Galileo Public Regulated Service

Björn Gabrielsson, bjogab@foi.se

Totalförsvarets Forskningsinstitut, FOI

FOI

Working Group PRS

- Syfte – ge möjlighet för nationerna och programmet att jobba med användarsegmentet.

- Bara öppet för länder intresserade av PRS, som etablerat en CPA-funktion. (just nu 17 av 28)

- Angränsande arbete i WG NET

FOI

Pågående arbeten

- Initial Services SDD PRS (klar)

- CPA Guidelines

- PRS Handbook

- Utlysningar/projekt

  - Joint Test Activities

  - FRAME

  - PRISMA

  - DISPATCH

FOI

Kommande arbeten

- Följa pågående projekt till avslut

- Nya utlysningar under 2017

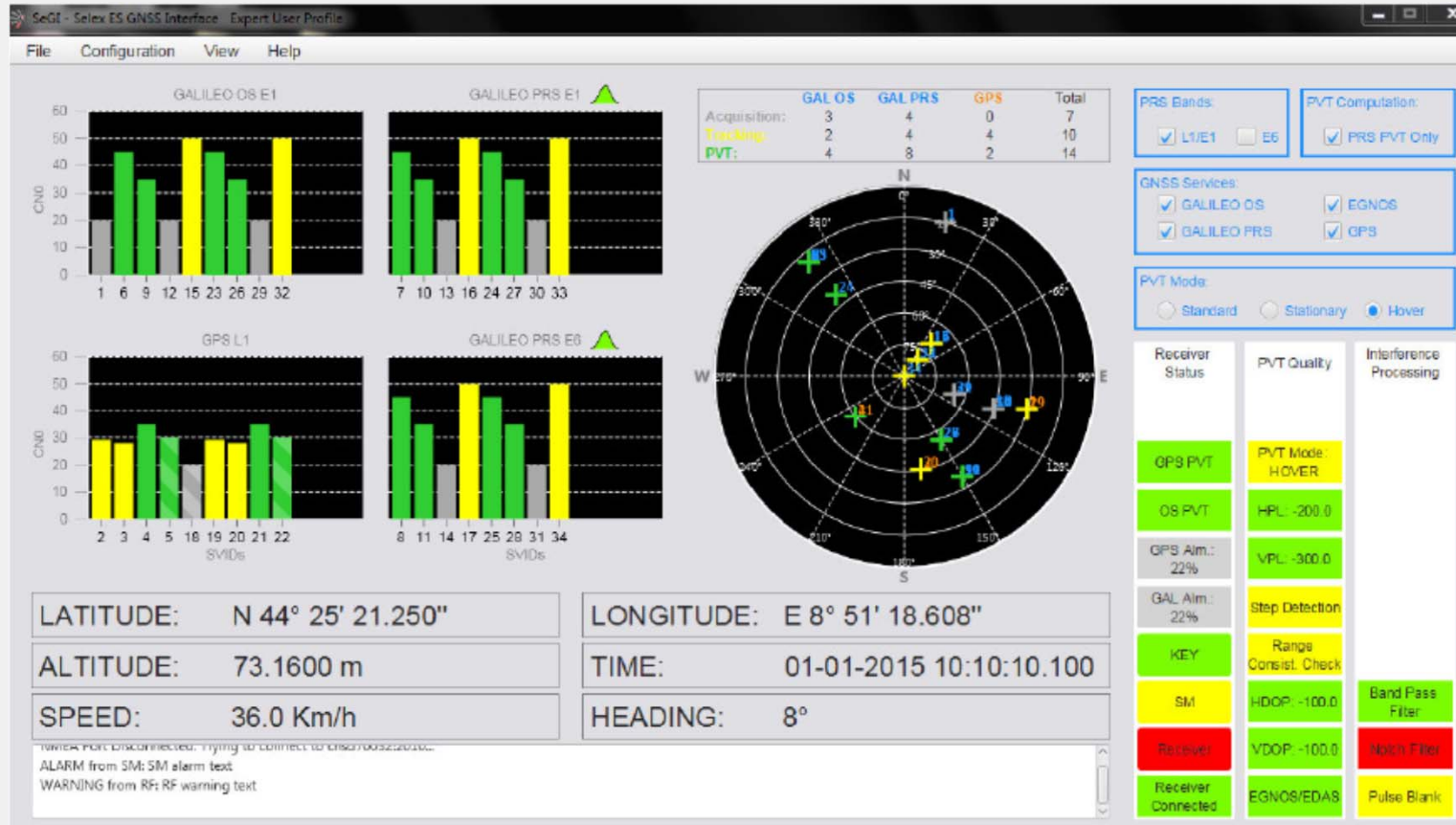- Utveckla SDD, Guidelines, Handbook för "Announced Services", klart Q4 2018(?).

