 Input paper: [[1]](#footnote-1) ENAV17-11.23

Input paper for the following Committee(s): check as appropriate Purpose of paper:

ARM **□** ENG **□** PAP **x** Input

**x** ENAV **□** VTS **x** Information

Agenda item [[2]](#footnote-2) 11

Technical Domain / Task Number 2 2.1.2 Development of Recommendations and Guidelines on VDES;

Author(s) / Submitter(s) E. Engler, S. Bober, M. Hoppe

WG3 (Telecommunication)/ WG5 (PNT)

PNT relevant topics for the use of AIS/VDES

# Summary

The document addresses the need to coordinate the exchange of PNT relevant data (phase and code based GNSS corrections, GNSS/DGNSS related integrity information) as input for the ongoing development of VDES related recommendations and guidelines.

## Purpose of the document

The Automatic Identification Systems (AIS) is a maritime communication system primarily designed to provide information about the ship to other ships and coastal authorities automatically. Static, dynamic and voyage-related data compose the ship-specific AIS messages and includes e.g. ship’s identity, type, **position**, **course**, **speed**, **heading**, **rate of turn** and navigational status. Some PNT parameters (position and time) are provided together with flags indicating the application of RAIM (receiver autonomous integrity monitoring) and estimating the position accuracy. Others like course, speed heading and rate of turn are provided without integrity information.

In addition a message #17 is defined which is used to provide GPS and/or GLONASS corrections similar to the MF radio beacon system. It should be mentioned that the use of AIS message #17 generates some channel load on AIS, especially when provided from a number of shore sites within a region. An improvement of the integrity information for all PNT relevant data (e.g. provided in AIS message #1) as well as an extension of AIS message #17 to provide also corrections and integrity information for future satellite systems (e.g. Galileo, Beidou or SBAS) would require more data capacity and would result in additional channel load. Hence it would be better to protect the AIS channels 1 and 2 for the exchange of ship’s static, dynamic and voyage related data and provide an improved and extended provision on PNT relevant integrity and correction data using the additional channel capacity which will be provided by VDES.

At present the following PNT relevant information should be considered for the definition of new ASM as part of VDES:

* Provision of improved accuracy and integrity information for all PNT relevant data (Latitude, Longitude, Altitude, Time, SOG, COG, Heading, etc.) which is used in the position reports (messages 1-3, 9, 18 and 19)
* Provision of GNSS code based corrections (similar to existing AIS message #17)
* Provision of GNSS phase based corrections (new) for high precision applications
* Provision of PNT relevant safety information (new) for GNSS/DGNSS systems used for shipborne PNT data determination

## Related documents

* enav16\_11\_7\_enav15\_14\_2\_42\_toward\_a\_preliminary\_draft\_new\_recommendation\_itu\_r\_m\_vdes; WORKING DOCUMENT TOWARD A PRELIMINARY DRAFT NEW RECOMMENDATION ITU-R M.[VDES],
* enav16\_11\_3\_enav15\_14\_2\_44\_draft\_iala\_recommendation\_for\_vdes\_; Introduction of VDES and protection of the AIS, Edition 0.0
* enav16\_11\_18\_output\_8\_wd\_comms\_wg\_sg\_feb\_2015\_user\_requirements\_wd03\_rev1\_use\_case\_requirements; VDES User requirements,

# Action requested of the Committee

The Committee is requested to:

1. note the information provided,
2. consider the proposed PNT relevant information for the ongoing development of VDES related recommendations, guidelines and documents,

1. Input document number, to be assigned by the Committee Secretary [↑](#footnote-ref-1)
2. Leave open if uncertain [↑](#footnote-ref-2)