Market Consultation on the provision of an EGNOS geostationary navigation payload service (GEO)

EUSPA/MC/39/26

1 Introduction

The European Geostationary Navigation Overlay Service (EGNOS) is providing services since 2009 and its exploitation is under the responsibility of the EU Agency for the Space Programme (EUSPA or the Agency). EGNOS is a satellite-based augmentation (SBAS) system providing correction data and integrity information for improving positioning, navigation and timing services over Europe. Today, EGNOS augments GPS using the L1 (1575.42 MHz) Coarse/Acquisition (C/A) civilian signal. EGNOS will augment both GPS and Galileo in the future, using L1 and L5 (1176.45 MHz) frequencies.

EGNOS is providing 3 services, free of charge to users:

- Open Service (OS), which improves the achievable positioning accuracy by correcting to a large extend errors affecting the GPS signals. OS is intended for high-volume satellite navigation applications. It is subject to the service limitations described in the EGNOS OS SDD [1] ;
- Safety of Life (SoL) Service, that provides the most stringent level of signal-in-space performance to all Safety of Life user communities, in particular for the aviation and maritime sectors:
    - the EGNOS SoL Service for Aviation fulfils civil aviation requirements (EGNOS Signal-In-Space is compliant to the ICAO SARPs for SBAS**Error! Reference source not found.** [4]) and supports operations down to Localiser Performance with Vertical Guidance (LPV) minima as low as 200 ft. It is subject to the service limitations described in the EGNOS SoL Service Definition Document (SDD) [2] .
    - the EGNOS Safety of Life assisted service for Maritime users offers a service tailored to maritime users to enable marine navigation in harbour entrances, harbour approaches and coastal waters of the European Union Member States and EGNOS contributing countries in line with IMO Resolution A.1046 [5] . It is subject to the service limitations described in the EGNOS Safety of Life assisted service for Maritime users Service Definition Document (SDD) [3] .
- EGNOS Data Access Service (EDAS) is the EGNOS terrestrial data service which offers ground-based access to EGNOS data in real time to authorised users (e.g. added-value application providers). It aims at offering commercial data dissemination for professional or commercial use by means of improved performance and data with greater added value than those obtained through its open service. It is subject to the service limitations described in the EGNOS EDAS SDD [3] .[2]

At the moment, version 2 of the system (EGNOS V2) is in operations however the development of the version 3 (EGNOS V3) is on-going.

EGNOS messages are broadcast to users simultaneously from navigation payloads on board at least two GEO satellites. Nominally, two payloads are used operationally while a third GEO payload remains

in backup; this redundant configuration of the space segment has been designed to ensure continuous availability of the signal to end users and needs to be replenished over time.

EGNOS space segment is today provided by commercial satellite operators on the basis of service contracts. The so-called GEO-1, GEO-2, GEO-3 and GEO-4 service contracts cover the space segment needs for a number of years, GEO-1 and GEO-2 services being the first ones to end. The Agency is planning the next service contracts that will ensure a continuous service.

In view of this procurement, and as a follow up to the previous Market Consultation EUSPA/MC/27/24, the Agency is conducting this market consultation to collect information about opportunities to embark navigation payloads on-board GEO satellites during the new timeframe considered by the Agency. The outcomes of this market consultation will be used to decide on the best approach for the procurement of the payload service and will also help the Agency defining the tender specifications and the most appropriate time to launch the Invitation(s) To Tender.

