

Lighting Global Accelerated Verification Method

Adopted Policy for Pilot Implementation

May 2016

v1.2

Lighting Global has developed a new, faster framework for product quality verification. This **Accelerated Verification Method (AVM)**¹ is an optional alternative quality verification pathway that is faster than the standard Quality Test Method (QTM) Testing pathway. Verification of products through the AVM includes three elements:

- 1) Eligibility based on the manufacturer's strong history of success with the Lighting Global Quality Assurance (QA) program,
- 2) Expedited verification entry testing, and
- 3) Strong incentives for compliance through Market Check Tests and penalties for poor check test results

We expect the proposed AVM to cut the QA verification time from the status quo of approximately four months to approximately eight to ten weeks. **Time savings come from (i) reducing the number of samples required for testing, (ii) shortening the period for lumen maintenance testing, and (iii) eliminating third-party sampling of the units used in verification entry testing.**

While the timeline and requirements for **verification entry testing** will be reduced, the rigor and value of the quality verification will be maintained through a combination of **eligibility screening** and comprehensive **follow-up QTM Testing** involving samples collected from the market or random warehouse sampling. The AVM will be available only to organizations that meet eligibility criteria that are based on their prior track record with the Lighting Global QA program.² Every product that has its quality verified through the AVM will have randomly-selected samples tested according to the QTM method soon after the product completes initial qualification testing and is available in the market. As with all quality-verified products, the product may also be subject to additional Market Check Testing during the two-year period of validity for the qualification testing. This creates a strong incentive to maintain permanent product quality and mitigates the risk of manipulation via "golden samples."³

The **Lighting Global fee for the AVM pathway will be up to US\$6,000, dependent on the type of product being tested.** This Lighting Global fee covers the costs of reporting and basic program support (creation of Spec Sheets and Verification Letters), and covers the potential costs of obtaining samples for the follow-up QTM Test. In addition to the fee paid to Lighting Global, testing fees for the Verification Entry Testing and follow-up QTM Testing will be charged by the test labs directly at the time of testing.

Lighting Global is implementing AVM on a pilot basis, and it is therefore now available to eligible manufacturers. Following a trial period, some adjustments may be made as needed, with further adjustments managed through

¹ A glossary of key terms is available at the end of this document.

² See eligibility details below.

³ By "golden samples," we mean: high-performing samples chosen by the manufacturer for AVM Testing that are not representative of the product's average performance.

normal QA stakeholder outreach processes. Currently, the AVM pathway is only available for pico-products (products tested according to IEC/TS 62257-9-5. These products typically have peak power ratings of less than 15 W).

Should an eligible manufacturer desire more extensive evaluation during VE Testing, they would have the option to request that more samples be tested under the AVM, but would need to pay a higher fee and accept a longer timeline. Eligible manufacturers, of course, also retain the option to use standard QTM Testing instead of AVM Testing.

The proposed AVM Testing pathway is divided into five main components:

1. Meeting eligibility requirements
2. Verification Entry (VE) Testing under AVM
3. Lighting Global program support (for products that pass)
4. Guaranteed follow-up QTM Testing
5. Consequences of non-compliance under the AVM

1. Eligibility Requirements

This section includes a summary of eligibility criteria and requirements that companies must meet to use the AVM.

These eligibility criteria are intended to identify companies that have a consistent track record for quality within the Lighting Global QA Program and to reduce the risk that products submitted for AVM will fail during follow-up testing. This practice helps protect the value of the quality assurance verification for products that are covered by the Lighting Global framework along with protecting the interests of off-grid lighting product buyers. This practice also ensures manufacturers have established reliable quality control processes and a full understanding of the Lighting Global QA program before they attempt to operate under the AVM, which carries greater downstream non-compliance consequences.⁴

- **The manufacturer must have a good track record with the Lighting Global program:**
 - The company must be a **current Lighting Global Associate**.
 - The company must have had **at least three products that have met the Lighting Global Quality Standards** through QTM Testing (different model generations in the same product line may count as separate products for this criterion, provided that full QTM Testing was used to evaluate the products in each case). **At least one of these products must currently meet the Quality Standards** (i.e. at least one existing product made by the company must be posted on the Lighting Global website and have a valid Verification Letter and Standardized Specification Sheet at the time that the new product is submitted for evaluation).
 - The company must have **no products that have failed QTM tests, Market Check Tests or Associate Renewal Tests** in the past two years.^{5,6} Conditional passes that could not be resolved by providing clarifying information are considered a failure in terms of eligibility for AVM.⁷

⁴ See the “Consequences of non-compliance” section below.

