

User Consultation Platform



EUROPEAN
SPACE
WEEK

Galileo High Accuracy Service

User Consultation Platform 2020

Eduard Escalona, European GNSS Agency (GSA)

December 2nd, 2020

Organised by:



Under the auspices of:



EU Space Programme:



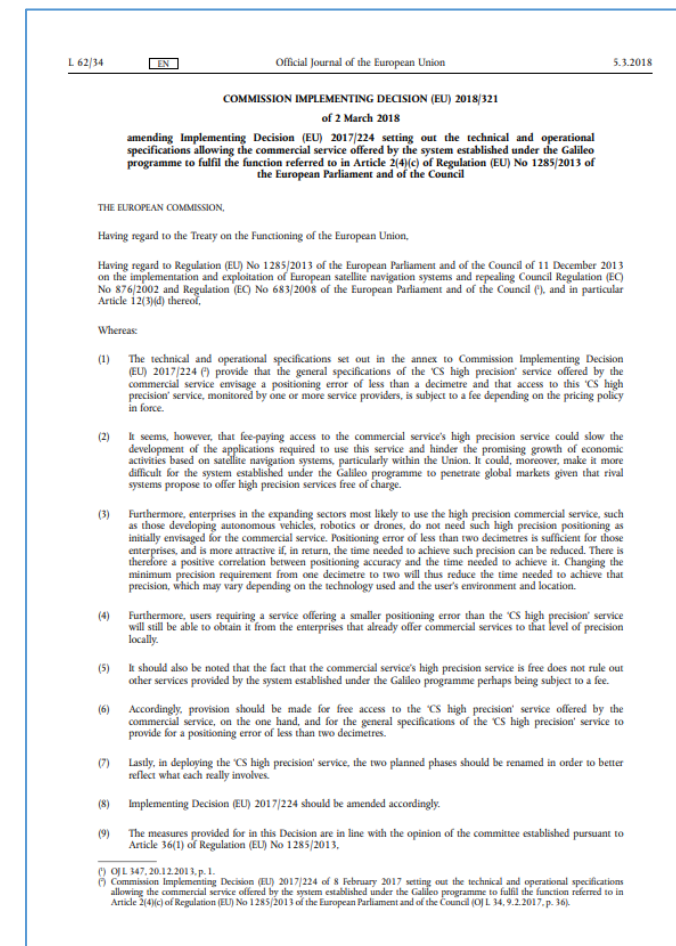


Galileo HAS Background

EC Imp Decision (EU) 2017/224 (8-02-2017) amended by (EU) 2018/321 (2-03-2018)

Implementation of the Galileo Commercial service as:

- **CS High Precision or HAS Service:** For free service. High Accuracy corrections, accuracy down to 20 cm using E6-B.
- **CS Authentication or CAS Service:** Authentication through access to encrypted codes (using a private crypto key), using E6-B for the access data and E6-C component (pilot).



Galileo HAS main characteristics

HAS	SERVICE LEVEL 1	SERVICE LEVEL 2
COVERAGE	Global	European Coverage Area (ECA)
TYPE OF CORRECTIONS	PPP - orbit, clock, biases (code and phase)	PPP - orbit, clock, biases (code and phase incl. atmospheric corrections)
FORMAT OF CORRECTIONS	Open format similar to Compact-SSR (CSSR)	Open format similar to Compact-SSR (CSSR)
DISSEMINATION OF CORRECTIONS	Galileo E6B using 448 bits per satellite per second / terrestrial (internet)	Galileo E6B using 448 bits per satellite per second / terrestrial (internet)
SUPPORTED CONSTELLATIONS	Galileo, GPS	Galileo, GPS
SUPPORTED FREQUENCIES	E1/E5a/E5b/E6; E5 AltBOC L1/L5; L2C	E1/E5a/E5b/E6; E5 AltBOC L1/L5; L2C
HORIZONTAL ACCURACY 95%	<20 cm	<20 cm
VERTICAL ACCURACY 95%	<40 cm	<40 cm
CONVERGENCE TIME	<300 s	<100 s
AVAILABILITY	99%	99%
USER HELPDESK	24/7	24/7



