



Performance Reporting Requirements

Version 1.0

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This document provides guidelines for performance reporting requirements for products that meet the Lighting Global Quality Standards¹. The performance-reporting framework provides buyers throughout the supply chain with standardized information about key metrics to make purchasing decisions, while allowing manufacturers and suppliers the flexibility to provide this information in innovative and product-specific ways.

The performance reporting requirements are included as part of the Quality Standards so that any product supported by the program will need to adhere to the reporting policy.

Guidelines for this policy are listed below:

1. All manufacturers are required to accurately present performance metrics on product packaging and other relevant consumer-facing materials to enable retail buyers and distributors to compare products and make educated choices.

The required performance metrics required on the packaging for pico-products² are:

- light output (or brightness) **in lumens**;
- daily solar runtime **in hours per day**; and
- a qualitative description of the impact of mobile phone charging or other auxiliary appliances on product performance

The name of the metric and the units must be included, for example, "Light Output on High: 75 lm" or "Brightness on highest setting: 75 lumens." A number without the units or an appropriate description is not acceptable.

For products that provide multiple brightness settings, these metrics **must be reported for at least the brightest setting**. Performance metrics for other settings may be

¹ Products may be verified by meeting the requirements described in this policy through 31 December 2020. VeraSol has begun referencing *IEC TS 62257-9-8: Integrated systems – Requirements for stand-alone renewable energy products with power ratings less than or equal to 350 W* in place of the Lighting Global Quality Standards. As of 1 January 2021, products will be required to meet IEC TS 62257-9-8 requirements, described in full here: <http://verasol.org/publications/information-requirements>. Refer to <https://verasol.org/updates/transition-to-iec-ts-62257-9-8> for detailed transition information. See the [Change Log for Quality Standards](#) for details on new requirements and the differences between the Standards.

² Pico-products typically have a peak power rating of less than or equal to 10 W.

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reported, and reported metrics for all settings may be subject to verification through QTM, MCM or renewal testing. As with all truth-in-advertising aspects, the reported values for each metric must be no more than 15% greater than the values determined through QTM testing as described in IEC/TS 62257-9-5.

For products with included light points that have their own battery (often referred to as torches, portable lamps, or lanterns), the light output of all light points must be reported, either separately or as part of the overall light output of the product. The solar run time for the “brightest setting” must include all the light points included in the product.³ In practice, this will require reporting two (or more) separate run times: (i) the solar run time for the main product on the brightest setting and (ii) the separate solar run time for the portable light points on their brightest settings. In practice, this may require reporting two (or more) separate run times: the solar run time for the main product on the brightest setting and the separate solar run time for the portable light points on their brightest settings, after receiving a charge in which the total energy is split between the main product and the portable light points. These two (or more) solar run times must be reported on the packaging and are checked using the energy service calculations from IEC 62257-9-5.

Manufacturers have the option to also present comparative measures of brightness, though they must also report the value in lumens. In cases where manufacturers or distributors choose to provide comparative measures of brightness in addition to reporting the value in lumens, comparisons must be standardized to reflect the light output as reported in lumens. Allowable equivalents include:

- 1 candle or 1 kerosene wick lamp = 10 lumens
- 1 hurricane lamp = 40 lumens
- Incandescent bulb = 900 lumens (this is based on a 60 W bulb)
- Compact Fluorescent bulb (CFL) = 900 lumens (this is based on a 13 W bulb)⁴

For example, a 45-lumen product could advertise that it is “brighter than 4 candles” or “as bright as a hurricane lamp.” Other standardized comparisons may be included in consultation with the Lighting Global team.

The required performance metric for solar home system kits⁵ is:

- PV module power **in watts**
2. Pico-products¹ that offer or advertise mobile phone charging or other auxiliary services (such as a radio) must add an informational element in the consumer-facing packaging (text

³ Only portable lights brighter than 15 lumens are required to have their brightness and solar run time reported. Components considered to be non-lighting appliances, such as torches with light output <15 lumens and radios, do not need to state their solar run time, but their qualitative impact on the runtime must be noted as described in guideline 2

⁴ These values are based on a range of literature sources, including:

- Mills, E. (2003). Technical and economic performance analysis of kerosene lamps and alternative approaches to illumination in developing countries. Lawrence Berkeley National Laboratory. <https://escholarship.org/uc/item/42j7337w>
- van der Plas, R. and A. de Graaff. (1988). A comparison of lamps for domestic lighting in developing countries. Industry and Energy Department Working Paper, Energy Services Paper No. 6
- Nieuwenhout, F., P. van de Rijt, and E. Wiggelinkhuizen. (1998). Rural lighting services: A comparison of lamps for domestic lighting in developing countries. Energieonderzoek Centrum, Netherlands.
- US Department of Energy. (2013). Lighting Basics. <http://energy.gov/eere/energybasics/articles/lighting-basics>

Note: the hurricane lamp refers to an unpressurized lamp; pressurized mantle lamps can provide upward of 500 lm of light.

⁵ For the purposes of VeraSol, solar home system kits have peak power ratings greater than 10 W up to 350 W.

