Criteria for Monitoring Maritime Safety Information Broadcasts via GMDSS Satellite Providers

Submitted by NAVAREA XIV and NAVAREA X

SUMMARY

Executive Summary: This document outlines the current requirements on MSI Providers to monitor MSI, identifies challenges in light of recent and proposed changes to GMDSS satellite services and suggests a new model for monitoring MSI.

Action to be taken: 7

Related documents: Resolution A.706 (17), International SafetyNET Manual, MSC99/WP.1

1 Background

1.1 The requirement for NAVAREA, METAREA and National Coordinators to monitor the Maritime Safety Information (MSI) broadcasts they have originated is a responsibility prescribed in Resolution A.706 (17), the Joint IMO/IHO/WMO Manual on Maritime Safety Information (MSI) and the International SafetyNET Manual.

2. Objective of Monitoring

2.1 MSI Providers (MSIP) must "monitor the broadcasts which they originate to ensure that the warnings have been correctly broadcast." (Resolution A706(17) Paragraph 6.6.1.11))

3. Means of Monitoring

3.1 Monitoring of MSI broadcasts "shall be accomplished by the installation of an Inmarsat C or mini-C terminal with EGC SafetyNET receiver to enable each MSI provider to:

.1 confirm that the message is transmitted and received correctly;
.2 ensure that cancellation messages are properly executed; and
.3 observe any unexplained delay in the message being broadcast." (International SafetyNET Manual Paragraph 9.1)

4. Recent Challenges to MSI Monitoring

4.1 Many MSIPs have been impacted, to some extent, by the Inmarsat I3 to I4 migration. In the case of NAVAREA XIV and X, our respective land masses (New Zealand and Australia) are no longer under the footprint of all Inmarsat satellites covering our areas of responsibility (E.g AMER I-4 for NAVAREA XIV, Alphasat EMEA I-4 for NAVAREA X).

Without the ability to physically locate an EGC receiver under the satellite footprint, monitoring in accordance with 3.1 will be extremely challenging.

4.1.1 Extensive investigations into developing a solution to provide a reliable monitoring capability have been challenging. For example the proposed solution to address NAVAREA X requirements is currently to purchase and then site an Inmarsat receiver at LES Burum, which is within the EMEA satellite footprint. This will then forward, via email, the EGC broadcast messages received to the NAVAREA X Coordinator. The primary challenges associated with this solution are:

.1 Initial set-up costs to the NAVAREA Coordinator – purchase and installation of new equipment;
.2 Provision of access to the internet or external network – particularly associated with more stringent IT security requirements;
.3 Delineation of responsibility for monitoring and maintaining equipment external to NAVAREA Coordinator's physical premises;
.4 Additional ongoing costs for maintenance of equipment or acceptance of a 'best endeavours' approach;
.5 Practicality, or lack of, for the NAVAREA Coordinator to be able to remote access into the equipment which is located on an external network; and
.6 Reliability and security of email communications.

5. Future Challenges to MSI Monitoring

5.1 Inmarsat Fleet Safety Terminals have recently gained GMDSS approval from IMO.

5.1.1 MSI will be delivered to Fleet Safety Terminals via Inmarsat spot beam, rather than global beam. It is not clear how MSI monitoring will be achieved, but within this architecture MSIPs will not be able to situate EGC receivers underneath every spot beam to comply with the broadcast monitoring requirements at 3.1.

5.2 MSC, at its 99th meeting, recognised the maritime mobile satellite services provided by Iridium for use in the GMDSS. (MSC99/WP.1)

5.2.1 The Iridium constellation utilises orbiting satellites, with NAVAREA coverage achieved using multiple satellites and multiple spot beams. As with 5.1.1 above, it is not clear how MSI monitoring will be achieved, but it will not be possible to comply with the requirements at 3.1.

5.3 Also at its 99th meeting, MSC referred the application by China for the recognition and use of the BeiDou Message Service System (BDMSS) in the GMDSS to NCSR for evaluation. (MSC99/WP.1)

5.3.1 The monitoring challenges discussed at 5.1.1 and 5.2.1 will also apply to the BeiDou constellation.

6. Possible Solution

6.1 It is clear that the traditional method of monitoring MSI broadcasts via GMDSS satellite providers is no longer appropriate and another solution must be found.

6.1.1 A model that shares the responsibility for MSI monitoring between the satellite service providers and the MSIPs seems appropriate, where:

a. The MSIP is responsible for ensuring their messages are correct before delivery to the satellite provider, and
b. The Satellite provider is responsible for ensuring messages are broadcast correctly, as received.

6.2 Any proposed changes should address future monitoring requirements for MSIP's to ensure correct delivery of MSI to the Maritime Cloud.

7. Actions

The sub-committee is invited to discuss this paper at WWNWS 10.