# Utility of Various AIS Messages for Maritime Awareness

James K.E. Tunaley

*Abstract*—**There are 27 different types of AIS message that are defined by the International Telecommunications Union (ITU). Those that are most useful for maritime surveillance and awareness are the ship position reports and the static reports. These data can be integrated with those from other sensors, such as space-based Synthetic Aperture Radar, as well as with data from various databases on the Internet. This provides a reliable picture of maritime activities even though AIS is a form of self-reporting. This paper describes the general contents of the remaining messages and identifies those messages that are likely to be useful for maritime awareness. The work is based partly on a statistical analysis of a large space-based AIS dataset provided by the Canadian Space Agency.**

***Index Terms*—AIS, Binary message, ASM, Maritime Awareness.**

## I. Introduction

THE formats of Automatic Identification System (AIS) messages are specified by the International Telecommunications Union (ITU) [1]. At present there are 27 message types. The basic format in which these messages are transmitted is designed to minimize the length of a transmission. For example, ASCII characters are usually compressed into 6 bits and only the minimum number of bits is allocated to each numeric variable.

A large database of AIS messages received by space-based receivers and processed by exactEarth was supplied by the Canadian Space Agency. This covers the globe for the month of March 2013. Messages received by several satellites are included and there are examples of all types of message. This paper describes an analysis of the data set with a focus on the message types that are neither position nor static ship reports. It is noted that the data set does contain errors but the source of the errors is uncertain. For example, there are a few messages with types that are greater than 27 so that these messages do not always fall into the set defined by the ITU.

The analysis demonstrates that there are many types of message embedded in the binary message types, also known as Application Specific Messages (ASMs). Some ASM formats have been accepted internationally and others are being documented by the International Association of Lighthouse Authorities (IALA).

ASMs are usually defined regionally. Some of these contain environmental data from ships as well as buoys. While some message contents and formats are known and tabulated, others are unknown.

In general it is necessary to cross-validate the messages using any information that might be available. Therefore the ship or platform identification numbers are important and can reveal valuable data about the message originator or recipient. Various sites on the Internet, such as www.marinetraffic.com can be very useful in this respect as they carry ship, aircraft and aids to navigation data.

AIS messages are transmitted using Time Domain Multiple Access. Some messages occupy a single 26.7 ms time slot but others may occupy up to 5 consecutive slots.

### A. Message Categories

The messages can be grouped into several categories. The first category is the Standard category and contains the messages that are position reports or static reports. In the following, it is assumed that the reader is familiar with the messages in the Standard category and their relevance to maritime awareness. The messages contain the latitude and longitude of a ship and other information about the ship, such as its name and dimensions. The message identification numbers for the Class A transponder position reports are 1, 2 and 3, and 5 for the static reports. The corresponding identification numbers for the Class B transponders, appropriate to small vessels, are 18, 19 and 24. It is also possible to include in this category the Search And Rescue (SAR) aircraft position report of message 9 as well as the message 27 long range position report used for space-borne reception.

It is useful to note that message number 1, namely the scheduled or autonomous position report is that sent automatically by a ship at intervals according to its speed. In contrast, message 2 is a report at intervals assigned by a competent authority, typically from a coastal base station. This is accomplished using message 16 or the group assignment message 23. Similarly message 3 is a special or interrogation position report that is commanded using message 15.

The second category is the Aids To Navigation (AToN)

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J. K. E. Tunaley is President of London Research and Development Corporation, Ottawa, Canada; phone 613.839.7943; e-mail: jtunaley@london-research-and-development.com.

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category, which contains a single message: number 21. This message contains the Maritime Mobile Service Identity (MMSI) number of the AToN, its type, location and status.

The third category contains the messages related to timing. Message 4 is the base station report. This is sent periodically by every base station. It contains the MMSI number of the station, its position (along with the type of fixing, such as GPS) and the UTC time to the nearest second. It includes the communications state, which indicates how the system is synchronized to other stations.

