

# TECHNICAL REPORT

Calculation of maximum external diameter of cables for indoor installations

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IEC/TR 60649:2007

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INTERNATIONAL  
ELECTROTECHNICAL  
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## CALCULATION OF MAXIMUM EXTERNAL DIAMETER OF CABLES FOR INDOOR INSTALLATIONS

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IEC 60649, which is a technical report, 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

This second edition cancels and replaces the first edition published in 1979. This edition constitutes a technical revision.

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

- a) new definitions and formulation for diameter calculation.
- b) revised values of constants used for the diameter calculation.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
46C/765/DTR	46C/799A/RVC

Full information on the voting for the approval of this technical report 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;
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- replaced by a revised edition, or
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# CALCULATION OF MAXIMUM EXTERNAL DIAMETER OF CABLES FOR INDOOR INSTALLATIONS

## 1 Scope

This Technical Report gives guidance for calculation of the overall cable diameter according to the structure and the dimensions of the cable elements.

## 2 Terms and definitions

For the purposes of this document, the following terms apply.

### 2.1 General definitions

#### 2.1.1

**single conductor**

solid conductor

#### 2.1.2

**solid conductor within the stranded conductor**

strand

#### 2.1.3

**stranded conductor**

group of assembled strands

#### 2.1.4

**cable element**

conductor, pair, triple, quad, quintuple or other structure. It may be screened or unscreened

#### 2.1.5

**solid conductor shape**

circular

#### 2.1.6

**all dimensional values are nominal**

### 2.2 Notation

#### 2.2.1

diameter of solid conductor,  $d$

#### 2.2.2

diameter of concentric-lay stranded conductor,  $d_s$

#### 2.2.3

diameter of non-concentric-lay stranded conductor,  $d_{ns}$

#### 2.2.4

total number of strands in a stranded conductor,  $N_s$

#### 2.2.5

number of lays in a concentric-lay stranded conductor,  $n$