VeraSol

Technical Notes

Valid Evidence for Assessing Conformity with IEC TS 62257-9-8

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THIS IS A GUIDANCE DOCUMENT FOR THOSE THAT REVIEW AND ASSESS REPORTS OF LABORATORY TESTING TO IEC 62257-9-5, INCLUDING COMPANIES THAT PROVIDE PRE-SHIPMENT VERIFICATION OF CONFORMITY (PVOC) SERVICES. WE RECOMMEND THESE PARTIES USE THIS DOCUMENT WHEN REVIEWING TEST REPORTS FOR STANDALONE SOLAR ENERGY KITS THAT HAVE UNDERGONE QUALITY TESTING TO ASSESS COMPLIANCE WITH IEC TS 62257-9-8 OR THE LIGHTING GLOBAL QUALITY STANDARDS.

SUMMARY

IEC Technical Specification 62257-9-8 contains the internationally-recognized quality standards for standalone solar energy kits, including pico-solar (pico) products and solar home system (SHS) kits with solar modules rated up to 350 Wp.

Conformity with these quality standards is assessed using reports generated from testing conducted using the methods outlined in IEC TS 62257-9-5. **A valid test report must be reviewed to determine whether a product conforms with the quality standards in IEC TS 62257-9-8.**[1]

Fortunately, a number of simple indicators exist to determine whether a test report is valid. In this document, seven key indicators of test report validity are considered.

Key elements to assess include:

- Is the product in the test report the same product in question?
- Were the correct test methods used?
- Has the test report expired?
- What sample size was used for the tests?
- How were the samples procured?
- Was the report issued by a laboratory that is accredited to carry out the tests?

[1] IEC 62257-9-8 is based largely on the Lighting Global Quality Standards for pico-solar products and solar home system kits. For governments and programs that adopt or reference IEC 62257-9-8. VeraSol recommends continued acceptance of products that meet the Lighting Global Quality Standards during the two-year validity of the IEC 62257-9-5 test results for the product.

- Were all the necessary tests covered in the report?

You can learn more about the quality standards and how this assessment is made here.

HOW TO EVALUATE KEY ELEMENTS

For each key item listed in Table 1 (page 3), there is a description of how to assess it and why the item is important. Should a test report be determined invalid due to any of the following items, the test report cannot be used to determine if the product meets the requirements of IEC TS 62257-9-8, and no further review is needed. Should a test report contain the following necessary requirements, the test results within may then be evaluated to IEC TS 62257-9-8. You may reach out to the VeraSol team for further guidance and evaluation via email at testing@verasol.org.

Further, if the product in question has been certified through VeraSol, it may be found here. If a product is listed on the VeraSol website, this evaluation has already been performed by qualified personnel using a valid IEC 62257-9-5 test report. Products listed on the website are those that meet the Quality Standards. Additionally, the website listing and verification letter may be used as a resource for conformity assessment.

PRODUCT SIZE & TESTING TYPE

Prior to checking each of the items outlined in Table 1, use the test report to determine the product size classification and type of testing performed.

Is the product considered "Size A" or "Size B"? IEC 62257-9-8 defines "Size A" as a product with a solar module / array that is 10 W and smaller and "Size B" as having a solar module / array that is larger than 10W and less than or equal to 350 W. VeraSol refers to these different sizes as pico-solar products and SHS kits, respectively.

Which type of testing did the product undergo? Relevant testing types include: Quality Test Method (QTM), Accelerated Verification Method (AVM), and Renewal Testing according to the Market Check Method. Here you may find a description of all test methods included in IEC 62257-9-8, which additionally includes the Market Check Test Method (MCM) and the Initial Screening Method (ISM).

NEXT STEPS

After an initial review of the test report, there are two possible next steps.

1. If the test report was determined invalid based upon a lack in any of the above requirements (also included in Table 1), the test report **cannot be accepted.**

2. If the test report contains all requirements listed in Table 1, then the test results may be further evaluated to IEC TS 62257-9-8. As noted previously, this evaluation should be carried out by a qualified technical expert with the training needed to carry out a valid and accurate assessment.

For more resources to help guide the evaluations done during this process, please see the VeraSol Quality Standards and program policies webpages. Additionally, you may reach out to the VeraSol team for more guidance via email at testing@verasol.org.

