



INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

Standards in Support of Improved Access to Modern Energy Services in Off-Grid Areas



Howard Barikmo

**Emeritus Secretary of IEC Technical Committee
82 (Photovoltaics)**

Arne Jacobson

**Technical Committee 82 Member
Director, Schatz Energy Research Center,
Humboldt State University**

2013-05-14

What does TC 82 do?

- It is charged by IEC to write standards related to photovoltaics
- It does this through six Working Groups:
- WG 1 - Glossary; WG 2 - Modules; WG3 - Systems; WG 6 - Balance of Systems; and WG 7 - Concentrator PV
- **JWG 1 - Decentralized Rural Electrification (DRE) projects**

What does JWG 1 do?

- JWG 1 is led by Sivaganthan Jayasingam (Siva), of Malaysia, and Leon Andre Drotsché, of South Africa.
- It has written, over the years, some 20 Technical Specifications in the 62257 RECOMMENDATIONS FOR SMALL RENEWABLE ENERGY AND HYBRID SYSTEMS FOR RURAL ELECTRIFICATION series. Titles and previews of each are available on the IEC Webstore.



What does JWG 1 do?

- Arne Jacobson is the project leader for the revision of IEC/TS 62257-9-5. He will lead you through the steps of why this document is necessary to introduce these types of quality products in the developing world.
- He will also mention that revision of other documents in the series is imminent, and ask for your help provide input to the process if you are interested. Contact Françoise Rauser, or me at hbarikmo@gmail.com for further information.





Quality Assurance for Energy Access: Key Propositions

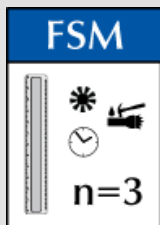
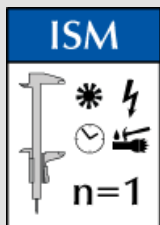
- **Effective Quality Assurance (QA) efforts can help enable energy access for low income people in off-grid areas.**
- **Standardized test methods and quality metrics are key elements of successful quality assurance efforts, and the IEC is well positioned to play a leading role through its 62257 series.**
- **Effective QA efforts must strike a balance between quality and affordability. Standards development requires an understanding of end user needs, technology trends, and market dynamics.**
- **Widespread adoption of harmonized test methods and standards can provide benefits to many stakeholders, including companies, buyers financial organizations, program implementers, and governments.**



- IEC Technical Specification 62257-9-5 Ed2.0 was published by IEC in April, 2013.
- Coverage: off-grid LED lighting products for rural electrification (most relevant products are charged using solar PV, but other charging sources are also covered).

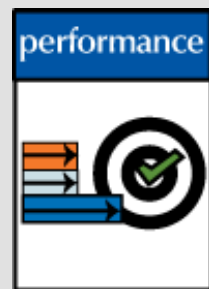


Key elements of IEC/TS 62257-9-5



Standardized Testing Methodologies

Series of standardized test methods for evaluating the quality and performance of off-grid lighting products. Sampling requirements are covered within the test methods.



Framework for Quality Standards, Warranty Standards, Performance Targets

Flexible framework for specifying minimum quality, performance, & warranty requirements.



Standardized Specification Sheets

Standardized framework for reporting verified performance for products that meet minimum quality standards.

Development and use of IEC/TS 62257-9-5

- Much of the material in IEC/TS 62257-9-5 Ed2.0 was developed under the IFC and World Bank's Lighting Africa program. Lighting Asia, launched in May, 2012, also contributed.
- U.S. DOE supported integration into IEC/TS 62257-9-5, along with IFC, World Bank and IEC





Development of QA framework has been a collaborative effort with many stakeholders

Participating organizations



Private sector: over 15 off-grid lighting companies provided input on draft document leading to TS 62257-9-5

