



SJU AEROMACS OPEN DAY 2018

PJ14 Felice Maccaro

Campi Bisenzio, 6th of July 2018



Founding Members



Contractual References



PJ14 EECNS ESSENTIAL AND EFFICIENT COMMUNICATION NAVIGATION AND SURVEILLANCE INTEGRATED SYSTEM

Call: H2020-SESAR-2015-2

Acronym: PJ14 EECNS

Current Phase: Grant Management

Number: 734168

Duration: 38 months

GA Signed On: 31 Oct 2016 based on the H2020 JU MGA SESAR — Multi - 2.0

Start Date: 01 Nov 2016

Estimated Project Cost: around 45 M€

SJU Grant Manager: Laura SERRAO

FOCUS 1/2



PJ14 EECNS, has **four main domains** Integrated CNS, Communications, Navigations and Surveillance.

In the **Integrated CNS solution**, all developments will be benchmarked to ensure the solutions are consistent in terms of robustness, spectrum use, interoperability and operational service quality for all airspace users, including military.

In **Communications**, this project will develop multi-link technologies that support the Future Communications Infrastructure (**FCI**) concept. FCI enables the digital transfer of flight critical data and voice communications between aircraft and ground ATM services in a resilient, secure and timely manner, as well as interoperability and coordination with military flights.

FOCUS 2/2



In **Navigation**, **satellite navigation** will be developed for all phases of flight, taking advantage of signals from multiple constellations, including Galileo. Evolution of **terrestrial navigation** systems will be explored, to ensure that resilient performance based navigation services are available to mitigate the vulnerabilities of satellite navigation.

In **Surveillance**, solutions will be developed to enhance, harmonize and integrate cooperative and emerging non-cooperative sensors, advanced multi-sensors data fusion capabilities, together with the methods and tools for Surveillance Performance Monitoring.

PJ14 EECNS Solutions

ESSENTIAL AND EFFICIENT COMMUNICATION NAVIGATION AND SURVEILLANCE
INTEGRATED SYSTEM



GENERAL MANAGEMENT		
WP1	(Project Management) Felice Maccaro	LEONARDO
iCNS		
WP2	PJ14-01-01 (CNS environment evolution), Emilien Robert	EUROCONTROL
COM		
WP3	PJ14-02-01 (Development of FCI Terrestrial Data Link), Christoph Rihacek	FREQUENTIS
WP4	PJ14-02-02 (Future Satellite Communications Data link), Stefano La Barbera	Thales Alenia Space
WP5	PJ14-02-04 (FCI Network Technologies), DHUMIERES Francois	FREQUENTIS
WP6	PJ14-02-05 (Development of new services similar to FIS-B to support ADS-B solutions for General Aviation), Jens-Uwe Koch	DFS
WP7	PJ14-02-06 (Completion of AeroMACS development), Giulio Vivaldi	LEONARDO
NAV		
WP8	PJ14-03-01 (GBAS) Inger Johanne Fanneløp	INDRA NO
WP9	PJ14-03-02, (Multi Constellation / Multi Frequency (MC/MF) GNSS) Jonatanh Ibarra	HONEYWELL
WP10	PJ14-03-04 (Alternative Positioning, Navigation and Timing), Boubeker Belabbas	DLR
SUR		
WP11	PJ14-04-01 (Surveillance Performance Monitoring), Gilles Caligaris	EUROCONTROL
WP12	PJ14-04-03 (New use and Evolution of Cooperative and Non-Cooperative Surveillance), Nicolas Honore	THALES GROUP

