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| **US Radiocommunications Sector****Fact Sheet** |
| **Working Party:** WP 5B | **Document No:** USWP5B32-11 |
| **Ref:** Annex 1 to Document 5B/819 | **Date:** 5 April 2024 |
| **Document Title:** PRELIMINARY DRAFT REVISION OF RECOMMENDATION ITU-R M.1371-5 Technical characteristics for an automatic identification system using time division multiple access in the VHF maritime mobile frequency band. |
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| **Purpose/Objective:** The purpose of this document is to provide updated content for the proposed AIS Message 28 and to clarify using addressed AIS Messages 25 and 26. |
| **Abstract:** The USCG had previously proposed a new AIS Message 28, a single slot Aids to Navigation (AtoN) message, 2 years ago. Since that time, we have refined the message content. This contribution provides an update to the message content to be in line with the ongoing work to mature AIS Message 28.  |

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| **Radiocommunication Study Groups** |  |
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| **5 April 2024** |
| **English only** |
| United States of America[, China (People’s Republic of)] |
| PRELIMINARY draft revision of Recommendation ITU-R M.1371-5 |

1. **Introduction**

This document proposes updated technical content to Recommendation ITU-R M.1371-5 for AIS Message 28. These changes are a result of ongoing discussions about how to use the single slot Aids to Navigation report and what content is required.

1. **Summary of changes**

Listed below are the proposed changes to Document 5B/819 Annex 1, which contribute to the revision of Recommendation ITU-R M.1371-5:

1. Updated the content for Message 28 content.
2. Updated the content for Table BIS 2, Type of aids-to-navigation.
3. **Attachments**

The following attachment contains the proposed changes to Annex 1 of the chairman’s report, with track changes highlighted in blue. Note that only the relevant sections have been included in this proposal.

attachment

PRELIMINARY DRAFT REVISION OF RECOMMENDATION ITU-R M.1371-5

Technical characteristics for an automatic identification system using time division multiple access in the VHF maritime mobile frequency band

(Question ITU-R 232/5)

(1998-2001-2006-2007-2010-2014-202X)

Scope

This Recommendation provides the technical characteristics of an automatic identification system (AIS) using time division multiple access in the very high frequency (VHF) maritime mobile band.

\*Note: no additional changes prior to this section.

## **3.26 Message 28: Single-slot Aid-to-Navigation Report (single-slotted)**

This single slot AIS Aid to Navigation (AtoN) Report (Table *BIS*) is primarily intended for the use by authorities in lieu of or to supplement AIS Message 21 AIS Aid to Navigation (AtoN) reports using either RATDMA or CSTDMA; to report Mobile AtoN types or provide extended information on the AtoN (i.e., its height) and what its marking (i.e., hazardous area). This message can be flagged to be repeated by the recipient stations to extend its range of coverage and create a mesh network. It may be accompanied by Message 24A - Static Data Report, Part A to provide the charted name of the AtoN if not already being provided by Message 21

This message may also be sent by a vessel to report an AtoN off-position or discrepant or other navigational hazard or obstruction; or to confirm its position and status.

