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

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MARINE ENERGY – WAVE, TIDAL AND OTHER WATER CURRENT CONVERTERS –

Part 4: Specification for establishing qualification of new technology

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- the required support cannot be obtained for the publication of an International Standard, despite repeated efforts, or
- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

Technical Specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC TS 62600-4, which is a Technical Specification, has been prepared by IEC technical committee TC 114: Marine energy – Wave, tidal and other water current converters.

The text of this Technical Specification is based on the following documents:

DTS	Report on voting
114/346/DTS	114/365A/RVDTS

Full information on the voting for the approval of this Technical Specification can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62600 series, published under the general title *Marine energy – Wave, tidal and other water current converters*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- transformed into an International standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

Certification normally qualifies technology against existing standards to confirm compliance. Technology Qualification (TQ) differs from ordinary certification in that it allows systems to be qualified that do not conform to an existing standard (or may partially conform to an existing standard). The approaches to Technology Qualification by several Certification Bodies are in the references listed in the Bibliography.

Technology Qualification is used both when the technology is completely novel and when only parts of it are novel. For example, some technologies may have been mostly demonstrated in the past, but may have some subsystems which may be novel. Technology Qualification can help developers demonstrate that the technology has been properly developed and this can be of assistance to stakeholders (such as financial institutions).

The deliverable associated with this process is the Technology Qualification Plan (TQP).

MARINE ENERGY – WAVE, TIDAL AND OTHER WATER CURRENT CONVERTERS –

Part 4: Specification for establishing qualification of new technology

1 Scope

This part of IEC 62600 specifies the requirements of the technology qualification process for marine renewable technologies. Technology Qualification is a process of providing evidence and arguments to support claims that the technology under assessment will function reliably in a target operating environment within specific limits and with an acceptable level of confidence.

The Technology Qualification process is also assumed in IEC TS 62600-2: 2019.

The objective of this document is to provide the necessary practices and technical requirements, regarding technology qualification methodology, to support the needs of the IECRE certification process for marine renewables energy systems. Technology Qualification may be performed at the beginning of the certification process to identify the uncertainties, novelties, and modes of failure, mechanisms of failure, risks and risk control measures. In addition, Technology Qualification will identify the standards that are applicable, to what extent and what adaptation to the technology is required to address the risks. The Technology Qualification Plan is the deliverable arising from this process and it will provide all necessary actions to achieve certification.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 31010:2009, *Risk management – Risk assessment techniques*

IEC 61882:2016, *Hazard and operability studies (HAZOP studies) – Application guide*

IEC TS 62600-1, *Marine energy – Wave, tidal and other water current converters – Part 1: Vocabulary*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

ISO/IEC 17065, *Conformity assessment – requirements for bodies certifying products processes and services*

ISO 17776:2016, *Petroleum and natural gas industries – Offshore production installations – Major accident hazard management during the design of new installations*