JUSSLAND NAVIGATIONAL SERVICES   
(INITIAL TEST DATA SET DRAFT)

# General information

The Navigational services test data set includes information of Navigational services around Jussland.

# Terms related to navigational services described in the publication

## Support / Structure

The support or structure of any equipment is normally the physical structure upon which equipment is placed. Usually the same support is shared among different equipment. For all physical equipment, positions given are for the support. Exceptions are made for virtual equipment, where the virtual position is more significant for navigation.

## Lights

Lights include navigationally important or interesting lights with the characteristics of conventional navigational lights as described in S-12.

## Sound signals

Sound signals include conventional sound signaling equipment.

## Racon

Conventional Racon usually triggered by and displayed on either or both of the below bandwidths. The different bandwidths are usually known as either;

* X-band = 3 cm = 9 GHz
* S-band = 10 cm = 3 GHz.

## Strip light

A low intensity light, usually used in addition to a painted line. The light can be several meters long, and placed either horizontally or vertically. The Strip light might have a rhythmic light character and colored light. Usual use is to mark pier heads, quay walls and other structures. Due to low efficiency and range of the light, on nautical charts the flare symbol is not used for charting strip lights.

## Lite pipe ®

The lite pipe is a system of LED- diodes in a pipe, forming a highly efficient strip light. Lite pipe length can be 2-6 meters, and range up to 22M. Although being similar to a conventional strip light, the long range makes this light navigationally more interesting. This light will seem like a conventional light at long distance, and show up as a bright strip light at closer range. Lite pipes® can be used as emergency- and backup lights in lighthouses.

## Manually activated Aids to navigation

Manually activated aids to navigation include Lights and fog signals, which are activated by radio. Activation process might be "automatic" by f.ex. multiple key presses on a specific VHF- channel, or by a VHF- request to a harbor master or similar official. Due to different activation processes, the manually activated lights and fog signals do need an additional note on charts. Instead of the note, a reference to an associated publication might be given.

# AIS AtoN

In the case of virtual AIS AtoN, the mariner will first and foremost be interested in the position of the "virtual position", even such structure actually do not exist. The range of the AIS AtoN will anyway depend of the actual broadcasting base-station, which might also be interesting for the mariner. This information is usually not displayed on the chart, where distinction between real and synthetic AIS AtoN is not made.

## Category of AtoN

There are three categories of AtoN, reflecting their navigational significance. Also V-AIS objects should be categorized.

* 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. Availability objective 99.8%.
* 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. Availability objective 99.0%.
* Category 3
  + An AtoN or system of AtoN that is considered by the Competent Authority to be of necessary navigational significance. Availability objective 97%.

## Type of AIS AtoN Station

* Type 1
  + AIS AtoN Station is a transmit-only station, operating in FATDMA mode. Hence the slots used by the Type 1 AIS AtoN station need to be reserved by a competent authority, using Message 20, transmitted from an AIS station in the coverage area. The Type 1 unit must be configured to use the slots reserved for it before being placed into service. This is the simplest type of AIS AtoN station, likely to have low cost and power consumption.
* Type 2
  + The Type 2 AIS AtoN Station is similar to a Type 1, but has, in addition, an AIS receiver of limited capability which allows the Type 2 Station to be remotely configured via the AIS VDL. This receiver operates on a single AIS channel.
* Type 3 AIS
  + The Type 3 AIS AtoN Station is more complex than the Type 1 and Type 2, and contains two AIS receiving processes that allow it to participate fully on the AIS VDL. This means that in addition to FATDMA, the Type 3 station can function in RATDMA mode and is able to receive and relay AIS messages, including control and configuration messages for itself or for other AIS AtoN stations in a chain.

## Reporting modes for AIS AtoN messages

* Mode A
  + Message 21 transmission alternates between Channel 1 and Channel 2 in a subsequent frame that is nominally one reporting interval later.
* Mode B
  + The same Message 21 transmitted on Channel 1 and Channel 2 in quick (nominally 4 seconds) succession.
* Mode C
  + Message 21 transmitted on a single channel, either Channel 1 or Channel 2.