TABLE (*bis 1)*

| Parameter | Bits | Description |
| --- | --- | --- |
| Message ID | 6 | Identifier for this message; always 28. |
| Repeat indicator | 2 | Used by the repeater to indicate how many times a message has been repeated. |
| Source ID | 30 | Identity (in the MMSI) of the source of the message (see Article **19** of the RR and Recommendation ITU R M.585) |
| Time stamp | 6 | UTC second when the report was generated by the EPFS (0-59) or 60 if time stamp is not available, which should also be the default value, or 61 if positioning system is in manual input mode, or 62 if electronic position fixing system operates in estimated (dead reckoning) mode, or 63 if the positioning system is inoperative) |
| Longitude | 28 | Longitude in 1/10 000 min of position of an AtoN (±180°, East = positive, West = negative, 181 = (6791AC0h) = not available = default) |
| Latitude | 27 | Latitude in 1/10 000 min of an AtoN (±90°, North = positive, South = negative, 91 = (3412140h) = not available = default) |
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| Restricted Use Indicator | 2 | Denotes where the AtoN may be operated.0 = Unrestricted use (default)1 = Use restricted to territorial waters of the flag state (of MMSI MID)2 = Use restricted the Exclusive Economic Zone (EEZ) of the flag state (of MMSI MID)3 = Use restricted as defined by its flag state (of MMSI MID)NOTE 1 - Use outside of a restricted area requires permission of the flag state competent authority.NOTE 2 - This parameter should not be available and reported as 0 if AtoN Report Originator = 1. |
| AIS AtoN Station Type | 3 | Denotes the type of AIS AtoN station. See IALA Recommendation R0126, The Use of the AIS in Marine AtoN Services, R1016, Mobile Marine Aids to Navigation (MAtoN) and IMO MSC Circular 1463, Policy on Use of AIS Aids to Navigation.0 = A physical AIS AtoN; 1 = A synthetic predicted AIS AtoN; 2 = A synthetic monitored AIS AtoN; 3 = A virtual AIS AtoN; 4 = A mobile AIS AtoN; 5 = A mobile self-propelled AIS AtoN; 6-7 = Reserved for future use. |
| Types of aids-to-navigation | 7 | 0 = not available = default; refer to appropriate definition set up by IALA; (see Table *BIS 2*). |
| IALA AtoN MRN  | 17 | AtoN unique IALA Marine Resource Name (MRN). national identification number. The MMSI MID represents the nationality.000001-131 071, 0 = unassigned or unknown = default. See IALA Guideline G1143*, IALA MRN for AtoN*, e.g., urn:mrn:iala:aton:<ISO 3166-1 alpha-2 code for its nationality>:<national identification number>. |
| Dimensions type | 2 | Defines what Dimensions A and B represent.0 = AtoN Height and Width. Dimension A = represents a height above mean water (i.e., platform, structure, wind turbine, etc.), in 1-meter steps, 0-510, 511 = height greater than 510 meters; Dimension B = represents a circle radius from the broadcasted position encompassing the structure/object, in 10-meter steps, 0-126, 127 = a circle greater than 1260 meters. Used to convey the physical dimensions of a large AtoN or structure and assist its sightings. Dimension A = Dimension B = 0 = unknown = default.1 = Mobile AtoN Vector. Dimension A = COG, in true degrees: 0-359 in 1 degree steps, 360 = COG unreported; 361 = dynamically positioned on station, COG unreported, 362 = purposedly adrift, COG unreported, 362 = self-propelled, COG unreported; 363 = tethered, COG unreported, 364 = COG unknown = default, 365-511 reserved for future use; Dimension B = SOG, in 1 knot steps, 0-59; 60 = SOG unreported; 61 = dynamically positioned on station, SOG unreported, 62 = purposedly adrift, SOG unreported, 63 = self-propelled, SOG unreported; 64 = tethered, SOG unreported, 65 = SOG unknown = default, 66-127 reserved for future use. 2 = AtoN Area/Line. The broadcasted position represents the mid-point of the height and width of a rectangular area denoting the area of the AtoN description; Dimension A = length of a rectangle area or line, in 10-meter steps, 0 – 510, 511 = length greater than 5100 meters; Dimension B = width of the area, in 10-meter steps, 0 – 126, 127 = width greater than 1260 meters. If Dimension B = 0, then it represents a line. Dimension A = Dimension B = 0 = unknown = default.3 = Swing Circle. Dimension A = Dimension B = 0 represents a point = default; Dimension A (in 1-meter steps, 0-127 meters) + Dimension B (in 10-meter steps, 0-1270 meters) = represents a radius from the broadcasted position to convey a large swing circle of this AtoN. NOTE: AtoN Dimension Types may alternate to provide more information about the AtoN, i.e., using Type 0 to provide the height and width of a Mobile AtoN, using Type 2 to provide the area a Mobile AtoN is marking, e.g., oil spill. |
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| AtoN Dimensions A | 9 | 0-511 as defined by its AtoN Dimension Type (0 = default) |
| AtoN Dimension B | 7 | 0-127 as defined by its AtoN Dimension Type (0 = default) |
| AtoN Charted Status | 1 | Denotes whether the AtoN is charted or not.0 = AtoN is charted1 = AtoN uncharted = default |
| AtoN On-station Status | 4 | Denotes whether the AtoN is on-station or not.0 = On-station = default1 = On-station or on course (Mobile AtoN)2 = On-station, but damaged, occulted, submerged or otherwise not properly visible 3 = Off-station location unknown (also used to report when synthetic or virtual AIS reports are not being broadcasted)4 = Off-station, but reporting its current position5 = Off-station adrift6 = Off-station, removed or relocated7 = On-station, as a new or temporary AtoN8 = Unmarked navigation hazard, used by a vessel to inform of an unmarked navigation hazard. Type of AtoN should be denoted as 1 = reference point. Should be accompanied by a message 14 that provides a description of the hazard, e.g., floating container.9 = Unmarked obstruction (anything that restricts, endangers, or interferes with navigation). Type of AtoN should be denoted as 1 = reference point. Should be accompanied by a message 14 that provides a description of the hazard, e.g., vessel aground.10-15 = reserved for future use. |
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| AtoN Status bits | 8 | Reserved for the indication of the AtoN status. SeeIALA Recommendation R0126.00000000 = default |
| Rebroadcast Flag | 1 | Use to indicate whether this AtoN Report should be rebroadcasted upon receipt;-to extend the range of the original report.0 = do not rebroadcast = default; 1 = rebroadcast this report. |
| AtoN Report Originator | 1 | Denotes the originator of the report. 0 = competent authority originated report = default; 1 = vessel originated report. |
| AtoN Confirmation Flag | 2 | This parameter may be used by competent authorities to seek confirmation(s) on the position and/or status of this reported AtoN. If Source ID = 00MIDxxxx or 99MIDxxxx, 0 = no confirmation requested = default; 1 = confirmation requested.If a confirmation is requested, the latest request received by the vessel should be automatically retained for at least 24 hours or until overridden by a no confirmation requested message. If the vessel should come within [2000] m of the reported AtoN it should rebroadcast its latest confirmation request message unchanged or updated with the observed latitude, longitude, AtoN On-station Status, and AtoN Status bits. 0 = unknown or unable to confirm = default1 = reported latitude, longitude, AtoN On-station Status, and AtoN Status bits confirmed, unchanged2 = reported latitude, longitude, AtoN On-station Status, or AtoN Status bits confirmed and updated3 = reserved for future use |
| Spare | 5 | Should be set to zero. Reserved for future use |
| Number of bits | 168 | Occupies one slot |

