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IEEE Std 45-1998)

IEEE Recommended Practice for Electrical Installations on Shipboard

Sponsor

International Marine Industry Committee
of the
IEEE Industry Applications Society

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IEEE-SA Standards Board

Abstract: Recommendations for the design, selection, and installation of equipment on merchant vessels with electrical apparatus for lighting, signaling, communication, power, and propulsion are provided.
Keywords: marine electrical engineering, marine vessels, shipboard systems, ships

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Introduction

(This introduction is not part of IEEE Std 45-2002, IEEE Recommended Practice for Electrical Installations on Shipboard.)

IEEE Std 45-2002, IEEE Recommended Practice for Electrical Installations on Shipboard, constitutes the chief undertaking of the Marine Transportation Committee of the IEEE Industry Applications Society.

As an IEEE recommended practice, this document provides procedures preferred by IEEE. Following the procedures in this recommended practice does not guarantee safety, and users should take all the reasonable, independent steps necessary to minimize risks to safety.

Due to the differences among the requirements of the various classification societies and the insurance companies regarding electrical installations on shipboard, and the lack of any accepted standard engineering regarding electrical installations on shipboard, and the lack of any accepted standard engineering practice for marine installations, the AIEE[a] in 1913 appointed the Marine Committee (now called Marine Transportation Committee) to take up the preparation of standard marine rules. The first edition was prepared covering two important divisions; namely, fire protection requirements and marine construction requirements. They were adopted by the American Bureau of Shipping and published as Section 37 of their Rules for the building and classing of vessels. As the first edition of the rules did not cover the entire field of use of electricity on shipboard, the Marine Committee of the Institute was continued. The recommendations were considerably amplified in the editions issued in 1920, 1927, 1930, 1938, 1940, 1945, 1948, 1951, 1955, 1958, 1962, 1967, 1971, 1977, 1983, and 1998.

This edition updates the 1998 edition. The standard has been reorganized to eliminate duplications and make it easier to use. It includes many significant additions, changes, and deletions to reflect North American and International marine electrical engineering technology and the latest system design, installation, and test practices necessary to ensure safe and reliable operation.

[a]In 1963 the American Institute of Electrical Engineers (AIEE) merged with the Institute of Radio Engineers (IRE) to become the Institute of Electrical and Electronics Engineers, Inc. (IEEE).

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IEEE Recommended Practice for Electrical Installations on Shipboard

1. Overview

1.1 Scope

These recommendations establish the minimally acceptable guidelines for the design, selection, and installation of systems and equipment aboard marine vessels applying electrical apparatus for power, propulsion, steering, automation, navigation, lighting, and communications. These recommendations describe present-day acceptable electrical engineering methods and practices.

It is recognized that changes and improvements in shipboard requirements may develop that are not specifically covered herein; such changes, if incorporated in the design, should be equal to the safety and reliability levels established herein and generally in accord with the intent of these standards.

In developing these recommendations, consideration was given to the electrical and engineering requirements promulgated by various regulatory agencies, classification societies, and by the International Maritime Organization's International Convention for the Safety of Life at Sea (IMO SOLAS), as amended.

This recommended practice was developed by a voluntary consensus body to provide assistance and guidance to regulatory agencies governing electrical engineering requirements.

1.2 Purpose

The main purpose of this recommended practice is to provide a consensus of recommended practices in the unique field of marine electrical engineering as applied specifically to ships, shipboard systems, and equipment.

1.3 Vessel classification

1.3.1 Vessel classification this recommended practice is applicable to

These recommendations have been prepared for application for the following vessels:

a) Tank vessels—All vessels whose principle purpose is the carrying of combustible or flammable liquid cargo in bulk.