



VeraSolSM

Product Sampling Policy

Version 3.1

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Background

The Quality Testing Method (QTM), renewal test method, and market check method described in the test methods used for testing solar products, IEC 62257-9-5:2024 (also written as IEC/TS 62257-9-5 Ed.5), provide valuable third-party information on product performance and quality to stakeholders across the value and decision chain in the off-grid solar market. Proper sample procurement – the first step in the testing process – is critical for maintaining the fairness and credibility of testing.

The goals of product sample procurement are:

- To randomly select the number of product samples needed for testing that are representative of those entering the retail market.
- To ensure the samples are representative of a commercial production run.
- To ensure no bias is introduced from preferential pre-selection (“cherry-picking”) on the part of manufacturers, companies, warehouses, or distributors.
- To efficiently ship the samples from the procurement location to the test lab(s) to minimize time in transit and to avoid delays in the testing process.

To meet those goals, VeraSol and approved third-party sampling agents will use one of two random methods for sampling:

- (i) retail sampling; or
- (ii) warehouse sampling

The product samples should be selected and shipped to the test lab according to the random sampling guidelines outlined in Annex E of IEC/TS 62257-9-5. Retail sampling is the preferred sampling method for market check testing because it provides the most representative view of product performance and quality from the perspective of end-users. Warehouse sampling is also acceptable in cases where retail sampling is infeasible and is commonly used for QTM testing when the test labs are not located near the retail markets. For warehouse sampling, the cost of sampling is included in the VeraSol certification fees paid by the company, and the company is responsible for the costs of shipping the products to the test lab. The company provides the samples at no cost

to VeraSol. When conducting retail sampling for a two-sample primary market check test, VeraSol typically procures the samples at no additional cost to the company. In all other cases of retail sampling, the company may pay into a fund for sample procurement through the VeraSol certification fees or may be required to reimburse VeraSol for the full cost of procuring and shipping the samples.

Retail Sampling

In the case of retail sampling, agents will select and purchase samples from a variety of retail outlets in the market. No more than six (6) samples should be purchased at a given location and it is preferable to procure samples from a geographically diverse set of outlets. VeraSol may require companies or distributors to provide a list of no fewer than 10 outlets where product samples are available for sale; sampling locations may be chosen from a subset of those outlets or from others that are independently identified.

Retail sampling is often cost-prohibitive, so it is acceptable to use warehouse sampling instead; this can be true even when retail sampling would be feasible. The choice of retail or warehouse sampling is left to VeraSol's discretion.

Warehouse Sampling

Warehouse sampling is a process in which agents select representative products from among those that are stored at a warehouse, distributorship, factory, or other bulk storage location.

The agent will make email or telephone contact with representatives at the sampling location at least 24 hours before sampling takes place. The following general criteria must be satisfied for warehouse sampling to take place:

1. The actual **sampling location should be the main bulk storage location in the region and** must be clearly specified prior to undertaking – unless the sampling agent specifically asks for an alternative arrangement.
2. Every relevant product (i.e., those that are the model being sampled) at the location must be made available to the sampling agent.
3. Stock available for sampling must meet **minimum allowable stock** requirements. *If the minimum allowable stock is not available at the time of sampling, the samples will not be collected, sampling will be rescheduled, and additional sampling fees will apply.* The minimum stock requirements for Pico and SHS products are detailed in the "Stock and Sample Requirements" section below.
4. **The samples to choose from should not be isolated from the general stock of the warehouse** (e.g., stacked in the front office). While it is acceptable and welcome for personnel at the warehouse to facilitate the sampling process, the agent should have sufficient access to the facility to ensure that the sampling criteria are being met.

The following practices are **not acceptable**:

- Setting aside or isolating the minimum number of stock required for sampling. (The sampling agent needs access to all the stock present.)
- Requesting the agent to sample from a specified location or subset of the stock in the warehouse, such as from the latest production run.
- Moving a subset of stock to an alternative site (e.g., the sales office) for sampling. (The sampling location should be the typical bulk storage location in the region.)

Once the agent is satisfied the sampling criteria are met, they will use random selection procedures to pick samples from among those that are available. The procedures generally require that multiple cartons or boxes be opened with a subset of the contents chosen as samples. This ensures the goals of product sampling are met.

Stock and Sample Number Requirements

The required number of samples for testing is dependent on the number and type of tests required. Guidance below serves as a general guide to the required number of samples; however, the exact number of samples required for testing will be specified in the test plan prepared by VeraSol prior to testing.

