



EGNOS
EGNOS, it's there. Use it.

GSA & ESSP

launched the EGNOS survey intended to measure EGNOS user satisfaction and gather valuable suggestions to improve the quality of the EGNOS services.

Thank you for your collaboration. Your opinion is essential to improve the EGNOS services!



YOUR SATISFACTION is our reason for being!



QUESTIONNAIRE STRUCTURE

1.- Introduction and Classification

2.- EGNOS Use

3.- Support in Developing Apps.

4.- EGNOS User Support Services

- Website
- Documentation
- Helpdesk
- Time Service

5.- EGNOS Services (Perceived Performance)

- Safety of Life (SoL)
- EDAS
- Open Service (OS)

6.- EGNOS Value

7.- EGNOS Value (by Market Segment)

- Agriculture
- Aviation
- Maritime
- Road
- Rail
- Surveying & mapping
- Location-Based Services
- Other

8.- EGNOS Market Development



"The European Geostationary Navigation Overlay Service (EGNOS) is Europe's regional satellite-based augmentation system (SBAS). It is used to improve the performance of global navigation satellite systems (GNSSs), such as GPS and Galileo in the future. EGNOS was deployed to provide safety of life navigation services to aviation, maritime and land-based users".



European
Global Navigation
Satellite Systems
Agency

Precise navigation,
powered by Europe





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The questionnaire has
been filled by



177 ¹⁸⁶
In 2016
respondents

USER SATISFACTION SURVEY 2017

41 ⁵²
In 2016
Non-EGNOS Users

136 ¹³⁴
In 2016
EGNOS Users

8.1 ↔

Global Satisfaction Score

8.1 - 2016

USER SATISFACTION SCORE PER MARKET SEGMENT

10 respondents marked "other" Market Segment.

23 respondents



5 respondents



11 respondents



76 respondents



4 respondents



4 respondent



3 respondents



(*) All scores are graded out of 10 points and are based on 136 EGNOS Users' answers.

EGNOS TIME SERVICE

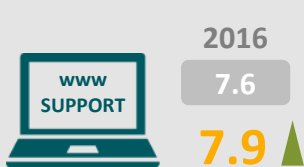
15 respondents are using
EGNOS Time Service
(2016: 11)

8.6 Satisfaction ▼
(2016: 8.8)

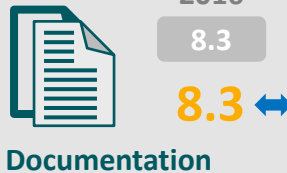
22% could be interested
in using this service.
(2016: 34%)

Your SATISFACTION is our reason for being!

EGNOS SUPPORT



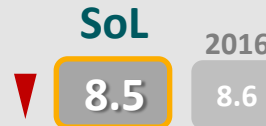
Support Website



Documentation

EGNOS SERVICES

64 (47%)
EGNOS Users (*)



82 (60%)
EGNOS Users (*)



26 (19%)
EGNOS Users (*)



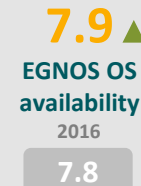
(*) Each respondent can use more than one service.



Helpdesk



Performance





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Recommendations derived from your feedback...

ARCHITECTURE/ EVOLUTIONS

- ❑ EGNOS to provide Emergency Communication Messages (ESA ALIVE).

GENERAL SUPPORT

- ❑ Multilingual support services (website, documentation, etc.) for all EU-27 languages.

EGNOS DOCUMENTATION

- ❑ Provide simple documentation or brochures oriented towards the low-end segment in **Aviation**: general Aviation, aerial works, helicopter operations, ultra-lights as well as small aerodromes and helipads.
- ❑ Documentation to support RNP applications.
- ❑ Provide more detailed information in Service implementation Roadmaps.
- ❑ Update the LPV training material according the "new" Part FCL regulation from 2016.
- ❑ Create a procedure/document or crosscheck to ensure a receiver is applying EGNOS' corrections (Open Service).



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Recommendations derived from your feedback...

EGNOS USER SUPPORT WEBSITE

- ❑ Categorize Documentation, News, EGNOS System and Notification Services by market segment.
- ❑ Unify all information about EGNOS in a single website. Redirect to a this website in any other websites where it is mentioned (GSA, EGNOS-portal, etc.).
- ❑ Notify via mobile means in the event of an outage/degradation.
- ❑ Earlier announcements of outages.
- ❑ Provide RNP coverage maps.
- ❑ Use interactive maps instead of images.
- ❑ Provide vertical deviation information for OS.
- ❑ Provide availability of the service based on user location.
- ❑ Add maps of the 95% horizontal and vertical accuracy of GPS L1 + Egnos, and of the best available real-time multi-frequency GPS L1 + L2 + L5 standalone solution.



