

U.S. NATIONAL GMDSS IMPLEMENTATION TASK FORCE UNIFORMATION BULLETIN

APPLICABILITY OF THE GMDSS TO WARSHIPS

Background

Warships of all nations, as public vessels, are technically exempt from the requirements of the Safety of Life at Sea (SOLAS) treaty as it relates to implementation of the Global Maritime Distress and Safety System (GMDSS). There are, however, valid reasons why the governments should elect to fit these warships with selected items of GMDSS equipment. Indeed, the U.S. Army, the U.S. Coast Guard and the Military Sealift Command, have outfitted their major vessels for GMDSS. Overseas, most Coast Guard vessels and the fleets of nations with small navies have also been outfitted for GMDSS. The U. S. Navy has not yet taken a position of the extent to which it will participate in the GMDSS. This Information Bulletin has been developed to make the case for at least partial Navy participation and identifies appropriate GMDSS systems which should be considered as a contribution to maritime safety generally or to meet Navy requirements for interoperability and homeland security.

VHF-FM with DSC

Navy ships carry the International VHF-FM Maritime short range system to facilitate harbor services communications and bridge-to-bridge communications with other ships. This has been demonstrated to be a necessity to avoid collisions and minimize interference to navy operations. GMDSS is changing the way VHF-FM is used by adding Digital Selective Calling (DSC) features. DSC is being employed to improve the range and reliability of making contact with ships as well as a means to avoid a full time listening watch on channel 16, the calling channel. Instead, vessels will be called on channel 70 in a DSC mode and activate a voice channel for response. DSC can be used to selectively call another ship whose identification number is known or to call all ships within range. SOLAS compliant vessels now watch channel 70 for DSC calls but will continue to guard channel 16 indefinitely to assure interoperability with non-SOLAS vessels.

MF/HF with DSC

The maritime bands at medium and high frequency have also been converted to require DSC calling. Commercial vessels subject to the SOLAS treaty must equip for MF operations with DSC and must choose either HF-DSC or Inmarsat satellite systems for safety communications on the high seas. There is no particular need for Navy ships to equip for MF/HF DSC unless they use MF/HF single sideband radiotelephone to initiate communications with SOLAS regulated shipping (see section on interoperability).

Inmarsat Satellite Services

A number of navy combatants and the larger naval auxiliaries are already equipped with Inmarsat-B or Fleet 77 Inmarsat Ship Earth Stations (SES) to meet general communications requirements. Both systems are certified for GMDSS which also makes them attractive choices for interoperability. GMDSS does not impose any changes in the operating procedures for the Inmarsat systems except to specify watch keeping by treaty vessels which have selected the Inmarsat option for high seas operation. Inmarsat-C and Mini C are also certified as a qualified ship earth station for GMDSS and these systems carry the high seas marine safety broadcast, SafetyNET. Because SafetyNET is a required GMDSS service, the Inmarsat-C outfitting by SOLAS vessels is near universal (see also the section on SafetyNET). Inmarsat-C is also a proven system for automatic tracking of special interest vessels by maritime authorities. The new Broadband ship earth stations are also expected to be approved for GMDSS in the near future.

Navtex Coastal Marine Broadcast System

The medium frequency Navtex broadcast system is used for coastal marine warnings and weather forecasts and has been mandatory for treaty vessels since 1993. It is understood that the navy has earlier made a determination that this service is required for naval vessels and funded the initial outfitting program but may not have followed up to specify the requirement for new construction.

SafetyNET Marine Broadcast System

The SafetyNET service is used for high seas marine warnings and for coastal warnings in those areas without Navtex service. The SafetyNET service is provided by the Inmarsat-C system using the Enhanced Group Call (EGC) technique. Ability to receive SafetyNET broadcasts is mandatory for SOLAS vessels. It is understood that the navy had earlier made a determination that their ships should be equipped for SafetyNET reception but that the program has not yet been funded. While a receive-only Inmarsat-C SES would satisfy the requirement, a transmit and receive SES is usually fitted by SOLAS vessels since the small differential in cost provides redundancy which satisfies other GMDSS requirements. While the navy might wish to fit a receive-only SES, there are few on the market since most commercial ships want a transmit and receive SES. In any event, IMO recommends that an Inmarsat-C receive capability not be combined with an Inmarsat SES using a tracking antenna since that would restrict the SafetyNET reception to the satellite being tracked by the SES and there is an established doctrine as to which satellite should be guarded by the SafetyNET receiver based on the ship's location. Even with the omni-directional Inmarsat-C antenna it is necessary to select the satellite to be tracked.

Interoperability and Homeland Security Considerations

The ability to communicate with other ships is a fundamental principle of GMDSS to facilitate search and rescue operations involving multiple ships of different nationality. Search and rescue operations often involve assistance by a navy ship that has been willingly granted for humanitarian reasons, and which can be facilitated with GMDSS communications systems. There are other reasons for recommending limited GMDSS capability to meet navy requirements. The capability of interoperability is a navy requirement to support naval operations which these days often involve foreign combatants and foreign commercial shipping as well as U.S. ships of all types. The near universal fitting of GMDSS systems on commercial ships makes these systems obvious choices for interoperability. It is also believed that foreign naval vessels have equipped with selected GMDSS systems for the same reason and because most of them also have Coast Guard type missions and thus have a continuing need to interact with commercial vessels. Recent initiatives directing Navy support of homeland security measures, makes such interoperability capability even more compelling.

The GMDSS Task Force

This document was originally adopted 11 January 1996 and updated 16 May 2002 and 6 August 2009 by the National GMDSS Implementation Task Force, a U.S. Coast Guard sponsored group established to coordinate implementation problems, recommend their resolution, and disseminate GMDSS information. The Task Force is soliciting feedback on problems encountered and invites responses from all concerned. Address responses to Captain Jack Fuechsel, Task Force Executive Director, 1600 North Oak Street, #427, Arlington VA 22209; phone 703-527-0484; or email gmdss@comcast.net. See also the Task Force website at www.navcen.uscg.gov/marcomms (click on GMDSS, then on GMDSS Task Force). Reproduction and wide dissemination of this document is encouraged.