2 Acronyms and Abbreviations

Abbreviation	Definition
C/A	Coarse/Acquisition
DFMC	Dual Frequency Multi-Constellation
EC	European Commission
ECAC	European Civil Aviation Conference
EDAS	EGNOS Data Access Service
EGNOS	European Geostationary Overlay Service
EU	European Union
EUSPA	European Union Agency for the Space Programme
FIR	Flight Information Region
GEO	Geostationary Orbit
GEO-1	Geo transponder service provided from the SES-5 satellite at 5°E with uplink stations in Belgium and Luxemburg
GEO-2	Geo transponder service provided from Astra-5B satellite at 23.5°E with uplink stations in Belgium and Luxemburg
GEO-3	Geo transponder service provided from E5WB satellite at 5°W with uplink stations in France and Italy.
GEO-4	Geo transponder service provided from HB13G satellite at 13°E with uplink stations in Portugal and Italy.
GNSS	Global Navigation Satellite System (e.g. GPS, Galileo, GLONASS etc.)
GPS	Global Positioning System
ICAO	International Civil Aviation Organisation
IOT	In Orbit Test
NLES	Navigation Land Earth Station
OS	Open Service
OSD	Operational Start Date
RF	Radio-frequency
SARPS	Standards and Recommended Practices
SBAS	Satellite Based Augmentation System
SDD	Service definition Document
SoL	Safety of Life

3 Reference Documents

[1] EGNOS Open Service Service Definition Document (OS SDD), issue 3.0, 12/11/2024

https://egnos.gsc-europa.eu/documents/egnos-open-service-sdd

[2] EGNOS Safety of Life for Aviation Service Definition Document (SoL SDD for Aviation), issue 3.6, 09/09/2024

https://egnos.gsc-europa.eu/documents/egnos-safety-life-service-sdd

[3] EGNOS Safety of Life assisted service for Maritime Users Service Definition Document (ESMAS SDD), issue 1.0, 13/03/2024

https://egnos.gsc-europa.eu/documents/egnos-safety-life-assisted-service-maritime-users-esmas

[4] ICAO SARPS Annex 10, including up to Amendment 93

[5] IMO resolution A.1046 (27), 30/11/2011

4 Context and purpose of the Market Consultation

4.1 EGNOS Space Segment

The SoL service requirements defined in the EGNOS mission requirements in terms of continuity and availability require that the service area is continuously covered by at least 2 independent (i.e. on-board different GEO satellites) SBAS payloads broadcasting simultaneously, with a third payload as back-up. This third GEO is required to ensure availability of the service, in case of failure of one of the two operational GEOs. The backup payload is also used for the technical qualification of new EGNOS system releases and its operational qualification before its entry into service.

The current EGNOS Space segment is composed of payloads embarked on the following satellites:

- GEO-1 (SES-5 at 5°E) with uplink stations in Belgium and Luxemburg
- GEO-2 (Astra-5B at 23.5°E) with uplink stations in Belgium and Luxemburg
- GEO-3 (E5WB, at 5°W) with uplink stations in France and Italy
- GEO-4 (HB13G, at 13°E) with uplink stations in Portugal and Italy.

The following chart depicts this timeline of the payload services used by EGNOS. New GEO Services should ensure the replenishment of the Space Segment after the GEO-2 and GEO-3 end of contract. The operational qualification of the service, called Operation Start Date (OSD), is desired in the period from 2029 to 2032.

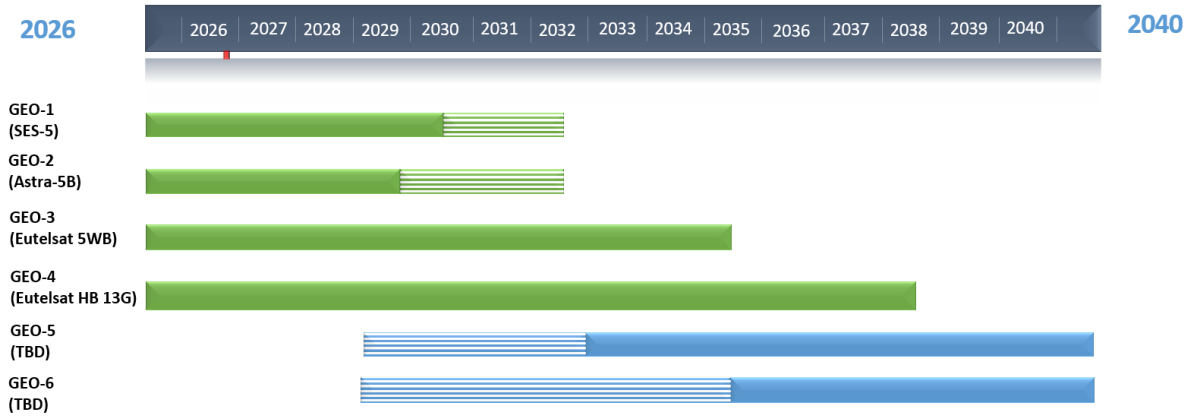

Figure 1: GEO Roadmap

4.2 Purpose of the Market Consultation

The purpose of this market consultation is to obtain information from:

- owners of geostationary satellites planned to be available for operational service from 2029 to 2035 and able to embark a navigation payload.

