

ENVITEST LABORATORIES PRIVATE LIMITED

Transforming Thought into Technology – Inside Envitest Lab

Envitest Lab: Investing in Skills, Technology, and Mindset to Stay Ahead

At Envitest Lab, success is not just measured by how much we test or the number of reports delivered—it's about the mindset we bring to our everyday operations. In a fast-evolving technological landscape, doing everything “right” on paper may still fall short. That’s why we continuously invest not only in infrastructure and skills but in the way we think and act. Because in our journey, mindset matters just as much as machines.

1 Leading With Insight

We believe metrics guide, but reality leads. At Envitest, leadership doesn’t hide behind dashboards. We walk the floor, talk to engineers, understand test environments firsthand, and continuously evolve based on ground-level insights.

2 From Talk to Action

We foster a culture where execution trumps excuses. Instead of waiting for perfect solutions, our teams adapt, experiment, and implement, turning ideas into innovations every day.

3 Challenges as Stepping Stones

Every customer demand, failed setup, or test anomaly adds to our learning. Challenges fuel our upgrades—in equipment, process, and people.

4 Energy Management Over Time Management

Our team’s ability to deliver high-quality results comes from a culture that values energy. We balance demanding test schedules with moments of reflection, ensuring sustainability.

5 Strategy That Feels Real

Our mission isn’t tucked away in boardrooms—it’s reflected in every report, every test we run, and every customer interaction. Our vision is felt in the field.

6 Act Before It’s Perfect

Whether adopting new test protocols or investing in advanced simulation tools, we don’t wait for perfection. We move, learn, and refine.

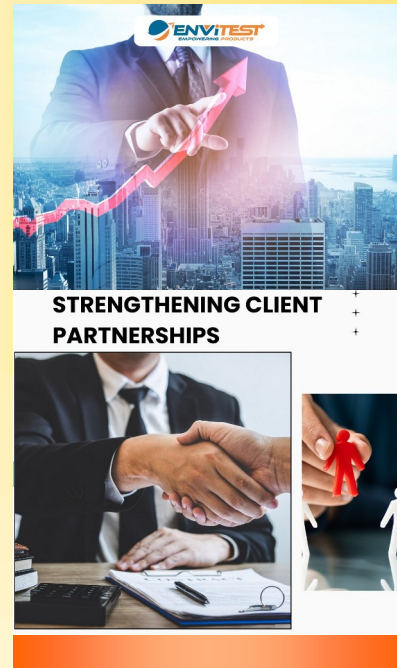
Envitest Lab: Mindset-Driven Innovation

At Envitest Lab, growth isn’t just measured in numbers or milestones—it’s embedded in the way we think, act, and evolve. We understand that true success stems from mindset shifts, not just mechanical progress. That’s why we continuously invest in upgrading our skills, infrastructure, and leadership approach to stay ahead in a rapidly transforming industry.

While metrics and KPIs are vital, we look beyond them. We prioritize action over hesitation. Instead of waiting for the perfect conditions, our teams are empowered to move forward with what they have—turning plans into progress through proactive execution.

We don’t believe in one-size-fits-all solutions; instead, we recognize and nurture the unique strengths of every team member, enabling people to grow in roles where they can truly shine. Every test failure or equipment issue becomes an opportunity to learn, adapt, and innovate. At the same time, we focus on sustaining energy, not just productivity, by encouraging balance and well-being.

By focusing on individual energy, collective strength, and continuous reinvention, we create an environment where innovation is constant and improvement is non-negotiable. This is how Envitest Lab positions itself not just as a service provider, but as a trusted partner for organizations looking to meet rigorous standards with confidence. Because at Envitest, we believe success is not only about doing things right—but also thinking right. .



STRENGTHENING CLIENT PARTNERSHIPS

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Special points of interest

- Envitest Lab is now fully renovated with a new look and improved spaces for better work and customer experience.

Abnormal Frequency Variation Testing as per RTCA DO-160

At Envitest Laboratories, we specialize in conducting abnormal frequency variation tests to assess the performance and stability of aviation-grade electronic equipment. These tests are essential to ensure that critical systems function reliably even when exposed to irregularities in the power supply—especially in modern aircraft where AC power systems may operate at variable frequencies.

