



SLOVENSKI STANDARD

SIST EN 60966-1:1996

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Generic specification for radio frequency and coaxial cable assemblies - Part 1: Generic specification - General requirements and test methods (IEC 966-1:1988 + A1:1990)

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

Fachgrundspezifikation für konfektionierte Koaxial- und Hochfrequenz-Kabel -- Teil 1: Fachgrundspezifikation - Allgemeine Anforderungen und Prüfverfahren

Spécification générique pour ensembles de cordons coaxiaux et de cordons pour fréquences radioélectriques -- Partie 1: Spécification générique -- Généralités et méthodes d'essai

Ta slovenski standard je istoveten z: EN 60966-1:1993

ICS:

33.120.10 Koaksialni kabli. Valovodi Coaxial cables. Waveguides

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en

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EUROPEAN STANDARD

EN 60966-1

NORME EUROPEENNE

EUROPÄISCHE NORM

March 1993

UDC 621.315.212:620.1

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)

STANDARD PREVIEW
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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

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.

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Annexes designated "normative" are part of the body of the standard. In this standard, annex ZA is normative.

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ENDORSEMENT NOTICE

The text of the International Standard IEC 966-1:1988 and its amendment 1:1990 was approved by CENELEC as a European Standard without any modification.

ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD
WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

| IEC Publication | Date | Title | EN/HD | Date |
|--------------------|--------|--|--------|--------|
| ----- | ----- | ----- | ----- | ----- |
| 68 | series | Environmental testing | HD 323 | series |
| 96-0 | 1970 | Radio-frequency cables Part 0: Guide to the design of detailed specifications | - | - |
| 96-1 | 1986 | Part 1: General requirements and measuring methods | - | - |
| 96-2 | 1961 | Part 2: Relevant cable specifications | - | - |
| 169-1 | 1987* | Radio-frequency connectors Part 1: General requirements and measuring methods | - | - |

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* IEC 169-1:1965 was harmonized as HD 134.1 S1:1977

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NORME INTERNATIONALE INTERNATIONAL STANDARD

CEI
IEC
966-1



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

Première édition
First edition
1988

Spécification générique pour ensembles de cordons coaxiaux et de cordons pour fréquences radioélectriques

Première partie: Généralités et méthodes d'essai

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Generic specification for radio frequency and coaxial cable assemblies

Part 1: General requirements and test methods

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CONTENTS

| | Pages |
|---|--|
| FOREWORD | 7 |
| PREFACE | 7 |
| | |
| Clause | SECTION ONE – GENERAL |
| 1 Scope | 9 |
| 2 Object | 9 |
| 3 Related documents | 9 |
| 4 Definitions | 9 |
| 5 Design and manufacturing requirements | 11 |
| 5.1 Cable design and construction | 11 |
| 5.2 Connector design and construction | 13 |
| 5.3 Outline and interface dimensions | 13 |
| 6 Workmanship, marking and packaging | 13 |
| 6.1 Workmanship | 13 |
| 6.2 Marking | 13 |
| 6.3 End caps | 13 |
| 6.4 Packaging and labelling | 13 |
| 7 Artificial ageing | 13 |
| | SIST EN 60966-1:1996 https://standards.iteh.ai/catalog/standards/sist/52-914a-4552-bbb8-2850d81a723d/sist-en-60966-1-1996 |
| | |
| | SECTION TWO – TEST METHODS |
| 8 General | 15 |
| 8.1 Standard atmospheric conditions for testing | 15 |
| 8.2 Visual inspection | 15 |
| 8.3 Dimensions inspection | 15 |
| 9 Electrical tests | 15 |
| 9.1 Reflection factor | 15 |
| 9.2 Uniformity of impedance | 17 |
| 9.3 Insertion loss | 17 |
| 9.4 Insertion loss stability | 17 |
| 9.5 Propagation time | 19 |
| 9.6 Stability of electrical length | 19 |
| 9.7 Phase difference | 21 |
| 9.8 Phase variation with temperature | 21 |
| 9.9 Screening effectiveness | 23 |
| 9.10 Voltage proof | 23 |
| 9.11 Insulation resistance | 25 |
| 9.12 Inner and outer conductor continuity | 25 |
| 9.13 Discharge test (Corona test) | 25 |
| 9.14 Power rating | 27 |

