

DECISION OF THE SYSTEM PILLAR STEERING GROUP (DRAFT)

adopting the approach to Absolute Train Positioning/EGNOS

N° 2/2023

THE SYSTEM PILLAR STEERING GROUP OF THE EUROPE'S RAIL JOINT UNDERTAKING, NOTES

- The development and performance of an Absolute Train Positioning system is a critical future element of the digitalization and optimization of the European Rail system.
- Such a new functionality would serve all CCS (and non-CCS) functions such as Automatic Train Protection (ATP), Automatic Train Operations (ATO), Traffic Management System, Train Control and Management System, applications of Railway Undertaking in train (e.g. travel-information) or on trackside.
- The strategy for Absolute Train Positioning covers at least 2 different objectives:
 - Objective 1: The enhanced on-board accuracy and safety requirements allowing increased capacity and less trackside assets.
 - Objective 2: The increased on-board modularity (IC ‘Odometry’) with all its defined interfaces.
- If properly designed, the system could become a key element of the future ERTMS system with interactions with many critical modules of the ERTMS architecture.
- In the consideration of the development of Absolute Train Positioning, the potential use of EGNOS is an important element, and it is demanded for the use of 8 localisation demonstrators within Flagship Project 2 of EU-Rail, as well as relevant to Flagship Project 6 demonstrators.
- A sector request “Position paper about the use of EGNOS in the Localisation demonstrators of WP22 of the ERJU IP FA2 R2DATO project” requested
 - The definition of a Working Group in ERJU System Pillar to prepare the use of EGNOS in the ERTMS frame with one main topic to be discussed: a. The definition of a safe and interoperable interface to bring the EGNOS service onboard the trains.
 - The EU-Rail consortium request and need to be reported to ERA and EUSPA to trigger the service definition and roadmap leading to an initial service implementation
- As such, the Executive Director has written to the EUSPA Executive Director supporting the sector request for the following:

- A specific domain of activity of the System Pillar of Europe's Rail with the participation of representatives of EUSPA and ERA beyond the sector to define safe and interoperable solutions interface(s) to bring EGNOS onboard of the train, within the overall system architecture there designed;
- To request the availability of EUSPA and ERA representatives to be involved within the FP2 project, in order to establish an industrial roadmap leading to the initial (EGNOS) service implementation, considering the first deadline of early 2025; the terms of such involvement will have to be defined with the project with the support of EU-Rail.

THE SYSTEM PILLAR STEERING GROUP OF THE EUROPE'S RAIL JOINT UNDERTAKING, AGREES

- The requested work on Absolute Train Positioning and the incorporation of EGNOS requires elements of both Innovation Pillar and System Pillar work.
- From the perspective of the work of the System Pillar two elements are proposed.

EU-Rail approach to defining the GNSS augmentation service based on EGNOS

- It is recommended that a group is set up to define the GNSS augmentation based on EGNOS including EUSPA, ESA and ERA alongside relevant representatives from EU-Rail, aiming to:
 - investigate, assess, and define priorities to the technical/non-technical issues and topics still to be solved to establish the roadmap to define the initial EGNOS service (for example, including the experience of ESA/EUSPA regarding the development of the EGNOS service for aviation)
 - define the deliverables to be released (documents tree)
 - Organise if necessary specific topical GNSS augmentation WGs with respect to the identified topics to be worked on and allocate responsibilities for each topic to be solved (making use of existing WGs when possible)
 - define the roadmap having the target of 2025 for a GNSS augmentation service based on EGNOS to be used for the FP2 and FP6 demonstrators.
- It is expected that the organisation of this group will be considered by the EU-Rail SIPB, led by the considerations in the FP2 demonstrators.
- The System Pillar will constructively consider the provision of any requested resource, and name representatives, to support this work.

SP work on the on-board architecture to accommodate Absolute Train Positioning

- Bearing in mind the agreed System Pillar Domains structure and remit in the definition of the architecture solutions, and pending the outcome of the above steps, to request the System Pillar to engage in a "baseline" exercise, to advance the request on considerations of onboard architecture for Absolute Train Positioning, including usage of EGNOS, defining the business case (including consideration on IMs and RUs) and feasible options based on the results from previous research initiatives performed under Shift2Rail, EU-

Rail or any other initiative (e.g. OCORA, CLUG and CLUG2.0), with a particular focus on onboard architecture considerations.

- In order to increase the efficiency of the action, the already started activities in Lot 2, Task 2 domains shall be taken into account for the further planning
- This would be presented to the SP-STG, potentially by 31 May, but to be confirmed, alongside a proposal for decision on next steps, for example further economic analysis, migration and implementation impacts and/or technical analysis, with a view to defining the proposed on-board architecture solutions for the evolution of the system.