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

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This standard includes the English version of the European Standard.

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**Radio frequency and coaxial cable assemblies - Part 1: Generic specification - General requirements and test methods
(IEC 60966-1:2019)**

Cordons coaxiaux et cordons pour fréquences radioélectriques - Partie 1: Spécification générique - Exigences générales et méthodes d'essai
(IEC 60966-1:2019)

Konfektionierte Koaxial- und Hochfrequenzkabel - Teil 1: Fachgrundspezifikation - Allgemeine Anforderungen und Prüfverfahren
(IEC 60966-1:2019)

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 60966-1:2019 (E)**European foreword**

The text of document 46/700A/FDIS, future edition 3 of IEC 60966-1, prepared by IEC/TC 46 "Cables, wires, waveguides, RF connectors, RF and microwave passive components and accessories" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60966-1:2019.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2019-12-15
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-03-15

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60339 (series)	NOTE	Harmonized as HD 350.1 S1 (series)
ISO 9000	NOTE	Harmonized as EN ISO 9000
ISO 9001:2015	NOTE	Harmonized as EN ISO 9001:2015 (not modified)

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068	series	Environmental testing	EN 60068	series
IEC 60068-2-6	-	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-11	-	Basic environmental testing procedures - Part 2-11: Tests - Test Ka: Salt mist	EN 60068-2-11	-
IEC 60068-2-14	-	Environmental testing - Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	-
IEC 60068-2-27	-	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock	EN 60068-2-27	-
IEC 60068-2-42	-	Environmental testing - Part 2-42: Tests - Test Kc: Sulphur dioxide test for contacts and connections	EN 60068-2-42	-
IEC 60068-2-68	-	Environmental testing - Part 2-68: Tests - Test L: Dust and sand	EN 60068-2-68	-
IEC 60068-2-78	-	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	-
IEC 60332-1-2	2004	Tests on electric and optical fibre cables under fire conditions - Part 1-2: Test for vertical flame propagation for a single insulated wire or cable - Procedure for 1 kW pre-mixed flame	EN 60332-1-2	2004
-	-		+ A11	2016
IEC 60512-6-2	-	Connectors for electronic equipment - Tests and measurements - Part 6-2: Dynamic stress tests - Test 6b: Bump	EN 60512-6-2	-
IEC 60512-7-2	-	Connectors for electronic equipment - Tests and measurements - Part 7-2: Impact tests (free components) - Test 7b: Mechanical strength impact	EN 60512-7-2	-
IEC 60529	-	Classification of degrees of protection - provided by enclosures	-	-

EN IEC 60966-1:2019 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60966-2	series	Radio frequency and coaxial cable assemblies	EN 60966-2	series
IEC 60966-3	series	Radio frequency and coaxial cable assemblies	EN 60966-3	series
IEC 60966-4	series	Radio frequency and coaxial cable assemblies	EN 60966-4	series
IEC 61169	series	Radio frequency connectors	EN 61169	series
IEC 61169-1	2013	Radio frequency connectors - Part 1: Generic specification - General requirements and measuring methods	EN 61169-1	2013
IEC 61196	series	Coaxial communication cables	-	series
IEC 61196-1-119	-	Coaxial communication cables - Part 1-119: Electrical test methods - RF power rating	-	-
IEC 62037-2	-	Passive RF and microwave devices, intermodulation level measurement - Part 2: Measurement of passive intermodulation in coaxial cable assemblies	EN 62037-2	-
IEC 62153-4-6	-	Metallic cables and other passive components test methods - Part 4-6: Electromagnetic compatibility (EMC) - Surface transfer impedance - line injection method	-	-
IEC 62153-4-7	2015	Metallic communication cable test methods – Part 4-7: Electromagnetic compatibility (EMC) – Test method for measuring of transfer impedance Z_T and screening attenuation a_s or coupling attenuation a_C of connectors and assemblies up to and above 3 GHz – Triaxial tube in tube method	EN 62153-4-7	2016



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**Radio frequency and coaxial cable assemblies –
Part 1: Generic specification – General requirements and test methods**

**Cordons coaxiaux et cordons pour fréquences radioélectriques –
Partie 1: Spécification générique – Exigences générales et méthodes d'essai**



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INTERNATIONAL STANDARD

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**Radio frequency and coaxial cable assemblies –
Part 1: Generic specification – General requirements and test methods**

