

INTERNATIONAL STANDARD



Electrical accessories – Cord sets and interconnection cord sets

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Electrical accessories – Cord sets and interconnection cord sets

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICAL ACCESSORIES – CORD SETS
AND INTERCONNECTION CORD SETS**

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International Standard IEC 60799 has been prepared by subcommittee 23G: Appliance couplers, of IEC technical committee 23: Electrical accessories.

This third edition cancels and replaces the second edition published in 1998. This edition constitutes a technical revision.

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

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- b) extension to include appliance couplers in accordance with IEC 60320-2-3:–1.

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ELECTRICAL ACCESSORIES – CORD SETS AND INTERCONNECTION CORD SETS

1 Scope

This document specifies requirements for cord sets and interconnection cord sets for household and similar general purpose equipment.

It does not apply to cord sets for industrial purposes (with plugs and connectors according to IEC 60309) nor to cord extension sets.

NOTE Although electrical supply flexes provided with rewirable plugs and connectors are not cord sets in the sense of this document, but considered as being similar to cord sets and serving the same purpose, ~~it is recommended to apply~~ the requirements as specified in this document ~~are also applicable~~ to such assemblies as well as far as is reasonable.

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 60050(151):1978, International Electrotechnical Vocabulary – Chapter 151: Electrical and magnetic devices~~

IEC TR 60083:1997, *Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC*

IEC 60227 (all parts), *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 60245 (all parts), *Rubber insulated cables – Rated voltages up to and including 450/750 V*

IEC 60320-1:1994, *Appliance couplers for household and similar general purposes – Part 1: General requirements*

~~IEC 60320-2-2:1990, Appliance couplers for household and similar general purposes – Part 2: Interconnection couplers for household and similar equipment~~

IEC 60320-2-3, *Appliance coupler for household and similar general purposes – Part 2-3: Appliance coupler with a degree of protection higher than IPX0*

~~IEC 60536:1976, Classification of electrical and electronic equipment with regard to protection against electric shock~~

IEC 60884-1:1994, *Plugs and socket-outlets for household and similar purposes – Part 1: General requirements*

~~Amendment 1 (1994)~~

~~Amendment 2 (1995)~~

IEC 61140, *Protection against electric shock – Common aspects for installation and equipment*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

cord set

assembly consisting of one flexible cable or cord fitted with one non-rewirable plug and one non-rewirable connector, intended for the connection of an electrical appliance or equipment to the electrical supply

3.2

interconnection cord set

assembly consisting of one cable or cord fitted with one non-rewirable plug connector and one non-rewirable connector, intended for the interconnection ~~of the electrical supply from one electrical appliance or equipment to another~~ between two electrical appliances

~~NOTE 1 – The definitions of non-rewirable plug and non-rewirable connector are given in IEC 60884-1 and IEC 60320-1 respectively.~~

~~NOTE 2 – The difference between a cord set or an interconnection cord set and a cord extension set is that the latter has a portable socket-outlet instead of a connector and cannot be used to connect appliances or equipment directly to the electrical supply.~~

~~NOTE 3 – Non-rewirable plugs attached to a length of cord, sometimes called incomplete cord sets, are covered by IEC 60884-1.~~

[SOURCE: IEC 60050-442:1998, 442-07-06, modified – "a" has been changed to "one" in two places, "flexible cable" has been replaced by "cable", and "between two electrical appliances" replaces "of the electrical supply from one electrical appliance or equipment to another".]

3.3

non-rewirable accessory

accessory so constructed that it forms a complete unit with flexible supply cable or cord after connection and assembly by the manufacturer of the accessory

3.4

type test

test of one or more devices made to a certain design to show that the design meets certain ~~specifications~~ requirements

[SOURCE: ~~IEV 151-04-15~~ IEC 60050-811:1991, 811-10-04, modified – In the definition, "requirements" has replaced "specifications".]

3.5

routine test

test to which each individual device is subjected during and/or after manufacture to ascertain whether it complies with certain criteria

[SOURCE: ~~IEV 151-04-16~~ IEC 60050-811:1991, 811-10-05, modified – In the definition, "and/or" has replaced "or".]