# JUSSLAND emergency, temporary and seasonal marking procedures

## Temporary markings

Markings that change temporarily on a short notice cannot always be updated or included in charts or publications. The Jussland Notices to Mariners will provide further information of these changes.

## Seasonal markings

Seasonal changes in JUSSLAND include:

* Changes to or replacement of buoys made during the winter-season
* Changes to or replacement of buoys during periods of ice risk

Changes to buoys may include; withdrawal of a buoy, no replacement of a buoy if adrift, no topmark, no light and replacement by a special ice buoy.

Withdrawn buoys can also be substituted by V-AIS, for the season when harsh weather and ice might endanger the physical structure.

## Virtual AIS

V-AIS is only encoded into S-101 where it is known that the virtual AIS is intended to be permanent, or deployed for a specified fixed period. Where it is known that a Virtual AIS aid to navigation is moved or withdrawn on a regular basis and/or at short notice, such that implementing these changes through the application of ENC Updates is impractical, the virtual aid should not be encoded. This publication might include some V-AIS that are not included in the S-101 ENC, together with an explanation of the use. Virtual AtoN deemed not to be appropriate to display in charts or publications are reflected in Maritime Safety Information (MSI).

## Using of AIS for urgent, temporary and dynamic information

When an emergency marking is needed because of a wreck or other obstruction to shipping, also AIS will be used. One or several real or virtual AIS AtoN will be used to mark the area of danger. These markings will be visible ONLY in vessels with updated radar and ECDIS- equipment, capable of displaying AIS AtoN. Additionally AIS- messages will be broadcasted to vessels in the vicinity. Procedures for these broadcasts are found in the publication Radio Services.

For emergency marking, one or several Virtual AIS objects will be placed on the spot as soon as possible. The V-AIS will normally display as an "emergency wreck marking" or "isolated danger", and have a name best describing the reason of its use. MMSI- numbers of these AIS AtoN will be in the range between 995796500 and 995796599. The base station for these V-AIS objects is JUSSLAND MRCC in position 32°31′.50 S 60°54′.07 E, with a range of 50M. The range might be extended by the use of relaying AIS- equipment. These emergency-marking V-AIS objects will have Unique identifiers according to IALA- recommendation, with character T as the first character of the alphanumeric code. The identifiers will start from range: JU-A2N-T0000000000000000001, with increasing numbers. Numbers will normally be reused only if a temporary AtoN is periodically used in the exact same position as before.

## Reporting of faults in the navigational services

Any faults in the navigational services shall be duly reported to JUSSLAND authorities. Reports should be made to: [mms.notifications@jussland.gov.js](mailto:mms.notifications@jussland.gov.js) or by Fax 999-8-675308 or Telephone 999-8-675309. Email is preferred, but calls to JUSSLAND MRCC using VHF is also possible.

# SEASONAL BUOYS

Buoys and beacons that are changed seasonally are described here.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Number | Station Name | Position | Seasonal data | Daymark | Additional |
| JU-A2N-00901 | Special mark | 32°38.50’S  61°03.35’E | Withdrawn for the winter season approx November - April | Special mark | Further detail in NtM |
| JU-A2N-00902 | Special mark | 32°55.00´S  61°03.35´E | Withdrawn for the winter season approx November - April | Special mark | Further detail in NtM |
| JU-A2N-00903 |  | 32°23.60´S  61°05.60´E | Replaced by V-AIS app. November - April |  | Further detail in NtM |
|  | Patter bank | 32°24'48”S  61°02'00”E | Replaced by V-AIS app. November - April |  | Further detail in NtM |

