



VeraSolSM

VeraSol* Product Certificate

*Previously Lighting Global Quality Assurance

Solar Power System

Expiration Date: September 30, 2028¹

Verify here: <https://data.verasol.org/products/sek/st-s50c>

This document verifies that the Solar Power System was tested according to the following test methods and conformed with the following standards:

Test methods: IEC TS 62257-9-5:2024²

Quality standards: IEC TS 62257-9-8:2025³

Testing Details

Product Name: Solar Power System

Model Number: S50C

Company Name: StarTimes Software Technology Co., Ltd.

Brand Name: StarTimes

Country of Origin: China

Company Contact: Wang Liang, wangliang@startimes.com.cn

Original QTM Sample Size: n=2

Renewal Test Conducted: n/a

Sample Procurement Method: Random warehouse sampling

Testing Laboratory: Shenzhen Academy of Metrology and Quality Inspection,
Shenzhen, Guangdong, China

Documentation

Specifications sheet with verified test results and original version of this verification:

<https://data.verasol.org/products/sek/st-s50c>

Elisa Lai
Program Lead

¹ VeraSol requires re-testing every three years or upon major product revisions, and in special cases reserves the right to grant an extension on results validity.

² <https://verasol.org/solutions/test-methods>

³ <https://verasol.org/solutions/quality-standards>

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Category	Quality Standard	Verdict
Truth in Advertising (IEC TS 62257-9-8: 5.2.1, 5.2.2, 5.2.5, 5.2.6, and 5.2.7)	All reported information is accurate and all advertised features function as advertised. Luminous flux (light output) shall deviate no more than 15 % from advertised values. Numeric ratings deviate no more than 10% from actual performance (Note: It is always acceptable if actual performance is better than advertised).	Pass
Information and Performance Reporting Requirements (IEC TS 62257-9-8: 5.2.3)	Company name and uniquely identifiable name of product or model number are presented on the packaging or user agreement. All products have a method of indicating to the consumer what components and appliances are included with the product (this description is on the packaging, user manual, user agreement, or separate documentation presented at the time of purchase). Required component specifications are displayed on the packaging or user manual. PV module label includes required specifications (applicable to modules not integrated into other components). Capacity and voltage are marked on the battery. Either one of the following options: One solar run time profile is reported on the packaging or in the user manual; OR One solar run time profile of included light points on high (used in combination) AND One solar run time for the included or advertised appliance having the greatest power consumption (used individually) PV power is reported on the product packaging or other material available prior to purchase.	Pass
PAYG Requirements (IEC TS 62257-9-8: 5.2.4)	Adequate instructions for using the pay-as-you-go (PAYG) system are included in the user manual (if present), in a user agreement, on in another location in/on the packaging. Company has declared operational details of the PAYG system.	Pass
Port Functionality and Truth-in-Advertising (IEC TS 62257-9-8: 5.3)	Ports are accurately advertised and meet voltage requirements.	Pass
Lumen Maintenance (IEC TS 62257-9-8: 5.4)	The relative light output of all samples tested is $\geq 95\%$ of initial light output at 1,000 hours (measured with the lumen maintenance test of IEC TS 62257-9-5); OR The relative light output of all samples tested is $\geq 90\%$ of initial light output at 2,000 hours (estimated with the alternate method using ANSI/IES LM-80 data defined in IEC TS 62257-9-5).	Pass

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AC-DC Power Supply Safety (IEC TS 62257-9-8: 5.5.1)	Any included AC-DC power supplies or chargers carry recognized consumer electronics safety certifications.	n/a
Hazardous Substances Ban (IEC TS 62257-9-8: 5.5.2)	No battery contains cadmium or mercury at levels greater than trace amounts.	Pass
Circuit and Overload Protection (IEC TS 62257-9-8: 5.5.3)	Products include a current-limiting mechanism to prevent irreversible damage to the system. Note: The output overload protection test may be omitted for ports on appliances that are not intended to provide power.	Pass
Wiring and Connector Safety (IEC TS 62257-9-8: 5.5.4)	Wires, cables, and connectors are appropriately sized for the expected current and voltage. Connectors typically used in the power supplies for AC mains are not used except for AC power inputs.	Pass
PV Module Safety (IEC TS 62257-9-8: 5.5.5)	PV module wiring size is sufficient and all connections and joints are robust. PV module shows no significant visual defects and markings are legible. No PV module safety hazards were observed. Meets requirements of a partial shading or hot-spot endurance test.	Pass
Requirements for Systems with Large PV Modules or Arrays (IEC TS 62257-9-8: 5.5.6)	For products with the following: total maximum solar PV power > 240 W total open-circuit voltage > 35 V total short-circuit current > 8 A meet the requirements of: IEC 61730 OR UL 61730; AND Depending on the product design, other components meet one or more of the following: IEC 60335-2-29, IEC 30009-1, OR ANSI/CAN/UL 9540; AND IEC 62109-1 or other applicable standard assessing protection from fire and electric shock	n/a
Battery Protection and Safety (IEC TS 62257-9-8: 5.6.1, 5.6.2, and 5.6.3)	Protected by an appropriate charge controller that prolongs battery life and protects the safety of the user. All samples meet the charge control requirements. Lithium batteries carry adequate safety documentation and have overcharge protection for individual cells or sets of parallel-connected cells. Batteries of included appliances must also meet this standard.	Pass