4 General requirements

Cord sets and interconnection cord sets shall be so designed and constructed that in normal use their performance is reliable and without danger to the user or surroundings.

Tests shall be made to prove compliance with the requirements laid down in this document, where applicable.

Tests are as follows:

- type tests are made on representative samples of each cord set and interconnection cord set;
- routine tests are made on each cord set and interconnection cord set manufactured to this document, where applicable.

NOTE Routine tests are specified in Annex A.

5 Requirements

5.1 Requirements for component parts

The plug of a cord set shall comply with the requirements of IEC 60884-1.

The connector of a cord set or an interconnection cord set shall comply with the requirements of IEC 60320-1.

The plug connector of an interconnection cord set shall comply with the requirements of ~~IEC 60320-2-2~~ IEC 60320-1.

The connector, with a degree of protection higher than IPX0, of a cord set or an interconnection cord set shall comply with the requirements of IEC 60320-2-3.

The plug connector, with a degree of protection higher than IPX0, of an interconnection cord set shall comply with the requirements of IEC 60320-2-3.

The cord of a cord set or interconnection cord set shall comply with the requirements of ~~IEC 60227 or IEC 60245~~ relevant IEC standards.

Compliance with the requirements for plugs, connectors, plug connectors and cords is checked by the tests specified in the relevant standards. During the test of one component, the influence on the other components of the assembly is ignored.

~~The end of a stranded conductor shall not be consolidated by soft soldering at places where the conductor is subject to contact pressure unless the clamping means is designed so as to obviate the risk of a bad contact due to cold flow of the solder.~~

5.2 Requirements for the assembly

5.2.1 Rated voltage

The rated voltage of the connector and the cord shall be not less than the rated voltage of the plug. For interconnection cord sets, the rated voltage of the connector and the plug connector shall be the same.

5.2.2 Rated current

The rated current of the plug or plug connector shall be not less than the rated current of the connector.

5.2.3 Class of equipment

The plug and the connector shall be of a type intended for the connection of the same class of equipment, as given in ~~IEC 60536~~ IEC 61140.

A cord set comprising a connector for class II equipment may, however, comprise a plug ~~for class I equipment~~ with three pins according to IEC TR 60083 or to other three-pin systems.

5.2.4 Marking

Plugs, connectors and plug connectors shall be marked as specified in the relevant standards.

Cord sets and interconnection cord sets that are not delivered together with an appliance and of which the plug or the plug connector and the connector have not been made by the same manufacturer shall, in addition, be marked with either the name, trademark or identification mark of the maker of the complete cord set or interconnection cord set or of the responsible vendor.

This marking shall not only be put on the package.

NOTE The marking of the name, trademark or identification mark of the maker or responsible vendor ~~may~~ can, for example, be applied on a sleeve provided around the cord set.

Plugs, connectors, cord sets or interconnection cord sets for the connection of class II equipment shall not be marked with the symbol for class II construction (the double square).

5.2.5 Type of cord

The cord of a cord set or interconnection cord set shall be not lighter than the type and have a cross-sectional area not less than those specified in Table 1, depending on the type of connector incorporated in the cord set or interconnection cord set.

NOTE A cord of a lower IEC code designation is lighter than a cord of a higher code designation. For example, 60227 IEC 42 is lighter than 60227 IEC 53.

Table 1 – Types of cords for cord sets and interconnection cord sets

Connector			Lightest type of flexible cable or cord	Minimum cross-sectional area	
Rated current A	Class of equipment	For conditions		mm ²	
0,2	II	Cold	60227 IEC 41		1)
2,5	I	Cold	60227 IEC 52	0,75	
2,5	II	Cold	60227 IEC 52	0,75	2)
6	II	Cold	60227 IEC 52	0,75	
10	I	Cold	60227 IEC 53	0,75	3)
			or 60245 IEC 53	0,75	3)
10	I	Hot or very hot	60245 IEC 53	0,75	3)
			or 60245 IEC 54	0,75	3)
10	II	Cold	60227 IEC 53	0,75	3)
			or 60245 IEC 53	0,75	3)
16	I	Cold	60227 IEC 53	1	3)
			or 60245 IEC 53	1	3)
16	I	Very hot	60245 IEC 53	1	3)
			or 60245 IEC 54	1	3)
16	II	Cold	60227 IEC 53	1	3)
			or 60245 IEC 53	1	3)

