

AIS Aids to Navigation report messages in Inland waterways

25.06.2015.

Aid to Navigation



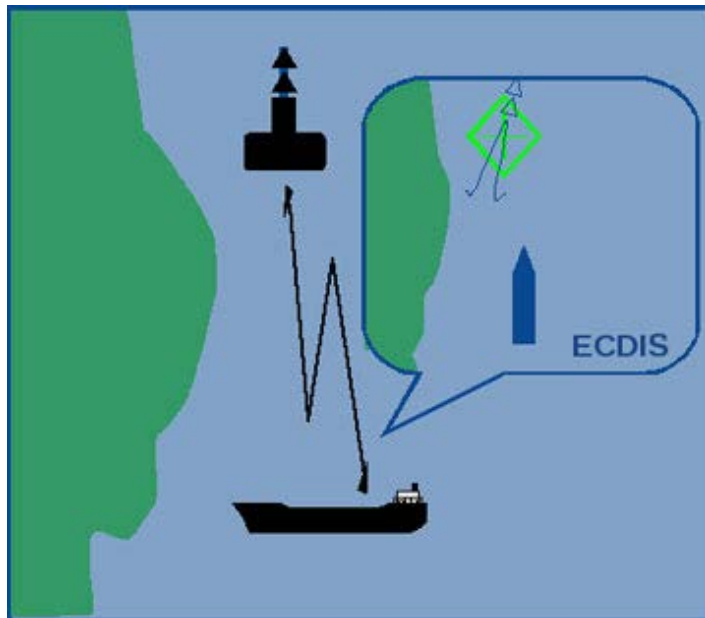
IALA's definition of Aid to Navigation

The term 'Marine Aid to Navigation' means a device, system, or service, external to a vessel, designed and operated to enhance safe and efficient navigation of all vessels and/or vessel traffic

AIS Aid to Navigation

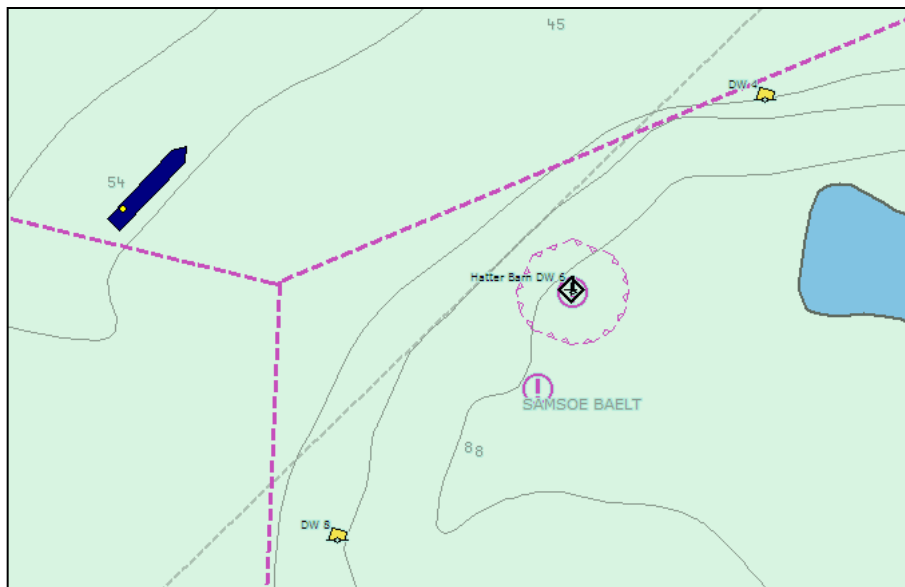
- AIS provides position, identity and other navigation data of a ship
- In maritime AIS is also used to provide information for emphasizing classical aids to navigation for the marking of buoys, wrecks, wind farms, etc.
- Special AIS Aids to Navigation message (AIS AtoN) transfers position, type of AtoN as well as information if the buoy is on the required position or not (off position indicator).
- AIS AtoN message can be either transmitted by a specific AIS AtoN station mounted on a buoy, wind farm or lighthouse or by an AIS shore station

