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**SANS 959-2-2:2016**

Edition 1.1  
Amdt 1

# **SOUTH AFRICAN NATIONAL STANDARD**

## **Photovoltaic systems for use in individual homes, schools and clinics**

### **Part 2-2: Test procedures for main components — Batteries**

**WARNING**

This document references other documents normatively.

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**Table of changes**

<b>Change No.</b>	<b>Date</b>	<b>Scope</b>
Amdt 1	2016	Amended to change the designation "SANS 959-2-2/NRS 052-2-2" to read "SANS 959-2-2", and to update referenced standards.

**Foreword**

This South African standard was approved by National Committee SABS/TC 069, *Power electronics and alternative energy conversion*, in accordance with procedures of the SABS Standards Division, in compliance with annex 3 of the WTO/TBT agreement.

This document was approved for publication in November 2016.

This document supersedes SANS 959-2-2:2012 (edition 1).

A vertical line in the margin shows where the text has been technically modified by amendment No. 1.

SANS 959 consists of the following parts and sections, under the general title *Photovoltaic systems for use in individual homes, schools and clinics*:

*Part 1: Standardized requirements applicable to off-grid individual homes, schools and clinics.*

*Part 2-1: Test procedures for main components – Photovoltaic modules.*

*Part 2-2: Test procedures for main components – Batteries.*

*Part 2-3: Test procedures for main components – Regulators, charge controllers and maximum power point trackers (MPPTs).*

*Part 2-4: Test procedures for main components – Inverters.*

*Part 2-1: Test procedures for main components – Luminaires.*

*Part 3: Standardized requirements applicable to the installation and maintenance of off-grid systems in individual homes, schools and clinics.*

**Compliance with this document cannot confer immunity from legal obligations.**

## Introduction

This section of SANS 959-2 has been developed to standardize the testing of batteries to be utilized in the solar home systems programme and the school and clinic electrification programmes as envisaged in SANS 959-2-1.

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The tests contained in this section of SANS 959-2 are intended to verify compliance with the requirements in 4.4 in SANS 959-2-1:2016. Although intended to test batteries used in systems of nominal d.c. voltage 12 V with maximum currents of up to 20 A, the tests can be adapted to test and characterize lead-acid batteries of other nominal voltages used in photovoltaic systems. When batteries of higher nominal voltages are tested, for example, 24 V, 36 V and 48 V, the test parameters will need to be revised and rescaled.

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The test procedures were based on lead-acid batteries that are designed to suit the daily cycling and deep discharge associated with photovoltaic (PV) system applications.

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## Photovoltaic systems for use in individual homes, schools and clinics

### Part 2-2:

#### Test procedures for main components — Batteries

## 1 Scope

**1.1** This section of SANS 959-2 specifies test procedures for batteries for use in photovoltaic systems of nominal d.c. voltage 12 V and maximum currents of up to 20 A. **Amdt 1**

**1.2** The test procedures can be adapted for batteries of higher nominal d.c. voltages, for example, 24 V, 36 V and 48 V, for use in photovoltaic systems. In such cases the parameters to which the batteries are tested will be revised and rescaled.

NOTE The tests listed in this section of SANS 959-2 do not replace other tests that might be needed to confirm compliance with SANS 959-2-1 or other compulsory battery standards. In particular, the tests in this section of SANS 959-2 do not deal with safety or issues covered by SANS 60896-11, SANS 60896-21, or SANS 60896-22. **Amdt 1**

**1.3** The objective of the test procedures in this section of SANS 959-2 is to verify compliance with the requirements specified in SANS 959-2-1. **Amdt 1**

## 2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this section of SANS 959-2. All documents are subject to revision and, since any reference to a document is deemed to be a reference to the latest edition of that document, parties to agreements based on this specification are encouraged to take steps to ensure the use of the most recent editions of the documents listed below. Information on currently valid national and international standards can be obtained from the SABS Standards Division.

NOTE In the case of conflict between any of the following standards and specifications and this section of SANS 959-2, the requirements of this section of SANS 959-2 take precedence. **Amdt 1**

IEC 62093:2005, *Balance-of-system components for photovoltaic systems – Design qualification natural environments.*

SANS 959-2-1:2016, *Photovoltaic systems for use in individual homes, schools and clinics – Part 1: Test procedures for main components – Photovoltaic modules.* **Amdt 1**

SANS 61427-1/IEC 61427-1, *Secondary cells and batteries for photovoltaic energy systems (PVES) – Part 1: General requirements and methods of test.* **Amdt 1**