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| IALA Guideline |

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USE OF MOBILE ATON

Edition 1.0

Document date

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

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# INTRODUCTION

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# .Scope

This guideline should define what a MAtoN is, as well as guide National members and Authorities in the instances where it can be used, whose responsibility is it to use it, how can drifting and guided hazards be marked, and other pertinent guidance. While this guideline is not intended to cover all aspects and uses of MAtoN, it is intended to provide useful information, benefits, criteria for application and examples.

Appropriate IALA sources and references should be consulted for additional relevant information.

# Definition

A MAtoN shall be defined as a non‐fixed or un‐moored AtoN; but does not include a fixed or moored buoy that is adrift from station, temporary or otherwise. AMRD are not recognised as MAtoN.

Note: MAtoN would not generally be used for unmanned vehicle applications.

# typical uses

Mobile aids to navigation maybe used, but not limited to, the following applications:

* Mobile Ocean Data Acquisition System (ODAS) (eg. currents, weather)
* Drifting wreckage (eg. containers, debris)
* Water quality & pollution monitoring
* Mobile guard zones & convoys
* Underwater operations
* Enhance navigational safety during military operations (e.g. no sail zones during minesweeping, target exercises)
* Identifying end of drifting lines (e.g. seismic survey lines and long fishing lines)
* Towed and deployed applications (eg. cable laying)
* Pollution containing and retrieval
* Search & Rescue applications
* Special events (eg. channel swimming).

# Type of mobile aton

MAtoN can be either physical or virtual. Competent authorities should determine the most appropriate type of MAtoN for the application, based on an ongoing risk assessment process.

## Physical MAtoN

A physical MAtoN will usually fit the description of a special mark with MAtoN specific characteristics. Depending on the application, the size and shape of the floating object will vary based on the way in which it is deployed. Physical MAtoN may also be used to mark a moving object, for example the extremity of a towed array  from a seismic survey vessel. Physical MAtoN shall be designed to meet the following specifications for the light characteristics:

The committee needs to consider the following:

1. Is a top mark necessary(or even possible), and can a top mark be used on something that is moving?
2. Should a coloiured buoy be necessary or optional based on the expectation that the buoy will move
3. If a MAtoN is fitted to a physical object, such as the Ocean Cleanup device, will it have a top mark and colour scheme, or is a light and AIS AtoN basestation sufficient?
4. Can the design and make up of a physical be prescribed based on the range of ways that one ‘may’ be deployed?

Table 1- characteristics

|  |  |
| --- | --- |
| Daymark | Special Mark |
| Light (when fitted) |  |
| Colour | Yellow |
| Rhythm | (  Flicker 1s Eclipse 0.7s Repeat Flicker 1s Eclipse 0.5s Normal Fl 1s Eclipse 0.5s Normal Fl 1s Eclipse 3s. (Flicker 5hz) Minimum range 3NM |
| AIS MAtoN | ?? Considering the information provided IALA presumes that MAtoN will use the same numbering scheme as AtoN (9192M3I4D516X7X8X9 or 9192M3I4D566X7X8X9). |

(This table needs discussion about alternative flash characters, colours for day mark, top marks etc.)

Additional considerations:

* Radar reflectors
* Racon ( morse “T”(one long dash) = Keep clear of me
* Reflective markings in accordance with R0106 on Retroreflecting material
* The MAtoN position integrity is better achieved if it is attached to the object it wishes to mark

## Virtual MATON

A virtual MAtoN is an electronic marker broadcast by an AIS transponder. and should have the capability of updating the position of whatever it is marking.

Virtual MAtoN should be approved and strictly controlled by the competent authority, and implemented on the principles contained within IALA Recommendation O-143 on Virtual Aids to Navigation

(Consider safety related messaging, Geofencing, Course and Speed, Automatic updating of relevant MSI).

# AIS MAtoN programming

An AIS MAtoN is considered to be an AtoN and is programmed using the same coding information as prescribed in ?????????

An AIS MAtoN may have a Safety related Message incorporated within the AIS messaging….???

# Deployment

## Physical MAtoN

The National Authority should define the appropriate method for the installation and deployment of physical MAtoN. Special considerations have to be taken into account regarding the appropriate intended use of the MAtoN to ensure it is marked adequately to a reliable standard (i.e., datum markers for search and rescue, icebergs, Oil slick, or pollution barriers, etc.).

