



European  
Global Navigation  
Satellite Systems  
Agency

# **CURRENT STATUS OF GALILEO PRS**

**EUROPEAN SATELLITE NAVIGATION COMPETITION 2015  
PRS SPECIAL PRIZE**

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# The Galileo Public Regulated Service

## THREATS to GNSS

Interference  
Jamming  
Spoofing  
Misuse

## User NEEDS

Better Availability  
High Continuity  
Authentication  
Access Control



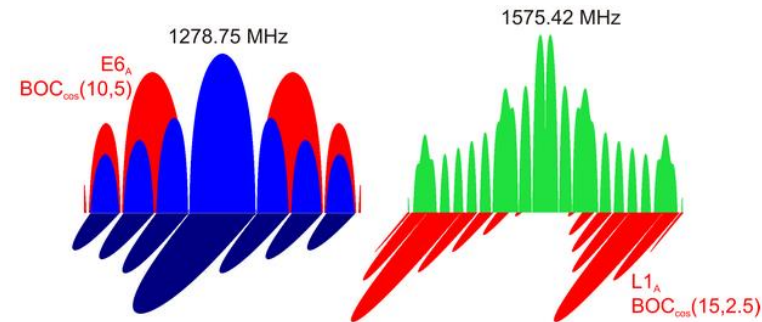
The Public Regulated Service (PRS) is an encrypted navigation service designed to provide resistance to jamming, involuntary interference and spoofing



# The Galileo Public Regulated Service

## Public Regulated Service (PRS)

- Dual band signal (E1 + E6) in order to be more resistant to interference, jamming, and bad propagation conditions
- Better continuity of service
- Better accuracy thanks to the high bandwidth
- Encrypted ranging codes and data
- Access Control mechanisms
- Protection against spoofing
- Authentication of the signal

