The ABYC Standards and Technical Information Reports for Small Craft are the product of a consensus of representatives of government, industry and public sectors. It is intended solely as a guide to aid manufacturers and the marine community in the design, construction, equipage and maintenance of small craft.

ABYC reviews each standard at least every five years at which time it may be reaffirmed, revised, or withdrawn. ABYC welcomes any written comments on the Standards and Technical Information Reports.

ABYC A-16

ELECTRIC NAVIGATION LIGHTS

© 2016 American Boat & Yacht Council, Inc.
NAVIGATION LIGHTS AND SOUND SIGNAL APPLIANCES
PROJECT TECHNICAL COMMITTEE

Miles Beam          David DeHom          Thomas Marhevko
George Bellwoar     E. Charles Game     David Marlow
Arthur Bretnall     James Getz          Marc Nugent
Po Chang            Jerrold Handsaker   Becky Smith

This list represents the membership at the time the Committee was balloted.

NOTE: Membership on a committee shall not in and of itself constitute an endorsement of ABYC or any document developed by the committee on which the member serves.

This standard was developed under procedures accredited as meeting the criteria for American National Standards. The Project Technical Committee that approved the standard was balanced to ensure that individuals from competent and concerned interests have had an opportunity to participate.

This standard, which is the result of extended and careful consideration of available knowledge and experience on the subject, is intended to provide minimum performance requirements.

ABYC’s Project Technical Committee meetings are open to the public. All contact regarding standards activity, interpretations, or meeting attendance should be directed to the ABYC Technical Department at comments@abycinc.org.

ABYC and its committees do not “approve”, “certify”, or “endorse” any item, construction, or proprietary device.

REQUEST FOR INTERPRETATIONS

Upon written request, the Navigation Lights and Sound Signal Appliances PTC will render an interpretation of any requirement of the standard. The request for interpretation should be clear and unambiguous. Requests should be presented to the PTC in a manner in which they may be answered in a yes or no fashion.

The committee reserves the right to reconsider any interpretation when or if additional information which might affect it becomes available to the PTC. Persons aggrieved by an interpretation may appeal to the Committee for reinterpretation.
# A-16 ELECTRIC NAVIGATION LIGHTS

## Table of Contents

16.1 PURPOSE ......................................................................................................................................... 1
16.2 SCOPE .............................................................................................................................................. 1
16.3 REFERENCES .................................................................................................................................. 1
16.4 DEFINITIONS .................................................................................................................................... 2
16.5 GENERAL REQUIREMENTS ............................................................................................................ 3
16.6 SPECIFIC LOCATION AND INSTALLATION REQUIREMENTS ..................................................... 3
16.7 CONFIGURATION AND POSITIONING REQUIREMENTS ............................................................. 4
    FIGURE 1 - Alternative Light Positioning for Vessels Under Power of Less Than 20 Meters (65 ft.) in Length for International and Inland Rules ...................................................................................... 5
    FIGURE 2 - Alternative Light Positioning for Vessels Under Power of Less Than 12 Meters (39 ft.) in Length for International and Inland Rules .............................................................................. 6
    FIGURE 3 - Alternative Light Positioning for Vessels Under Power of Less Than 12 Meters (39 ft.) in Length for Inland Rules .................................................................................................................. 6
    FIGURE 4 - Light Positioning Requirements for Sailing Vessels Underway Inland & International .. 7
    FIGURE 5 - Examples of White Light Placement to Reduce Glare .................................................. 8
    TABLE I - Range Requirements in Nautical Miles ............................................................................. 9
16.8 DESIGN AND CONSTRUCTION REQUIREMENTS ........................................................................ 9
16.9 COLOR AND PHOTOMETRIC REQUIREMENTS ........................................................................ 12
16.10 TEST CONDITIONS ........................................................................................................................ 12
16.11 OWNER’S MANUAL AND COLLATERAL LITERATURE ............................................................... 13
    FIGURE 6 A & 6 B - Horizontal Sector Intensity Requirements ...................................................... 14
    FIGURE 7 - Vertical Sector Intensity Requirements (Elevation) ...................................................... 17
    TABLE II - Color Corner Coordinates .............................................................................................. 18
    TABLE III – Luminous Intensity ....................................................................................................... 18
    APPENDIX A – Electric Navigation Lights ....................................................................................... 18
    APPENDIX B - Testing .................................................................................................................... 19
    ORIGIN AND DEVELOPMENT ....................................................................................................... 20

© 2016 American Boat & Yacht Council, Inc.
A-16 ELECTRIC NAVIGATION LIGHTS

Based on ABYC's assessment of the existing technology, and the problems associated with achieving the goals of this standard, ABYC recommends compliance with this standard for all boats and associated equipment manufactured and/or installed after July 31, 2017.

16.1 PURPOSE

This standard is a guide for the design, construction, performance, and installation of electric navigation lights.

NOTES:

1. The United States Coast Guard has promulgated mandatory requirements for navigation lights in its Navigation Rules: International - Inland. Refer to these Rules for complete, current federal requirements. The USCG publication also contains the International Regulations for Prevention of Collisions at Sea, 1972 (72 COLREGS). The subsequent amendments to the 72 COLREGS are also contained in this publication.

2. The United States Coast Guard has promulgated mandatory requirements for the certification of navigation lights for uninspected commercial vessels and recreational vessels. This regulation requires third party certification of navigation lights installed on vessels constructed on or after November 1, 2003. See 33 CFR Parts 84 and 183, and 46 CFR Part 25.

3. Inland waters are defined in 33 CFR parts 84 through 90.

16.2 SCOPE

This standard applies to the electric navigation lighting installed on vessels under 20 meters (65 ft.) in length.

16.3 REFERENCES

16.3.1 The following references form a part of this standard. Unless otherwise noted the latest version of the referenced standards shall apply.

16.3.1.1 ABYC - American Boat & Yacht Council, Inc., 613 Third Street, Suite 10, Annapolis, MD 21403. Phone: 410-990-4460. Fax: 410-990-4466. Website: www.abycinc.org

ABYC E-11, AC & DC Electrical Systems on Boats
ABYC T-5, Safety Signs and Labels

16.3.1.2 ASTM - ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA, 19428-2959. Phone: (610) 832-9500. Fax: (610) 832-9555. Website: www.astm.org

ANSI/ASTM E380, Standard for Metric Practice

16.3.1.3 CIE - International Commission on Illumination, CIE Central Bureau, Kegelgasse 27, 1030 Vienna, Austria. Phone: +43-1-714-31-87-0. Fax: +43-1-714-31-87-18. Website: www.cie.co.at

1931 CIE Standard Observer Photopic Distribution (Y)

16.3.1.4 72 COLREGS - International Regulations for Preventing Collisions at Sea and/or the Navigation Rules: International - Inland - Obtain the Navigation Rules from either the Superintendent of Documents, United States Government Information, POB 371954, Pittsburgh, PA 15250-7954. Phone: 202-512-1800. Fax: 202-512-2250; or from ABYC, Inc., 613 Third Street, Suite 10, Annapolis, MD 21403. Phone: 410-990-4460. Fax: 410-990-4466. Website: www.abycinc.org


33 CFR parts 84 through 90

16.3.1.6 SAE - Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096. Phone: 724-776-4841. Website: www.sae.org

J578C, Color Specification for Electric Signal Lighting Devices

© 2016 American Boat & Yacht Council, Inc.