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Irish Standard
I.S. EN 62040-5-3:2017

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

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I.S. EN 62040-5-3:2017 is the adopted Irish version of the European Document EN 62040-5-3:2017, Uninterruptible power systems (UPS) - Part 5-3: DC output UPS - Performance and test requirements

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EUROPÄISCHE NORM

EN 62040-5-3

February 2017

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English Version

Uninterruptible power systems (UPS) - Part 5-3: DC output UPS - Performance and test requirements (IEC 62040-5-3:2016)

Alimentations sans interruption (ASI) - Partie 5-3: ASI à tension de sortie continue - Performances et exigences d'essai (IEC 62040-5-3:2016)

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European foreword

The text of document 22H/208/FDIS, future edition 1 of IEC 62040-5-3, prepared by SC 22H "Uninterruptible power systems (UPS)" of IEC/TC 22 "Power electronic systems and equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62040-5-3:2017.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2017-08-30
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IEC 60034-22	NOTE	Harmonized as EN 60034-22.
IEC 60068-1	NOTE	Harmonized as EN 60068-1.
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IEC 60068-2-13	NOTE	Harmonized as EN 60068-2-13.
IEC 60068-3-3	NOTE	Harmonized as EN 60068-3-3.
IEC 60146-1-3:1991	NOTE	Harmonized as EN 60146-1-3:1993 (not modified).
IEC 60664-1	NOTE	Harmonized as EN 60664-1.
IEC 60721-3-3	NOTE	Harmonized as EN 60721-3-3.
IEC 60947-3	NOTE	Harmonized as EN 60947-3.
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IEC 61000-4-30	NOTE	Harmonized as EN 61000-4-30.
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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When 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.cenelec.eu

Publication	Year	Title	EN/HD	Year
IEC 60068-2-1	-	Environmental testing - Part 2-1: Tests - Test A: Cold	EN 60068-2-1	-
IEC 60068-2-2	-	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	-
IEC 60068-2-27	-	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock	EN 60068-2-27	-
IEC 60068-2-31	-	Environmental testing - Part 2-31: Tests - Test Ec: Rough handling shocks, primarily for equipment-type specimens	EN 60068-2-31	-
IEC 60068-2-78	-	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	-
IEC 60146-1-1	2009	Semiconductor converters - General requirements and line commutated converters - Part 1-1: Specification of basic requirements	EN 60146-1-1	2010
IEC 60146-2	1999	Semiconductor converters - Part 2: Self-commutated semiconductor converters including direct d.c. converters	EN 60146-2	2000
IEC 60364-1 (mod)	2005	Low-voltage electrical installations - Part 1: Fundamental principles, assessment of general characteristics, definitions	HD 60364-1	2008
IEC/TR 60721-4-3	-	Classification of environmental conditions - Part 4-3: Guidance for the correlation and transformation of environmental condition classes of IEC 60721-3 to the environmental tests of IEC 60068 - Stationary use at weatherprotected locations	-	-

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Publication	Year	Title	EN/HD	Year
IEC 61000-2-2	2002	Electromagnetic compatibility (EMC) - Part 2-2: Environment - Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems	EN 61000-2-2	2002
IEC 61672-1	-	Electroacoustics - Sound level meters - Part 1: Specifications	EN 61672-1	-
IEC 62040-1	-	Uninterruptible Power Systems (UPS) - Part 1: General and safety requirements for UPS	EN 62040-1	-
IEC 62040-2	-	Uninterruptible power systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements	EN 62040-2	-
ISO 7779	-	Acoustics - Measurement of airborne noise emitted by information technology and telecommunications equipment	EN ISO 7779	-

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

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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UNINTERRUPTIBLE POWER SYSTEMS (UPS) –

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

FOREWORD

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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:

FDIS	Report on voting
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.

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

In this document, the following print types are used:

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– requirements proper and normative annexes: in roman type;
– compliance statements and test specifications: *in italic type*;
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– terms that are defined in Clause 3: **bold**.

A list of all parts of the IEC 62040 series, under the general title *Uninterruptible power systems (UPS),* can be found on the IEC website.

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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 wherein 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.

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