AIS Aid to Navigation

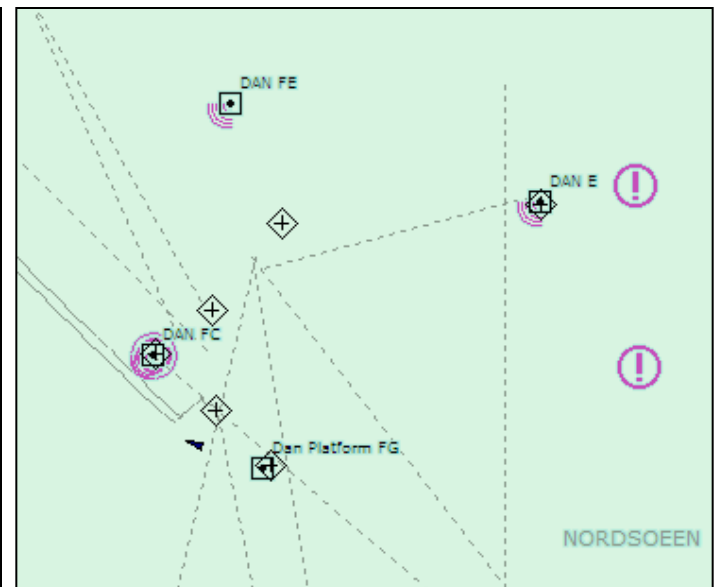


How to see an AIS AtoN?

AIS AtoN can be displayed on an ECDIS on board of a vessel



AIS AtoN to mark a lighthouse



AIS AtoN on windfarms

AIS Aid to Navigation information

The primary purpose of an AIS AtoN Station is to promote and enhance safety and efficiency of navigation by one or more of the following:

- Providing a positive and all-weather means of identification;
- Transmitting accurate positions of floating AtoN;
- Indicating if a floating AtoN is off position;
- Provide additional AtoN capability through the use of Virtual AIS AtoN, where installation of physical AtoN is technically or operationally difficult;
- Enable timely/temporary marking of new hazards (fixed or dynamic) using Virtual AIS AtoN.

Information provided by AIS AtoN

- Monitoring the status of an AtoN;
- Tracking an AtoN that is off position;
- Identifying ships involved in collisions with AtoN;
- Gathering real-time information on the 'state of health' of an AtoN; and
- Remotely controlling changes in AtoN parameters;
- Provide statistics on reliability of AtoN;
- Extend the coverage of AIS monitoring.

AIS Aid to Navigation

- **Real AIS Aids to navigation**

A Real AIS AtoN Station is an AIS station located on an AtoN that physically exists

- **Synthetic AIS Aids to navigation**

A Synthetic AIS AtoN is where the AtoN message is transmitted from a remote AIS station.

- **Virtual AIS Aids to navigation**

A 'Virtual AIS AtoN' is transmitted as AIS AtoN message for an AtoN that does not physically exist. presentation only on electronic chart, even though there is no real AtoN such as a buoy or beacon.

Information contend of AIS AtoN

- Type of AtoN;
- Name of the AtoN;
- Position of the AtoN;
- Position accuracy indicator;
- Type of position fixing device;
- On/Off position status;
- Real, Synthetic and Virtual AtoN identification;
- Dimension of the AtoN and reference positions; and
- Status of the AtoN systems.

Prerequisite for the use of AIS AtoN

AIS AtoN information require certain equipment on board and on the AtoN respectively on shore

On board:

