



Technical Notes

IEC Adopts Quality Standards for Standalone Solar Energy Kits

THE IEC WILL SOON PUBLISH QUALITY STANDARDS FOR PICO-SOLAR PRODUCTS AND SOLAR HOME SYSTEM KITS. THIS TECHNICAL NOTE SUMMARIZES THE TRANSITION FROM THE LIGHTING GLOBAL QUALITY STANDARDS TO THE NEW IEC STANDARDS AND OUTLINES IMPORTANT CONSIDERATIONS FOR GOVERNMENTS AND OTHER INSTITUTIONS.

Summary

The International Electrotechnical Commission is expected to publish quality standards for pico-solar products and solar home system kits (standalone solar energy kits) by mid-2020.

These standards will replace the Lighting Global Quality Standards. Lighting Global Quality Assurance (now VeraSol) will transition to evaluating standalone solar energy kits to the new IEC standards. Governments and other institutions are encouraged to do the same.

While products that conform with the IEC standards will likely start entering markets in late 2020, we expect that products evaluated to the Lighting Global Quality Standards will continue to be produced and marketed until late 2022.

After that time, it would be appropriate to require that all newly produced standalone solar energy kits meet the IEC quality standards.

Governments and other institutions that want to use the latest QA framework in their programs are advised to require that standalone solar energy kits:

- **Be tested by an ISO 17025-accredited lab according to IEC TS 62257-9-5 and**
- **Meet the quality standards in IEC TS 62257-9-8 or the Lighting Global Quality Standards.**

These are the core requirements for VeraSol/Lighting Global quality verification. Thus, a valid certificate issued by this program is a reliable and straightforward way to demonstrate compliance with these requirements.

With these requirements in place, backed by appropriate measures to ensure compliance,

governments and other institutions can promote good-quality products and protect consumers from poor-quality products for years to come.

IEC Adopts Quality Standards for Standalone Solar Energy Kits

Later this year, the International Electrotechnical Commission (IEC), a leading international standards organization, will publish quality standards for standalone solar energy kits for the first time. This development opens the door to the widespread national adoption of these standards and will boost consumer protection efforts.

In January, the members of IEC Technical Committee 82 voted unanimously to approve the publication of Technical Specification (TS) 62257-9-8, which contains quality standards for pico-solar products and solar home system (SHS) kits with PV modules rated up to 350 watts. These standards are an updated version of the Lighting Global Quality Standards, developed by the World Bank Group and used widely around the world. Together with the corresponding test methods, IEC TS 62257-9-5, these quality standards form the foundation for quality in the off-grid solar sector.¹

One of the essential services Lighting Global Quality Assurance (now VeraSol) provides is evaluating standalone solar energy kits and

maintaining a public listing of the products that meet the Lighting Global Quality Standards. Private companies, governments, and other institutions have relied on this definitive list of good-quality products for many years. The VeraSol team will begin evaluating products using the newly adopted IEC quality standards (IEC TS 62257-9-8) later this year. These standards will replace the Lighting Global Quality Standards. In addition, the VeraSol team will begin providing certification services under the VeraSol brand name, that is, products that meet the IEC quality standards will be issued VeraSol certificates.² See the “About VeraSol and Lighting Global” box on page 5 for more on the VeraSol program.

Table 1 (page 3) summarizes three key pieces of the internationally recognized QA framework for standalone solar energy kits and the transitions taking place in 2020.

Many institutions around the world use the Lighting Global Quality Assurance framework to ensure quality when promoting off-grid solar products. Several governments have gone further and have adopted compulsory quality standards to keep low-quality products out of the market. Because IEC standards are accepted around the world, many national governments will likely adopt the IEC test methods and quality standards in the coming years.

¹ The most recent version of the test methods is Edition 4 (2018), which can be purchased from the IEC webstore. The quality standards, IEC TS 62257-9-8, will also be available for purchase following publication.

² Other certification bodies may also evaluate products using the IEC quality standards and issue certificates for products they deem to meet the standards. We recommend that stakeholders continue to use Lighting Global/VeraSol quality verification in their conformity assessment processes.