PJ14 EECNS Boards

ESSENTIAL AND EFFICIENT COMMUNICATION NAVIGATION AND SURVEILLANCE
INTEGRATED SYSTEM

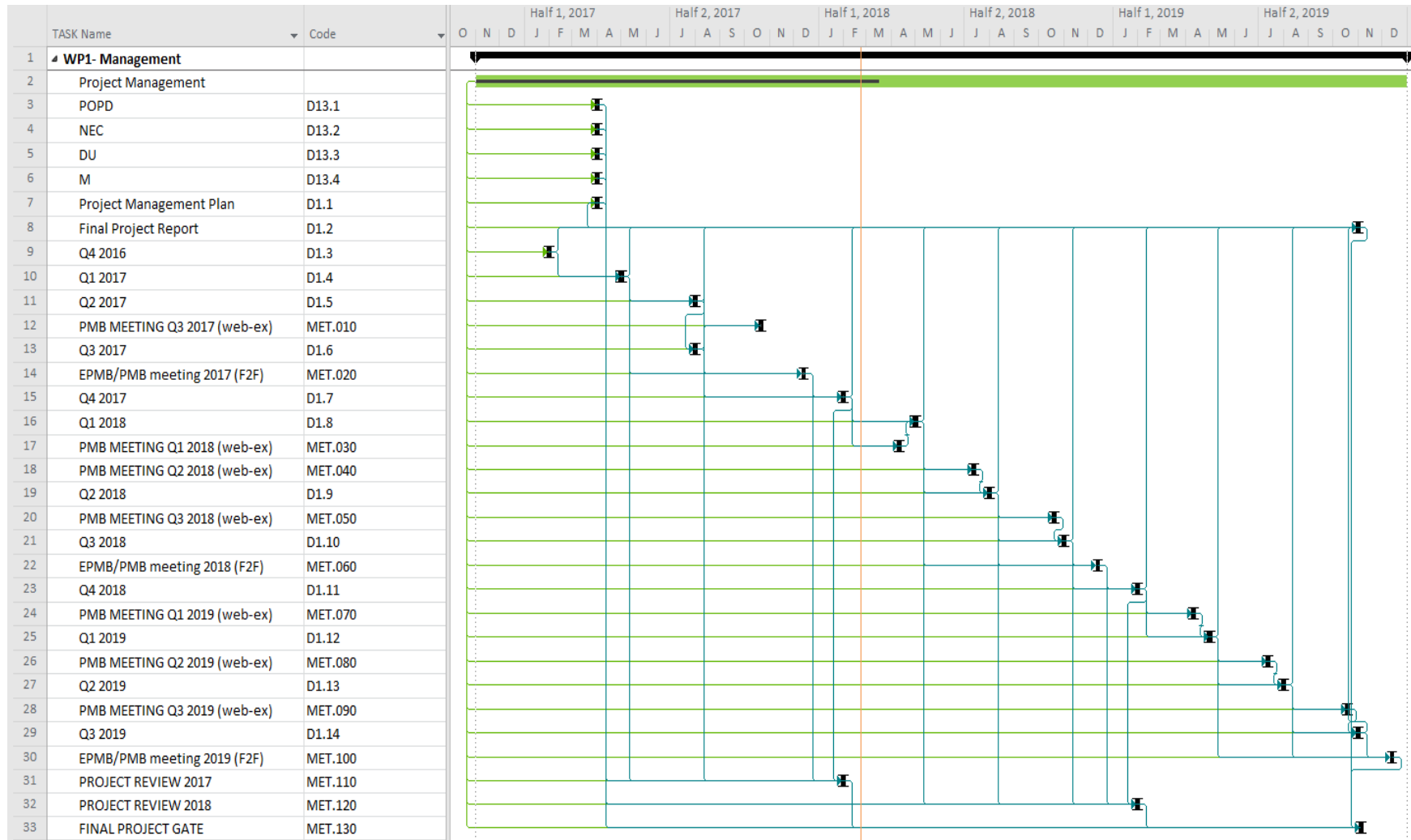


PJ14 WPs in Phase of Flight



PJ14 WP 1 GANTT

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DELIVERABLES APPROACH 1/3



In line with the identified SESAR solution datapacks, the different PJ14 solutions will develop the following type of (GRANT/contractual) deliverables:

For TRL2/V1

ER - Concept Outline and Identification of Potential Benefits and Risks

ER- Initial Concept Description

ER – Technology Demonstrator

Functional Requirements Definition (FRD)

Technical Validation Plan (TVALP) for TRL4

DELIVERABLES APPROACH 2/3



For TRL4/V2

OSD-SPR-INTEROP

Initial Technical specifications / Interface Requirements Specifications (TS/IRS)

Technical Validation Plan (TVALP)

Availability Note (AN)

Technical Validation report (TVALR)

Technical Validation Plan (TVALP) for TRL6

Technical specifications / Interface Requirements Specifications (TS/IRS)

DELIVERABLES APPROACH 3/3



For TRL6/V3

Technical specifications / Interface Requirements Specifications (TS/IRS)

Technical Validation Plan (TVALP)

Availability Note (AN)

Technical Validation Reports (TVALR) (including economic appraisal when required)

Final Technical Requirements (TS/IRS)



Project presentation for project review

Thank you very much for your attention!



