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

GB/T 41311.1-2022

**Acoustics - Quantities and procedures for description and measurement of
underwater sound from ships - Part 1: Requirements for precision measurements
in deep water used for comparison purposes**

Issued on: March 9, 2022

Implemented on: October 1, 2022

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

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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 of Standardization Documents" drafted.

This document is part 1 of GB/T 41311 "Amount of Acoustic Description of Ship Underwater Noise and Its Measurement Method". GB/T 41311 has

The following sections were published.

--- Part 1. Deep-water precision measurement requirements for comparison purposes.

This document is identical to ISO 17208-1:2016 "Underwater Acoustics Describes the Quantity of Ship Underwater Noise and Its Measurement Methods Part 1. Using

Deepwater Precision Measurement Requirements for Comparison Purposes.

The following minimal editorial changes have been made to this document.

--- Modified the standard name.

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

The formulation of this document provides a standardized measurement method for the quantification and identification of underwater radiated noise levels of ships. This method measures

is the average value of a sector in a particular side (beam) direction. It improves the consistency of noise measurements of the sailing vessel under test. Book

The document provides the user with the necessary measurements to compare the underwater radiated noise level of the ship with limits established by others or contractually

specified.

line comparison.

Since 2000, reducing various types of ship emissions, especially ballast water and engine emissions, has become a topic of concern. Book

The document was developed in response to growing international concerns about underwater noise and its effects on marine animals. Excessive underwater noise

Sound may affect various critical life functions such as navigation, communication and finding food in marine animals. Therefore, at present, piling, pipeline

An assessment of the impact of underwater noise has been added to the description of the environmental impact of underwater works such as laying and oil exploration.

This document focuses on the precise measurement of underwater radiated noise from ships.

There are many contents describing the amount of ship underwater noise and its measurement method, and it is proposed to be composed of two parts.

--- Part 1. Deep-water precision measurement requirements for comparison purposes. The purpose is to specify the underwater radiation of ships in deep water conditions.

General measurement system, measurement procedure and measurement method for emission noise measurement.

--- Part 2. Sound source level determination under deep water measurement conditions. The purpose is to specify the measurement system, measurement system required in accordance with Part 1

Quantitative steps and measurement methods A method of converting the radiated noise level obtained by measuring the free-field monopole sound source level in deep water conditions.

Acoustics describe the amount of underwater noise from ships and its

Measurement methods part 1. for comparison purposes

Deep water precision measurement requirements

1 Scope

This document specifies the general measurement system, measurement procedure and measurement method for the measurement of underwater radiated noise of ships under specified operating conditions.

Law. This document does not specify or provide guidance for underwater noise limits, nor does it address the potential effects of underwater noise on marine life.

The results of the measured quantities are given as root mean square sound pressure levels (SPL), therefore, the sound pressure levels measured in the far-field underwater of the ship or the equivalent can be used.

SPL, and normalized to a distance of 1 m, the measurement results given in 1/3 octave bandwidth (see 4.3). In this document, these measurements

Expressed as "radiated noise level". Sound pressure levels are measured in the geometric far field and then normalized to a distance of 1 m to match the corresponding

Underwater noise limits are compared.

This document is applicable to the measurement of underwater radiated noise of various surface manned or unmanned ships during navigation, but not to submarines or aircraft.

The measurement method has no fixed limit on the size of the ship, but requires that the speed of the ship does not exceed 25.7m/s (ie 50kn).

The measurement method smoothes the Lloyd's mirror interference effect, but does not eliminate the propagation of seabed reflection, seawater refraction and absorption

effect. For these effects, no specific calculation corrections are given in this document. This document does not require a fixed measurement location, but

The selection of the measurement location puts forward specific requirements.

The intended uses of the method described in this document are. comparison with contract limit requirements, comparison of ships of the same type, evaluation of line spectrum characteristics, and research

send. Potential users include government agencies, research vessel operators and merchant ship owners.

Use data obtained from this measurement method to determine the source level of ships to carry out far-field noise forecasts, e.g. to meet most environmental impacts

Required to study or create underwater noise contour maps, additional post-processing is required.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to

this document.

IEC 61260 Electroacoustic Octave and Fractional Octave Filters

(Electroacoustics-Octave-bandandfractional-

Note. GB/T 3241-2010 Electroacoustic Octave and Fractional Octave Filters (IEC 61260.1995, MOD)

3 Terms and Definitions

ISO 18405 and the following terms and definitions apply to this document.

3.1

background noise

Noise from all (biological and non-biological) noise sources other than the ship being measured, including measured self-noise.