EUSPA is asking for information on the points listed in section 5 below. The feedback received in the frame of the consultation will be used to support EUSPA to understand what parameters influence the service provided and accordingly shape the potential procurement of EGNOS navigation payload services.

4.3 Main procurement needs

In preparing their answers, participants are invited to take into account that the scope of the service shall comprise a hosted EGNOS Payload_service compliant to requirements expressed in SBAS specifications [4] .

The service shall encompass:

- A target service provision phase whose duration will be between 12 and 15 years starting from the operational qualification or Operational Start Date (OSD).
- Provision of two independent uplink stations connected to each SBAS payload for the transmission of the SBAS signals generated by the EGNOS equipment. This includes hosting and maintenance services for the EGNOS equipment at each uplink station during the period of the service provision phase. The uplink stations shall be located in European Union territories.

4.3.1 TRANSPONDER SERVICE CHARACTERISTICS

The basic requirements of the GEO transponder to support EGNOS mission are:

- Orbital positions between 10° W and 30.5° E to cover the entire ECAC area with a minimum of 5 degrees elevation avoiding orbital slots already hosting SBAS GEOs (at least 1 degree separation).
- Transparent bent-pipe navigation payload.
- Two channels for L-band downlink. The payload shall provide 2 channels to support the independent transmission of SBAS signals in L1 and L5 bands. The RF characteristics shall comply with [4] . Some major charateristics are:
    - L1 channel:
        - Carrier frequency 1575.42 MHz,
        - Bandwidth (3 dB) 24 MHz,
        - Received power on ground: from –158.5 dBW to –153 dBW (at the output of a 3 dBi linearly polarized antenna, for all locations where satellite is observed with an elevation of 5 degrees or higher).
    - L5 channel:
        - Carrier frequency 1176.45 MHz,
        - Bandwidth (3 dB) 24MHz,
        - Received power on ground: from –157 dBW to –150.5 dBW (at the output of a 3 dBi linearly polarised antenna, for all locations where satellite is observed with an elevation of 5 degrees or higher).

  At the time of the procurement a larger band might be requested for the second channel: E5 with a bandwidth of approximately 55 MHz. In this case, two downlink carriers will be required: SBAS L5 signal specified above plus an additional carrier for E5b signal at the center frequency 1207.14 MHz

  The two channels shall allow separate command and configuration: turn on/off of each channel independently, channel gain and level control setting, etc.
- Service availability (transponder + RF uplink stations): the outage rates shall not exceed

	Mean Time between Outages	**Mean Duration**
Outage Mode 1	1 year	10 minutes

Outage Mode 2	10 years	36 hours

Note: An outage is defined as a period of time during which the service is not provided according to the requirements (e.g. performance is not compliant to the specifications). This includes also unavailability caused by manoeuvres, software upgrades, preventive maintenances, RF station problems, etc.

4.3.2 MAIN UPLINK RF STATIONS AND HOSTING SITES NEEDS

Detailed hosting site requirements will be issued at the time of the procurement. At this stage, EUSPA wants to inform the participants of some high-level needs:

- Two independent RF uplink stations per satellite where EGNOS NLES equipment will be collocated. The uplink station will also need to accommodate network equipment and have space for operations as well as a storage room.
- Specific RF environment requirements to be respected: interference free, antenna clear horizon, low multipath, etc. Besides the payload uplink antenna, an L-band downlink antenna will also be installed.
- On-site support for maintenance activities which should follow the procedures defined by the EGNOS operator.
- The sites, service and satellite operator will be subject to the GNSS Programme security rules and constraints.

