Document Revisions

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**IALA Guideline**

**X-???**

**On**

**The Marking and Use of Mobile Aids to Navigation**

**Edition 1**

**Date Issued**

Revisions to the IALA Document are to be noted in the table prior to the issue of a revised document.

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| **Date** | **Page / Section Revised** | **Requirement for Revision** |
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Considerations related to the marking of Mobile AtoN

# Introduction

Following the advancements in global technologies IALA is to develop a recommendation for its members, including guidance, on the marking of Mobile AtoN (M-AtoN), taking into account existing IALA guidance.

A M-AtoN shall be defined as ***a non-fixed or un-moored AtoN usually drifting with a course and speed or following weather or oceanographic conditions. (This will include meteorological conditions such as wind, tide and currents)***

***The term M-AtoN does not include a fixed or moored buoy, which has lost its mooring and consequently is drifting.***

# Uses of mobile aton’s

* Mobile ODAS buoys – Currents, weather etc.
* Drifting wreckage, incl. Containers, Debris
* Water quality & pollution monitoring (See attached PDF)
* Mobile guard zones; Convoy, Diving operations in open water, specific military exercises (Virtual)
* Identifying end of seismic survey / fishing lines
* Search & Rescue applications
* Special events, incl. Channel swimming, other needs
* Rapid deployment of AtoN, where time constraints exist (Virtual)

# Type of mobile aton

There are two types of M-AtoN that can be used depending on the task and the area involved. National Authorities should address or implement the best solution on a case by case scenario.

**Type of Mobile AtoN;**

* Physical
* Virtual

## Physical M-AtoN

When using physical M-AtoN, the following should be considered:

As a minimum requirement the M-AtoN should be lit (with characteristics yet to be

Identified by engineering committee);

-**Emergency Mobile Wreck Marker M-AtoN** –

(Propose: **Alternating Blue & White Light**, *flashing faster than fixed buoy*

– **Blue & White vertical lines** *to signify M-AtoN*)

Racon: **Uniform**=*You are running into danger*.

-**Special Mobile Mark M-AtoN** –

(Propose: **Yellow Light** should be chosen with a conspicuous characteristic. *(To be discussed)*

– **Yellow AtoN** to signify M-AtoN

Racon **Tango**=*Keep clear of me*

**Reflective markings**. Identification markings/numbers/owners

Special Mark: Yellow band of reflective material as per “*Recommendation E-106 – Use of retro-reflecting materials”*

**Wreck Mark**: To be created – Not included in *Recommendation E-106 – Use of retroreflecting materials.*

Proposal: White & Blue vertical stripes.

<http://www.iala-aism.org/products/publications/0607091214/use-of-retro-reflecting-material-on-aids-to-navigation-marks-within-the-iala-maritime-buoyage-system-e-106>

* Radar reflectors
* The integrity of the position of the mobile AtoN is better achieved if the M-AtoN is attached to the object it wishes to mark.

the possibility of the coastal state monitoring the M-AtoN;

recovery or disposable options; This must be completed & MSI broadcast.

the use of AIS to improve the capability of the mariner, and the coastal state, to

Identify and monitor the hazard, (GPS to track the buoy)

* Outside coastal state range, Satellite communications can be used.

