

Generic specification for

# Radio frequency and coaxial cable assemblies —

Part 1: General requirements and test  
methods

The European Standard EN 60966-1:1993 has the status of a  
British Standard

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## National foreword

This British Standard has been prepared under the direction of the Electronic Components Standards Policy Committee and is the English language version of EN 60966-1:1993 *Generic specification for radio frequency and coaxial cable assemblies — Part 1: General requirements and test methods*, published by the European Committee for Electrotechnical Standardization (CENELEC). It is identical with IEC 966-1:1988 and amendment 1 published by the International Electrotechnical Commission (IEC).

The standard specifies requirements for radio frequency and coaxial cable assemblies operating in the transverse electromagnetic mode (TEM). This British Standard supersedes BS 9215:1986, which is withdrawn.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

**Compliance with a British Standard does not of itself confer immunity from legal obligations.**

### Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 24, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

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Descriptors: Radio frequency and coaxial cable assemblies, general requirements and test methods

English version

Generic specification for radio frequency and coaxial  
cable assemblies  
Part 1: General requirements and test methods

(IEC 966-1:1988 + A1:1990)

Spécification générique pour ensembles de  
cordons coaxiaux et de cordons pour fréquences  
radioélectriques  
Première partie: Généralités et méthodes  
d'essai  
(CEI 966-1:1988 + A1:1990)

Fachgrundnorm für konfektionierte koaxiale  
Hochfrequenz-Kabel  
Teil 1: Allgemeine Anforderungen und  
Prüfverfahren  
(IEC 966-1:1988 + A1:1990)

This European Standard was approved by CENELEC on 1992-12-09. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

## CENELEC

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Central Secretariat: rue de Stassart 35, B-1050 Brussels**

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## Foreword

The CENELEC questionnaire procedure, performed for finding out whether or not the International Standard IEC 966-1:1988 and its amendment 1:1990 could be accepted without textual changes, has shown that no common modifications were necessary for the acceptance as European Standard.

The reference documents were submitted to the CENELEC members for formal vote and were approved by CENELEC as EN 60966-1 on 9 December 1992.

The following dates were fixed:

- latest date of publication of  
an identical national  
standard (dop) 1993-12-01
- latest date of withdrawal of  
conflicting national  
standards (dow) 1993-12-01

For products which have complied with the relevant national standard before 1993-12-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1998-12-01.

Annexes designated “normative” are part of the body of the standard. In this standard, Annex ZA is normative.

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## Section 1. General

### 1 Scope

This standard specifies requirements for radio frequency and coaxial cable assemblies operating in the transverse electromagnetic mode (TEM).

### 2 Object

This standard establishes uniform requirements for testing the electrical, mechanical and climatic properties of r.f. and coaxial cable assemblies composed of cables and connectors.

NOTE 1 The design of the cables and connectors used should preferably conform to the applicable parts of IEC 96 and IEC 169 respectively.

NOTE 2 This specification does not include tests which are normally performed on the cables and connectors separately. These tests are described in IEC 96-1 and IEC 169-1 respectively.

### 3 Related documents

IEC 68:, *Environmental testing*.

IEC 96-0:1970, *Radio-frequency cables — Part 0: Guide to the design of detailed specifications*.

IEC 96-1:1986, *Radio-frequency cables — Part 1: General requirements and measuring methods*.

IEC 96-2:1961, *Radio-frequency cables — Part 2: Relevant cable specifications*.

IEC 169-1:1987, *Radio-frequency connectors — Part 1: General requirements and measuring methods*.

### 4 Definitions

In this standard the following definitions apply:

#### 4.1

##### **cable assembly**

a combination of a cable and connectors with specified performance, used as a single unit

#### 4.2

##### **insertion loss**

the loss introduced by inserting a cable assembly into a system

in this standard it is the ratio, expressed in decibels, of the power ( $P_1$ ) delivered to a load connected directly to a source and the power ( $P_2$ ) delivered to a load when the cable assembly is inserted between the source and the load

$$\text{Insertion loss} = 10 \log \frac{P_1}{P_2}$$

#### 4.3

##### **reflection factor**

the ratio of the complex wave amplitude of the reflected wave to the complex wave amplitude of the incident wave at a port or transverse cross section of a transmission line

#### 4.4

##### **electrical length**

the equivalent free-space length of the cable assembly

#### 4.5

##### **electrical length difference**

the difference in electrical length between cable assemblies

#### 4.6

##### **phase difference**

the difference in phase between a TEM wave which has traversed the cable assembly, and an identical wave which has traversed another cable assembly

#### 4.7

##### **propagation time**

the time taken for the propagation of a TEM wave between the reference planes of the two connectors

#### 4.8

##### **minimum static bending radius**

the radius used in climatic tests. It is the minimum permissible radius for fixed installation of the cable

#### 4.9

##### **dynamic bending radius**

the bending radius for the insertion loss stability, stability of electrical length and flexing endurance tests

it is the minimum bending radius for flexed cable assemblies

NOTE In practice this implies conformity with the specification for a defined number of flexings.

#### 4.10 Screening effectiveness

##### 4.10.1

##### **transfer impedance**

the quotient of the induced voltage on the inside of the cable assembly and the inducing current outside the assembly. In practice this is between defined points on connectors mated to the connectors of the cable assembly

##### 4.10.2

##### **screening attenuation**

screening attenuation of the cable assembly is the ratio of the signal power inside the cable assembly to the total power that radiates outside the cable assembly