



CLEPSYDRA

Key facts

Full name

Certified galileo timE Provision for SYnchronisation of Disciplined Reference scAle

Project call number

EUSPA/GRANT/02/2024-01

Project call

Galileo Timing receivers implementing CEN/CENELEC standards

EU contribution

€ 1,232,208.48

Market segment

Critical Infrastructure

Project start/end

08/09/2025 – 28/02/2027

Context and motivation

GNSS technology is known to provide an accurate and stable timing source for several user communities, granting worldwide accurate and easily accessible dissemination means for time, phase and frequency references. These timing signals are typically exploited by several public and commercial services as well as for critical networks synchronization. However, actions should be put in place to counteract hazards which are posing a major threat by affecting more and more the continuity of GNSS services provision, resulting not only in safety related incidents, but also in economic losses.

The evolution of the Galileo Second Generation

(G2G) system is going to broadcast a dedicated 'Timing Service Message' (TSM), as part of the future Galileo Signal-in-Space, aimed at providing additional information to be exploited by the timing user receivers. The new Galileo Timing service together with the already available Open Service Navigation Message Authentication (OS-NMA) will provide the key enablers for the next generation of European standardized Galileo timing receivers, which are required to meet the specifications of the new CEN/CENELEC EN 16605:2024 Standard.

Challenge & technical solution

System operators relying on GNSS-based devices for their timing needs are requiring equipment which are not only stable and accurate, obviously desired key performance in nominal condition, but also capable of detecting hazards and reacting accordingly. Thus to ensure integrity and continuity of service, a robust Timing & Synchronization (T&S) solution will be delivered by the CLEPSYDRA platform, relying on a Multi-frequency GNSS-disciplined time reference, assisted by time solution integrity monitoring (T-RAIM) and protected by Galileo OSNMA and advanced anti-jamming and AI-based anti-spoofing technologies.

Scope

The aim of the CLEPSYDRA Consortium is to team up a group of GNSS and Timing experts and relevant European industries with the objective of bringing to the commercial market the competencies, knowledge and heritage achieved in several years of developments related to Galileo based high-grade timing solutions.

The proposed Galileo dual-frequency timing receiver baseline will target a TRL 7/8 platform with a full compliance to the functional and performance targets currently defined in the applicable EN Standard, ensuring a robust and cost efficient design for a competitive commercial product to be deployed in the Energy, Telecommunications, Finance, Transportation domains and Governmental services.

Targeted Product

Robust Galileo Timing Receiver for Critical Infrastructures



Targeted GNSS innovation

Galileo Timing Service Message, Galileo OS Authentication, Time Integrity, AI-based Antispoofing

