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EGNOS performance along Finnish coast

# Summary

A GNSS data campaigns was performed along the Finnish coast between 1st and 14th November 2019 on board Mastera, a crude oil tanker, in order to analyse the EGNOS performance in the border of Northeast EGNOS coverage area.

Results, coming from a set of different GNSS receivers (maritime receivers, high-end receivers and receivers aligned with the future SBAS guidelines), point out that the EGNOS L1 service is compliant with the operational requirements defined in the IMO Res. A.1046 for ocean waters, coastal waters and harbour entrances/approaches at those high latitudes.

# Purpose of the document

The purpose of this article is to confirm that EGNOS (European Geostationary Navigation Overlay Service / SBAS in Europe) performance over Northeast Europe is compliant with the operational requirements defined in the IMO Res. A.1046 (27) for ocean waters and harbour entrances/approaches, being beneficial for maritime community. In addition, this paper will inform about the programmatic activities that are ongoing for the provision of EGNOS L1 maritime service over Europe.

# Background

The IALA Guideline 1152 on SBAS Maritime Service approved in IALA Council 69 hold last 16th December 2019 presents the future considerations when a Member State considers the declaration of a tailored SBAS service for the Maritime Community.

The Guideline includes:

* Operational requirements based on IMO Res. A.1046.
* SBAS architecture, existing and future systems.
* SBAS service performance parameters.
* Service Provision Scheme with the roles and responsibilities of each party involved in the SBAS service including the generation of MSI.

# Contribution

EC (European Commission) and GSA (European GNSS Agency) are assessing an *EGNOS L1 maritime service* with the objective to complement the existing maritime radio-navigation systems (e.g. DGNSS). Maritime community is interested in using SBAS for ocean waters, coastal waters and harbour entrances/approaches considering operational needs (IMO Res. A.1046), especially where there is no back-up infrastructure or in poorly covered environments. EGNOS L1 Maritime Service aims at providing pseudo-range corrections and alert information to the GPS L1 signals for maritime navigation, obtaining enhanced accuracy and integrity information over Europe.

In addition, CEN/CENELEC has created an European WG to support in the IEC the standardisation of SBAS in shipborne receivers for maritime applications to ensure that type approved receivers meet the required minimum performances.

A GNSS campaigns was performed along the Gulf of Finland in order to analyse the EGNOS performance in the border of Northeast EGNOS coverage area. Different types of receivers configured to use SBAS were on board a vessel to analyse the results. The set of receivers used includes maritime receivers, high-end receivers and also new receivers aligned with the future SBAS guidelines. The EGNOS performance results are compared with respect to the GPS standalone solution, to evaluate the improvement of using an enhanced navigation solution in the region where EGNOS will provide this Maritime Service. The performance obtained with the receivers are compared with the operational requirements defined in the IMO Resolution A.1046 (27) to assess the feasibility of EGNOS for some maritime applications.

The results confirms that EGNOS L1 service is compliant with the operational requirements defined in the IMO Res. A.1046 (27) for ocean waters, coastal waters and harbour entrances/approaches, being beneficial for maritime community over the Finnish coast.

# Action requested of the Committee

The committee is invited to note the SBAS performance achieved in the Finnish coast (see input paper).

1. Input document number, to be assigned by the Committee Secretary [↑](#footnote-ref-1)
2. Input papers should be assigned to a work task as listed in the Committee work plan which is available in input papers. Leave open if uncertain but consider how the paper is to be processed if not relevant to a work task [↑](#footnote-ref-2)