

TECHNICAL SPECIFICATION

**Recommendations for small renewable energy and hybrid systems for rural electrification –
Part 9-5: Integrated system – Selection of stand-alone lighting kits for rural electrification**



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Part 9-5: Integrated system – Selection of stand-alone lighting kits for rural electrification**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**RECOMMENDATIONS FOR SMALL RENEWABLE ENERGY
AND HYBRID SYSTEMS FOR RURAL ELECTRIFICATION –****Part 9-5: Integrated system –
Selection of stand-alone lighting kits for rural electrification**

FOREWORD

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Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC 62257-9-5, which is a technical specification, has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

This second edition cancels and replaces the first edition issued in 2007. It constitutes a technical revision.

The main technical changes with regard to the previous edition are as follows:

- Overall, shifted from narrow focus on the needs of bulk procurement programmes to a wider framework for structuring quality assurance using appropriate methods for a range of stakeholders including governments, manufacturers, buyers, and others.
- Revised structure of document with modular methods (located in annexes) that are applied using four distinct test regimes.
- Added normative references and definitions to support new document structure.
- Added a framework for categorizing products based on the arrangement of components.
- Expanded the range of aspects that are considered and formalized a framework for product specification that can be customized based on stakeholder needs, with example, informative product specifications in the annexes.
- Added a “Quality test method” that prescribes a set of rigorous laboratory tests using randomly-selected samples. The description includes a comprehensive list of tests and guidance for test labs on staging.
- Added a “Market check method” that is a targeted set of tests to confirm results.
- Added an “Initial screening method” that provides rapid laboratory feedback on product quality and performance.
- Updated and strengthened the previously defined test programme using the “Field screening method” that can be achieved at low cost without laboratory facilities.
- Added a description for “Standardized specifications sheets” that can be used to disseminate test results to the market.
- Created or modified several key test procedures:
 - Full battery run time
 - Durability
 - Water protection assessment
 - Solar run time
 - Light output, distribution, and maintenance
 - Visual screening
 - Random product sampling

This technical specification shall be used in conjunction with:

- IEC 62257-1: Recommendations for small renewable energy and hybrid systems for rural electrification – Part 1: General introduction to rural electrification
- IEC 62257-2: Recommendations for small renewable energy and hybrid systems for rural electrification – Part 2: From requirements to a range of electrification systems
- IEC 62257-3: Recommendations for small renewable energy and hybrid systems for rural electrification – Part 3: Project development and management
- IEC 62257-4: Recommendations for small renewable energy and hybrid systems for rural electrification – Part 4: System selection and design
- IEC 62257-5: Recommendations for small renewable energy and hybrid systems for rural electrification – Part 5: Protection against electrical hazards
- IEC 62257-6: Recommendations for small renewable energy and hybrid systems for rural electrification – Part 6: Acceptance, operation, maintenance and replacement

It is also to be used with future parts of this series as and when they are published.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
82/731/DTS	82/759/RVC

Full information on the voting for the approval of this technical specification can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- transformed into an International standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
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INTRODUCTION

The IEC 62257 series intends to provide to different players involved in rural electrification projects (such as project implementers, project contractors, project supervisors, installers, etc.) guidelines for the setting up of renewable energy and hybrid systems with AC nominal voltage below 500 V, DC nominal voltage below 750 V and nominal power below 100 kVA.

These documents are recommendations

- to choose the right system for the right place,
- to design the system, and
- to operate and maintain the system.

These documents are focused only on rural electrification concentrating on but not specific to developing countries. They shall not be considered as all inclusive to rural electrification. The documents try to promote the use of renewable energies in rural electrification; they do not deal with clean mechanism developments at this time (CO₂ emission, carbon credit, etc.). Further developments in this field could be introduced in future steps.

This consistent set of documents is best considered as a whole with different parts corresponding to items for safety, sustainability of systems, and at the lowest life cycle cost as possible. One of the main objectives is to provide the minimum sufficient requirements, relevant to the field of application that is: small renewable energy and hybrid off-grid systems.

The purpose of this part of IEC 62257 series is to specify quality assurance strategies for stand-alone lighting kits, including product specifications, tests, and a standardized specifications sheet format. In addition to supporting the selection of products by project developers and implementers, quality assurance can help market support organizations, manufacturers, and governments achieve the goals they have for off-grid lighting projects.