SPvolt
Custom EV Charging Cables with Low MOQ

Comprehensive Testing and Validation for EV Charging Equipment

At SPvolt, reliability and safety are at the core of every EV charging product we deliver.

Our comprehensive testing ensures that each unit meets the highest standards for durability, performance, and safety across a variety of environments.

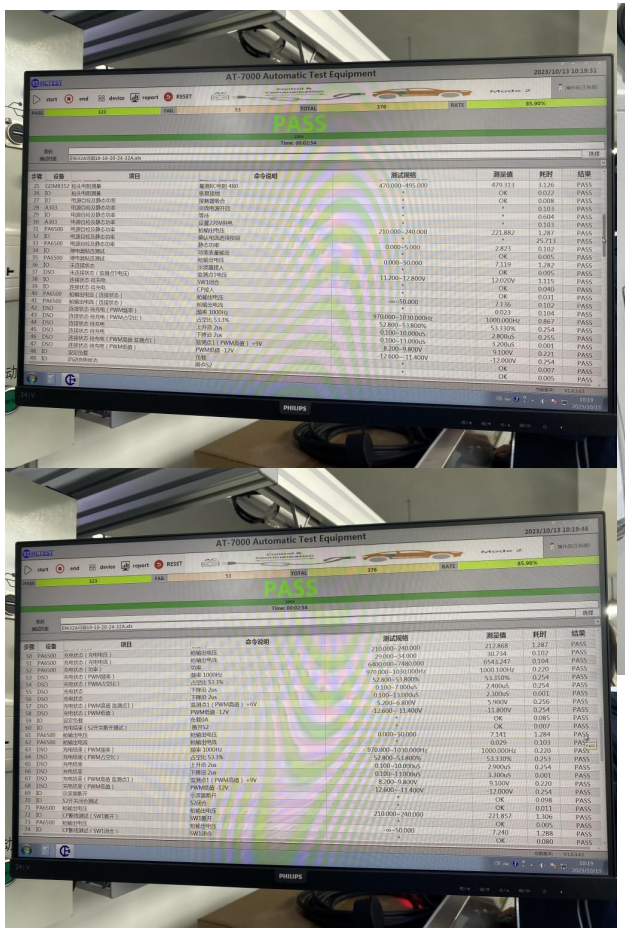
No.	Testing Items	Performance Tested	Customer Value
1	High Temperature Test, Low Temperature Test, Temperature and Humidity Cycle, Constant Temperature and Humidity Test.	Resistance of charging gun housing, cable sheath, and insulation materials to high/low temperatures and humidity.	Ensures that your products maintain performance in extreme weather conditions, reducing the risk of failure and ensuring continuous operation.
2	High Temperature Test, Durability Test	Thermal stability and high-temperature resistance of charging modules, PCBs, and connectors.	Guarantees components can withstand high temperatures, preventing overheating and prolonging the lifespan of the equipment.
3	Rapid Impact Test Between High and Low Temperature	Mechanical strength and reliability of charging gun contact points, housings, and connectors under rapid temperature changes.	Ensures durability in environments with sudden temperature shifts, reducing damage risk during transport or operation.
4	Terminal Temperature Rise Test	Temperature rise characteristics and heat dissipation performance of charging gun terminals and cables under electrical current.	Ensures safety by preventing overheating under heavy usage, enhancing the long–term reliability and safety of the equipment.
5	Salt Spray Test	Corrosion resistance and anti–oxidation performance of metal terminals, screws, and grounding components.	Extends product lifespan by ensuring metal parts resist corrosion, reducing maintenance and repair costs, especially in harsh environments.

No.	Testing Items	Performance Tested	Customer Value
6	Terminal Voltage Drop Test	Conductivity and electrical contact stability of terminal contact points and cable connections.	Guarantees consistent charging performance with minimal voltage loss, improving overall reliability for end-users and reducing technical issues.
7	Tracking Test	Evaluates the resistance of insulating materials and plastic components to electrical tracking and voltage breakdown.	Ensures high safety standards by preventing electrical leakage, reducing the risk of short circuits and fires.
8	Waterproof Test	Assesses the waterproof performance of the equipment in rainy conditions.	Guarantees that the charging equipment remains functional in wet conditions, minimizing the risk of water damage and ensuring safety and reliability in all weather.
9	Plugging Durability Test	Verifies the mechanical durability and reliability of plugs and connectors during repeated insertion and extraction.	Guarantees that connectors will withstand thousands of plug-ins without damage, ensuring long-term reliability and reducing maintenance costs.
10	Wire Harness Bending Test	Tests the structural stability and fatigue resistance of wire harnesses after multiple bending cycles.	Ensures the durability and flexibility of cables under repeated bending, preventing cable failure and extending the lifespan of the charging system.

