ENAV15 Input paper

Agenda item 10

Task Number

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AIS AtoNs – Revision of A-126

# Summary

## IALA Recommendation A-126 on AIS AtoNs was last revised in 2011. In 2013 the IMO Sub Committee on Safety of Navigation at its 59th Session (NAV 59) agreed a report on Policy and Symbols for AIS AtoNs, which included removal of the term ‘synthetic’. The reason was that, to the mariner, only the terms ‘Real’ and ‘Virtual’ are significant.

## Recommendation A-126 uses the term synthetic in many places, therefore it will need to be revised, as shown in the Annex, if it is to be consistent with the IMO Policy. However, the method of providing an AIS AtoN at the location of a physical AtoN by AIS broadcast from another location (formerly known as synthetic) is still used and has relevance to the service provider, so it may be helpful to retain the guidance on this in another document, such as a guideline.

## Several IALA Members have begun to use Virtual AtoNs, in a number of different ways, some not envisaged when the current documents were prepared. The IALA workshop on Virtual AtoNs was held in 2010 and it has been suggested that another workshop would be useful to discuss the developments in thinking and technology that have taken place since. This will probably be proposed by ARM, but ENAV would be expected to play an important part in it.

## Purpose of the document

The Committee is invited to consider:

- the proposed revisions to Recommendation A-126, shown in the Annex;

- whether there is a need to retain guidance on synthetic deployment of AIS AtoN;

- the proposal for another IALA Workshop on Virtual AtoNs.

## Related documents

IALA Recommendations A.126 and O-143; IALA Guideline 1081.

**ANNEX**

Suggested revisions to A-126

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**4.2 Real and Virtual AIS AtoN**

An AIS AtoN can be implemented in two ways, Real and Virtual.

For Virtual AIS AtoN reference should be made to IALA Recommendation O-143, and to IALA Guideline 1081.

4.2.1 Real AIS AtoN

A Real AIS AtoN Station is an AIS station located on an AtoN that physically exists, or broadcast from another location, but appearing on a display at the location of a physical AtoN.

4.2.2 Virtual AIS AtoN

A ‘Virtual AIS AtoN’ is transmitted as a Message 21 for an AtoN that does not physically exist.

When a Virtual AIS AtoN is used, the AtoN symbol or information would be available for

presentation to a mariner, even though there is no real AtoN such as a buoy or beacon. A base station or AtoN station would broadcast this message.

The ‘Virtual AtoN Flag’ in Message 21 would be set to 1, to clearly identify this as a Virtual AIS AtoN.

An example of where Virtual AIS AtoN could be useful is the marking of hazards to navigation on a temporary basis (see IALA Recommendation O-133, Emergency Wreck Marking), until more permanent AtoN can be established.

**4.3 MMSI numbers for AIS AtoN**

4.3.1 MMSI numbers for all AIS AtoN

All AIS AtoN Stations should have a radio licence.

All AIS AtoN Stations must include a Maritime Mobile Service Identity (MMSI) number in its own transmissions. The MMSI is a unique identifier issued by the appropriate national MMSI issuing authority. All AIS AtoN MMSI numbers, as defined in ITU-R M.585-5, are of format 99 followed by a three-digit MID followed by a four-digit unique identifier. The MID identifies the country that issues the VHF licence for the AIS AtoN Station. The four-digit unique identifier starts with 1 (99MID1XXX) for real AtoN Stations and starts with 6 (99MID6XXX) for virtual AtoN Stations.

4.3.2 MMSI numbers for Virtual AIS AtoN

Each Virtual AIS AtoN must have a unique MMSI number. The Repeat Indicator in Message 21 is used to indicate that the message is broadcast from another location i.e. not the location given in the message 21.

*Table 2 Summary of MMSI and Virtual AIS AtoN flag settings*

|  |  |  |
| --- | --- | --- |
| Type | MMSI  (ITU-R.M585-5) | Virtual AtoN Flag  (ITU-R. M1371-4) |
| Real(1) | 99MID1XXX | 0 |
|  |  |  |
| Virtual(2) | 99MID6XXX | 1 |

Notes:

1 According to ITU-R.M585-6, the name of type is *Physical AIS AtoN*.

2 According to ITU-R.M1371-4, the virtual AtoN information is virtual/pseudo AtoN.

4.3.3 FATDMA Reservations

FATDMA reservations are required for Type 1 and Type 2 AIS AtoN Stations. Additionally a Type 3 AIS AtoN Station may use FATDMA.

FATDMA slots should be coordinated by national competent authorities according to IALA

Recommendation A-124 Annex 14. Individual slots allocations for AIS AtoN Stations require

transmission of a message 20 in the coverage area. This can be transmitted by an AIS station that is capable of control of the VDL.

Efficient use of the FATDMA allocations can be improved by having several buoys in the same area using the same slots but in different frames. For example 3 buoys, each with a 3 minute reporting interval, in the same area could be configured such that Buoy A transmits in frames 0, 3, 6, … Buoy B transmits in frames 1, 4, 7,…. and Buoy C transmits in frames 2, 5, 8,…. all using the same slots.

**4.9 Marking of off-shore wind turbines.**

Refer to IALA Recommendation O-117, ‘The marking of off-shore wind farms’. The extremities of the wind farm should be identified by AIS. The use of virtual AtoN AIS in this application would reduce the number of AIS AtoN Stations needed to mark a wind farm.

AIS may be used to mark only the most significant individual wind turbines of a wind farm, e.g. those wind turbines at a corner position, or at the change of direction of a line of wind turbines by utilising Message 21.

An AIS AtoN may also broadcast an Application Specific Message, such as specified in IMO

SN.1/Circ.289 to indicate the area in which wind turbines are located, during their construction.

Note: AIS AtoNs marking wind turbines are referred to here as Virtual AtoNs because the turbines themselves are not AtoNs.