Independent Battery Testing

Lithium-ion batteries are appealing for many applications due to their ability to store a lot of energy in a small cell and their long cycle life, but they also pose complex risks and challenges. Rigorous testing and analysis of lithium-ion batteries is crucial for risk mitigation and to promote the safe and sustainable adoption of this technology.

Supply Chain Considerations

- Batteries, battery materials, protective software, and system components are global and increasingly complex.
- Cell quality can vary widely, which may have significant harmful impacts on performance.
- Scarcity of raw materials, problems with suppliers, and inventory issues add to risk.
- Top-tier battery manufacturer's cells have limited availability.

Risk Considerations

- Lithium-ion batteries may lead to fires and explosions.
- Not procuring top-tier battery cells brings increased risk of defects leading to poor performance, personal injury, litigation, recall, and property damage.
- Assess the quality control, processes, and maintenance of battery cell manufacturers through independent cell testing.

Independent Battery Cell Testing

ESi conducts battery cell testing that can measure the cell efficiency, lifespan, and safety characteristics under various operational scenarios. ESi's Battery Testing capabilities include:

- Simulate real-world usage across a wide range of voltages and current loads.
- Measure energy storage and release capacity.
- Evaluating battery performance under high-current discharge rates.
- Assess changes in capacity and performance over time.
- Test several individual cells from the same battery pack or lot to assess consistency.
- Analyzing performance across range of temperatures to evaluate thermal management and safety features.
- Assess battery responses to unusual or extreme conditions, such as over-voltage, under-voltage, and rapid cycling.