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GERMINAL

Enabling next generation NAV/COM Hybrid Terminal

Key facts

Full name Enabling next generation NAV/COM Hybrid Terminal

Project call number EUSPA/GRANT/06/2022

Project call Connectivity: Enabling next generation NAV/COM Hybrid Terminal

Funding 1 069 749,83 EUR

EU contribution 748 824,88 EUR

Topic Transversal

Market segment Transversal

Project start/end 01/06/2024 – on-going

Galileo differentiators OSNMA



Targeted GNSS

innovation Software-based approach, and a unified hybrid user terminal (UHUT)



Targeted Product IoT receiver

Context and motivation

Currently, there are various tens of satellites launched transmitting compatible signals as GNSS becomes increasingly embedded in the daily lives of citizens and used for many different applications across different market segments. There are at least one billion GNSS receivers in operation around the world, and this number is growing rapidly.

To date the GNSS market has been dominated by GPS. Nevertheless, the GNSS panorama is evolving with the emergence of more global and regional initiatives and plans to modernize the existing GNSS constellations.

EU GNSS programmes play an increasingly role in this global picture and to guarantee performances at European level.

Scope

The main goal of GERMINAL is to develop a communication and navigation solution. The final product will consist of a prototype IoT receiver, which will have a purely software-based approach, and a unified hybrid user terminal (UHUT) prototype that will be able to process several different signals using a set of signal processing units, including 5G signals.

In terms of communication, the proposed solution will allow terminals to use different infrastructure elements and bands to provide coverage in segments such as aviation and maritime, among others.

In terms of navigation, the project will enable terminals to use the novel LEO-PNT signals (Low Earth Orbit satellites for Positioning, Navigation, and Timing). The EU counts with two satellite navigation systems:

- **Galileo** aiming at developing and operating the 1st global satellite navigation and positioning system designed for civilian purposes; and
- **EGNOS** (European Geostationary Navigation Overlay Service) aiming at improving the quality of GNSS signals over Europe.

In addition to GNSS other systems or techniques can be used for PNT purposes such as:

- · LEO-PNT; and
- 5G.

Challenge & technical solution

The main challenge is the alignment of 5G and LEO evolutions with respect to the project activities.

The technologies which could be part of a potential Hybrid PNT Terminal, such as 5G are continuously evolving. Thence, it is important to consider these evolutions in order not to miss relevant aspects for the terminal.

LEO PNT concept is also evolving, and it is important to monitor this in order to take decisions with respect to the selection of the scenarios that are in line with the EU initiatives.

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