



# APOGEE

## Key facts

**Full name**

quAsi PiLOt siGnal tEst bEd

**Project call number**

EUSPA/GRANT/03/2024

**Project call**

Implementation of quasi-pilot G2G signals

**EU contribution**

€ 811,233.51

**Market segment**

Transversal

**Project start/end**

01/01/2026 – 31/12/2027

## Context and motivation

The demand for fast, precise and reliable GNSS solutions is experiencing significant growth across all market segments, including transportation - such as rail, maritime, and automotive - alongside the IoT and space sectors. This rapid expansion coincides with increasing geopolitical risks, including conflicts and crises, as well as potential GNSS unavailability, which together make achieving European independence in satellite navigation more essential than ever. In this context, Galileo is central to the European strategy, and its growing adoption highlights the importance of further enhancing its performance

and resilience to guarantee user independence and service continuity. Nevertheless, current limitations exist, as the first-generation Galileo signals appear slower to acquire and less resource-efficient compared to other legacy GNSS systems counterparts. This situation is further underscored by feedback from the market, with major players expressing strong interest in solutions that can deliver improved performance for their operational needs.



## Scope

The aim of the APOGEE (quAsi PiLOt siGnal tEst bEd) Consortium is to provide a complete and advanced End-to-End G2G user receiver test bed for new Galileo G2G user receivers, enabling fast acquisition of G2G and legacy Galileo SV components, metasignal processing for increased accuracy, and robust operation in all user environments.

The proposed receiver baseline will target a TRL7 platform with a flexible architecture, allowing both immediate application validation and preparation for future live G2G signal availability, directly addressing critical needs in transportation and space domains.

## Challenge & technical solution

The absence of live G2G signals-in-space in line with foreseen ICD or sufficiently flexible simulation solutions for early testing in controlled scenarios and application adaptation, require to develop an advanced simulation and validation test bed, capable of demonstrating the benefits of the upcoming Galileo evolution, prior to its full deployment.

Such need for a flexible and reliable testing tool is addressed by a new GNSS simulator, developed by Safran, providing new G2G QP waveforms, legacy Galileo services and advanced end-user scenario emulation capabilities. Configurability both at the signal generation and receiver levels will allow refinement of the receiver solution and algorithms for future commercial exploitation.



## Targeted Product

APOGEE G2G receiver, designed and manufactured by Thales Alenia Space Italia, will provide a highly configurable benchmark design for several hi-end PNT platforms, bringing a precise and reliable GNSS solution to rail and maritime domains and space applications.

