

**EGNOS Exploitation  
Grant Plan 2017**

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## EGNOS Exploitation 2017 Grant Plan

The 2017 Grant Plan for EGNOS includes 2 Call for Proposals:

- **The Dual Frequency Multi-Constellation receivers Call:**

The budget for this action is approved in the GSA Annual Acquisition Plan 2017.

- **The Acceleration of EGNOS adoption in the field of civil aviation field 2017 Call:**

While it was approved in 2016, the Call for Proposal was finally not published in 2016. Only minor cosmetic changes were included compared to the version published last year, together with the updated timeline of the grant.

## A.1 Dual Frequency Multi-constellation receivers

### LEGAL BASIS

Regulation (EU) No 1285/2013 of the European Parliament and of the Council of 11 December 2013 on the implementation and exploitation of European satellite navigation systems and repealing Council Regulation (EC) No 876/2002 and Regulation (EC) No 683/2008 of the European Parliament and of the Council and Delegation Agreement between the European Union, represented by the European Commission and the European GNSS Agency on the Exploitation Phase of the EGNOS Programme signed on 16 April 2014.

Call for proposals

### BUDGET LINE:

EEX.0068 - BO3920 - EGNOS Exploitation

### BACKGROUND:

The European Geostationary Navigation Overlay Service (EGNOS) provides an augmentation signal to Global Positioning System (GPS) Standard Positioning Service. Presently EGNOS provides correction data and integrity information using the GPS L1 (1575.42 MHz) frequency band.

The next generation of EGNOS (EGNOS v3) will continue to offer this legacy service and will offer 2 (two) additional features: it will augment the Galileo positioning service (i.e. Dual Constellation capability with GPS and Galileo) and will provide correction data and integrity information with a second signal in the GPS L5 and Galileo E5a frequency band (i.e. Dual Frequency capability in the L1/E1 and L5/E5a frequency bands). These features will increase the robustness of the service and improve the performance provided to users for navigation services, notably in terms of positioning accuracy.

Currently the Safety of Life service (SoL), which is provided free of user charges, is used for aviation safety. The EGNOS SoL service was declared operational on 2 March 2011 and several manufacturers have developed user terminals compatible with the applicable standards.

For EGNOSv3, a new generation of user terminal needs to be developed in conformity with the new standards for Dual Frequency Multi-Constellation (DFMC). The SoL service based on GPS & Galileo in the L1/E1 and L5/E5a frequency bands is foreseen to become operational around 2023. Before that date the new generation of user terminals needs to have been industrialised, so that aviation users can equip with receivers.

The indicative overall budget of the grant to be awarded is estimated to reach up to €5.000.000.

### Objectives pursued and foreseen results:

This activity aims to incentivise development of SBAS DFMC (Satellite Based Augmentation

System Dual-Frequency Multi-Constellation) aviation safety receivers at the level of maturity required for flight tests.

The expected result is a DFMC SBAS user terminal prototype for the aviation SoL service, augmenting GPS and Galileo core constellations, and implementing features of the DFMC SBAS Interface Control Document (ICD) as well as the ARAIM algorithms defined in the EU-US Workign Group C (WG-C) Milestone Reports. In addition, the beneficiary shall support investigations on relevant issues of the DFMC MOPS while the draft MOPS are being produced.

#### **Description of the activities to be funded under the call for proposals:**

Proposals submitted to the call should cover the activities described below:

- a. Develop a receiver up to the maturity level required for flight tests (i.e. Technology Readiness Level 7) via the following activities:
  - i. DFMC SBAS Receiver definition:
    - 1. Architecture trade-offs
    - 2. Architecture definition
  - ii. DFMC SBAS Receiver development
    - 1. Testing tools definition
    - 2. SBAS DFMC Receiver Software development
    - 3. SBAS DFMC Receiver integration and test
- b. Implement and validate the completeness of the DFMC SBAS receiver standards developed in Eurocae (Minimum Operational Performance Standard (MOPS)) and ICAO (Standard and Reference Practice Standard (SARPS)).