Messages 10 and 11 are UTC inquiry and response messages respectively that can be sent to or from any station including a ship. Message 4 is *not* sent as a response to an inquiry. Message 11 has exactly the same format as message 4.

Timing information is also included in the usual position reports in the Class A messages 1, 2 and 3 as well as the Class B messages 18, 19. Each of these contains a time stamp of only 6 bits that represents UTC seconds. Furthermore Space-based AIS (S-AIS) reports include an independent time stamp derived from the satellite clock.

The fourth category includes safety related messages. This could include the SAR aircraft position report (message 9) but this has been considered as part of the Standard category. Message 12 is an addressed message containing text. The MMSI numbers of the originator and the single addressee are included. The safety related text can occupy up to 936 bits in 6-bit bytes, which represents up to 156 ASCII characters. (Compression to 6-bit bytes excludes the lower case letters.) Thus the entire message may occupy up to 5 consecutive time slots. Message 13 is the acknowledge message for message 12. However, up to four originators can be acknowledged.

Message 14 is the safety related broadcast message. It resembles message 12 but there is no addressee and an acknowledgment is not required. The message may be up to 161 characters long.

The binary messages form the fifth category. There are six types of binary message. Message 6 is the addressed binary message. This contains the MMSI numbers of the originator and addressee and a binary message of up to 936 bits occupying up to 5 consecutive time slots. The acknowledgment is message 7 and this is analogous to message 13 for safety related messages; it can acknowledge up to four originators. The corresponding broadcast message is message 8, which can contain a binary message up to 968 bits in length. No acknowledgment is required for this message.

The binary messages in 6 and 8 are also known as Application Specific Messages (ASMs) and will be described later.

Message 17 is a broadcast message containing Global Navigation Satellite System (GNSS) update information in binary form. It is transmitted by a base station and the MMSI number of the station and the position of the Differential GNSS (DGNSS) reference are included. The format of this binary message is provided in [2].

Other binary messages are messages 25 and 26. Message 25 is a single slot message designed for short infrequent transmissions that can be sent in either addressed or broadcast formats. The length of the binary message is only 138 bits and its form may be structured or unstructured as indicated by a flag. Structured messages include a 16-bit application identifier, which will be described below along with ASMs.

Table 1
SUMMARY OF AIS MESSAGES

| Category | Message | Description |
|---|---|---|
| **Standard** | 1 | Scheduled position report (class A) |
| | 2 | Assigned position report (class A) |
| | 3 | Special position report (class A) |
| | 5 | Static report (class A) |
| | 9 | SAR aircraft position report |
| | 18 | Position report (class B) |
| | 19 | Extended position report (class B) |
| | 24 | Static report (classB) |
| | 27 | Long range position report |
| **AToN** | 21 | AToN report |
| **Timing** | 4 | Base station report |
| | 10 | UTC inquiry |
| | 11 | UTC response |
| **Safety** | 12 | Addressed text message |
| | 13 | Acknowledgment |
| | 14 | Broadcast text message |
| **Binary** | 6 | Addressed binary |
| | 7 | Binary acknowledgment |
| | 8 | Broadcast binary |
| | 17 | GNSS update |
| | 25 | Short binary (no acknowledgement) |
| | 26 | Binary with communications state |
| **Other** | 15 | Interrogation for specific messages |
| | 16 | Assignment mode command |
| | 20 | Data link management |
| | 22 | Channel management |
| | 23 | Group assignment command |

Message 26 is intended for scheduled binary data transmissions. Again it can be transmitted in addressed or broadcast formats and with structured or unstructured binary data; it can occupy up to 5 slots. It also includes the communications state. Unlike message 6, these messages do not require acknowledgment with messages 7 or 13.

The remaining messages form a category called “Other”. These include the interrogation for specific messages (15), the assignment mode command (16), the data link management (20), the channel management (22) and the group assignment command (23). The role of the messages is summarized in Table 1.

