

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Fuel cell technologies –  
Part 6-200: Micro fuel cell power systems – Performance test methods**

**Technologies des piles à combustible –  
Partie 6-200: Systèmes à micropiles à combustible – Méthodes d'essai  
des performances**



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**FUEL CELL TECHNOLOGIES –****Part 6-200: Micro fuel cell power systems –  
Performance test methods**

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International Standard IEC 62282-6-200 has been prepared by IEC technical committee 105: Fuel cell technologies.

This third edition cancels and replaces the second edition, published in 2012. This edition constitutes a technical revision.

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

- a) deletion of 5.3 (Fuel consumption test) as it was impractical to measure the actual consumption rate of some kinds of fuels;
- b) addition and modification of some terms and definitions.

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

CDV	Report on voting
105/527/CDV	105/545A/RVC

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

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

A list of all parts in the IEC 62282 series, published under the general title *Fuel cell technologies*, can be found on the IEC website.

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

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- withdrawn,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

## INTRODUCTION

With advancements in technology, the expectation or demand for the commercial introduction of fuel cells has increased dramatically in recent years. It is especially strong for micro fuel cell power systems intended for applications in laptop computers, mobile phones, personal digital assistants (PDAs), cordless home appliances, TV broadcast cameras, autonomous robots, etc. The essential component of a micro fuel cell power system is its power unit. Some micro fuel cell power systems have built-in power units and others have external power units.

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## FUEL CELL TECHNOLOGIES –

### Part 6-200: Micro fuel cell power systems – Performance test methods

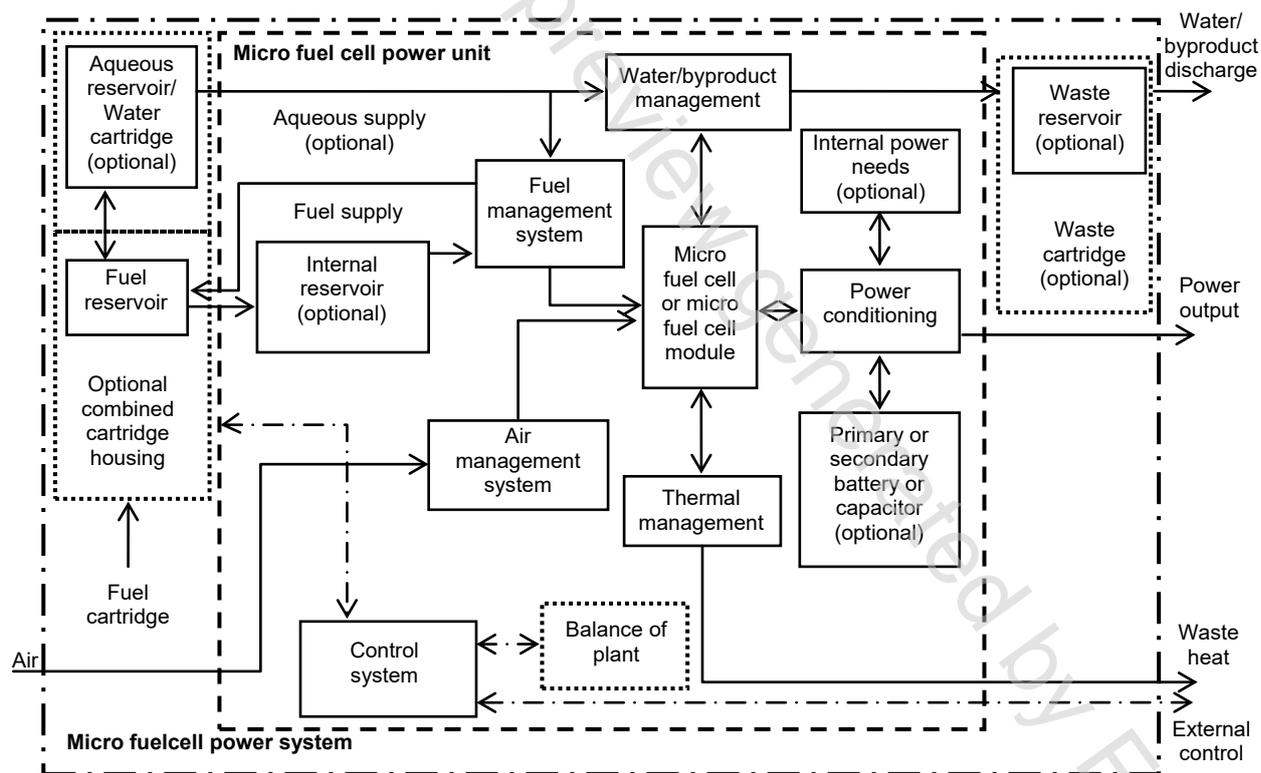
#### 1 Scope

This part of IEC 62282 specifies test methods for the performance evaluation of micro fuel cell power systems for laptop computers, mobile phones, personal digital assistants (PDAs), cordless home appliances, TV broadcast cameras, autonomous robots, etc.

This document describes the performance test methods for power characteristics, and mechanical durability for micro fuel cell power systems with output up to 60 V DC and 240 VA. The functional arrangement of a typical example of a micro fuel cell power system, evaluated according to this document, is shown in Figure 1.

This document does not address the safety of micro fuel cell power systems.

This document does not address the interchangeability of micro fuel cell 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 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60721-3-7, *Classification of environmental conditions – Part 3-7: Classification of groups of environmental parameters and their severities – Portable and non-stationary use*

IEC TS 62282-1:2013, *Fuel cell technologies – Part 1: Terminology*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC TS 62282-1:2013 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>

NOTE Some terms have been taken from IEC TS 62282-1 and modified for the needs of this document.

#### 3.1 conditioning

placing the micro fuel cell power system in the pre-generation state in the testing environment for a period of time to make the system adjusted to the environment under the prescribed test conditions, prior to a performance test

[SOURCE: IEC TS 62282-1:2013, 3.22, modified]

#### 3.2 micro fuel cell power system

DC power source providing electric power from a fuel cell that includes a fuel cartridge, provides not more than 60 V DC output voltage and 240 VA output power, and is connected to a hand-held or wearable electronic device by flexible cord(s) and plug arrangement or termination connectors integrated into the casing of the portable DC electric device

Note 1 to entry: Examples of hand-held or wearable electronic device are a laptop computer, mobile phone, PDA, cordless home appliance, TV broadcast camera and autonomous robot.

[SOURCE: IEC TS 62282-1:2013, 3.49.1, modified]

#### 3.3 rated current

maximum continuous electric output current that a micro fuel cell power system is designed to achieve at the rated voltage under normal operation conditions specified by the manufacturer

[SOURCE: IEC TS 62282-1:2013, 3.25.2, modified]

#### 3.4 rated power

maximum continuous electric output power that a micro fuel cell power system is designed to achieve under normal operating conditions specified by the manufacturer