

PRIORITIZE CHALLENGING TASKS FIRST: THE KEY TO FLAWLESS PRODUCT DEVELOPMENT

ENVITEST LABORATORIES PRIVATE LIMITED

Envitest Lab Helps Customers Achieve Flawless Products



At Envitest Lab, we recognize that prioritizing critical tasks in product development is key to delivering flawless products. Testing and validation should not be an afterthought but an integral part of every stage of development. We help our clients achieve this by offering comprehensive testing

solutions, ensuring end-to-end evaluation of materials, prototypes, and final products to meet functional, safety, and durability requirements. Our regulatory compliance assurance guarantees adherence to industry standards, minimizing the risk of last-minute failures. With real-time insights and analytics, we help companies detect potential issues early, preventing costly redesigns and production delays. Rather than treating testing as a final-stage formality, we adopt a strategic partnership approach, enabling teams to integrate testing at every phase of development. This structured process minimizes errors, optimizes performance, and enhances reliability. By working with Envitest

Lab, companies can focus on innovation, confident that their products are robust, reliable, and market-ready. Prioritizing challenging tasks—especially testing and validation—ensures businesses stay ahead of problems instead of reacting under pressure. Delaying testing increases risks, costs, and time-to-market. At Envitest Lab, we empower businesses to make proactive, data-driven decisions that uphold the highest quality standards. Don't wait for problems to arise at the final stage—test, validate, and refine at every checkpoint to achieve excellence. Partner with Envitest Lab for flawless product development and uncompromised quality!!

Special points of interest:

- Envitest Lab has enhanced its capability to perform tests for a **200A DC-DC power supply converter**.
- Envitest Lab has completed a noise measurement at a site for **noise barriers installed on express highways**.
- Envitest Lab has completed a **random on random test** for a military product, crucial for validating the product QTP.

Integrating Testing at Every Checkpoint

Integrating testing at every checkpoint is essential to ensuring a flawless final product. Rather than treating testing as a final step before release, it should be embedded into every stage of development. Testing at the early stage helps confirm the feasibility of a product through test-

ing and impact analysis ensuring a strong foundation. Prototype testing in the mid-stage evaluates performance under real-world conditions to identify potential flaws before mass production. Finally, pre-production testing focuses on regulatory compliance, quality assurance, and certifi-

cations, ensuring that the product meets industry standards. By integrating testing throughout the development cycle, one can detect and resolve issues early, reduce costly redesigns, and accelerate time-to-market. A proactive approach to testing leads to minimal risk of failure.

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At Envitest Lab, the IP dust test checks how well a device keeps out dust particles, ensuring it meets protection standards.

Ingress Protection (IP) ratings are a globally recognized system that classifies the level of protection an enclosure offers against solid objects, dust, and liquids. Developed under IEC 60529, IP ratings help determine the suitability of electrical enclosures for various environments.

Understanding the First Digit of the IP Rating: Protection Against Solid Ingress

Ingress Protection (IP) ratings are a widely accepted that assesses the level of protection provided by an enclosure against solid objects, dust, and liquids. Established by the IEC under IEC 60529, IP ratings are crucial for determining whether enclosures are suitable for different environmental conditions. An IP rating is represented by two digits: the first digit evaluates protection against solid foreign

objects, including fingers, tools, and dust, while the second digit measures its ability to resist the ingress of liquids. This article focuses specifically on the first digit, which plays a critical role in safeguarding internal components. It outlines how enclosures are designed to prevent damage caused by accidental contact, dust accumulation, and the entry of harmful objects. The first digit provides essential

information for selecting enclosures based on the specific needs of various applications, ensuring the longevity and proper functioning of electrical equipment in diverse environments. By understanding these ratings, engineers and manufacturers can make informed decisions about which enclosures are best suited for protecting sensitive components in industrial, commercial, and consumer settings.

Explanation of Protection Levels

Level 0: No Protection (IP0X) - At this level, there is no protection.

