BS EN IEC 61010-2-091:2021+A11:2021



BSI Standards Publication

Safety requirements for electrical equipment for measurement, control and laboratory use

Part 2-091: Particular requirements for cabinet X-ray systems

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National foreword

This British Standard is the UK implementation of EN IEC 61010-2-091:2021+A11:2021. It is derived from IEC 61010-2-091:2019. It supersedes BS EN 61010-2-091:2012, which will be withdrawn on 1 April 2024.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to text carry the number of the amendment. For example, text altered by CENELEC amendment A11 is indicated by [A11] [A11].

The UK participation in its preparation was entrusted to Technical Committee EPL/66, Safety of measuring, control and laboratory equipment.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Date	Text affected

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 61010-2-091:2021 +A11

April 2021

ICS 19.080; 71.040.10

Supersedes EN 61010-2-091:2012 and all of its amendments and corrigenda (if any)

English Version

Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-091: Particular requirements for cabinet X-ray systems (IEC 61010-2-091:2019)

Règles de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire - Partie 2-091: Exigences particulières pour les équipements à rayons X montés en armoire
(IEC 61010-2-091:2019)

Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte - Teil 2-091: Besondere Anforderungen für Röntgengeräteschränke
(IEC 61010-2-091:2019)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

The text of document 66/684/FDIS, future edition 2 of IEC 61010-2-091, prepared by IEC/TC 66 "Safety of measuring, control and laboratory equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61010-2-091:2021.

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) 2022-04-01
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-04-01

This document supersedes EN 61010-2-091:2012 and all of its amendments and corrigenda (if any).

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For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of EN IEC 61010-2-091:2021/A11:2021.

Endorsement notice

The text of the International Standard IEC 61010-2-091:2019 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60601-1-3	NOTE	Harmonized as EN 60601-1-3
IEC 60846-1	NOTE	Harmonized as EN 60846-1
IEC 61508 (series)	NOTE	Harmonized as EN 61508 (series)
IEC 62304	NOTE	Harmonized as EN 62304
ISO 12100	NOTE	Harmonized as EN ISO 12100
ISO 13849 (series)	NOTE	Harmonized as EN ISO 13849 (series)
ISO 13849-2	NOTE	Harmonized as EN ISO 13849-2

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Foreword to amendment A11

This document (EN IEC 61010-2-091:2021/A11:2021) has been prepared by CLC/TC 66X “Safety of measuring, control, and laboratory equipment”.

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2022-04-01
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2024-04-01

This document amends EN IEC 61010-2-091:2021.

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For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

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A11

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.

Annex ZA of EN 61010-1:2010/A1:2019 is applicable, except as follows:

Publication	Year	Title	EN/HD and EN/ISO	Year
IEC 62061	-	Safety of machinery – Functional safety of safety-related electrical, electronic and programmable electronic control systems	EN 62061 +A1 +A2	2005 2013 2015
ISO 13849-1	-	Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design	EN ISO 13849-1	2015

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Annex ZZ
(informative)

Relationship between this European standard and the safety objectives of Directive 2014/35/EU [2014 OJ L96] aimed to be covered

This European Standard has been prepared under a Commission's standardization request relating to harmonized standards in the field of the Low Voltage Directive, M/511, to provide one voluntary means of conforming to safety objectives of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits [2014 OJ L96].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding safety objectives of that Directive, and associated EFTA regulations.

Table ZZ.1 — Correspondence between this European standard and Annex I of Directive 2014/35/EU [2014 OJ L96]

Safety objectives of Directive 2014/35/EU (Annex I)	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
1. General conditions		
1 (a) the essential characteristics, the recognition and observance of which will ensure that electrical equipment will be used safely and in applications for which it was made, shall be marked on the electrical equipment, or, if this is not possible, on an accompanying document	5.1 5.2 5.3 5.4	
1 (b) the electrical equipment, together with its component parts, shall be made in such a way as to ensure that it can be safely and properly assembled and connected	5.4, 6.6 6.10 6.11 Annex F	

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Safety objectives of Directive 2014/35/EU (Annex I)	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
1 (c) the electrical equipment shall be so designed and manufactured as to ensure that protection against the hazards set out in points 2 and 3 is assured, providing that the equipment is used in applications for which it was made and is adequately maintained	5.4 Annex F, 17 (for hazards not covered by Clauses 6–16) See also the details in points 2 and 3	
2. Protection against hazards arising from the electrical equipment Measures of a technical nature shall be laid down in accordance with point 1, in order to ensure that:		
2 (a) persons and domestic animals are adequately protected against the danger of physical injury or other harm which might be caused by direct or indirect contact	4, 6.1 – 6.11, 9.6, 11.6, 14.4 Annex D, Annex F, Annex K	
2 (b) temperatures, arcs or radiation which would cause a danger, are not produced	4, 4.4.4.2, 6.3.1.b) 2), 6.3.2 b) 2), 9.5, 9.6, 10.1 −10.5, 12	
2 (c) persons, domestic animals and property are adequately protected against non-electrical dangers caused by the electrical equipment which are revealed by experience	4, 4.4, 7.2- 7.7, 9, 12.3, 12.5, 12.6, 13.1, 13.2, 16.2, 14.101, 14.102	
2 (d) the insulation is suitable for foreseeable conditions	4, 6.7, Annex K	
3. Protection against hazards which may be caused by external influences on the electrical equipment Technical measures shall be laid down in accordance with point 1, in order to ensure that the electrical equipment:		
3 (a) meets the expected mechanical requirements in such a way that persons, domestic animals and property are not endangered	4, 7, 8	
3 (b) is resistant to non-mechanical influences in expected environmental conditions, in such a way that persons, domestic animals and property are not endangered	1.4, 4, 6.7.2.2.1, 10.5, 11.6, 14.3, 14.8, 14.101, 14.102, 15	
3 (c) does not endanger persons, domestic animals and property in foreseeable conditions of overload	4, 9, 14, 16.1	

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL, AND LABORATORY USE –

Part 2-091: Particular requirements for cabinet X-ray systems

FOREWORD

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International Standard IEC 61010-2-091 has been prepared by IEC technical committee 66: Safety of measuring, control and laboratory equipment.

This second edition cancels and replaces the first edition published in 2012. It constitutes a technical revision.

This edition includes the following significant changes from the first edition, as well as numerous other changes:

- The scope of the document has been clarified and limited to equipment up to 500 kV.
- Additional marking requirements for X-ray generating assemblies have been added. (5.1)
- Requirements for high-voltage cables used in the X-ray assembly have been added. (6.5)
- Insulation requirements have been added. (6.7)
- Temperature requirements for beam-limiting devices have been added. (10.3)

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