# IEC 62858

Edition 2.0 2019-10

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

colour inside

## Lightning density based on lightning location systems – General principles

**Densité de foudroiement basée sur des systèmes de localisation de la foudre (LLS) – Principes généraux**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 29.020; 91.120.40

ISBN 978-2-8322-7457-6

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# LIGHTNING DENSITY BASED ON LIGHTNING LOCATION SYSTEMS – GENERAL PRINCIPLES

## FOREWORD

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International Standard IEC 62858 has been prepared by IEC technical committee 81: Lightning protection.

This second edition cancels and replaces the first edition published in 2015. This edition constitutes a technical revision.

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

Two informative annexes are introduced dealing with the determination of lightning density for risk calculation (Annex A) and ground strike point calculation methods (Annex B).

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

| FDIS | Report on voting |
|---|---|
| 81/627A/FDIS | 81/634/RVD |

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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# INTRODUCTION

International standards for lightning protection (e.g. IEC 62305-2) provide methods for the evaluation of the lightning risk on buildings and structures.

The lightning ground flash density $N_G$, defined as the mean number of flashes per square kilometre per year, and the ground strike point density $N_{SG}$, defined as the mean number of ground strike points per square kilometre per year are the primary input parameters to perform such an evaluation (see Annex A).

In many areas of the world data for risk evaluation are provided by lightning location systems (LLSs), but no common rule exists defining requirements either for their performance or for the elaboration of the measured data.

# LIGHTNING DENSITY BASED ON LIGHTNING LOCATION SYSTEMS – GENERAL PRINCIPLES

## 1 Scope

This document introduces and discusses all necessary measures to make reliable and homogeneous the values of ground flash density, $N_G$ and ground strike point density, $N_{SG}$ obtained from lightning location systems (LLSs) in various countries. Only parameters that are relevant to risk assessment are considered.

## 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 62305-1, *Protection against lightning – Part 1: General principles*

IEC 62305-2, *Protection against lightning – Part 2: Risk management*

## 3 Terms, definitions, abbreviated terms and symbols

### 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62305-1 and IEC 62305-2 and the following apply.

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

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

**3.1.1**
**ground flash density**
$N_G$
mean number of cloud-to-ground flashes per unit area per unit time (flashes x km$^{-2}$ x year$^{-1}$)

**3.1.2**
**ground strike-point density**
$N_{SG}$
mean of the number of strike-points to ground per unit area per unit time (strike-points x km$^{-2}$ x year$^{-1}$)

**3.1.3**
**lightning sensor**
device that measures electromagnetic signals produced by lightning discharges