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| IALA Guideline |

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High Accuracy Systems

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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|  |  |  |
|  |  |  |

1 Introduction 5

1.1 Objective and Scope 5

1.2 Why High Accuracy Systems are needed 5

1.3 Structure of the document 5

2 HAS Maritime Performance Requirements and Applications 5

2.1 Maritime applicable regulation 5

2.2 High Accuracy applications 5

2.3 Performance parameters 5

3 High Accuracy Systems Available 5

3.1 Absolute positioning 5

3.1.1 DGNSS 6

3.1.2 RTK 6

3.1.3 PPP 6

3.1.4 Galileo HAS 6

3.1.5 … 6

3.2 Relative positioning 6

3.2.1 Laser ranging 6

3.2.2 Lidar 6

3.2.3 Ultrasonic Sensors 6

3.2.4 … 6

3.3 Integrity Concepts 6

3.3.1 Alarms concept 6

3.3.2 Positioning or Ranging Boundary concept 6

3.3.3 …. 6

4 HAS Interfaces 6

4.1 RTCM messages 6

4.2 … 6

5 HAS Processing 6

5.1 RTCM Corrections 6

5.2 Direct Ranging 6

5.3 … 6

6 Summary 7

7 Definitions 7

8 Acronyms 7

9 References 7

ANNEX A Detailed HAS positioning Processing 8

List of Tables

Table 1 Example of a table with the significant information in the first column 3

Table 2 Example of a table with the significant information in the first row 3

Table 3 Example of a table with coloured rows 3

Table 4 Example table 3

List of Figures

Figure 1 Example figure caption 3

Figure 2 Another example figure caption 3

List of Equations

Equation 1 Geographical range 3

Equation 2 Theory of Special Relativity 3

# Introduction

Introduce briefly the High Accuracy motivation in the maritime domain

## Objective and Scope

Define the objective and the scope of the current guidelines

## Why High Accuracy Systems are needed

Secondary or desk research about the increasing need of High Accuracy Systems in the maritime domain. It should be also agreed about what is understood by High Accuracy on the maritime domain.

## Structure of the document

# HAS Maritime Performance Requirements and Applications

Secondary or desk research about the maritime requirements for general navigation or specific operations where very accurate positioning is needed.

## Maritime applicable regulation

## High Accuracy applications

## Performance parameters

The performance of systems and services proposed for high‐accuracy positioning and ranging should be described unambiguously to enable the identification of suitable solutions in relation to specific needs.

# High Accuracy Systems Available

Chapter introduction. It will define the available technologies for a high accuracy (definition of what is meant by high accuracy <1m) positioning, how they works, their principles, their high level architecture, the information they require, their typical performances, their advantages and drawbacks…. Avoid those technologies whose performances do suits the maritime requirements. Include also a typical range of performances.

## Absolute positioning

Define those HAS technologies able to provide an absolute positioning

### DGNSS

### RTK

### PPP

### Galileo HAS

### …

## Relative positioning

Define those HAS technologies able to provide a very accurate relative positioning

### Laser ranging

### Lidar

### Ultrasonic Sensors

### …

## Integrity Concepts

This section will contain the available concepts or algorithms able to provide a certain level of integrity for the positioning computation. It will relates the concept or algorithms with the technology to be used.

### Alarms concept

### Positioning or Ranging Boundary concept

### ….

# HAS Interfaces

Define the standardised interfaced for each HAS to be used in maritime and how to decode that information.

## RTCM messages

## …

# HAS Processing

Overview about the positioning processing techniques. Provide a high level view, without too many formulas how the HAS information should be used after its decoding in order to obtain an absolute or relative positioning.

## RTCM Corrections

## Direct Ranging

## …

# Summary

Provide the key information provided within this guidelines

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| HAS technology | Information provided | Integrity concept | Interfaces | Processing | Performances |
| RTK |  |  |  |  |  |
| PPP |  |  |  |  |  |
| Galileo HAS |  |  |  |  |  |
| Laser ranging |  |  |  |  |  |
| … |  |  |  |  |  |

1. High Accuracy System summary

# 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.

# Acronyms

IMO International Maritime Organization (Acronym style)

# References

1. Abcd
2. Efgh
4. Detailed HAS positioning Processing

Detail the processing of each HAS technique in order to provide user positioning