### B. *MMSI Specifications*

The MMSI format is specified by the ITU in [3]. As is well-known, the MMSI for ships should be a 9 digit number that lies between 201000000 and 775999999. The first 3 digits are the Maritime Identification Digits (MIDs) and represent the country code [4]. For example 201 represents Albania and 775 Venezuela. A few other examples are provided in Table 2.

However, there are numerous examples where a ship MMSI does not satisfy the ITU or International Maritime

Organization (IMO) specifications. This can be due to a failure of the transponder operator to correctly enter the correct information. It can also occur where the regional authority does not adhere strictly to the ITU regulations or where there is a legacy of 6 digit regional numbers. In the last case, these numbers should be augmented by the addition of 3 trailing zeroes. In addition, the MMSI format is complicated by the existence of a number of special cases that are part of the ITU specification [3]. These are provided in Table 3. Here X and Y indicate a number between 0 and 9 inclusive; for the Emergency Position Indicating Radio Beacon (EPIRB) in the last row, the fourth and fifth digits (X) represent a vendor number.

Table 2
EXAMPLES OF COUNTRY CODES

| Code (MID) | Country |
|---|---|
| 710 | Brazil |
| 316 | Canada |
| 725 | Chile |
| 219, 220 | Denmark |
| 237, 239-241 | Greece |
| 251 | Iceland |
| 440, 441 | S. Korea |
| 636, 637 | Liberia |
| 345 | Mexico |
| 257-259 | Norway |
| 351-357, 370-373 | Panama |
| 224, 225 | Spain |
| 265, 266 | Sweden |
| 232-235 | UK |
| 338, 366-369 | USA |

Table 3
ITU-APPROVED MMSI NUMBERS

| MMSI Format | Application |
|---|---|
| MIDXXXXXX | Normal ship MMSI |
| 0MIDXXXXX | Group of ships |
| 00MIDXXXX | Coastal station |
| 00MID1XXX | Coastal radio station |
| 00MID2XXX | Harbour radio station |
| 00MID3XXX | Pilot stations, etc. |
| 00999XXXX | All coastal stations |
| 111MIDXXX | SAR aircraft |
| 111MID000 | Entire group of SAR aircraft |
| 99MIDXXXX | AToN |
| 99MID1XXX | Physical AToN |
| 99MID6XXX | Virtual AToN |
| 98MIDXXXX | Craft associated with parent ship |
| 8MIDXXXXX | Handheld VHF tranceiver |
| 970XXXXXX | SAR transponder |
| 972XXXXXX | Man overboard device |
| 974XXYYYY | EPIRB-AIS |

Group MMSIs are not to be used for AIS but only for telephony purposes. Note that all ITU formats are 9 digits but leading zeroes are typically omitted; thus coastal stations appear to have only 7 digits.

Many countries adhere fairly well to the ITU specifications. However, there seem to be cases that have been introduced by regional authorities independently of the ITU.

## II. STATISTICS

A histogram of the number of messages of all approved types is useful for assessing the utility of particular messages for maritime awareness. A week of data has been analyzed and the result is shown in Figure 1, where the number scale is plotted logarithmically. It must be emphasized that many messages may be repeated because an AIS signal can be received by more than one satellite. Also multiple message transmissions are often received from a single AIS platform. Moreover, no attempt has been made to remove corrupted signals or signals from entities with invalid MMSI numbers.

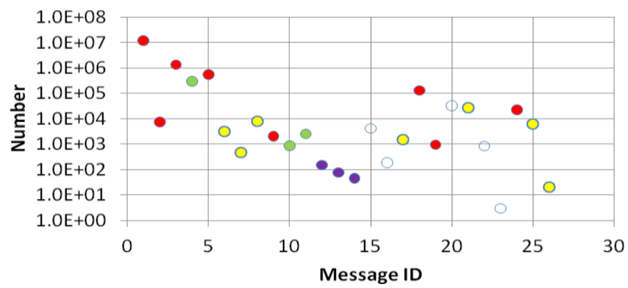


*Figure 1. Number of messages according to message type. Red-Standard; Green-Timing; Yellow-Binary, AToN; Purple-Safety; White-Other.*

Those Standard messages comprising mainly ship position and static reports are the most common messages. However, it may be noted that over 1000 SAR aircraft messages were received and there are a substantial number of most other types.