**Cordons coaxiaux et cordons pour fréquences radioélectriques –
Partie 1: Spécification générique – Exigences générales et méthodes d'essai**

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CONTENTS

FOREWORD.....	7
1 Scope.....	9
2 Normative references	9
3 Terms and definitions	10
4 Design and manufacturing requirements.....	12
4.1 Cable design and construction	12
4.2 Connector design and construction	12
4.3 Outline and interface dimensions	13
5 Workmanship, marking and packaging.....	13
5.1 Workmanship.....	13
5.2 Marking.....	13
5.3 End caps.....	13
5.4 Packaging and labelling	13
6 Quality management.....	13
7 Test methods – General	13
7.1 Standard atmospheric conditions for testing.....	13
7.2 Visual inspection.....	14
7.3 Dimensions inspection	14
7.3.1 Interface dimensions	14
7.3.2 Outline dimensions	14
8 Electrical tests.....	15
8.1 Reflection properties.....	15
8.1.1 Object.....	15
8.1.2 Test equipment.....	15
8.1.3 Procedure.....	15
8.1.4 Requirements	16
8.1.5 Information to be given in the detail specification.....	16
8.2 Uniformity of impedance	16
8.2.1 Object.....	16
8.2.2 Procedure.....	16
8.2.3 Requirements	16
8.2.4 Information to be given in the detail specification.....	16
8.3 Insertion loss	16
8.3.1 Procedure.....	16
8.3.2 Requirements	16
8.3.3 Information to be given in the detail specification.....	16
8.4 Insertion loss stability	17
8.4.1 Object.....	17
8.4.2 Procedure.....	17
8.4.3 Requirements	17
8.4.4 Information to be given in the detail specification.....	17
8.5 Propagation time.....	17
8.5.1 Procedure.....	17
8.5.2 Requirements	17
8.5.3 Information to be given in the detail specification.....	17

8.6	Stability of electrical length	17
8.6.1	Object.....	17
8.6.2	Procedures	17
8.6.3	Requirements	19
8.6.4	Information to be given in the detail specification	19
8.7	Phase difference	19
8.7.1	Object.....	19
8.7.2	Procedure.....	19
8.7.3	Requirements	19
8.7.4	Information to be given in the detail specification	20
8.8	Phase variation with temperature	20
8.8.1	Object.....	20
8.8.2	Procedure.....	20
8.8.3	Requirements	20
8.8.4	Information to be given in the detail specification	20
8.9	Screening effectiveness	20
8.9.1	Transfer impedance	20
8.9.2	Screening attenuation.....	20
8.10	Voltage proof	21
8.10.1	Procedure.....	21
8.10.2	Requirements	21
8.10.3	Information to be given in the detail specification	21
8.11	Insulation resistance	21
8.11.1	Procedure.....	21
8.11.2	Requirements	21
8.11.3	Information to be given in the detail specification	21
8.12	Inner and outer conductor continuity	22
8.12.1	Object.....	22
8.12.2	Procedure.....	22
8.12.3	Requirements	22
8.12.4	Information to be given in the detail specification	22
8.13	Power rating	22
8.13.1	Object.....	22
8.13.2	Procedure.....	22
8.13.3	Requirements	22
8.13.4	Information to be given in the detail specification	22
8.14	Intermodulation level measurement.....	23
8.14.1	Procedure.....	23
8.14.2	Requirements	23
8.14.3	Information to be given in the detail specification	23
9	Mechanical robustness tests	23
9.1	Tensile.....	23
9.1.1	Object.....	23
9.1.2	Procedure.....	23
9.1.3	Requirements	23
9.1.4	Information to be given in the detail specification	23
9.2	Flexure	24
9.2.1	Object.....	24
9.2.2	Procedure.....	24