- ~~1) See 5.2.6.~~
- ~~2) If the cord has a length not exceeding 2 m, a nominal cross-sectional area of 0,5 mm² is allowed.~~
- ~~3) If the cord has a length exceeding 2 m, nominal cross-sectional areas shall be~~
~~— 1 mm² for 10 A cord sets and interconnection cord sets;~~
~~— 1,5 mm² for 16 A cord sets and interconnection cord sets.~~

Type of connector	Type of cord ^a	Nominal cross-sectional area
		mm ²
0,2 A	60227 IEC 41 ^b	–
2,5 A for class I equipment	60227 IEC 52	0,75
2,5 A for class II equipment	60227 IEC 52	0,75 ^c
6 A	60227 IEC 52	0,75
10 A for cold conditions	60227 IEC 53 or 60245 IEC 53	0,75 ^d
10 A for hot conditions	60245 IEC 53 60245 IEC 89	0,75 ^d
10 A for very hot conditions	60245 IEC 53 60245 IEC 89	0,75 ^d
16 A for cold conditions	60227 IEC 53 or 60245 IEC 53	1,0 ^d
16 A for very hot conditions	60245 IEC 53 60245 IEC 89	1,0 ^d

NOTE For a cross-sectional area using American Wire Gauge (AWG), see Annex D of IEC 60320-1:2015.

^a Other cable or cord with equivalent properties may also be used.

^b In length not exceeding 2 m.

^c If the cord has a length not exceeding 2 m, a nominal cross-sectional area of 0,5 mm² is allowed.

^d If the cord has a length exceeding 2 m, nominal cross-sectional areas shall be minimum

- 1,0 mm² for 10 A connectors;
- 1,5 mm² for 16 A connectors.

Compliance with the requirements of 5.2.1 to 5.2.5 is checked by inspection.

5.2.6 Length of cord

~~The length of the flexible cord of a cord set or interconnection cord set shall be not more than 2 m if the cord has a cross-sectional area of 0,5 mm² or less.~~

NOTE ~~Flat twin tinsel cords, IEC code designation 60227 IEC 41, have a cross-section less than 0,5 mm².~~

~~The length of the cord is measured between the points where the cord or cord guard enters the plug or plug connector and the connector respectively. If there is no definite end, the length is measured from the point where the overall diameter is 1 mm more than the outer diameter of the cord. For flat cords, this increased diameter is measured over the larger axis of the cord.~~

~~Compliance with the requirements is checked by inspection and measurement.~~

6 Continuity and polarity

In cord sets and interconnection cord sets for use in polarized systems, the continuity between corresponding ~~plug pins and connector contacts~~ pins of plugs/plug connectors and contacts of connectors shall be maintained correctly in each pole.

Compliance is checked by ~~measurement~~ inspection.

7 EMC requirements

NOTE Requirements for accessories incorporating electronic components are not included as the need has not yet been established.

7.1 Immunity for cord sets and interconnection cord sets not incorporating electronic components

These cord sets and interconnection cord sets are not sensitive to normal electromagnetic disturbances and therefore no immunity tests are required.

7.2 Emission for cord sets and interconnection cord sets not incorporating electronic components

These cord sets and interconnection cord sets are not generating electromagnetic disturbances, consequently no emission tests are necessary.

NOTE These cord sets and interconnection cord sets ~~may~~ can only generate electromagnetic disturbances during occasional operations of insertion and withdrawal of the accessories. The frequency, the level and the consequences of these emissions are considered as part of the normal electromagnetic environment.

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Annex A (informative normative)

Routine tests for factory-wired cord sets and interconnection cord sets related to safety (protection against electric shock and correct polarity)

A.1 General

All factory wired cord sets and interconnection cord sets shall be subjected to the following tests as ~~appropriate~~ shown in Table A.1.

