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

GB/T 5441.1-1985

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**Test methods for communication cable
(English Translation)**

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Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 5441.1-1985 "Communication cable test method Part 1. General", GB/T 5441.2-1985 "Communication Test methods for cables - Part 2. Working capacitance test bridge method, GB/T 5441.3-1985 "Test method for communication cables 3. Capacitance coupling and earth capacitance imbalance test ", GB/T 5441.4-1985" Test methods for communication cables Part 4. Coaxial pairs End-impedance and internal impedance non-uniformity test pulse method ", GB/T 5441.5-1985" Test methods for communication cables Part 5. Coaxial on the characteristic impedance of the real part of the average value of the resonant method ", GB/T 5441.6-1985" communication cable test method Part 6. crosstalk test "Comparative test method", GB/T 5441.7-1985 "Test methods for communication cables Part 7. Decay constant test open short circuit method" GB/T 5441.9-1985 "Test methods for communication cables Part 9. Ideal shielding coefficient test under frequency conditions", GB/T 5441.10-1985 "Test methods for communication cables - Part 10. Coaxial pairs for length measurement of sine wave". This standard is subject to revision GB/T 5441.1-1985, integrated GB/T 5441.2-1985 ~ GB/T 5441.7-1985, GB/T 5441.9-1985, GB/T 5441.10-1985 content. Compared with GB/T 5441.1-1985, the main technical changes are as follows.

- modified the scope of application (see Chapter 1, 1985 edition of Chapter 1);
- Added normative reference documents (see Chapter 2);
- an increase in working capacitance and capacitance imbalance (see Chapter 3);
- Added definitions of common parameters in crosstalk testing (see Chapter 3);
- Added "test method" (see Chapter 5).

This standard is proposed by China Electrical Equipment Industry Association.

This standard by the National Wire and Cable Standardization Technical Committee (SAC/TC213) centralized.

This standard is responsible for drafting units. Shanghai Cable Research Institute.

This standard participates in the drafting unit. Jiangsu Junzhi Technology Co., Ltd., Jiangsu Hengtong Cable Technology Co., Ltd., Jiangsu Tongding Optoelectronics Co., Ltd.

Ltd., Jiangsu Zhongli Technology Group Co., Ltd., China News Industry (Suzhou) Co., Ltd., Shenzhen City Jiayang Technology Co., Ltd., National Railway Product Quality Supervision and Inspection Center, Zhejiang Zhengguang Optoelectronics Co., Ltd., Zhejiang Zhaolong Cable Co., Ltd., China Coal Industry Group Shanghai Research Institute.

1 Scope

This standard specifies the test methods for symmetrical communication cables and coaxial pairs of cables.

This standard applies to symmetrical communication cables and coaxial cable electrical parameters of the measurement. Other communication cable test, can refer to the use.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article Pieces. For undated references, the latest edition (including all modifications) applies to this document.

GB/T 2900.10 Electrical terminology GB/T 3048.4 Test methods for electrical performance of wire and cable - Part 4. Conducting DC resistance test

3 Terms and definitions

GB/T 2900.10 as defined and the following terms and definitions apply to this document.

Working capacitors themutualcapacitance Work on the total capacitance between the two transmission cores.

Symmetrical cable operating capacitance can be obtained by balancing the bridge directly (see Figure 1), the expression of which (1).

$C_m = C_{AB} (C_{AG} \times C_{BG}) / (C_{AG} + C_{BG})$ (1) where.

C_m --- line to the working capacitance, the unit is satisfied (nF);

C_{AB} - the capacitance between conductors a and b, in units of nanofarads (nF);

C_{AG} --- conductor a and shielding and ground capacitance, the unit is satisfied (nF);

C_{BG} --- conductor b and shielding and ground capacitance, the unit is satisfied (nF).

Figure 1 symmetrical cable working capacitance

Symmetrical cable operating capacitance can also be obtained by equation (2).

$(C_1 - C_2)$

$(C_1 - C_2) \cdot 2$

$4C_3$

Where.

C_m --- line to the working capacitance, the unit is satisfied (nF);