Liaison Note to ITU-R Working Party 5B

Revision of Rec. ITU-R M.1371-4

# Introduction

IALA thanks Working Party 5B for their liaison statement containing document 5B/167 Annex 27, and appreciates the opportunity to clarify the proposed use of Message 27 by AIS Class B SO and AIS SAR devices.

# Purpose

The purpose of this document is to:

* provide an updated assessment (ref: Report ITU-R M.2169, December 2009), based on the development of new technology, of the loading capacity of the WRC-12 designated channels (RR Appendix 18 channels 75 and 76) for the long range detection of AIS using AIS Message 27;
* propose, based on the benefits, that Recommendation ITU-R M.1371-4 be revised to permit, in addition to the AIS Class A, the transmission of Message 27 by the AIS Class B-SOTDMA and by AIS SAR devices, e.g. AIS-SART, EPIRB-AIS and AIS-MOB, when utilizing Navigation Status 14 to indicate an active SAR status;
* explain how this proposed extended use of Message 27 can be implemented within the loading capacity of the designated channels.

# The Message 27 capacity in Report ITU-R M.2169 has been increased by 4X

Report ITU-R M.2169 proposed the technical approach using Message 27 that was confirmed in Recommendation ITU-R M.1371-4 for “long range detection of AIS” for operation on the two new channels that were designated by WRC-12. This Report assessed the satellite AIS detection capacity based on a single satellite pass (see Figure 1 below). Note that the approach adopted by ITU using Message 27 on the two channels designated by WRC-12 follows the curve for “3-minutes; 2-channels.” However, since the publication of this Report, satellite AIS service providers have confirmed a new “slot de-confliction technology” that provides a 4X increase in this capacity.



1. Detection statistics with 3rd AIS satellite channel (assuming uniform ship distribution)

# Proposal to allow Class B-SOTDMA to use Message 27

It should be noted that Class B CS should be excluded from transmitting Message 27 to ensure the high performance of satellite reception on Channels 75 and 76. It is expected that the current market trends will continue and Class B CS will remain the preferred device, due to cost, for the pleasure market.

The AIS Class B-SOTDMA was recently introduced for use by professional non-SOLAS vessels, some of which, e.g., fishing vessels, may frequently operate beyond the range of AIS shore infrastructure. Its behaviour is similar to the AIS Class A as it uses the SOTDMA access scheme, yet differs as it uses a lower transmission power (5W) therefore the Class A units will always have a higher likelihood of reception by the satellite. Further, its population is expected to be modest as the cost to manufacturer is similar to Class A. Since it uses SOTDMA, it could follow the same procedure and access scheme as the AIS Class A. Like the Class A, the Message 27 can be suppressed when the vessel is within the range of an AIS base station. Thus, the impact on the capacity of long range detection would be similar to Class A, and the benefit would be significant if the Class B-SOTDMA could also use Message 27.

# Proposal to allow AIS SAR devices to use Message 27

It should be noted that these devices are not alerting devices, they are locating devices, and it is important to recognize the benefit of this locating functionality when outside shore infrastructure.

If AIS SAR devices, e.g. AIS-SART, EPIRB-AIS and AIS-MOB, when utilizing Navigation Status 14 to indicate an active SAR status, could also use Message 27, it would be a great benefit to SAR operations when these operations are beyond the range of AIS shore infrastructure or beyond reception of other ships equipped with AIS. Since these devices could only transmit Message 27 in the active state (Navigation Status = 14), and only in accordance with the schedule set for Message 27, the impact to the capacity of long-range detection would be nil, and the benefit to SAR operations would be significant if these devices could also transmit Message 27.

# Action Requested

ITU-R Working Party 5B is requested to consider the merits of including AIS Class B SO and AIS SAR devices in the requirement to transmit Message 27 as described in revision of ITU-R M.1371-4, which was provided by IALA at meeting of ITU-R Working Party 5B on 5 – 16 November, 2012.