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| IALA Recommendation |

O-130

Categorisation and Availability Objectives for Short Range Aids to Navigation

Edition 3.0

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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| Date | Page / Section Revised | Requirement for Revision |
| April 2011 | References updated | Periodic review |
| April 2016 | Entire document | Reformatted and restructured according to new IALA document structure and template |
| April 201 | Section 4 moved to IALA Guideline 1004 on Service Levels | Restructuring according to new IALA document structure |
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THE IALA COUNCIL

**RECALLING** Article 8 of the [IALA] Constitution regarding the authority, duties and functions of the Council,

**NOTING** that one of the aims of the Association is to foster safe, economic and efficient movement of vessels by the improvement and harmonization of aids to navigation world-wide,

**NOTING ALSO** that IMO SOLAS Chapter V, Regulation 13, includes the requirement that Contracting Governments undertake to arrange for the establishment and maintenance of such aids to navigation as, in their opinion, the volume of traffic justifies and the degree of risk requires,

**NOTING FURTHER** that that IMO Resolution A.953(23) identifies the required signal availability for world-wide radionavigation systems and that other IALA Recommendations identify availability requirements for hyperbolic radionavigation and differential GNSS augmentation systems,

**RECOGNISING** that IALA Recommendation E-105 On The Need to Follow National and International Standards advises in Recommendation (2), that purchasing authorities include reliability and quality requirements in their specifications when procuring Aids to Navigation equipment,

**RECOGNISING ALSO** the importance of describing the management objectives for the operational performance levels of Short Range Aids to Navigation provided to mariners and the need to provide guidance to National Members on suitable and realistic levels of operational performance,

**RECOGNISING FURTHER** that it is possible to identify the required level of availability during the design phase of Short Range Aids to Navigation by taking into account the known theoretical relationship between individual component reliability and system availability,

**HAVING CONSIDERED** the advice of the Aids to Navigation Requirements and Management Committee provided to Council at its 64th Session,

**ADOPTS** Recommendation O-130 Revision 3 on Categorisation and Availability Objectives for Short Range Aids to Navigation, and

**INVITES** Members and marine aids to navigation authorities worldwide to implement the provisions of the Recommendation and to categorize their Aids to Navigation in accordance with the categories set out in the Annex to this Recommendation,

**REQUESTS** the Aids to Navigation Requirements and Management Committee to keep the Recommendation under review and to propose amendments as necessary.

1. Categorisation and Availability Objectives for Short Range Aids to Navigation
2. INTRODUCTION

Availability of Aids to Navigation (AtoN) has traditionally been linked to the size and complexity of the individual AtoN or system of AtoN concerned – for example, major lighthouses have been rated as Category 1 and light buoys as Category 3. While this correlation has been relevant in the past for AtoN system of AtoN changes occurring in navigational safety requirements and in the technologies used in AtoN have indicated a need to review the basis on which availability is defined.

SOLAS Chapter 5 defines that Competent Authorities should provide aids to navigation relevant to volume of traffic and degree of risk.

The adoption of contemporary risk management practices enables AtoN management authorities to define, preferably in consultation with mariners and other stakeholders, the availability requirements for the AtoN or system of AtoN concerned, and to assess its current and future categorisation based upon its navigational significance. The resulting categorisation of the AtoN or system of AtoN may result in some higher category AtoN being downgraded and, alternatively, the potential for lower category AtoN to be upgraded.

Whenever AtoN is mentioned in this document it shall also mean a system of AtoN.

* 1. SCOPE

This document provides a method to categorize and further provides availability objectives for each category of AtoN or System of AtoN. It does not consider other AtoN, such as radio-navigation systems (GNSS or DGNSS) or Vessel Traffic Services (VTS).

* 1. CONSIDERATIONS

The categorisation of AtoN should be based on a risk assessment methodology that assesses the navigational significance of an AtoN or system of AtoN, taking into consideration factors such as:

* waterway significance;
* areas of environmental sensitivity;
* nature and type of cargo;
* nature and type of navigation;
* traffic density;
* mix of AtoN and their coverage;
* climate (ice, fog etc.);
* national concerns and priorities.
  1. ASSESSMENT ASPECTS

The categorisation of an AtoN or system of AtoN also depends on aspects such as:

* existing technology;
* logistics;
* redundancy;
* accessibility;
* other navigational services available to the mariner including, pilotage, VTS, GNSS.

Categorisation should be determined or confirmed, wherever practicable, in consultation with mariners and other stakeholders who use the particular short range AtoN or system of AtoN.

Formal procedures for collecting, processing and recording availability data should be established.

1. CATEGORIES

There are three categories of AtoN, reflecting their navigational significance.

* 1. CATEGORY 1

An AtoN or system of AtoN that is considered by the Competent Authority to be of vital navigational significance.

For example, lighted AtoN and racons that are considered essential for marking landfalls, primary routes, channels, waterways, dangers or the protection of the marine environment.

* 1. CATEGORY 2

An AtoN or system of AtoN that is considered by the Competent Authority to be of important navigational significance.

For example, it may include any lighted AtoN and racons that mark secondary routes and those used to supplement the marking of primary routes.

* 1. CATEGORY 3

An AtoN or system of AtoN that is considered by the Competent Authority to be of necessary navigational significance.

* 1. OVERALL

The categorisation of a system of AtoN is independent of the rating of the individual aids within the system. Such a system can be composed of various Categories of AtoN.

For example, a system rated as Category 2 could include individual AtoN that are rated Category 1, 2 or 3. A buoyed channel rated Category 2 may have an entrance / fairway buoy rated Category 1.

1. AVAILABILITY OBJECTIVES

The table below provides overall availability objectives for each category of AtoN or System of AtoN as provided by the Competent Authority.

1. Categories of percentage availability

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| --- | --- | --- |
| CATEGORY | AVAILABILITY  OBJECTIVE | CALCULATION PERIOD |
| 1 | 99.8% | Availability Objectives are calculated over a continuous three-year period, unless otherwise specified |
| 2 | 99.0% |
| 3 | 97.0% |

Calculation principles according to IALA Guideline 1035 on Availability and Reliability of Aids to Navigation.

The minimum availability of any individual AtoN should be 95.0%.

Where the availability of an individual AtoN consistently falls below 95.0%, consideration should be given to the discontinuance or replacement of that AtoN.

1. DEFINITIONS

*Suggested text:* The definitions of terms used in this IALA Guideline can be found in the International Dictionary of Marine Aids to Navigation (IALA Dictionary) at <http://www.iala-aism.org/wiki/dictionary> and were checked as correct at the time of going to print. Where conflict arises, the IALA Dictionary should be considered as the authoritative source of definitions used in IALA documents.

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| Short Range Aids to Navigation | All AtoN intended for use within visual, audible or radar range of the mariner. |
| System of AtoN | A group of complementary short range AtoN intended to collectively provide sufficient and timely information with which to safely navigate vessels within and through a waterway. |
| Availability | The probability that an AtoN or system of AtoN, as defined by the Competent Authority, is performing its specified function at any randomly chosen time. This is expressed as a percentage of total time that an AtoN or system of AtoN should be performing their specified function. |

1. ACRONYMS

ARM Aids to Navigation Requirements and Management Committee (IALA)

AtoN Aid(s) to Navigation

DGNSS Differential Global Navigation Satellite System

GNSS Global Navigation Satellite System

IALA International Association of Marine Aids to Navigation and Lighthouse Authorities - AISM

SOLAS International Convention for the Safety of Life at Sea (IMO 1974 as amended)

VTS Vessel Traffic Services