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

GB/T 3241.2-2025

Replacing GB/T 3241-2010

**Electroacoustics - Octave-band and fractional-octave-band
filters - Part 2: Pattern evaluation tests**

电声学 倍频程和分数倍频程滤波器 第2部分：型式评价试验
(English Translation)

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B.1 Overview

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is part 2 of GB/T 3241 "Electroacoustic octave and fractional octave filters". GB/T 3241 has been published the following parts.

--- Part 1: Specification;

--- Part 2: Type evaluation test.

This document partially replaces the type evaluation test in GB/T 3241-2010 "Electroacoustic Octave and Fractional Octave Filters" Compared with the relevant content of GB/T 3241-2010, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) Added test submission requirements (see Chapter 4);
- b) Added essential functions and general requirements (see 6.1);
- c) The requirements for test instruments have been changed (see 6.2, 5.2 of the 2010 edition);
- d) Added performance test items such as overload indicator and power supply (see 7.3 and 7.5);
- e) Deleted performance test items such as anti-aliasing filter and flat frequency response (see 5.7 and 5.9 of the 2010 edition);
- f) The performance test method has been changed (see Chapter 7, Chapter 5 of the 2010 edition);

- g) The test methods for electromagnetic compatibility items have been changed (see Chapter 8, Chapter 8 of the 2010 edition);
- h) The test method for the influence of ambient air temperature and relative humidity has been changed (see Chapter 9, 5.10 of the 2010 edition);
- i) Added requirements for type evaluation reports (see Chapter 10).

This document is equivalent to IEC 61260-2:2016 "Electroacoustic octave and fractional octave filters Part 2: Type evaluation test".

The following minimal editorial changes were made to this document.

--- Incorporated the revised content of IEC 61260-2:2016/Amd1.2017, the outer margin position of the clauses involved is marked with vertical Straight double lines (||) are marked.

Introduction

A filter is a device that separates the components of a signal by frequency, and octave and fractional octave filters are devices that have a single A bandpass filter with a transmission band and an upper cutoff frequency and a lower cutoff frequency ratio equal to an octave frequency ratio or a certain power thereof. Octave and fractional Octave filters are usually used in conjunction with sound measuring instruments such as sound level meters for spectral analysis of sound signals.

GB/T 3241 aims to specify the performance requirements for octave and fractional octave filters and to describe the type evaluation tests and periodic tests.

The method is planned to consist of three parts.

--- Part 1: Specification. The purpose is to specify the performance requirements for octave and fractional octave filters.

--- Part 2: Type evaluation test. The purpose is to ensure that all testing laboratories use a consistent method to perform octave and fractional Type evaluation test of octave band filters.

--- Part 3: Periodic test. The purpose is to ensure that all testing laboratories or metrology laboratories perform octave testing in a consistent manner.

and periodic experiments with fractional-octave filters.

To evaluate compliance with performance requirements, this document uses different criteria from GB/T 3241-2010.

GB/T 3241-2010 does not provide any requirements or recommendations for taking measurement uncertainty into account in the evaluation of conformity to performance requirements.

Due to the lack of requirements or recommendations on measurement uncertainty, when the measured deviation from the design target is close to the limit of the allowable deviation, the determination of compliance with the requirement becomes ambiguous. If compliance is determined based on whether the measured deviation exceeds the limit, then the octave and the end user of the fractional-octave band filter will be subject to the risk that the actual deviation from the design target exceeds the limit.

To eliminate ambiguity, the 29th Technical Committee of the International Electrotechnical Commission (IEC) determined at its 1996 meeting that in formulating standards, the measurement uncertainty should be taken into account when formulating the performance evaluation rules.

This document adopts the modified criteria for compliance with the requirements. Compliance is confirmed when the following conditions are met simultaneously.

- a) the measured deviation from the design target does not exceed the applicable acceptance limit;
- b) The measurement uncertainty does not exceed the corresponding maximum permissible uncertainty.

The acceptance limits are similar to the design and manufacturing tolerance limits in GB/T 3241-2010.

The actual measurement uncertainty and the maximum allowable measurement uncertainty are determined based on a coverage probability of 95%, unless there is more specific information.

Otherwise, the acceptance limits and maximum allowable uncertainties specified in this document can be used to evaluate specific octave or fractional octave filters.

or the contribution of the filter bank to the total measurement uncertainty.

Electroacoustic Octave and Fractional Octave Filters Part 2: Type evaluation tests

1 Scope

1.1

This document provides verification that octave and fractional octave filters (hereinafter referred to as filters) conform to GB/T 3241.1-2025.

Details of all required tests for the mandatory specifications.

1.2

These tests and test methods apply to both Class 1 and Class 2 filters. The purpose is to ensure that all testing laboratories use consistent methods.