

SJ 20524- 1995



**PROFESSIONAL STANDARD OF THE PEOPLE'S
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中华人民共和国电子行业军用标准

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**Measuring methods for shielding effectiveness
of materials**

材料屏蔽效能的测试方法

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Measuring methods for shielding effectiveness of materials

1. Scope

1.1 Subject content

This standard specifies the measuring methods of plate flat electromagnetic shielding material, such as non-conductive material coating or cladding layer, metal mesh, conductive film, and conductive glass etc., against plane wave shielding effectiveness.

1.2 Applicable scope

This standard is applicable for measurement of plate flat electromagnetic shielding material, such as metal film, non-conductive material coating or cladding layer, metal mesh, conductive film, and conductive glass etc., against plane wave shielding effectiveness.

2. Reference files

GB 6113 Electromagnetic Interference Measuring Instrument

GJB 72-85 Terminology of Electromagnetic Interference and Electromagnetic Compatibility

GJB/Z 25-90 Design Guideline on Earthing, Lapping and Shielding of Electronic Equipment and Facility

3. Definition

Except for terms specified in this standard, other terms comply with GJB72.

3.1 Shielding effectiveness (SE)

Under the same drive level, the ratio of power or voltage received with or without shielding materials, are expressed in logarithm. That is:

$$SE = 20\lg\left(\frac{V_0}{V_1}\right) \dots\dots\dots(1)$$

$$SE = 10\lg\left(\frac{P_0}{P_1}\right) \dots\dots\dots(2)$$

where:

SE refers to shielding effectiveness;

V_0 refers to received voltage without shielding materials;

V_1 refers to received voltage with shielding materials;

P_0 refers to received power without shielding materials;

P_1 refers to received power with shielding materials.

4. General requirements

4.1 Measurement condition

- a. Ambient temperature: 23 ± 2 °C;
- b. Environmental relative humidity: 45% ~ 75%;
- c. Atmospheric pressure: 86 ~ 106 kPa;
- d. The samples shall be kept in the above-mentioned environment for 48 hours before test.
- e. Environmental electromagnetic noise shall not have impact on measurement result.

4.2 Test equipment

4.2.1 Signal source

Frequency range: 1 MHz~ 1.5 GHz;

Maximum output power: $\cong + 13$ dBm;

Output impedance: 50 Ω ;

Voltage standing wave ratio: < 2.0.

4.2.2 Electromagnetic interference measuring instrument

Working frequency range is consistent with the signal source phase; the measurement error shall meet the requirements of GB 6113.

4.2.3 Flange coaxial test device is shown in figure 1;

Frequency range: 5 KHz ~ 1.5 GHz;

Characteristic impedance: 50 Ω ;

Voltage standing wave ratio: < 1.2;

Transmission loss: < 1dB;

Measurement dynamic range: > 100 dB.

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