TABLE 1: SUMMARY OF TEST REPORT REVIEW ITEMS AND HOW TO ASSESS THEM

ELEMENT	HOW TO ASSESS	IMPORTANCE
Same Product	*The product name, model number, and manufacturer in the test report must match the product in question.* The test report should indicate the product name and model number (if applicable), along with the manufacturer's name (where "manufacturer" refers to the entity who provided the product for testing; this may be the maker of the product or a supplier, importer, distributor, reseller, etc.). The name of the product, model number, and manufacturer should all match the product of interest along with the products' appearance, description, and features. Products may be re-branded by distributors. In this event, the original manufacturer and the company with the new branding should provide a declaration stating the product is the same as that described in the test report. Aside from the branding, the product should appear physically identical to the product in the report.	It is important to verify that the product in the test report is the same as the product that is being evaluated; otherwise, the test results are invalid for the specific product of interest.
Test methods used	*The test methods used must be one of the following: QTM, AVM, or Renewal.* The test method used should be listed in the test report. Currently, all tests must be done in accordance with IEC TS 62257-9-5:2018 (Ed. 4). As noted in IEC TS 62257-9-8, some alternate internationally recognized standards may be referenced in lieu of some of the tests described in IEC TS 62257-9-5. However, the bulk of testing will still need to be conducted according to IEC TS 62257-9-5:2018.	IEC TS 62257-9-8 requires that products are evaluated according to the test methods in IEC TS 62257-9-5. The results from tests using these methods are used to determine compliance with most of the requirements in IEC TS 62257-9-8.
Expiration date	*The test report's date of issuance must be no more than two years old; if the date written is a few months older than two years, reach out to VeraSol as there may be an exception.* The test report should include a date of issuance. According to IEC TS 62257-9-8, test results are valid for a period of two years. If the test report is more than two years old, the test results are no longer valid. One exception to the two-year limit is that programs including VeraSol may continue to accept a test report as valid for additional months if the product is in the process of renewal testing but the renewal results are not yet available.	The two-year expiration date requirement is important to ensure that the quality and performance of a product is consistent over time and that the product is tested to updated test methods as they are developed, published, and adopted.

TABLE 1: SUMMARY OF TEST REPORT REVIEW ITEMS AND HOW TO ASSESS THEM (CONTINUED)

ELEMENT	HOW TO ASSESS	IMPORTANCE
Sample Size	*For QTM testing, the sample size must be 6 for pico or 4 for SHS; for AVM testing, the sample size must be either 2 for the initial report or the same as a QTM for the follow-up testing report; and for Renewal testing, the sample size must be 2.* The number of samples evaluated for each test should be displayed along with the test result for each sample. The sample size for each test needs to be verified and must meet the requirements. • QTM Testing: four samples for SHS kits and six samples for pico products. • Renewal Testing according to the Market Check Method: two samples for either SHS or pico products. This test should only be conducted If the product was previously tested according to the QTM or AVM and met the standards. AVM Testing: An initial report will have a sample size of two. A follow-up report conducted within six months will have the same sample size as a full QTM. (The initial report may be accepted before conducting testing for the second report has been conducted).	The sample size requirement for testing is important to ensure that the test results are representative. Higher sample sizes can help characterize variability between samples in a production run and better approximate average product performance. Note, IEC TS 62257-9-5 includes an Initial Screening Method (ISM) that uses a sample size of 1. ISM test results are not valid for determining compliance with IEC TS 62257-9-8. Test reports where the sample size is 1 for most or all tests should not be used to determine if a product meets the standards in IEC 62257-9-8.
Sample Procurement Method	*For QTM, the follow-up testing for an AVM, and Renewal testing, the samples being tested must have been randomly sampled by a third party. For initial AVM testing, the samples are not required to be randomly sampled.* The method used for procuring product samples for testing should be found in the test report. Random sampling must be done by a third party for all testing. The requirements for number of samples and the required minimum stock are detailed in IEC 62257-9-5. As an additional resource, sampling processes and requirements are described in greater detail in the VeraSol product sampling policy. If details about the sampling aren't available in the report, or if more Information about sampling is needed, consider requesting a sampling report. For AVM testing, the initial report does not require randomly selected samples, but the follow-up report does.	Verifying the sampling method is important to ensure that the samples tested by the laboratory are likely to be representative of the product as it is in the market.