No.	Testing Items	Performance Tested	Customer Value
11	Terminal Cross-Section Analysis	Inspects the internal structural integrity of charging gun terminals and cable connection points.	Ensures strong and stable connections, reducing the likelihood of electrical failures and enhancing product reliability over extended use.
12	Flame Retardant Test	Evaluates the flame resistance of plastic housings and insulation components to ensure fire safety.	Provides assurance that the product complies with fire safety standards, reducing the risk of fires and ensuring operational safety for users.
13	Vibration and Impact Test	Assesses the vibration and impact resistance of charging modules and connectors during transport, installation, and everyday use.	Ensures that charging modules and connectors can withstand not only transportation and installation but also accidental drops during daily use, minimizing the risk of damage and extending product lifespan.
14	Drawing Force Test of Terminal and Connector	Tests the mechanical strength and insertion retention of charging gun terminals and connectors.	Guarantees strong retention of connectors, ensuring reliable operation over time, reducing wear and tear from repeated plug-ins.
15	Overcurrent Test, Short Circuit Test	Evaluates the electrical safety and short circuit protection capability of charging modules.	Ensures that the product can handle overcurrent and short circuit conditions, protecting both the equipment and users from electrical damage or failures.

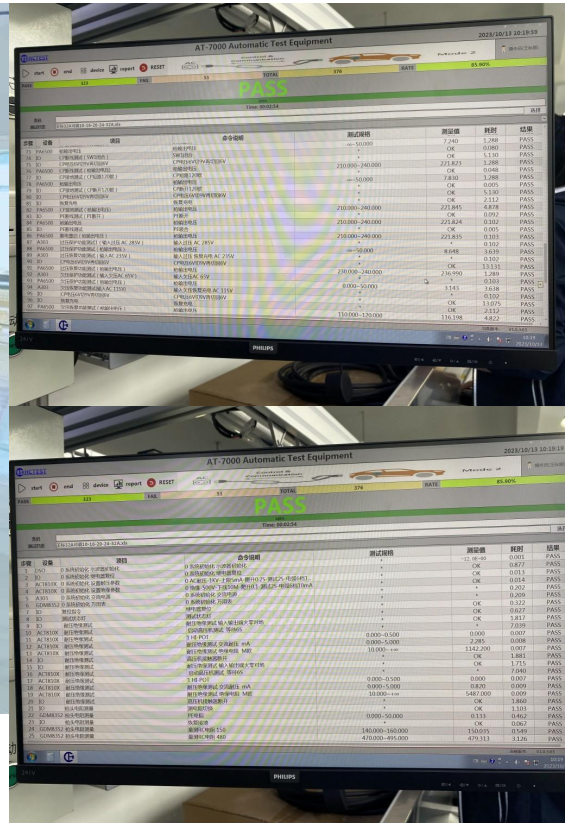
No.	Testing Items	Performance Tested	Customer Value
16	Power Supply and Voltage Fluctuation Test	Assesses the stability of the charging station's power system under varying loads.	Ensures consistent and reliable power supply under different load conditions, reducing the risk of charging interruptions and improving user experience.
17	Cable Retention Test	Verifies the fixation and safety of power cables and charging gun cables under applied force.	Ensures that cables remain securely connected during use, minimizing the risk of disconnection or damage, which enhances safety and operational stability.
18	Residual Current Testing	Ensures leakage protection functionality of charging equipment.	Protects users and equipment by ensuring leakage protection, reducing the risk of electrical hazards and increasing overall safety.
19	Press Life Endurance Test of	Tests the mechanical durability and lifetime of control buttons on charging equipment.	Ensures that control buttons can withstand frequent usage over time, reducing the need for repairs or replacements, which increases product longevity.
20	Dust Protection Test	Evaluates the dustproof capability of the equipment housing to ensure reliability in harsh environments.	Protects the internal components from dust ingress, ensuring reliable operation in challenging conditions and reducing potential breakdowns or failures.

On dedicated testing workstations, all charging equipment undergoes rigorous electrical performance and durability tests. With advanced automated testing systems, we ensure that every device maintains the highest quality standards during mass production, avoiding any performance issues.



After passing multiple tests, the real-time results for each charging device are displayed on the screen, ensuring all equipment has met strict criteria, including continuity, insulation, and electrical safety.

Through detailed data monitoring, we quickly identify and resolve any potential issues to ensure the stability and safety of every batch.



Our efficient testing system allows simultaneous testing of multiple charging devices, greatly improving production efficiency and test accuracy.
Real-time monitoring and data analysis ensure that every unit meets the highest industry performance standards.

The electrical performance testing for DC charging connecter verifies their stability and safety under high-load conditions.

By simulating real-world charging scenarios, we ensure that each charging gun delivers long-term reliable electrical performance in practical applications.

In a real vehicle charging environment, the DC gun cable is tested for stability and durability under various climate and load conditions.

Through comprehensive electrical and mechanical tests, we ensure the cable can withstand frequent use over time while maintaining an efficient and safe charging experience.

Every test we perform ensures the safety, durability, and reliability of our EV charging products.
By maintaining stringent quality standards, we help our clients reduce downtime, minimize maintenance costs, and extend the lifespan of their equipment.
The trust placed in our testing process forms the foundation for long-term partnerships, built on a commitment to exceed expectations.