

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



**Uninterruptible power systems (UPS) –  
Part 5-3: DC output UPS – Performance and test requirements**

**Alimentations sans interruption (ASI) –  
Partie 5-3: ASI à tension de sortie continue – Performances et exigences d'essai**



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## UNINTERRUPTIBLE POWER SYSTEMS (UPS) –

## Part 5-3: DC output UPS – Performance and test requirements

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International Standard IEC 62040-5-3 has been prepared by subcommittee 22H: Uninterruptible power systems (UPS), of IEC technical committee 22: Power electronic systems and equipment.

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

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22H/208/FDIS	22H/211/RVD

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

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## UNINTERRUPTIBLE POWER SYSTEMS (UPS) –

### Part 5-3: DC output UPS – Performance and test requirements

#### 1 Scope

This part of IEC 62040 establishes the performance and test requirements applied to movable, stationary and fixed electronic **DC uninterruptible power systems (DC UPS)** that

- are supplied from an AC voltage source not exceeding 1 000 V,
- deliver a **DC output voltage** not exceeding 1 500 V,
- incorporate an **energy storage device**, and
- have a primary function to ensure continuity of DC power to loads.

This document specifies performance and test requirements of a complete **DC UPS** and not of individual **DC UPS functional units**. The individual **DC UPS functional units** are dealt with in IEC publications referred to in the bibliography that apply so far that they are not in contradiction with this document.

**DC UPSs** have been developed over a wide range of power, from less than a hundred watts to megawatts, to meet requirements for availability and quality of power to a variety of loads. Refer to Annexes A and B for information on typical **DC UPS** configurations and topologies.

This document also includes **DC UPS** performance and test requirements related to **interrupters**, isolating switches, and tie switches, if any, which are integral to the **DC UPS**. These components interact with other **functional units** of the **DC UPS** to maintain **continuity of load power**.

This document does not cover

- conventional AC input distribution boards and their associated switches,
- conventional DC distribution boards and their associated switches,
- conventional AC UPSs covered by IEC 62040-3,
- low-voltage DC power supply devices covered by a specific product standard, for example IEC 61204, and those covered by a specific product standard, for example ITU communication standards, and
- systems where the **output voltage** is derived from a rotating machine.

NOTE 1 This document recognises that power availability to information technology (IT) equipment represents a major UPS application. The **DC UPS** output characteristics specified in this document are therefore also aimed at ensuring compatibility with the requirements of IT equipment. This, subject to any limitation stated in the manufacturer's declaration, includes requirements for steady state and **transient** voltage variation as well as for the supply of both resistive and **constant power load** characteristics of IT equipment.

NOTE 2 Test loads specified in this document simulate both resistive and **constant power load** characteristics. Their use is prescribed with the objective of verifying design and performance, as declared by the manufacturer, and also of minimising any complexity and energy consumption during the tests.