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IEC 62305-1

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INTERNATIONAL STANDARD

**Protection against lightning –
Part 1: General principles**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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CONTENTS

FOREWORD	5
INTRODUCTION	7
1 Scope	8
2 Normative references	8
3 Terms and definitions	8
4 Lightning current parameters	14
5 Damage due to lightning	14
5.1 Damage to a structure	14
5.1.1 Effects of lightning on a structure	14
5.1.2 Sources and types of damage to a structure	16
5.2 Types of loss	16
6 Need and economic justification for lightning protection	18
6.1 Need for lightning protection	18
6.2 Economic justification of lightning protection	19
7 Protection measures	19
7.1 General	19
7.2 Protection measures to reduce injury of living beings by electric shock	19
7.3 Protection measures to reduce physical damage	20
7.4 Protection measures to reduce failure of electrical and electronic systems	20
7.5 Protection measures selection	20
8 Basic criteria for protection of structures	21
8.1 General	21
8.2 Lightning protection levels (LPL)	21
8.3 Lightning protection zones (LPZ)	23
8.4 Protection of structures	25
8.4.1 Protection to reduce physical damage and life hazard	25
8.4.2 Protection to reduce the failure of internal systems	26
Annex A (informative) Parameters of lightning current	27
Annex B (informative) Time functions of the lightning current for analysis purposes	38
Annex C (informative) Simulation of the lightning current for test purposes	44
Annex D (informative) Test parameters simulating the effects of lightning on LPS components	48
Annex E (informative) Surges due to lightning at different installation points	62
Bibliography	67
Figure 1 – Connection between the various parts of IEC 62305	7
Figure 2 – Types of loss and corresponding risks resulting from different types of damage	18
Figure 3 – LPZ defined by an LPS (IEC 62305-3)	24
Figure 4 – LPZ defined by an SPM (IEC 62305-4)	25
Figure A.1 – Definitions of impulse current parameters (typically $T_2 = 2$ ms)	27
Figure A.2 – Definitions of long duration stroke parameters (typically 2 ms T_{LONG} 1 s)	28

Figure A.3 – Possible components of downward flashes (typical in flat territory and to lower structures)	28
Figure A.4 – Possible components of upward flashes (typical to exposed and/or higher structures).....	29
Figure A.5 – Cumulative frequency distribution of lightning current parameters (lines through 95 % and 5 % value).....	34
Figure B.1 – Shape of the current rise of the first positive impulse	39
Figure B.2 – Shape of the current tail of the first positive impulse	40
Figure B.3 – Shape of the current rise of the first negative impulse	40
Figure B.4 – Shape of the current tail of the first negative impulse	41
Figure B.5 – Shape of the current rise of the subsequent negative impulses	42
Figure B.6 – Shape of the current tail of the subsequent negative impulses	42
Figure B.7 – Amplitude density of the lightning current according to LPL I	43
Figure C.1 – Example test generator for the simulation of the specific energy of the first positive impulse and the charge of the long stroke.....	45
Figure C.2 – Definition of the current steepness in accordance with Table C.3	46
Figure C.3 – Example test generator for the simulation of the front steepness of the first positive impulse for large test items	47
Figure C.4 – Example test generator for the simulation of the front steepness of the subsequent negative impulses for large test items.....	47
Figure D.1 – General arrangement of two conductors for the calculation of electrodynamic force.....	54
Figure D.2 – Typical conductor arrangement in an LPS.....	55
Figure D.3 – Diagram of the stresses F for the configuration of Figure D.2.....	55
Figure D.4 – Force per unit length F' along the horizontal conductor of Figure D.2	56
Table 1 – Effects of lightning on typical structures	15
Table 2 – Damage and loss relevant to a structure according to different points of strike of lightning	17
Table 3 – Maximum values of lightning parameters according to LPL	22
Table 4 – Minimum values of lightning parameters and related rolling sphere radius corresponding to LPL	22
Table 5 – Probabilities for the limits of the lightning current parameters	23
Table A.1 – Tabulated values of lightning current parameters taken from CIGRE (Electra No. 41 or No. 69) [3], [4]	31
Table A.2 – Logarithmic normal distribution of lightning current parameters – Mean μ and dispersion σ_{\log} calculated from 95 % and 5 % values from CIGRE (Electra No. 41 or No. 69) [3], [4].....	32
Table A.3 – Values of probability P as function of the lightning current I	33
Table B.1 – Parameters for Equation (B.1).....	38
Table C.1 – Test parameters of the first positive impulse.....	45
Table C.2 – Test parameters of the long stroke	45
Table C.3 – Test parameters of the impulses	46
Table D.1 – Summary of the lightning threat parameters to be considered in the calculation of the test values for the different LPS components and for the different LPL49	
Table D.2 – Physical characteristics of typical materials used in LPS components.....	52

Table D.3 – Temperature rise for conductors of different sections as a function of W/R	52
Table E.1 – Conventional earthing impedance values Z and Z_1 according to the resistivity of the soil	63
Table E.2 – Expected surge overcurrents due to lightning flashes on low-voltage systems.....	64
Table E.3 – Expected surge overcurrents due to lightning flashes on telecommunication systems	65

INTERNATIONAL ELECTROTECHNICAL COMMISSION

PROTECTION AGAINST LIGHTNING –

Part 1: General principles

FOREWORD

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International Standard IEC 62305-1 has been prepared by IEC technical committee 81: Lightning protection.