9.2.3	Requirements	24
9.2.4	Information to be given in the detail specification	24
9.3	Flexing endurance	24
9.3.1	Object.....	24
9.3.2	Procedure.....	25
9.3.3	Requirements	25
9.3.4	Information to be given in the detail specification.....	25
9.4	Cable assembly crushing	25
9.4.1	Object.....	25
9.4.2	Procedure.....	25
9.4.3	Requirements	26
9.4.4	Information to be given in the detail specification.....	26
9.5	Torque	26
9.5.1	Procedure.....	26
9.5.2	Requirements	27
9.5.3	Information to be given in the detail specification.....	27
9.6	Multiple bending.....	27
9.6.1	Object.....	27
9.6.2	Procedure.....	27
9.6.3	Requirements	28
9.6.4	Information to be given in the detail specification.....	28
9.7	Abrasion test of cable assembly.....	28
9.7.1	Object.....	28
9.7.2	Procedure.....	28
9.8	Vibrations, shocks.....	28
9.9	Impact test.....	28
9.10	Mechanical endurance	28
10	Environmental tests	29
10.1	Recommended severities	29
10.2	Vibration, bumps and shock	29
10.3	Climatic sequence.....	29
10.3.1	Procedure.....	29
10.3.2	Requirements	29
10.3.3	Information to be given in the detail specification.....	29
10.4	Damp heat, steady state	29
10.4.1	Procedure.....	29
10.4.2	Requirements	29
10.4.3	Information to be given in the detail specification.....	30
10.5	Rapid change of temperature	30
10.5.1	Procedure.....	30
10.5.2	Requirements	30
10.5.3	Information to be given in the detail specification.....	30
10.6	Resistance to solvents and contaminating fluids	30
10.6.1	Procedure.....	30
10.6.2	Requirements	30
10.6.3	Information to be given in the detail specification.....	31
10.7	Water immersion.....	31
10.7.1	Procedure.....	31
10.7.2	Requirements	31

10.7.3	Information to be given in the detail specification	31
10.8	Salt mist and sulphur dioxide tests	31
10.8.1	Procedure	31
10.8.2	Requirements	31
10.8.3	Information to be given in the detail specification	31
10.9	Dust tests	31
10.9.1	Object	31
10.9.2	Procedure	31
10.9.3	Requirements	32
10.9.4	Information to be given in the detail specification	32
10.10	Flammability	32
10.10.1	Procedure	32
10.10.2	Requirements	32
10.10.3	Information to be given in the detail specification	32
11	Specialized test methods	32
12	Test schedules	32
Annex A	(normative) Test methods for insertion loss determination	33
A.1	Purpose	33
A.2	Test methods	33
A.2.1	General	33
A.2.2	Test method 1	33
A.2.3	Test method 2	34
A.2.4	Test method 3	36
A.3	Correction for characteristic impedance differences	37
Annex B	(informative) Measuring methods for propagation time	39
B.1	General	39
B.2	Resonance method for propagation time measurement	39
B.3	Time domain method for propagation time measurement	40
Annex C	(informative) Recommended severities for environmental tests	41
C.1	Introduction to the relationship between environmental conditions and severities of testing	41
C.1.1	General	41
C.1.2	Environmental conditions	41
C.1.3	Environmental testing	41
C.2	Recommended severities for environmental tests	42
C.2.1	Vibration	42
C.2.2	Bump	43
C.2.3	Shock	43
C.2.4	Climatic sequence	43
C.2.5	Damp heat, steady state	44
C.2.6	Rapid change of temperature	44
C.2.7	Salt mist	44
C.2.8	Sulphur dioxide test	44
C.2.9	Dust test	44
Annex D	(normative) Quality management	45
D.1	General	45
D.2	Object	45
D.3	Basic aspects	45

D.3.1	Related documents	45
D.3.2	Standards and preferred values	45
D.3.3	Marking of the cable assembly and packaging (see 5.2)	45
D.3.4	Terminology.....	46
D.4	Quality management procedures.....	46
D.4.1	Procedures for qualification approval.....	46
D.4.2	Procedures for capability approval.....	47
D.4.3	Quality conformance inspection	48
D.5	Capability manual and approval	49
D.5.1	Responsibilities	49
D.5.2	Contents of the capability manual	49
D.5.3	Criteria for capability limits	50
Bibliography.....		53
Figure 1	– Bending test: U shape assembly	18
Figure 2	– Bending test: straight assembly.....	18
Figure 3	– Twisting test: U shape assembly	19
Figure 4	– Fixture for cable assembly flexure test	24
Figure 5	– Apparatus for cable assembly flexing endurance test	25
Figure 6	– Fixture for cable crushing test	26
Figure 7	– Example of test fixture for torque	27
Figure 8	– Multiple bending test	28
Figure A.1	– Circuit for the determination of insertion loss	33
Figure A.2	– Circuit for the determination of insertion loss – principle	35
Figure A.3	– Alternative circuit for the determination of insertion loss	35
Figure A.4	– Double-pass circuit for the determination of insertion loss.....	36
Figure B.1	– Arrangement of test equipment	39
Figure C.1	– Description of action needed for the preparation of the environmental test specification.....	42
Table 1	– Standard range of atmospheric conditions	14
Table C.1	– Relationship between displacement and acceleration.....	43
Table C.2	– Relationship between peak acceleration and velocity change.....	43
Table D.1	– Example of capability limits for cable assemblies	51
Table D.2	– Example of capability limits for flexible cables.....	51
Table D.3	– Example of capability limits for connectors.....	51
Table D.4	– Example of flow chart (see D.5.2.5)	52