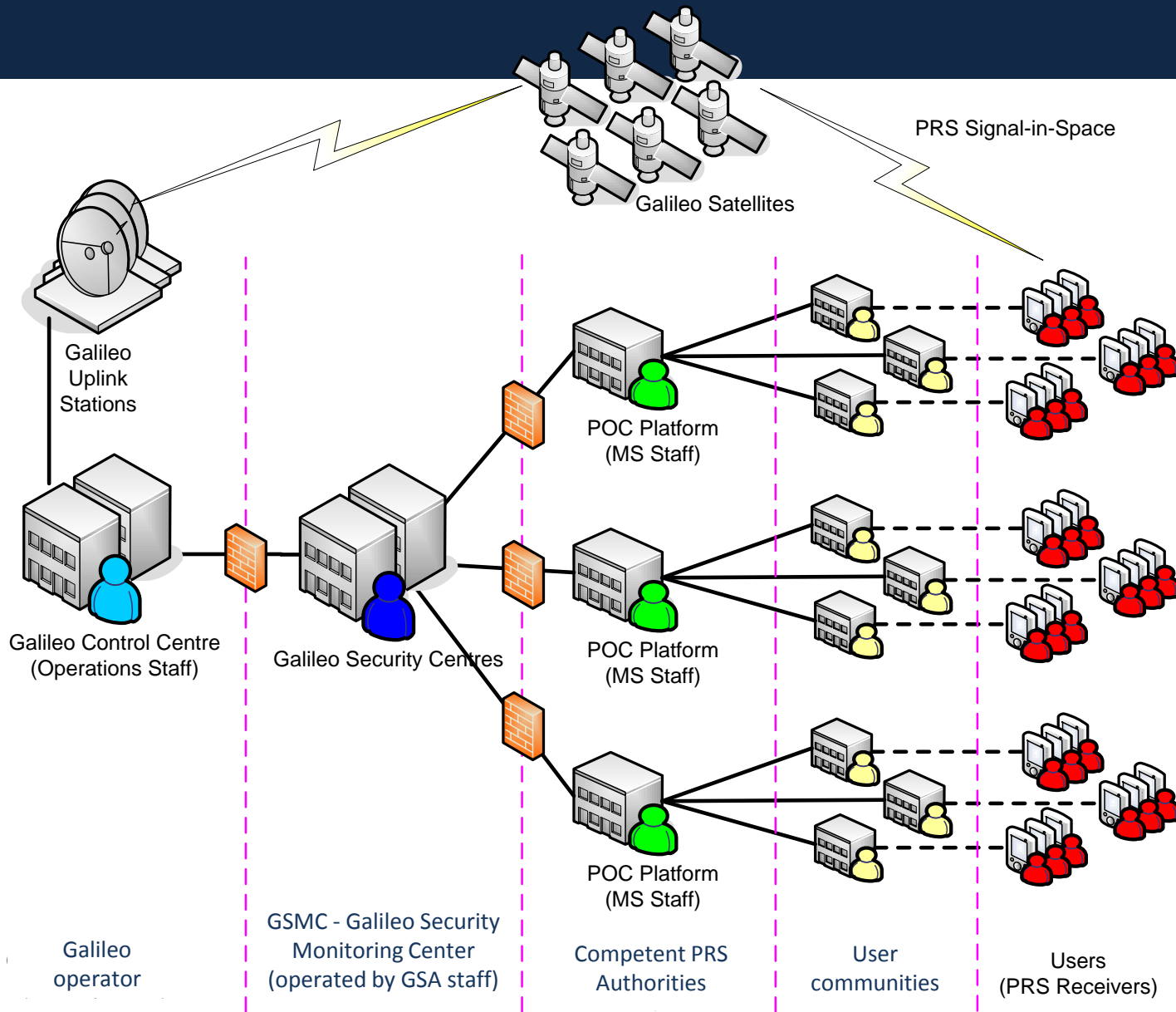


PRS is a trustable Position Velocity Timing service

Access to the PRS is controlled through key management systems

- Users who have not been granted access to the secure features of the PRS signal will not be able to determine any information from this signal

# The Galileo Public Regulated Service



# The Galileo Public Regulated Service

## Access to PRS is regulated by Decision 1104/2011/EU

- Primarily intended for EU Member State Governments. Also Commission, Council and EEAS are PRS users. Potentially EU agencies, Third countries and international organisations (under specific arrangements) can be granted the access
  - US, Norway and Switzerland have manifested their interest to have access to PRS
  - Typical user communities are: Emergency services, Police, Coastguard, Border control, Customs, Critical Infrastructures, etc.

## Decision 1104/2011/EU requires Member States participating in PRS to designate a Competent PRS Authority (CPA)

- To manage and control the production and the use of PRS receivers

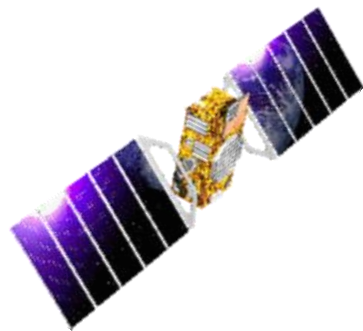
## PRS is a governmental market

- According to Decision 1104, industry has to rely on its Member State and in particular to its CPA
  - To manufacture PRS material
  - In addition, it has to follow a security accreditation process
  - National Competent PRS Authorities monitor compliance with the Common Minimum Standards



# The Galileo Implementation Plan

**Galileo is implemented  
in a step-wise approach**

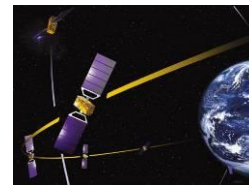


Galileo System Testbed v1  
Validation of critical algorithms

**2003**



GIOVE A/B  
2 test satellites  
2005/2008



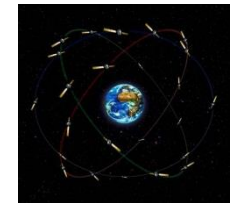
In-Orbit Validation  
4 fully operational satellites and  
ground segment

**2013**



Initial Operational Capability  
Early services for OS, SAR, PRS,  
and demonstrator for CS

**2015**



Full Operational Capability  
Full services, 30 satellites  
From 2018/2020





# Recent developments in PRS

**Since 2013, PRS has been proven to provide independent and secure GNSS service**

- As demonstrated by ESA IOV campaign and PRS Participant Trials in IOV (PPTI) in which several MSs successfully participated

**Several MSs (14) have established their Competent PRS Authority and confirmed their interest on PRS Pilot Projects through a Call for Engagement from EC supported by GSA and presented their plans for PRS Pilot Project Activities starting from Early Services**

- Bilateral meetings with Member States have been organised and conducted by EC, GSA and ESA

**The first CPA Workshop has been organised in GSA premises in Prague the 9<sup>th</sup> and 10<sup>th</sup> of July 2014**

**GSMC staff relocated to its final sites and development of operations already started**





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**THANK YOU**

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