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**Ships and marine technology — General specification for shipborne meteorological instruments**

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## Foreword

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This document was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 13, *Marine technology*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

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## Introduction

A shipborne meteorological instrument (SMI) is a combined system installed on a ship and is used to measure meteorological elements at the ship's position. The meteorological information acquired by the system can be used for safe navigation, as well as input for meteorological applications that support forecasts, warning and climatological services, as well as, with a view to ensuring for safe navigation. This meteorological information can also be used for commercial or scientific needs.

Information sharing is an important feature at the time of publication of this document. The importance of exchanging or sharing meteorological information is also evident.

The number of ships that carry shipborne meteorological instruments with diverse sensors is extensive and in flux. It is generally desirable that the meteorological data measured by ship meteorological instruments can be exchanged and shared with other ships, land-based meteorological information platforms or global meteorological observation systems such as the Voluntary Observing Ship (VOS) Scheme of the World Meteorological Organization (WMO).

This document establishes a set of general technical specifications for all shipborne meteorological instruments, including terms, definitions and test methods, to ensure the quality of different shipborne meteorological instruments and the efficiency in exchanging or sharing the meteorological information. In doing so, this document aims to help shipborne meteorological instruments play a more important role in safe navigation, weather forecast and other climatological services, such as wind energy or commercial or technical research.

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## Ships and marine technology — General specification for shipborne meteorological instruments

### 1 Scope

This document specifies the technical requirements and test methods for shipborne meteorological instruments (SMSMs).

This document applies to shipborne meteorological instruments installed on a ship that shares marine meteorological data with other ships, national meteorological services or other users.

### 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.

ISO-10596:2009, *Ships and marine technology — Marine wind vane and anemometers*

IEC-60092-101:2018, *Electrical installations in ships — Part 101: Definitions and general requirements*

IEC-60092-305, *Electrical installations in ships — Part 305: Equipment — Accumulator (storage) batteries*

IEC-60092-376, *Electrical installations in ships — Part 376: Cables for control and instrumentation circuits 150/250-V (300-V)*

IEC-60092-504:2016, *Electrical installations in ships — Part 504: Automation, control and instrumentation*

IEC-60533:2015, *Electrical and electronic installations in ships — Electromagnetic compatibility (EMC) — Ships with a metallic hull*

WMO-No.8, *Guide to Instruments and Methods of Observation (2021 edition)*

WMO-No.306, *Manual on Codes, Volume 1.2 (Ed2019, Up2022)*

WMO-No.488, *Guide to the Global Observing System (Ed2010, Up2013, 2010 Edition, Updated in 2017)*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <https://www.electropedia.org/>

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3.1 shipborne meteorological instrument SMI

system installed on a ship that includes one or more meteorological sensors to measure meteorological parameters, and components to process, store, and transmit the meteorological data

Note 1 to entry: The meteorological parameters include air temperature, relative humidity, wind direction, wind speed, atmospheric pressure, visibility, sea-surface temperature, etc.

3.2 true north northerly direction of the meridian

Note 1 to entry: — See ISO 19018:2020, 5.1.1 for further information.

3.3 true wind vector with a speed referenced to the fixed earth and a direction referenced to true north (3.2)

Note 1 to entry: — The true wind is calculated from the relative wind speed (3.4.2) and direction, (3.4.1), the ship's motion (speed and course over ground), and true heading. (3.8).

3.3.1 true wind direction TWD direction relative to true north (3.2) from which the wind is blowing

3.3.2 true wind speed TWS magnitude of the true wind (3.3) vector

3.4 relative wind wind vector measured relative to the ship

3.4.1 relative wind direction RWD direction relative to the bow of the ship from which the wind is blowing

Note 1 to entry: — The direction conventions are 0°0' for wind from the bow, 90°90' for wind from the starboard side, 180°180' for wind from the stern, and 270°270' for wind from the port side.

3.4.2 relative wind speed RWS speed of the wind relative to the ship

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