#### **Essential eligibility, selection and award criteria:**

##### Eligibility and non-exclusion criteria

- The proposal may be submitted by entities fulfilling all the criteria below:
  - legal entities established in accordance with the law of a Member State (or Switzerland or Norway) – i.e. having their registered office, central administration or principal place of business within the European Union (or Switzerland or Norway)  
OR
  - individuals being nationals of an EU Member State, Norway or Switzerland. Applicants shall not be in one of the situations referred to in Articles 106 and Articles 107, 108 of the EU Financial regulation.
- Since the GSA placed a contract for procurement of one type of such prototype receiver (GSA-NP-04-15), the economic operators involved in the performance of the activities under the procurement are not eligible for the Grant resulting from the present Call for Proposal to avoid double funding of same activities.

##### The applicants must fulfil the following selection criteria:

- The financial capacity of the applicant to perform the proposed activities;
- The technical capacity of the applicant to perform the proposed activities;

- The operational (technical and management) capacity of the applicant must demonstrate how to perform/complete the operation of the proposed activities and also demonstrate their capacity to manage the scale of activity corresponding to the size of the project.  
In particular:
  - The team responsible for the activities must have an eminent technical competence on GNSS technology and a high degree of specialisation on aviation and GNSS, specifically EGNOS and Galileo,
  - Applicants must have a high degree of specialisation in areas relevant for the activities subject to the proposal, with recent examples of design, development, and industrialisation of GNSS Avionics receivers,
  - Applicants must demonstrate their experience in standardisation processes especially EUROCAE and RTCA,
  - Applicants must prove that they are able to assess core technologies supporting the DFMC SBAS receivers and are also able to design, develop and integrate such innovative technology solutions.
  
- Award criteria:
  - Relevance of the proposal to the objectives of the call and credibility of the proposed approach, including:
    - the general quality of the plan with respect to the overall clarity,
    - the demonstration of good understanding of the specific framework and environment under which the activities are to be conducted,
    - the adequacy of the approach to incorporate standardisation requirements evolutions throughout the project
    - the proposed roadmap adequacy for the introduction of certified product on the market;
  
  - Quality and relevance of proposed technical solutions, in particular:
    - Technology Readiness Level of the prototype,
    - Credibility of the design and development plan,
    - Adequacy of the verification and validation approach, including test tools,
    - Identification of open issues and definition of contingency measures in particular to counter interdependencies;
  
  - Impact in terms of economic and public benefits derived from the proposal

**Indicative timetable and indicative amount of the call for proposals:**

- Allocated budget for 1 (one) project: € 5,000,000

	Stages	Planning
a)	Publication of the call	June 2017
b)	Deadline for submitting applications	September 2017
c)	Evaluation period	October to November 2017
d)	Information to applicants on the outcome of the	December 2017

	evaluation	
e)	Signature of the Grant Agreements	January 2018

**Maximum possible rate of co-financing of the eligible total costs:**

Up to 60 funding of the eligible total costs.
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## A.2 Acceleration of EGNOS adoption in the field of civil aviation field 2017

**LEGAL BASIS** Regulation (EU) No 1285/2013 of the European Parliament and of the Council of 11 December 2013 on the implementation and exploitation of European satellite navigation systems and repealing Council Regulation (EC) No 876/2002 and Regulation (EC) No 683/2008 of the European Parliament and of the Council and Delegation Agreement between the European Union, represented by the European Commission and the European GNSS Agency on the Exploitation Phase of the EGNOS Programme signed on 16 April 2014.

Call for proposals

### **BUDGET LINE:**

EEX.0031 - BO3920 - EGNOS Exploitation

**BACKGROUND:** The European Global Navigation Satellite System (EGNSS), operated under civilian control, encompasses satellite radio-navigation system established under the Galileo programme and European Geostationary Overlay System (EGNOS). The EGNOS Safety of Life service was certified for use in aviation in March 2011 and today all European Air Navigation Service Providers (ANSPs) are enabled to implement EGNOS based approach procedures.