Our lab is equipped with advanced programmable AC power sources that can simulate a wide spectrum of frequency variations. These simulations include both abrupt changes and gradual drifts, effectively replicating the challenging real-world conditions that occur during various flight and ground scenarios. By closely following the guidelines outlined in RTCA DO-160, Section 16 (Power Input), we ensure that the testing is both standard-compliant and highly accurate.

Each test is carefully monitored to capture system responses, detect any malfunctions, and validate operational endurance under fluctuating power

conditions. Our ISO/IEC 17025 accredited processes guarantee traceability, repeatability, and data integrity throughout the test cycle.

Our testing methods are fully aligned with ISO/IEC 17025 accreditation, ensuring test traceability, repeatability, and technical integrity. We validate equipment not only for compliance but also for functional reliability under stress. Each test cycle includes close monitoring of performance parameters and failure indicators, giving manufacturers actionable insights into product robustness.

Clients across the aerospace, defense, and avionics sectors rely on Envitest for their power input testing, accelerating product development while maintaining full compliance with regulatory and safety requirements. With deep domain expertise and tailored test setups, Envitest empowers aerospace manufacturers to bring more reliable, robust products to market—faster and with greater confidence. When reliability under electrical stress is non-negotiable, Envitest is your trusted testing partner.



Ensuring reliability when power fluctuates—Envitest Labs tests what others can't simulate.

Envitest Lab ensures aviation electronics remain reliable under abnormal frequency variations by accurately simulating real-world power fluctuations.

RTCA DO-160, Section 16 – Power Input

In today's aviation industry, the reliability of onboard electronic equipment is critical. Aircraft systems often face irregularities in power supply, especially in variable frequency AC power systems.

RTCA DO-160 is a globally recognized standard for testing airborne equipment. Section 16 focuses on how well electrical and electronic devices can withstand disturbances in power input, including frequency variations from the nominal 400Hz commonly used in aviation systems. As aircraft technologies evolve, particularly with the growing use of variable frequency power systems, this test has become more critical than ever.

Understanding Abnormal Frequency Variations and Their Impact

Abnormal frequency variations refer to the deviation of a power system's frequency from its nominal or standard value often 400Hz in aerospace and defense systems. Maintaining this frequency is critical, as even small deviations can disrupt system operations. These variations are characterized by significant shifts above or below the normal operating frequency. They are not just minor fluctuations but measurable deviations that can impact system performance, especially in high-reliability environments.

Causes of Frequency Variations

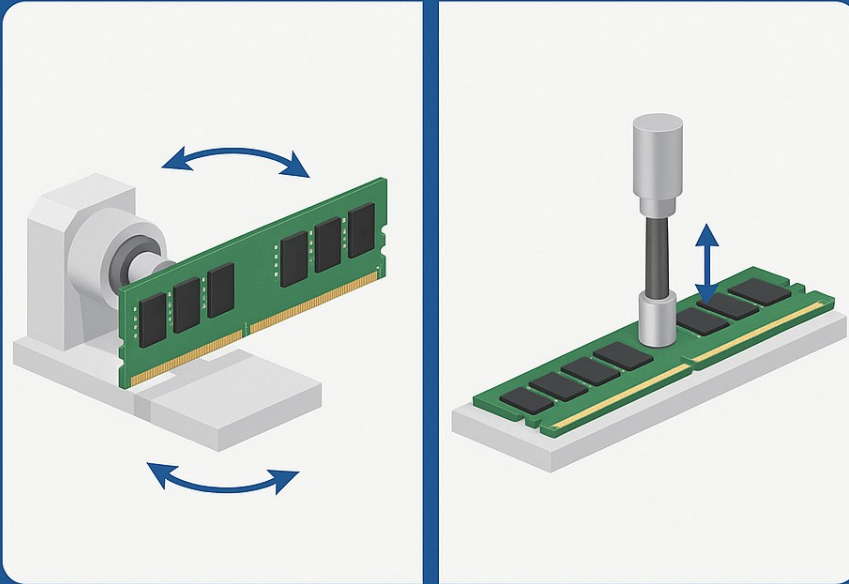
- **Generation-Load Imbalance:** A mismatch between the electricity produced and consumed is a primary reason. If demand exceeds supply or vice versa, frequency changes can occur.
- **Generator Malfunctions:** Issues such as faulty governors or engine speed instability can cause abnormal frequencies.
- **Sudden Load Changes:** Rapid increases or drops in load can stress the system and destabilize the frequency.
- **Transmission Faults:** Transmission line failures or disturbances in the lines can also trigger frequency variation events.

