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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Road vehicles - Multi-core connecting cables - Part 1: Test
methods and requirements for basic performance sheathed
cables**

(English Translation)

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1 Scope

This document specifies the performance requirements for general-purpose multi-core sheathed cables used for electrical connections between tractors and trailers and describes the corresponding test methods.

This document applies to the design, production and testing of general-purpose sheathed cables, whose temperature range is Class A and Class B defined in ISO 19642 (all parts).

2 Normative references

The provisions of the following documents constitute the essential clauses of this document through normative references in this text. Among them, for any dated reference, only the version corresponding to that date applies to this document; for any undated reference, the latest version (including all amendments) applies to this document.

ISO 4141-3 Road vehicles - Multi-core connecting cables - Part 3.Construction, dimensions and marking of unscreened sheathed low-voltage cables

NOTE: GB/T 5054.3-2024 Road vehicles - Multi-core connecting cables - Part 3.Construction, dimensions and marking of unscreened sheathed low-voltage cables (ISO 4141-3.2019, IDT)

ISO 4892-2 Plastics - Methods of exposure to laboratory light sources - Part 2.

Xenon-arc lamps

NOTE: GB/T 16422.2-2022 Plastics - Methods of exposure to laboratory light sources - Part 2.

Xenon-arc (ISO 4892-4.2013, IDT)

ISO 4892-4 Plastics - Methods of exposure to laboratory light sources - Part 4.

Open-flame carbon-arc lamps

NOTE: GB/T 16422.4-2022 Plastics - Methods of exposure to laboratory light sources - Part 4.

Open-flame carbon-arc lamps (ISO 4892-4.2013, IDT) electric and optical cables - Part 11. Methods for general application - Measurement of thickness and overall dimensions - Tests for determining the mechanical properties (IEC 60811-1-1.2001, IDT)

3 Terms and definitions

For this document, the terms and definitions defined in ISO 19642 (all parts) and the following apply.

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

3.1

cable basic performance

The cable's performance that meets the basic requirements of general automotive applications.

3.2

core

A component consisting of conductors with separate insulation and/or self-insulated and screened.

3.3

screen

The conductive material that is used to reduce the penetration and/or radiation of electromagnetic fields into a specified area.

3.4

unscreened

No shielding material.

4 General requirements

The marking of a single core shall comply with the provisions of ISO 4141-3. The single core of multi-core sheathed cables shall meet the requirements of ISO 19642 (all parts).

The basic test conditions and the oven used in the test shall meet the requirements of ISO 19642 (all parts).

During visual inspection, the sheath shall be smooth and uniform, the surface shall be intact, and there shall be no defects such as ridges, holes, or particles.

5.1.1 Test specimen

The test specimen length is 600 mm.

5.1.2 Test equipment

The test equipment is in accordance with the requirements of ISO 19642 (all parts).

5.1.3 Test procedure

Measure the maximum and minimum values of the cable outer diameter on the test specimen at three sampling points with an interval of 200 mm, and record the maximum measured value (d_{max}) and minimum measured value (d_{min}) at the three positions.

5.1.4 Requirements

The outer diameter dimension measured at each time during the test shall be between the limits agreed upon by the cable user and supplier and shall meet the limit requirements of ISO 4141-3.

5.2.1 Test specimen and equipment

It is the same as 5.1.1 and 5.1.2.

5.2.2 Test procedure

For each sample, the ellipticity a is calculated according to formula (1).

Where a -- ellipticity, %;

d_{max} -- the maximum value of the cable outer diameter, in millimeters (mm);

d_{min} -- the minimum value of the cable outer diameter, in millimeters (mm).

5.2.3 Requirements

The calculated ellipticity shall meet the limit requirements of ISO 4141-3.

5.3.1 Test specimen, equipment and procedures

The test shall be carried out according to the insulation thickness requirements of ISO 19642 (all parts).

5.3.2 Requirements

Each measurement value shall not be less than the minimum thickness required by ISO 4141-3.

5.4.1 General

The test is only applicable to twisted pairs in the core.

5.4.2 Test specimen

The test specimen length is 1000 mm.

5.4.3 Test equipment

The test equipment shall be a measuring device with an accuracy of 1 mm.

5.4.4 Test procedure

Strip off the sheath (500±25) mm, ensuring the ends of the twisted pairs do not unravel.

Secure the ends of the test specimen. Measure five consecutive pitches. A pitch is the axial length of a single core in a twisted-pair cable that spirals one full turn.

5.4.5 Requirements

The sum of the 5 pitches shall not exceed 250 mm.

6.1 Continuity test

The test shall be carried out in accordance with ISO 19642 (all parts).

6.2 Withstanding voltage test

The test shall be carried out in accordance with ISO 19642 (all parts).