- mm

FOI

P3RS-2

- SWAP (10x30x35cm, 7kg, 60W)

- Pris – ca 50-70k€ (mtr 25k€)

- 20 mottagare hos GSA för utlåning under 2-3år

- Lån under kortare tid och för tester av flera länder tillsammans kommer prioriteras.

- Klar hösten 2017, teknik färdig, slutgranskning av säkmyndigheter återstår.

FOI

P3RS-2

P3RS-2 GUI

JTA – Joint test activities

- Utvärdering pågår.

- 2,5M€, 60% finansiering

- Sverige deltar i en ansökan 3PFD, tillsammans med DE, BE, UK, PL, FI, CZ och Lux.

- Svenska deltagare, FMV T&E, FOI och SP.

- Svensk del ca 4MSEK. 24 månader.

- Tilldelning under 2017

FOI

FRAME

- Ramprogram 4 år, 4M€, 26 parter från 12 länder.
- Kärna: QinetiQ, Thales, FDC, IABG & Telespazio.
- 1a kontrakt 13mån, ca 1M€ tar slut i närtid
- 2a kontrakt diskuteras nu.

FOI

FRAME - Overview

FRAME has the potential to be a key enabler to the exploitation of Galileo PRS.

- Supports the development of the PRS user segment

- Studies new secure concepts of use and applications to make PRS accessible to key users

- Involves key stakeholders from the beginning to make sure the results are relevant for all

- Invites Member States to participate and endorse the outputs

FOI

FRAME User groups

Sector	Public Safety and Security (PSS)		
Segment	Shortcode	User type	User code
Emergency Services	EMG	Ambulances, Fire and Rescue	UT-PSS.EMG.002
		NGOs, Ambulance, Fire and Rescue	UT-PSS.EMG.019
Law enforcement, internal security and custom	LAW	Civil Corps Operators	UT-PSS.LAW.005
		Coast guard	UT-PSS.LAW.006
		Customs	UT-PSS.LAW.009
		Intelligence, coast guards, police, Border Police, Prison Operators	UT-PSS.LAW.013
		Police	UT-PSS.LAW.020
		Prison Operators	UT-PSS.LAW.021
		SWAT	UT-PSS.LAW.025

Sector	Critical Transport (CTR)		
Segment	Shortcode	User type	User code
Aerial	AER	Aerial Companies	UT-CTR.AER.001
Maritime	MAR	Maritime Companies	UT-CTR.MAR.014
	RDT	Autonomous vehicles Developers	UT-CTR.RDT.003
		Companies for waste management	UT-CTR.RDT.008
		Toll Collect System Operators	UT-CTR.RDT.027
		Transport companies by road for dangerous goods	UT-CTR.RDT.029
Train	TRN	Rail Companies	UT-CTR.TRN.022

