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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 17737.119-2024

Coaxial communication cables - Part 1-119: Electrical test methods - RF power for coaxial cables and cable assemblies

同轴通信电缆 第1-119部分：电气试验方法 同轴电缆及电缆组件的射频功率

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting:

This document is part 1-119 of GB/T 17737 "Coaxial communication cables": GB/T 17737 has published the following parts:

--- Part 1: General specifications General principles, definitions and requirements:

- Part 1-100: General requirements for electrical test methods;

- Part 1-101: Electrical test methods Conductor DC resistance test;

- Part 1-102: Electrical test methods Cable dielectric insulation resistance test;

- Part 1-103: Electrical test methods Capacitance test of cables;

- Part 1-104: Electrical test methods Capacitance stability test of cables;

- Part 1-105: Electrical test methods - Withstand voltage test for cable dielectrics;

- Part 1-106: Electrical test methods - Withstand voltage test for cable sheath;

- Part 1-107: Electrical test methods Cable microphonic charge level (mechanically induced noise) test;

- Part 1-108: Electrical test methods Characteristic impedance, phase delay, group delay, electrical length and propagation velocity tests;

- Part 1-112: Electrical test methods Return loss (impedance consistency) test;

- Part 1-113: Electrical test methods attenuation constant test;

- Part 1-115: Electrical test methods Impedance uniformity (pulse/step function return loss) test;

- Part 1-119: Electrical test methods for radio frequency power of coaxial cables and cable assemblies;

- Part 1-122: Electrical test methods Crosstalk test between coaxial cables;

- Part 1-200: General requirements for environmental test methods;

- Part 1-201: Environmental test methods - Cold bending performance test of cables;

- Part 1-203: Environmental test methods Water penetration test for cables;

- Part 1-205: Environmental test methods Solvent and contamination liquid resistance test;

- Part 1-301: Mechanical test methods Ovality test;

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- Part 1-302: Mechanical test methods eccentricity test;

- Part 1-308: Mechanical test methods - Tensile strength and elongation test of copper-clad metals;

- Part 1-310: Mechanical test methods - Tests on torsional properties of copper-clad metals;

- Part 1-313: Mechanical test methods Adhesion of dielectric and sheath;

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- Part 1-317: Mechanical test methods Cable compression test - Part 1-318: Mechanical test methods Thermal properties test;

- Part 1-324: Mechanical test methods Cable abrasion resistance test;

- Part 1-325: Mechanical test methods Wind-induced vibration test:

--- Part 3: Sectional specification for coaxial cables for local area networks:

--- Part 4: Sectional specification for leaky cables:

--- Part 5: Sectional specification for trunk and distribution cables for CATV:

--- Part 8: Sectional specification for polytetrafluoroethylene insulated semi-flexible cables:

- Part 8-1: Blank detail specification for polytetrafluoroethylene insulated semi-flexible cables:

--- Part 9: Sectional specification for flexible radio frequency coaxial cables:

--- Part 10: Sectional specification for semi-rigid cables with fluoropolymer insulation:

--- Part 11: Sectional specification for polyethylene insulated semi-rigid cables:

This document modifies the use of IEC 61196-1-119:2023 "Coaxial communication cables Part 1-119: Electrical test methods for coaxial cables and RF Power in Cable Assemblies:

The technical differences between this document and IEC 61196-1-119:2023 and their reasons are as follows:

--- The conditions for simplifying formula (5) to formula (6) are clarified, and "when alphaf1<=1 and alphaf2<=1, or |alphaf1-alphaf2|<=0:5dB or <= 0:5dB/m" is changed to "When alphaf1<=1dB and alphaf2<=1dB, or |alphaf1-alphaf2|<=0:5dB or |alphaf1-alphaf2|<= 0:5dB/m" to avoid ambiguity;

--- Changed the short-circuit connection position in Figure A:1 to avoid ambiguity:

The following editorial changes were made to this document:

--- Move IEC 61196-1-113, which is not normatively referenced in the text, from Chapter 2 to the references;

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--- Corrected the units of symbols in formula (2), formula (3) and formula (4), and changed the units of Pi, Pf, Pg, P, and P0 from "decibel (dB)" to "decibels (dB)":

Corrected to "milliwatt decibel (dBm)", the unit of power is an absolute quantity;

--- Corrected the sign of the reference power in formula (4) and changed "Po" to "P0";

--- Corrected the sign of the internal conductor temperature in Chapter 8, and corrected "ti" and "tiX" to "Ti" and "TiX" to keep the context consistent;

--- Corrected the temperature unit in 8:2:1b) and changed "15K" to "15°C" to keep the context consistent;

--- Corrected the subscript format of symbols in formula (5) and formula (6), corrected "Pif1" and "Pif2" to "Pf1" and "Pf2", and the symbol description was not changed:

It is the incident power;

--- Corrected the signs in formula (5), formula (6) and A:2, and corrected "alphaf1" and "alphaf2" to "alphaf1" and "alphaf2";

--- Deleted the duplicate paragraphs in 8:2:1;

--- Corrected the description of the symbol "Co" in A:2, and corrected "Ci >1" and "Ci=1" to "Co >1" and "Co=1";

--- Added the description of the symbol Pd in A:2, which appears in formula (A:13);

--- Corrected the subscript format of symbols in formula (A:5), correcting "alphai" and "fi" to "alphai" and "fi";

--- Corrected formula (A:8), changed "sigmai" in the numerator of formula Ao to "sigmao", and corrected the symbol explanation "A" in the formula to "a", consistent with the symbol description;

--- Corrected the symbols in formula (A:12) and changed "K1" to "Ki" to be consistent with the symbol description:

Introduction

Coaxial communication cables have the advantages of low transmission loss and good anti-electromagnetic interference performance, and are widely used in various communications, electronic equipment and External information transmission lines are used in fields such as communications, radio and television, radar, electronic countermeasures, and data buses:

GB/T 17737 "Coaxial Communication Cable" includes the terminology, design, materials, test methods, and various coaxial cables:

The cable structure and material requirements, technical requirements, quality assurance

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