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

GB/Z 37551.4-2025

**Marine energy - Wave, tidal and other water current converters -
Part 4: Specification for establishing qualification of new
technology**

海洋能波浪能、潮流能及其他水流能转换装置第4部分：新技术鉴定
(English Translation)

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Reference

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 4 of GB/Z 37551 "Ocean Energy Wave Energy, Tidal Energy and Other Water Flow Energy Conversion Devices".

The following sections have been published on Wave Energy, Tidal Energy and Other Water Flow Energy Conversion Devices.

---Terms for devices for converting ocean energy into wave energy, tidal energy and other water flow energy (GB/T 37551);

--- Design requirements for marine energy systems (GB/T 41088);

--- General Guidelines for Design and Analysis of Ocean Thermal Energy Conversion Power Plants (GB/Z 43521);

--- Power quality requirements for ocean energy conversion devices (GB/Z 43464);

--- Evaluation of power generation performance of wave energy conversion devices (GB/Z 40295);

--- Assessment and characterization of wave energy resources (GB/T 39571);

--- Tidal current energy resource assessment and characterization (GB/T 39569);

--- Evaluation and characterization of river energy resources (GB/Z 43465);

---Ocean energy - Wave energy, tidal energy and other water flow energy conversion devices - Part 3: Mechanical load measurement (GB/Z 37551.3);

---Ocean energy - Wave energy, tidal energy and other water flow energy conversion devices - Part 4: New technology identification (GB/Z 37551.4);

---Ocean energy wave energy, tidal energy and other water flow energy conversion devices Part 10: Evaluation of mooring systems for ocean energy conversion devices (GB/T 37551.10);

---Ocean energy wave energy, tidal energy and other water flow energy conversion devices Part 102: Evaluation of wave energy using existing operational measurement data the power generation performance of the energy conversion device at another deployment location (GB/Z 37551.102).

This document is modified to adopt IEC TS62600-4:2020 "Ocean energy wave energy, tidal energy and other water flow energy conversion devices Part 4 the document type was adjusted from IEC technical specification to my country's national standardization guidance technical document.

This document has the following structural adjustments compared to IEC TS62600-4:2020.

--- The risk assessment in 6.8 can be divided into two parts, b) and c), according to the risk matrix in Appendix A, resulting in the extension of the numbering.

--- Chapter 7 corresponds to 7.1 of IEC TS62600-4:2020, and 7.2 is deleted.

This document has many technical differences compared with IEC TS62600-4:2020.

These technical differences and their reasons are as follows.

--- In 3.1, GB/T 37551 is used to replace the reference documents IEC/T S62600-1 and IEC/TS 62600-1 has been converted to a national standard;

--- In 3.1, delete 3.1.2 independent review basis in the international standard. The international original text does not quote this term in the entire text of this standard;

--- In 3.2, delete the abbreviation ME. The abbreviation is not quoted in the international original text in the whole text of this standard;

--- In Chapter 4, the normative references GB/T 27025 and GB/T 27065 replace ISO/IEC 17025 and ISO/IEC 17065, ISO/IEC 17025 and ISO/IEC 17065 have been converted into national standards;

--- In Chapter 5, "c) Category 3. There are new technological risks" is revised to "Category 3. There are new technological challenges", and "d) Category 3. There are new technological challenges" is revised to "Category 3. There are new technological challenges", and Category 4. There are high-difficulty technical risks" was changed to "d) Category 4. There are high-difficulty technical challenges", which is consistent with the national standard GB/T 41088-2021 (IEC TS62600-2:2019) Table 1 is unified;

--- In 6.6, only the first paragraph of 6.6 in the international standard is retained, and the deleted part is the explanatory content;

--- In 6.8, the normative reference GB/T 27921-2023 replaces ISO/IEC 31010, and the normative reference GB/T 35320-2017 replaces IEC 61882:2016, ISO/IEC 31010 and IEC 61882:2016 have been converted to national

--- In 6.10, some content is added compared with the international original text to unify with the domestic standard GB/T 7826-2012;

--- In Chapter 7, delete 7.2 of Chapter 7 of the international original text, as 7.2 of the international original text does not conform to China's national conditions.

The following editorial changes were made to this document.

--- GB/T 7826-2012 replaced the informative reference IEC 60812;

--- Added explanatory notes to Table C.1.

Introduction

As new technologies for ocean energy, wave energy, tidal energy and other water flow energy conversion devices continue to emerge, some technologies are brand new, and some technologies are it is applied in a limited range, so through technical appraisal, it can help technology developers verify the novelty of the technology, and it is also beneficial to the development of new technologies.

The development of technology.

This document aims to provide technical requirements and practical guidance for the identification of new technologies in the fields of ocean energy, wave energy, tidal energy and other water flow energy.

Technology appraisal is conducted before certification to determine the novelty of the technology and assess its risks and hazards.

The "Ocean Energy Wave Energy, Tidal Energy and Other Water Flow Energy Conversion Device" is planned to consist of the following parts.

--- Part 1: Terminology. The purpose is to define the common terms in the three aspects of ocean energy conversion devices, namely, environment, technology and conversion devices.

Terms for wave energy, tidal energy and other water current energy.

--- Part 2: Design requirements for marine energy systems. The purpose is to specify wave energy, tidal energy and other water flow energy conversion device systems design requirements to ensure its engineering integrity.

--- Part 3: Mechanical load measurement. The purpose is to describe the marine energy conversion device (MEC) (including wave energy, tidal energy and other Method for measuring mechanical loads of water flow energy, specifying requirements for mechanical load measurements and full-scale structural testing of subsystems or components Require.

--- Part 4: New Technology Identification. The purpose is to provide the necessary practice and technical requirements for technology identification methods to support certification Process demand for marine renewable energy systems.

--- Part 10: Evaluation of mooring systems for marine energy conversion devices. The purpose is to specify the requirements for floating marine energy conversion devices (MECs).