Table 4 shows a few examples of SAR aircraft messages; the country is derived from the MMSI by searching on the Internet. Firstly it is noted that, according to information in the Vesseltracker and Marinetraffic sites, many of the MMSIs correspond to ships, AToNs and drilling platforms and not to aircraft. The fact that the latitude, longitude and speed often seem reasonable can be attributed to the similarity of the first parts of the formats of message 1 and message 9. Therefore it is possible that the ship has mistakenly sent message 9 instead of message 1 or that there has been an occasional bit error in the AIS processor, which changes 1 into 9. However, this latter explanation is unlikely because many similar messages are received from some single platforms. Only the MMSI from India appears to correspond to an aircraft and it appears that only a handful of valid SAR aircraft messages are received in a month.

Table 4
EXAMPLES OF SAR AIRCRAFT AIS MESSAGES

| MMSI | Country | Latitude (º) | Longitude (º) | Speed (kn) |
|---|---|---|---|---|
| 258XXXXXX | Norway | 63.445 | 10.202 | 80 |
| 244XXXXXX | Netherlands | 1.253 | 103.33 | 112 |
| 111677X | India | 18.469 | 72.332 | 141 |
| 316XXXXXX | Canada | 52.875 | -53.229 | 26 |

## III. Aids To Navigation Messages

AToN messages 21 occur very frequently and almost all appear to be valid. The MMSI number is usually according to the ITU recommendations but sometimes the first two digits (99) are missing (e.g. Spain, USA) and sometimes the MMSI is similar to that of a ship (e.g. Argentina). Iceland uses 8 or 9 digit MMSIs with the first 3 digits representing its MID.

Table 5
Examples of AToN AIS Messages

| MMSI | Name | Latitude (°) | Longitude (°) | Type |
|---|---|---|---|---|
| 760000020 | OAS-6 | -13.258 | -76.297 | Fixed off-shore |
| 992626001 | BOYA_V1 | 18.717 | -91.900 | RACON |
| 3660654 | L&D 27 | 38.703 | -90.180 | Reference Pt.. |
| 997251093 | BAJO SATELITE | -52.557 | -69.694 | Starboard hand mark |

## IV. Timing Messages

The AIS provider adds a time stamp to each AIS message. A comparison between this time stamp, which is derived from the satellite clock, and the time transmitted by a base station indicates that the difference is often one or two seconds. However, sometimes there are large differences of over one minute. There are even cases (in 2013) where the year in the base station time appears as 1997. Nevertheless, if the satellite clock from a particular satellite and most base station clocks more or less agree, it is likely that both clocks are reasonably accurate.

In the dataset, signals are received from the same base station by different satellites. Therefore as mentioned by Greidanus [5], it is possible to separate errors due to the various clocks. A brief analysis along these lines indicates that the clocks of the various exactEarth satellites usually appear to be accurate to within a few seconds.

Unfortunately, sometimes there is a consistent difference of 1 min or more between the satellite and the clocks from multiple base stations. This indicates that the satellite clock is in error by about 1 min. Even when this is corrected, the satellite clock timing error occasionally seems to drift quite rapidly giving errors of from 1 s to 4 s and sometimes much more.

As already noted, the time from a base station is not necessarily accurate. An examination of the data suggests that the base station time is typically accurate to 1 s but is sometimes in error by 3 s and occasionally by a minute or more.

These errors can be quite serious when trying to fuse AIS data with ship detections from satellite borne radar imagery; the process of data fusion will be badly affected by errors of 1 min, especially in high density shipping environments. It suggests that timing errors should be monitored continuously using message 4, so that corrections can be made automatically to the received time provided by the satellite clock.

