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INTERNATIONAL STANDARD

COMMENTED VERSION

Lightning protection system components (LPSC) -
Part 8: Requirements for components for ~~isolated~~ electrically insulated LPS

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Lightning protection system components (LPSC) - Part 8: Requirements for components for ~~isolated~~ electrically insulated LPS 1

FOREWORD

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This commented version (CMV) of the official standard IEC 62561-8:2026 edition 1.0 allows the user to identify the changes made to the previous edition IEC TS 62561-8:2018. Furthermore, comments from IEC TC 81 experts are provided to explain the reasons of the most relevant changes, or to clarify any part of the content.

A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text. Experts' comments are identified by a blue-background number. Mouse over a number to display a pop-up note with the comment.

This publication contains the CMV and the official standard. The full list of comments is available at the end of the CMV.

IEC 62561-8 has been prepared by IEC technical committee 81: Lightning protection. It is an International Standard.

This first edition cancels and replaces IEC TS 62561-8 published in 2018. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC TS 62561-8:2018:

a) title and scope of the standard has been adjusted;
b) the document has been updated in line with IEC 60068-2-52:2017 on salt mist treatment;
c) the document has been updated in line with ISO 22479:2019 on humid sulphureous atmosphere treatment;
d) two different possible example configurations for pull out tests have been introduced;
e) additional information on pollution has been included;
f) an alternate test arrangement for high voltage impulse test has been included;
g) a new normative Annex H for applicability of previous tests has been introduced;
h) pass criteria for high voltage impulse testing updated;
i) explanation on high voltage impulse testing with negative polarity has been added.

The text of this International Standard is based on the following documents:

Draft	Report on voting
81/806/FDIS	81/808/RVD

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 International Standard 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 parts in the 62561 series, published under the general title *Lightning protection system components (LPSC)*, 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.

INTRODUCTION

This part of IEC 62561 deals with the requirements and tests for lightning protection system components (LPSC), specifically components for electrically insulated LPS, used for the installation of a lightning protection system (LPS) designed and implemented according to the IEC 62305 series [1][1].

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

1 Scope

This document specifies the requirements and tests for components used for electrically insulated LPS. These components, which can reduce the separation distance, are as follows:

– insulating stand-offs, used in conjunction with an air-termination system and down-conductors with the aim of maintaining the proper separation distance~~, and the requirements and tests for insulating down-conductors, including their specific fasteners, able to reduce the separation distance.~~;

– insulating down-conductors, including their specific fasteners. **2**

Testing of insulating stand-offs and insulating down-conductor components for an explosive atmosphere is not covered by this document.

~~Requirements and tests for other types of components for isolated LPS are under consideration.~~

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 60060-2:~~2010~~2025, *High-voltage test techniques - Part 2: Measuring systems*

IEC 60068-2-52:2017, *Environmental testing - Part 2-52: Tests - Test Kb: Salt mist, cyclic (sodium chloride solution)* **3**

IEC 60068-2-75:2014, *Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests*

IEC 61083-1, *Instruments and software used for measurements in high-voltage ~~impulse~~ and high-current tests - Part 1: Requirements for instruments for impulse tests*

IEC 61083-2, *Instruments and software used for measurement in high-voltage and high-current tests - Part 2: Requirements for software for tests with impulse voltages and currents*

IEC 62305-3, *Protection against lightning - Part 3: Physical damage to structures and life hazard*

IEC 62561-1:~~2017~~2023, *Lightning protection system components (LPSC) - Part 1: Requirements for connection components*

IEC 62561-2:~~2012~~2025, *Lightning protection system components (LPSC) - Part 2: Requirements for conductors and earth electrodes*

IEC 62561-4, *Lightning protection system components (LPSC) - Part 4: Requirements for conductor fasteners*

ISO 4892-2, *Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps*

ISO 4892-3:~~2016~~2024, *Plastics - Methods of exposure to laboratory light sources - Part 3: Fluorescent UV lamps*

ISO 4892-4, *Plastics - Methods of exposure to laboratory light sources - Part 4: Open-flame carbon-arc lamps*