⁵ Market Check Tests and Associate Renewal Tests are often conducted initially with a sample size of two (n=2). If an issue is identified with a 2-sample test, subsequent targeted testing with a sample size of six (n=6) may be used to confirm the issue. For the purposes of eligibility for the AVM, a product is considered to have failed a Market Check Test or Associate Renewal Test if a) it fails the subsequent 6-sample testing, or b) the issues identified during the 2-sample test have not been addressed within one month (either through providing clarifying information or submitting the product for re-testing), or c) corrections are made to the products or packaging to address truth-in-advertising or other major issues following the 2-sample test.

⁶ In cases where the only point of failure in an initial QTM Test was an issue with ingress protection, warranty terms, or AC-DC charger approval, and the issue was corrected within a short period of time, the failure may be waived. These issues are

- The company must have a **history of professional conduct** in the market and open, honest communication with the Lighting Global/Lighting Africa/Lighting Asia/Lighting Pacific teams.

2. Verification Entry Testing Under AVM

To participate in Verification Entry (VE) Testing under the AVM, manufacturers must carry out the following steps:

- **Contact the Lighting Global QA team:** Manufacturers begin by contacting the Lighting Global QA team to verify their eligibility for the AVM method, clarify the terms of testing under the AVM method, and coordinate testing.
- **Submit Products:** Manufacturers submit seven product units to allow for VE Testing with a **sample size of two** for each test. The samples **must be representative of the products** that the manufacturer plans to distribute. Note that the number of samples required for this testing is considerably smaller than the number required for QTM Testing (18 product units in order to achieve a sample size of six for each test). Note also that the random sampling procedure used in the QTM process will not be required.
- **Provide Company and Product Information:** Manufacturers will provide routine information requested on the manufacturer information form.
- **Provide Declarations:**
 - Upon submission of the product for VE Testing, the company will be required to sign a declaration certifying that: A) the samples provided for testing are an accurate representation of the final production model that they plan to distribute, and B) the product is expected to meet the Lighting Global Quality Standards. (These declarations are included as part of the Test Agreement with Lighting Global).
- **Manufacturers must submit documentation to assist with follow-up QTM Testing and Market Check Testing, including, but not limited to:**
 - An annual report listing the main markets in which their quality-verified products are being sold, differentiated by product model name
 - The names and contact details of the principal distributors to whom they sell their products
 - Annual shipment figures (for the previous year) of quality-verified products
 - The intended markets and distributors that will be used for the product under test

All non-public information, as always, is managed by the Lighting Global QA team in a way that ensures confidentiality. The exception to this is that manufacturers must grant the Lighting Global QA team authorization to contact any distributor on the supplied list (or any other seller of the product) to facilitate the pursuit of Market Check Testing enquiries, and the manufacturer may be asked to alert distributors about this arrangement and to request their full cooperation with the Lighting Global Market Check Testing process. Note that **in the event that the Lighting Global QA team experiences persistent difficulties in identifying and accessing product samples for follow-up QTM Testing or Market Check Testing, they reserve the right to rescind the status of the product and/or a manufacturer's AVM eligibility.**

- **Pay Fees:** Manufacturers will pay a fixed-price quality assurance fee of up to US\$6,000. This Lighting Global fee covers the costs of reporting and basic program support (creation of Spec Sheets and Verification Letters), and covers the potential costs of obtaining samples for the follow-up QTM Test.

excepted because they are evaluated with a sample size of one during QTM Testing, so any relevant issues would be identified during the AVM Verification Entry Testing.

⁷ See the definitions of failed tests and “conditional pass” in the Glossary section below.

The amount of the Lighting Global fee is determined based on a sliding scale dependent on the type of product, as follows:

- Products with a single portable light and no mobile phone charging: US\$2,000
- Products with a single portable light, with mobile phone charging/USB port: US\$3,000
- Products with multiple light points: US\$4,500
- Products with multiple light points and appliances (radios, torches, etc): \$6,000

This fee breakdown is driven by the increased costs for procuring and shipping larger products, along with the increased time required for reporting for more complex products.

