Designation: F 1756 – 97a (Reapproved 2002)

An American National Standard

Standard Guide for Implementation of a Fleet Management System Network[1]

This standard is issued under the fixed designation F 1756; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide provides an overview and guide for the selection and implementation by shipowners and operators of a Fleet Management System (FMS) network of computer services in a client/server architecture (see Fig. 1). The FMS is based upon a wide area enterprise network consisting of an unspecified number of Shipboard Information Technology Platforms (SITPs) and one or more shoreside Land-Based Information Technology Platforms (LITPs), which provides management services for the shipping enterprise. The FMS can be understood as a computer system comprised of one or more LITPs and one or more SITPs. It can be characterized as mission critical 24 × 365 (24 h/day, 365 days/year).

1.2 The SITP (see Fig. 1) provides a set of software services, including:

1.2.1 *Communications Services*, to communicate between vessels and with shore via multiple wireless communication technologies;

1.2.2 *Data Acquisition Services*, providing access to shipboard system data as required for use by other systems and management purposes; and,

1.2.3 *Executive Services*, providing software process administration and control.

1.2.4 In total, the SITP provides the capability for multiple shipboard computer systems to share data with each other and to communicate with shore-based management or other vessels or both.

1.3 The SITP is understood to consist of integrated hardware, software, a data repository, and standardized procedures, which provide the ability to send, receive, process, transfer, and store data or messages in digital form in a common mode from shipboard systems or administrative utilities or both, and from designated sources outside the network, for example, systems accessed through wireless communication services, such as satellite, VHF, HF, and so forth. Shipboard systems include navigational, machinery control and monitoring, cargo control, communications, and so forth. The SITP also will provide the capability for the remote administration and maintenance of associated computer systems aboard the vessel.

1.4 The SITP requires an underlying hardware and network infrastructure, including a shipboard computer local area network (LAN), file servers, workstations, wireless communications transceivers, cabling, other electronic and optical devices, video display units, keyboards, and so forth.

1.5 The SITP also requires underlying system software providing network operating system (NOS) services, DBMS services, and other system software.

1.6 There also is a layer of shipboard application systems, which are designed to capitalize on the FMS infrastructure to share data with other shipboard systems and management ashore. Those systems also would be able to capitalize on the remote management capabilities of the FMS.

1.7 The LITP is an asset that can exchange operating and administrative data from individual ships and maintain a DBMS to support fleet management and other maritime applications. The LITP will support data repositories, file servers, workstations or personal computers (PCs), and a communication hub providing connectivity to distributed satellite services, VHF (very high frequency), HF/MF (high frequency/medium frequency), and land lines. The DBMS makes possible the development of knowledge-based "decision aids" by providing the ability to retrieve, process, and analyze operational data.

1.8 This guide does not purport to address all the requirements for a SITP, which forms a path for data for direct control of the operation or condition of the vessel or the vessel subsystems.

1.9 In all cases, it shall be possible for all units of navigation equipment resident on the Navigation Equipment Bus to operate and display essential operating data independently of the FMS.

1.10 In all cases, it shall be possible for all units resident on the Control, Monitoring, and Alarm Bus to operate and display essential operating data independently of the FMS.

1.11 In all cases, it shall be possible for all units resident on the Communications Bus to operate and display essential operating data independently of the FMS.

1.12 Values shown in this guide are in SI units.

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

Current edition approved Nov. 10, 1997. Published October 1998. Originally published as F 1756 - 97. Last previous edition F 1756 - 97.

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