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

GB/T 30007-2022

Replacing GB/T 30007-2013

**Ships and marine technology - Guidelines for the assessment
of speed and power performance by analysis of speed trial data**

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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 replaces GB/T 30007-2013 "Determining speed and power performance by analyzing speed test data for ships and marine technology

Compared with GB/T 30007-2013, except for structural adjustment and editorial changes, the main technical changes are as follows.

- a) Added responsibilities, sea trial readiness and ship status (see Chapter 5, Chapter 6 and Chapter 7);
- b) Changed the specific requirements of the voyage (see 10.7, 5.1 of the 2013 edition);
- c) Added Beaufort scale for reports, general information and sea trial records, wind speed (see Chapter 14, Appendix A and Appendix B);
- d) Changed the calculation method of resistance increase caused by wind and wave Record A, Appendix B);
- e) The conversion of sea trial state to other specified loading states, the derivation of variable load coefficient and the parameter analysis of direct power method are added (see Appendix I, Appendix J and Appendix K).

This document is equivalent to ISO 15016:2015 "Ships and marine technology by analyzing speed test data to determine speed and power performance

Ability Assessment Guidelines.

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

This document contains analytical methods for analyzing the results of speed trials.

The main purpose of the speed and power trial is to determine the performance of the ship in terms of speed, power and propeller speed under specified conditions, so as to test

To verify whether the ship achieves the speed stipulated in the Energy Efficiency Design Index (EEDI) regulations and/or the contract. Contract speed and/or EEDI speed is usually at

Obtained under the following conditions. the surface of the hull and propeller is smooth, there is no wind, no waves, no current, and deep water at 15°C.

It is usually not possible to fully satisfy all specified conditions in actual sea trials. Therefore, corrections for certain environmental conditions, such as water

Deep, Wind, Wave and Current.

The purpose of this document is to specify, on a sound scientific basis, the basic requirements for determining the performance of speed test sea trials, and to provide

The step of collecting voyage data (including all influencing factors in each voyage), so that the shipowner and other parties can be confident of the validity of the final result.

This document is intended to help all parties involved achieve the required target accuracy. ie shaft power within 2% and speed within 0.1kN.

The steps specified in this document are primarily based on published speed trials and ship performance data, the most important of which are listed in Chapter 2.

The International Organization for Standardization (ISO) invites the International Ship Model Towing Tank Conference (ITTC) to jointly formulate this speed/power sea trial standard, and submit it at

The new guidelines on EEDI issued by ITTC and approved by MEPC65 were taken into consideration during the preparation process. Thanks to STA-Group and ITTC contribution to this.

This document is mainly applicable to the requirements of International Maritime Organization (IMO) resolution MEPC.214(63) [revised by MEPC.234(65)]

Ships undergoing EEDI inspection and verification. For other ships that do not apply to the above IMO resolutions, the terms or expressions in this document depend on the circumstances

The situation needs to be replaced (for example, "the agreement reached by the shipyard, the shipowner and the verifier" is understood as "the agreement reached by the shipyard

and the shipowner", etc.).

Ship and offshore technology by analyzing speed test data

to determine the evaluation guidelines for speed and power performance

1 Scope

The main purpose of the speed and power trial is to determine the performance of the ship in terms of speed, power and rotational speed under specified conditions, so as to verify the ship's

Whether the speed stipulated in the EEDI rules and/or the contract is reached.

Considering the relationship between speed, power and propeller speed, this document defines and specifies the requirements for preparing, implementing, analyzing and reporting ship speed measurements.

The following steps in the sea trial.

- Responsibilities of all parties;
- Sea trial preparation;
- ship status;
- Restricted weather and sea conditions;
- sea trial steps;
- Sea trial implementation;
- Necessary measurements;
- Data collection and recording;
- Evaluation and correction steps;
- Result processing.

The contract speed and EEDI speed are determined in a specific ship condition and draft (contract draft and/or EEDI draft). for

For EEDI, the environmental conditions are. no wind, no waves, no current and deep water at 15°C.

It is impossible to fully realize the specified conditions in the actual sea trial, so some environmental conditions have to be considered to be corrected, such as water depth, sea surface wind,

Waves, currents and ship drafts. Therefore, in the speed and power trial, it is necessary to measure not only the shaft power and ship speed, but also ship related data and

environmental conditions.

This document applies only to displacement ships.

In this document, angles are expressed in radians (rad), and speeds are expressed in meters per second (m/s), but degrees (°) can also be used as angles

The unit of degree, knot (kn) as the unit of speed. Therefore, unless otherwise stated, the units of angle and velocity in the calculation formulas are radians (rad) and meters per second (m/s). In addition, for the convenience of users of this document, values in degrees and knots are also given where appropriate.

If the conditions stipulated in this document cannot be met, the actual operation can be carried out according to the written agreement reached by the shipowner, the verifier and the shipyard.

2 Normative references

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

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

this document.

ITTC7.5-04-01-01.4..2002 ITTC Recommended Practices and Guidelines Speed and Power Sea Trials Part 4.Instrument Installation and

ITTC7.5-02-07-02.2 ITTC recommended procedures and guidelines for power increase model test prediction due to irregular waves (ITTC