Level 1: Protection Against Large Surfaces—IP1X enclosures protect against accidental contact with large body parts but do not guard against smaller objects.

Level 2: Protection Against Fingers—IP2X prevents objects larger

than 12.5 mm, such as fingers or tools, from entering.

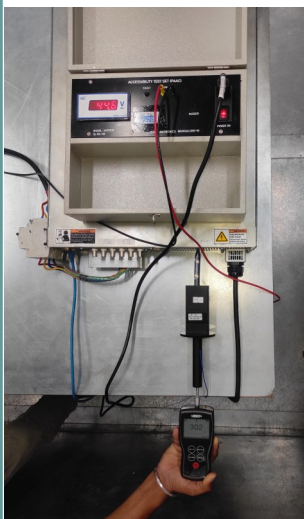
Level 3: Protection Against Tools and Wires—IP3X enclosures block objects larger than 2.5 mm, like tools and thick wires, preventing accidental insertion.

Level 4: Protection Against Small Objects—IP4X blocks objects larger

than 1 mm, protecting against thin wires, screws, and insects.

Level 5: Dust-Protected—IP5X ensures dust doesn't interfere with equipment, suitable for dusty environments like workshops.

Level 6: Dust-Tight—IP6X enclosures are fully dust-tight, for environments where dust contamination could cause malfunctions.



First Digit in IP Ratings for Enhanced Protection

The first digit of an IP rating plays a crucial role in assessing the level of protection an enclosure provides against solid foreign objects, including dust, tools, and accidental contact with electrical components, indicating varying degrees of protection, from no protection (IP0X) to complete dust-tight sealing (IP6X). The rating serves as a vital tool for manufacturers, engineers,

and consumers in selecting the most suitable enclosure based on their specific needs and the environment in which the equipment will operate.

When choosing an IP-rated enclosure, it is important to consider the operating conditions and potential risks, enclosures with higher protection levels are necessary in environments with high levels of

dust or where accidental tool insertion is a concern. On the other hand, lower-level enclosures may suffice in areas with minimal exposure to such hazards.

IP rating ensures the safety, reliability, and longevity and helps prevent equipment failure due to external interference, extending the life of components and reducing the risk of costly repairs.

Micro Discontinuity Testing during Connector Vibration Testing at Envitest Lab

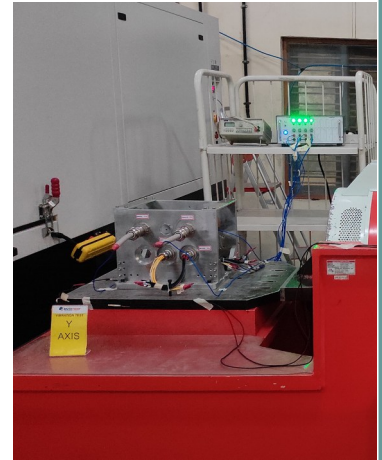
Micro discontinuity testing during vibration tests is a procedure used to evaluate the mechanical and electrical performance of connectors under dynamic conditions. Connector vibration testing is routinely conducted to simulate real-world conditions where connectors are subjected to mechanical stress, such as in automotive, aerospace, and industrial applications. This test aims to assess the connector's

ability to maintain stable electrical connections while enduring vibrations that may occur during normal operations.

Micro discontinuities are brief interruptions in the electrical signal, which can occur due to mechanical vibrations. These discontinuities can negatively impact the performance and reliability of a connector, potentially leading to failure in critical systems. During this test, micro dis-

continuities are carefully monitored using sensitive testing equipment to detect any electrical interruptions that may occur.

By performing micro discontinuity testing, we ensure that connectors will function reliably. This type of testing is crucial for ensuring the durability and electrical integrity of connectors, preventing potential failures in critical systems and performance.



"The micro discontinuity evaluation conducted during vibration testing of connectors to assess their performance and reliability under stress."