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Founding Members



The opinions expressed herein reflect the author's view only.

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WP2 Solution PJ.14-01-01 – CNS Environment Evolution

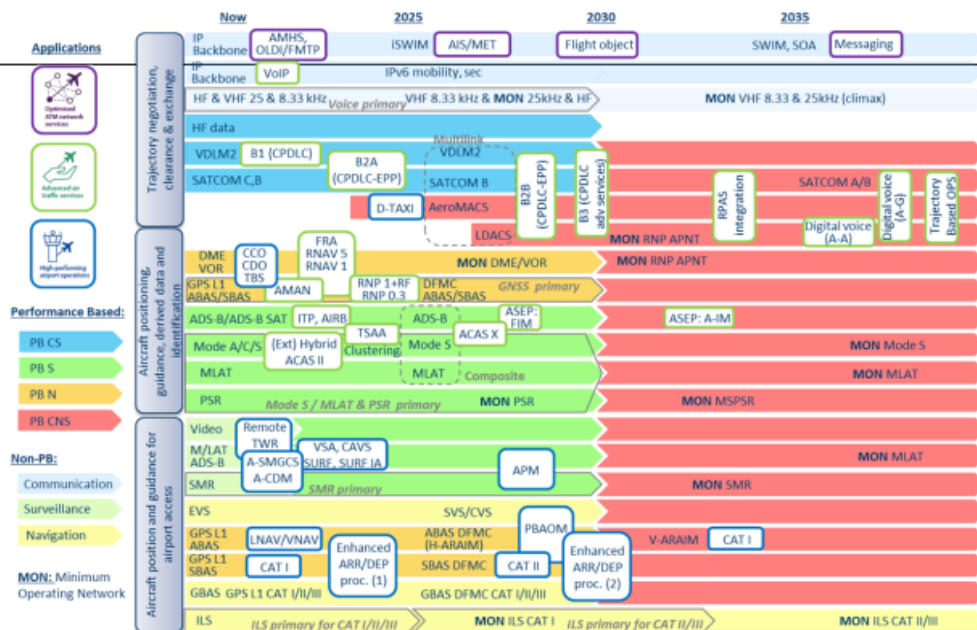
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Solution Scope:

This solution will provide an integrated, global view of the future Communications, Navigation and Surveillance services, with the following main objectives:

- Identify current CNS requirements
- Assess cross-domain CNS vulnerabilities
- Identify short-term and long-term CNS evolution for both ground and airborne system
- Define the future integrated CNS architecture
- Define the integrated CNS spectrum strategy
- Identify areas where the CNS efficiency could be improved
- Ensure Civil-Military CNS interoperability