## Virtual Maton

Deployment of virtual MAtoN should conform to IALA Guideline 1081 on virtual AtoN

## Promulgation

National Authorities or the appropriate jurisdiction should promulgate the particulars of the MAtoN by use of all appropriate means. This can be done through the appropriate recognised marine publications to notify the mariner the official situation that a MAtoN is deployed and therefore in use, as well as other appropriate methods of promulgating Maritime Safety Information (MSI).

Hazardous wrecks should remain appropriately marked until the competent authority has assessed that information concerning the new danger has been sufficiently promulgated, or there is no longer a risk to safety of navigation.

Promulgation should include details of the MAtoN, including:

* Type of MAtoN provided;
* Light
  + Colour
  + Flash Character
  + Nautical Range
* A virtual geographic boundary of movement activity to determine predicted mobility of position change taking into consideration the following parameters;
  + Heading
  + Speed
  + Predicted current
  + Predicted wind
  + Other characteristic which would help determine the predicted path of the hazard being marked by the MAtoN
* Day Mark.
* Rules, regulations, requirements, and procedures.
* Size, Shape, and intended identification of the hazard that is being marked with a MAtoN.
* Duration the MAtoN is in effect (eg. Start and End timings).
* Appropriate Nautical Chart/s number in which MAtoN is to be deployed, as a reference point only.

One of the main tasks for a VTS is to provide information to the mariners passing in the VTS area. Therefore, when a MAtoN is planned to be deployed in a VTS area, it is important to liaise and cooperate with the VTS Authority at an early stage in order for the VTS to have correct information to give to the traffic in the VTS area. Such information may include, but not be limited to:

* Availability of navigational aids (including MAtoNs);
* Limited manoeuvrability in the fairway, due to deficiencies of navigational aids;
* Any other potential hindrances that may impose restrictions on the navigation of the vessels.

It should be noted that a VTS also may be tasked to provide MSI.

# Monitoring and reporting

## Maritime Safety Information

The promulgation of MSI is considered fundamental in the use and reporting of MAtoN, and it is not superseded by the marking of the drifting wrecks.

## Monitoring

The MAtoN should be monitored by:

* Physical inspection;
* Remote monitoring (i.e., radar, satellite, GSM, AIS, etc.);
* Assets in the vicinity of the MAtoN, that can provide visual verification to the MAtoNs position;
* If applicable National Authorities may request vessels to report visual sightings of the MAtoN to verify its true position in the event that National Authorities lose the relative and accurate position of the MAtoN;
* Radar/Racon;
* National Authorities need to take special care with position monitoring and integrity, as it pertains to drifting hazards and obstructions, especially when marking them with a virtual MAtoN.

## Reporting

The MAtoN should be reported when it:

* Is deployed;
* Is amended;
* Leaves its promulgated coverage or drifts into the waters of an adjacent responsible National Authority (Political consideration MOU);
* Is considered by the National Authority that positional information requires updating;
* Where at all possible it should be self-reporting to all vessels in the vicinity (light/racon/AIS, etc.);
* Is removed / discontinued/damaged.

# Issues of responsibility

## Designated Responsibility

Movable Hazards pose a risk to safe navigation. Therefore, the person, organisation, or governmental body of a moving hazard being towed, or the person, organisation, or governmental body responsible for causing a independent moving hazard is responsible to identify the hazard with an appropriate MAtoN. If the moving hazard is caused by a natural phenomenon then it is the responsibility of the National or Competent Authority responsible for that jurisdiction of waterway to identify the hazard.

The National Authority should advise the person, organisation, or governmental body who is responsible for marking their moveable hazard the correct standards and methods to identify the hazard with a MAtoN.

## Inability to Monitor

A National Authority or owner losing the ability to monitor the MAtoN it has deployed retains responsibility until either:

* The MAtoN is retrieved, sinks, or is placed at no danger to mariners;
* The responsibility is assumed by another operator or National Authority.

## Costs of Wreck 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.

# References

* + IALA Recommendation O-139 on The Marking of Man-Made Offshore Structures
  + IALA Recommendation E‐110  RHYTHMIC CHARACTERS OF LIGHTS ON AIDS  TO NAVIGATION
  + IALA Recommendation O-143 Virtual Aids to Navigation
  + IALA Recommendation ##### Mobile Aids to Navigation
  + IMO document LEG/CONF.16/19 dated 23 May 2007
  + IALA Guideline on Marking of Drifting Wrecks
  + *ITU document 5B/411-E November 2017*

# Acronyms

AIS Automatic Identification System

MAtoN Mobile Aid(s) to Navigation

MSI Maritime Safety Information

VHF Very High Frequency

MBS Maritime Buoyage System

MOU Memorandum of Understanding

ODAS Ocean Data Acquisition System