IEC TS 60815-1

Edition 2.0 2025-11

TECHNICAL SPECIFICATION

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

ICS 29.080.10

ISBN 978-2-8327-0759-3

IEC TS 60815-1:2025-11(en)

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

FOREWORD

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IEC TS 60815-1 has been prepared by IEC technical committee 36: Insulators. It is a Technical Specification.

This second edition cancels and replaces the first edition of IEC TS 60815-1 published in 2008. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition[1]:

a) In the Scope, it is clarified that this specification is applicable to AC and DC conditions while it mainly refers to AC conditions. Detailed application indications refer to AC only. The

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[1] IEC TS 60815-2 and IEC TS 60815-3 are being revised synchronously with this document. It is the intention of the technical committee to revise IEC TS 60815-4 in the future, and these technical changes will also apply, where applicable, to that document.

RUSCD is determined based on the SPS class of reference insulators, and this document does not deal with the effects of ice and snow on polluted insulators;

b) Some terms and definitions are modified or introduced in this document, such as RUSCD, creepage factor, average diameter, SPS value and SPS class, hydrophobicity transfer and HTM, etc.;

c) Clause 5 is re-organized and revised regarding input parameters for the selection and dimensioning of insulators, including system requirements and environmental conditions;

d) Clause 6 "Determination of site pollution severity (SPS) class" is re-organized and re-written. A distinction was made between SPS value and SPS class. The measurement of pollution that is made on the de-energized reference insulator is valid for AC only;

e) A new pollution class, extremely heavy class f, is added. It is applicable only to the special situations of extremely heavy pollution when the RUSCD of class e cannot meet the requirements. The RUSCD value for class f is not specified;

f) The parameters of reference insulators were defined;

g) The profiles of reference insulators for type B pollution, both cap-and-pin and long rod insulators were added in this revision. The severity interval for pollution class definition was differentiated for cap and pin insulators and long rod insulators for type B pollution, as already foreseen for type A pollution;

h) The DDDG measurement method was also revised;

i) 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;

j) Profile suitability on ceramic and glass insulators was simplified;

k) 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;

l) In the laboratory artificial pollution test for solid layer, the relation between SDD and ESDD is revised;

m) The statistical method is updated.

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

Draft	Report on voting
36/614/DTS	36/634/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 TS 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.

NOTE The following print types are used in Table 2:

– *non pollution related parameters: in italic type*.