Lighting Global Product Testing Verification
Radiance Solar Lantern

Expiration Date: April 30, 2021[1]
Verify here: www.lightingglobal.org/products/fe-rsl2

This verifies that the Radiance Solar Lantern was tested according to the Quality Test Method stipulated in edition 4 of IEC 62257-9-5[2] and complied with the Lighting Global Pico PV Quality Standards.[3]

Testing Details:

Product Name:	Radiance Solar Lantern
Model Number:	Lm200
Company Name:	Freeplay Energy
Country of Origin:	China
Company Contact:	Viv Jenkinsvjenkins@freeplayenergy.com
Original QTM Sample Size:	n=6
Renewal Test Conducted:	yes
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/fe-rsl2

Russell Sturm
Global Head, Energy Access
Lighting Global Project Manager
International Finance Corporation

[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/

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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 ≥ 85% of initial light output at 2,000 hours with only one sample allowed to fall below 75% OR All 6 samples maintain ≥ 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

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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

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Category	Quality Standard	Verdict
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.