To meet the overall objectives of the EGNOS programme, the uptake in civil aviation is vital. This call should result in the implementation of EGNOS based operations, increasing safety and reducing distortions for the benefit of European aerodromes and airspace users.

### **Priorities, objectives pursued and expected results:**

Operational implementation of EGNOS in aviation is a strategic goal to ensure the success of the programme. In this context, the objective of this activity is to foster EGNOS adoption in the European aviation, enabling on the one hand, users to equip their aircraft/rotorcraft fleet with GPS/SBAS enabled avionics and, on the other hand, Air Navigation Service Providers and airports/heliports to publish RNP APCH down to LPV, including approaches benefitting from the LPV200 capacity, PinS LPV procedures and low level IFR routes in Europe. It will also consider pilot cases on advanced navigation operations benefitting from EGNOS and activities promoting the use of EGNOS for other communication and surveillance applications in all phases of flight.

The activity will encourage implementation in commercial, regional, business (corporate) aviation, general aviation (training, emergency services) and rotorcraft, considered the main aviation market segments for EGNOS and those maximising public benefits. OEMs interested in benefitting from EGNOS are also encouraged to apply to the call.

The result of this activity will be a wide scale operational implementation of the EGNOS based operations throughout European airports and airspace users.



### Description of the activities to be funded under the call for proposals:

Proposals submitted to the call for proposals should cover at least one of the activities described below:

- The design, development and operational implementation of EGNOS LPV/LPV 200 approach procedures, PinS, low level IFR routes at different European airports/heliports/routes
- Design and implementation of other communication, navigation and surveillance applications benefitting from EGNOS for all phases of flight.
- The installation of GPS/EGNOS enabled avionics and granting of airworthiness certification for RNP APCH procedures down to LPV minima, including PinS.
- Development of retrofit and forwardfit solutions including LPV capabilities.
- Development of enablers and other EGNOS based operations, such as, but not limited to simulators, validation tool, training materials or drones.

### Eligibility, selection and award criteria:

#### 1. Eligibility criteria and Non-exclusion criteria

The proposal may be submitted by entities fulfilling all the criteria below:

- Legal persons established<sup>1</sup> in and/or natural person(s) being citizen of one of the following countries, are eligible:
  - EU Member State;
  - Norway, Switzerland;

According to Article 131(4) of the Financial Regulation the exclusion criteria (paragraphs 1 to 4, 6 and 7, except point (b) of the first subparagraph and the second subparagraph of that paragraph, paragraphs 8, 9, 11 and 13 to 17 of Article 106) shall be applied also for grants.

#### 2. The applicants must fulfil the following selection criteria:

- The financial capacity of the applicant to perform the proposed activities;
- The technical capacity of the applicant to perform the proposed activities;
- The operational (technical and management) capacity of the applicant must demonstrate how to perform/complete the operation of the proposed activities and also demonstrate their capacity to manage the scale of activity corresponding to the size of the project.

#### 3. Award criteria:

- Relevance of the proposal to the objectives of the call and credibility of the proposed approach;
- Impact in terms of economic and public benefits derived from the proposal;
- Coherence and effectiveness of the work plan, including appropriateness of the allocation of tasks and resources.

<sup>1</sup> Established should be understood as having a registered office, central administration or principal place of business in one of these countries.

**Indicative timetable and indicative amount of the call for proposals:**

4. Allocated budget for the Call for Proposals: € 10,000,000

	<b>Stages</b>	<b>Date and time or indicative period</b>
a)	Publication of the call	February 2018
b)	Deadline for submitting applications	May 2018
c)	Evaluation period	June 2018
d)	Information to applicants on the outcome of the evaluation	October 2018
e)	Signature of the Grant Agreements	December 2018

<b>Maximum possible rate of co-financing of the eligible total costs: 60%</b>
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