



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

**GB/T 5095.2505-2021**

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**Electromechanical components for electronic equipment -  
Basic testing procedures and measuring methods - Part 25-5:  
Test 25e: Return loss**

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## Foreword

GB/T 5095 "Basic test procedures and measurement methods for electromechanical components for electronic equipment" is divided into several parts according to the test methods.

Part 25 of GB/T 5095 is a signal integrity test. The parts that have been released or planned to be released are as follows.

- Part 25-1. Test 25a. Crosstalk ratio;
- Part 25-2. Test 25b. Attenuation (insertion loss);
- Part 25-3. Test 25c. Rise time decay;
- Part 25-4. Test 25d. Transmission delay;
- Part 25-5. Test 25e. Return loss;
- Part 25-6. Test 25f. Eye diagram and jitter;
- Part 25-7. Test 25g. impedance, reflection coefficient and voltage standing wave ratio

(VSWR);

--- Part 25-9. Signal Integrity Test Test 25i. Alien Crosstalk.

This part is part 25-5 of GB/T 5095.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

The translation method used in this part is equivalent to IEC 60512-25-5.2004 "Connector Test and Measurement for Electronic Equipment Part 25-5"

Minutes. Test 25e. Return Loss."

This section has made the following editorial changes.

---The name of the standard is changed from "Test and Measurement of Connectors for Electronic Equipment Part 25-5. Test 25e. Return Loss" to "Electrical

Basic test procedures and measurement methods for electromechanical components for sub-equipment-Part 25-5. Test 25e. Return loss;

---The original text "standard device (with sample), sample device (without sample)" in Figure A.1b) is an obvious clerical error, modified to "standard device (without sample)"

Sample), sample device (with sample)".

## 1 Scope

This part of GB/T 5095 applies to electrical connectors, sockets, cable assemblies or interconnecting systems.

This section describes the frequency domain method and the time domain method used to measure return loss as a function of frequency.

## 2 Terms and definitions

The following terms and definitions apply to this document.

### 2.1

Return loss

The ratio of the reflected signal measured by the sample to the input signal.

Note. It can be expressed in decibels (dB).

### 2.2

Sample environment impedance

The impedance caused by the device on the sample signal wire. The impedance is determined by the transmission line, terminal resistance, attached receiver or signal source,

And the parasitic effects of the device.

### **3.1.1 Frequency domain**

Use a network analyzer with a dynamic range suitable for the device under test (DUT). For differential measurement, a multi-port test position can be used

Set or balance-unbalanced converter network analyzer.

### **3.1.2 Time domain**

Preferential use of time domain reflectometer (TDR), trigger pulse generator and appropriate fast Fourier transform (FFT) software.

### **3.2.1 Overview**

The environmental impedance of the sample should match the impedance of the test equipment. Unless otherwise specified in the detailed specification, in general, for single-ended measurements, the impedance

It is 50ohm, and the differential measurement is 100ohm. The schematic diagram of the device and equipment is shown in Appendix A.

### **3.2.2 Sample lead configuration**

During each measurement, the excitation circuit should be installed in accordance with the provisions of the detailed specification. Within the specified environmental impedance of the sample, the