5 Questions to Market Consultation Participants

The participants in this market consultation are invited to provide information / their position on the following aspects, taking into account the list of main procurement needs identified in the previous section:

1. Future satellite plans and possibility to embark SBAS payload(s) in due time to ensure an OSD from 2029 to 2035

   A short description of launch plans of future satellites, indicating which satellites could embark SBAS payload(s), having regards to the main transponder characteristics listed in section 4.3 above.

   The following information is expected:

   - Orbital location of the satellites;
   - Mass/Power/Physical accommodation constraints to embark an EGNOS payload as a piggy-back mission on the satellite;
   - technical impact of the third carrier in E5b frequency band
   - Timing constraints to embark the EGNOS payload on the future satellites and deadlines to sign a contract in order to fit into the satellite development schedule.

2. Service availability and long-term payload reliability

   The participants are invited to elaborate on:

   - Expected availability of the payload, considering the satellite manoeuvres plans including assessment of the impact of the chosen propulsion sub-system.
   - Mitigation measures proposed against the risk that the payload becomes unavailable, notably mitigation proposed against a critical failure to ensure service restoration, either by using a spare satellite or launch of a new satellite, etc.
   - Reliability of the service, as a function of time since OSD, and its impact on the possible service duration. The participants are invited to share their trade-off between the duration of the service provision phase versus risks of underperformance, as well as their assessment of the conditions that would increase service reliability.
   - Means to secure ground-space link in front of jamming or interferences.

3. EGNOS Payload Procurement and In Orbit Test, Commissioning

   Information on the way to procure the payload, explaining the intended supply process and information on the schedule and set-up to conduct in-orbit testing and commissioning explaining the role of the entities involved.

NOTE: EUSPA will request the right to participate to the payload development reviews/IOT/commissioning activities (reviews, test campaigns...).

4. EGNOS RF Uplink Stations and Hosting Sites

   Information regarding the potential Hosting Sites locations for the two RF Uplink Stations and respective NLES and the security protections in place. Please note that Hosting Sites shall be located in European Union territories.

5. Contractual arrangements, payment scheme, cost estimate

   Currently the availability of the GEO transponders for EGNOS is ensured as a service paid for with a monthly fee starting at the operational start date, a portion of this fee is paid as an advance payment (pre-financing of the service).

   The participants are invited to suggest if clear benefits could be expected by EUSPA if other contractual arrangements or payment modalities would be chosen and elaborate on those. This shall also take into account the potential advantages of procuring further hosted payload services.

   The participants are also requested to explain:

   - how the service price depends on the contracted service duration and what impact possible contract extensions would have on the service price and whether longer service could be procured via options (i.e. decision on execution is taken later in lifetime of contract or possibly not executed at all).
   - the impact of the third carrier in E5b frequency band in terms of additional cost.

   A rough estimate of EGNOS GEO payload services cost shall be provided for each proposed contractual approach, explaining under what conditions this price is provided.

The participants should note that the cost range information will be used solely to decide which terms and conditions the EUSPA could envisage for the procurement and these data will not be used for other purposes.

6 Disclaimer

EUSPA reserves at its sole discretion to decide whether and when it will launch an actual procurement for GEO.

The descriptive part of the present Market Consultation is intended solely for the purpose of providing the broader context information to the market.

Neither the present Market Consultation nor the answers to it are in any way binding on EUSPA in its preparation of the potential procurement documentation – no expectation shall be created or derived whatsoever.

EUSPA will also take measures to ensure that the opinions expressed in the replies will not unduly bias its procurement and the resulting tender specifications will ensure as wide competition as possible.

7 Confidentiality and Equality of treatment

The Agency commits to observe the strictest confidentiality on the answer obtained in reply to the present market consultation and not to use any possible results thereof in a way which would impair impartiality and equality of treatment in the preparation and carrying out of possible future procurements.

EUSPA reserves the right to share the information received from participants with the European Commission, committees foreseen in the Space Regulation and/or ESA.