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Recommendations derived from your feedback...

EGNOS SoL PERFORMANCE

- ❑ Extend the coverage area to Moldova, Eastern Europe, ENP countries, above 72°N and Canary Island. Higher continuity in the Eastern Europe would be very valuable.
- ❑ Increase SoL service area and service robustness.
- ❑ Work on the predictability of the real impact of degraded signals.

EGNOS SoL RAIL

- ❑ Create a MOPS like receiver specifications guide for rail.
- ❑ Continue to facilitate the debate between GNSS and rail stakeholders on service provisioning aspects, taking into account the need to ensure liability of the service in terms of integrity and availability with the vision of ensuring a positive business case for GNSS introduction in rail signalling.

EGNOS SoL ROAD

- ❑ Analysis EGNOS potential for its use in road applications, in particular related to autonomous cars.



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Recommendations derived from your feedback...

**EGNOS SoL
AVIATION**

- ❑ Ease the steps to establish an EWA and the use of Airport Generation Tool.
- ❑ Continue co-financing retrofit cost to help in the implementation of SBAS/LPV capabilities and providing guidance/support in the elaboration of the proposals requesting funding. In particular continue with CBA and route/traffic assessments as key tools to foster adoption and to fit the decision making processes. Provide administrative support on the aircraft retrofit & PBN Instrument Flight Procedure implementation projects.
- ❑ Support the implementation of LPV approaches in small aerodromes and in non-instrument runways from an economical and regulatory point of view. In addition, in order to reduce costs for the high number of target locations it could be useful to have templates and simple procedures /guidelines for designing approaches with minima around 500ft.
- ❑ More Approach procedures like LPV on small Airports/airfields in Europe.
- ❑ Support the negotiation with aircraft suppliers for installing SBAS Receivers on board.
- ❑ Provide information packages/awareness sessions to those EU countries where local governments are not actively promoting EGNOS for regional air traffic.
- ❑ Support concerning the concept of operations and operational implications of the use of SBAS in a Dual Frequency Multi Constellation (DFMC) scenario.
- ❑ Further collaboration with SESAR Joint Undertaking (SJU) in the ATM Master Plan and SESAR Projects.
- ❑ Provide EWA with non-ANSP entities when implementing EGNOS enabled PBN operations in non-controlled ATS airspace



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Recommendations derived from your feedback...

EGNOS OS

- ❑ Extend OS service area and increase its accuracy.
- ❑ Standardise the use of EGNOS in OS receivers ("EGNOS labelling") for different application fields.
- ❑ Support users having reported problems with EGNOS signal reception or with the EGNOS accuracy in specific regions by offering on-site support and / or field measurements.
- ❑ EGNOS to support multi-frequency to improve EGNOS OS performance/coverage in Northern latitudes.
- ❑ Consider redefining EGNOS minimum reception signal level requirement to avoid reception problems for unamplified antennas or the possibility to define terrestrial relays.

EGNOS EDAS

- ❑ Provide EGNOS toolkit supporting the development of EGNOS/EDAS based applications (including smartphone/tables applications) and include sample code open for reuse or supporting the application development/validation.
- ❑ Increase historical data available in the EDAS FTP and support to RINEX v3.
- ❑ Increase commitments in EDAS SDD.
- ❑ EDAS NTRIP service to support Ntrip v1 protocol (NTRIP via HTTP).
- ❑ Improve GNSS ephemeris data.
- ❑ Provide EGNOS corrections in RTCA format via Ntrip.
- ❑ Improve SISNeT service robustness to be independent of GEO outages.

**EGNOS**

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*...and we are working on your suggestions.
Some of them have already been
implemented/launched...*



<http://egnos-user-support.essp-sas.eu>



egnos-helpdesk@essp-sas.eu

+34 911 236 555 (H24/7)

- ❑ The **EGNOS Service Implementation Roadmaps** will be updated during 2018 to address different Market Segments in the EGNOS documentation.
- ❑ **eCall information (EU regulation and GSA guides)** will be included in the EGNOS User Support Website.
- ❑ **Innovative ways** to present the information to users are being defined to be included in **EGNOS User Support Website**.
- ❑ **EGNOS APP** has been released during 2018 to ease the access to information from mobile devices. It is freely available for users in the open markets.



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**THANK YOU FOR
YOUR ATTENTION !**



**YOUR SATISFACTION is our
reason for being!**



- Safety of Life
- Open Service
- EDAS Service



ESSP-MEMO-22314-V01-00



European
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Satellite Systems
Agency

Precise navigation,
powered by Europe