Method Verification at Envitest Lab as per ISO 17025

Method verification, as per ISO 17025, is a critical process in ensuring the accuracy, reliability, and consistency of testing methods used. According to ISO 17025, method verification is the process of confirming that a specific testing method is suitable for its intended purpose, providing results that meet the required standards and

specifications. It involves validating the method's accuracy, precision, and reproducibility, as well as ensuring that it is consistently applied in the laboratory setting.

At Envitest Lab, we adhere to the highest standards of method verification to ensure that our results are both reliable and valid. Our method verification

process involves evaluation of testing procedures, considering factors such as the equipment, environmental conditions, and personnel performing the tests. We also regularly assess our methods against known standards and conduct inter-laboratory comparisons to ensure accuracy and precision.

Our commitment to continuous improvement, with clear goals, ensures that our dedicated team remains focused on driving results and enhancing every aspect of our work to maintain our reputation as a leader in the field.

Envitest Lab: Driving Continuous Improvement in 2025

Envitest Lab is committed to embracing new challenges in 2025 by fostering a culture of continuous improvement and setting clear, measurable goals. As we enter a new year, the lab is focused on enhancing the quality and efficiency of our services through strategic planning and innovation. We aim to stay ahead of industry trends by adopting advanced technologies, re-

fining our processes, and improving the skill sets of our team.

Our commitment to continuous improvement is reflected in our approach to every challenge. We are actively identifying areas where we can optimize performance, reduce inefficiencies, and elevate the standard of our operations. This includes upgrading equipment, enhancing

training programs, and implementing cutting-edge methodologies to streamline our testing and analytical procedures.

Clear goals have been set to ensure progress is tangible and measurable. By focusing on innovation, excellence, and adaptability, Envitest Lab is poised to overcome any challenges that come our way in 2025 by our team.



Empowering Products

NABL Accredited Laboratory
DGAQA Approved Lab
TEC Recognized Lab

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WE'RE ON THE WEB!

www.envitestlab.com

Our Services

- ◇ Climatic Simulations
- ◇ Dynamics & Vibration
- ◇ Contamination and Ingress
- ◇ Materials / Metallurgical Testing
- ◇ Aircraft Electrical Testing
- ◇ Electrical Safety Testing
- ◇ Optical Fibre Cable Testing
- ◇ Telecom Interface Testing
- ◇ Electrical Cables and Connectors Test
- ◇ International Approvals
- ◇ Customized Tests
- ◇ Engineering Services

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About Envitest Lab

WHERE EXCELLENCE MEETS ASSURANCE.

OUR VERTICALS

- TESTING
- CERTIFICATION
- INSPECTION
- ENGINEERING

Working tirelessly behind the scenes to guarantee product success

ENVITEST Lab abbreviated for “ENVIRONMENTAL TESTING”, established in 2017 at Bangalore Electronic City, is a ISO/IEC 17025 certified company with an objective to offer high-quality testing, inspection, pre-compliance, certification, and engineering services for the across the globe products.

We serve across domains products for the compliance and certifications. Over time we kept on add-

ing the new testing facilities to bring more opportunities for growth but would allow to provide a more complete portfolio of testing solutions to our customers. From our humble beginnings, we have grown from a simple test house who worked on the world’s most complex engineering projects to become a leading test lab of standard and custom test services. Throughout our journey to become one of the premier worldwide service providers of testing solutions, we have held true to the philosophy that the customer comes first.

Our Disciplines -

Electronics and Electrical Product Test covering Optic fibre, electrical connectors for

automotive and MIL, Aircraft electrical characteristic, Product safety, Product performance, Product susceptibility test.,

Telecom Product Test covering telecom products which covers PON and GPON Test, Interface Test, EMI/EMC test, Router and Switches and many more.

Environmental Test for Any Product covering - Shock and Vibration, Bump, Thermal, Humidity, Damp Heat, Cold Hot temperatures, thermal shock, Ingress protection, dust, water, contamination, fungus, Ultraviolet UV, salt and acidic corrosions and many more.