Lighting Global Test Laboratory Network



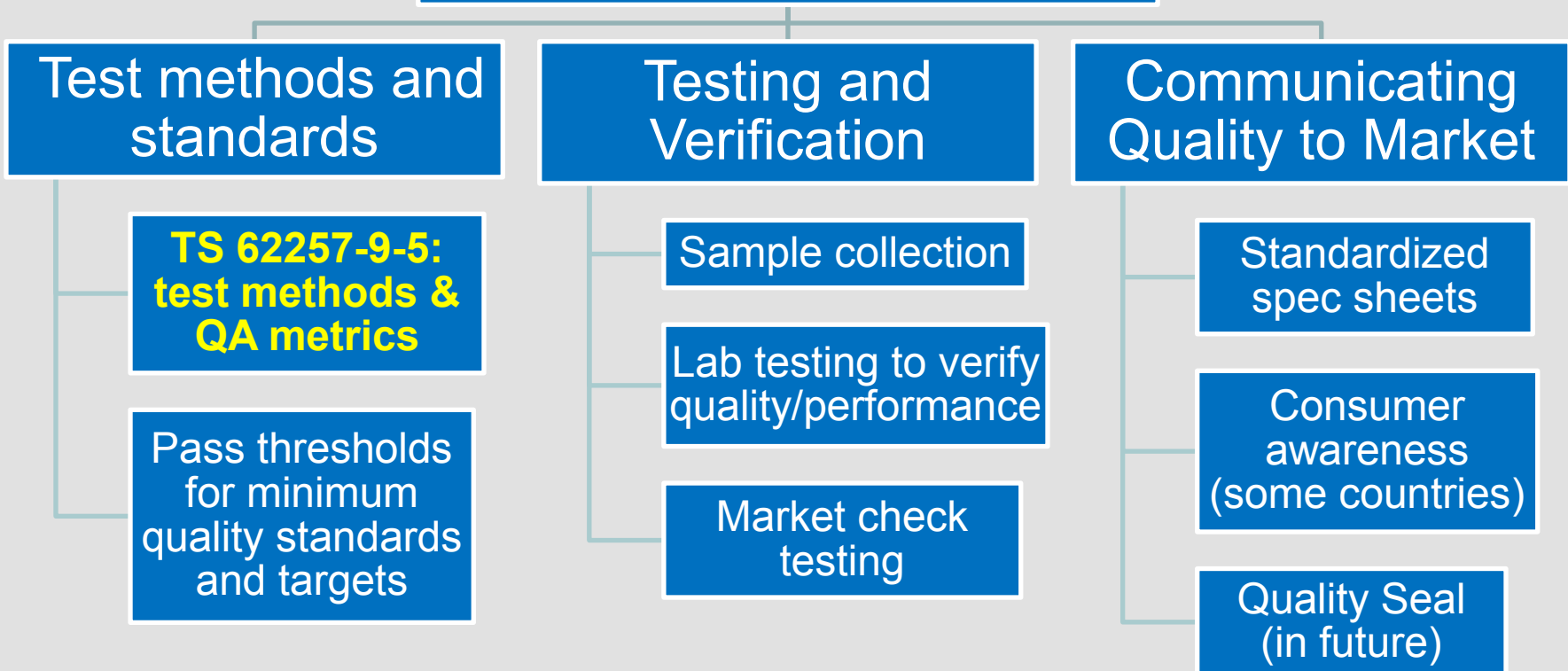
UNIVERSITY OF
NAIROBI

CERER
of Senegal



- Lighting Global Quality Assurance (LG-QA) supports the Lighting Africa & Lighting Asia programs.
- IEC/TS 62257-9-5 is a foundational document for LG-QA

Lighting Global QA Program





Lighting Global QA Program Highlights (activities from 2009-2013)

- IEC/TS 62257-9-5 is being used to support an active and robust quality assurance program.

100+

products tested on a commercial basis

40+

companies have submitted at least one product for testing

54

products have met the program's minimum quality standards

>1.4M

quality assured products sold in Africa; a similar number of products has been sold in Asia



Widespread adoption of QA framework will strengthen quality assurance efforts

- A harmonized quality assurance framework based on IEC/TS 62257-9-5 that spans multiple countries and programs provides benefits to multiple stakeholders
 - Companies can have their products tested/verified through a single framework, thereby saving time and money
 - Supply chain actors (wholesale distributors, bulk buyers, financial institutions, etc.) only need to understand one QA framework
 - Buyers benefit from lower product prices, as companies can pass savings of reduced costs for QA verification on to customers.



Next steps for IEC 62257 series

- **Joint Working Group 1 of TC 82 is planning to revise other documents in the IEC 62257 series in order to better support energy access activities.**
- **Priority areas for document revision and development:**
 - **Solar home systems (IEC/TS 62257-9-6)**
 - **Micro-grids for rural electrification (IEC/TS 62257-9-2)**
 - **Solar street lighting systems (new document)**





INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

Thank you

