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# TECHNICAL SPECIFICATION

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## UHV AC transmission systems –
## Part 202: UHV AC Transmission line design

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# UHV AC TRANSMISSION SYSTEMS –

# Part 202: UHV AC Transmission line design

## FOREWORD

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IEC TS 63042-202 has been prepared by IEC technical committee 122: UHV AC transmission systems. It is a Technical Specification.

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

| Draft | Report on voting |
|---|---|
| 122/113/DTS | 122/116/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/standardsdev/publications.

A list of all parts in the IEC 63042 series, published under the general title *UHV AC transmission systems*, can be found on the IEC website.

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# UHV AC TRANSMISSION SYSTEMS –

# Part 202: UHV AC Transmission line design

## 1 Scope

This part of IEC 63042 provides common rules for the design of overhead transmission lines with the highest voltages of AC transmission systems exceeding 800 kV, so as to provide safety and proper functioning for the intended use.

This technical specification aims to give the main principles for the design of UHV AC overhead transmission lines, mainly including selection of clearance, insulation coordination and insulator strings design, bundle-conductor selection, earth wire/optical ground wires selection, tower and foundation design, environmental consideration. The design criteria apply to new construction, reconstruction and expansion of UHV AC overhead transmission line.

## 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 60826, *Design criteria of overhead transmission lines*

IEC 61284, *Overhead lines – Requirements and tests for fittings*

IEC 61854, *Overhead lines – Requirements and tests for spacers*

IEC 61897:2020, *Overhead lines – Requirements and tests for Stockbridge type aeolian vibration dampers*

IEC 60794-4-10, *Optical fiber cables – Part 4-10: Family specification – Optical ground wires (OPGW) along electrical power lines*

IEC TS 62993, *Guidance for determination of clearances, creepage distances and requirements for solid insulation for equipment with a rated voltage above 1 000 V AC and 1 500 V DC, and up to 2 000 V AC and 3 000 V DC*

IEC 62110, *Electric and magnetic field levels generated by AC power systems – Measurement procedures with regard to public exposure*

CISPR TR 18-1:2017, *Radio interference characteristics of overhead power lines and high-voltage equipment – Part 1: Description of phenomena*

CISPR TR 18-2:2017, *Radio interference characteristics of overhead power lines and high-voltage equipment – Part 2: Methods of measurement and procedure for determining limits*

CISPR TR 18-3:2017, *Radio interference characteristics of overhead power lines and high-voltage equipment – Part 3: Code of practice for minimizing the generation of radio noise*