# LIGHTS

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Number | Station Name | Position | Character | Height | Range | Daymark | Additional |
| JU-A2N-00001 | Mickleden | 32° 31.00’S  61° 06.86’E | Fl.5s | 12m | 22M |  | Sound, AIS, Racon |
| JU-A2N-00002 | Mickledore 1 | 32°30.60´S  61°03.90´E | ISO.4s | 43m | 18/12M |  | Sound, AIS |
| JU-A2N-00003 | East yard, No 3 Basin | 32°30.60´S  61°03.90´E | Horn(1)30s | 8m | 12M |  | This is a bright Strip Light, 6m wide |

# SOUND SIGNALS

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Number | Station Name | Position | Character | Height | Range | Daymark | Additional |
| JU-A2N-00003 | Mickleden | 32° 31.00’S  61° 06.86’E | Siren(2) 30s Whistle | 12m | 22M |  | Light, AIS, Racon |
| JU-A2N-00004 | Mickledore 1 | 32°30.60´S  61°03.90´E | Horn(1)30s | 43m | 18/12M |  | Light, AIS |

# STRIP LIGHTS

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Number | Name | Position | Character | Height | Type /Range | Daymark | Additional |
|  | East yard,  No 2 Basin | 32° 36.50’S  60° 49.60’E | Iso | 8m | Horizontal light 6 m wide | Horizontal painted line, 6 m wide |  |
| JU-A2N-00003 | East yard, No 3 Basin | 32°30.60´S  61°03.90´E | Horn(1)30s | 8m | Horizontal light 6 m wide, range 12M | Horizontal painted line, 6 m wide | Lite Pipe |

# RACON

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Number | Station Name | Position | Symbol | Freq | Sector | Range | Remarks |
| JU-A2N-00003 | Mickleden | 32°31.00’S  61°06.86’E | G | 3 Ghz  9 Ghz | 0-360 | 15M |  |

# MANUALLY ACTIVATED AIDS TO NAVIGATION

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Number | Station Name | Position | Characteristic | Service Details | Type | Remarks |
| JU-A2N-00003 | Mickleden | 32°31.00’S  61°06.86’E | Siren(2) 30s Whistle | Horn is activated by keying the mic 5 times on VHF-FM Ch 81. Horn will operate for 30 minutes after activation | Sound |  |
| JU-A2N-00004 | Mickledore I | 32°30.60´S 61°03.90´E | Horn(1)30s | Horn is activated by VHF- request to the Jussland radio on ch 16 or ch 71.  Horn will operate for the duration agreed with the officials. | Sound |  |

# AIS AtoN

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Number | Station Name | Position  (bold=EPFS) | MMSI | Service Details | Type Details | Transmitted Message Type and mode |
|  | Mickleden | **32° 31,00’S**  **61° 06,86’E** | 995791001 | Broadcasts msg 21 every 3 minutes,  AIS SART repeating  Off-position limit is 10 meters | Type3,  Real | 6 8 12 14 21B |
|  | Mickledore 1 | 32°30.60´S  61°03.90´E | 995791002 | Broadcasts msg 21 every 3 minutes  AIS SART repeating  Off-position limit is 10 meters | Type3,  Real | 6 8 12 14 21B |
|  | Skerries TSS North (V-AIS) | 32°20.80´S  61°04.80´E | 995796002 | Broadcasts every 3 minutes, Base station is JUSSLAND MRCC in position  32°31′.50 S 60°54′.07 E  V-AIS permanently marking the north entrance of the Skerries TSS. | Virtual | 21B |
|  | Skerries TSS South (V-AIS) | 32°23.60´S  61°05.60´E | 995796003 | Broadcasts every 3 minutes, Base station is JUSSLAND MRCC in position  32°31′.50 S 60°54′.07 E  This V-AIS is active during the winter season, normally November - April. The buoy is removed for the winter, and replaced with this Virtual AIS. Further information is obtained in the Jusslandian NtM. | Virtual / Periodical | 21B |
|  | Skerries TSS South | 32°23.60´S  61°05.60´E | 99571003 | Broadcasts every 3 minutes.  AIS SART repeating  Off-position limit is 10 meters  This AIS is active during the summer season, normally May - October. When the buoy is removed for the winter, this AtoN is replaced with a Virtual AIS. Further information is obtained in the Jusslandian NtM. | Type3,  Real / Periodical | 6 8 12 14 21B |
|  | Patter Bank | 32°24’48”S  61°02’00”E | 995796004 | Broadcasts every 3 minutes. Base station is JUSSLAND MRCC in position  32°31′.50 S 60°54′.07 E  This V-AIS marks an Area to be Avoided. The area consists of a circle, having a radius of 0.5M, and centered upon the position of this buoy.  This AIS is active only during the winter months, normally November - April, when the buoy is removed. Further information is obtained in the Jusslandian NtM. | Virtual /Periodical | 21B |
|  | Jussland small arms range | 32°40.00 ́S  60°05.60 ́E | 99571004 | Broadcasts every 3 minutes. , Base station is JUSSLAND MRCC in position  32°31′.50 S 60°54′.07 E  This AIS marks a safety sector. The area consists of a circle, having a radius of 5M, and centered upon the position of this tower, extends between an azimuth angle of 250° clockwise to an azimuth angle of 290°. | Type1,  Synthetic, Predicted | 21B |