Table A.1 – Test overview

Type of accessory	Test to be performed according to ...
Two-pole cord sets and interconnection cord sets	A.2
Three-pole cord sets and interconnection cord sets	A.2, A.3, A.4
Two-pole accessories	A.2, A.4.1
More than two-pole accessories	A.2, A.3, A.4

~~The test equipment or manufacturing systems shall be such that failed samples are either made unfit for use or~~ Failed samples shall be treated in such a way that they cannot fulfill the intended function or be separated from satisfactory products in such a way that they cannot be released for sale.

~~NOTE – “Unfit for use” means that the accessory is treated in such a way that it cannot fulfil the intended function. It is, however, accepted that repairable products (by a reliable system) may be repaired and retested.~~

It shall be possible ~~by process or manufacturing system~~ to identify that ~~accessories~~ appliance couplers released for sale have been subjected to ~~all the appropriate~~ routine tests.

The manufacturer shall maintain a record of the tests carried out that shows:

- type of product;
- date of test;
- place of manufacture (if manufactured in more than one place);
- tested quantity;
- number of failures and actions taken, i.e. destroyed/repaired.

The test equipment shall be checked before and after each period of use and for periods of continuous use, at least every 24 h. During these checks, the equipment shall show that it indicates faults when known faulty products are inserted or simulated faults are applied.

Products manufactured prior to a check shall only be released for sale if the check is found to be satisfactory.

Test apparatus/equipment shall be verified/calibrated at least once a year.

Records shall be kept of all checks and any adjustments found necessary.

A.2 Polarized systems: phase (L) and neutral (N) – Correct connection

For polarized systems the test shall be made ~~using safety extra-low voltage SELV applied~~ by applying a current for a period of not less than 2 s between the L and N pin or contact and the corresponding L and N pin or contact of the accessory (connector, plug connector or plug) at each end of the cord set or interconnection cord set.

NOTE The period of 2 s may be reduced to not less than 1 s on test equipment with automatic timing.

~~Other suitable tests may be used.~~

Polarity shall be correct.

A.3 Earth (PE) continuity

The test shall be made ~~using SELV applied~~ applying a current for a period of not less than 2 s between the ~~corresponding~~ PE pin or contact of the accessory (connector, plug connector or plug) at each end of the cord set or interconnection cord set.

NOTE The period of 2 s may be reduced to not less than 1 s on test equipment with automatic timing.

Other suitable tests may be used.

Continuity shall be present.

A.4 Short-circuit/wrong connection and reduction in creepage distance and clearance ~~L or N to E~~

A.4.1 Accessible surface safety check

For cord sets and interconnection cord sets with non-rewirable accessories (connectors, plugs connectors and plugs), it shall be checked that live parts, for example loose strands, are not coming through the accessible surface of the accessory.

If this danger cannot be prevented by the construction and/or suitable manufacturing processes, the following test or a similar one (e.g. impulse voltage test) shall be performed.

The accessible surface of accessories (connectors, plugs connectors and plugs), except the engagement face of the accessories, is scanned by adjusted electrodes and a pressure force of 20 N.

Through the live parts and the surface of the appliance coupler, an AC voltage of $(2\ 000 \pm 200)$ V shall be applied for at least 1 s.

Neither a flashover nor a breakdown shall occur.

A.4.2 Short-circuit/wrong connection

The test shall be made between the L and N conductors and the E conductor by applying at the supply end, ~~i.e. plug,~~ an AC voltage of $(2\ 000 \pm 200)$ V, 50 Hz or 60 Hz for a period of not less than 2 s or by an impulse voltage test using 1,2/50 μ s wave form, 4 kV peak value, three impulses for each pole, with intervals of not less than 1 s, the test voltage being applied at the supply end, ~~i.e. plug or plug connector.~~

NOTE The period of 2 s may be reduced to not less than 1 s on test equipment with automatic timing.

The L and N conductors may be connected together for this test.

No flashover shall occur.

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NORME INTERNATIONALE

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**Petit appareillage électrique – Cordons-connecteurs et cordons-connecteurs
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This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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ELECTRICAL ACCESSORIES – CORD SETS AND INTERCONNECTION CORD SETS

1 Scope

This document specifies requirements for cord sets and interconnection cord sets for household and similar general purpose equipment.

