

Case Study: Enhancing Efficiency in EV Charger Testing

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In the rapidly evolving sector of electric vehicles (EV), the demand for efficient and robust EV chargers is paramount. A leader in automotive and power, faced significant challenges in testing these critical components due to the high demand and complex testing requirements. INDIC EMS Electronics was tasked with devising strategies to optimize the testing process, thereby reducing cycle times and adding functional testing capabilities.



Challenges:

The primary challenges included:

- **High Equipment Cost:** Testing equipment for EV chargers is notably expensive, compounding the challenge of deploying multiple testing stations.
- **Throughput in Testing:** Utilizing a single-station flow for testing significantly increased the cycle time, which in turn reduced overall output and efficiency.

Solutions:

INDIC introduced a dual-pronged approach to address these challenges:

- **Separation of Testing and Programming:** By separating the testing and programming phases of the EV chargers, INDIC significantly reduced the overall cycle time. This allowed for simultaneous operations without interference, streamlining the entire process.
- **Cost-Effective Programming:** Programming was executed at minimal cost, which not only conserved resources but also increased the throughput of existing testers by 60%.
- **Maximized Throughput Without Additional Equipment:** The strategy effectively increased the throughput without the need for additional costly equipment, ensuring that programming cycle times did not hinder the functional testing phase.
- **Supplier Verification for Correct Guide Pins:** A thorough check was conducted with multiple suppliers to identify and procure the specific guide pins that precisely matched the required diameter for the PCBA.

- **Replacement of Incorrect Guide Pins:** The existing, mismatched guide pins in the test fixtures were replaced with the correctly sized pins.
- **Re-evaluation through [PCBA Functional Testing](#):** After the guide pin replacement, a new round of PCBA functional testing was conducted to assess the impact of the change.

Impact:

The strategic changes implemented by INDIC EMS Electronics yielded significant benefits:

- **Cost Efficiency:** There was a direct cost saving of 20%, achieved through the optimized use of existing resources and eliminating the need for additional equipment.
- **Increased Throughput:** Throughput increased by 60%, directly attributable to the innovative separation of testing phases and the enhancement of programming efficiency.
- **Reduced Dependencies:** By handling more of the process in-house, INDIC reduced its dependency on external vendors, further controlling costs and improving reliability.

Enhancing Efficiency in EV Charger Testing Conclusion:

INDIC EMS Electronics' tailored approach to solving Mahindra's challenges with EV charger testing exemplifies a shift towards more self-reliant, cost-effective, and efficient manufacturing processes. This strategy not only improved the functionality and quality of testing but also positioned INDIC as a forward-thinking partner capable of delivering superior results in the competitive automotive sector.

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