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

GB/T 17737.209-2026

**Coaxial communication cables - Part 1-209: Environmental test
methods - Thermal cycling**

同轴通信电缆 第1-209部分：环境试验方法 热循环
(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 1-209 of GB/T 17737 "Coaxial Communication Cables". GB/T 17737 has the following parts published.

---Part 1: General Specifications, Definitions, and Requirements.

- Part 1-100.General requirements for electrical test methods;
- Part 1-101.Electrical Test Methods - DC Resistance Test of Conductors;
- 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 - Capacitive Stability Test of Cables;
- Part 1-105.Electrical Test Methods - Withstand Voltage Test of Cable Dielectric;
- Part 1-106.Electrical Test Methods - Withstand Voltage Test of Cable Sheath;
- Part 1-107.Electrical Test Methods. Cable Flicker Charge Level (Mechanical Induced Noise) Test;
- Part 1-108.Electrical test methods for characteristic impedance, phase delay, group delay, electrical length, and propagation velocity tests;
- Parts 1-110.Continuity testing of electrical test methods;

- Part 1-112.Electrical Test Methods - Return Loss (Impedance Compliance) Test;
- Part 1-113.Electrical test methods for attenuation constant testing;
- Part 1-115.Electrical Test Methods - Impedance Uniformity (Pulse/Step Function Return Loss) Test;
- Part 1-116.Electrical test methods for measuring impedance using time-domain reflectometry (TDR);
- 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 1-126.Electrical test methods - corona suppression voltage;
- Part 1-200.General requirements for environmental testing methods;
- Part 1-201.Environmental testing methods for cold bending performance of cables;
- Part 1-203.Environmental Testing Methods - Water Leakage Test for Cables;
- Part 1-205.Environmental testing methods for resistance to solvents and contaminated liquids;
- Part 1-209.Environmental testing methods - thermal cycling;
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- Part 1-301.Mechanical testing methods for ellipticity testing;
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- Part 1-308.Mechanical testing methods for testing the tensile strength and elongation of copper-clad metals;
- Part 1-310.Mechanical testing methods - Torsional properties test of copper-clad metals;
- Part 1-313.Mechanical testing methods for adhesion of media and sheaths;
- Part 1-314.Mechanical Test Methods - Bending Test of Cables;
- Part 1-316.Mechanical Test Methods - Maximum Tensile Strength Test of Cables;
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- Part 3: Specifications for Coaxial Cables for Local Area Networks

---Part 4: Specifications for Leaky Cables

---Part 5: Specifications for CATV trunk and distribution cables.

---Part 8: Specifications for PTFE Insulated Semi-Flexible Cables.

- Part 8-1. Blank detailed specification for polytetrafluoroethylene insulated semi-flexible cables.

---Part 9: Specifications for Flexible Radio Frequency Coaxial Cables

---Part 10: Specifications for Fluoropolymer Insulated Semi-rigid Cables

---Part 11: Specifications for Polyethylene Insulated Semi-rigid Cables this document is equivalent to IEC 61196-1-209:2016 "Coaxial communication cables - Part 1-209. Environmental testing methods - Thermal cycling".

The following minimal editorial changes have been made to this document.

---The symbol "m" has been added to Table 1 in section 5.1 for use;

---Correction. The unit for exposure time in Table 1 of section 5.1, "hr", has been corrected to "h".

---Added chapter and section numbers to Appendix A;

---Correction. Based on formulas (2) and (3), correct formulas (A.2) and (A.3) and their calculation results in Appendix A.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the Ministry of Industry and Information Technology of the People's Republic of China.

This document is under the jurisdiction of the National Technical Committee on Standardization of High-Frequency Cables and Connectors for Electronic Equipment (SAC/TC190).

Introduction

Coaxial communication cables have advantages such as low transmission loss and good electromagnetic interference resistance, and are widely used in various communication and electronic equipment.

External information transmission lines are used in fields such as communications, broadcasting, radar, electronic warfare, and data buses.

GB/T 17737 "Coaxial Communication Cables" covers the terminology, design, materials, test methods, and various types of coaxial communication cables.

The requirements for the structure and materials of communication cables, technical requirements, quality assurance regulations, packaging, transportation, storage, and engineering usage data, etc. GB/T Various mechanical testing method standards, GB/T 17737.3~GB/T 17737.x, serve as product specifications. Product specifications reference these standards during their development.

The general requirements of the standard, as well as the relevant test method standards.

GB/T 17737 is proposed to consist of the following parts.

---Part 1: General Specifications, Definitions, and Requirements, intended to specify the general principles, definitions, and requirements for the design and testing of coaxial cables.

Require.

- Part 1-100.General requirements for electrical test methods;
- Part 1-101.Electrical Test Methods - DC Resistance Test of Conductors;
- 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 - Capacitive Stability Test of Cables;
- Part 1-105.Electrical Test Methods - Withstand Voltage Test of Cable Dielectric;
- Part 1-106.Electrical Test Methods - Withstand Voltage Test of Cable Sheath;
- Part 1-107.Electrical Test Methods. Cable Flicker Charge Level (Mechanical Induced Noise) Test;
- Parts 1-108.Electrical Test Methods - Phase, Phase Constant, Phase Delay and Group Delay, Propagation Velocity, Electrical Length and...
- Uniform characteristic impedance test;
- Parts 1-110.Continuity testing of electrical test methods;
- Part 1-111.Electrical Test Methods - Phase Stability Test Methods;
- Part 1-112.Electrical test methods for return loss and voltage standing wave ratio (VSWR) testing;
- Part 1-113.Electrical test methods for attenuation constant testing;
- Part 1-114.Electrical Test Methods - Inductance Test;
- Part 1-115.Electrical Test Methods - Impedance Uniformity (Pulse/Step Function Return Loss) Test;
- Part 1-116.Electrical test methods for measuring impedance using time-domain