It does not apply to cord sets for industrial purposes (with plugs and connectors according to IEC 60309) nor to cord extension sets.

NOTE Although electrical supply flexes provided with rewirable plugs and connectors are not cord sets in the sense of this document, but considered as being similar to cord sets and serving the same purpose, the requirements as specified in this document are also applicable to such assemblies as well as, far as is reasonable.

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 TR 60083, *Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC*

IEC 60227 (all parts), *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 60245 (all parts), *Rubber insulated cables – Rated voltages up to and including 450/750 V*

IEC 60320-1, *Appliance couplers for household and similar general purposes – Part 1: General requirements*

IEC 60320-2-3, *Appliance coupler for household and similar general purposes – Part 2-3: Appliance coupler with a degree of protection higher than IPX0*

IEC 60884-1, *Plugs and socket-outlets for household and similar purposes – Part 1: General requirements*

IEC 61140, *Protection against electric shock – Common aspects for installation and equipment*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

cord set

assembly consisting of one flexible cable or cord fitted with one non-rewirable plug and one non-rewirable connector, intended for the connection of an electrical appliance or equipment to the electrical supply

3.2

interconnection cord set

assembly consisting of one cable or cord fitted with one non-rewirable plug connector and one non-rewirable connector, intended for the interconnection between two electrical appliances

[SOURCE: IEC 60050-442:1998, 442-07-06, modified – "a" has been changed to "one" in two places, "flexible cable" has been replaced by "cable", and "between two electrical appliances" replaces "of the electrical supply from one electrical appliance or equipment to another".]

3.3

non-rewirable accessory

accessory so constructed that it forms a complete unit with flexible supply cable or cord after connection and assembly by the manufacturer of the accessory

3.4

type test

test of one or more devices made to a certain design to show that the design meets certain requirements

[SOURCE: IEC 60050-811:1991, 811-10-04, modified – In the definition, "requirements" has replaced "specifications".]

3.5

routine test

test to which each individual device is subjected during and/or after manufacture to ascertain whether it complies with certain criteria

[SOURCE: IEC 60050-811:1991, 811-10-05, modified – In the definition, "and/or" has replaced "or".]

4 General requirements

Cord sets and interconnection cord sets shall be so designed and constructed that in normal use their performance is reliable and without danger to the user or surroundings.

Tests shall be made to prove compliance with the requirements laid down in this document, where applicable.

Tests are as follows:

- type tests are made on representative samples of each cord set and interconnection cord set;
- routine tests are made on each cord set and interconnection cord set manufactured to this document, where applicable.

NOTE Routine tests are specified in Annex A.

5 Requirements

5.1 Requirements for component parts

The plug of a cord set shall comply with the requirements of IEC 60884-1.

The connector of a cord set or an interconnection cord set shall comply with the requirements of IEC 60320-1.

The plug connector of an interconnection cord set shall comply with the requirements of IEC 60320-1.

The connector, with a degree of protection higher than IPX0, of a cord set or an interconnection cord set shall comply with the requirements of IEC 60320-2-3.

The plug connector, with a degree of protection higher than IPX0, of an interconnection cord set shall comply with the requirements of IEC 60320-2-3.

The cord of a cord set or interconnection cord set shall comply with the requirements of relevant IEC standards.

Compliance with the requirements for plugs, connectors, plug connectors and cords is checked by the tests specified in the relevant standards. During the test of one component, the influence on the other components of the assembly is ignored.

5.2 Requirements for the assembly

5.2.1 Rated voltage

The rated voltage of the connector and the cord shall be not less than the rated voltage of the plug. For interconnection cord sets, the rated voltage of the connector and the plug connector shall be the same.

5.2.2 Rated current

The rated current of the plug or plug connector shall be not less than the rated current of the connector.

5.2.3 Class of equipment

The plug and the connector shall be of a type intended for the connection of the same class of equipment, as given in IEC 61140.

A cord set comprising a connector for class II equipment may, however, comprise a plug with three pins according to IEC TR 60083 or to other three-pin systems.

