ICS 29.220.20 SLOVENSKÁ TECHNICKÁ NORMA September 2024

STN	**Akumulátorové články a batérie na akumuláciu energie z obnoviteľných zdrojov Všeobecné požiadavky a skúšobné metódy Časť 2: Aplikácie on-grid Zmena A1**	**STN EN 61427-2/A1** 36 4365

Secondary cells and batteries for renewable energy storage - General requirements and methods of test - Part 2: On-grid applications

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 08/24

STN EN 61427-2 z mája 2016 sa bez tejto zmeny A1 môže používať do 2. 5. 2027.

Obsahuje: EN 61427-2:2015/A1:2024, IEC 61427-2:2015/AMD1:2024

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Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2024
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii v znení neskorších predpisov.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61427-2:2015/A1

May 2024

ICS 29.220.20

English Version

Secondary cells and batteries for renewable energy storage - General requirements and methods of test - Part 2: On-grid applications (IEC 61427-2:2015/AMD1:2024)

Accumulateurs pour le stockage de l'énergie renouvelable - Exigences générales et méthodes d'essais - Partie 2 : Applications en réseau (IEC 61427-2:2015/AMD1:2024)

Wiederaufladbare Zellen und Batterien für die Speicherung erneuerbarer Energien - Allgemeine Anforderungen und Prüfverfahren - Teil 2: Netzgekoppelte Anwendungen (IEC 61427-2:2015/AMD1:2024)

This amendment A1 modifies the European Standard EN 61427-2:2015; it was approved by CENELEC on 2024-05-02. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

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Ref. No. EN 61427-2:2015/A1:2024 E

EN 61427-2:2015/A1:2024 (E)

European foreword

The text of document 21/1179/FDIS, future IEC 61427-2/AMD1, prepared by IEC/TC 21 "Secondary cells and batteries" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61427-2:2015/A1:2024.

The following dates are fixed:

•	latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop) 2025-02-02
•	latest date by which the national standards conflicting with the document have to be withdrawn	(dow) 2027-05-02

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IEC 61427-2

Edition 1.0 2024-03

INTERNATIONAL STANDARD

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AMENDEMENT 1

Secondary cells and batteries for renewable energy storage – General requirements and methods of test – Part 2: On-grid applications

Accumulateurs pour le stockage de l'énergie renouvelable – Exigences générales et méthodes d'essais – Partie 2 : Applications en réseau

IEC 61427-2:2015-08/AMD1:2024-03(en-fr)

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SECONDARY CELLS AND BATTERIES FOR RENEWABLE ENERGY STORAGE – GENERAL REQUIREMENTS AND METHODS OF TEST –

Part 2: On-grid applications

AMENDMENT 1

FOREWORD

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Amendment 1 to IEC 61427-2:2015 has been prepared by IEC technical committee 21: Secondary cells and batteries.

The text of this Amendment is based on the following documents:

Draft	Report on voting
21/1179/FDIS	21/1194/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Amendment is English.

A list of all parts in the IEC 61427 series, published under the general title *Secondary cells and batteries for renewable energy storage*, can be found on the IEC website.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications/.

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6 Battery endurance

6.1 General

Add the following at the end of 6.1:

Since the publication of this document in 2015, details of a complex pattern of energy exchange in frequency-regulation duty, at 4 s intervals and over a 24 h period, have been published by Pacific Northwest National Laboratory (PNNL) and Sandia National Laboratories (SAND) in the PNNL-22010 Rev 2/ SAND 2016-3078 R Report.

In Annex B (informative) details of this energy exchange profile are made available for evaluating, if useful, the service-induced decay of battery performance also with a more randomized usage pattern compared to that offered by the symmetric 6.2 profile.

6.2 Test for endurance in frequency-regulation service

Add the following sentence as a new paragraph after the existing list item r).

See Annex B for supplemental test profile for frequency regulation duty service.

Add the following new annex after Annex A:

Annex B
(informative)

Supplemental test profile for frequency regulation duty service

B.1 General

The batteries in on-grid electrical energy storage (EES) applications provide and accept the energy needed to maintain the mains frequency within specified limits. This exchange of energy results in multiple charge and discharge events per hour in the electrochemically active masses of the battery. The order, intensity and duration of these events influences the stability and activity of the involved active mass structures and hence the endurance of the batteries.

This additional test procedure for evaluating battery performance under frequency-regulation service, is based on data acquired by actual monitoring of a regional transmission organization grid frequency balancing signal by Pacific Northwest National Laboratory (PNNL) and Sandia National Laboratories (SAND) in the USA.

The balancing signal data are reported in section 5.3.2 Frequency regulation duty cycle of the document PNNL-22010 Rev 2 / SAND 2016-3078 R, Protocol for Uniformly Measuring and Expressing the Performance of Energy Storage Systems and dated April 2016. This data is available as a spreadsheet on the IEC website courtesy of the Pacific Northwest National Laboratory, operated by Battelle for the U.S. Department of Energy. The spreadsheet, SAND2013-7315P profile details.xlsx can be accessed via TC 21 supporting documents on the IEC website – www.iec.ch/tc21/supportingdocuments. This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of the data named.

The complex pattern of energy exchange and the associated procedures described in Clause B.2, can be used as a tool to complement and reinforce, as appropriate or useful, the information on the service-induced decay of battery performance gathered with the test profile in 6.2. The profile in 6.2 remains however the required profile if product comparisons or qualifications are carried out.

The test and associated test profile specified in Clause B.3 is optional; it is not necessary to carry it out to claim conformance with this document.

However, if this test is carried out, it shall be executed as specified in Clause B.3.

B.2 The Annex B profile for evaluating battery endurance in frequency-regulation duty

The Annex B profile consists of a sequence of 2 h average and 2 h aggressive signal levels reflecting the deviation from the grid frequency dead band and the resulting demand to deliver energy from or store in the battery of the frequency-regulation application. Each signal specifies a constant power level for a duration of 4 s resulting in 1 800 signal levels per 2 h period. The adjective of average and aggressive reflects the intensity of the energy flow to and from the battery.

koniec náhľadu – text ďalej pokračuje v platenej verzii STN