The base station MMSI numbers generally conform to the ITU recommendations. A few examples of base station reports are shown in Table 6, where the two leading zeroes of the MMSI have been omitted. The satellite identification number is included so that some of the above phenomena can be illustrated.

Message 10 is an interrogation message and is probably not so interesting for maritime awareness but message 11 is a timing message from the AIS transponder of ships. Again, it is important determine the transmission time accurately and, if possible, to understand any errors in timing.

Table 6
Examples of Base Station Messages

| Satellite | MMSI | Satellite Time | Base Station Time |
|---|---|---|---|
| 80 | 775XXXX | 1:46:31 | 1:46:34 |
| 80 | 357XXXX | 1:46:59 | 1:47:01 |
| 80 | 701XXXX | 1:55:48 | 1:55:49 |
| 2 | 366XXXX | 2:20:00 | 2:20:03 |
| 2 | 316XXXX | 2:20:09 | 2:20:11 |
| 2 | 251XXXX | 2:20:33 | 2:20:35 |
| 1 | 224XXXX | 3:04:52 | 3:04:54 |
| 1 | 663XXXX | 3:05:19 | 3:05:20 |
| 1 | 310XXXX | 3:05:39 | 3:04:40 |
| 1 | 347XXXX | 3:06:01 | 3:04:49 |

Table 7
Examples of Ship Messages 11

| Satellite | MMSI | Satellite Time | Ship Time |
|---|---|---|---|
| 2 | 240XXXXXX | 1:54:04 | 1:54:07 |
| 1 | 273XXXXXX | 1:08:29 | 1:07:29 |
| 1 | 538XXXXXX | 1:18:57 | 1:19:57 |
| 1 | 215XXXXXX | 1:29:52 | 1:28:53 |
| 53 | 239XXXXXX | 3:38:50 | 3:38:49 |
| 53 | 371XXXXXX | 3:42:48 | 3:42:47 |
| 80 | 477XXXXXX | 1:45:47 | 1:45:49 |
| 80 | 477XXXXXX | 6:08:45 | 6:08:47 |

Some examples of message 11 are shown in Table 7. The second, third and fourth entries show consistent satellite time errors of about 1 min. In general, the differences between the satellite clock and the transponder time are consistent with the differences between the satellite clock and the base station times. This suggests that, as for the base station clocks, the transponder clocks are usually accurate to a few seconds.

It is also possible to compare the satellite clock times to the UTC-seconds field in message 1. The errors are similar to those already encountered so that the timing error is usually less than 3 sec but is sometimes much larger. Of course, it is not possible to discern errors greater than a minute.

## V. Safety Related Messages

The relevant safety messages are messages 12 (addressed) and 14 (broadcast). Examples of message 12 are shown in Table 8. About a quarter of the messages in this category do not result in recognizable character streams possibly because they represent logograms in Chinese or related languages.

The readable messages tend to fall into the categories of actual safety, system testing and conversation, including jokes.

Broadcast safety message 14 is the message that might contain PAN-PAN, MAYDAY and other important safety related signals. Examples of message 14 are in Table 9. This includes a MAYDAY message, a warning about a buoy that is not in the expected position and a meteorological report. However, at least half the messages cannot easily be interpreted. Again it is possible that some of these messages represent a string of logograms.