5.2.4 Marking

Plugs, connectors and plug connectors shall be marked as specified in the relevant standards.

Cord sets and interconnection cord sets that are not delivered together with an appliance and of which the plug or the plug connector and the connector have not been made by the same manufacturer shall, in addition, be marked with either the name, trademark or identification mark of the maker of the complete cord set or interconnection cord set or of the responsible vendor.

This marking shall not only be put on the package.

NOTE The marking of the name, trademark or identification mark of the maker or responsible vendor can, for example, be applied on a sleeve provided around the cord set.

Plugs, connectors, cord sets or interconnection cord sets for the connection of class II equipment shall not be marked with the symbol for class II construction (the double square).

5.2.5 Type of cord

The cord of a cord set or interconnection cord set shall be not lighter than the type and have a cross-sectional area not less than those specified in Table 1, depending on the type of connector incorporated in the cord set or interconnection cord set.

NOTE A cord of a lower IEC code designation is lighter than a cord of a higher code designation. For example, 60227 IEC 42 is lighter than 60227 IEC 53.

Table 1 – Types of cords for cord sets and interconnection cord sets

Type of connector	Type of cord ^a	Nominal cross-sectional area mm ²
0,2 A	60227 IEC 41 ^b	–
2,5 A for class I equipment	60227 IEC 52	0,75
2,5 A for class II equipment	60227 IEC 52	0,75 ^c
6 A	60227 IEC 52	0,75
10 A for cold conditions	60227 IEC 53 or 60245 IEC 53	0,75 ^d
10 A for hot conditions	60245 IEC 53 60245 IEC 89	0,75 ^d
10 A for very hot conditions	60245 IEC 53 60245 IEC 89	0,75 ^d
16 A for cold conditions	60227 IEC 53 or 60245 IEC 53	1,0 ^d
16 A for very hot conditions	60245 IEC 53 60245 IEC 89	1,0 ^d

NOTE For a cross-sectional area using American Wire Gauge (AWG), see Annex D of IEC 60320-1:2015.

^a Other cable or cord with equivalent properties may also be used.

^b In length not exceeding 2 m.

^c If the cord has a length not exceeding 2 m, a nominal cross-sectional area of 0,5 mm² is allowed.

^d If the cord has a length exceeding 2 m, nominal cross-sectional areas shall be minimum

- 1,0 mm² for 10 A connectors;
- 1,5 mm² for 16 A connectors.

Compliance with the requirements of 5.2.1 to 5.2.5 is checked by inspection.

6 Continuity and polarity

In cord sets and interconnection cord sets for use in polarized systems, the continuity between corresponding pins of plugs/plug connectors and contacts of connectors shall be maintained correctly in each pole.

Compliance is checked by inspection.

7 EMC requirements

NOTE Requirements for accessories incorporating electronic components are not included as the need has not yet been established.

7.1 Immunity for cord sets and interconnection cord sets not incorporating electronic components

These cord sets and interconnection cord sets are not sensitive to normal electromagnetic disturbances and therefore no immunity tests are required.

7.2 Emission for cord sets and interconnection cord sets not incorporating electronic components

These cord sets and interconnection cord sets are not generating electromagnetic disturbances, consequently no emission tests are necessary.

NOTE These cord sets and interconnection cord sets can only generate electromagnetic disturbances during occasional operations of insertion and withdrawal of the accessories. The frequency, the level and the consequences of these emissions are considered as part of the normal electromagnetic environment.

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Annex A (normative)

Routine tests for factory-wired cord sets and interconnection cord sets related to safety (protection against electric shock and correct polarity)

A.1 General

All factory wired cord sets and interconnection cord sets shall be subjected to the following tests as shown in Table A.1.

Table A.1 – Test overview

Type of accessory	Test to be performed according to ...
Two-pole accessories	A.2, A.4.1
More than two-pole accessories	A.2, A.3, A.4

Failed samples shall be treated in such a way that they cannot fulfill the intended function or be separated from satisfactory products in such a way that they cannot be released for sale.