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or graphic) that describes the effect of mobile phone charging and any other included service on product performance. This does not need to be quantitative, but it is intended to ensure that the consumer is aware of the tradeoff between using the available stored energy for lighting or other services. A statement such as, “mobile phone charging can reduce the daily runtime of the lights,” or “charging mobile phones or using the radio will result in shorter run times for the lights,” would be acceptable. The Lighting Global team will be available to review statements or graphics prior printing to advise the manufacturer on whether the graphic would meet the reporting requirement.

3. Solar Home System Kits must provide a clear statement regarding battery replacement on the consumer-facing packaging. Accepted phrases are:
 - Battery is field replaceable
 - Battery may be serviced by manufacturer
 - Battery is not replaceable

Additional requirements regarding consumer information that must be presented in the user manual are outlined in the Consumer Information section of the Lighting Global Quality Standards for Solar Home System Kits.

4. All products (and separately packaged components) must present the company name and a uniquely identifiable product name and/or model number on the product packaging. Note: The company name, product name(s) and model number(s) on the packaging of the sampled product(s) will be the name(s) and model number(s) used on the test report, Standardized Specification Sheet and VeraSol certificate.⁶
5. As noted in the Quality Standards, products must offer and present a consumer-facing warranty. The consumer-facing warranty terms may be on the box, or on a card or paper that can be accessed prior to purchase, or some combination thereof. As per the existing requirements outlined in the Quality Standards, the warranty must meet the following conditions as specified in the table below.

Warranty Requirements for All Products	
Minimum coverage requirements	The warranty must cover, at a minimum, manufacturing defects that impede operation under normal use and protection from early component failure.
Access requirements	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.

⁶ Changes to the product name or model number on the test report can only be made following an additional sampling and visual screening at the test lab. Changes to the product name and model number on the Standardized Specification Sheet require submission of additional documentation to VeraSol. For changes to the company name, see our [Co-branding Policy](#).

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Availability	The consumer-facing 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 user agreement or warranty card that is easily accessed prior to purchase.
Requirements for Pico Products (≤ 10 W PV power)	
Minimum requirements	In addition to the above requirements, the <i>minimum</i> warranty period for pico-products is: <ul style="list-style-type: none"> ○ One year from the time of purchase by the end-user. The warranty must cover the entire product, including the battery.
Requirements for Solar Home System Products (10 -350 W PV power)	
Minimum requirements	In addition to the requirements for all products, specified above, the <i>minimum</i> warranty periods from the time of purchase by the end-user for solar home system kits ¹ are: <ul style="list-style-type: none"> ○ Two years for the main system, including the PV module, control box, cables and lights ○ Two years for the system battery. (Note that batteries included within appliances are only required to meet the one-year warranty). The battery warranty is assumed to include a capacity retention figure of at least 80% capacity at two years, benchmarked to the rated battery capacity. ○ 1 year for all lighting appliances that include their own batteries (including pico-power lights) and all non-lighting appliances, USB charging adapters, and similar accessories.

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 their products from others that are available in the market.

6. The manufacturer may choose how to present the required performance metrics, mobile-charging information, battery replacement information, and warranty terms, so long as the presentation adheres to the guidelines above and the design requirements below:
 - The following items are required:
 - All information must be presented in a clear, unambiguous manner. No elements should be misleading.
 - The information must have at least the same style and prominence as the other messages on the packaging.
 - The label /information must be sized such that:
 - The text is at least 10-point font
 - Any graphics are clearly visible
 - There must be sufficient contrast between the text / graphics and background to be clearly legible.
 - The information must be placed on the outside of the package in at least one prominent location (note that warranty terms may be included on a warranty card or user agreement rather than on-the-box). In cases where companies

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install the products for the customer and the product packaging is not designed to be consumer facing, the required elements may instead be included in a prominent location in a user agreement or other documentation the consumer reviews prior to purchase. All information must be available to customers prior to sale.

- The following are strongly suggested:
 - The text and graphic elements should be simple and understandable.
 - The information should be presented graphically and/or using an appropriate language for the region(s) where the product will be sold.

- 7. These requirements are considered part of the Quality Standards, and product packaging will need to comply with the performance reporting requirements prior to meeting the Quality Standards and being eligible for program support. Not meeting the performance reporting requirements will be treated as a “Conditional Pass Pending Correction” as described in the VeraSol [Conditional Pass Policy](#).

Conclusion

This performance reporting policy is intended to ensure that all those making purchasing decisions in the market have access to the necessary information to make well-informed decisions. Further, the policy is designed to allow manufacturers and other suppliers with the ability to provide this critical information in whatever way best suits their product design, product attributes, and marketing plans.

About VeraSol

An evolution of Lighting Global Quality Assurance, the VeraSol program 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. Like Lighting Global Quality Assurance, the VeraSol program is managed by CLASP in collaboration with the Schatz Energy Research Center at Humboldt State University. Foundational support is provided by the World Bank Group’s Lighting Global program, UKaid, IKEA Foundation, Good Energies Foundation, and others.

Please visit VeraSol.org for more information.