# AIS Application Specific Messages

Following types of ASM- messages are used by JUSSLAND. Further details obtainable at;

<http://www.iala-aism.org/products/technical/ais-binary-messages.html>

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Index | Title | Msg | DAC | FI |
| 1 | Aids to Navigation monitoring data | 6 | 235 | 10 |
| 2 | Aids to Navigation monitoring data | 6 | 250 | 10 |
| 3 | Meteorological and Hydrographic data | 8 | 1 | 31 |

# V-AIS base stations

These are of relevance as the position of these might determine range of virtual AtoN. Also data of relaying AIS AtoN network could be added. (Part of Radio Services?)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| JUSSLAND MRCC (Copy from Radio services test data samle) | | | | | | |
| 32°31′.50 S 60°54′.07 E | MMSI 005742029 | DSC VHF : Can 70  DSC MF : 2187,5 kHz  DSC HF4 : 4207,5 kHz  DSC HF6 : 6312,0 kHz  DSC HF8 : 8414,5 kHz  DSC HF12 : 12577,0 kHz  DSC HF16 : 16804,5 kHz | | AMVER |  | Diagram page 271 |
|  +999(0)1 23456789 | | |  +999(0)1 23456788 | | | |
|  | | | email: mrcc.jussland@jussland.gov.js | | | |
| Inmarsat C : +583 422123456  TELEX : +998 123456 | | | WEBSITE : www.jussland.mrcc.js | | | |
| NOTES : 1. This station does not accept public correspondence, accepting Distress, Urgency and Safety traffic only..  2. Station accepts JUSSREP messages. | | | | | | |
|  | | | | | | |
|  | | | | | | |

# AIS- AtoN Relaying stations

These stations are of type 3, capable of relaying AIS- messages, including control and configuration messages for itself or for other AIS AtoN stations in the chain. (Part of Radio Services?)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Station Name | Position | MMSI | Service Details | Type | Relayed Message Types |
| Mickleden | 32°31.00’S  61°06.86’E | 995791001 | Type 3 realaying AIS AtoN |  | 6 8 12 14 21 |

# DGNSS STATIONS

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | COUNTRY: JUSSLAND | | | |  |  |  |  |  |
| Station name | Identification numbers | | Structure  position | Nominal range | | Station in operation | Integrity  monitoring | Transmitted  Messages | Freq (kHz) | BitRate (bps) | Remarks |
| Ref. station | Tx. station | km | at |
| JUSSLAND |  |  | 32°31′.50"S 60°54′.07"E | 18 | 10 | Yes | Yes | 3,5,7,9,18 | 310 | 200 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |