



# **EUROPEAN HARMONIZATION PROCESS ON APPLICATION SPECIFIC MESSAGES FOR INLAND AIS**

**Edition 2.0**

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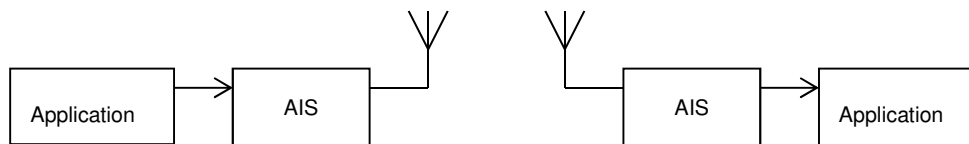
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### 1 INTRODUCTION

Similar to AIS for sea going vessels, also Inland AIS has the possibility for the transfer of Application Specific Messages (ASM).

AIS allows the transfer of ASM via the VHF Data Link (VDL) as a means of communication for external applications as specified in ITU-R M.1371. It will be a form of data exchange between externally connected users of two or more AIS stations. AIS will just function as the carrier of the information, the AIS stations involved act as dedicated modems.

The following picture illustrates the use of ASM.



In general there are the following modes of using ASM. Those modes can be handled by all types of AIS stations.

- 1 Addressed ASM (using AIS Message 6) which will be transmitted from any AIS station to one specific receiving AIS station.
- 2 Broadcast ASM (using AIS Message 8) which will be transmitted from any AIS station to all other receiving AIS stations within the receiving range.

In addition to the two general modes of ASM two additional modes are introduced in ITU-R 1371-4. Those new modes of ASM cannot be used by older (1371-3 or previous version) types of AIS stations which probably do not recognise received messages of these types. Both modes cannot be acknowledged.

- 3 Single slot ASM (using AIS Message 25) which can be addressed or broadcast from any AIS station.
- 4 Multiple slot ASM with Communication State (using AIS Message 26) which can be addressed or broadcast from any AIS station.

*Warning: Mode 3 and 4 are not commonly used by the majority of existing AIS mobile stations today and in the near future. Thus the use of those modes shall be avoided or restricted to special conditions. It is not recommended to use Mode 3 and 4 for the transmission of inland related information.*

For a description on the structure of ASM the ITU-R M.1371 refers. This includes also a guideline for creating functional messages. As described, there are two types of ASM:

1. International Functional Messages (IFM). They are maintained by international agreement for global use. This type can be sub-divided by
  - a. System applications related IFM which are part of AIS and designed to support AIS as system. They are maintained by ITU and published in ITU-R M.1371.
  - b. All other IFM which are maintained by IMO and published in IMO SN.1/Circ.289 (superseding SN/Circ.236 from 1 January 2013).  
IFM is recognised by Designated Area Code (DAC) = 1, followed by the Function Identifier (FI).
2. Regional Functional Messages (RFM). They are maintained by regional competent authorities. They can be used globally or in a defined area only. RFM is recognised by the DAC (based on the Maritime Identification Digits (MID) of the territory or geographical area of the responsible Administration). MID is assigned by ITU and is ranging from 201 till 799. The DAC is followed by an FI to identify a specific application for that particular region.

IALA is maintaining (with help of an internet application) an overview of RFM in use in order to facilitate the use of RFM globally.

Atop the IFM and RFM, a number of specific RFM are described for Inland AIS and are called '**Inland ASM**' in this document. They are recognised by DAC = 200 followed by the FI and described in the Vessel Tracking and Tracing Standard, as well as in the "Inventory of harmonised Inland AIS Application Specific Messages" maintained by the EU VTT Expert Group.

This document describes the aspects and consequences for the use of Inland RFM.

### **Inland ASM**

All Inland ASM are recognised by DAC 200.

Two different types of Inland RFM are identified:

1. System integrated Inland RFM. Only two Inland ASM are appointed to be integrated in the Inland AIS station: RFM 10 (Inland static data) and RFM 55 (Inland number of persons). Both should be processed and presented on the Inland MKD and forms an integral part of Inland AIS stations. Therefore they are included in the Inland AIS test standard and are maintained there.
2. All other described Inland ASM, including future new ones, together with IFM and RFM are transparent for the MKD and will be generated and/or output via the Presentation Interface (PI). Because they are not being an integrated part of the Inland AIS station, they are maintained by the VTT Expert Group.

The following, non-system integrated Inland ASM are available:

Inland ASM 19 Control Message  
Inland ASM 21 ETA  
Inland ASM 22 RTA  
Inland ASM 23 EMMA Warning (no longer supported)  
Inland ASM 24 Water level  
Inland ASM 25 Bridge Clearance  
Inland ASM 40 Signal status (no longer supported)  
Inland ASM 41 Signal Station (replacing Inland ASM 40)

All Inland ASM as described in this paragraph should be transmitted using AIS Message 6 or 8 as defined in the Inland AIS ASM inventory.

## 2 EUROPEAN HARMONIZATION PROCESS ON ASM FOR INLAND AIS

If for any reason a new Inland ASM is required, the following procedure should be done.

1. A request for the new Inland ASM should be addressed to the VTT Management team (composed from the chair and the two vice-chairs) using the Change Request template (see Annex) with at least the following information:
  - The competent authority who submits the request and point of contact
  - Name and description of the application
  - Type of Binary Message (Message 6 or 8 \*) for transmission
  - Content of the message (data fields, number of bits, accuracy, etc.)
  - Expected reporting frequency (load on the VDL)
  - Argumentation for request
2. The VTT Management Team will consider the operational requirements and, if the outcome is positive, ask advice of the VTT Expert Group.
3. The VTT Expert Group will consider the request on at least the following aspects
  - The technical feasibility of the request
  - Is the request real new or are there other existing RFM (international or inland) available which can fulfil the required functionality
  - what is the impact on the VDL
4. If the VTT Expert Group comes with a positive advice, it will be accompanied with a proposed message format, completely with FI and the necessary data fields, following the structure and guidelines as described in ITU-R M.1371. If the VTT Expert Group comes with a negative advice, it will be argued.
5. The VTT Management Team will take a decision. Both the submitter of the request and the VTT Expert Group will be informed.
6. If the request is honoured, the VTT Expert Group will take care of the documentation and will announce it to IALA for including the new Inland ASM to the IALA ASM Registry.

*\* Attention should be given to the fact that AIS Message 25 and 26 will not be recognised by all Inland AIS stations. For that reason these messages will not be supported for Inland AIS at this moment.*

### **Documentation of Inland RFM**

System integrated Inland ASM will be documented and maintained in the VTT Standard and incorporated in the AIS Test Standard.

All other Inland ASM will be documented and maintained in the Inland AIS ASM inventory and also published in the IALA ASM Registry.

## ANNEX

The following pages should be used to submit a new proposal for an Application Specific Message for Inland AIS to the VTT Management Team.

### Request for a new Application Specific Message for Inland AIS (Inland ASM)

Page 1 General information of submitter of the proposed application

Proposed name of the application	
Name and address of the submitting Competent Authority  Full address please for correspondence	
Point of contact of the submitting Competent Authority (name, e-mail, telephone) and position in the organisation	
Description of the proposed application	
Arguments for the submission of the proposal	

General remarks of submitter	

If you need more space to describe some of the required fields, please add additional pages.





Even if the new application is intended to be used in a limited area only, it is though recommended to apply for an Inland ASM in order to ensure future harmonisation and proper integration into external applications.

For new applications the “*guidelines for defining Application Specific Messages*” published by the VTT Expert Group.

**Request for a new Application Specific Message for Inland AIS (Inland ASM)**

Page 3 Specify data information of the proposed application

Which data fields should be transmitted in the new application? Please describe for each data element (parameter) as good as possible the range and accuracy of the required information.

Examples (taken from existing IFM's):

Parameter	Number of bits	Description
Longitude	25	Longitude in 1/1,000 min, $\pm 180$ degrees as per 2's complement (East = positive, West = negative). 181 = not available = default
Relative Humidity	7	Relative Humidity, in 1% steps. 0 - 100% 101 = not available = default 102 -127 (reserved for future use)

**Attention**

The amount of data which can be transferred with an ASM is very limited. For the capacity of an ASM, ITU-R M.1371 provides detailed information.

The use of one slot message is preferred. The more slots a message requires, the more difficult it will be to find free consecutive time slots for transmission from an Inland AIS mobile station. If the message should be transmitted from a Base station in FATDMA mode, be aware of the slot reservations and the fact of non slot re-use for 120 nautical miles which forms a high impact on the VDL.

ASM shall be limited to 3 slots maximum.

Proposed name of the application			
Data field	Parameter name	Number of bits	Description
1			
2			
3			
4			
5			

Please add more rows if needed

Once approved, the VTT Expert Group will format the above described data (parameters) in the appropriate AIS message based on the information in this request. The VTT Expert Group will also assign a Function Identifier (FI) to the new application and will take care of the proper documentation.