Consequences of Frequency Instability

- **Equipment Damage:** Many modern devices and systems are frequency-sensitive. Unstable input can lead to overheating, malfunction, or permanent damage.
- **System Instability:** Variations may lead to cascading failures in connected systems, potentially resulting in widespread blackouts.
- **Safety Risks:** Abnormal frequencies in industrial settings or mission-critical environments can lead to hazardous situations or system shutdowns.

Understanding and mitigating these variations is crucial for power quality, safety, and system longevity. That's why frequency variation testing, such as those conducted at Envitest Lab, plays a vital role in ensuring product reliability across sectors like aerospace, defense, and critical infrastructure.

TORSION AND BENDING TESTS ON DDR5 SDRAM



Envitest Lab Successfully Executed DDR5 SDRAM Mechanical Tests as per JESD79-5C.01

At Envitest Laboratories, we take pride in solving complex product qualification challenges with precision and technical expertise. One such recent milestone was the successful execution of two critical mechanical durability tests—Torsion and Bending Tests—for DDR5 SDRAM modules, in accordance with the JEDEC standard JESD79-5C.01.

DDR5 SDRAM is at the core of high-performance computing, and its mechanical reliability is vital to ensure long-term functional integrity. The JEDEC JESD79-5C.01 standard defines specific stress tests to validate the mechanical endurance of memory modules under real-world handling and usage conditions. These tests were essential in evaluating the mechanical durability of DDR5 modules—crucial components in modern computing systems where reliability under stress is non-negotiable.

Envitest Lab developed a dedicated testing technology by engineering a custom test equipment specifically designed to meet the requirements SDRAM mechanical testing. This innovation ensured repeatability, precision, and complete adherence to test standards. Our success in executing these complex tests is a result of our in-depth understanding of technology and our commitment to helping clients stay compliant with evolving industry expectations.

The Torsion Test required us to simulate 50,000 cycles of angular twisting motion at -1.0 to $+1.0$ degrees, applied at a rate of 40 degrees per second. The goal was to assess the module's endurance under repeated torsional stress that could occur during handling or operation. Envitest's test engineers utilized high-precision servo motors and motion control systems to carry out this test with complete accuracy. Throughout the cycles, data was monitored in real time, and the component was periodically inspected to verify its structural integrity. The module successfully passed all 50,000 cycles with no signs of mechanical failure, underscoring both the product's durability and the reliability of Envitest's simulation capabilities.

In the Bending Test, the DDR5 SDRAM module was subjected to a 23 Newton force at a controlled rate of 20 cm/min for two full cycles. This test is designed to simulate bending stress that components may experience during assembly or physical installation. Using calibrated load application equipment and high-resolution displacement sensors, we ensured exact adherence to JEDEC parameters. Post-test evaluations confirmed that the module remained free of cracks, bends, or damage, proving its structural strength and readiness for real-world applications.

Verifying Structural Integrity Under Stress

1. Torsion Test: Simulating Mechanical Strain with Accuracy

Objective: To assess the component's ability to withstand repeated torsional strain without physical or functional damage

Standard Followed: JEDEC DDR5 SDRAM JESD79-5C.01

2. Bending Test: Verifying Structural Integrity Under Stress

Objective: To test the module's flexural strength and durability during assembly and installation conditions

Standard Followed: JEDEC DDR5 SDRAM JESD79-5C.01

Envitest Lab's engineering team successfully executed both torsion and bending tests by developing custom setups focused on high precision and reliability. Using advanced motion control systems and real-time monitoring, the tests were carried out with complete accuracy. High-speed data logging and detailed inspections ensured the product's performance was thoroughly evaluated. The component passed both tests without any damage, demonstrating its durability and Envitest's capability in delivering complex, high-reliability testing solutions.

Ensuring Secure Electrical Connections

Connector Mate Cycling Test: A Key Measure of Durability and Reliability

In today's technology-driven world, connectors play a crucial role in ensuring seamless electrical communication across various systems. One critical way to assess the durability and reliability of these connectors is through a Connector Mate Cycling Test. This test determines how many times a connector can be plugged in and out before it begins to fail or show signs of degradation, making it an essential benchmark in product development and quality assurance.

