



Standard Classification for Hierarchy of Equipment Identifiers and Boundaries for Reliability, Availability, and Maintainability (RAM) Performance Data Exchange¹

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1. Scope

1.1 This classification is to serve as an international standard for marine equipment nomenclature, taxonomy, hierarchical data structure, unique identifiers, and boundary definition for the consistent acquisition and exchange of equipment RAM performance data. The standard addresses the classification of mechanical and software products.

1.2 RAM is an acronym for Reliability, Availability, & Maintainability where:

1.2.1 Reliability is the probability that an item can perform a required function under given conditions for a given time interval (t_1 , t_2). It is generally assumed that the item is in a state to perform this required function at the beginning of the time interval.

1.2.2 Availability is the probability that an item is in a state to perform a required function under given conditions at a given instant of time, assuming that the required external resources are provided.

1.2.3 Maintainability is the probability that a given active maintenance action, for an item under given conditions of use can be carried out within a stated time interval, when the maintenance is performed under stated conditions and using stated procedures and resources.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory requirements prior to use.*

¹ This classification is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.05 on Computer Applications.

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2. Referenced Documents

2.1 ISO Standards:²

ISO 3166-1 :1997, Codes for the Representation of Names of Countries and Their Subdivisions—Part 1: Country Codes, 1997

ISO 10303 , Industrial Automation Systems and Integration—Product Data Representation and Exchange
ISO 13584 , Industrial Automation Systems and Integration—Parts Library

ISO/IEC TR 12182 , Information Technology—Categorization of Software, Technical Report, 1998

ISO/TC 67/WG 4 , ISO/FDIS 14224:1998(E), Petroleum and Natural Gas Industries—Collection and Exchange of Reliability and Maintenance Data for Equipment, 1998

2.2 Other Standards:

Center for Chemical Process Safety of the American Institute of Chemical Engineers, Guidelines for Improving Plant Reliability through Data Collection and Analysis, 1998³

IEC 60050-191 , International Electrotechnical Vocabulary, Chapter 191, Dependability and Quality of Service⁴

International Maritime Organization (IMO) Circular letter No. 1886/Rev. 2, Implementation of Resolution A.600(15)—IMO Ship Identification Number Scheme, 2002⁵

Naval Sea Systems Command, Expanded Ship Work Breakdown Structure (ESWBS) for All Ships and Ship/Combat

² Available from International Organization for Standardization (ISO), 1, ch. de la Voie-Creuse, Case postale 56, CH-1211, Geneva 20, Switzerland, <http://www.iso.ch>.

³ Available from American Institute of Chemical Engineers, 3 Park Ave, New York, N.Y. 10016-5991.

⁴ Available from International Electrotechnical Commission (IEC), 3 rue de Varembe, Case postale 131, CH-1211, Geneva 20, Switzerland, <http://www.iec.ch>.

⁵ Available from International Maritime Organization (IMO), 4 Albert Embankment, London, SE1 7SR, U. K.