| Clause | Pages |
|--|-------|
| 10 Mechanical robustness tests | 27 |
| 10.1 Tensile | 27 |
| 10.2 Flexure | 27 |
| 10.3 Flexing endurance | 29 |
| 10.4 Cable crushing | 31 |
| 11 Environmental tests | 33 |
| 11.1 Recommended severities | 33 |
| 11.2 Vibration, bumps and shock | 33 |
| 11.3 Climatic sequence | 33 |
| 11.4 Damp heat, steady state | 35 |
| 11.5 Rapid change of temperature | 37 |
| 11.6 Solvents and contaminating fluids | 37 |
| 11.7 Water immersion | 39 |
| 11.8 Salt mist and sulphur dioxide tests | 39 |
| 12 Specialized test methods | 39 |
| SECTION THREE – TEST SCHEDULES | |
| 13 Test schedules | 39 |
| APPENDIX A: Measuring method for reflection factor | 41 |
| APPENDIX B: Insertion loss inspection (in preparation) | 43 |
| APPENDIX C: Measuring methods for propagation time | 45 |
| APPENDIX D: Measuring methods for screening effectiveness (under consideration) | 49 |
| APPENDIX E: Recommended severities for environmental tests (under consideration) | 49 |
| APPENDIX F: Recommended method for temperature stabilization | 49 |

INTERNATIONAL ELECTROTECHNICAL COMMISSION

GENERIC SPECIFICATION FOR RADIO FREQUENCY AND COAXIAL CABLE ASSEMBLIES

Part 1: General requirements and test methods

FOREWORD

- 1) The formal decisions of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.
- 4) The IEC has not laid down any procedure concerning marking as an indication of approval and has no responsibility when an item of equipment is declared to comply with one of its recommendations.

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PREFACE

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This standard has been prepared by Sub-Committee 46A: R.F. cables, of IEC Technical Committee No. 46: Cables, wires and waveguides for telecommunication equipment.

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

| Six Months' Rule | Report on Voting |
|------------------|------------------|
| 46A(CO)116 | 46A(CO)121 |

Full information on the voting for the approval of this standard can be found in the Voting Report indicated in the table above.

It is intended that future parts of this standard will include sectional specifications for other types of cable assemblies such as flexible coaxial cable assemblies, semi-rigid coaxial cable assemblies, and radio-frequency balanced cable assemblies, etc.

GENERIC SPECIFICATION FOR RADIO FREQUENCY AND COAXIAL CABLE ASSEMBLIES

Part 1: General requirements and test methods

SECTION ONE – 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.

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

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 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.

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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.
- 4.11 **power rating:** The input power which may be handled continuously by the cable assembly when terminated by its characteristic impedance.

Notes 1. – For practical application the maximum power that may be handled is dependent upon the return loss.

2. – Power rating is dependent on mounting details, ambient temperature, air pressure and circulation. It is normally specified at an ambient temperature of 40 °C.

5 Design and manufacturing requirements

5.1 Cable design and construction

Cables conforming to IEC 96-2 or cables designed in accordance with the general guidelines of IEC 96-0 shall be specified wherever possible. Where cable designs deviating from IEC 96 are required, these cables shall comply with the requirements of the detail specification.

5.2 Connector design and construction

Connector types conforming to the relevant part of IEC 169 shall be specified wherever possible. Where a special connector design is required, the interface shall conform to the relevant part of IEC 169, where available and the connector construction shall comply with the requirements of the detail specification.

5.3 Outline and interface dimensions

- a) Outline dimensions shall be in accordance with the detail specification.
- b) Interface dimensions shall be in accordance with the detail specification.

6 Workmanship, marking and packaging

6.1 Workmanship

There shall be no observable defects in the cable assembly; it shall be clean and in good condition.

6.2 Marking

Marking shall be legible and in accordance with the detail specification; it shall identify the manufacturer of the cable assembly.

6.3 End caps

Unless otherwise specified in the detail specification, disposable end caps of suitable material for transport and storage shall be fitted to the connectors to protect at least each interface from damage and dirt.

6.4 Packaging and labelling

Packaging and labelling shall be in accordance with the detail specification, unless otherwise specified.

7 Artificial ageing

Artificial ageing may be used to improve the stability of phase attenuation and expansion with temperature. This process normally consists of submitting the complete cable assembly to a number of temperature cycles. Unless otherwise specified in the detail specification, submitting the complete cable assembly to artificial ageing is optional at the discretion of the supplier.