

INTERNATIONAL STANDARD

IEC 60708

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Low-frequency cables with polyolefin insulation and moisture barrier polyolefin sheath

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**LOW-FREQUENCY CABLES WITH POLYOLEFIN INSULATION
AND MOISTURE BARRIER POLYOLEFIN SHEATH**

FOREWORD

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International Standard IEC 60708 has been prepared by subcommittee 46C: Wires and symmetric cables, of IEC technical committee 46: Cables, wires, waveguides, r.f. connectors, r.f. and microwave passive components and accessories.

IEC 60708 cancels and replaces IEC 60708-1 published in 1981 and amendment 3(1988). This edition constitutes a technical revision.

IEC 60708 has been completely revised technically and structurally. IEC 60708 now comprises only one single standard dealing with general design details and requirements. The old IEC 60708-2(1981), IEC 60708-3(1981) and IEC 60708-4(1983) have already been withdrawn because they are not used anymore. Although IEC 60708 addresses low frequency cables, these cables are often used for digital communications up to 2 Mbit/s or 1 MHz. Therefore a Subclause 7.8 has been added, which provides transmission characteristics for the cable when used for digital communication. Furthermore, Annex H of IEC 60708-1(1981) was deleted: The requirements for filling compounds are not needed anymore since they are covered by the cable performance requirements.

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

| FDIS | Report on voting |
|--------------|------------------|
| 46C/713/FDIS | 46C/728/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.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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- withdrawn;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.

The contents of the corrigendum of August 2016 have been included in this copy.

LOW-FREQUENCY CABLES WITH POLYOLEFIN INSULATION AND MOISTURE BARRIER POLYOLEFIN SHEATH

1 Scope

This standard is intended to define polyolefin-insulated cables for insertion into local outdoor networks.

This standard is applicable to polyolefin insulated and moisture barrier polyolefin sheathed telephone cables, filled or unfilled with copper conductors, and used as:

- a) Cables suitable for installation in ducts.
- b) Cables suitable for direct burial in the ground.
- c) Cables with integral suspension strand for aerial installations.

This standard is in accordance with ITU-T Recommendations.

This standard includes general design details and requirements for dimensions and other constructional details as well as mechanical, electrical and environmental characteristics for all types of low-frequency cables with polyolefin insulation (solid or cellular), filled or unfilled, and moisture barrier polyolefin sheath (with integral suspension strand).

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 60028, *International Standard of Resistance for Copper*

IEC 60189-1, *Low-frequency cables and wires with PVC Insulation and PVC sheath – Part 1: General test and measuring methods*

IEC 60304, *Standard colours for insulation for low-frequency cables and wires*

IEC 60794-1-2, *Optical fibre cables – Part 1-2: Generic specification – Basic optical cable test procedures*

IEC 60811-1-1, *Common test methods for insulating and sheathing materials of electric cables – Part 1: Methods for general application – Section 1: Measurement of thickness and overall dimensions – Tests for determining the mechanical properties*

IEC 60811-1-2, *Common test methods for insulating and sheathing materials of electric cables – Part 1: Methods for general application – Section Two: Thermal ageing methods*

IEC 60811-1-3, *Insulating and sheathing materials of electric cables – Part 1: General application – Section 3: Methods for determining the density – Water absorption tests – Shrinkage test*

IEC 60811-1-4, *Common test methods for insulating and sheathing materials of electric cables – Part 1: Methods for general application – Section Four – Test at low temperature*

IEC 60811-4-1, *Insulating and sheathing materials of electric and optical cables – Common test methods – Part 4-1: Methods specific to polyethylene and polypropylene compounds – Resistance to environmental stress cracking – Measurement of the melt flow index – Carbon black and/or mineral filler content measurement in polyethylene by direct combustion – Measurement of carbon black content by thermogravimetric analysis (TGA) – Assessment of carbon black dispersion in polyethylene using a microscope*

IEC 60811-4-2, *Insulating and sheathing materials of electric and optical cables – Common test methods – Part 4-2: Methods specific to polyethylene and polypropylene compounds – Tensile strength and elongation at break after conditioning at elevated temperature – Wrapping test after conditioning at elevated temperature – Wrapping test after thermal ageing in air – Measurement of mass increase – Long-term stability test – Test method for copper-catalyzed oxidative degradation*

IEC 60811-5-1, *Common test methods for insulating and sheathing materials of electric cables – Part 5-1: Methods specific to filling compounds – Drop point – Separation of oil – Lower temperature brittleness – Total acid number – Absence of corrosive components – Permittivity at 23 °C – DC resistivity at 23 °C and 100 °C*

IEC 61156-1, *Multicore and symmetrical pair/quad cables for digital communications – Part 1: Generic specification*

ITU-T L.3, *Armouring of cables*