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COMMENTED VERSION

Primary batteries -
Part 2-1: Physical and electrical specifications of batteries with aqueous electrolyte

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Primary batteries - Part 2-1: Physical and electrical specifications of batteries with aqueous electrolyte

FOREWORD

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This commented version (CMV) of the official standard IEC 60086-2-1:2026 edition 1.0 provides the user with comments from IEC TC 35 experts explaining the reasons for the most relevant changes made to IEC 60086-2:2021. These changes are listed in the Foreword.

Experts' comments are identified by a blue-background number. Mouse over a number to display a pop-up note containing the comment.

This publication contains both the CMV and the official standard. The full list of comments is available at the end of the CMV.

IEC 60086-2-1 has been prepared by IEC technical committee 35: Primary cells and batteries. It is an International Standard.

This first edition cancels and replaces the fourteenth edition of IEC 60086-2 published in 2021. This edition constitutes a technical revision.

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

a) the physical and electrical specifications of IEC 60086-2:2021 were divided into two new standards based on their electrolyte types. IEC 60086-2-1 provides specifications for standardized primary batteries containing aqueous electrolyte. IEC 60086-2-2 covers specifications for standardized lithium-based primary batteries; **1**

b) in Clause 3, terms were reordered according to their functions: basic terms, electrochemical systems, electrical characteristics and specifications; **2**

c) TR03 and TR6 were added in Category 1, Round batteries; **3**

d) load of digital audio test for LR03, TR03 and R03 was changed from 50 mA to 75 mA and MAD was modified; **4**

e) personal grooming test of LR6 was added instead of high drain application test; **5**

f) high drain application test was added for TR6; **6**

g) radio /clock /remote control test was added for R6S; **7**

h) CD, digital audio, wireless gaming and accessories test was removed for LR6, R6P and R6S; **8**

i) 4.5V of common designation was added for 3LR12, 3R12P and 3R12S; **9**

j) Annex D for common designation of IEC 60086-2:2021 was moved to IEC 60086-1:2026, as Annex H; **10**

k) Annex E for Compliance checklist of IEC 60086-2:2021 was removed and merged into Annex J of IEC 60086-1:2026. **11**

The text of this International Standard is based on the following documents:

Draft	Report on voting
35/1591/FDIS	35/1599/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 International Standard is English.

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.

A list of all parts in the IEC 60086 series, under the general title *Primary batteries*, 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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,
– withdrawn, or
– revised.

INTRODUCTION

The technical content of this part of IEC 60086 provides physical dimensions, discharge test conditions and discharge performance requirements. IEC 60086-2-1 and IEC 60086-2-2 complement the general information and requirements of IEC 60086-1. Safety information of IEC 60086-2-1 is available in IEC 60086-5.

This document was prepared to benefit primary battery users, device designers and battery manufacturers by furnishing the specifics of form, fit and function for individual standardized primary cells and batteries. Over the years, this part of IEC 60086 has been changed to improve its contents and might again be revised in due course in the light of comments made by national committees and experts on the basis of practical experience and changing technology.

1 Scope

This part of IEC 60086 is applicable to primary batteries which are based on standardised electrochemical systems using aqueous electrolytes.

It specifies

– the physical dimensions,

– the discharge test conditions and discharge performance requirements.

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 60086-1:2026, *Primary batteries - Part 1: General*

ISO 1101, *Geometrical product specifications (GPS) - Geometrical tolerancing - Tolerances of form, orientation, location and run-out*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60086-1:2026 and the following apply.

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

– IEC Electropedia: available at https://www.electropedia.org/

– ISO Online browsing platform: available at https://www.iso.org/obp

3.1
primary cell
primary battery
cell or battery that is not designed to be electrically recharged

3.2
round cell
round battery
cell or battery with circular cross section

3.3
button cell
button battery
small round cell or battery where the overall height is less than the diameter, containing aqueous electrolyte