It shall be possible to identify that appliance couplers released for sale have been subjected to the routine test.

The manufacturer shall maintain a record of the tests carried out that shows:

- type of product;
- date of test;
- place of manufacture (if manufactured in more than one place);
- tested quantity;
- number of failures and actions taken, i.e. destroyed/repaired.

The test equipment shall be checked before and after each period of use and for periods of continuous use, at least every 24 h. During these checks, the equipment shall show that it indicates faults when known faulty products are inserted or simulated faults are applied.

Products manufactured prior to a check shall only be released for sale if the check is found to be satisfactory.

Test apparatus/equipment shall be verified/calibrated at least once a year.

Records shall be kept of all checks and any adjustments found necessary.

A.2 Polarized systems: phase (L) and neutral (N) – Correct connection

For polarized systems the test shall be made by applying a current for a period of not less than 2 s between the L and N pin or contact and the corresponding L and N pin or contact of the accessory (connector, plug connector or plug) at each end of the cord set or interconnection cord set.

The period of 2 s may be reduced to not less than 1 s on test equipment with automatic timing.

Polarity shall be correct.

A.3 Earth (PE) continuity

The test shall be made applying a current for a period of not less than 2 s between the PE pin or contact of the accessory (connector, plug connector or plug) at each end of the cord set or interconnection cord set.

The period of 2 s may be reduced to not less than 1 s on test equipment with automatic timing.

Other suitable tests may be used.

Continuity shall be present.

A.4 Short-circuit/wrong connection and reduction in creepage distance and clearance

A.4.1 Accessible surface safety check

For cord sets and interconnection cord sets with non-rewirable accessories (connectors, plugs connectors and plugs), it shall be checked that live parts, for example loose strands, are not coming through the accessible surface of the accessory.

If this danger cannot be prevented by the construction and/or suitable manufacturing processes, the following test or a similar one (e.g. impulse voltage test) shall be performed.

The accessible surface of accessories (connectors, plugs connectors and plugs), except the engagement face of the accessories, is scanned by adjusted electrodes and a pressure force of 20 N.

Through the live parts and the surface of the appliance coupler, an AC voltage of $(2\ 000 \pm 200)$ V shall be applied for at least 1 s.

Neither a flashover nor a breakdown shall occur.

A.4.2 Short-circuit/wrong connection

The test shall be made between the L and N conductors and the E conductor by applying at the supply end an AC voltage of $(2\ 000 \pm 200)$ V, 50 Hz or 60 Hz for a period of not less than 2 s or by an impulse voltage test using 1,2/50 μ s wave form, 4 kV peak value, three impulses for each pole, with intervals of not less than 1 s, the test voltage being applied at the supply end.

The period of 2 s may be reduced to not less than 1 s on test equipment with automatic timing.

The L and N conductors may be connected together for this test.

No flashover shall occur.

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

**PETIT APPAREILLAGE ÉLECTRIQUE – CORDONS-CONNECTEURS
ET CORDONS-CONNECTEURS D'INTERCONNEXION**

AVANT-PROPOS

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La Norme internationale IEC 60799 a été établie par le sous-comité 23G: Connecteurs, du comité d'études 23 de l'IEC: Petit appareillage.

Cette troisième édition annule et remplace la deuxième édition parue en 1998. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- a) alignement avec l'IEC 60320-1:2015
- b) extension pour inclure les connecteurs conformément à l'IEC 60320-2-3:–1.

¹ En cours d'élaboration. Stade au moment de la publication: IEC/FDIS 60320-2-3:2018.

Le texte de cette Norme internationale est issu des documents suivants:

FDIS	Rapport de vote
23G/393/FDIS	23G/397/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette norme.

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PETIT APPAREILLAGE ÉLECTRIQUE – CORDONS-CONNECTEURS ET CORDONS-CONNECTEURS D'INTERCONNEXION

1 Domaine d'application

Le présent document spécifie les exigences concernant les cordons-connecteurs et les cordons-connecteurs d'interconnexion pour matériels électrodomestiques et matériels analogues.

Elle ne s'applique pas aux cordons-connecteurs pour usages industriels (avec fiches et prises mobiles conformément à l'IEC 60309), ni aux cordons-prolongateurs.

