

Lighting Global Product Testing Verification Sun King Torch

Expiration Date: July 31, 2022¹
Verify here: www.lightingglobal.org/products/glp-sk133

This verifies that the Sun King Torch was tested according to the Quality Test Method stipulated in edition 4 of IEC 62257-9-5² and complied with the Lighting Global Pico PV Quality Standards.³



Testing Details:

Product Name: Sun King Torch
Model Number: SK-133
Company Name: Greenlight Planet, Inc.; Greenlight Planet Hong Kong Ltd.
Country of Origin: China
Company Contact: Martin Sun, sales@greenlightplanet.com
Original QTM Sample Size: n=6
Renewal Test Conducted: no
Sample Procurement Method: Random warehouse sampling
Testing Laboratory: Shenzhen Academy of Metrology and Quality Inspection, Shenzhen, China

Documentation:

Specifications sheet with verified test results and original version of this verification:
www.lightingglobal.org/products/glp-sk133

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

² www.lightingglobal.org/quality-assurance-program/

³ www.lightingglobal.org/quality-assurance-program/our-standards/

Type Approval Sun King Torch

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| Category | Quality Standard | Verdict |
|---------------------------------|--|---------|
| Truth In Advertising | Manufacturer, Product Name and Model Number accurately specified | Pass |
| | Performance and Component Ratings accurately specified. Any description of the product that appears on the packaging, inside the package and in any media shall be truthful and accurate. No statements mislead buyers or end users about the utility of the product. Numeric ratings deviate no more than 15% from actual performance (note that it is acceptable for actual performance to exceed advertised performance). | Pass |
| | Port voltage and current specifications, if provided, are accurate. Included appliances function when connected to ports. Power output of ports is sufficient to power appliances that are advertised but not included. Ports that are intended for a function other than providing power, such as data ports, are not required to meet this standard. | Pass |
| Lumen Maintenance | Average relative light output $\geq 85\%$ of initial light output at 2,000 hours with only one sample allowed to fall below 75% OR All 6 samples maintain $\geq 95\%$ of initial light output at 1,000 hours | Pass |
| Circuit and Overload Protection | Products include a current limiting mechanism to prevent irreversible damage to the system. The mechanism is easily resettable or replaceable by the user, or automatically resets. If replaceable fuses are used for circuit protection, sizes are labeled on the product and listed in the user manual, and, if fuses are replaceable by the user, at least one spare fuse is included with the product. Included appliances are not required to meet this standard unless they have ports that are intended to provide power. | Pass |
| AC-DC Charger Safety | Any included AC-DC charger carries approval from a recognized consumer electronics safety regulator | n/a |
| Hazardous Substances Ban | No battery may contain cadmium or mercury at levels greater than trace amounts | Pass |

Type Approval Continued

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| Category | Quality Standard | Verdict |
|---------------------------------------|--|---------|
| Battery Protection | Protected by an appropriate charge controller that prolongs battery life and protects the safety of the user. 5 out of 6 samples meet the requirements outlined in Lighting Global Quality Standards. Lithium batteries carry IEC 62281, IEC 62133-2, UL 1642 or UN 38.3 certification and have overcharge protection for individual cells or sets of parallel-connected cells. Batteries of included appliances must also meet this standard. | Pass |
| Battery Durability | The average capacity loss of 6 samples does not exceed 25% and only one sample may have a capacity loss greater than 35% following the battery durability storage test as defined in IEC/TS 62257-9-5 Annex BB | Pass |
| PV Overvoltage Protection | If the battery is disconnected or isolated, the system is not damaged and the load terminals maintain a voltage that is safe for their intended uses. | Pass |
| Miswiring Protection | 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 |
| Physical Ingress Protection | IP2X for all products, IP3X (or 2X + circuit protection) for PV modules, IP5X for fixed outdoor products | Pass |
| Water Ingress Protection | 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 | Fixed separate (indoor): No requirement All other products: 5 out of 6 samples are functional after drop test; none result in dangerous failures. | Pass |
| Soldering and Electronics Workmanship | The system and any included appliances 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. | Pass |
| Mechanical Durability | All samples and included appliances are functional after Switch, Connector, Gooseneck and Strain Relief tests; none result in dangerous failures. | Pass |

Type Approval Continued

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|------------------------|---|---------|
| Minimum Warranty Terms | Accurately specified and consumer-facing; minimum coverage of at least one year on manufacturing defects under normal use, including the battery and included appliances. | Pass |
| Performance Reporting | Light output and the corresponding solar run time are reported on the product packaging for at least the brightest setting. | Pass |
| | Impact of mobile phone charging on product performance is described on packaging. | Pass |

Additional details on the requirements listed above are provided in the Lighting Global Quality Standards, available here:
www.lightingglobal.org/quality-assurance-program/our-standards/

Products are tested according to the test methods described in edition 4 of IEC/TS 62257-9-5 and meet the Lighting Global Pico-PV Quality Standards.