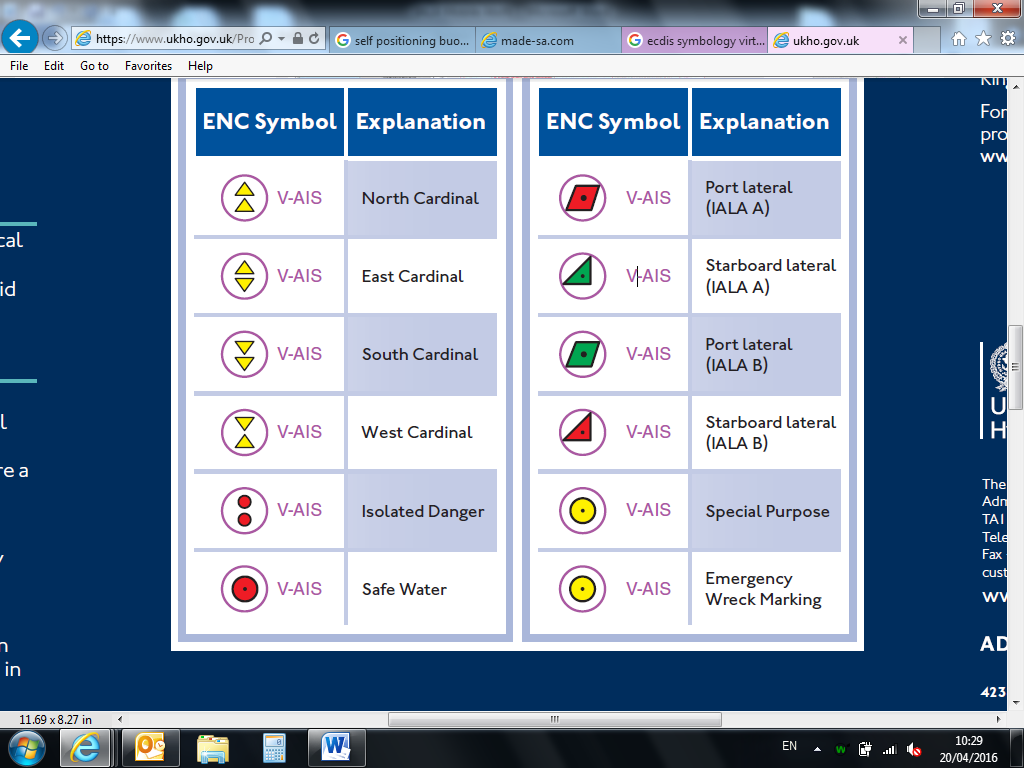
Battery capacity to comply with IALA Availability objectives;

For example: Category 1 – 99.8%

the requirement to self-update position, or manually update position as required.

The M-AtoN should be capable of broadcasting its location to craft in the vicinity.

 Requirement to establish new symbols for physical M-AtoN. – Propose: Circle with ‘M’? ie. M-AIS, as shown below;

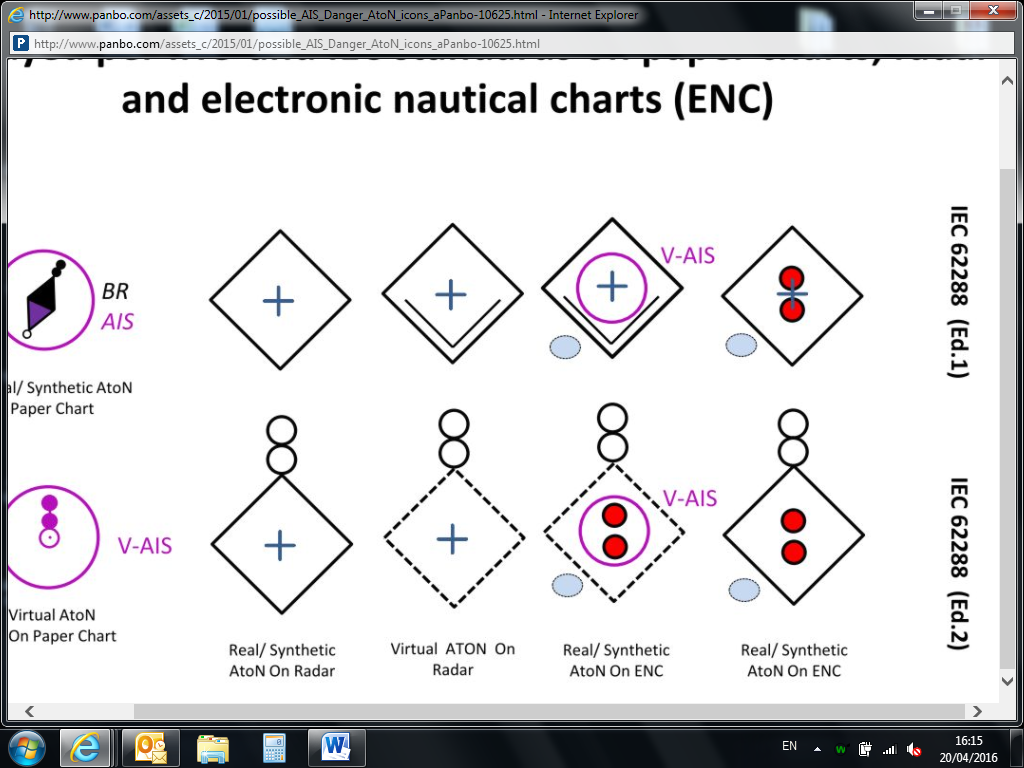
*Existing ENC Symbology (For example)*

V-AIS: Marks Virtual Fixed AtoN – Existing.

