

TECHNICAL SPECIFICATION



**Conductors for overhead lines – Fiber reinforced composite core used as supporting member material –
Part 2: Metallic matrix composite cores**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**CONDUCTORS FOR OVERHEAD LINES – FIBER REINFORCED
COMPOSITE CORE USED AS SUPPORTING MEMBER MATERIAL –****Part 2: Metallic matrix composite cores**

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IEC TS 62818-2 has been prepared by IEC technical committee 7: Overhead Electrical Conductors. It is a Technical Specification.

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

Draft	Report on voting
7/753/DTS	7/755/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.

A list of all parts in the IEC 62818 series, published under the general title *Conductors for overhead lines – Fiber reinforced composite core used as supporting member material*, can be found on the IEC website.

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.

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- withdrawn, or
- revised.

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INTRODUCTION

The first conductors using a composite core were installed in the early 2000s. Since then, they have been increasingly used by utilities worldwide. As a result, there is a need for an IEC publication to agree on tests methods to qualify these cores.

Because of the potential variety of products possible for this purpose, this document does not set minima or maxima (usually provided by the manufacturer, but rather standardizes testing methods to ascertain the numerical values of the basic properties needed by the purchaser to choose the right supporting member material according to the properties of the overhead line conductors. Future discussion items for review may include: performance level and acceptance criteria, other ageing tests and criteria or other relevant tests.

In a future document, tests on the complete conductor which include the composite core will be covered in detail (for example salt fog, corrosion test, mechanical tests, etc.).

CONDUCTORS FOR OVERHEAD LINES – FIBER REINFORCED COMPOSITE CORE USED AS SUPPORTING MEMBER MATERIAL –

Part 2: Metallic matrix composite cores

1 Scope

This part of IEC 62818, which is a Technical Specification, establishes a system of fiber reinforced composite cores used as supporting member material in conductors for overhead lines which may be used as the basis for specifications. This document is applicable to fiber reinforced composite core, with a metallic matrix, used as supporting member material in conductors for overhead lines.

This document gives guidance on:

- defining the common terms used for fiber reinforced composite cores with a metallic matrix,
- prescribing common methods and recommendations to characterize the properties of fiber reinforced composite cores based on single or multi-wires, with MMC (Metallic Matrix Composite) used as a supporting member material in conductors,
- prescribing or recommending acceptance or failure criteria when applicable.

These tests, criteria and recommendations are intended to ensure a satisfactory use and quality under normal operating and environmental conditions.

This document does not prescribe performance or compliance criteria which may be required but indicative values could be given in Annexes for guidance.

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 60068-2-11:2021, *Environmental testing – Part 2-11: Tests – Test Ka: Salt mist*

IEC 60216-1:2013, *Electrical insulating materials – Thermal endurance properties – Part 1: Ageing procedures and evaluation of test results*

IEC 60468:1974, *Method of measurement of resistivity of metallic materials*

IEC 63248:2022, *Conductors for overhead lines – Coated or clad metallic wire for concentric lay stranded conductors*

ISO 527-5:2021, *Plastics: Determination of tensile properties – Part 5: Test conditions for unidirectional fiber-reinforced plastic composites*

ISO 11359-1:2023, *Plastics – Thermomechanical analysis (TMA) – Part 1: General principles*

ISO 11359-2:2021, *Plastics – Thermomechanical analysis (TMA) – Part 2: Determination of coefficient of linear thermal expansion and glass transition temperature*

ISO 14125:1998, *Fiber-reinforced plastic composites – Determination of flexural properties*