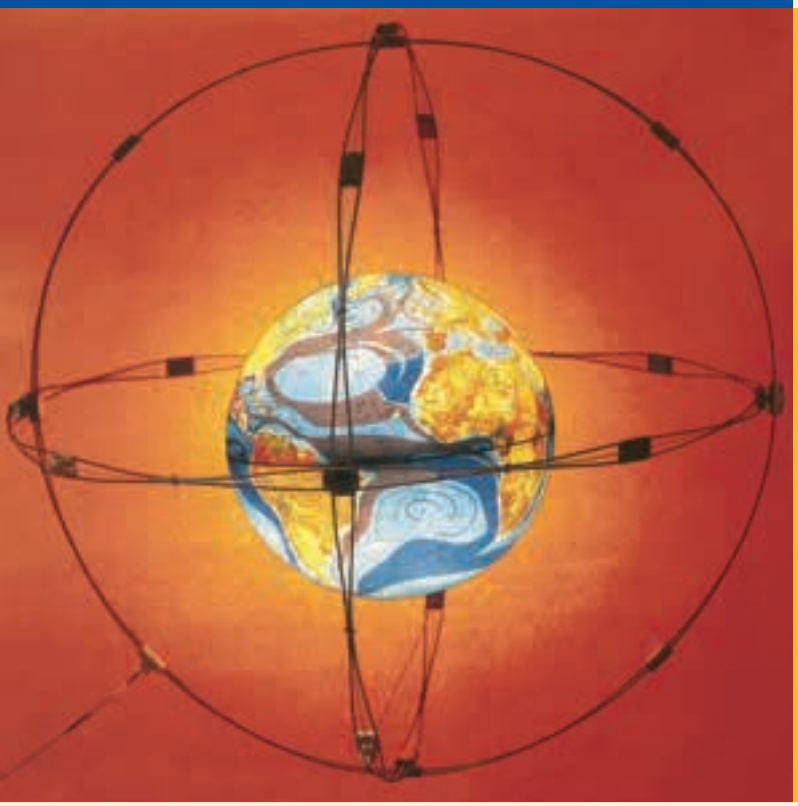
EDITION 2

Electromagnetic compatibility



Testing Low Voltage equipment

LABORELEC

The technical Competence Centre
in energy processes and energy use.
From R&D to operational assistance.

A BELTEST ISO 17025 accredited laboratory

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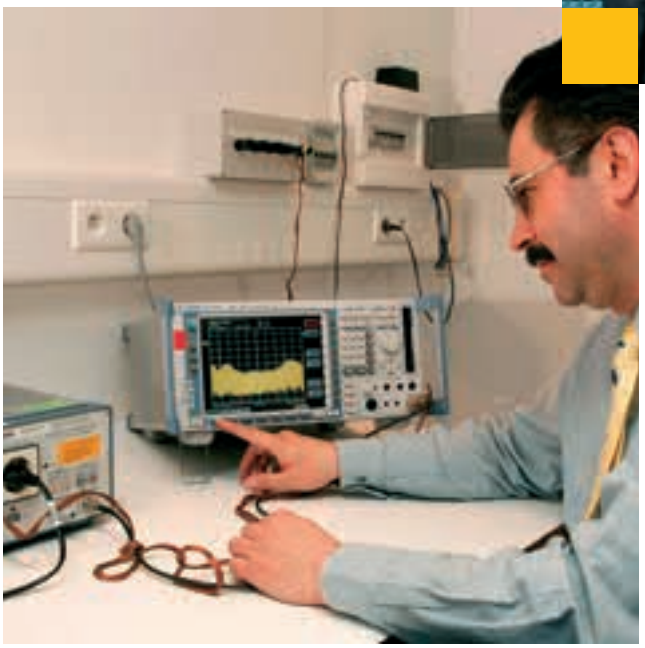
CE marking – Meeting the standards and specifications

Electrical low voltage equipment must meet the relevant European standards on safety and Electromagnetic Compatibility (EMC). In many cases it must meet additional customer specifications. As a manufacturer or importer you need a written guarantee that your products comply with these standards and specifications. BELTEST accredited tests offer an independent and accurate assessment of your equipment.

Tests in the lab and in situ

The experts of Laborelec conduct BELTEST accredited tests in their own laboratory. Since larger machines are often difficult to transport, you can also make use of a unique service in which they carry out the tests on your premises. They use all the appropriate measurement methods and have all the required tools at their disposal. In light of the huge diversity of electrical equipment on the market, orientation tests are made before conducting tests in situ.



Recommendations during new design and construction

During the design or construction of appliances, you can call upon the assistance of our experts. The implementation of the proper EMC methods, based on their recommendations, will help you develop your future design. You can be assured that the final products will meet all EMC standards.

You may be demanding

The service is fast and flexible: normal appliances take about 14 days, and customised tests are also possible.