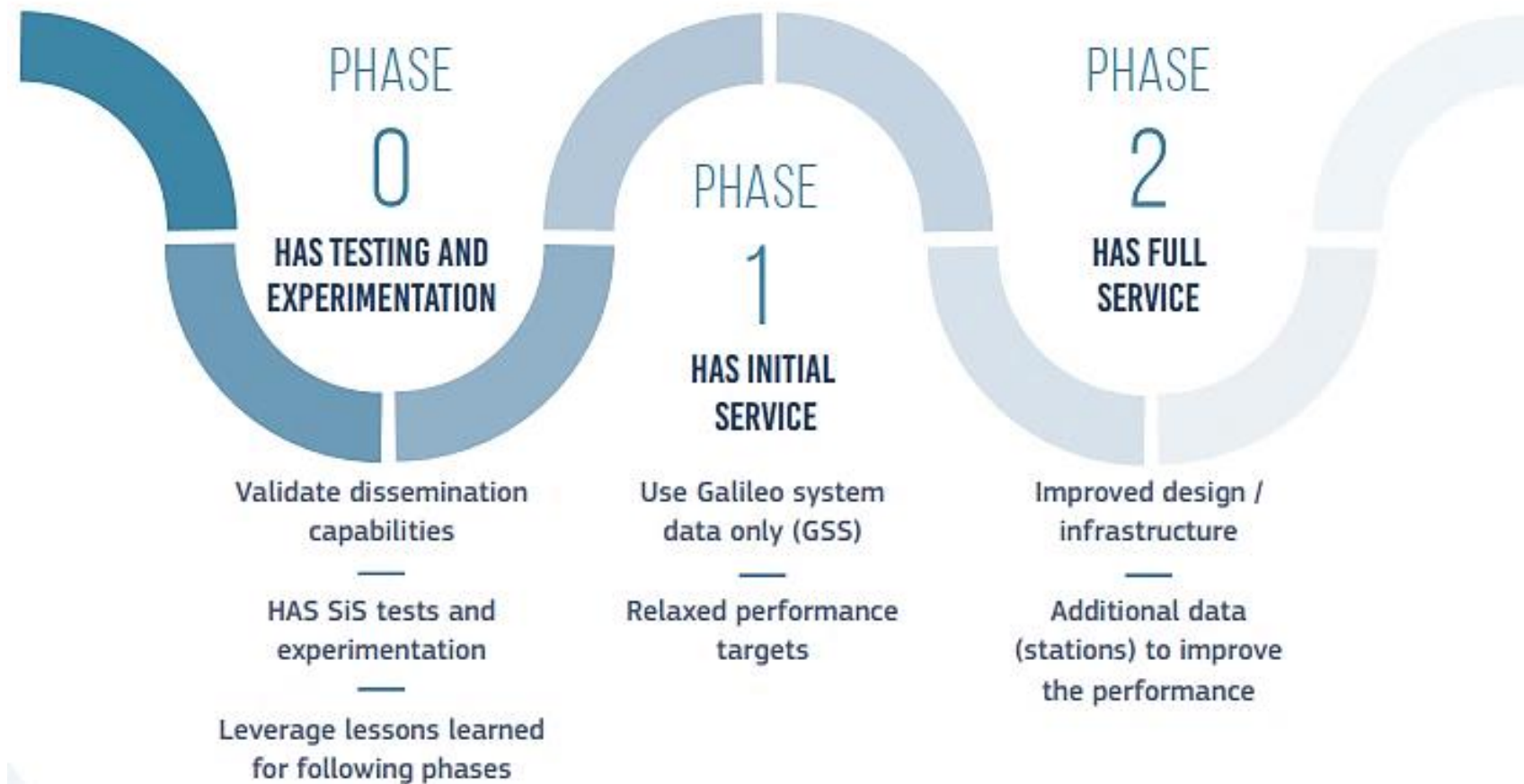
Galileo HAS addresses both traditional and emerging markets and applications

The main target of HAS are **emerging applications** such as autonomous vehicles, drones or robotics, and other applications where 20cm positional accuracy is sufficient:



Markets	Applications
Geomatics	GIS/Mapping, Cadaster in rural areas (Land consolidation), Hydrographic survey and Vessel navigation, Off-shore exploration
Agriculture	Guidance, VRA-Low applications, Farm machinery positioning, Site-specific data analysis applications
Aviation	Drones: Positioning System (Urban), Drones: Navigation System (Urban) Drones: Geo-awareness System, Airport – integrated surface management systems
Road	Autonomous driving, Safety-critical applications (contribution)
Consumer Solutions	LBS, Gaming, Health, AR for leisure, Commercial (Geo marketing and advertising), AR Professional, Robotics - High GNSS use
Rail	Collision Detection, Odometer Calibration, Door Control Supervision, Infrastructure surveying, Gauging surveys, Structural monitoring
Maritime	Merchant Navigation and Pilotage operations in Ports, Pilotage operations in IWW, Port operations, Port bathymetry, Riverbed survey, Coastal Seabed survey, Offshore supply vessels with dynamic positioning, Port Terminal Cranes and Straddle Carriers navigation, Autonomous Surface Vessels
Space	Precise orbit determination (e.g. for autonomous formation flying and in-orbit rendezvous and docking), Attitude determination, Civilian launchers (e.g. for precise orbit injection)

Galileo HAS will be gradually rolled out as of 2020



Milestones

MILESTONE

HAS testing Call for Expression of Interest

- Participating in the HAS SiS ICD public consultation
- Expressing interest in participating in ad-hoc HAS SiS testing campaigns
- Providing feedback on specific HAS user requirements

User Consultation Platform

- The User Consultation Platform (UCP) is a forum for interaction between users of position, navigation and time solutions and the organisations and institutions dealing, directly and indirectly, with Galileo and EGNOS. The platform serves as a key tool for gathering user requirements and validating the Galileo HAS target performance
- The UCP 2020 will be held during European Space Week on 7-11 December 2020 (<https://www.euspaceweek.eu/>)

SIS ICD publication

- Following the finalisation of the testing phase, the final HAS message specification document will be made public

HAS Initial Service Operational Capability

- Based on the deployment and qualification of the necessary infrastructure

HAS Initial Service Declaration

- After the necessary service validation activities, the HA Service will be declared available and the HA Service Definition Document will be published

HAS Full Service Operational Capability

Survey

- Target applications
- HAS Performance
- Dissemination channels
- Support Functions
- Barriers and incentives



https://ec.europa.eu/eusurvey/runner/HAS_SurveyUCP2020

