

The Galileo PRS

Secure EU satellite navigation
for government use



European
Global Navigation
Satellite Systems
Agency

GALILEO 
PRS
Public Regulated Service
Secure, robust and always available

What is the Galileo PRS?

The Public Regulated Service (PRS) is an encrypted navigation service designed to resist jamming, involuntary interference and spoofing. It is one of the Galileo services with key security features:

- ★ Ensures continuity of service to authorised users when access to other navigation services is denied.
- ★ In cases of malicious interference, the PRS increases the likelihood of continuous availability of the Signal-in-Space.
- ★ Provides an authenticated position - velocity - timing service.



Who is it for?

Access to PRS is regulated by Decision N° 1104/2011/EU of 25 October 2011.

Accordingly, PRS is restricted to Member States, the Council, the European Commission and the European External Action Service (EEAS) and, where appropriate, European Union agencies. It will be possible for certain third countries and international organisations to become PRS participants if separate agreements are concluded to this respect.

Each Member State will take its own sovereign decision on which PRS users to authorise and which uses may be made of the PRS. A set of Common Minimum Standards (CMS) will define the minimum requirements that are applicable to any PRS Participants.

Access to the PRS is controlled through an encryption mechanism. Users who have not been granted access to the secure features of the PRS signal will be unable to access any information from this signal. Access can also be revoked when necessary.

The PRS can support a range of services, such as:

- ★ Police, coastguard, border control, customs
- ★ Critical Infrastructures and monitoring systems
- ★ Civil protection units working in crisis situations
- ★ Governmental transport and tracking of dangerous goods
- ★ Peace-keeping forces and defence



PRS can help users facing two main threats

Jamming – the intentional transmission of radio frequency noise, blocking navigation services by masking the GNSS signal. This attack has seen a rapid growth during last ten years and could get worse in the future.

A small and inexpensive jammer can disrupt a conventional GNSS signal in a limited area. More powerful jammers could disrupt signals in close proximity of critical infrastructures. PRS reduces this risk and makes it easier to identify and locate potential jammers.

Spoofing – the transmission of counterfeit GNSS-like signals that causes the receiver to compute erroneous positions. The user is fed incorrect information such as the wrong location or timing.

Spoofing requires skills and equipment. It could become a serious threat in the coming years as even more GNSS applications requiring secure positioning and timing emerge.

By using the PRS, emergency forces and police will retain the ability to serve the public using GNSS even in cases of spoofing. By design, the PRS is able to authenticate the position and the velocity of a mobile platform, or to authenticate the time of an event.



Key elements of the PRS

- Each PRS Participant and Member State shall nominate a **Competent PRS Authority (CPA)** responsible for managing and supervising users.
- Each Competent PRS Authority is responsible for its users and controls its PRS receivers access through the **Point Of Contact Platform (POCP)** that is the interface to the **Galileo Security Monitoring Centre (GSMC)**.

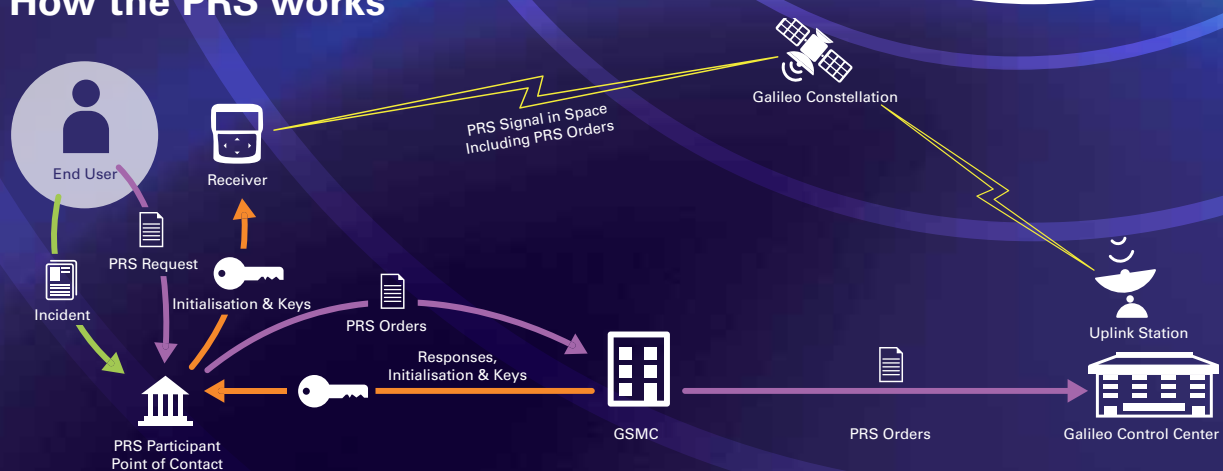


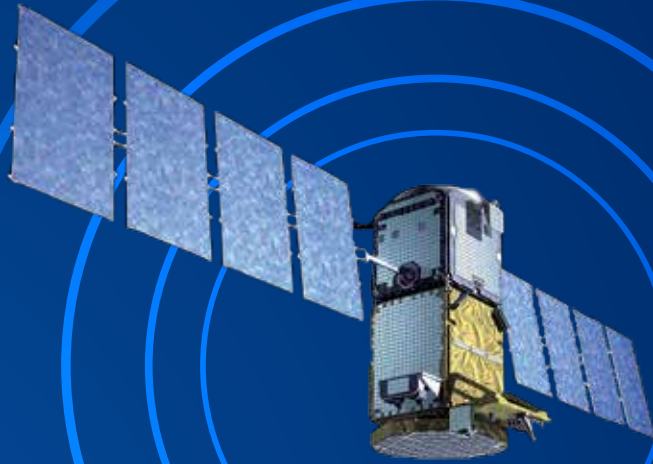
The Galileo PRS = Protection

The PRS will enable two critical capabilities. First, users will be protected on a daily basis against jamming and spoofing. This means that PRS will make it more costly and more difficult to attack the Galileo signal – jammers will require more power, they will be more expensive and easier to locate when in use. At the same time, robust encryption mechanisms within the PRS signal will enable positive protection against spoofing.

Secondly, under exceptional circumstances, the existence of a protected signal for critical applications will allow for the denial of the open signal to hostile users, without disruption to those critical applications.

How the PRS works





Galileo

Galileo is Europe's initiative for a state-of-the-art global satellite navigation system, which will provide a highly accurate, guaranteed global positioning service under civilian control. While providing autonomous navigation and positioning services, the system will be interoperable with GPS, the global satellite navigation system of the United States of America. The fully deployed system will consist of 30 satellites, the associated ground infrastructure and the user segment.

Galileo is ramping up progressively, with the first four satellites of the constellation successfully launched in 2011 and 2012. Early services are expected from the completion of the system validation from 2014 onwards.

www.gsa.europa.eu
www.ec.europa.eu/galileo



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