Table 8
EXAMPLES OF SAFETY MESSAGE 12

| MMSI | Destination | Safety Text |
|---|---|---|
| 525XXXXXX | 525XXXX | OVERSPEED |
| 701XXX940 | 701XXX698 | OK GRACIAS 68 Y 70 PERO DE FONDO |
| 636XXXXX0 | 636XXXXX5 | TEST MSG PLS ACKNOWLEDGE GOOD WATCH |
| 353XXXXXX | 525XXXX | TOLONG TURUNKAN KECEPATANYA YA |

Table 9
EXAMPLES OF SAFETY MESSAGE 14

| Time | MMSI | Safety Text |
|---|---|---|
| 03 2:30:33 | 710XXXXXX | ATON IS OFF POSITION [TECON NORTE MMSI 710662680] |
| 03 12:32:57 | 119XXXX | MAYDAY DE NAUTICAST D11233 POS:N…….. |
| 05 00:54:25 | 566XXXXXX | AIS TEST KINDLY ACK… |
| 05 18:29:09 | 999029 | DALIAN[DALIAN] MET-DATA AT 2013-3-6 02:00 GMT+8: WD=158/157^ WS=1.6/1.5/M/S…….. |

## VI. APPLICATION SPECIFIC MESSAGES

When the binary or ASMs are structured, as should always the case for messages 6 and 8, the binary field contains a field within itself that specifies the type of message [1]. This forms the first 16 bits of the binary part of the message and is called the Application Identifier (AI). The AI is divided into the Designated Area Code (DAC), which comprises the first 10 bits of the AI, while the remaining 6 bits comprises the Function Indicator (FI). The maximum DAC is 1023 and the maximum FI is 63. Values of the DAC greater than 999 are supposed to be reserved for future use. For regional messages, the DAC is often but not always the same as the MID.

A value of the DAC of zero with any value of the FI should be used for test purposes using either binary message 6 or 8. By international agreement, a DAC of one indicates that the ASM should be recognized internationally and that the contents are indicated by the FI according to Table 10. Messages with FI between 2 and 5 are restricted to message 6, which is addressed. Some formats of the binary components of messages 6 and 8 are provided in [1] and [6]. There are several messages in force in the category of "international operations". These have been approved by the International Maritime Organization (IMO) and some formats are described in [7], [8]. In addition there are a large number of regionally defined messages. Some of these are associated with the US Coast Guard (USCG), with the St. Lawrence Seaway and with European and UK inland waterways. A list of ASMs has been compiled by IALA [9].

Table 10
APPLICATION SPECIFIC MESSAGE SPECIFICATION [1]

| DAC | FI | Message |
|---|---|---|
| 0 | Any | Test |
| 1 | 0 | Text in 6-bit ASCII |
| 1 | 1 | Discontinued |
| 1 | 2 | Interrogation for a specific ASM |
| 1 | 3 | Capability interrogation |
| 1 | 4 | Capability interrogation reply |
| 1 | 5 | Application acknowledgment |
| 1 | 6-9 | Reserved |
| 1 | 10-63 | International operations |

In the text message (DAC = 1, FI = 0), there is an acknowledge-required flag of 1-bit and a text sequence number of 11-bits followed immediately by the text message. Some examples are shown in Table 11. As well as many test messages, there appear to be some safety related messages. Some messages are unreadable and many of these originate from and are addressed to Icelandic ships. It is possible that they are encrypted but more study is required.

Table 11
EXAMPLES OF ASM (DAC = 1, FI = 0)

| MMSI | Destination | Text |
|---|---|---|
| 636XXXXXX | 371XXXXXX | TEST PLS REPLY |
| 352XXXXXX | 240XXXXXX | TEST RCV@ |
| 371XXXXXX | 257XXXXXX | WOULD U BE SO KIND TO ACK.BQ MY MF/HF TEST.. THKS.. |
| 240XXXXXX | 477XXXXXX | PLEASE PASS CLEAR |
| 477XXXXXX | 240XXXXXX | OK. PLS KEEP UR COS', THKS!@ |
| 212XXXXXX | 354XXXXXX | AIS TEST RCVD THANK YOU ('_') |
| 241XXXXXX | 371XXXXXX | BOKYA ANIM MIGO?@ |

### A. *ASM Statistics*

The numbers of different ASMs in one day are shown in Table 12 for message 6. These are presented as a percentage. Similarly Table 13 shows the ASMs for message 8, where SU is an additional index that is part of the binary message. Only ASMs with more than a single report are included. Where possible, the ships, coastal stations and AToNs have been verified by checking their MMSI numbers against the data on various Internet sites. However, this is not always possible so there is significant residual uncertainty especially when the number of reports and stations are small. The problem is compounded by the fact that the ITU specifications for the MMSI numbers are often ignored, especially for AToNs and sometimes coastal stations.