M-AIS: to mark Mobile AIS M-AtoN - Proposed

VM-AIS: to mark Virtual Mobile AIS M-AtoN - Proposed

M: to mark physical Mobile AtoN – Proposed



* To reduce the risk of transporting or spreading invasive species which may be attached to the M-AtoN, Internationally recognised anti-fouling coatings need to be applied. (when transiting between different maritime [protected] areas)

## Virtual AIS mobile AtoN

When using virtual AIS mobile AtoN, the following should be considered:

 To be used, when absolutely required (to avoid clutter/unnecessary use) – restricted use – Approved by a competent authority?

timeline; how fast is the need to deploy an AtoN – Virtual deployment is rapid & can be used for an infinite time.

limitation of VHF coverage (until satellite provided virtual AIS is developed or uses satellite systems);

suitability for the marking of oil slicks in conjunction with existing satellite monitoring

Systems;

* the integrity between the actual positions and that of the virtual mobile AtoN – The need to update as required.

the requirement to establish new AIS symbology for mobile AtoN. – Diamond with ‘VM’? As shown above.

* Liaise with IHO to have S101 standardisation of symbols.

## VHF Data Exchange System (VDES)

VDES is still in development & may be the globally interoperable key to the future introduction of e-navigation. Its capability of higher speed digital data exchange with potential for a worldwide coverage may pave the way for implementation of e-navigation and modernisation of GMDSS.

Due to the high complexity of the integration of both terrestrial and satellite aspect of the VDES, together with the need to have a 100% certainty that VDES will not interfere with AIS, a number of studies are in progress.

VDES could be utilised with M-AtoN in the future for a number of tasks.

Since VDES has higher speed and robust data exchange capability with potential for worldwide coverage, there may be numerous benefits to AtoN services and VTS.

* Virtual M-AtoN could be deployed beyond a limit of VHF range such as the high seas, or remote/polar areas.
* VTS could exchange more comprehensive data with ships than the present AIS can provide.
* Machine readable digital data will enable a navigational display to portray navigational safety information graphically, assisting to overcome language barriers between VTS operator and mariners.
* AtoN authorities will be able to develop various applications for their use and make advanced services available to ship using VDES.

# Deployment:

## Using Surface or air assets.

Physical M-AtoN could be deployed using surface ships or aircraft depending on the intended use. I.e. Oil slick/pollution.

## Promulgation.

## The affected State shall promulgate the particulars of the M-AtoN by use of all appropriate means, including the appropriate nautical publications & Charts. (IMO)

# Types of MBS Mark to be used

Independent of the method chosen, there are different types of marks, prescribed in the MBS,

which can be used for the marking of drifting wrecks. The coastal authority could choose between:

Special Mark;

Emergency Wreck Marking Buoy.

# Monitoring and reporting

Coastal state authorities need to take special care with position monitoring and position integrity, as it pertains to drifting hazards and obstructions, especially when marking them with a virtual M-AtoN.

## Monitoring

The M-AtoN could be monitored by:

* the Coastal State within its VHF coverage (especially if using AIS);
* assets in the vicinity of the M-AtoN, especially when M-AtoN are AIS or SART capable, thereby increasing the range at which the Coastal State is able to meet its responsibilities.
* GPS
* Satellite communication systems

## Reporting

The M-AtoN should be reported when it:

* is deployed;
* leaves a Coastal State’s coverage or drifts into the waters of an adjacent responsible Coastal State; (Political consideration MOU)
* is considered by the Coastal State that positional information requires updating;
* Should be self-reporting to all vessels in the vicinity; (light/racon/AIS)
* is removed / discontinued.

## Maritime Safety Information

The broadcast of Maritime Safety Information is fundamental in the use & reporting of M-AtoN and is not superseded by the marking of the drifting wrecks. It is vital the link between M-AtoN & Maritime Safety Information reporting is carried out.

# Issues of responsibility

## Inability to monitor

A Coastal State or owner losing the ability to monitor the M-AtoN that it has deployed, nonetheless retains responsibility until either:

* The M-AtoN is retrieved or sinks;
* The responsibility is assumed by another operator or Coastal State.

## Marking

In accordance with article 10 of the Wreck Removal Convention (IMO document LEG/CONF.16/19 dated 23 May 2007), the registered owner of the ship responsible for the wreck shall be liable for the costs of marking it.

In all other cases, except wreck marking, as per proposals mentioned previously.