At its core, the mate cycling test evaluates mating cycles—the number of insertions and removals a connector can withstand while still meeting electrical and mechanical specifications. This process is not just a simple stress test—it simulates real-world usage conditions that connectors endure in practical applications, from automotive wiring harnesses to aerospace control systems.

Several factors influence how well a connector performs under these conditions. Connector type, application environment, mating force, and material and design all play a major role in determining its endurance. For instance, connectors used in high-vibration or high-temperature environments may exhibit faster wear unless specifically designed to handle such stress.

Connector Mate Cycling Test: Ensuring Long-Term Reliability

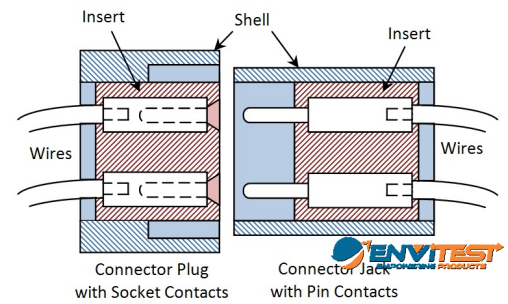
A connector mate cycling test evaluates how many times a connector can be plugged and unplugged while still maintaining its performance standards. This test simulates real-world scenarios where connectors are repeatedly mated and unmated, helping to determine their durability and reliability over time.

The test begins by establishing a baseline for the connector's electrical and mechanical properties. The connector is then subjected to a series of controlled mating and unmating cycles. After completing the required number of cycles, it is evaluated for signs of wear, mechanical damage, and changes in electrical performance.

This process is essential in understanding how connectors behave under mechanical stress. It supports better design decisions, ensures easier maintenance, and helps manufacturers predict product lifespan. Factors such as connector type, usage environment, material, and mating force significantly impact test

outcomes.

Ultimately, mating cycle testing identifies potential failure modes early, verifies design robustness, and confirms long-term reliability. By validating that connectors can withstand repeated use, this test ensures dependable connections in critical applications such as aerospace, automotive, telecom, and industrial electronics..



Ensuring Test Method Integrity: Our Commitment Under ISO 17025 Clause 7.2

At Envitest Laboratories Pvt. Ltd., we recognize that the integrity of testing begins with the proper selection, verification, and validation of methods—core principles outlined in Clause 7.2 of ISO/IEC 17025. This clause emphasizes that laboratories must use appropriate, up-to-date methods that are fit for their intended purpose.

Envitest stands out not only as a NABL-accredited laboratory but also as a leader in the interpretation and application of global industry standards. Our technical team remains deeply engaged with continuously evolving protocols such as MIL-STD, IEC, ASTM, ISO, and customer-specific test requirements. Whether executing well-established standards or developing customized test methods, our approach ensures every test is traceable, relevant, and defensible. In short, we don't just follow standards—we implement them with purpose, ensuring reliable, repeatable, and accurate results every time.

How Envitest Lab Aligns with ISO 17025 Clause 7.2

At Envitest Lab, we make sure that every test method we use is carefully checked and approved through a process called verification and validation. This means we confirm that each method is suitable for the product or industry we are testing. This approach follows the quality and technical requirements of ISO/IEC 17025, a globally accepted standard for testing laboratories.

We stay up to date with changing regulations, customer needs, and global testing standards. Our team keeps track of updates to MIL-STD, IEC, ASTM, ISO, and many other guidelines, so we can help our clients stay compliant and confident in their product testing.

Whether it's a standard method or something customized for a complex requirement, we ensure that the test gives results that are reliable, repeatable, and accurate.

Envitest is a trusted testing partner for many industries, including Military, Aerospace, Automotive, Telecom, and Medical devices. We don't just follow the standards—we understand and apply them with purpose, helping products succeed in the real world.

Envitest Lab's New Look: A Modern Makeover for Enhanced Innovation

Envitest Lab is proud to unveil its latest makeover—an initiative aimed at reflecting our commitment to technology, streamlined workflows, and client-focused service. The transformation includes upgrades to both our infrastructure and visual identity, aligning our physical environment with the high standards of precision and professionalism we uphold in our testing services.

