



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

GB/T 5095.2502-2021

**Electromechanical components for electronic equipment -
Basic testing procedures and measuring methods - Part 25-2:
Test 25b: Attenuation (insertion loss)**

Issued on: March 9, 2021

Implemented on: October 1, 2021

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

1 General	1
1.1 Scope and purpose	1
1.2 Terms and definitions	1
2 Test facility	1
2.1 Equipment	1
2.2 Device	1
3 Test sample	2
3.1 Description	2
4 Test procedure	2
4.1 Device attenuation	3
4.2 Sample attenuation measurement	3
4.3 Impedance analyzer (open/short method)	4
4.4 Additional measurement	4
4.5 Time domain method	4
5 Rules to be stipulated by relevant standards	5
6 Test record file	5
Appendix A (Normative Appendix) Schematic diagram of installations and equipment	6
Appendix B (informative appendix) Practical Guide	10

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 25-2 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 the IEC 60512-25-2.2002 "Connector Test and Measurement for Electronic Equipment Part 25-2"

Minutes. Test 25b. Attenuation (insertion loss)".

This section has made the following editorial changes.

---The standard name is revised from "Connector Test and Measurement for Electronic Equipment Part 25-2.Test 25b. Attenuation (Insertion Loss)"

Changed to "Basic test procedures and measurement methods of electromechanical components for electronic equipment Part 25-2.Test 25b. Attenuation (insertion loss)

Consumption)".

1.1 Scope and purpose

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 for measuring attenuation/insertion loss as a function of frequency.

Note. The term "attenuation" is quoted throughout this document. When the professional test personnel who make measurements according to the sample and transmission line type summarize and report the test measurement results

When the results, you must use the appropriate term (attenuation or insertion loss).

1.2 Terms and definitions

The following terms and definitions apply to this document.

1.2.1

Attenuation

The reduction in power during the transfer of the sample from input to output. Usually, the measured value is in decibels (dB) as the unit.

1.2.2

Insertion loss

Power loss due to the insertion of a connector or similar device into the transmission line. Usually, the measured value is in decibels (dB) as the unit.

1.2.3

Sample environment impedance

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

The parasitic effect of the device.

2.1.1 Frequency domain

The network analyzer is preferred. When a larger frequency range is required, signal generator and spectrum analyzer or vector network analysis can be used

Meter (for full 2-port calibration measurement) instead. If necessary, additional equipment can be used to increase the sensitivity of the measurement (e.g. broadband output amplifier

Or low noise preamplifier). For differential measurement, a multi-port network splitter with suitable software or balun can be used.

Analyzing instrument.

2.1.2 Time domain

The time domain reflectometer (TDR), trigger pulse generator and suitable fast Fourier transform (FFT) software are preferred.

2.2 Device

Unless otherwise specified in the reference document, the sample environmental impedance should match the impedance of the test equipment. Usually for single-ended measurement, the impedance is