Table 1: The quality assurance framework for standalone solar energy kits up to 350 watts peak

	DESCRIPTION	DOCUMENTATION	
		NOW	FUTURE
TEST METHODS	Provides detailed instructions for carrying out product sampling and testing	IEC TS 62257-9-5	IEC TS 62257-9-5 (no change)
QUALITY STANDARDS	Specifies the minimum criteria that a quality product must meet	Lighting Global Quality Standards	IEC TS 62257-9-8
QUALITY VERIFICATION, OR "CERTIFICATION"	Gives assurance that a product meets the quality standards	Lighting Global Verification Letter	VeraSol Certificate

An internationally harmonized approach to product quality benefits stakeholders throughout the value chain. With harmonized standards, suppliers can design, manufacture, and test their new products once, and then sell those products in multiple markets. This enables companies to get innovative new products to market faster and at lower cost, yielding big benefits for consumers.

Consumers today benefit from having access to a wide variety of products that meet the Lighting Global Quality Standards. There are now approximately 165 Lighting Global Quality Verified products on the market with combined annual sales of more than 6 million units across more than 80 countries.³ Therefore, in the transition to the IEC quality standards, it is critically important that governments and other institutions take care not to disrupt the flow of good-quality products into their markets.

It will take time to complete the transition to the IEC quality standards. Test results for standalone solar energy kits are valid for two years (per IEC TS 62257-9-8). To minimize costs, manufacturers with quality-verified products typically do not get their products retested until the end of the two-year period. When a product is retested, it is held to the standards in effect at that time. Thus, we anticipate that products evaluated to the Lighting Global Quality Standards will be produced until late 2022.⁴ We strongly recommend that governments and other institutions continue to promote these products in their programs and allow them to be traded in markets until that time. After 2022, it would be appropriate to require that all newly produced standalone solar energy kits meet the IEC quality standards.

Products tested and evaluated to the IEC quality standards should start entering markets in late

³ GOGLA, 'Global Off-Grid Solar Market Report Database', in partnership with Lighting Global and Efficiency for Access Coalition

⁴ We forecast that test results for approximately 135 quality-verified products will remain valid into 2021 and 75 quality-verified products will remain valid into 2022.

2020. The quality standards, which are expected to be published in mid-2020, include two new PV module safety tests and a few requirements beyond those included in the Lighting Global Quality Standards, including some focused on lithium battery safety. The QA team is working directly with test labs to familiarize them with the new IEC quality standards so they can start conducting the new tests as soon as possible after publication. We have produced three documents to serve as resources for stakeholders:

- [Summary of the new quality standards](#) (IEC TS 62257-9-8:2020)
- [Change Log for Quality Standards](#), showing how the new standards differ from the Lighting Global Quality Standards
- [Summary of Stakeholder Comments](#) submitted in 2019 on proposed changes to the standards

The QA team provides third-party certification for standalone solar energy kits. Products that meet the Lighting Global Quality Standards are listed on the products page on www.lightingglobal.org. Beginning in mid-2020, all of the products we certify—whether evaluated to the Lighting Global Quality Standards or the new IEC quality standards—will be listed in one convenient place, on verasol.org. The list will also include Lighting Global Quality Verified products with valid verification letters issued prior to the transition to VeraSol.

Figure 1: Timeline of transition to IEC quality standards



*Estimated

Recommendations

Governments and other institutions that want to use the latest QA framework in their programs are advised to require that products:

- 1. Be tested by an ISO 17025–accredited lab according to IEC TS 62257–9–5 and**
- 2. Meet the quality standards in IEC TS 62257–9–8 or the Lighting Global Quality Standards.⁵**

These are the core requirements for VeraSol/Lighting Global quality verification. Thus, a valid certificate issued by this program is a reliable and straightforward way to demonstrate compliance with these requirements.

With these requirements in place, backed by appropriate measures to ensure compliance, governments and other institutions can promote good-quality products and protect consumers from poor-quality products for years to come.

Throughout the transition, you can count on VeraSol to keep you informed about the latest developments related to quality assurance for off-grid solar products. If you have questions, visit our [FAQ page](#). If you have other questions or want to speak with an expert about the implications of these transitions for your programs, please [contact us](#).

BOX 1: ABOUT VERASOL AND LIGHTING GLOBAL

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, and others. Please visit [VeraSol.org](#) for more information.

About Lighting Global

Lighting Global is the World Bank Group's initiative to rapidly increase access to off-grid solar energy for the 840 million people living without grid electricity world-wide. For nearly a decade, product suppliers, buyers, and other market intermediaries have turned to the initiative's quality assurance program to identify good-quality off-grid solar lighting products.

⁵ As noted above, the Lighting Global Quality Standards will remain relevant only through 2022; after that time this

requirement can be simplified to refer only to the IEC quality standards.