

SUB-COMMITTEE ON  
RADIOCOMMUNICATIONS AND SEARCH  
AND RESCUE  
17th session  
Agenda item 17

COMSAR 17/3/4  
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## GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS)

### Review and modernization of the GMDSS

#### Submitted by the United States

#### SUMMARY

*Executive summary:* This document, in reply to COMSAR 17/4 Joint Experts Group recommendations regarding modernization of the GMDSS, proposes that the Sub-Committee consider certain overarching principles based upon lessons learned from the existing GMDSS and their consequential corollaries

*Strategic direction:* 5.2

*High-level action:* 5.2.5

*Planned output:* 5.2.5.7

*Action to be taken:* Paragraph 13

*Related documents:* COMSAR 16/3/8 and COMSAR 17/4

#### Introduction

1 This document comments on Review and modernization of the GMDSS, in reply to the Report of the eighth meeting of the Joint IMO/ITU Experts Group on Maritime Radiocommunication Matters (COMSAR 17/4), and is submitted in accordance with the provisions of paragraph 6.12.5 of the *Guidelines on the Organization and Method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their Subsidiary Bodies* (MSC-MEPC.1/Circ.4/Rev.2).

2 The Joint IMO/ITU Experts Group made recommendations regarding certain specified services, systems and technologies that should not form part of the international system and others which might be included, on the existing nine functional requirements of the GMDSS, on the retention of four levels of priority and existing GMDSS Sea Areas, and on maritime safety information. While sound arguments exist for most of these recommendations, the Sub-Committee may wish to consider certain overarching principles for modernization of the GMDSS based upon experience gained with the existing GMDSS before decisions are made on the technology itself.

**Discussion**

3 Principle 1. GMDSS equipment should meet one or more of the agreed functional requirements specified in SOLAS regulation IV/4, as proposed by the Joint IMO/ITU Experts Group. GMDSS systems carried aboard ships must meet all of these requirements.

4 Principle 2. Any modernized GMDSS should avoid new costs to shipowners to the extent possible, avoiding their need to purchase new or upgraded equipment.

5 Principle 3. Any modernized GMDSS should avoid new costs to Administrations to the extent possible, avoiding their need to purchase and maintain new shore-based infrastructures.

6 Principle 4. Any modernized GMDSS should be adaptable to equipment and systems actually used by the mariner rather than relying on mandated equipment used only during a distress or other emergency. Furthermore, GMDSS should be adaptable to rapidly changing technology, avoiding the obsolescence that occurred when (for example) VHF, MF and many HF maritime public coast stations closed and telex (and most radiotelex) services terminated. A modernized GMDSS should not be defined by specific technologies which may become outdated and of limited use, but instead be adaptable to new technology as it becomes available, needed and used by the shipowner and operator.

7 Principle 5. GMDSS operation should not depend upon skilled, trained and licensed operators using detailed published procedures and knowledgeable of a variety of different manufacturer's GMDSS operator interfaces. GMDSS operation instead should depend upon consistent, standardized common system function and interfaces. While ITU's detailed distress, urgency and safety procedures are necessary, they should be incorporated into an automated process to simplify operation rather than be the responsibility of the operator to know and have memorized. Similarly, a standardized human interface common among various manufacturers' models should simplify use of the system by an operator unfamiliar with a given ship's GMDSS equipment.

8 Principle 6. Automated distress alerting should require the use of accurate position and registered identification information; should only be routed to those in a position to provide assistance; and should include means for suppressing duplicated or repeated alerting. While it is impractical to totally avoid false alerts, alerts would be reduced if the one transmitting the false alert were clearly identified with location provided to all receiving the alert. Also, ship operators would be less likely to turn off their GMDSS radio equipment if individual alerts and their relays and acknowledgements were not repeatedly alarmed, and if the alarmed alerts were limited to vessels within reasonable proximity.

9 Principle 7. Means for distress alerting and disseminating maritime safety information should be standardized to not burden the responsible RCC and MSI provider agencies.

10 Principle 8. GMDSS systems should be based upon technology and use spectrum that ensure a reliable and internationally interoperable availability of service.

11 Principle 9. GMDSS systems should not rely upon proprietary equipment using proprietary network interfaces, but instead should be based upon common, open standards.

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- 12 If these principles are agreed, there are corollaries which may follow:
- .1 Corollary A. Because GMDSS Sea Areas are technology-dependent, Sea Areas should be applied only to the extent that the technology is used;
  - .2 Corollary B. Technology required under a modernized GMDSS, as well as its associated Sea Area, should no longer be specified in SOLAS. Doing so would lock in the technology, resulting in the obsolescence now experienced with existing GMDSS;
  - .3 Corollary C. Systems accepted as new elements of the GMDSS should be standards-based, defined by IMO performance standards specified by SOLAS and certified by standards such as those developed by IEC;
  - .4 Corollary D. It is premature and speculative at this time to:
    - .1 prescribe which certain specified services, systems and technologies should not form part of the modernized GMDSS; and
    - .2 endorse the list of systems and technologies which might be included, as proposed in paragraphs 42 to 46 of the Joint IMO/ITU Experts Group's recommendation.
- Those decisions should await the development of performance standards<sup>1</sup>.
- .5 Corollary E. GMDSS performance standards should include human as well as data interface requirements, alarming requirements and operational software requirements;
  - .6 Corollary F. Shipboard integrated navigation displays should be considered as a human interface for most GMDSS elements, since those are the devices ship operators use. This is especially true for maritime safety information and distress information having position information;
  - .7 Corollary G. WMO and IHO should consider the possibility of a common standard for eventually disseminating graphically-based meteorological, navigational, ice and search and rescue information to mariners, in a way that aids the mariner to quickly understand and react to that information; and
  - .8 Corollary H. The requirement for orders of priority may need to be revisited because the factors which led to their incorporation into the Radio Regulations after the sinking of the RMS Titanic have changed. Originally, orders of priority were needed to ensure that the most urgent messages transmitted over slow circuits would be received in a timely manner. Today orders of priority may be needed to ensure that the most urgent information is seen at the top of a queue of other messages available to the mariner. Orders of priority may also be needed to ensure the availability of radio spectrum shared amongst other users and services (e.g. ITU RR 5.353A).

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<sup>1</sup> Note for example the extensive information on changes in radiocommunication and radio navigation since the formal beginning of the implementation phase of the GMDSS in 1992 documented by Australia in COMSAR 16/3/8

**Action requested of the Sub-Committee**

- 13 The Sub-Committee is invited to:
- .1 include these considerations throughout the GMDSS Modernization project;
  - .2 request IMO Members and observer organizations consider these corollaries and discuss them at the next session of the Sub-Committee or its successor; and
  - .3 decide as appropriate.
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