General overview of COM

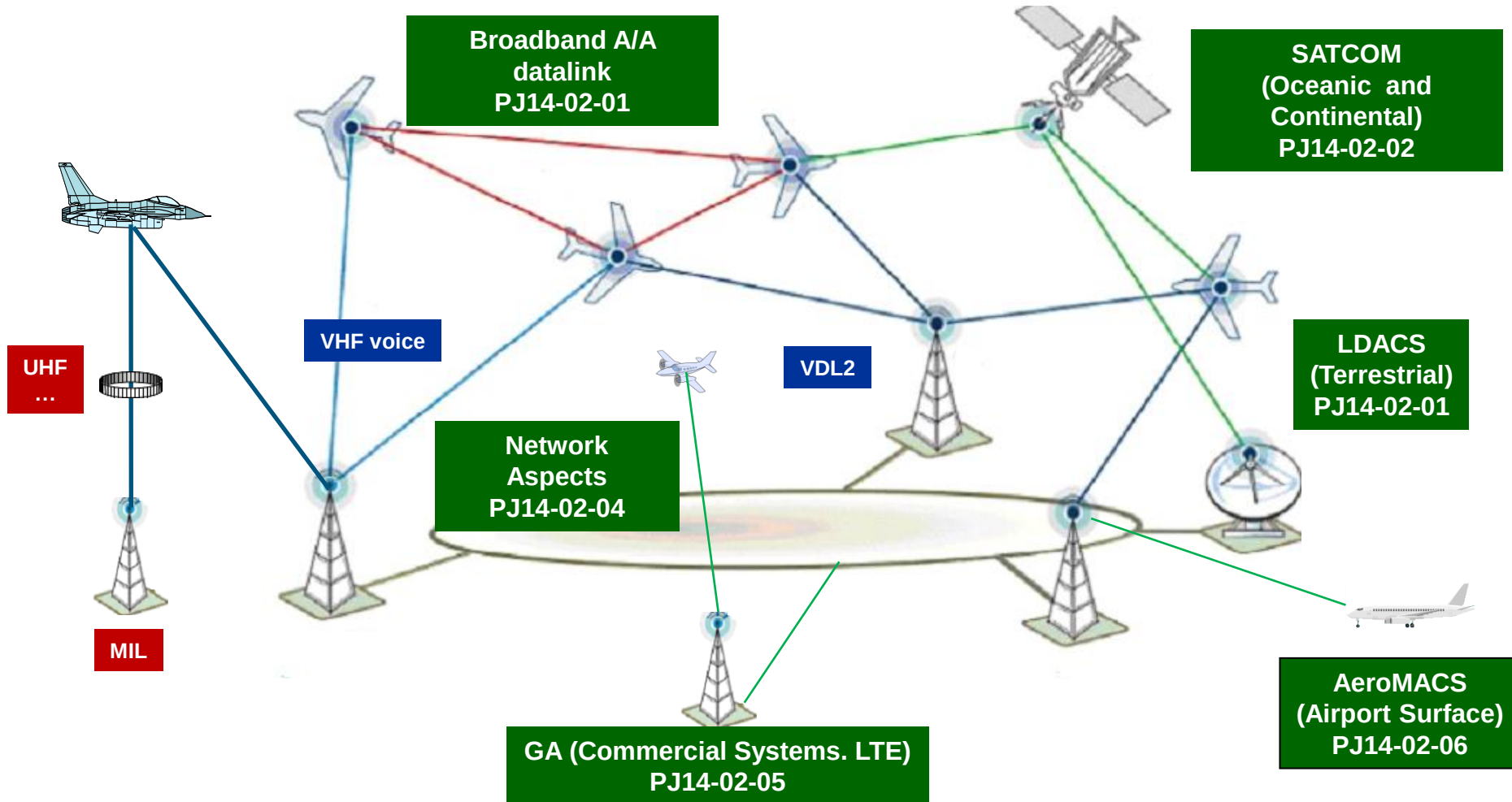


- **A/G communications** (FCI)
- Network aspects (**ATN/IPS**)
- Technical **Architecture**
- Support all users (including **Civil/Military** interoperability, **GA**, ..)
- Support **Standardisation** and promote **Harmonisation**
- Dissemination

- 5 COM solutions
 - 4 supporting Commercial Airlines type operations
 - 1 supporting General Aviation operations

