection means, etc.

- Short-circuit generator: 100 MVA 50 Hz, output voltage up to 5,500 V; speed 3,000 rpm.
- Short-circuit current during 1 second: 100 kA rms.
- Prospective short-circuit current:
 - 110 kA rms @ 400 V AC,
 - 65 kA rms @ 690 V AC,
 - 25 kA DC @ 400 V DC,
 - 10 kA DC @ 1,500 V DC.

Verification of **temperature rise**



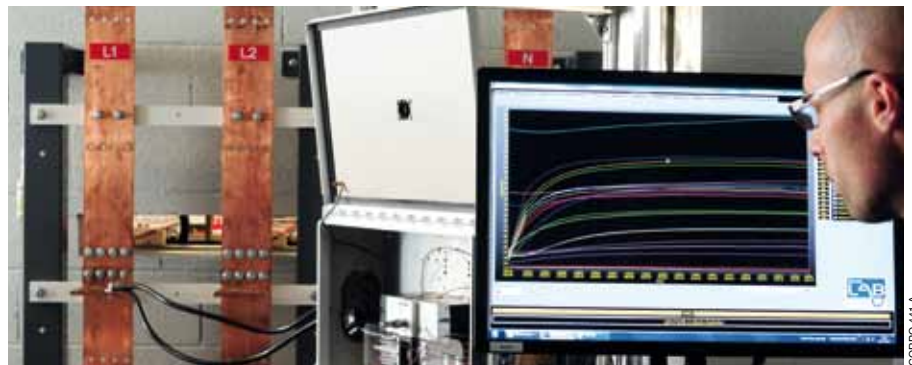
CORPO 457 A



CORPO 458 A



CORPO 459 A



CORPO 441 A

Temperature rise tests are carried out in four large and flexible rooms by skilled personnel. Customers can follow the records remotely.

up to **60 °C**
ambient

12,000 A



Four rooms are dedicated to temperature rise tests. Tesla Lab facilities are suitable for both components and large switchgear assemblies.

The goal of the test is to check the temperature rise of the live parts, the temperature of the insulating parts and the accessible parts of the switchgears and larger equipment carrying their nominal current. The tests are carried out at low voltage.

- 12,000 A AC three phase.
- 6,000 A AC three phase and DC.
- 3,000 A AC three phase.
- 1,250 A AC three phase.
- Two sources 1,000 A AC single phase, variable frequency.

For the duration of the test, the data is displayed on a tablet enabling clients to easily follow the temperature evolution in real time.

Overload and endurance tests



CORPO 460 A



CORPO 461 A



CORPO 462 A



CORPO 463 A

Convenient facilities make calibration of overload and endurance tests quick and safe.

3 platforms

1,000 V AC
1,500 V DC

10,000 A



The goal of the tests is to check the capacity of switchgears to achieve a high number of operations in abnormal conditions (overload up to 10 times the nominal current) and normal conditions (nominal current).

Three facilities offer very flexible adjustment possibilities:

- each of the three independent testing stations is supplied by a transformer of 8.4 MVA,
- the transformers can be adjusted on output voltages from 120 to 1,100 V,
- DC voltages range from 250 to 1,575 V,
- endurance test up to 5,000 A,
- overload tests up to 10,000 A,
- short-circuit capacity of each transformer: 50 kA,
- loads banks for current and power factor or time constant for accurate adjustments.

Supplementary tests



Supplementary tests are necessary to complete a full compliance with standards such as IP testing, mechanical movements analysis, dielectric tests, etc.

240 l/min

-40 to
+180 °C



Several supplementary tests can be carried out in order to fulfill standards requirements. We check equipment performance in terms of safety, resistance to harsh environments, fireproofing, etc.

Facilities:

- endurance without current with various operation means: rotary, toggle, motor drive, coils,
- dielectric tests:
 - 50 or 60 Hz up to 12 kV,
 - Impulse test 1.2 μ s/50 μ s up to 20 kV,
- protection against water tests for enclosures: IPx1 to IPx6 and 4, 4X type (240 l/min flow),
- protection against dust tests IP5x and IP6x,
- protection against access to hazardous parts and against solid foreign objects IP1x to IP4x,
- lifting test,
- secureness and pull-out tests of cable connections,
- glow wire test, pressure ball test,
- environmental tests: Vibration, climatic chambers, etc.

Please consult us for a full list of available tests.

World-class facilities at your disposal



APPLI 355 A

A powerful connection to the electrical network supplies the platforms for endurance and overload tests. Each of the three transformers connected to the high voltage public network of 20 kV has a short-circuit capacity of 50 kA at

415 V. These transformers have been specially designed and built for the laboratory — a thorough study was undertaken to avoid any disturbance on the high voltage network.



APPLI 444 A



APPLI 465 A

The generator used for the short-circuit tests is independent from the electrical network. A turbo alternator that weighs over 10 tons turns at 3,000 rpm. A transformer that has been specially built for this purpose enables to get back the output

voltage (5,500 V) to the low voltage range. It can withstand tons of mechanical constraints due to electrodynamic forces resulting from a peak current reaching 300 kA. The laboratory team masters the complete installation.

Ensure that your passport is up-to-date and in line with market requirements



SYDNY 285 A



A strong passport to introduce your product into the market is a third-party certificate. Tesla Lab has an experience of over 40 years working in partnership with many third-party certification bodies.

We can help you to get this passport by establishing the link with the certification bodies, carrying out the tests and supporting you along the process. Tesla Lab test records are recognized documents used in third-party files.



SYDNY 285 A



World-class facilities at the heart of Europe



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