Standard Option

For QTM testing, pico products are typically sampled as complete kits and 9 samples are required. The samples shall be collected from a stock of at least 150 total available products. Generally, this will provide two samples for each for two parallel batches, one for protection testing, one for IP testing plus three spares. Spares or the “least modified” samples at the end of testing may be used for the mechanical durability tests

Alternative Component Sampling

To minimize the in-kind cost of products and shipping costs for larger products, an alternative to sampling 9 complete kits is to sample the following numbers of individual components, along with the packaging for the kit. Products can be sampled on a component basis at the discretion of VeraSol. Though it is more complicated, if a company prefers that components (rather than full kits) be sampled, the following guidelines will be used:

- The samples shall be collected from a stock of at least 150 total available components for each component type.
- **PV module: 5** (2 for general testing, 1 for IP testing and 2 spares).
 - Two additional samples shall be collected if the partial shading test is required.
 - One additional sample shall be collected if the bending and folding of PV modules test is required.
 - If modules meet all requirements of IEC 61215-1 and IEC 61215-2, only 3 samples are required – 2 for general testing (I-V characteristics testing and wiring inspection) and to provide connectors for the solar charge test, and 1 spare. If modules

referencing IEC 61215-1 and IEC 61215-2 will also undergo strain relief testing, an additional spare sample should be collected.

- **PV mounting material** (if applicable): **1** (for IP testing)
- **Control box with battery**: **9** (2 for general testing, 2 for lumen maintenance/battery durability, 1 for protection testing, 1 for IP testing, and 3 spares).
- **Included lighting appliances: a minimum of 9 of each type**, using the following formula for cases where more than two lights of a given type are included in with the product: 5 of each type, plus an additional 2 multiplied by the number of that light type that are included in the kit. (2 are for general testing, 2 for lumen maintenance, 2 for mechanical durability, 1 for IP testing and 2 spares).

EXAMPLE 1

If a product includes five light points, three of Type A and two of Type B, select 11 samples of Type A and 9 samples of Type B. If a product only includes one of each light type, select 9 samples of each type.

- **Included non-lighting appliances** (or lighting appliances that are not required to undergo the lighting tests): **7 of each type** (2 for general testing, 2 for mechanical durability, 1 for IP testing, and 2 spares).
- **Included lighting appliance with its own battery**: **9 of each type** (2 for general testing, 2 for lumen maintenance, 2 for mechanical durability, 1 for IP testing and 2 spares).

These recommendations assume that 2 to 3 spares are sufficient to conduct the potentially destructive tests, such as the drop test, miswiring test, output overvoltage protection test, PV overvoltage protection test, and switches and connectors test. If additional samples are required, they may be procured during the testing process.

Confidentiality

VeraSol personnel and appointed third-party sampling agents by VeraSol will ensure information gleaned during product sampling remains confidential, with the exception of information that is required for record keeping about the sampling process by VeraSol and the necessary information provided to the testing laboratory for the purpose of conducting testing.

Sampling Preparation Tips

Proper sample procurement is an essential component of IEC 62257-9-5 testing. One of the goals of product sample procurement is to procure and efficiently ship the samples from the procurement location to the test lab(s). **Some tips to ensure sampling goes well and testing can get underway quickly are:**

- 1) Ensure the sampling location has at least the minimum required stock of products available for sampling. *If the minimum allowable stock is not available at the time of sampling, the samples will not be collected, sampling will be rescheduled, and additional sampling fees will apply.*

Product Sampling Policy

In the case of random warehouse sampling, agents select representative products from among those stored at a warehouse, distributorship, factory, or other bulk storage locations.

- 2) Notify the procurement warehouse's manager of the product sampling.

VeraSol personnel have direct contact with one or more representatives in your company who may not be located at the warehouse or sampling location. Communications issues can then arise because the warehouse (sampling location's) personnel are unaware that a sampling agent will be contacting them to schedule a random sampling of a particular product for VeraSol certification testing. This generally results in delayed sample procurement and shipping, which leads to a later start date for the testing. To avoid this issue, please provide VeraSol with the sampling location's representative's (person who will accompany sampling agent) contact information and notify them and their manager that the sampling agent will be in contact with them soon to schedule the sampling.

- 3) Be ready to ship the products to the designated test laboratory(-ies) on the same day the products are sampled.

It is the company's responsibility to ship the product samples to the laboratory(-ies) that will conduct the sampling. This means that all of the shipping costs (including duties, fees, etc.) are the responsibility of the company. Once the sampling agent has selected the required number of units, he/she will record the serial numbers of the samples (if available), ensure the samples are packaged for shipping, and then sign across the packaging tape to ensure no further tampering occurs with the samples before they are shipped. After this, the company should plan to get the package(s) shipped out to the test laboratory(-ies) on the same day.

The company is expected to complete all questions in the sampling survey, which can be accessed through this link: <https://airtable.com/app8cmLQMODI6MKcL/shrZJ5HSISmqPgAMS>

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 California State Polytechnic University, Humboldt. 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