This second edition cancels and replaces the first edition, published in 2006, and constitutes a technical revision.

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

- 1) It no longer covers protection of services connected to structures.
- 2) Isolated interfaces are introduced as protection measures to reduce failure of electric and electronic systems.
- 3) First negative impulse current is introduced as a new lightning parameter for calculation purposes.
- 4) Expected surge overcurrents due to lightning flashes have been more accurately specified for low voltage power systems and for telecommunication systems.

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

FDIS	Report on voting
81/370/FDIS	81/380/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.

A list of all the parts in the IEC 62305 series, under the general title *Protection against lightning*, 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.

A bilingual version of this standard may be issued at a later date.

INTRODUCTION

There are no devices or methods capable of modifying the natural weather phenomena to the extent that they can prevent lightning discharges. Lightning flashes to, or nearby, structures (or lines connected to the structures) are hazardous to people, to the structures themselves, their contents and installations as well as to lines. This is why the application of lightning protection measures is essential.

The need for protection, the economic benefits of installing protection measures and the selection of adequate protection measures should be determined in terms of risk management. Risk management is the subject of IEC 62305-2.

Protection measures considered in IEC 62305 are proved to be effective in risk reduction.

All measures for protection against lightning form the overall lightning protection. For practical reasons the criteria for design, installation and maintenance of lightning protection measures are considered in two separate groups:

- the first group concerning protection measures to reduce physical damage and life hazard in a structure is given in IEC 62305-3;
- the second group concerning protection measures to reduce failures of electrical and electronic systems in a structure is given in IEC 62305-4.

The connection between the parts of IEC 62305 is illustrated in Figure 1.

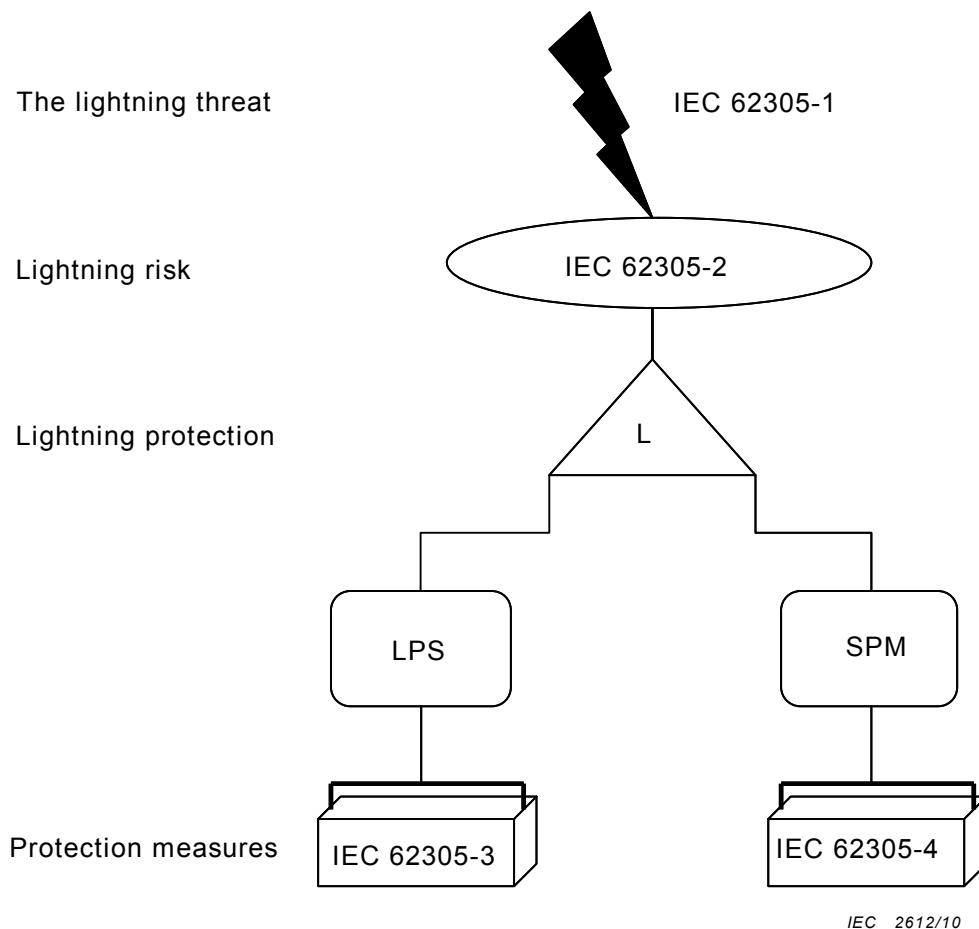


Figure 1 – Connection between the various parts of IEC 62305

PROTECTION AGAINST LIGHTNING –

Part 1: General principles

1 Scope

This part of IEC 62305 provides general principles to be followed for protection of structures against lightning, including their installations and contents, as well as persons.

The following cases are outside the scope of this standard:

- railway systems;
- vehicles, ships, aircraft, offshore installations;
- underground high pressure pipelines;
- pipe, power and telecommunication lines placed outside the structure.

NOTE These systems usually fall under special regulations produced by various specialized authorities.

2 Normative references

The following referenced documents are indispensable for the application 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 62305-2:2010, *Protection against lightning – Part 2: Risk management*

IEC 62305-3:2010, *Protection against lightning – Part 3: Physical damage to structures and life hazard*

IEC 62305-4:2010, *Protection against lightning – Part 4: Electrical and electronic systems within structures*