IEC 62282-6-200

Edition 2.0 2012-07

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 micro-piles à combustible – Méthodes d'essai des performances

IEC 62282-6-200:2012

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

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CONTENTS

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FUEL CELL TECHNOLOGIES –

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FOREWORD

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

This second edition cancels and replaces the first edition, published in 2007, and constitutes a technical revision.

The main changes with respect to the previous edition are listed below:

a) changes have been incorporated to make this edition fuel independent:
   - the definition of "fuel" is now consistent with that of IEC/TS 62282-1:2010;
   - the restriction on specific fuels (methanol or methanol/water solution, formic acid, hydrogen, methanol clathrate compound, borohydride compound, butane, etc.). has been lifted;
b) modification of definition of "off-state" to "standby state";

c) in Clause 3, Terms and definitions, for the purposes of this document, IEC/TS 62282-1:2010 applies except for the following terms:

– conditioning;
– micro fuel cell power system;
– standby state; and
– starting duration.

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

FDIS	Report on voting
105/394/FDIS	105/401/RVD

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 of the IEC 62282 series, 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- withdrawn,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.

FUEL CELL TECHNOLOGIES –

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

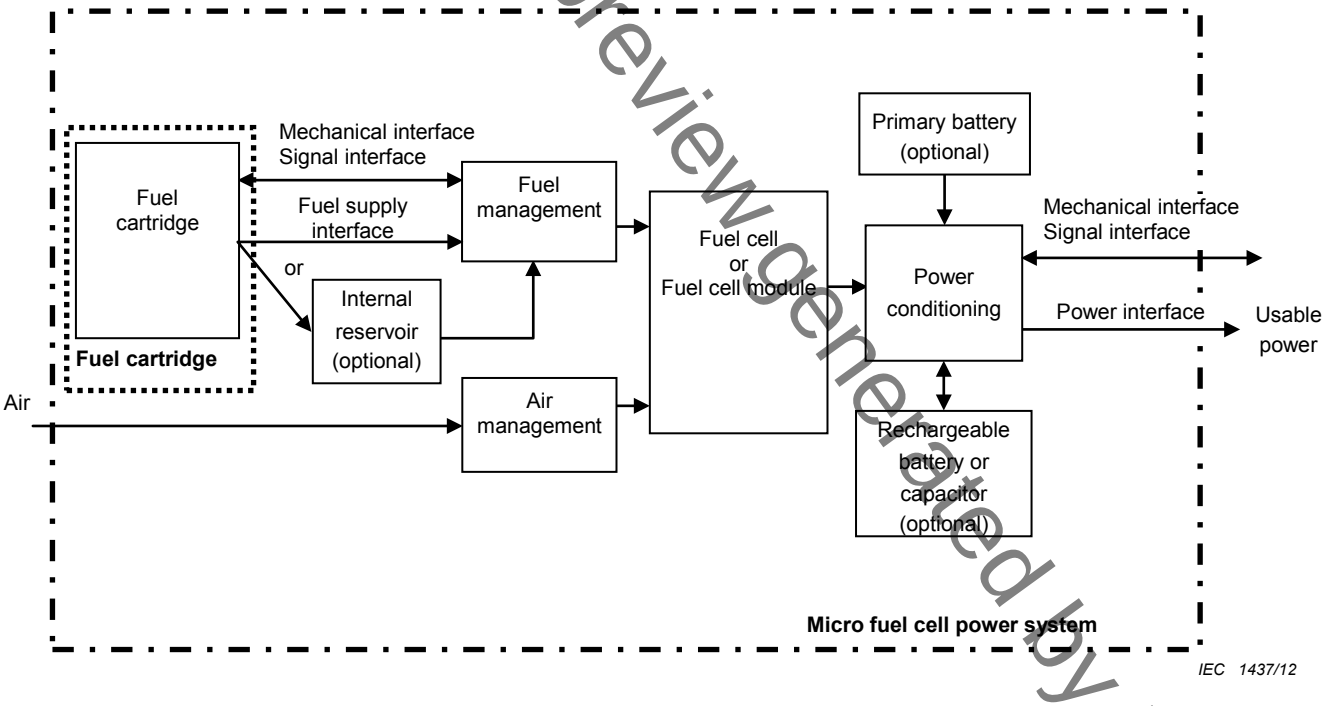
1 Scope

This part of IEC 62282 provides test methods which are required 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 standard describes the performance test methods for power characteristics, fuel consumption and mechanical durability for micro fuel cell power systems with output up to 60 V d.c. and 240 VA. The functional arrangement of a typical example of a micro fuel cell power system, evaluated according to this part of IEC 62282, is shown in Figure 1.

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

This standard does not address the interchangeability of micro fuel cell power systems.



NOTE Dotted lines represent conceptual boundaries rather than physical ones.

Figure 1 – Typical example of a functional arrangement of a micro fuel cell power system

2 Normative references

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.

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 62282-1:2010, *Fuel cell technologies – Part 1: Terminology*

ISO 4677-1, *Atmospheres for conditioning and testing – Determination of relative humidity – Part 1: Aspirated psychrometer method*

ISO 4677-2, *Atmospheres for conditioning and testing – Determination of relative humidity – Part 2: Whirling psychrometer method*

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

3 Terms and definitions

For the purposes of this document, IEC/TS 62282-1:2010 applies except as follows:

3.1
conditioning
operation involving placing the micro fuel cell power system in the standby 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

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 d.c. output voltage and 240 VA output power, and is connected to a hand-held or wearable electronic device such as a laptop computer, mobile phone, PDA, cordless home appliance, TV broadcast camera, autonomous robot, etc., by flexible cord(s) and plug arrangement or termination connectors integrated into the casing of the portable DC electric device

3.3
standby state
state of a micro fuel cell power system with zero electrical output power yet capable of being promptly switched to a state with substantial electric active output power

3.4
starting duration
period required for transitioning from the standby state to reach within ±10 % of rated voltage of the micro fuel cell power system after connection to the specified constant resistance