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**Small craft - Navigation lights - Installation, placement and
visibility**

小艇 航行灯 安装、布置和能见度

(ISO 16180:2013, IDT)

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Small craft - Navigation lights - Installation, placement and visibility

1 Scope

This document specifies the requirements for the installation, placement, and visibility of navigation lights as mentioned in the International Regulations for Preventing Collisions at Sea.

This document applies to small crafts with a length of less than 24 m as specified in ISO 8666.

Appendix A lists additional information from the craft owner's manual.

NOTE: Other national regulations may apply for crafts on certain waters.

2 Normative references

The provisions of the following documents constitute the essential clauses of this document through normative references in this text. Among them, for any dated reference, only the version corresponding to that date applies to this document; for any undated reference, the latest version (including all amendments) applies to this document.

ISO 8666 Small craft - Principal data

ISO 10133 Small craft - Electrical systems - Extra-low voltage dc installations

ISO 10240 Small craft - Owner's manual

ISO 13297 Small craft - Electrical systems - Alternating current installations

The Convention on the International Regulations for Preventing Collisions at Sea, 1972, as amended (COLREG)

3 Terms and definitions

The terms and definitions defined in ISO 8666 and the following terms and definitions apply to this document.

3.1 navigation light

Colored light sources used on small crafts to indicate the position, direction, and status of the vessel.

NOTE: The International Maritime Organization has clarified that the "light" in "combination lights" is the same as the "light" in "sidelights". In this document, the two types of "lights" are the same, can be interchangeable with "navigation light", and refer to the whole assembly and all its parts.

3.2 all-round light

A light that shows an unbroken light over a 360° horizontal arc.

3.3 combination sidelight

A single navigation light consisting of two sidelights combined into one. On each side of the fore and aft centerline, within the range from straight ahead to 22.5° abaft the beam ($90^\circ+22.5^\circ=112.5^\circ$), it shows green to the starboard and red to the port.

3.4 masthead light

A white light that is positioned on the fore and aft center line and shows an unbroken light over a 225° horizontal arc, from the straight ahead to 22.5° abaft the beam ($90^\circ+22.5^\circ=112.5^\circ$) on both sides of the craft.

3.5 sidelight

The lights show within a range ($90^\circ+22.5^\circ=112.5^\circ$) from the straight ahead to 22.5° abaft the beam on each side. The starboard sidelight emits green light, and the port sidelight emits red light.

3.6 stern light

A white light that is positioned as close as possible to the stern and shows an unbroken light over a 135° horizontal arc, from straight aft to 67.5° on both sides.

3.7 tricolour light

A single navigation light, consisting of a sidelight and a stern light, which is located at or near the top of the mast, where it is most easily visible.

NOTE: The tricolor light can only be used when a sailing craft less than 20 m in length is sailing alone.

4 Placement, installation, and visibility of navigation lights

4.1 General rules

COLREG requirements specify the type and placement of navigation lights. National

governments may require any specially constructed craft using their flag, and crafts that cannot meet requirements regarding number, location, visibility, etc., shall comply with other provisions determined to be the closest possible compliance with this document.

The construction and installation of the lights shall be approved by the nation whose flag the craft is entitled to fly.

4.2 Placement

4.2.1 Navigation lights shall comply with COLREG's requirements regarding position and technology, including the visibility distance of various lights, the placement of each light on the craft, its visibility range and chromaticity.

4.2.2 Navigation lights shall be clearly visible under normal sailing trim conditions.

4.2.3 Navigation lights shall not be obscured by fixed structures or detachable equipment on crafts during normal navigation.

NOTE: In accordance with COLREG, except for anchor lights, which need not be placed at the very top of the craft, the all-around lights must not be obstructed more than 6° by masts, topmasts, or the structure's angular parts. When obstruction exceeds a 6° arc, multiple all-around lights may be installed.

4.2.4 Navigation lights shall be installed in a manner that avoids directing light into the eyes of the operator. This requirement applies when the operator is in a normal operating position and shall also avoid glare from the craft's structures within the operator's line of sight.

4.2.5 When in full-load standby condition as specified in ISO 8666, with particular consideration of the trim angle during normal navigation, the installation of navigation lights shall ensure that the illumination covers the required visual range and shall meet the required vertical spacing and position requirements.

4.2.6 All crafts equipped with navigation lights shall be fitted with devices to indicate anchor lights. In use, a single operation (e.g., one switch or one position of a multi-position switch) shall indicate the complete navigation light configuration required for the craft while underway. Another switch or switch position shall indicate only the anchor light.

4.2.7 The installation of navigation lights shall minimize the damage caused by collisions with other objects during normal navigation.

4.3 Installation

4.3.1 Navigation lights shall be installed in accordance with the manufacturer's instructions.