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Fuel cell technologies - Part 6-401: Micro fuel cell power systems - Power and data interchangeability - Performance test methods for laptop computer

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. 10/25

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EUROPEAN STANDARD

EN IEC 62282-6-401

NORME EUROPÉENNE

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May 2025

ICS 27.070

English Version

**Fuel cell technologies - Part 6-401: Micro fuel cell power systems - Power and data interchangeability - Performance test methods for laptop computer
(IEC 62282-6-401:2025)**

Technologies des piles à combustible - Partie 6-401:
Systèmes à micropiles à combustible - Interchangeabilité
de la puissance et des données - Méthodes d'essai des
performances pour ordinateur portable
(IEC 62282-6-401:2025)

Brennstoffzellentechnologien - Teil 6-401: Mikro-
Brennstoffzellen-Energiesysteme - Austauschbarkeit von
Leistung und Daten - Leistungskennwertprüfverfahren für
Laptop-Computer
(IEC 62282-6-401:2025)

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Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 62282-6-401:2025 (E)**European foreword**

The text of document 105/1095/FDIS, future edition 1 of IEC 62282-6-401, prepared by TC 105 "Fuel cell technologies" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62282-6-401:2025.

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IEC 60068-2-6	NOTE	Approved as EN 60068-2-6
IEC 61672-1	NOTE	Approved as EN 61672-1
IEC 62680-1-3	NOTE	Approved as EN IEC 62680-1-3
ISO 9000	NOTE	Approved as EN ISO 9000

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where 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.cencenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-485	2020	International Electrotechnical Vocabulary (IEV) - Part 485: Fuel cell technologies (available at ww.electropedia.org)	-	-
IEC 60730-2-14	-	Automatic electrical controls - Part 2-14: Particular requirements for electric actuators	EN IEC 60730-2-14	-
IEC 60945	-	Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results	EN 60945	-
IEC 61204-3	-	Low-voltage switch mode power supplies - Part 3: Electromagnetic compatibility (EMC)	EN IEC 61204-3	-
IEC 62282-3-200	2015	Fuel cell technologies - Part 3-200: Stationary fuel cell power systems - Performance test methods	EN 62282-3-200	2016
IEC 62282-4-101	-	Fuel cell technologies - Part 4-101: Fuel cell power systems for electrically powered industrial trucks - Safety	EN IEC 62282-4-101	-
IEC 62282-6-400	-	Fuel cell technologies - Part 6-400: Micro fuel cell power systems - Power and data interchangeability	EN IEC 62282-6-400	-
IEC/TS 62700	-	DC power supply for notebook computers	-	-



IEC 62282-6-401

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Fuel cell technologies –
Part 6-401: Micro fuel cell power systems – Power and data interchangeability –
Performance test methods for laptop computer**

**Technologies des piles à combustible –
Partie 6-401: Systèmes à micropiles à combustible – Interchangeabilité de la
puissance et des données – Méthodes d’essai des performances pour
ordinateur portable**





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INTERNATIONAL STANDARD

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**Fuel cell technologies –
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puissance et des données – Méthodes d’essai des performances pour
ordinateur portable**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FUEL CELL TECHNOLOGIES –

**Part 6-401: Micro fuel cell power systems –
Power and data interchangeability –
Performance test methods for laptop computer**

FOREWORD

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IEC 62282-6-401 has been prepared by IEC technical committee 105: Fuel cell technologies. It is an International Standard.

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

Draft	Report on voting
105/1095/FDIS	105/1102/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 62282 series, published under the general title *Full cell technologies*, 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.

FUEL CELL TECHNOLOGIES –

Part 6-401: Micro fuel cell power systems – Power and data interchangeability – Performance test methods for laptop computer

1 Scope

This part of IEC 62282 covers the requirements for the performance test methods of a micro fuel cell/battery power system, consisting of a fuel cell system with secondary battery for laptop computers.