In addition to the fee paid to Lighting Global, testing fees for the VE testing and follow-up QTM testing will be charged by the test labs directly at the time of testing. These fees will vary by the test lab and by the complexity of the product and must be negotiated with the test lab in advance of testing.

The Lighting Global QA team will:

- **Test Products:** VE testing will be done using procedures described in the most recent edition of IEC 62257-9-5. Testing will be equivalent to conducting an Initial Screening Method (ISM) test with a sample size of two. Initial Screening Method Tests involve the same procedures as QTM tests, except that the Lumen Maintenance test is for 500 hours instead of 2000 hours and the random sampling requirement is not applied.
- **Provide Test Reports and Grant Verification:** Following testing, the manufacturer will receive a detailed test report. If the results from VE testing suggest that a product meets the Lighting Global Quality Standards, the product will be eligible for program support, as described below. If a product fails VE testing, the product and manufacturer may be subject to consequences as outlined in Section 5, below.

3. Lighting Global program support

Products that meet the Lighting Global Quality Standards via AVM entry testing process will immediately be provided with support identical to that available to those that are verified using QTM testing. If the results from VE testing suggest that a product meets the Lighting Global Quality Standards, the product will: a) receive a Standardized Specification Sheet⁹ and Verification Letter, b) be placed on the Lighting Global website, and c) be potentially eligible for further Program support. This support will continue through a two-year period, or until support is rescinded due to a failure in Market Check Testing or another relevant reason. The support may be extended using processes that are available to all companies with quality-verified products, as described in the [Policy for Renewing Test Results](#).

4. Evaluating Compliance via Follow-up Testing

All products tested under AVM will undergo a follow-up QTM Test, and the products tested through QTM will be expected to perform similarly to or better than the product samples submitted for VE Testing. Products that fail follow-up QTM testing will be subject to the consequences of non-compliance.

Follow-up QTM testing will be conducted for all products shortly after the VE Testing is complete and the product is commercially available in markets (typically between 3-6 months after the product is launched in the market). Samples for the follow up QTM testing will be collected either from the market or through random warehouse sampling at the sole discretion of the Lighting Global Quality Assurance Program. Moreover, the product may be subject to additional Market Check Tests at the discretion of Lighting Global QA within the two-

⁹ The initial Standardized Specification Sheet will be based on the results of the 2-sample VE Testing. Once the follow-up QTM Test is complete, the Spec Sheet will be updated with the results of the 6-sample test.

year period of validity for the VE Test results. When a product passes a follow-up QTM Test or Market Check Test (meaning the initial performance and quality is verified through testing based on samples procured from the market), a test report and short summary of the sampling and testing will be provided confidentially to the manufacturer.

If a product fails the follow-up QTM Test, the product will lose its status with regard to the Quality Standards immediately and will be removed from the Lighting Global website. The manufacturer will be notified of the loss of status, the results of the tests will be delivered to a representative of the company, and all relevant consequences of non-compliance will become effective immediately.

In the event that a product “conditionally passes” the follow-up QTM Test, the manufacturer will be contacted and the results communicated.¹⁰ In this case, the manufacturer may – at the discretion of the Lighting Global program – have an opportunity to provide clarifying information or carry out corrective actions (as is the standard practice for the current QTM framework). During the time that further evaluation is being conducted, at the sole discretion of Lighting Global, the product may be removed from the Lighting Global website and the use of the Lighting Global Verification Letter may not be permitted.

In the event that a product is deemed to have failed or the manufacturer does not correct the issues that resulted in a “conditional pass” in a timely manner, the consequences for failing the follow-up QTM Test will be effective as described below. If a manufacturer corrects the issues that resulted in the “conditional pass” in a timely manner, the consequences for receiving a “conditional pass” will be effective, as described below.

As noted above, if the follow-up QTM Test confirms that the product meets the Quality Standards, the product may still be subject to subsequent Market Check Testing under the standard [Lighting Global Market Check Test Policy](#). If the product fails to meet the Quality Standards based on subsequent market check testing, the consequences of non-compliance described below will apply.

5. Consequences of Non-compliance Under the AVM

Because AVM relies on more limited entry testing and stronger use of follow-up check testing and reputational evidence, it is important that there are strong incentives to discourage abuse of the system at the verification entry testing stage. To ensure that companies only submit products that are very likely to meet the Quality Standards, both financial and non-financial penalties for non-compliance may be used.

