

# Electromagnetic compatibility (EMC)

## Identifying malfunctions and finding solutions

### ■ Tiny ripples make huge waves

The source of electromagnetic malfunctions can be very subtle. Sometimes just starting an engine, using a mobile phone or activating power electronics can be enough. Malfunctions of this type can deregulate drive and control systems and in this way can generate huge production losses. In the worst cases they may constitute a threat to safety. It is therefore extremely important that disturbances of this type be avoided.

### ■ Guaranteeing EMC

If this type of malfunction is to be avoided (guaranteeing 'electromagnetic compatibility'), the cause of the phenomenon must first be identified. There are many different causes, such as voltage transients, electromagnetic radiation, electrostatic discharges, lightning, etc., and in each case a remedy must be found. Sometimes the disturbance is dealt with at source, but usually the influence on the source is limited. A reduction of the transmission mode can also be tried. Finally the immunity of the installation can be increased.

### ■ Not a simple job

Identifying the disturbances, checking their effect on the various plants and installations and finding appropriate solutions - these are all specialist tasks. They require sophisticated measuring equipment, and the experience needed to interpret the results in the correct manner. Laborelec has all the necessary expertise in this area.

## Expert recommendations

### ■ Why carry out an EMC study?

- To check the effect of high voltage cables on nearby gas or liquid pipelines
- To check whether certain regulating or control circuits are disrupted by electromagnetic fields
- To solve problems relating to the screening off of sensitive appliances and installations
- To check whether the electromagnetic fields are higher than the values in the ICNIRP workers' health recommendations
- Etc.



The technical Competence Center  
in energy processes and energy use.  
**From innovation to operational assistance.**



We will help you to guarantee the electromagnetic compatibility of your installations.

### ■ Laborelec recommendations

Our Laborelec experts offer you a total service. They measure and identify the (likely) causes of malfunctions. Then they work out effective solutions, such as:

- improved wiring
- filters
- shields
- overvoltage protection
- extra grounding
- etc.

They can also work out a plan for :

- the wiring and earth connections on the shields
- the earth network
- the power systems (TN, TT or IT)

If necessary, they can make advance calculations or simulations to evaluate the effects of these measures.

### ■ Sophisticated instrumentation

To trace and identify EMC disturbances we use the following :

- a spectrum analyser
- CISPR receivers
- electrical and magnetic antennae
- digital oscilloscopes
- instruments for measuring electrical and magnetic fields (direct current, low frequent and high frequent)
- etc.

### ■ Quality and independence guaranteed

Take advantage of Laborelec's dozens of years of experience in solving EMC interference malfunctions. We keep abreast of the latest technical aspects and legislation. Our experts deal with standards compliance in the area of EMC, both nationally (CEB) and internationally (CEI 77 A&B, CENELEC 210).



### 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 get rapid service with reliable solutions;
- you increase the profitability of your installations;
- you benefit from independent and confidential advice.

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