

EGNSS USER CONSULTATION PLATFORM – ROAD/AUTOMOTIVE PANEL

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EGNSS High Accuracy Services

- A market for commercial high accuracy services with Integrity exists today for automotive users and applications such as automated driving
- Many services with comparable specifications are available already
- EGNOS High Accuracy Service will enter this existing market free of charge

User Performance	Initial EGNOS HA Service	Full Operational EGNOS HA Service
Positioning Accuracy	<30 cm (horizontal 95%) <50 cm (vertical 95%)	< 5cm (horizontal 95%) < 10 cm (vertical 95%)
Convergence Time	< 20 min (95%)	< 2 min (95%)
Daily Availability	> 97.5%	> 99.9%
Target Integrity Risk	10 ⁻³ per hour	10 ⁻⁷ per hour
Protection Level	< 3 m	< 40 cm
Start of the service	2027	2030
Broadcast mean	EGNOSHA Geostationary satellites service (E5b) EGNOSHA terrestrial data service (EDAS)	
EGNOSHA broadcast data	Accurate Orbits, Clocks and Code/Phase biases and Ionospheric corrections Integrity alerts	Accurate Orbits, Clocks and Code/Phase biases and Ionospheric corrections Integrity alerts
Augmented constellations	Galileo + GPS	Galileo + GPS
Augmented frequencies	E1-E5a + L1-L2	E1-E5a-E5b + L1-L2-L5
Tentative User Technology	PPP-Integer Ambiguity Resolution + Atmospheric information	PPP-Integer Ambiguity Resolution (3 frequencies)+Atmospheric Information
Liabilities	<input type="checkbox"/> The service in open sky conditions and with at least 8 augmented and monitored satellites being tracked. <input type="checkbox"/> Receiver and user-algorithm certified by the relevant competent authority. <input type="checkbox"/> The service in "In Operation" mode.	

Source: Integrity for EGNSS High Accuracy Services – RTCM SC-134 presentation

Name	Service	Stated Performance	Supporting Constellations	Delivery Method	Method	Provider
Atlas	Atlas-100	< 10 cm	GPS + GALILEO + GLONASS + SBAS	L-band	PPP	Hexagon
	Atlas-100	< 10 cm	GPS + GALILEO + GLONASS + SBAS	L-band	PPP	Hexagon
C-Star	C-Star	< 10 cm	GPS	L-band	PPP	Clearstream
	PPP-Fix/L1	< 10 cm	GPS + GALILEO + GLONASS + SBAS	Internet, L-band	PPP	Clearstream
Garmin	Garmin	< 10 cm	GPS + GALILEO + GLONASS + SBAS	Internet, L-band	PPP	Garmin
	Garmin	< 10 cm	GPS + GALILEO + GLONASS + SBAS	Internet, L-band	PPP	Garmin
Hexagon	Hexagon	< 10 cm	GPS + GALILEO + GLONASS + SBAS	Internet, L-band	PPP	Hexagon
	Hexagon	< 10 cm	GPS + GALILEO + GLONASS + SBAS	Internet, L-band	PPP	Hexagon
NAVSTAR	NAVSTAR	< 10 cm	GPS	L-band	PPP	NAVSTAR
	NAVSTAR	< 10 cm	GPS	L-band	PPP	NAVSTAR
Orion	Orion	< 10 cm	GPS	L-band	PPP	Orion
	Orion	< 10 cm	GPS	L-band	PPP	Orion
RTK	RTK	< 10 cm	GPS + GALILEO + GLONASS + SBAS + GNSS	Internet, L-band	PPP	RTK
	RTK	< 10 cm	GPS + GALILEO + GLONASS + SBAS + GNSS	Internet, L-band	PPP	RTK
SBAS	SBAS	< 10 cm	GPS + GALILEO + GLONASS + SBAS	Internet, L-band	PPP	SBAS
	SBAS	< 10 cm	GPS + GALILEO + GLONASS + SBAS	Internet, L-band	PPP	SBAS
Starlink	Starlink	< 10 cm	GPS + GALILEO + GLONASS + SBAS	Internet, L-band	PPP	Starlink
	Starlink	< 10 cm	GPS + GALILEO + GLONASS + SBAS	Internet, L-band	PPP	Starlink
Trimble	Trimble	< 10 cm	GPS + GALILEO + GLONASS + SBAS	Internet, L-band	PPP	Trimble
	Trimble	< 10 cm	GPS + GALILEO + GLONASS + SBAS	Internet, L-band	PPP	Trimble
u-blox	u-blox	< 10 cm	GPS + GALILEO + GLONASS + SBAS	Internet, L-band	PPP	u-blox
	u-blox	< 10 cm	GPS + GALILEO + GLONASS + SBAS	Internet, L-band	PPP	u-blox
Verano	Verano	< 10 cm	GPS + GALILEO + GLONASS + SBAS	Internet, L-band	PPP	Verano
	Verano	< 10 cm	GPS + GALILEO + GLONASS + SBAS	Internet, L-band	PPP	Verano
Wayss	Wayss	< 10 cm	GPS + GALILEO + GLONASS + SBAS	Internet, L-band	PPP	Wayss
	Wayss	< 10 cm	GPS + GALILEO + GLONASS + SBAS	Internet, L-band	PPP	Wayss

Source: GSA GNSS User Technology Report 2020

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EGNSS High Accuracy Service – free of charge

Concern:

Free of charge service provision is threatening business models of commercial service providers based in the European Union. Investments into commercial services are endangered and finally it is risked that existing business will be lost (co-existence unlikely without differentiation of services).

Proposal:

EGNSS High Accuracy services should be offered in line with market mechanisms.

Justification:

Create a level playing field with services already commercially available.

Competition will lead to differentiating features and will provide a more diverse services to Galileo users.

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What else would be important?

Concern:

Insufficient robustness, availability and security of Galileo constellation for use cases such as automated driving.

Proposal:

- Increase efforts on improving robustness and availability of the Galileo system. Speed up declaration of Galileo FOC and implement SLAs for basic Galileo functionality.
- Develop and implement measures against the intentional interference of the Galileo constellation and related services at system and user level.
- Intensify collaboration with users and service providers in the development and testing of such technologies.

Justification:

Increased robustness and security will increase the adoption of Galileo and related services in the automotive industry for safety- and high-availability applications such as automated driving.

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Summary

- Highly competitive commercial services are available and do provide best in class technology already today.
- Provision of services that are not bound to conventional market mechanisms endangers current investments.
- Commercial service providers need a level playing field and are valuable partners to create products for Galileo users.
- Robustness and availability of the core services must be improved to enable automotive use cases such as automated driving.