

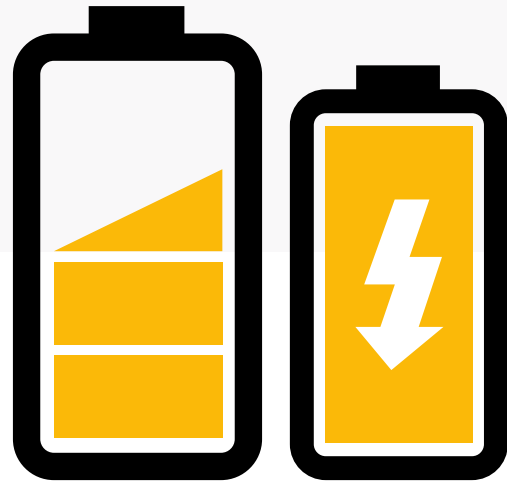
# Reliability Engineering Services

**Ansys Reliability Engineering Services (RES) is the leader in delivering comprehensive reliability solutions to the electronics industry. Ansys RES leverages a team of reliability experts with a 20,000 sq. ft. laboratory to accurately predict the robustness of a device and investigate failures through physical testing and analysis paired with simulation and modeling. Ansys RES routinely helps clients improve product reliability, time-to-market and customer satisfaction.**

Capabilities	
<b>Robust Simulation and Modeling</b>	Modeling and analysis of complex electrical assemblies and loading scenarios to predict the robustness of a device
<b>Reliability and Accelerated Life Testing</b>	Customized in-house testing of products to set realistic expectations of field reliability
<b>Design Reviews</b>	Identifying and presenting mitigation strategies for reliability concerns that could prevent a product from reaching warranty, safety or durability targets
<b>Supplier and Manufacturing Assessments</b>	Identifying and incorporating improvements to manufacturing practices and the supply chain to enhance product reliability
<b>Customized Education and Training Solutions</b>	Delivering thousands of courses in the field of electronics reliability and reliability physics for engineering, management and executive audiences
<b>Failure Analysis and Mitigation</b>	Investigating root causes of failure and identifying mitigation strategies to improve product performance
<b>Material Characterization</b>	Using mechanical, electrical and reliability characterization, Ansys provides the material properties necessary for accurate simulation inputs and results
<b>Test Validation</b>	Our test validation service provides validation of electrical, thermal/mechanical and reliability simulations to ensure businesses have confidence in their simulation results

## Battery Reliability

Ansys RES provides qualification and risk mitigation services for battery powered products, helping customers design, test and qualify robust, high-quality battery systems through the entire product lifecycle. Services include:



- Benchmarking of supplier cell quality and design
- Non-destructive and destructive teardown and physical analysis
- Development of incoming battery inspection protocols
- Characterization of electrical performance
- Paper-based and onsite supplier audits

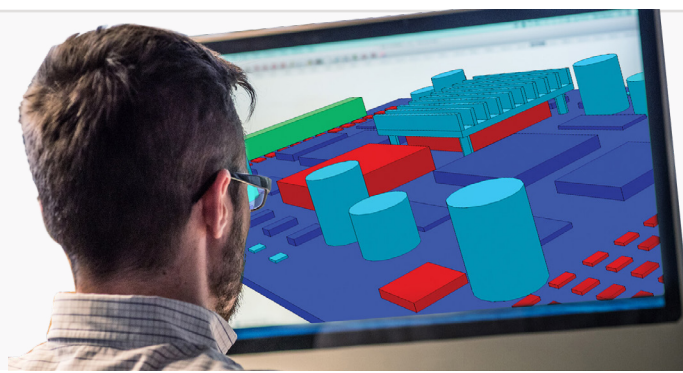


**Ansys RES brings a lot of expertise in battery reliability. Their test facility is full of cool toys for testing and characterization. The auditor in me was also impressed when touring their facility. They are bringing in most of the technical expertise required for this standard."**

Jeff Carlisle, DMEA, Chair of SAE Counterfeit and Substandard Battery Risk Mitigation. Committee

## Facilities

The laboratory and test facility are critical resources to the Reliability Engineering Services team, allowing for immediate access to equipment and facilities necessary to investigate and solve reliability challenges.



- Over 20,000 square feet of lab and test space
  - Over 25 environmental chambers
  - Component and sub-system testing
  - Full-service material characterization and failure analysis lab
- Lab & test capabilities include:**
- Temperature Cycling
  - Vibration Testing
  - Mechanical Shock & Drop Testing
  - Temperature Cycling
  - Vibration Testing
  - Mechanical Shock & Drop Testing
  - Temperature-Humidity Testing
  - Mechanical Testing
  - Digital Image Correlation
  - Battery Quality Assessment
  - Battery Performance Testing
  - Board Cleanliness Testing
  - Scanning Electron Microscopy
  - Energy Dispersive Spectroscopy
  - Custom Testing

**"We are very glad to have invited Ansys Reliability Engineering Services to work on root cause failure analysis, process assessment and auditing, device testing methodologies, etc. Their work not only greatly improved our product integrity, but also raised our skills ranging from materials control and failure analysis to reliability process and methodologies. They truly bring in the professional excellence!"**

Geoffrey Leu, Opto Division GM, Unity Opto Technology Co., Ltd.

**"Ansys Reliability Engineering Services provided a design review of our high value measurement system and recommended many ways to improve reliability through design modification, component changes, improved specifications and test plans. We were very pleased with the results of their analysis. The RES team was highly professional and we will continue to use their services again and again."**

Kent Kalar, CEO, SensorTran, Inc.