Knowledge of specifications

Making use of Laborelec's service means that you are supported by years of experience in low voltage equipment testing. The EMC laboratory has been BELTEST accredited for many years. The Laborelec experts regularly advise Electrabel on writing specifications for low voltage equipment. This is your guarantee that the EMC team keeps a close eye on all the latest EMC developments.

You can rely on your Beltest report confirming that your appliances meet all the relevant EMC standards.

Expert advice

Broad range, flexible service

To check compliance with the EMC standards, our EMC laboratory offers you the following accredited services:

Measurement of appliance emissions

- low frequency emissions
  - EN 61000-3-2: harmonics
  - EN 61000-3-3: voltage fluctuations and flicker
- high frequency emissions : conducted emission (supply 200A max), radiated emission with 'triple loop antenna'
  - EN 55014-1: domestic appliances
  - EN 55015: lighting appliances
  - EN 55011: ISM appliances
  - EN 55022 (partial): IT appliances
  - IEC/EN 61000-6-3 (formerly EN 50081-1): generic standard, residential environment
  - IEC/EN 61000-6-4 (formerly EN 50081-2): generic standard, industrial environment

Verification of appliance immunity to external EM phenomena

- EN 55014-2: domestic appliances
- EN 61547: lighting appliances
- IEC/EN 61000-6-1 (formerly EN 50082-1): generic standard, residential environment
- IEC/EN 61000-6-2 (formerly EN 50082-2): generic standard, industrial environment
- EN 61000-4-2: electrical discharges (to 15 kV)
- EN 61000-4-3: radio-frequency electromagnetic fields (45 V/m at GSM, DECT and Bluetooth frequencies)
- EN 61000-4-4: electrical fast transient/burst (to 4 kV)
- EN 61000-4-5: surge test (to 6 kV)
- EN 61000-4-6: conducted disturbances induced by radio-frequency fields (to 20 V HF)
- EN 61000-4-8: Power frequency magnetic field
- EN 61000-4-11: voltage dips, short interruptions and voltage variations (supply to 45 kVA three phases)

Testimonials

TECHNIGAS

A foreign manufacturer of gas burners and a Belgian manufacturer of air heaters have commissioned Technigas to carry out the procedure enabling them to display the CE mark on their appliances.

These appliances must comply with the essential requirements of 3 directives: gas appliances, low voltage appliances, and electromagnetic compatibility (EMC).

Technigas has taken on the responsibility of ensuring gas safety, via the ARGB/KVBG laboratory, and has entrusted to Laborelec the task of ensuring electrical safety and EMC conformity. The EMC tests are designed to verify that electronic circuits with safety functions are not affected by electromagnetic phenomena.

We feel certain that this opportunity to combine such complementary areas of expertise will be of interest to other manufacturers of gas appliances.

EMC compliance of Dalkia Puripher burner series

As part of CE marking in accordance with Directive 90/396, Technigas contracted Laborelec for the EMC testing project.

For Technigas this case was the first collaboration with Laborelec in the EMC context. 'Despite the complex nature of the file, the partnership with Laborelec was excellent throughout the preparation and testing stages. We were satisfied with the final report, and so was the end customer, Dalkia.'

'Technigas has also partnered with Laborelec for EMC compliance tests for Vitotherm and looks forward to continuing the co-operation well into the future.'

Rudi Thijs
Technigas

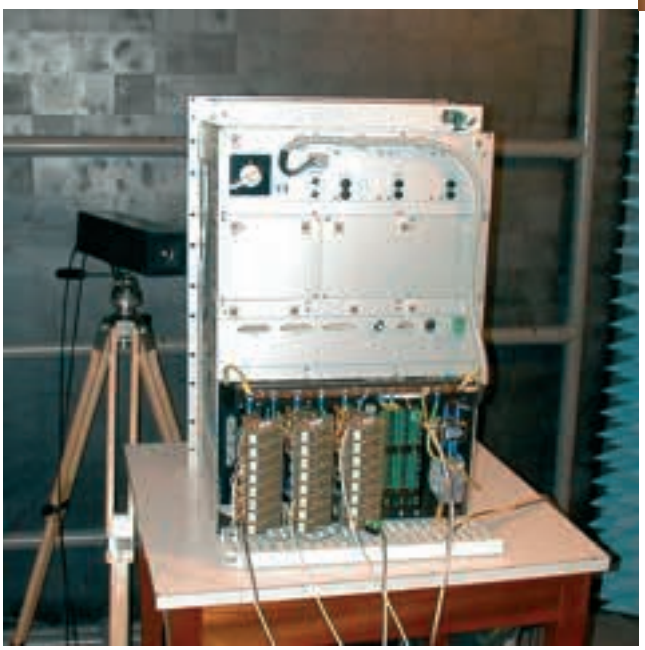
TECHNIGAS is the Belgian notified body for the European Gas Appliances Directive 90/396/EEC and the European Directive 92/42/EEC concerning the efficiency requirements for new hot water boilers fired with liquid or gaseous fuels. The ARGB laboratory, which is BELTEST accredited (ISO 17025), takes care of the testing according to the European standards on gas appliances.