Future COM Infrastructure and PJ14

SESAR2020 PJ14 Solutions



General overview of NAV

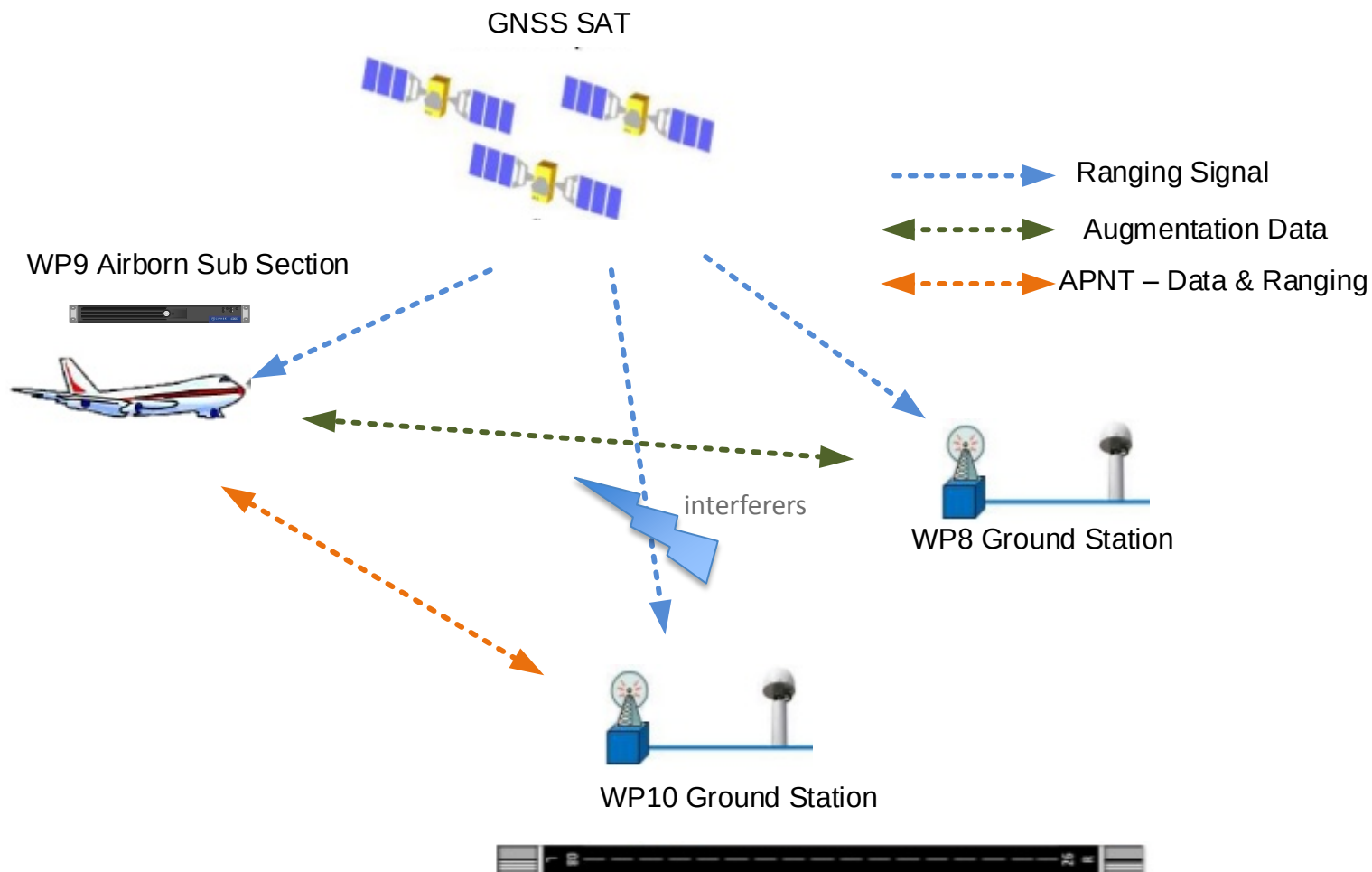


- **Satellite navigation based** robust positioning will be developed for all phases of flight, taking advantage of signals from dual frequency GPS and GALILEO constellations with augmentations.
- In parallel, evolution of **terrestrial navigation systems** will be explored, to ensure that resilient performance based navigation services are available to mitigate the vulnerabilities of satellite navigation.

3 NAV Solution:

- GBAS - Dual Frequency GPS and GALILEO GBAS
- A/receiver Dual Frequency GPS and GALILEO augmented by ABAS and SBAS
- Investigating Alternate Positioning Navigation and Timing services

Future Nav Infrastructure and PJ14



General overview of SUR



Surveillance solutions are developed to enhance, harmonize and **integrate cooperative and emerging non-cooperative sensors**, advanced multi-sensors data fusion capabilities, security related functionality together with the **methods and tools for Surveillance Performance Monitoring**.

Performance-based Surveillance (PBS) approach is followed in the Surveillance solutions. Performance requirements in both solutions WP11 and WP12 have been derived from the PBS baseline documents (GEN-SUR and ESASSPs).

2 SUR Solutions

Surveillance performance monitoring

New use and evolution of Cooperative and Non-Cooperative

Future SUR Infrastructure and PJ14

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SESAR

