

## U.S. NATIONAL IMPLEMENTATION TASK FORCE GMDSS INFORMATION BULLETIN

### USE OF VHF-DSC BY SHORE BASED MARITIME FACILITIES

#### Background

The new Global Maritime Distress and Safety System (GMDSS) was implemented on 1 February 1999 for cargo ships over 300 tons and passenger ships. GMDSS is a major update of the global maritime radio safety system and is affecting all users of maritime radio. One of the impacts is an upgrade of the coastal VHF network to partial automation through the addition of Digital Selective Calling (DSC). This feature has already been implemented on large vessels subject to the Safety of Life at Sea (SOLAS) treaty. Numerous smaller vessels not subject to the SOLAS treaty but regulated by national authority, may also be required to upgrade to VHF-DSC once the Coast Guard shore network upgrade is completed. The Federal Communications Commission (FCC) has directed a gradual shift to VHF-DSC by mandating that all new marine VHF radios submitted for type acceptance after June 1999, must have at least a minimal DSC capability. Thus, even voluntary users of VHF radio will ultimately be DSC capable.

#### Digital Selective Calling (DSC)

The operation of a DSC radio is the same as one without DSC except for the calling function, which is a digital signal, transmitted on channel 70. Calls may be made to specific vessels or shore stations by using the unique Maritime Mobile Service Identity (MMSI) number, which is assigned as the identification in each DSC radio. Calls may also be made to "all stations" and if used by a vessel to transmit a distress alert, will activate the receivers on all radios within range. Distress alerts sent by DSC include the vessel's identification and additionally the position if the transmitter is connected to a GPS or Loran receiver. The digital call also may indicate the channel on which to reply for follow-up communications. DSC radio users need to understand the basic operation of the radio, how DSC provides an automated watch, the importance of registering the MMSI number, and the need to keep the radio turned on.

#### Maritime Shore Facility Users of VHF

There are a number of maritime VHF radio stations ashore including both government and non-government stations. The Coast Guard maintains a continuous distress watch on VHF channel 16. The Coast Guard will maintain the channel 16 watch even after upgrading the network to also watch channel 70. Public Correspondence (Marine Operator) stations are also required to watch channel 16 unless they have a waiver from the FCC and may also watch DSC channel 70. At this point, however, most VHF Public Correspondence Stations in the U.S. have not been able to maintain a viable revenue stream in the face of cellular competition, and have ceased operation. Limited Private VHF coast stations such as marine police, marine exchanges, port authorities, bridge tenders, lock tenders, marinas, yacht clubs and other facilities may find it convenient to offer their customers a service on DSC so as to bypass the congestion on channel 16. They can also maintain a watch on a voice working frequency if desired. While these shore facilities are not required to upgrade to DSC, the Task Force recommends that they do so since the whole maritime VHF system is gradually moving toward DSC. Thousands of recreational vessels are already equipped with DSC radios, well in advance of the Coast Guard's Rescue 21 coastal system upgrade with more expected each year because of the FCC's requirement that all new models of DSC radios have DSC capability.

#### FCC Station Licenses for VHF Facilities Ashore

Recreational vessels and small commercial vessels not mandatorily equipped with radios can obtain MMSI numbers from BOAT US, Sea Tow, or the U.S. Power Squadrons which have been authorized to issue MMSI numbers without paying a fee to the FCC for a Station License. The FCC requires a Station License for marine facilities ashore, however, and shore stations wishing to upgrade to DSC must apply for a modification to the license to have an MMSI number assigned. State and local government facilities and non-government facilities apply to the FCC for assignment of an MMSI number as an amendment to the Station License.

## **Automatic Identification Systems (AIS)**

International regulatory action has required that SOLAS ships be fitted with Automatic Identification Systems (AIS) for safety purposes and to enhance the security posture in ports and waterways. Shipboard AIS systems continuously broadcast position, course, speed, identification, and other parameters on the designated AIS VHF channel, for the information of other stations equipped with appropriate display systems. The same MMSI number assigned for DSC operations identifies vessels in the AIS system. Shore authorities such as the Coast Guard Vessel Traffic Systems (VTS) will use display systems to monitor vessel traffic for safety and security purposes. Selected shore users of the marine VHF-DSC system such as Marine Exchanges, Port Authorities, and Lock and Bridge Tenders may also find it advantageous to fit AIS display systems.

## **Federal Government Plans for VHF-DSC Stations Ashore**

The Coast Guard has announced the "Rescue 21" project to upgrade its coastal network of VHF stations to include VHF-DSC with a projected completion date in the continental U.S. of 2011. The Coast Guard Vessel Traffic Service (VTS) Units in the major port areas will also upgrade to VHF-DSC to meet the AIS requirements being levied on SOLAS ships. The Coast Guard has not yet announced plans for VHF Bridge Tenders under its jurisdiction. The Army Corps of Engineers has likewise not yet announced plans for Lock Tenders under its jurisdiction. Non-federal lock and bridge tenders using VHF are free to decide whether to upgrade to VHF-DSC in the absence of direction from their chain of command.

## **False Alerts on Channel 70**

The GMDSS system has experienced numerous false alerts in all systems because operators were only marginally competent. The Task Force expects that the VHF-DSC network will suffer this same problem, especially since the largest user category, recreational vessels, are permitted to use VHF-DSC without any mandatory training. FCC licensed shore units configured for VHF-DSC should not originate distress alerts using the distress button but their receivers will be activated if an "all stations" distress alert should be sent by a vessel in the vicinity. The proper response by a limited coast station is to wait briefly for the Coast Guard to acknowledge the distress alert. If there is no Coast Guard response, the shore station can respond to the vessel in distress acknowledging that his alert has been heard and is being passed to the Coast Guard for action. To minimize false alerts review the DSC tutorial at [www.boatus.com/mmsi](http://www.boatus.com/mmsi).

## **The GMDSS Task Force**

The GMDSS Implementation Task Force approved this Information Bulletin on 22 May 2003, and updated it on 6 August 2009. The Task Force is a Coast Guard sponsored group established to resolve implementation problems and disseminate GMDSS information. The Task Force is soliciting feedback on problems encountered and invites responses to Captain Jack Fuechsel, Task Force Executive Director, 1600 North Oak Street, #427, VA 22209; phone 703-527-0484; or email: [gmdss@comcast.net](mailto:gmdss@comcast.net) See also the Task Force GMDSS Internet web site: [www.navcen.uscg.gov/marcomms](http://www.navcen.uscg.gov/marcomms) (select GMDSS, then GMDSS Task Force). Duplication and reprinting of this Bulletin is authorized in order to reach the widest possible audience.