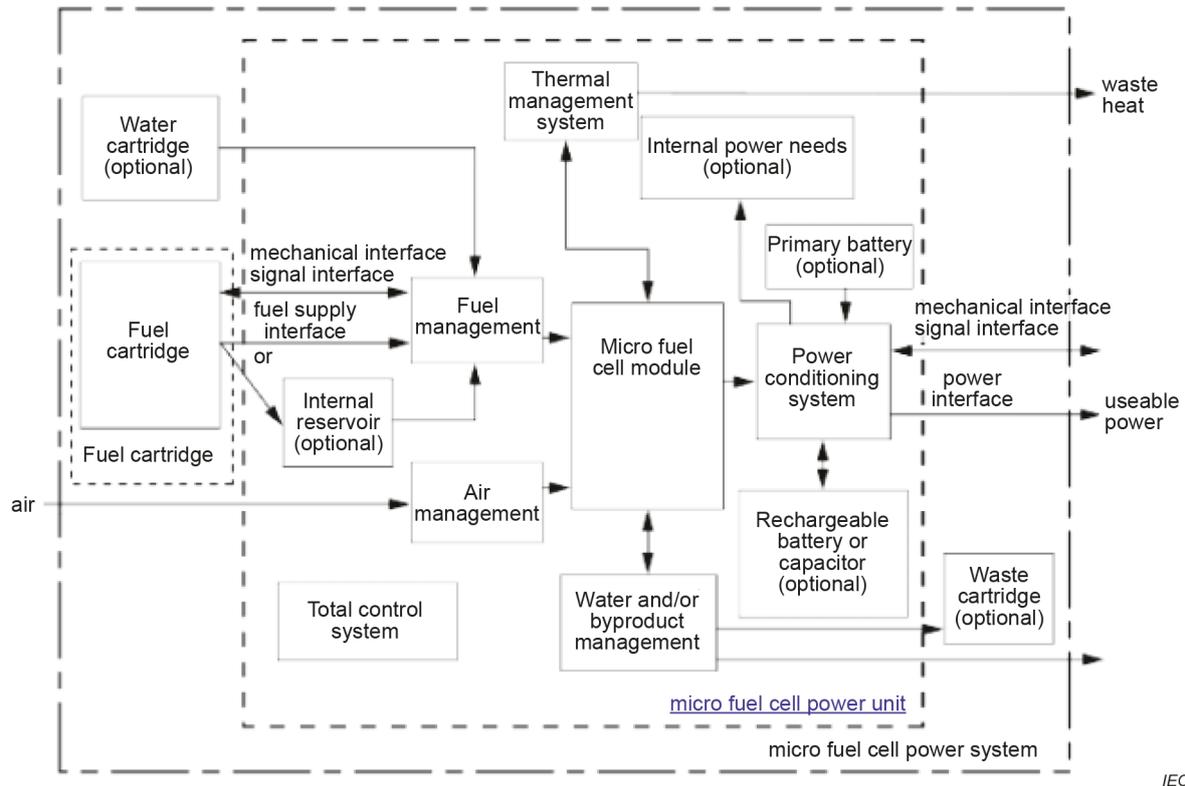
For this purpose, this document covers electrical performance tests for the fuel cell/battery hybrid system. This document also covers performance test methods which focus on the power and data interchangeability of the micro fuel cell power system and laptop computer and other characteristics for balance of plant (BOP) installed for laptop computer applications with a fuel cell/battery hybrid system. This document applies to gaseous hydrogen-fuelled fuel cell power, liquid hydrogen-fuelled fuel cell power, direct methanol fuel cell power, and battery hybrid power pack systems.

The following fuels are considered within the scope of this document:

- gaseous hydrogen;
- liquid hydrogen compounds;
- methanol.

This document does not apply to reformer-equipped fuel cell power systems.

A block diagram of a micro fuel cell power system is shown in Figure 1. This document covers the configuration, hybridization and operation modes for fuel cell/battery power systems.



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Figure 1 – Micro fuel cell power system block diagram

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 60050-485:2020, *International Electrotechnical Vocabulary (IEV) – Part 485: Fuel cell technologies* (available at www.electropedia.org)

IEC 60730-2-14, *Automatic electrical controls – Part 2-14: Particular requirements for electric actuators*

IEC 60945, *Maritime navigation and radiocommunication equipment and systems – General requirements – Methods of testing and required test results*

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IEC 62282-4-101, *Fuel cell technologies – Part 4-101: Fuel cell power systems for electrically powered industrial trucks – Safety*

IEC 62282-6-400, *Fuel cell technologies – Part 6-400: Micro fuel cell power systems – Power and data interchangeability*

IEC TS 62700, *DC power supply for notebook computers*

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