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Battery Durability (IEC TS 62257-9-8: 5.6.4)	The average capacity loss of all samples does not exceed 25% and there are no failed samples as defined in the battery durability storage test as defined in IEC TS 62257-9-5 Annex BB.	Pass
Physical and Water Ingress Protection: Testing and Sampling Requirements (IEC TS 62257-9-8: 5.7.2.1)	Connectors for permanent outdoor use meet the requirements for permanent outdoor exposure.	Pass
Physical Ingress Protection (IEC TS 62257-9-8: 5.7.2.2)	For all products : IP2X For PV modules : IP3X For fixed outdoor products : IP5X	Pass
Water Protection (IEC TS 62257-9-8: 5.7.2.3)	Degree of protection required is based on product type: Fixed separate (indoor) : No protection required Portable separate : Occasional exposure to rain Portable integrated : Frequent exposure to rain Fixed integrated (outdoor) : Permanent outdoor exposure PV modules : Outdoor rooftop installation	Pass
Drop Test Durability (IEC TS 62257-9-8: 5.7.3)	Fixed separate (indoor) : No requirement. All other products : All samples are functional after drop test; none result in dangerous failures.	Pass
Workmanship Quality (IEC TS 62257-9-8: 5.7.4)	All components and all products are rated "Good" or "Fair" for workmanship quality as defined in Annex F of IEC TS 62257-9-5. At most, one sample may fail to function when initially evaluated. No hazards or safety issues shall be present on initial inspection and none shall develop as a result of normal use.	Pass
Switch, Connector, and Strain Relief Durability (IEC TS 62257-9-8: 5.7.5 and 5.7.6)	All samples and products are functional after Switch, Connector, Gooseneck, and Strain Relief tests; none result in dangerous failures.	Pass
Outdoor Cable Durability (IEC TS 62257-9-8: 5.7.7)	Any outdoor cables are outdoor-rated and UV resistant.	Pass

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PV Overvoltage Protection (IEC TS 62257-9-8: 5.7.8)	If the battery can be easily disconnected or isolated, the system must not be damaged and the load terminals shall maintain a voltage that is safe for their intended uses.	Pass
Miswiring Protection (IEC TS 62257-9-8: 5.7.9)	The user interface is designed to minimize the likelihood of making improper connections. If improper or reversed connections can easily be made, they cause no damage to the system or harm to the user.	Pass
Non-Plug-and-Play Connections (IEC TS 62257-9-8: 5.7.10)	Systems with non-plug-and-play connections meet additional safety requirements and provide adequate tools, materials, and instructions. Applicable non plug-and-play connections have been properly tested.	n/a
Warranty (IEC TS 62257-9-8: 5.8.1)	Accurately specified and consumer-facing. Covers manufacturing defects under normal use. Minimum coverage of at least two (2) years for the full system and one (1) year for any included appliances.	Pass
Date of Manufacture (IEC TS 62257-9-8: 5.8.2)	Reported with precision to at least the month and year on the product, the packaging, or on a warranty card or other location that is accessible prior to purchase. This information may be coded within a sequential serial number.	Pass
User Manual (IEC TS 62257-9-8: 5.8.3)	User manual presents instructions for installation, use, and troubleshooting of the system. Installation instructions include appropriate placement and installation of the PV module. Basic electrical safety and system maintenance covered.	Pass
Component Replacement Methods (IEC TS 62257-9-8: 5.8.4)	Consumer information provides <u>at least one</u> of the following options: Statement that components can be replaced and provide any specifications necessary; <u>OR</u> Directions as to how the consumer can get components, including the battery, replaced at service centers; <u>OR</u> A clear, consumer-facing statement that the batteries and other components are not replaceable. A clear statement regarding the battery replacement must be included on the consumer-facing packaging or user agreement.	Pass

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Category	Quality Standard	Verdict
Port Information Requirements (IEC TS 62257-9-8: 5.8.5)	The following are reported on either the product, the packaging, or in the user manual: For all ports : • Nominal voltage or voltage range For USB "fast-charging" ports : • Maximum power For all other ports : • Maximum current or maximum power	Pass

Test Methods & Quality Standards

Products are tested according to the test methods described in IEC TS 62257-9-5:2024 and meet the requirements of IEC TS 62257-9-8:2025.

Additional details on the requirements listed above are available here:

<https://verasol.org/solutions/quality-standards>

About VeraSol

An evolution of Lighting Global Quality Assurance, VeraSol supports high-performing, durable off-grid products that expand access to modern energy services. VeraSol builds upon the strong foundation for quality assurance laid by the World Bank Group and expands its services to encompass off-grid appliances, productive use equipment, and component-based solar home systems. VeraSol is managed by CLASP in collaboration with the Schatz Energy Research Center at California State Polytechnic University, Humboldt. Foundational support is provided by the World Bank Group's Lighting Global program, UKaid, IKEA Foundation, and others. Please visit [VeraSol.org](https://verasol.org) for more information.

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Contact

info@verasol.org