Though the code to resolve many of the ASMs included in [9] has been written, it has not been possible to verify the contents of many messages. In any case, the ASM format is often not available. Many message formats are not in the public domain and maritime authorities are being contacted to provide information. Some progress has been made in deciphering messages by tentatively identifying the boundaries of numeric fields but this is only possible when there are a large number of messages with varying content.

## VII. Conclusion

The AIS messages that are not related to platform position or static reports can be valuable for maritime surveillance and awareness. The safety messages can and do contain distress signals that can be received by space-based receivers; this could be important for rescue efforts. The timing signals from base stations and from ship transponders (either through message 11 or messages 1 to 3) can be used to monitor the accuracy of the satellite clocks and, where necessary, to make appropriate corrections. This could be accomplished using a type of running median filter on the time differences to obtain a mean and standard deviation for the correction to the satellite time stamp. These corrections are very important when fusing the AIS data with information from other sensors to cross-validate them.

ASM messages could be an important source of information though the formats of many are still to be determined. From a military point of view, the ASMs can monitor maritime activity in particular regions of the globe even if the data is encrypted.

Some significant effort is still needed to decipher the ASMs with unknown format, to write the code and to include it in an appropriate user interface.

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Table 12
STATISTICS OF MESSAGE 6 ASMS

| DAC | FI | Percent | Message Type | Country | Platform Type |
|---|---|---|---|---|---|
| 0 | 54 | 30.09 | Numeric: TBD | Chile | Coastal stations or AToNs |
| 1 | 3 | 19.21 | Capability interrogation | International | Base stations |
| 990 | 40 | 18.52 | TBD | Australia | Floating platforms |
| 1022 | 62 | 12.04 | TBD | New Zealand | Buoys |
| 1 | 0 | 5.32 | Text telegram | International | All |
| 843 | 0 | 3.94 | TBD | Brazil | Buoys |
| 265 | 60 | 1.85 | TBD | Chile | AToN |
| 0 | 0 | 1.62 | Test | International | All |
| 235 | 10 | 1.62 | TBD | Sri Lanka | Buoys |
| 1 | 40 | 1.16 | Number persons aboard | International | All |

Table 13
STATISTICS OF MESSAGE 8 ASMS

| DAC | FI | SU | Percent | Message Type | Country | Platform Type |
|---|---|---|---|---|---|---|
| 366 | 56 | 0 | 52.31 | Position Report Payload (Encrypted?) | USA | USCG ships |
| 88 | 2 | 0 | 8.86 | TBD | Panama , Columbia, China, Liberia | Ships |
| 99 | 2 | 0 | 7.24 | TBD | Mexico? | Ships |
| 200 | 10 | 0 | 7.01 | Inland Ship Static and Voyage Related | EU | Ships |
| 316 | 1 | 3 | 4.93 | Seaway Water Level | Canada | Ships |
| 103 | 56 | 0 | 4.16 | TBD. | TBD | MMSI Invalid |
| 1 | 3 | 0 | 4.01 | Capability Interrogation | International | Coastal stations |
| 316 | 2 | 1 | 2.62 | Estimated Lock Times | Canada | Seaway Vessels |
| 88 | 6 | 0 | 2.31 | AToN Monitoring | Panama | AToNs |
| 1 | 11 | 0 | 0.92 | Meteorological and Hydrological Data | International | AToNs |
| 366 | 34 | 0 | 0.69 | Environmental? | USA | AToNs |
| 1 | 22 | 0 | 0.54 | Area Notice? | International | AToNs |