Input paper: [[1]](#footnote-2) ARM14-3.2.7

Input paper for the following Committee(s): check as appropriate Purpose of paper:

**X** ARM **□** ENG **□** PAP **X** Input

**□** ENAV **□** VTS **□** Information

Agenda item [[2]](#footnote-3) 3.2

Technical Domain / Task Number 2 …………………………………

Author(s) / Submitter(s) Yves Jacques/Eivind Mong (Canadian Coast Guard)

Guttorm Tomren (Norwegian Coastal Authority)

Mahesh Alimchandani (Australian Maritime Safety Authority)

Kjell Johansson (Swedish Maritime Administration)

Mats Hölström (Swedish Transport Agency)

Henrika Björkell-Virta (Finish Traffic and Communication agency)

Yeongjae Kim (Ministry of Oceans and Fisheries, ROK)

Survey of shipboard navigation equipment for the management and display of AIS ASM and AtoN

# Summary

AIS Application-Specific Messages (ASM) and AIS AtoN are used by some national competent authorities, ports and other stakeholders to improve navigational safety and increase situation awareness by augmenting and enhancing waterway safety information. Some other countries have completed trials or are undergoing trials of various ASM that broadcast important navigational information such as near real-time environmental, meteorological and hydrographical information, air gap, water level, ice route, area notices, etc.

AIS AtoNs are still being trialled in some countries, but others have deployed them as temporary or permanent aids. AIS AtoNs can be physical, synthetic or virtual.

The shore side of the AIS ASM broadcast appears to be well structured, with transmission equipment deployed and system capability for encoding and validating this digital service. However, it has been found that shipborne equipment often has limited technical capability in terms of management of the AIS ASM or AtoN messages, either issues with receiving, integrating, interfacing or displaying these ASM or AtoN symbol and information on the ECDIS, radar or other navigational display.

## Purpose of the document

In the short term, the purpose of this document is to seek national competent authorities feedback

1. To provide input regarding their experience with shipborne display management of AIS ASM and AtoN services broadcasted. In the case where they are not the main authority in their country, the task would be to seek input from this other authority.
2. Words to the effect “ how many authorities broadcast / have plans to broadcast ASMs

There is a need to get this in the next four to five weeks in order to consider if a proposal be submitted to IMO to make changes to the ECDIS Performance standard since IMO already has its review on its agenda for other purposes.

In the longer term, the purpose of this document is to propose that IALA gather on a regular basis, in order to analyse and share trends, the state of the AIS ASM and AtoN implementation worldwide on a permanent or trial basis. Moreover, such information can aid IALA in understanding any justification for not pursuing further deployment of AIS ASM and AtoN. An option that could be used to obtain this information is to use the IALA questionnaire.

## Related documents

IMO SN.1/Circ.289 - Guidance on the Use of AIS Application-Specific Messages

IMO SN/1.Circ 290 - Guidance For The Presentation And Display Of AIS Application-Specific Messages Information

IMO SN.1/Circ. 227 - Guidelines for the Installation of a Shipborne Automatic Identification System (AIS)

IMO SN.1/Circ.243 – Guidelines for the presentation of navigation-related symbols, terms and abbreviations

IEC 62288 - Maritime navigation and radiocommunication equipment and systems – Presentation of navigation-related information on shipborne navigational displays – General requirements, methods of testing and required test results

# Background

After about two decades of the introduction of AIS ASM and AtoN, the Minimum Keyboard Display (MKD) is still the only minimal requirements for displaying these messages on board vessel. The obligation to have a shipborne AIS manage all these AIS messages and input them on a the ship navigational systems for instantaneous display is not considered by IMO at this time, although the e-Navigation Strategic Implementation plan does mention the need for improvements. Some countries, such as Canada, have proceeded with numerous investigations of the shipborne displaying and it was found that most of the AIS ASM are not present on the ECDIS and/or radar (if applicable). The Met/Hydro (FI31) was one of the only message available in some of the investigated systems. The AIS AtoN had a better availability ratio but there was some discrepancies in the displayed symbol.

The most consistent systems to display these AIS ASM and AtoN were non internationally regulated equipment, such as Portable Pilot Unit (PPU) carrying Electronic Charting System (ECS) carried by pilots when they board SOLAS vessels. Some non SOLAS vessel such as tugs, barge and smaller vessels, for the most part, have better AIS ASM and AtoN management capability and display because of their use of ECS. This indicates that ECS manufacturers are more proactive in responding to user needs in order to maintain the competitiveness of their products.

# Discussion

It is necessary to investigate the extent of adoption of AIS ASM and AtoN to ascertain if we risk a situation where national authorities might decide not to use AIS ASM or AtoN, both very valuable tools, because it is known to be underused or not available on the ship side. Authorities may consider this as a limiting factor since they have no guarantee to have full penetration of this service to SOLAS vessels. If this risk is realized, it may necessitate reviews of the need to modernize with newer systems such as VDES, NAVDAT and other modern communication services.

The fact is that there will still be an obligation on shore authorities to maintain some legacy services and frequencies due to this uncertainty, which may only prolong any efforts in modernizing and moving into full e-Navigation mode. The investment necessary to offer new AIS services, while at the same time maintaining older system could be too costly for some administrations. These uncertainties may lead to a lack of harmonization, which is contrary to the objectives set forth by IMO’s e-Navigation initiative and reduce the expected efficiencies on many fronts; such as icebreaking, search and rescue, marine mammal protection, air gap clearance, route broadcast and exchanges, environmental response, area notices, etc.

An inconsistent implementation of operational services and the shipborne users ability to utilize these risk bringing in a greater lack of uniformity among vessels operating in the same sea area with some crews being able to have a live display of the situation as it unfold and others needing to rely on the traditional methods of reading the coordinates on the MKD as it comes out and plotting them in the ECDIS and/or the radar. This administrative burden may impact situational awareness and ultimately safety of life at sea.

# Action requested of the Committee

The Committee is requested to:

1. Note this paper
2. Discuss the necessity of better documenting the AIS ASM and AtoN implementation efforts of national administrations around the world.
3. Discuss the necessity of better documenting the AIS ASM and AtoN Shipborne management capability around the world.
4. Develop a short survey …etc

1. Input document number, to be assigned by the Committee Secretary [↑](#footnote-ref-2)
2. Leave open if uncertain [↑](#footnote-ref-3)