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

GB/T 5170.22-2024

**Inspection methods for environmental testing equipment - Part
22: The equipment for acoustic vibration test in reverberation
field**

环境试验设备检验方法 第22部分：声振试验用混响场试验设备

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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 is required. This document is part 22 of GB/T 5170. GB/T 5170 has published the following parts. Test methods for environmental test equipment for electrical and electronic products Part

1 Scope

GB/T 5170.22-2024 gives the Chinese inspection method for reverberant acoustic test facilities, the chambers in which spacecraft, launch vehicle payloads and aircraft structures are subjected to the acoustic environment of launch or flight. The facility itself has to be

qualified before any test done in it means anything: the sound field must be diffuse enough that the level is the same everywhere the article sits, the spectrum must be controllable to the specified shape, and the overall level must be reachable and held stable. The standard sets the composition and principle of such a facility, the inspection items, the test conditions, and then the methods for each: the measurement of the overall sound pressure level and its spectrum, the uniformity and diffuseness of the field within the working volume, the spectral control accuracy and stability, the background noise, the reverberation time, the harmonic distortion and the ability to hold the level over the test duration, followed by the treatment of the results and the inspection report. It takes effect on 1 April 2025.

This document specifies the inspection items, inspection conditions, and inspection requirements of the reverberation field test equipment for acoustic vibration testing during the initial inspection and periodic inspection. Test methods, test results and test cycles. This document is applicable to the inspection of basic parameters of reverberation field test equipment for acoustic vibration testing in accordance with GB/T 2423.47-2018.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies. in this document.

GB/T 2423.47-2018 Environmental testing Part

3 Terms and definitions

The terms and definitions defined in GB/T 5170.1-2016 and the following apply to this document.

3.1 Reverberation time (Indoor acoustic parameter) The amount by which the average sound energy density decays by one millionth (60 dB) from its original value after the sound reaches a steady state and the sound source is stopped. The time required. Note

1.The unit of reverberation time is second (s). NOTE

2 The reverberation time for a 60 dB decrease in sound pressure level can be derived by linear extrapolation for a shorter range of values, but the results are marked accordingly. The reverberation time derived from the decay curve between the two points in time when the pressure level first decreases to 5 dB and 25 dB below the original value, denoted as T20; based on The reverberation time derived from the decay curve between the points in time when the sound pressure level first decreases by 5 dB and 35 dB below the original value is labeled T30. [Source: GB/T 36075.2-2018, 3.5]

3.2 minimum usable frequency There are at least 7 acoustic modes with center frequencies in the lowest 1/3 octave band.

3.3 space variation S_v The variation of sound pressure level at different locations in the reverberation field working space.

Note. It is usually expressed as the standard deviation of the sound pressure level.

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