Below we list a clear set of consequences of non-compliance. The non-financial and financial penalties provide a deterrent for non-compliance and therefore reduce the likelihood of product failure. The role of the financial penalties is not intended to be punitive, and the amounts will allow Lighting Global to conduct additional Market Check Testing and to otherwise ensure that program integrity is maintained in the event of failures. The AVM verification route places even greater emphasis on manufacturers being able to control and maintain their product quality internally than the QTM route.

- **If a product fails an AVM VE Test (i.e., does not meet the Quality Standards) the following consequences apply:**
 - The product is not eligible to receive a Standardized Specification Sheet, Verification Letter or further program support unless or until it is resubmitted and the subsequent tests confirm that it meets the Quality Standards.
 - The manufacturer does not receive any refund from AVM fees (typically \$2,000 – 6,000 in addition to the testing fee for the VE Test) that have been paid. Leftover funds will be used to cover the cost of Market Check Testing other products or related quality assurance program

¹⁰ See the definitions of failed tests and “conditional pass” in the Glossary section below.

expenses. If the product is resubmitted under the AVM Test at a later date, the full AVM fee must be paid again.

- **If a product currently receiving program support based on AVM VE Testing does not pass the follow-up QTM Test or a subsequent Market Check Test the following consequences apply:**
 - **If a product receives a “conditional pass” and the easy-to-fix issue is fully addressed (corrected across the entire product line) within a short period of time (e.g., one month),** the manufacturer must pay a fee of US\$5,000 for the product to maintain its status. The manufacturer will not be able to submit another product using the AVM approach for two years, and it must also have two successive products meet the Quality Standards via QTM testing before being eligible to again use the AVM. Note: If the “conditional pass” can be resolved simply by the manufacturer providing clarifying information and documentation, the full set of penalties described here may not apply.
 - **If a product fails,** the non-compliant product is delisted, use of the Verification Letter is no longer permitted, and the manufacturer has to pay a fee of US\$5,000 in addition to the current QTM or Renewal Testing fee for the next submitted product.¹¹ As described above, the manufacturer will not be eligible to submit products for testing under the AVM for two years from the date of the failure, and the manufacturer must have two successive products that meet the Quality Standards via QTM Testing before being eligible to again use the AVM.

To re-list a product that failed a follow-up QTM Test or Market Check Test, the manufacturer may resubmit through the QTM pathway. Aspects that failed must be re-tested using the sample size required in the QTM (for most tests, $n=6$). In some cases, full QTM Testing will be required. The new testing fees, plus any applicable penalties, must be paid.

Anticipated Timeline for policy changes (subject to change)

Pilot Phase: September 2015 – April 2016: The AVM will be available as a pathway for manufacturers who are eligible to participate in a pilot phase according to the eligibility criteria listed above. These manufacturers will be contacted by the Lighting Global Team.

Policy finalization: May 2016: Based on experience in the pilot phase, revisions to the policy may be enacted by the Lighting Global team.

Incorporated with normal operation: June 2016 and onward.

¹¹ Renewal Testing is used to renew test results two years after the Standardized Specification Sheet and Verification Letter were issued. Renewal Testing may consist of a two-sample ISM Test or a full QTM Test depending on the extent the product has changed. In both cases, Renewal Testing requires random selection of product samples.

GLOSSARY

Definition of failed tests and “conditional pass”:

A product that receives a “fail” on the cover letter sent to the manufacturer from a Quality Test Method (QTM), Market Check Test or Accelerated Verification Method (AVM) is considered to have **failed a test**. In these cases, the issue causing the failure was significant and could not be easily corrected and verified without re-testing.

In some cases a product does not fully meet the Lighting Global Quality Standards due to an easy-to-fix issue and cannot receive an initial “pass”; our team typically uses the term “conditional pass” in evaluating these products. A conditional pass gives the manufacturer an opportunity to prove that they have made the required change in the product to meet the Quality Standards. Once proven, the product’s status is changed from “conditional pass” to “pass.” Easy-to-fix issues include the following:

- No consumer-facing¹² warranty
- Warranty is not ≥ 12 months
- A consumer-facing specification is $> 15\%$ above the average measured value
- Product does not meet required protection levels with regard to water ingress, but may be able to address this issue by including an appropriate warning label

Note that in some cases, products will be given a “conditional pass” when the test lab requires more information to determine whether the product meets the Quality Standards.¹³ In these cases, if the manufacturer can provide the required clarifying information or documentation, the product’s status can change from “conditional pass” to “pass,” and for the purposes of the AVM framework, the penalties described above will not apply.