TABLE 1: SUMMARY OF TEST REPORT REVIEW ITEMS AND HOW TO ASSESS THEM (CONTINUED)

ELEMENT	HOW TO ASSESS	IMPORTANCE
Laboratory Accreditation	*The laboratory that tested the samples must be ISO 17025 accredited to IEC TS 62257-9-5.* The name of the laboratory that performed the testing should be shown in the test report. According to IEC TS 62257-9-8, the laboratory must be accredited to perform the tests by a recognized accrediting body (e.g. an ILAC MRA signatory, to ISO/IEC 17025). In most cases, this may be verified by using search tools on the accrediting body's website. Laboratories in the VeraSol network that are approved to conduct QTM, Renewal, and AVM testing are all accredited to ISO 17025 for IEC TS 62257-9-5. An updated list of these laboratories is available here. Test reports can contain a mixture of accredited and non-accredited results, though the large majority of the results should be accredited. In a case where there are a few non-accredited results, the reviewer should consider the reasons for the non-accredited status and whether the non-accredited results are used in the evaluation of conformity with IEC TS 62257-9-8. Examples of acceptable non-accredited results include items such as mass and dimensions of components, additional calculations such as luminous efficacy that are not defined in IEC TS 62257-9-5, and deviations from the test method that are required in order to test products with unusual or innovative features that are not compatible with the published test procedures.	It is important for labs to be accredited to ISO 17025 to ensure that tests are performed competently and consistently. It is also important to verify that the specific tests performed were within the scope of accreditation of the laboratory. Typically, this is indicated by the presence of the symbol of the accrediting body on the report.
Necessary Tests Performed	*All required tests must be performed and reported.* All of the tests performed may be checked in the test report. Depending on various factors, the required tests may differ from product to product; however, page 6 lists a rough outline of the tests required for a full test. Note that the language presented below is relevant for evaluating VeraSol test reports specifically; however, not all of the items listed correspond to the names of tests in IEC TS 62257-9-5.	Verifying that all required tests were performed is important. These tests evaluate a product according to the quality, safety, and truth-in-advertising metrics specified in IEC 62257-9-5.

TABLE 1: SUMMARY OF TEST REPORT REVIEW ITEMS AND HOW TO ASSESS THEM (CONTINUED)

ELEMENT	HOW TO ASSESS	IMPORTANCE
Necessary Tests Performed (continued)	Reference the Annexes within IEC TS 62257-9-5 to ensure the test reported corresponds to the correct test required. *Rough outline of required tests:* • Battery capacity • Battery storage / durability • Charge controller – deep discharge, overcharge protection voltage and standby loss • Full-battery run time • Energy service calculations (unless tested as a pico-solar product under IEC 62257-9-5:2016) • Charging behavior – solar charge • *If the product has ports*: PV overvoltage protection, miswiring protection (if applicable), output overload protection, and assessment of DC ports • Appliance power consumption for all included appliances • Appliance charging efficiency for all included appliances with their own battery • Luminous flux • Lumen maintenance • Mechanical durability tests (some may not be relevant, depending on the product design): drop test; switches, connectors, and/ or goosenecks; strain relief • Estimated IP class and level of water protection • Visual screening - external and internal inspections In many cases, results for specific tests are referenced from a previously tested similar product, or a test report for an alternate internationally recognized standard is referenced in lieu of an individual test described in IEC TS 62257-9-8. In these cases, the associated test reports or certificates with the referenced results should be produced with the IEC 62257-9-5 report to enable verification of testing.	All required tests are needed for each product to enable evaluation against the standards in IEC 62257-9-8.

TABLE 2: REPORT VALIDITY CHECK LIST

ITEM	FILL IN DETAILS BELOW	CHECK BOX IF CONFORMS
Product in test report matches product in question	*Manufacturer Name:* *Product Name:* *Model Number:* *Appearance matches product in question (yes/no):*	☐
Correct test methods	*Test Type (QTM, AVM, Renewal):*	☐
Test report not expired	*Date of test report:* *Test report date more than two years ago (yes/no):*	☐
Correct sample size	*Sample size specified in report:*	☐
Acceptable sample procurement method	*Random sampling specified in report (yes/no):*	☐
Test report issued by accredited laboratory	*ISO 17025 accredited laboratory conducted testing specified (yes/no):* *Accrediting body for the test lab:*	☐
All necessary tests covered	Refer to Table 1 to check if all tests were covered in test report.	☐

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VeraSol Quality Assurance

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