INTERNATIONAL ELECTROTECHNICAL COMMISSION

RADIO FREQUENCY AND COAXIAL CABLE ASSEMBLIES –

Part 1: Generic specification – General requirements and test methods

FOREWORD

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International Standard IEC 60966-1 has been prepared by technical committee 46: Cables, wires, waveguides, RF connectors, RF and microwave passive components and accessories.

This third edition cancels and replaces the second edition published in 1999. This edition constitutes a technical revision.

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

- a) Annex C (informative) Measurement method for screening effectiveness was cancelled;
- b) Subclause 8.9 gives references to relevant test procedures.

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

FDIS	Report on voting
46/700A/FDIS	46/704/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60966 series, published under the general title *Radio frequency and coaxial cable assemblies*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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RADIO FREQUENCY AND COAXIAL CABLE ASSEMBLIES –

Part 1: Generic specification – General requirements and test methods

1 Scope

This part of IEC 60966 specifies requirements for radio frequency coaxial cable assemblies operating in the transverse electromagnetic mode (TEM) and establishes general requirements for testing the electrical, mechanical and environmental properties of radio frequency coaxial cable assemblies composed of cables and connectors. Additional requirements relating to specific families of cable assemblies are given in the relevant sectional specifications.

The design of the cables and connectors used will preferably conform to the applicable parts of IEC 61196 and IEC 61169 respectively.

NOTE 1 This document does not include tests which are normally performed on the cables and connectors separately. These tests are described in IEC 61196-1 (all parts) and IEC 61169-1 respectively.

NOTE 2 Wherever possible, cables and connectors used in cable assemblies, even if they are not described in the IEC 61196 or IEC 61169 series, are tested separately according to the tests given in the relevant generic specification.

NOTE 3 Where additional protection is applied to a cable assembly, the mechanical and environmental tests described in this document are applicable.

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 (all parts), *Environmental testing*

IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-11, *Basic environmental testing procedures – Part 2-11: Tests – Test Ka: Salt mist*

IEC 60068-2-14, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-27, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60068-2-42, *Environmental testing – Part 2-42: Tests – Test Kc: Sulphur dioxide test for contacts and connections*

IEC 60068-2-68, *Environmental testing – Part 2-68: Tests – Test L: Dust and sand*

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC 60332-1-2:2004, *Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame*

IEC 60512-6-2, *Connectors for electronic equipment – Tests and measurements – Part 6-2: Dynamic stress tests – Test 6b: Bump*

IEC 60512-7-2, *Connectors for electronic equipment – Tests and measurements – Part 7-2: Impact tests (free components) – Test 7b: Mechanical strength impact*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60966-2 (all parts), *Radio frequency and coaxial cable assemblies*

IEC 60966-3 (all parts), *Radio frequency and coaxial cable assemblies*

IEC 60966-4 (all parts), *Radio frequency and coaxial cable assemblies*

IEC 61169 (all parts), *Radio-frequency connectors*

IEC 61169-1:2013, *Radio-frequency connectors – Part 1: Generic specification – General requirements and measuring methods*

IEC 61196 (all parts), *Coaxial communication cables*

IEC 61196-1-119, *Coaxial communication cables – Part 1-119: Electrical test methods – RF power rating*

IEC 62037-2, *Passive RF and microwave devices, intermodulation level measurement – Part 2: Measurement of passive intermodulation in coaxial cable assemblies*

IEC 62153-4-6, *Metallic cables and other passive components test methods – Part 4-6: Electromagnetic compatibility (EMC) – Surface transfer impedance – Line injection method*

IEC 62153-4-7:2015, *Metallic communication cable test methods – Part 4-7: Electromagnetic compatibility (EMC) – Test method for measuring of transfer impedance Z_T and screening attenuation a_s or coupling attenuation a_C of connectors and assemblies up to and above 3 GHz – Triaxial tube in tube method*

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