8 Data protection section

The European Union Agency for the Space Programme (EUSPA) is committed to protect your personal data and to respect your privacy. Any personal data that may be included in the replies to the present consultation will be processed in accordance with (1) the applicable rules on the protection of natural persons with regard to the processing of personal data by the EU institutions, bodies, offices and agencies (currently Regulation (EU) 2018/1725) and (2) the modalities of the following privacy statement:

Identity of the controller:

- **Controller:** European Union Agency for the Space Programme (EUSPA), Head of EGNOS Programme Department, Janovskeho 438/2 170 00 Prague 7, Czech Republic, egnos.exploitation@euspa.europa.eu
- **Data Protection Officer:** EUSPA Data Protection Officer, Janovskeho 438/2 170 00 Prague 7, Czech Republic, dpo@euspa.europa.eu

Purpose of the processing: The management and administration of the Market Consultation and the follow up procurement as needed.

Data concerned:

Contact information of participants, e.g. name and last name of authorised representatives, email address, postal address, telephone numbers, company/agency/body and department, country of establishment, position. **Legal basis:** Article 5(1)(a) and 5(1)(b) of Regulation (EU) 2018/1725

Lawfulness of the processing:

Article 5(1)(a): the processing is necessary for the performance of a task carried out in the public interest, or in the exercise of official authority vested in the Union institution or body. In particular, the processing is necessary "for the management and functioning of those institutions and bodies" (Recital 22)., i.e., specifically the management and functioning of EUSPA through the preparation and launching of procurement procedures.

Article 5(1)(b): the processing is necessary for compliance with a legal obligation to which the controller is subject. Your data will be processed for compliance with legal obligations as per Regulation (EU, Euratom) 2018/10462 (hereinafter referred to as "the Financial Regulation"), Regulation (EU) 2021/6963 (hereinafter referred to as "the EU Space Programme Regulation") and European GNSS Agency Financial Regulation 2019 adopted by its Administrative Board on 16 August 2019.

Recipients of the data processed: for the purpose detailed above, access to your personal data is given to:

- a limited number of EUSPA/ staff and contractors of EUSPA on a "need to know" basis,
- a limited number of European Commission and European Space Agency staff on a "need to know"

This is without prejudice to a possible transmission to the bodies in charge of a monitoring or inspection task in accordance with European Union law (i.e., EUSPA might disclose personal data to the Court of Auditors and the European Anti-Fraud Office (OLAF), if need be).

Information on the storage locations and retention period of personal data: responses to the market consultation, including personal data, will be retained by EUSPA for a period of 5 years following the closure of the file to which the present market consultation belongs. A file is closed at the latest once there has been a final outcome in relation to the initiative to which the targeted consultation contributed (e.g., signature of the relevant contract).

Personal data is stored electronically on the servers of EUSPA or of its contractors located in the EU.

Data subject's rights and contact data:

Data subjects have the right:

• To obtain confirmation as to whether or not their personal data are being processed, access the data and obtain detailed information on the processing;

• Of rectification of inaccurate personal data;

• Of erasure of personal data if the statutory provisions are met;

• Of restriction of processing if the statutory provisions are met;

• To object to processing;

- To lodge a complaint to the European Data Protection Supervisor at EDPS@edps.europa.eu should they consider that the processing operations do not comply with Regulation (EU) No 2018/1725.

Any request for the exercise of any of the abovementioned rights shall be addressed to EUSPA EGNOS Exploitation Department at egnos.exploitation@euspa.europa.eu; data subjects are kindly requested to describe their requests explicitly.

The data subjects may contact:

- Regarding the processing of their personal data: egnos-exploitation@euspa.europa.eu;
- Regarding the interpretation, application or breach of Regulation (EU) 2018/1725: dpo@euspa.europa.eu.

The data subjects have the right to have recourse (i.e., lodge a complaint) to the European Data Protection Supervisor (EDPS@edps.europa.eu) if they consider that their rights under Regulation (EU) 2018/1725 have been infringed as a result of the processing of their personal data by the data controller.

9 Submission of Responses

Submission of a response implies acceptance of the conditions of the Market Consultation. The participants shall answer the question listed in section 5.

The responses to this Market Consultation should be sent in English in electronic format by email to the following address: tenders@euspa.europa.eu.

The deadline for submission of responses is 31/12/2026.

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