Irish Standard
I.S. EN 61472:2013&AC:2015

Live working - Minimum approach distances for a.c systems in the voltage range 72,5 kV to 800 kV - A method of calculation

I.S. EN 61472:2013&AC:2015

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

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NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61472:2013/AC:2015

November 2015

ICS 13.260; 29.240.20; 29.260.99

English Version

Live working - Minimum approach distances for a.c systems in the voltage range 72,5 kV to 800 kV - A method of calculation

Travaux sous tension - Distances minimales d'approche pour des réseaux à courant alternatif de tension comprise entre 72,5 kV et 800 kV - Une méthode de calcul

Arbeiten unter Spannung - Mindest-Arbeitsabstände für Wechselspannungsnetze im Spannungsbereich von 72,5 kV bis 800 kV - Berechnungsverfahren

This corrigendum becomes effective on 27 November 2015 for incorporation in the English language version of the EN.

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

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The text of the corrigendum IEC 61472:2013/COR1:2015 was approved by CENELEC as EN 61472:2013/AC:2015 without any modification.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61472

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Supersedes EN 61472:2004

English version

Live working - Minimum approach distances for a.c systems in the voltage range 72,5 kV to 800 kV - A method of calculation

(IEC 61472:2013)

Travaux sous tension - Distances minimales d'approche pour des réseaux à courant alternatif de tension comprise entre 72,5 kV et 800 kV - Une méthode de calcul (CEI 61472:2013)

Arbeiten unter Spannung - Mindest-Arbeitsabstände für Wechselspannungsnetze im Spannungsbereich von 72,5 kV bis 800 kV - Berechnungsverfahren (IEC 61472:2013)

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Foreword

The text of document 78/1004/FDIS, future edition 3 of IEC 61472, prepared by IEC/TC 78 "Live working" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61472:2013.

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)	2014-02-16
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-05-16

This document supersedes EN 61472:2004.

This document has been prepared according to the requirements of EN 61477: *Live working – Minimum requirements for the utilization of tools, devices and equipment*, where applicable.

EN 61472:2013 includes the following significant technical changes with respect to EN 61472:2004:

– clarification of the scope;

– review of the definitions;

– clarification of the methodology of determining whether live working is permissible and the calculation of the minimum approach distances;

– modification of the basic equation for calculation of the minimum approach distance;

– introduction of Table 1 for altitude correction factor simplification k_a;

– introduction of criteria in presence of composite insulator and clarification on the use of insulator factor k_i;

– review of the informative Annex F on the influence of floating conductive objects on the dielectric strength;

– review of the informative Annex G on live working near contaminated, damaged or moist insulation.

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

IEC 60060-1:2010	NOTE	Harmonised as EN 60060-1:2010 (not modified).
IEC 60071-1:2006	NOTE	Harmonised as EN 60071-1:2006 (not modified).
IEC 60071-2:1996	NOTE	Harmonised as EN 60071-2:1997 (not modified).
IEC 60743	NOTE	Harmonised as EN 60743.
IEC 61477:2009	NOTE	Harmonised as EN 61477:2009 (not modified).

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Live working – Minimum approach distances for a.c. systems in the voltage range 72,5 kV to 800 kV – A method of calculation

Travaux sous tension – Distances minimales d'approche pour des réseaux à courant alternatif de tension comprise entre 72,5 kV et 800 kV – Une méthode de calcul

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LIVE WORKING – MINIMUM APPROACH DISTANCES FOR A.C. SYSTEMS IN THE VOLTAGE RANGE 72,5 kV TO 800 kV – A METHOD OF CALCULATION

FOREWORD

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International Standard IEC 61472 has been prepared by technical committee 78: Live working.

This third edition cancels and replaces the second edition of IEC 61472 published in 2004. It constitutes a technical revision.

This document has been prepared according to the requirements of IEC 61477: *Live working – Minimum requirements for the utilization of tools, devices and equipment*, where applicable.

Significant changes with regard to the second edition are the following:

– clarification of the scope;
– review of the definitions;
– clarification of the methodology of determining whether live working is permissible and the calculation of the minimum approach distances;

– modification of the basic equation for calculation of the minimum approach distance;
– introduction of Table 1 for altitude correction factor simplification k_a;
– introduction of criteria in presence of composite insulator and clarification on the use of insulator factor k_i;
– review of the informative Annex F on the influence of floating conductive objects on the dielectric strength;
– review of the informative Annex G on live working near contaminated, damaged or moist insulation.

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

FDIS	Report on voting
78/1004/FDIS	78/1010/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.

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LIVE WORKING – MINIMUM APPROACH DISTANCES FOR A.C. SYSTEMS IN THE VOLTAGE RANGE 72,5 kV TO 800 kV – A METHOD OF CALCULATION

1 Scope

This International Standard describes a method for calculating the minimum approach distances for live working, at maximum voltages between 72,5 kV and 800 kV. This standard addresses system overvoltages and the working air distances or tool insulation between parts and/or workers at different electric potentials.

The required withstand voltage and minimum approach distances calculated by the method described in this standard are evaluated taking into consideration the following:

– workers are trained for, and skilled in, working in the live working zone;
– the anticipated overvoltages do not exceed the value selected for the determination of the required minimum approach distance;
– transient overvoltages are the determining overvoltages;
– tool insulation has no continuous film of moisture or measurable contamination present on the surface;
– no lightning is seen or heard within 10 km of the work site;
– allowance is made for the effect of conducting components of tools;
– the effect of altitude, insulators in the gap, etc, on the electric strength is taken into consideration.

For conditions other than the above, the evaluation of the minimum approach distances may require specific data, derived by other calculation or obtained from additional laboratory investigations on the actual situation.

2 Terms, definitions and symbols

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

2.1 Terms and definitions

2.1.1
damaged insulator
insulator having any type of manufacturing defect or in-service deterioration which affects its insulating performance

2.1.2
electrical distance
D_U
distance in air required to prevent a disruptive discharge between energized parts or between energized parts and earthed parts during live working

[SOURCE: IEC 60050-651:–, 651-21-12]