

TECHNICAL SPECIFICATION



**Marine energy – Wave, tidal and other water current converters –
Part 103: Guidelines for the early stage development of wave energy converters –
Best practices and recommended procedures for the testing of pre-prototype
devices**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 103: Guidelines for the early stage development of wave energy converters – Best practices and recommended procedures for the testing of pre-prototype devices

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

IEC TS 62600-103, which is a technical specification, has been prepared by IEC technical committee 114: Marine energy – Wave, tidal and other water current converters.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
114/233/DTS	114/259A/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 document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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INTRODUCTION

Developing wave energy converters (WECs) will always be a demanding engineering process. It is important, therefore, to follow a design path that will minimise the risks encountered along a route of increasing technical complexity and fiscal commitment. This Technical Specification (TS) presents a guide that addresses these issues, the approach being based on a proven methodology adapted from other technology areas, especially NASA and similar heavy maritime engineering industries.

The scope of the work is defined in Clause 1. Normative references and definitions of important terms are introduced in Clauses 2 and 3 respectively. The core of the document then follows a twin-track approach, relying on:

- a) a structured or staged development approach outlined in Clause 4, and
- b) a set of model specific and goal orientated Clauses 9 to 11 ensuring that targets are clearly defined and attained with confidence. Testing specific requirements such as test planning (Clause 5), reporting and presentation (Clause 6), characterisation of the surrounding wave environment (Clause 7), and data acquisition (Clause 8) are also included.

The structured development schedule makes use of the ability to accurately scale WECs such that sub-prototype size physical models can be used to investigate the relevant device parameters and design variables at an appropriate dimension and associated budget.

The parallel development of mathematical models describing a WEC's behaviour and performance is encouraged, but the procedure is not included in the document.

This document is quite exacting in terms of both the approach and requirements for the development of WECs since it takes a professional approach to the process. Following these guidelines will not guarantee success, but not following them will be a recipe for lost time and opportunities.