

Akkumulatorceller og -batterier indeholdende alkaliske eller andre ikke-syrebaserede elektrolytter – Lithiumakkumulatorceller og -batterier til bærbart udstyr – Del 3: Prismatiske og cylindriske lithiumakkumulatorceller og -batterier

Secondary cells and batteries containing alkaline or other non-acid electrolytes – Secondary lithium cells and batteries for portable applications – Part 3: Prismatic and cylindrical lithium secondary cells, and batteries made from them

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EUROPÄISCHE NORM

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English Version

Secondary cells and batteries containing alkaline or other
non-acid electrolytes - Secondary lithium cells and batteries for
portable applications - Part 3: Prismatic and cylindrical lithium
secondary cells, and batteries made from them
(IEC 61960-3:2017)

Accumulateurs alcalins et autres accumulateurs à électrolyte
non acide - Accumulateurs au lithium pour applications
portables - Partie 3: Eléments et batteries d'accumulateurs au
lithium, parallélépipédiques et cylindriques
(IEC 61960-3:2017)

Akkumulatoren und Batterien mit alkalischen oder anderen
nichtsäurehaltigen Elektrolyten - Lithium-Akkumulatoren und
-batterien für tragbare Geräte - Teil 3: Prismatische und
zylindrische Akkumulatoren und daraus hergestellte Batterien
(IEC 61960-3:2017)

This European Standard was approved by CENELEC on 2017-03-14. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

The text of document 21A/618/FDIS, future edition 1 of IEC 61960-3, prepared by SC 21A "Secondary cells and batteries containing alkaline or other non-acid electrolytes", of IEC/TC 21 "Secondary cells and batteries" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61960-3:2017.

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) 2017-12-14
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-03-14

This document supersedes EN 61960:2011

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 61960-3:2017 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60051	NOTE	Harmonized in EN 60051 series.
IEC 60086-4	NOTE	Harmonized as EN 60086-4.
IEC 61434	NOTE	Harmonized as EN 61434.
IEC 61959	NOTE	Harmonized as EN 61959.
IEC 62281	NOTE	Harmonized as EN 62281.
IEC 62368-1	NOTE	Harmonized as EN 62368-1.

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(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-482	2004	International Electrotechnical Vocabulary (IEV) - Part 482: Primary and secondary cells and batteries	-	-
IEC 61000-4-2	-	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	-
IEC 62133-2	2017	Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications - Part 2: Lithium systems	EN 62133-2	2017

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Secondary cells and batteries containing alkaline or other non-acid electrolytes – Secondary lithium cells and batteries for portable applications – Part 3: Prismatic and cylindrical lithium secondary cells, and batteries made from them

Accumulateurs alcalins et autres accumulateurs à électrolyte non acide – Accumulateurs au lithium pour applications portables – Partie 3: Eléments et batteries d'accumulateurs au lithium, parallélépipédiques et cylindriques

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SECONDARY CELLS AND BATTERIES CONTAINING ALKALINE OR OTHER NON-ACID ELECTROLYTES – SECONDARY LITHIUM CELLS AND BATTERIES FOR PORTABLE APPLICATIONS –

Part 3: Prismatic and cylindrical lithium secondary cells, and batteries made from them

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61960-3 has been prepared by subcommittee 21A: Secondary cells and batteries containing alkaline or other non-acid electrolytes, of IEC technical committee 21: Secondary cells and batteries.

This first edition cancels and replaces the second edition of IEC 61960 published in 2011. It is a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- adding definition of portable applications (Scope),
- update of examples of cells (Table 1 and 2),

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- adding "Dimensions of the cell with a laminate film case" (Annex A),
- adding "Capacity after storage" (from the date of manufacture) (Annex B).

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

FDIS	Report on voting
21A/618/FDIS	21A/625/RVD

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

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

A list of all parts in the IEC 61960 series, published under the general title *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Secondary lithium cells and batteries for portable applications*, can be found on the IEC website.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

SECONDARY CELLS AND BATTERIES CONTAINING ALKALINE OR OTHER NON-ACID ELECTROLYTES – SECONDARY LITHIUM CELLS AND BATTERIES FOR PORTABLE APPLICATIONS –

Part 3: Prismatic and cylindrical lithium secondary cells, and batteries made from them

1 Scope

This part of IEC 61960 specifies performance tests, designations, markings, dimensions and other requirements for secondary lithium single cells and batteries for portable applications.

The objective of this document is to provide the purchasers and users of secondary lithium cells and batteries with a set of criteria with which they can judge the performance of secondary lithium cells and batteries offered by various manufacturers.

Portable applications comprise hand-held equipment, transportable equipment and movable equipment.

Examples of the main uses are shown below:

- a) hand-held equipment: smartphone, tablet PCs, audio/video players, and similar equipment;
- b) transportable equipment: notebook computers, CD players, and similar equipment;
- c) movable equipment
 - 18 kg or less in mass and not fixed in place, or
 - provided with wheels, castors, or other means to facilitate movement by an ordinary person as required to perform its intended use,
 - power tools, power assisted cycles, business-use video cameras, and similar equipment.

NOTE 1 All applications using batteries whose nominal voltages are equal to or over the hazardous voltage of 60 V DC are excluded.

NOTE 2 EESS (Electrical Energy Storage Systems) and UPS, which use batteries over 500 Wh of electric energy are excluded.

NOTE 3 Self-propelled vehicles are excluded.

This document defines a minimum required level of performance and a standardized methodology by which testing is performed and the results of this testing reported to the user. Hence, users will be able to establish the viability of commercially available cells and batteries via the declared specification and thus be able to select the cell or battery best suited for their intended application. The end user can handle only batteries which have completely fulfilled all the requirements of this document and others concerning safety such as IEC 62133-2.

This document covers secondary lithium cells and batteries with a range of chemistries. Each electrochemical couple has a characteristic voltage range over which it releases its electrical capacity, a characteristic nominal voltage and a characteristic final voltage during discharge. Users of secondary lithium cells and batteries are requested to consult the manufacturer for advice.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050-482:2004, *International Electrotechnical Vocabulary (IEV) – Part 482: Primary and secondary cells and batteries*

IEC 61000-4-2, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 62133-2:2017, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells and for batteries made from them, for use in portable applications – Part 2: Lithium systems*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-482 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

charge recovery

capacity recovery

capacity that a cell or battery can deliver with subsequent recharge after storage, at a specific temperature, for a specific time, as a percentage of the rated capacity

3.2

charge retention

capacity retention

capacity that a cell or battery can deliver after storage, at a specific temperature, for a specific time without subsequent recharge as a percentage of the rated capacity

3.3

final voltage

end-of-discharge voltage

specified closed circuit voltage at which a discharge of a cell or battery is terminated

3.4

nominal voltage

suitable approximate value of the voltage used to designate or identify a cell, a battery or an electrochemical system

Note 1 to entry: The nominal voltages of secondary lithium cells are shown in Table 1 and 2.

Note 2 to entry: The nominal voltage of a battery of n series connected cells is equal to n times the nominal voltage of a single cell.

[SOURCE: IEC 60050-482:2004, 482-03-31, modified – Addition Notes 1 and 2 to entry.]