NOTE Bien que les câbles souples d'alimentation équipés de fiches et prises mobiles démontables ne soient pas des cordons-connecteurs au sens du présent document, mais seulement assimilés à des cordons-connecteurs et destinés aux mêmes usages, les exigences du présent document leur sont également applicables dans la mesure du raisonnable.

2 Références normatives

Les documents suivants cités dans le texte constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC TR 60083, *Prises de courant pour usages domestiques et analogues normalisées par les pays membres de l'IEC*

IEC 60227 (toutes les parties), *Conducteurs et câbles isolés au polychlorure de vinyle, de tension nominale au plus égale à 450/750 V*

IEC 60245 (toutes les parties), *Conducteurs et câbles isolés au caoutchouc – Tension assignée au plus égale à 450/750 V*

IEC 60320-1, *Connecteurs pour usages domestiques et usages généraux analogues – Partie 1: Exigences générales*

IEC 60320-2-3, *Connecteurs pour usages domestiques et usages généraux analogues – Partie 2-3: Connecteurs avec degré de protection supérieur à IPX0*

IEC 60884-1, *Prises de courant pour usages domestiques et analogues – Partie 1: Exigences générales*

IEC 61140, *Protection contre les chocs électriques - Aspects communs aux installations et aux matériels*

3 Termes et définitions

Pour les besoins du présent document, les termes et définitions suivants s'appliquent.

L'ISO et l'IEC tiennent à jour des bases de données terminologiques destinées à être utilisées en normalisation, consultables aux adresses suivantes:

- IEC Electropedia: disponible à l'adresse <http://www.electropedia.org/>

- ISO Online browsing platform: disponible à l'adresse <http://www.iso.org/obp>

3.1

cordon-connecteur

ensemble constitué d'un câble souple ou d'un cordon équipé d'une fiche non démontable et d'une prise mobile non démontable, destiné à relier un appareil ou matériel électrique à son alimentation électrique

3.2

cordon-connecteur d'interconnexion

ensemble composé d'un câble ou d'un cordon muni d'une fiche mobile mâle et d'une prise mobile non démontables, destiné à l'interconnexion entre deux appareils électriques

[SOURCE: IEC 60050-442:1998, 442-07-06, modifié – Dans la définition, "câble souple" a été remplacé par "câble ou d'un cordon", et "interconnexion de l'alimentation électrique d'un matériel électrique d'utilisation à un autre" a été remplacé par "interconnexion entre deux appareils électriques".]

3.3

appareil non démontable

appareil construit de façon à former une unité complète avec le câble souple ou le cordon d'alimentation, après connexion et assemblage par le fabricant de l'appareil

3.4

essai de type

essai effectué sur un ou plusieurs dispositifs réalisés selon une conception donnée, pour vérifier que cette conception répond à certaines exigences

[SOURCE: IEC 60050-811:1991, 811-10-04, modifiée – Dans la définition, le terme "spécifications" a été remplacé par "exigences".]

3.5

essai individuel de série

essai auquel est soumis chaque dispositif en cours et/ou en fin de fabrication, pour vérifier qu'il satisfait à des critères définis

[SOURCE: IEC 60050-811:1991, 811-10-05, modifiée – Dans la définition, "ou" a été remplacé par "et/ou".]

4 Exigences générales

Les cordons-connecteurs et cordons-connecteurs d'interconnexion doivent être conçus et construits de sorte qu'en utilisation normale leur fonctionnement soit sûr sans mise en danger de l'utilisateur ou de l'environnement immédiat.

Des essais doivent être effectués pour démontrer la conformité aux exigences du présent document lorsqu'elles sont applicables.

Ces essais sont tels que:

- les essais de type sont effectués sur des échantillons représentatifs de chaque cordon-connecteur et cordon-connecteur d'interconnexion;
- les essais individuels de série sont effectués sur chaque cordon-connecteur et cordon-connecteur d'interconnexion fabriqués selon le présent document, le cas échéant.

NOTE Les essais individuels de série sont spécifiés dans l'Annexe A.