~~ISO 6988:1985, *Metallic and other non-organic coatings – Sulfur dioxide test with general condensation of moisture*~~

ISO 6957:1988, *Copper alloys - Ammonia test for stress corrosion resistance*

ISO 22479:2019, *Corrosion of metals and alloys - Sulfur dioxide test in a humid atmosphere (fixed gas method)* **4**

Bibliography

~~IEC 60060-1:2010, *High-voltage test techniques – Part 1: General definitions and test requirements*~~

~~IEC 60332-3 (all parts), *Tests on electric cables under fire conditions*~~

~~IEC 62305-1:2010, *Protection against lightning – Part 1: General principles*~~

[1] IEC 62305 (all parts), *Protection against lightning*

[2] R. Brocke, O. Beierl: "*Probability of Insulation Failures in Isolated LPS according to the used Insulation Technologies*", Proceedings of the XI SIPDA, Fortaleza, Brazil, Nov. 2011

[3] R. Brocke, O. Beierl: "*Influence of humidity and pollution on the dielectric strength of components used in Isolated LPS*", 32th International Conference on Lightning Protection (ICLP), Shanghai, China, Oct. 2014

[4] W. Zischank, J. Wiesinger, P. Hasse: "*Insulators for Isolated or Partly Isolated Lightning Protection Systems to Verify Safety Distances*" Proceedings of the 23. ICLP, Florenz 1996, pp. 513-518

[5] S. Grzybowski, J. Kappenman, W. A. Radasky: "*Electrical Strength of Distribution Insulators under steep front, short duration pulse*", 17th International Zurich Symposium on Electromagnetic Compatibility, 2006

[6] IEC 62305-1:2024, *Protection against lightning - Part 1: General principles*

[7] IEC TS 62561-8:2018, *Lightning protection components (LPSC) - Part 8: Requirements for components for isolated LPS*

[8] IEC 62305-2:2024, *Protection against lightning - Part 2: Risk management*

[9] IEC 62305-4:2024, *Protection against lightning - Part 4: Electrical and electronic systems within structures*

[10] IEC 60332 (all parts), *Tests on electric cables under fire conditions*

[11] IEC 61034 (all parts), *Measurement of smoke density of cables burning under defined conditions*

List of comments

1 The title of IEC 62561-8 has been revised, and the new term “electrically insulated LPS” has been introduced to align with the definitions given in IEC 62305-3 Edition 3.0.

2 The scope of the standard and the description of the components covered by the standard have been revised in accordance with the new definition of an electrically insulated LPS given in IEC 62305-3.

3 The standard has been updated in line with the latest requirements for salt mist testing.

4 The standard has been updated in line with the latest requirements for sulfur dioxide testing.

5 Based on an IEC questionnaire and the conclusions of a Task Force on pollution testing, which reviewed the scientific research on this topic in detail, additional information has been included in the bibliography.

6 Two typical test configurations have been included based on testing experience.

7 The test criteria for the high-voltage impulse test have been revised for improved clarity.

8 An explanation of high-voltage impulse testing with negative polarity has been added, together with additional bibliographic references. Testing with negative polarity represents the worst-case condition.

9 A new normative annex describing an alternative test arrangement for the high-voltage impulse test has been included as an outcome of a Task Force on high voltage testing.

10 The test criteria for the high-voltage impulse test have been revised for improved clarity.

11 The document has been updated in line with IEC 60068-2-52:2017 regarding salt mist testing.

12 The document has been updated in line with ISO 22479:2019 regarding humid sulfurous atmosphere testing.

13 The test criteria for the high-voltage impulse test have been revised for improved clarity.

14 An alternative test arrangement for the high-voltage impulse test has been included as an outcome of a Task Force on high voltage testing.

15 A new normative annex describing an alternative test arrangement for the high-voltage impulse test has been included as an outcome of a Task Force on high voltage testing.

16 A new normative annex has been introduced to align with IEC 62561 requirements for lightning protection system components (LPSC).

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