Ensure Real Life Performance with Environmental Conditions Testing

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Trusted means *Tested.*

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Environmental conditions testing is an essential part of the design, development, and quality assurance process for electronic devices. These tests simulate the different physical, chemical, and atmospheric conditions that a device might face during its lifecycle. Testing helps to ensure that electronics and electrical products can withstand the stresses of real-world environments, perform reliably, and meet the regulatory requirements of different industries. By performing these tests, manufacturers can ensure compliance, prevent product failures, improve the longevity of devices, and provide customers with high-quality, safe, and reliable products.

WHAT CAN BE TESTED?

- Component reliability: Individual components such as capacitors, resistors, transistors, and microchips can be tested for how they respond to environmental stress.
- Enclosures: The casings or housings that protect the internal components can be tested for ingress protection (IP rating), resistance to moisture, dust, and other environmental hazards.
- Wiring and connectors: These can be tested for resilience against corrosion, physical damage, and stress caused by movement or vibrations.
- Batteries: Batteries often have specific testing requirements, especially for thermal performance, charging capabilities, and long-term performance in various environmental conditions.
- Surface Finishes: Coatings or plating on components, especially for corrosion resistance, can be tested under harsh conditions like salt fog.
- Functionality: Finally, the overall functionality of the electronic device (e.g., sensors, communication modules, processors) can be tested to ensure it operates as expected, even under extreme environmental conditions.

We offer a wide range of environmental conditions testing in our top-of-class testing facilities in Helsinki.

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When you need to be sure

TEMPERATURE AND HUMIDITY TESTING

Thermal Cycling: The device is subjected to extreme temperature variations (e.g., from -40 °C to 85 °C) to ensure it works under wide range of temperatures or does not degrade.

Dry heat test: The device is subjected to a high temperature and possibly loaded to ensure it does not overheat or otherwise fails (e.g. in tropical climates or as built-in component).

Cold test: The device is subjected to a low temperature and tested to ensure it functions correctly or does not degrade (e.g., in outdoor or high-altitude applications).

Damp-heat steady state or cycling: The device is subjected to elevated temperature and high humidity (e.g. 85 °C and 85 %Rh) to ensure it does not degrade (e.g. in tropical climates).

IP (INGRESS PROTECTION) TESTING

The IP rating (Ingress Protection rating) of an electrical device indicates how well the device's enclosure protects it from solid objects and moisture. The rating help consumers or end users choose the right device for the environment in which it will operate, such as outdoors, damp areas or industrial conditions.

The protection class of the enclosure is always verified by testing, and only accredited testing is guaranteed to be reliable. The requirements for the protection rating of electrical device enclosures are described in the IEC/EN 60529 standard.

The rating consists of the letter combination IP and two numbers that determine the level of protection of the device.

The first number (0–6) indicates the level of protection against solid objects, such as dust and debris. The second number (0–9): indicates the level of protection against water. The rating is therefore presented in the form IPXX, e.g. IP44.

IK (IMPACT RESISTANCE) TESTING

The IK rating is a standard used to measure the impact resistance of electrical enclosures, particularly in relation to how well a device or enclosure can withstand physical impacts or mechanical shock. The IK rating is part of the IEC 62262 standard, which specifies the protection levels of electrical equipment against external mechanical impacts.

This rating is especially important for electronic devices that will be exposed to rough handling, outdoor environments, or areas where they might be subjected to accidental bumps, drops, or hits.

CORROSION TESTING

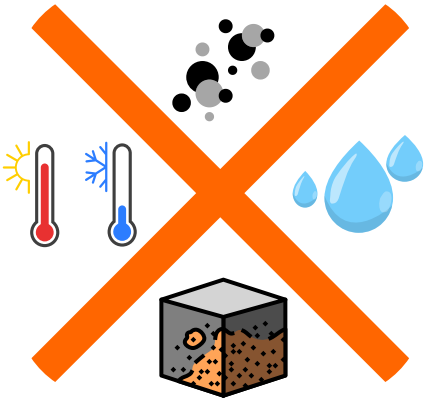
Devices are exposed to a saline (salt) fog to simulate exposure to corrosive environments, like coastal or marine environments, where saltwater and air can cause corrosion in metals and electronic components, according to for example testing standard IEC 60068-2-52 or ISO 11997.

VIBRATION AND SHOCK TESTING

Vibration and mechanical shock testing are used to evaluate how devices respond to vibrational forces, simulating the conditions they might experience during transportation, operation, or environmental exposure. It's essential for identifying potential mechanical failures and ensuring durability and reliability.

ENSURE YOUR PRODUCT PERFORMS IN EVERY ENVIRONMENT

Environmental testing proves that your product operates safely and reliably under all conditions. With decades of experience, broad expertise, and a modern, comprehensive range of testing equipment, we are a trusted partner for all your environmental testing needs. We test devices designed for various operating environments and support you in bringing your product to market—locally, across Europe, and worldwide.



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✉ sales.fimko@sgs.com

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