



Standard Practice for Use of SI (Metric) Units in Maritime Applications (Committee F-25 Supplement to IEEE/ASTM SI 10)¹

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This standard has been approved for use by agencies of the Department of Defense.

INTRODUCTION

The International System of Units (SI) was developed by the General Conference on Weights and Measures (CGPM), which is an international treaty organization. The abbreviation *SI*, derived from the French “Le Système International d’Unités,” is used in all languages.

On Dec. 23, 1975, Public Law 94-168, “The Metric Conversion Act of 1975,” was signed by President Ford, committing the United States to a coordinated voluntary conversion to the metric system of measurement. The Act specifically defines the “metric system of measurement” as “the International System of Units as established by the General Conference on Weights and Measures in 1960, and as interpreted or modified for the United States by the Secretary of Commerce.”

On Aug. 23, 1988, President Reagan signed into law P.L. 100-576, the Omnibus Trade and Competitiveness Act of 1988. The Act specifies that “metric” means the modernized metric system (SI). The Act then amended the Metric Conversion Act of 1975 to designate the metric system of measurement as the preferred system of weights and measures for United States trade and commerce.

This practice will help obtain uniform SI practice in the marine industry by providing a technical reference for the International System of Units (SI). The practice is not intended to cover all aspects of SI usage, but to serve as a ready reference especially tailored to the operating needs of the industry. For further information on SI usage and conversion factors for units not found herein, refer to IEEE/ASTM SI 10, upon which this practice is based.² In the event of a conflict, IEEE/ASTM SI 10 shall take precedence. (See also NIST Special Publication 811.)³ Hardware and other standards in SI are currently being developed.

1. Scope

1.1 This practice covers the use of SI, which is comprised of base and derived SI units. Also discussed are non-SI units that have been accepted and recognized by the CGPM as appropriate for limited use or time. Basic rules for style and usage of SI are set forth, as well as methods for conversion from non-SI units to SI units. Tables of quantities used by the marine industry are included, with present units and conversion factors given.

2. Referenced Documents

2.1 ASTM Standards:

IEEE/ASTM SI 10 Standard for Use of the International System of Units (SI): The Modernized Metric System²

2.2 NIST Publications:

NIST Special Publication 811 Guide for the Use of the International System of Units (SI)³

NIST Special Publication 330 The International System of Units (SI)³

3. Terminology

3.1 Definitions:

3.1.1 *quantity, n*—measurable attribute of a physical phenomenon.

3.1.2 *SI, n*—The universally accepted abbreviation for the International System of Units as defined in the document *Le Système International d’Unités*, 6th Edition, published by the International Bureau of Weights and Measures (BIPM), Sevres, France, 1991, and as interpreted and modified for the United

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² *Annual Book of ASTM Standards*, Vol 14.04 (Excerpts in Related Materials section of all other volumes).

³ Available from National Institute for Standards and Technology (NIST), Gaithersburg, MD 20899.