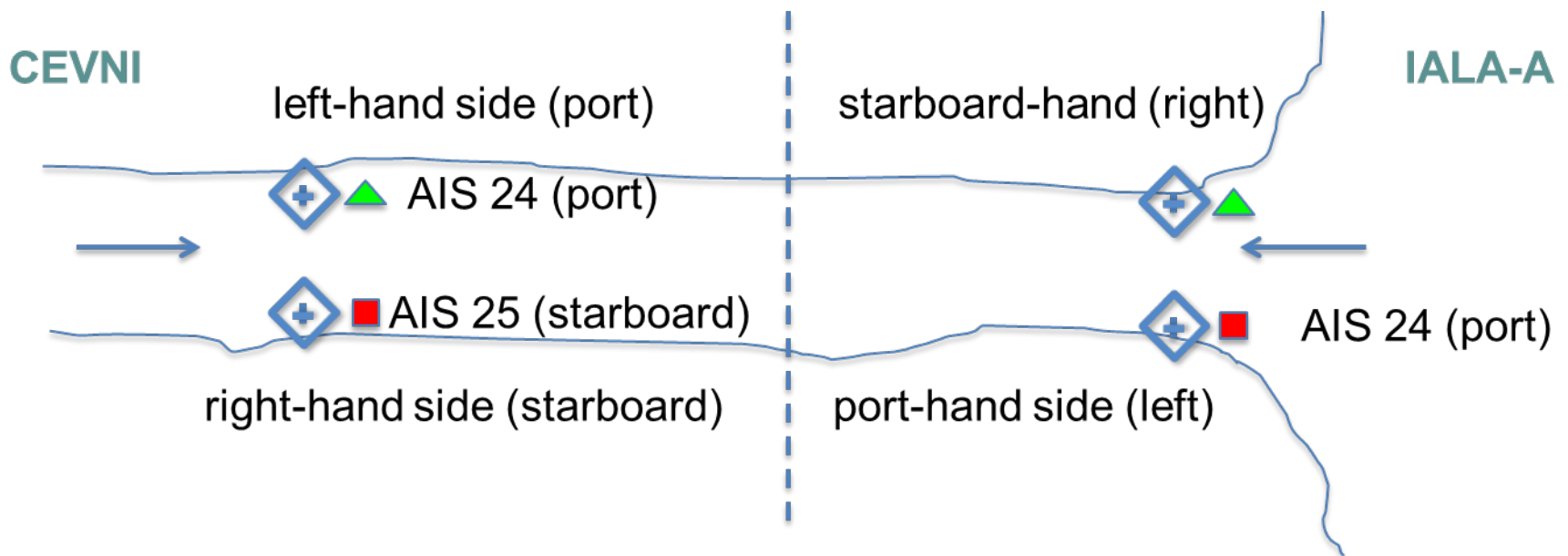
- Inland AIS station
- Inland ECDIS in navigation mode
- Capability to display the AtoN information

On AtoN / shore

- AIS AtoN station transmitting the AtoN message
- Requirements regarding availability and reliability

Usability of maritime AIS AtoN message in inland navigation

The maritime AIS message 21 is based on the IALA buoyage system which is different from the buoyage system used in inland navigation (CEVNI buoyage system)



Conclusion / Recommendation

Real AIS Aids to navigation

The use of AIS AtoN messages in combination with real buoys may have benefits both for the skippers and administrations. However it has to be considered that not all vessels might be equipped to display AIS AtoNs. Further the availability and reliability of the AIS information cannot be guaranteed in all cases.

Conclusion / Recommendation

Real AIS Aids to navigation (2)

The usefulness of such a combined solution has to be investigated and decided case by case because it is depending on the local situation and conditions. Preconditions are the amendment of the standards as well as potential investments into the shore infrastructure and the onboard equipment.

Conclusion / Recommendation

Virtual AIS Aids to navigation

- The use of virtual AIS AtoNs as replacement for real buoys is not recommended because it doesn't seem feasible for the near future to equip the whole fleet including pleasure crafts with AIS and Inland ECDIS with heading devices. *In addition experiences must be gained about the safety risk and reliability of the entire system.*
- Still local tailor made solutions using virtual Aids to Navigation might be implemented.

Proposal

- The Inland ECDIS EG and VTT EG want to encourage further pilot implementation and testing of AIS AtoN applications in order to gain practical experiences. Further the expert groups recommend developing proposals for amending existing standards to ensure harmonised and sound implementation of AIS AtoNs.
- The Inland ECDIS EG and VTT EG strongly recommend waiting with implementation of AIS AtoN (apart from pilot projects) until common standards for inland navigation are available.

Thank you for your attention