Accelerated Verification Method Abbreviation: AVM

The testing pathway described in this document that proposes to shorten testing time by reducing the number of samples and eliminating the random sampling requirement for verification entry testing. The method maintains the rigor expected of the Lighting Global QA program by performing follow-up QTM Tests on all products verified through this process.

IEC Technical Specification 62257-9-5 ed 2.0

In April 2013 the Lighting Global Quality Test Method procedures were institutionalized through the International Electrotechnical Commission (IEC) as IEC Technical Specification 62257-9-5 ed 2.0. The document can be purchased from the [IEC Webstore](#). Qualified stakeholders may [apply for a discount](#) on the purchase of this and other key IEC documents for rural electrification.

Initial Screening Method Abbreviation: ISM

An abbreviated, low-cost version of the QTM, used to provide rapid feedback on product quality and performance and evaluate a product’s likelihood of passing the QTM. ISM Test results are based on

¹² Consumer-facing means that the end user has access to the information via the packaging, user’s manual, etc., prior to the time of purchase. Posting warranty information on a website, while useful, does not provide sufficient notice to consumers as many end-users do not have access to the Internet.

¹³ Examples of issues resolved with clarifying information include:

- A product has overcharge or deep discharge protection, but the voltage threshold is outside of our default range. The manufacturer may provide documentation proving the tested threshold is within the battery supplier’s recommendations.
- A manufacturer may provide material specifying that their AC-DC charger has approval from a recognized consumer electronics safety regulator.

manufacturer-supplied samples and are valid for 1 year from the month the manufacturer is sent the results.

Market Check Testing

Used for random quality checks and updates to products receiving Program support. Market Check Test results are based on samples that are procured by agents of Lighting Global from the distribution supply chain (e.g. through purchase from a retail outlet) without prior notice. See the [Market Check Testing Policy](#) for additional details.

Quality Standards

Lighting Global maintains the Quality Standards, a set of off-grid solar and lighting product benchmarks that set baseline levels of quality, durability, and truth-in-advertising to protect consumers.

Quality Test Method Abbreviation: QTM

Lighting Global's most comprehensive testing methodology, used to qualify products for program support, generate Standardized Specification Sheets (SSS), and judge products in the Outstanding Product Awards competition. QTM Test results are based on randomly-selected samples, use a sample size of six ($n=6$), and are valid for 2 years from the month the manufacturer is sent the results. The follow-up QTM Test required for the AVM pathway is conducted with samples that are obtained by agents of Lighting Global from the distribution supply chain or through random warehouse sampling.

Renewal Testing

Renewal testing is conducted to renew a product's QTM Test results and maintain its program status two years after the Standardized Specification Sheet and Verification Letter were issued. Products that have not changed may be renewed using a two-sample ISM Test (note that the product samples for these tests must be collected by an agent of Lighting Global as per our sample collection procedures), while products which have been updated may require QTM testing. See the [Lighting Global Policy for Renewing Test Results](#) for full details.

Standardized Specification Sheets Abbreviation: SSS

A Standardized Specification Sheet is an easy-to-read summary of the QTM results. Standardized Specification Sheets are posted to the [Lighting Global website](#), thereby providing a reliable and independent source of information about product quality and performance.

Verification Entry Testing Abbreviation: VE

As a generic term, verification entry testing refers to any test which verifies whether a product meets the Lighting Global Quality Standards and enables a product to receive program support. Historically, the QTM Test was the only verification entry test used, though the current document introduces a shortened verification entry test, equivalent to an ISM test with a sample size of two as part of the AVM. This shortened test is referred to as Verification Entry Testing and abbreviated VE Testing.

Verification Letters

A Lighting Global Verification Letter officially states that a product has met the Quality Standards and that the testing results are valid for two years. The Verification Letter may be used by some programs and customs officials as an entrance requirement. The validity of a Verification Letter may be checked on the [Lighting Global website](#).