

Lighting Global Minimum Quality Standards

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Lighting Global maintains the Minimum Quality Standards, a set of off-grid lighting benchmarks that set a baseline level of quality, durability, and truth-in-advertising to protect consumers. The Quality Standards are summarized below and listed in more detail on the following page.

Conformance with the Quality Standards is evaluated based on results from laboratory testing according to the Quality Test Method (QTM) in the latest edition of the International Electrotechnical Commission (IEC) Technical Specification 62257-9-5. The tests are conducted at a third-party, approved test center using randomly-procured samples. Information contained in Lighting Global Standardized Specifications Sheets (SSS) is acceptable for determining conformity with the Quality Standards; any product with an up-to-date SSS is required to have passed the Quality Standards.

Summary of Minimum Quality Standards



Truth-in-Advertising: Accurate consumer-facing labeling (e.g., rated run time, light output battery capacity, PV power).

Lumen Maintenance: L85 time is greater than 2,000 hours.

Battery: Must be durable and adequately protected.

Health and Safety: Batteries may not contain mercury or cadmium, products are safe.

Durability and Quality: Appropriate protection to prevent early failure.

Warranty: At least one year of coverage.

Effective October 1, 2014 or by program announcement:

Performance Information: Run time and brightness reported.

Category ^a	Metric	Quality Standard	
<i>Truth In Advertising</i>	Manufacturer	Accurately specified	
	Product Name & Model #	Accurately specified	
	Light Output	If reported, accurately specified ^b	
	Lamp Type	If reported, accurately specified	
	Run Time	If reported, accurately specified ^b	
	Charger Rating	If reported, charger power rating accurately specified (e.g. PV power or mechanical charge time)	
	Other Aspects	If reported, accurately specified	
<i>Lumen Maintenance</i>	Lumen Maintenance at 2,000 hours	≥ 85% of specified light output at 2,000 hours OR ≥ 95% of specified light output at 1,000 hours (depreciated at highest setting)	
<i>Health and Safety</i>	AC-DC Charger Safety	Any <i>included</i> AC-DC charger carries approval from a recognized consumer electronics safety regulator ^c	
	Hazardous Substances Ban	No battery may contain cadmium or mercury at levels greater than trace amounts	
<i>Battery</i>	Battery Protection	Protected by an appropriate charge controller that prolongs battery life and protects the safety of the user	
	Battery Durability	5 of 6 samples must pass the battery storage durability test as defined in IEC 62257-9-5 Annex BB.	
<i>Quality and Durability</i>	Physical Ingress Protection	<i>Fixed Outdoor</i>	IP5x
		<i>Others</i>	IP2x
		<i>All PV Modules</i>	IP4x (effective June 2014)
	Water Protection ^d	<i>Fixed Indoor</i>	No requirement
		<i>Portable Separate</i>	Occasional rain: IP×1 OR <i>technical equivalent</i> OR <i>with warning label</i>
		<i>Portable Integrated</i>	Frequent rain: IP×3 OR <i>technical equivalent</i> OR IP×1 / <i>equivalent</i> + <i>warning label</i>
		<i>Fixed Outdoor</i>	Permanent outdoor exposure: IP×5 OR IP×3 AND <i>circuit protection</i>
		<i>All PV Modules</i>	Outdoor rooftop installation (effective June 2014): <i>Modified IP×4</i> OR <i>circuit protection</i>
	Drop Test	<i>Fixed Indoor</i>	No requirement
		<i>Others</i>	5 out of 6 samples are functional after drop test (1 m onto concrete); None result in dangerous failures ^e
	Soldering and Electronics Quality	Pass soldering and electronics inspection (without endemic bad joints, pinched wires, etc.)	
	Switch, Gooseneck, Connector, and Strain Relief Durability	5 out of 6 samples are functional after 1000 cycles (switch, connector, gooseneck tests); 5 out of 6 samples are functional (strain relief test); None result in dangerous failures (all tests)	
<i>Warranty</i>	Minimum Warranty Terms	Accurately specified and consumer-facing; Minimum coverage of at least one year on manufacturing defects under normal use, including the battery. Details are noted below.	

Warranty Requirements Details: To meet the Standard, Lighting Global requires that the following guidelines be followed when presenting and offering a warranty:

- The minimum warranty period is one year from the time of purchase by the end-user.
- The warranty must cover the entire product, including the battery.
- The warranty must cover, at a minimum, manufacturing defects that impede operation under normal use and protection from early component failure.
- The consumer-facing warranty must explain how the consumer can access the warranty (return to point of purchase/distributor/service center, call or SMS a number, etc.), how the warranty will be executed (repair, replacement, etc.) and should advise the customer to inquire about the warranty terms prior to purchase.
- Full terms of the warranty must be available to the consumer in writing in a way that enables the end user to verify and understand the terms of the warranty prior to purchase. The written information should be in a regionally appropriate language. Consumer-facing warranties could be included on the product box or on a warranty card that is easily accessed prior to purchase.

Note that this is a *Minimum* Standard and it is up to the discretion of manufacturers and distribution partners to exceed the basic protection offered in these terms to differentiate the best quality products in the market.

Other Notes:

^a If a product fails on any aspects at any point during testing, even if not during the specific test used to evaluate that aspect, the product will still fail on the basis of that aspect. For example, if a switch stops functioning on a product while its luminous flux is being measured, this failure would be included in the count of failures for the switch test.

^b Effective October 1, 2014 (or by program announcement), all manufacturers will be required to present performance metrics (brightness/light output and runtime) on product packaging and other relevant consumer-facing materials to enable consumers and distributors to compare products and make educated choices.

^c Approved marks: UL or similar

^d There are two alternative Water Protection compliance pathways allowed by Lighting Global (i.e. these are alternatives to meeting the IP class requirements). In one alternative (“technical equivalent”), the whole system of protection (ingress protection + electronic circuit protection + manufacturing QC) is evaluated to determine if the protection level is equivalent to that of a product with the required level of ingress protection. In another alternative (“warning label”) there are clear messages to the consumer about the degree of protection from water. The warning level messages must meet Lighting Global program guidelines. The pathways and associated guidelines are described in greater detail in a document titled “Integrated Water Protection Assessment.”

^e Dangerous failures are defined as those which may expose the user to physical harm, such as harmful chemicals, heat (e.g., from an electrical short or fire), or sharp materials (e.g. broken glass).