European
Global Navigation
Satellite Systems
Agency

CURRENT STATUS OF GALILEO PRS SERVICE AND USER SEGMENT DEVELOPMENT

THE FUTURE GALILEO PRS SESSION
SATELLITE MASTERS CONFERENCE 2014
BERLIN, 24 OCTOBER 2014

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The Galileo Public Regulated Service

THREATS to GNSS

Interference
Jamming
Spoofing
Misuse

PRS
Public Regulated Service

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

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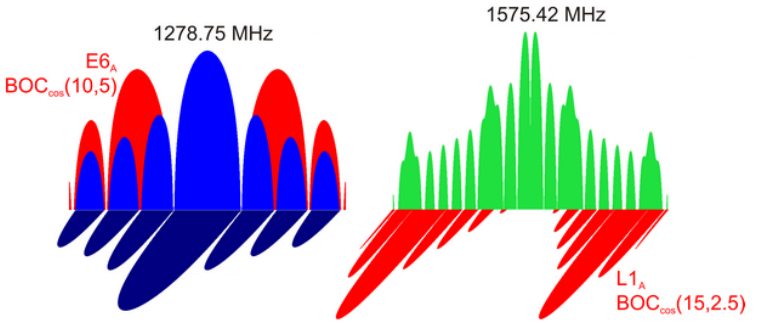
The Galileo Public Regulated Service

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

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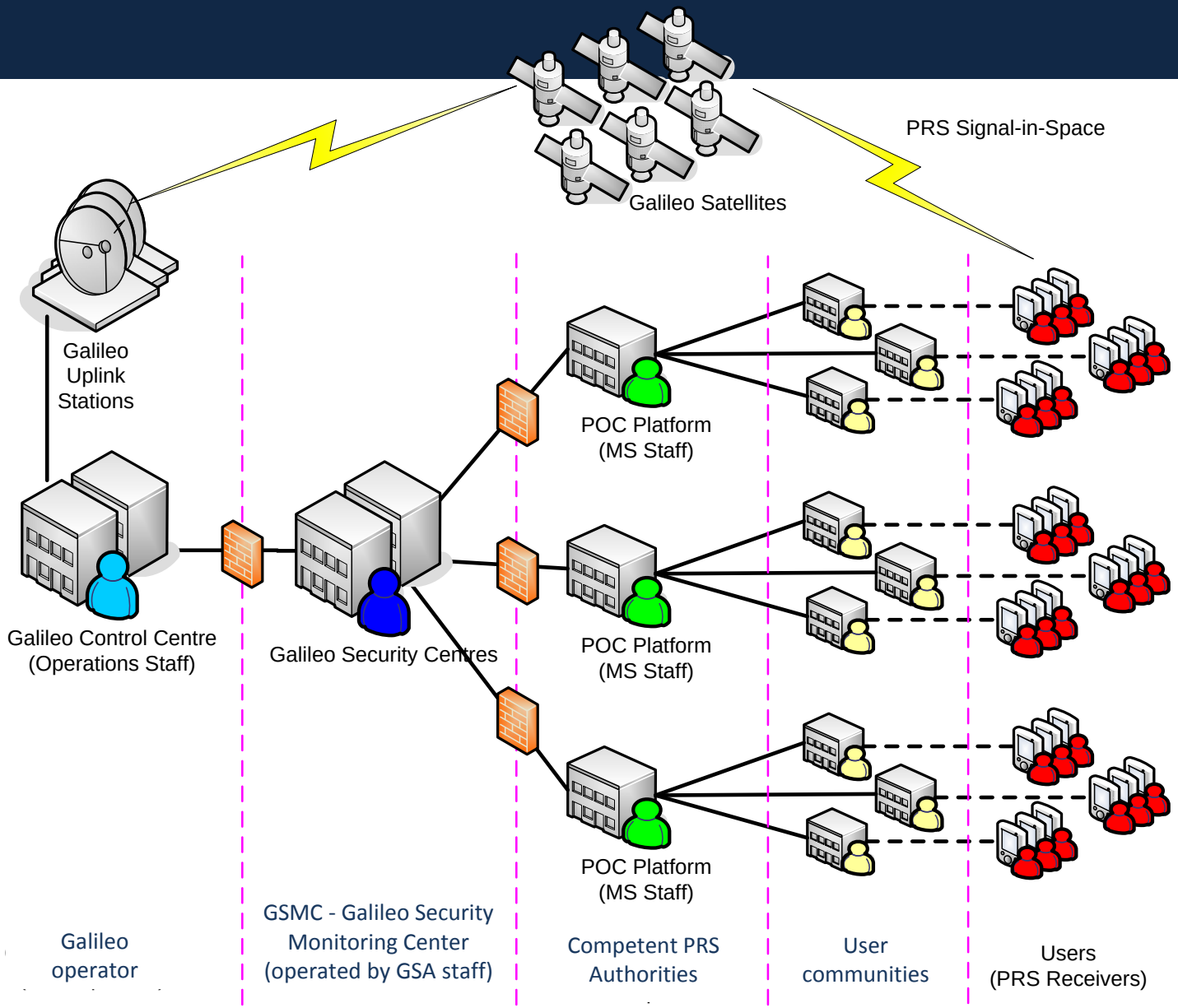
The Galileo Public Regulated Service



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

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The Galileo Implementation Plan

Galileo is implemented in a step-wise approach

Galileo System Testbed v1
Validation of critical algorithms

2003

GALILEO
GSTB-V1

GIOVE A/B
2 test satellites

2005/2008

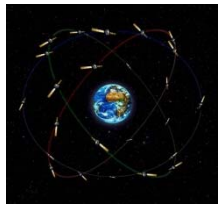
GALILEO
GIOVE

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 9th and 10th of July 2014

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

PRS User Segment and technology development

GSA, in coordination with EC and relative CPAs, has organised an industry consultation in the months of April and May 2014

- To prepare future activities in support of the PRS user segment development and market uptake

At the end of 2013 GSA launched P3RS2

- Development of PRS pre-operational receivers

PRS user segment technological roadmap

- Specific H2020 and Fundamental Elements topics in PRS User Segment under preparation
- Both currently under discussion with CPAs

THANK YOU

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