FOI

FRAME User groups

Sector	Defence (DEF)		
Segment	Shortcode	User type	User code
Aerial	AER	UAV Operators	UT-DEF.AER.031
Ground	GND	Communication tactical command and control Authorities, Infrastructure Monitoring Authorities	UT-DEF.GND.007
		Defence Authorities	UT-DEF.GND.010
		Military Authorities	UT-DEF.GND.016
		Remote Robots Operators	UT-DEF.GND.023
Naval	NAV	Naval Military Authorities	UT-DEF.NAV.018
Sector	Critical Infrastructure (CIN)		
Segment	Shortcode	User type	User code
Air traffic control	ATC	Traffic Control Operators	UT-CIN.ATC.028
Energy	ENR	Energy providers	UT-CIN.ENR.011
		National Power Grid Distribution Operator	UT-CIN.ENR.017
Finance	FIN	Banks, Stock Exchange Operators	UT-CIN.FIN.004
Other government infrastructure	OTH	Environment Monitoring Authorities	UT-CIN.OTH.012
Scientific applications	SCI	Metrology International Organization	UT-CIN.SCI.015
Telecom	TLC	Telecommunications networks operators	UT-CIN.TLC.026
		TV Broadcasters	UT-CIN.TLC.030

FOI

DISPATCH Objectives

- **Develop and delivery of an end-to-end prototype**

  - capable of testing the security aspects of PRS service provision based on server-based technologies

- Ensure modularity and flexibility

  - Concept of Distributed Security shall allow the implementation of diversified concepts using the same design

- Produce a (CC) Protection Profile for the server

  - Component for certification by an accredited Evaluation Facility.

- Write (CC) Security Target

  - Provide the basis for a future certification of the server-component.

- Elaborate a SecOps

  - Description of Security Operational measures for DISPATCH demonstrator.

FOI

DISPATCH Consortium

IABG WP1, 3, and 7	Telespazio WP5 and 8	Fraunhofer WP6	AIRBUS Defence & Space WP2 and 4	LEONARDO - Finmecanica
WP1 (Lead): Project Management WP3: Security WP7 (Lead): Interaction with Ms & Demo	WP5 (Lead): Test and Validation activities WP8 (Lead): Exploitation Planning	WP6 (Lead): Installation and Maintenance	WP2 (Lead): Requirements Engineering WP4 (Lead): Design and Development	WP2.4, 3.4 and 4.3 (Contribution).

FOI

PRISMA

Objectives:

- 'Full analysis of the challenges to be tackled, in particular regarding security, miniaturisation and industrialisation and compliance to user and integrator requirements'

- 'Blueprint of the two components (PRS receiver, PRS Security Module), mature enough to launch a full rate production after the completion of the contract'

A full rate production design is expected to be delivered in Q2 2018.

FOI

4x PRISMA

- **PRISMA # 1**
  - QinetiQ, start 2016-06-28

- **PRISMA #2**
  - Fraunhofer, Airbus Defence & Space, IABG, Siemens, Motorola Solutions & Vites, start 2016-08-01

- **PRISMA #3**
  - Selex, Telespazio, start 2016-09-16

- **PRISMA #4**
  - Thales Avionics, Hertz Systems, Thales Communications and Security & SAFRAN (Sagem), tänkt start 2017-02-09

FOI

Galileo Status

Galileo services and applications

- On 15 December 2016, the Declaration of **Initial Services** marked the beginning of Galileo's operational phase. This means that anyone with a Galileo-enabled device is now able to use signals provided by Galileo's global satellite constellation for positioning, navigation and timing.

- With 18 satellites in orbit and their supporting ground infrastructure, **Galileo is currently offering three Initial Services after an extensive testing period**:

-

FOI

Galileo Services

Open Service: a free mass-market service for positioning, navigation and timing;

- **Public Regulated Service**: for government-authorised users, such as civil protection services, customs officers and the police. This system is particularly robust and fully encrypted to provide service continuity for government users during emergencies or crisis situations.

- **Full operational capability planned for 2020**

- **Enhanced services planned between now and 2020**

FOI

PRS for Critical GNSS usages

- PRS is jamming resistant and spoof protected.

- Swedish decision where we want to use PRS. (within CMS rules)

- How do we start evaluating PRS use cases in Sweden?

FOI

Tack!

"This dice is a 10 mW GPS jammer"

Kontakt vid frågor:

bjogab@foi.se

FOI