

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

YD/T 1092-2023

**Telecommunication cables - Foamed polyolefin dielectric,
corrugated copper-tube outer conductor, 50 Ohm
radio-frequency coaxial cable for wireless communications
(English Translation)**

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Table of Contents

Foreword...	3
1 Scope...	6
2 Normative references...	6
3 Terms and definitions...	9
4 Product classification...	9
4.1 Product model...	9
4.2 Product marks...	10
5 Requirements...	10
5.1 Cable structure...	10
5.2 Inner conductor...	11
5.3 Insulation...	12
5.4 Outer conductor...	13
5.5 Sheath...	14
5.6 Cable performance requirements...	16
5.7 Restricted substances...	22
6 Test methods...	22
6.1 Inner conductor...	22
6.2 Insulation...	23
6.3 Outer conductor...	24
6.4 Cable sheath...	25
6.5 Mechanical, physical and environmental properties of cables...	26
6.6 Electrical performance test...	28
6.7 Flame-retardant test of flame-retardant cable...	30
6.8 Restricted substances...	30
7 Inspection rules...	30
7.1 Exit-factory requirements...	30
7.2 Product Inspection...	30
7.3 Exit-factory inspection...	31
7.4 Type inspection...	32
8 Packaging, transportation and storage...	34
8.1 Packaging...	34
8.2 Transportation and storage...	34

Annex A (informative) Spelling instructions for common cable models...	36
Annex B (informative) Engineering usage data...	37

1 Scope

This document specifies the product classification, requirements, test methods, inspection rules, and packaging, transportation and storage requirements for foamed polyolefin dielectric, corrugated copper-tube outer conductor, 50 Ohm radio-frequency coaxial cable for wireless communications.

This document applies to the manufacture, testing and use of foamed polyolefin dielectric, corrugated copper-tube outer conductor, 50 Ohm radio-frequency coaxial cable for wireless communications (hereinafter referred to as cable). The operating frequency range of the cable is 100~7125 MHz.

2 Normative references

The following referenced documents are indispensable for the application 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.

GB/T 2951.11, Common test methods for insulating and sheathing materials of electric and optical cables -- Part 11.Methods for general application --

Measurement of thickness and overall dimensions -- Tests for determining the mechanical properties (GB/T 2951.11-2008, IEC 60811-1-1.2001, IDT)

GB/T 2951.13, Common test methods for insulating and sheathing materials of electric and optical cables -- Part 13.Methods for general application --

Measurement for determining the density -- Water absorption tests -- Shrinkage test (GB/T 2951.13-2008, IEC 60811-1-3.2001, IDT)

GB/T 3048.10, Test methods for electrical properties of electric cables and wires --
Part 10.Spark test of extruded protective sheaths

GB/T 4909.2, Test methods for bare wires -- Part 2.Measurement of dimensions

GB/T 6995.3, Markings for electric wires and cables -- Part 3.Identifications of cables and wires

GB/T 19849, Seamless copper-tube for cable

GB/T 21021.1, Intermodulation level measurement for passive RF and microwave devices -- Part 1.General requirements and measuring methods (GB/T 21021.1-

2021, IEC 62037-1.2012, IDT)

GB/T 21021.4, Intermodulation level measurement for passive RF and microwave devices -- Part 4.Measurement of passive intermodulation in coaxial cables (GB/T

21021.4-2021, IEC 62037-4.2012, IDT)

GB/T 26125, Electrical and electronic products -- Determination of six regulated substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ethers) (GB/T 26125-2011, IEC 62321.2008,

IDT)

GB/T 26303.1, Measuring method for dimensions and shapes of wrought copper and copper alloy -- Part 1.Tube

GB/T 26303.3, Measuring methods for dimensions and shapes of wrought copper and copper alloys -- Part 3.Sheets and strips

GB/T 29197, Copper-clad aluminum wire

GB/T 39560.8, Determination of certain substances in electrical and electronic products -- Part 8.Phtalates in polymers by gas chromatography-mass spectrometry (GC-MS), gas chromatography-mass spectrometry using a pyrolyzer/thermal desorption accessory (Py/TD-GC-MS) (GB/T 39560.8-2021, IEC

62321-8.2017, IDT)

YD/T 760, Polyolefin insulation materials for communication cables

YD/T 837.3, Test method of copper-core, polyolefin insulated, composite aluminum- plastic sheathed cables for urban local communications. Part 3.Test method of mechanical and physical properties

YD/T 837.4, Test method of copper-core, polyolefin insulated, composite aluminum- plastic sheathed cables for urban local communications. Part 4.Test method of environmental performances

YD/T 837.5, Test method of copper-core, polyolefin insulated, composite aluminum- plastic sheathed cables for urban local communications. Part 5 Test method of cable structure

YD/T 1113, Low-smoke halogen-free compounds for telecommunication cable and optical fiber cable

JB/T 8137, Delivery drums for wires and cables a) Double layer insulation - polyolefin bond layer/polyolefin closed cell foam layer.

b) Triple layer insulation - polyolefin bonding layer/polyolefin closed cell foam layer/polyolefin outer skin layer.

In the above two insulation structures, the polyolefin bonding layer shall be bonded to both the inner conductor and the polyolefin closed-cell foam layer. In the three-layer insulation structure, the polyolefin outer skin layer shall be tightly bonded to the polyolefin closed-cell foam layer.

5.3.3 Insulation properties

Insulation shall meet the following requirements.

- a) Insulation adhesion. There shall be no gap between the insulation layer and the inner conductor. The insulation shall be tightly attached to the inner conductor without looseness. The insulation adhesion on the inner conductor of the copper-clad aluminum wire and the inner conductor of the smooth copper tube shall not be less than 98 N.
- b) Insulation heat shrinkage. total insulation shrinkage shall not exceed 6.4 mm.

5.4.1 Outer conductor type and structural dimensions

The outer conductor is composed of an annular corrugated copper tube or a spiral corrugated copper tube. The thread direction of the spiral corrugated copper tube shall be right-handed.

The outer conductor type and structural dimensions are shown in Table 7.

5.5.3 Cable identification mark

The identification marks of finished cables shall comply with the requirements of GB/T

6995.3. The cable sheath shall be printed with the manufacturer's name or code, manufacturing year, cable model and length at intervals of 1m along its length. The mark shall be clearly identifiable and shall be in a color that has a large contrast with the sheath color. The length mark shall be in meters. The nominal spacing is 1000mm.

The error range shall not exceed 0~0.5%.

5.6.1.1 Low temperature bending

The low temperature bending test of the cable shall be carried out in accordance with the provisions of 6.5.1. After the test, the sheath and outer conductor of the specimen shall be free of cracks, cracks and other damage. The voltage standing wave ratio measured at both ends of the cable shall still meet the requirements in Table 10.

5.6.1.2 Temperature shock

The temperature shock test of the cable shall be carried out in accordance with the provisions of 6.5.2. After the test, the axial dimension change of the conductor in the cable specimen shall not exceed 1.6 mm. The axial dimension change of the insulation shall not