Testimonials

LEM

'Our company, LEM, has now been working for more than 20 years with Laborelec on the EMC certification of our fault recorders for high voltage networks, which are sold all over the world under the BEN trade mark.'

'We recently made use of that organization's services for the new generation model BEN 6000, as we know that we can rely on the professional skills of this accredited laboratory. Laborelec is particularly expert in carrying out the EMC tests in the IEC 61000-4 series, and has never hesitated in providing us with its considered opinions on the less frequently used standards.'



'For ourselves and our customers, it is vitally important to know that our products, which are subject to very strict immunity standards, are controlled by a reputable testing centre, which has earned respect for its meticulousness and impartiality. We have every confidence in Laborelec, with whose engineers we have an entirely satisfactory working relationship.'

Thierry Baré
R&D Manager, LEM Group

Testimonials

FACO

The FACO BaByliss Laboratory specializes in the approval testing of electrical household appliances. It has been calling upon Laborelec EMC services for more than 15 years.

'With the help of Laborelec's accredited BELTEST laboratory, we can guarantee our clients and subsidiaries throughout the world that the appliances are fully compliant with European and international EMC standards; especially those related to interferences on the electric power supply network.'

Raphaël Duvivier
FACO

Ligne Plus (France)

Safety is a primary concern for Ligne Plus, a supplier of kerosene heaters. It must ensure that EM disturbances can't affect the functioning of its devices. Otherwise safety around the heater could be compromised. Laborelec performs EMC immunity tests for these heaters in three modes: functioning, standby, and default. In this way, the experts can guarantee that EM phenomena do not affect functioning or inadvertently restart the heater when turned off. The successful completion of these tests enables the heaters to carry the CE mark.

Xavier Hayez
Ligne Plus

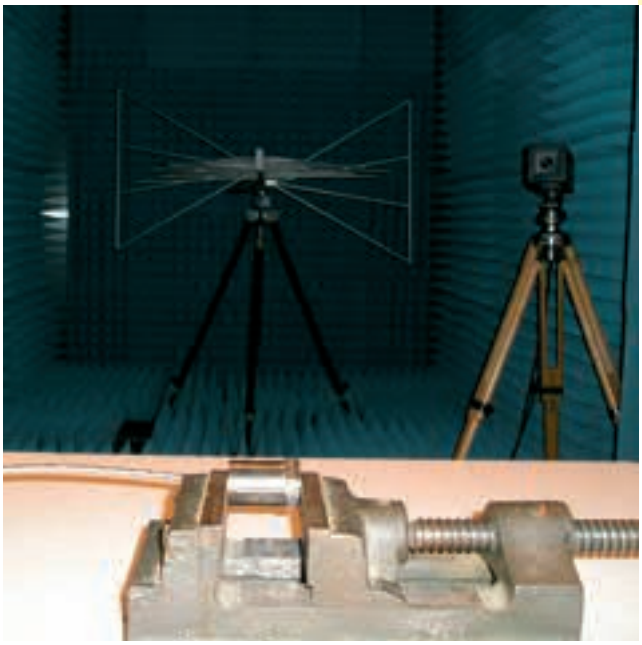
Testimonials

ACTARIS

Actaris sells devices to accurately measure energy and water consumption at industrial and residential sites. These tools are mainly used for invoicing consumers and must therefore comply with strict contractual, regulatory, and legal EMC requirements.

'For our EMC tests, we only entrust independent laboratories that ally quality with professionalism. For the past several years, we have used Laborelec EMC services to commercialize our new products in Belgium. Recently, they conducted conformity tests on our Class 1 and 0.5 energy measurement units.'

Hugo Hendrickx
Actaris



NOVENCO

Novenco supplied ventilation fans for the tunnels of a new high-speed railway. The contractor asked Novenco to ensure that the vibration switches of these fans wouldn't be disturbed by the electromagnetic fields from a passing train. Novenco contacted the manufacturer of the switches, but was not convinced by its response. 'We wanted independent, specialized advice, and that is why we came to Laborelec.'

'The Laborelec experts did an intake interview that was very much to the point and executed professional measurements and tests. They wrote their conclusions in a solid report that was appreciated by the contractor. Unasked-for, Laborelec even gave some extra advice on how to improve the switches.'

Wim Hordijk
Project manager at Novenco

Five reasons for you to choose Laborelec:

- you have one-stop shopping for your energy needs;
- you get access to more than 40 years of experience;
- you increase the profitability of your installations;
- you benefit from independent and confidential advice;
- you are supported by a recognized and accredited laboratory.

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What is the meaning of «Electromagnetic compatibility» (EMC)?

Electromagnetic compatibility is the ability of a device or system to function satisfactorily in its electromagnetic environment without introducing any electromagnetic disturbances into that environment that might lead to any inefficiencies or malfunctions.

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Electromagnetic compatibility

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