The lab has been redesigned with a more efficient layout to support seamless operations and improved test execution. We've introduced modern equipment placement zones, better lighting, updated branding elements, and dedicated collaboration areas to foster innovation among our technical teams. Safety signage, organized storage, and process flow markers have been implemented to ensure clarity and compliance with ISO/IEC 17025 practices.

Our refreshed space isn't just aesthetic—it's functional. It enhances workflow, facilitates quicker turnaround times, and creates a more welcoming environment for both clients and auditors. The makeover also symbolizes Envitest's continuous growth and adaptability in meeting evolving industry demands.

This new look is part of our broader strategy to position Envitest as a forward-thinking lab that not only delivers precise test results but also embraces a culture of excellence. With our revitalized environment, we're ready to set new benchmarks in environmental and reliability testing.



The event offered a fantastic opportunity to showcase our expertise in automotive testing and connect with industry professionals.

Envitest Lab Thanks Clients for Their Visit to our booth at The Automotive Testing Expo India

Envitest Lab would like to extend a heartfelt thank you to all the clients who visited our booth at The Automotive Testing Expo India 2025. The event, held from April 8-10, 2025, at the CTC Complex in Chennai, India, provided an excellent platform for us to connect, collaborate, and showcase our cutting-edge solutions in automotive testing and validation.

As a premier event in the automotive sector, the Automotive Testing Expo India focuses on the latest technologies and services that drive the development, testing, and validation of vehicles and their components. At Envitest, we were thrilled to present our comprehensive capabilities in these areas, including vehicle testing, quality assurance, and the latest advancements in automotive technology.

Envitest Lab would like to express our sincere gratitude to all the clients who took the time to visit our booth and proved to be an invaluable platform for discussing our advanced solutions in automotive testing, validation, and quality assurance.

The Automotive Testing Expo India 2025 is a premier event focused on the latest advancements in automotive technologies, offering a comprehensive look at testing, development, and validation for full vehicles and components. The expo attracted engi-

neers, researchers, and professionals from across the automotive sector to explore new products, services, and solutions aimed at improving automotive performance and safety. Envitest Lab was proud to be part of this exciting event, where we highlighted our expertise in conducting high-precision testing to ensure that automotive products meet the highest industry standards.

Our participation at the event allowed us to demonstrate our advanced capabilities in automotive testing, including full vehicle and component testing. We shared insights into our testing methods, tailored specifically for the needs of the automotive industry. We also had the opportunity to engage with clients and partners, listen to their needs, and offer solutions that address the challenges of modern automotive development.

We are deeply appreciative of the positive interactions and the opportunity to collaborate with such a dynamic group of industry professionals. The feedback we received during the expo will help us further refine our offerings and ensure that Envitest continues to deliver the highest quality testing services. Thank you once again for your support, and we look forward to fostering long-lasting partnerships in the future.



Our Services

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

At Envitest Laboratories, we started with a clear mission—to empower products by ensuring they are tested accurately and proven reliable. Established in 2017 in Bangalore Electronic City, Envitest is an ISO/IEC 17025-certified company dedicated to providing high-quality testing, inspection, pre-compliance, certification, and engineering services across industries worldwide.

As industries evolve, so do their testing needs. Over the years, we have continuously expanded our testing capabilities, enabling us to offer a comprehensive portfolio of solutions that help manufacturers meet regulatory and quality standards. From a humble test house to a leading global provider of standard and customized testing services, our journey has always been guided by one principle—customer-first approach and delivering precision in every test.

Our Expertise in Testing Disciplines

- ⇒ Electronics & Electrical Product Testing – We ensure reliability for optical fiber, electrical connectors (automotive & MIL), aircraft electrical characteristics, product safety, performance, and susceptibility testing.
- ⇒ Telecom Product Testing – Our expertise covers PON and GPON testing, interface testing, EMI/EMC testing, router and switch evaluations, and more.
- ⇒ Environmental Testing for Any Product – We conduct shock & vibration, bump, thermal cycling, humidity, damp heat, extreme temperatures, thermal shock, ingress protection (dust & water), contamination, fungus resistance, ultraviolet (UV) exposure, salt & acidic corrosion, and more.

At Envitest Lab, we believe that doing things right isn't just a process—it's a commitment to quality. With cutting-edge facilities and a highly skilled team, we help industries launch safer, more reliable, and high-performing products into the market with confidence and compliance.

Empowering Products. Excellence in Testing. Confidence in Performance. Setting Standards.

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