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Standards

Irish Standard
I.S. EN 61482-1-2:2014

Live working - Protective clothing against the thermal hazards of an electric arc - Part 1-2: Test methods - Method 2: Determination of arc protection class of material and clothing by using a constrained and directed arc (box test)

I.S. EN 61482-1-2:2014

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EUROPEAN STANDARD

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NORME EUROPÉENNE

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Supersedes EN 61482-1-2:2007

English Version

**Live working - Protective clothing against the thermal hazards of
an electric arc - Part 1-2: Test methods - Method 2:
Determination of arc protection class of material and clothing by
using a constrained and directed arc (box test)
(IEC 61482-1-2:2014)**

Travaux sous tension - Vêtements de protection contre les
dangers thermiques d'un arc électrique - Partie 1-2: Méthodes
d'essai - Méthode 2: Détermination de la classe de protection
contre l'arc de matériaux et de vêtements au moyen d'un arc
dirigé et contraint (enceinte d'essai)
(CEI 61482-1-2:2014)

Arbeiten unter Spannung - Schutzkleidung gegen die
thermischen Gefahren eines elektrischen Lichtbogens -
Teil 1-2: Prüfverfahren - Verfahren 2: Bestimmung der
Lichtbogen-Schutzklasse des Materials und der Kleidung unter
Verwendung eines gerichteten Prüflichtbogens (Box-Test)
(IEC 61482-1-2:2014)

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 78/1053/FDIS, future edition 2 of IEC 61482-1-2, prepared by IEC/TC 78 "Live working" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61482-1-2:2014.

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) 2015-08-13
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-11-13

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

IEC 61482-1-1	NOTE	Harmonized as EN 61482-1-1.
ISO 3175-2	NOTE	Harmonized as EN ISO 3175-2.
ISO 6330	NOTE	Harmonized as EN ISO 6330.
ISO 13688:2013	NOTE	Harmonized as EN ISO 13688:2013 (not modified).
ISO 15797	NOTE	Harmonized as EN ISO 15797.

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 9151	1995	Protective clothing against heat and flame - Determination of heat transmission on exposure to flame	-	-

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IEC 61482-1-2

Edition 2.0 2014-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Live working – Protective clothing against the thermal hazards of an electric arc –

Part 1-2: Test methods – Method 2: Determination of arc protection class of material and clothing by using a constrained and directed arc (box test)

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IEC 61482-1-2

Edition 2.0 2014-10

INTERNATIONAL STANDARD

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**LIVE WORKING – PROTECTIVE CLOTHING AGAINST
THE THERMAL HAZARDS OF AN ELECTRIC ARC –****Part 1-2: Test methods –
Method 2: Determination of arc protection class of material
and clothing by using a constrained and directed arc (box test)**

FOREWORD

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International Standard IEC 61482-1-2 has been prepared by IEC technical committee 78: Live working.

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

It includes the following significant technical changes with regard to the previous edition:

- new mean values of main control parameters *arc energy* and *incident energy* based on an extended statistical database consisting of parameter values measured in four laboratories;
- reduction of validity check ranges of main control parameters;

- determination of the *incident energy* by averaging the two *sensor* values of a test (instead of considering each single *sensor* value);
- determination of the heat curves of transmitted *incident energy* and an amendment to the *heat flux* acceptance criterion;
- information on precision (repeatability and reproducibility) of the test method;
- clarification of the scope;
- selection of the *arc protection classes* (test classes) by the amount of the *arc energy* and *incident energy* instead of the short-circuit current;
- permitting electrode design without bores;
- recommendations of the heat resistance *materials* to be used for the box and for the test plate;
- clarification of the conditions for cleaning and replacing the box;
- requirement for including in the test report the differences ΔE_i of the *transmitted energy* values to the Stoll limit value at t_{\max} and the information if the heat curves of transmitted *incident energy* exceed the *Stoll curve* during the *exposure time*;
- preconditioning of the samples according to manufacturer's instruction.

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

FDIS	Report on voting
78/1053/FDIS	78/1089/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.

In this standard terms defined in Clause 3 appear in *italics*.

A list of all parts in the IEC 61482 series, published under the general title *Live working – Protective clothing against the thermal hazards of an electric arc*, 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.

LIVE WORKING – PROTECTIVE CLOTHING AGAINST THE THERMAL HAZARDS OF AN ELECTRIC ARC –

Part 1-2: Test methods – Method 2: Determination of arc protection class of material and clothing by using a constrained and directed arc (box test)

1 Scope

This part of IEC 61482 specifies procedures to test *material* and *garments* intended for use in heat and flame-resistant *clothing* for workers if there is an electric arc hazard. A directed and constrained *electric arc* in a test circuit is used to classify *material* and *clothing* in two defined *arc protection classes*.

This International Standard is not dedicated toward measuring the arc rating values (ATPV¹, ELIM² or EBT³). Procedures determining these arc rating values are prescribed in IEC 61482-1-1, using an open arc for testing.

Other effects than the thermal effects of an electric arc like noise, light emissions, pressure rise, hot oil, electric shock, the consequences of physical and mental shock or toxic influences are not covered by this standard.

Protective clothing for work intentionally using an *electric arc*, e.g. arc welding, plasma torch, is not covered by this standard.

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.

ISO 9151:1995, *Protective clothing against heat and flame – Determination of heat transmission on exposure to flame*

3 Terms, definitions and symbols

For the purposes of this document, the following terms, definitions and symbols apply.

3.1 Terms and definitions

3.1.1

arc current

I_{arc}

current actually flowing in the electric test circuit during *arc duration* (through the arc)

1 ATPV = *arc thermal performance value*.

2 ELIM= *incident energy limit*

3 EBT= *breakopen energy threshold*

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