PD IEC TS 60815-3:2025

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# Selection and dimensioning of high-voltage insulators intended for use in polluted conditions

Part 3: Polymer insulators for AC systems

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# National foreword

This Published Document is the UK implementation of IEC TS 60815-3:2025. It supersedes DD IEC/TS 60815-3:2008, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PEL/36, Insulators for power systems.

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

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**Part 3: Polymer insulators for AC systems**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# Selection and dimensioning of high-voltage insulators intended for use in polluted conditions - Part 3: Polymer insulators for AC systems

## FOREWORD

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IEC TS 60815-3 has been prepared by IEC technical committee 36: Insulators. It is a Technical Specification.

This second edition of IEC TS 60815-3, together with IEC TS 60815-1, cancels and replaces the first edition of IEC TS 60815-3:2008. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) Terms and definitions are modified or introduced in this document;

b) From RUSCD of reference insulator to USCD of candidate insulator, the correction factors are introduced and revised, such as altitude correction, diameter correction, shed profile correction and parallel insulator number correction;



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c) The general guidance on materials is revised. The concept of hydrophobicity transfer and hydrophobicity transfer material (HTM) are introduced, recognising that a reduced creepage distance may be used for HTM insulators.

The text of this Technical Specification is based on the following documents:

| Draft | Report on voting |
|---|---|
| 36/613/DTS | 36/636/RVDTS |

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

The language used for the development of this Technical Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all the parts in the future IEC 60815 series, under the general title *Selection and dimensioning of high-voltage insulators intended for use in polluted conditions*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,
– withdrawn, or
– revised.



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# 1 Scope

This part of IEC 60815, which is a technical specification, is applicable for the selection of polymeric insulators for AC systems, and the determination of their relevant dimensions, to be used in high voltage systems with respect to pollution. The specification applies to insulators for outdoor installation only.

This document gives specific guidelines and principles to arrive at an informed judgement on the probable behaviour of a given insulator in certain pollution environment.

The contents of this document are based on CIGRE TB 158 and CIGRE TB 361 [1][1], [2], which form a useful complement to this document for those wishing to study in greater depth the performance of insulators under pollution.

This document does not deal with the effects of snow or ice on polluted insulators. Although this subject is dealt with by CIGRE TB 158 [1], current knowledge is very limited and practice is too diverse.

The objective of this document is to give the user means to

- determine the reference unified specific creepage distance (RUSCD) from site pollution severity (SPS) value or class,
- choose appropriate profiles,
- apply correction factors for altitude, insulator shape, size and position, etc. to the RUSCD.

# 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050-471, *International Electrotechnical Vocabulary (IEV) - Part 471: Insulators*

IEC TS 60815-1:2025, *Selection and dimensioning of high-voltage insulators intended for use in polluted conditions - Part 1: Definitions, information and general principles*

# 3 Terms, definitions and abbreviated terms

## 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-471 and the following apply.

ISO and IEC maintain terminological databases for use in standardisation at the following addresses:

– ISO Online browsing platform: available at https://www.iso.org/obp
– IEC Electropedia: available at http://www.electropedia.org/

[1] Numbers in square brackets refer to the bibliography.



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