(*Editors Note: the following table will be updated to include S-125 information when it becomes available*)

Table (*bis 2*)

Type of aids-to-navigation

|  |  |  |
| --- | --- | --- |
|   | 0 | Unknown or unspecified = default |
| 1 | Reference point |
| 2 | RACON or MAtoN (when not otherwise type 32-56) |
| 3 | Fixed structures, such as platforms or towers |
| 4 | IALA Emergency Wreck Marking Buoy |
| *Fixed AtoN* | 5 | Light, without sectors |
| 6 | Light, with sectors |
| 7 | Leading Light Front |
| 8 | Leading Light Rear |
| 9 | Beacon, Cardinal N |
| 10 | Beacon, Cardinal E |
| 11 | Beacon, Cardinal S |
| 12 | Beacon, Cardinal W |
| 13 | Beacon, Port Hand |
| 14 | Beacon, Starboard Hand |
| 15 | Beacon, Preferred Channel Port Hand |
| 16 | Beacon, Preferred Channel Starboard Hand |
| 17 | Beacon, Isolated Danger |
| 18 | Beacon, Safe Water |
| 19 | Beacon, Special Mark |
| *Floating AtoN* | 20 | Cardinal Mark N |
| 21 | Cardinal Mark E |
| 22 | Cardinal Mark S |
| 23 | Cardinal Mark W |
| 24 | Port Hand Mark |
| 25 | Starboard Hand Mark |
| 26 | Preferred Channel Port Hand |
| 27 | Preferred Channel Starboard Hand |
| 28 | Isolated Danger |
| 29 | Safe Water |
| 30 | Special Mark |
|  | 31 | Light vessel, LANBY, Rigs     |
| Mobile AtoN | 32 | Mobile AtoN fitted to Ocean Data Acquisition System (ODAS) |
| 33 | Mobile AtoN fitted to a Water Sampling and/or Monitoring Vehicle |
| 34 | Mobile AtoN fitted to a Research Vehicle |
| 35 | Mobile AtoN: Towed Cable, Pipe or Semi-submerged Object Marker |
| 36 | Mobile AtoN: Towed Vessel or Object |
| 37 | Mobile AtoN: Flotsam Marker, Large (greater than XX meters) |
| 38 | Mobile AtoN: Flotsam Marker, Small (less than XX meters) |
| 39 | Mobile AtoN: Fishing Apparatus |
| 40 | Mobile AtoN: Synthetic Target Marker  |
| 41 | Mobile AtoN: Protected Species Marker |
| 42 | Mobile AtoN: Military Operation Target Marker |
| 43 | Mobile AtoN: Dangerous Object |
| 44 | Mobile AtoN: Pollution Spill Marker |
| 45 | Mobile AtoN: Search & Rescue Datum Mark |
| 46 | Mobile AtoN: Datum Mark |
| 47 | Mobile AtoN: Operating Underwater (at times)  |
| 48 | Mobile AtoN: Underwater Operations Marker |
| 49 | Mobile AtoN: Military Operation or Restricted Area Marker N |
| 50 | Mobile AtoN: Military Operation or Restricted Area Marker E |
| 51 | Mobile AtoN: Military Operation or Restricted Area Marker W |
| 52 | Mobile AtoN: Military Operation or Restricted Area Marker S |
| 53 | Mobile AtoN: Dynamic Area Cardinal Marker N |
| 54 | Mobile AtoN: Dynamic Area Cardinal Marker E |
| 55 | Mobile AtoN: Dynamic Area Cardinal Marker W |
| 56 | Mobile AtoN: Dynamic Area Cardinal Marker S |
| 57 - 63 | Reserved for future use |
|  | 64 – 127  | Reserved for regional use |

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