

Announcement of Opportunity for the Launch of Satellites on the *Spectrum* Demonstration Flights

1. Introduction

The German Space Agency at DLR undertakes statutory tasks in the space sector on behalf of the German Federal Government. This includes the implementation of the space strategy of the Federal Government, the development and management of the national space programme, and the representation of the interests of the Federal Republic of Germany in space-related international bodies in accordance with the tasks assigned.

To boost commercial initiatives within the European launch sector and to enable competitive launch services, the European Space Agency (ESA) co-funds and assists the pre-commercial development of new European space transportation services within their *Commercial Space Transportation Services and Support* programme (C-STs, Boost!). Germany is the leading contributor of this ESA programme. The German Space Agency at DLR implemented a national micro launcher competition to select launch services providers for receiving a support letter to apply for ESA's co-funding. End of April 2021, Isar Aerospace Technologies GmbH (Isar Aerospace) was selected as the winner of the current competition phase. Thus, Germany supports their proposal for the co-funding of two demonstration flights of their *Spectrum* rocket to take place in the 2022/2023 horizon.

As participation condition of the German micro launcher competition, Isar Aerospace will offer launch opportunities for institutional payloads of up to 150 kg total mass including adapters and/or dispensers on each of their two demonstration flights of the *Spectrum* launch vehicle. The number of payloads per flight is not pre-defined. The selection of payloads will be done by the German Space Agency at DLR in consultation with Isar Aerospace and ESA. **The standard launch service - as described in section 2.4 - will be free of charge for the selected payloads. Payload adapters respectively dispensers, non-standard services and own costs will have to be borne by the payload owners.**

Spectrum - designed, built and operated by Isar Aerospace Technologies GmbH - is dedicated towards small- and medium-sized spacecrafts and optimized for the deployment and maintenance of satellite constellations. It is a two-stage vehicle, utilizing proven technologies combined with modern manufacturing methods to ensure high reliability and enable fast-paced, flexible, and cost-effective mission integration. The maiden flight is currently planned for Q3 2022, the follow-up flight in 2023.

The objective of this Announcement of Opportunity is to pre-select payloads for the maiden flight and to identify candidate spacecrafts for the second demonstration flight of the *Spectrum* launch vehicle. The pre-selection of payloads for the second flight can take place before the maiden flight and will be based upon the number and respective readiness of payloads as well as status of launcher development. The Announcement of Opportunity describes the conditions of the launch opportunities offered through DLR for European small institutional payloads on the *Spectrum* demonstration flights and briefly describes the conditions to submit a proposal for potential payloads. DLR reserves the right to re-publish a dedicated Announcement of Opportunity for the second demonstration flight.

A final round of the German micro launcher competition in April 2022 will lead to the selection of a further company receiving support for performing two demonstration flights of their launcher development. An associated Announcement of Opportunity will be published in mid-2022 after that decision milestone.

2. Description of the opportunity

2.1. General Conditions

This Announcement of Opportunity is open to any European institutional satellite customer of launch services having its seat in either the European Union (EU) or an ESA member state. For the sake of clarity, European institutional satellite refers to satellites operated by or for the benefit of the following entities, irrespective of the launch service procuring entities:

- National governments, agencies and other public entities and undertakings which are part of the administration of ESA member states and/or EU member states,
- Universities and public research centres of EU and ESA member states
- ESA,
- the EU,
- European international organisations, other than ESA, which are composed in terms of number of member states, mainly of ESA member states and/or EU member states.

Furthermore, a potential European institutional customer may provide more than one satellite or may syndicate with other potential institutional customers. In such case, the respective customers shall announce a consortium manager as sole negotiation partner and shall provide all necessary parts to accommodate payloads at their own expenses.

All potential European institutional customers meeting the requirements laid out in this Announcement of Opportunity are invited to submit their application, as per paragraph 6 of this document.

2.2. Spacecraft Classes

The maximum aggregated mass of the spacecrafts/payloads eligible under this Announcement of Opportunity is 150 kg. This includes CubeSats, stacks of CubeSats, as well as micro satellites meeting the mass requirement and fitting into the volume under the fairing which is specified in the *Spectrum* Payload User's Guide (PUG).

2.3. Orbit

The reference orbit for the maiden flight is a low altitude polar orbit (< 400 km). Other polar orbits might be considered within the *Spectrum* launch system capabilities and in line with achievable orbits from the Andøya Spaceport. The altitude may change for the second *Spectrum* flight.

Potential payload providers are therefore requested to explicitly identify, together with their preferred orbit, the flexibility of their spacecraft to other possible orbits.

2.4. Spectrum's Standard Launch Service

The *Spectrum* standard launch services, which will be free of charge to the selected European institutional customer, include:

- Assignment of a mission manager by the launch service provider
- Launch licensing
- Mission analysis (coupled load analysis, thermal, trajectory) and design
- Interface control
- Payload flight acceptance review (incl. range safety)
- Provision of payload processing facilities three weeks prior to launch with ISO 8 cleanroom conditions
- Payload encapsulation and integration to launch vehicle
- Environmental control under fairing for the time being encapsulated with ISO 7 cleanroom conditions

- Electrical connectivity during payload processing, launch vehicle assembly and on-pad operations
- Custom mission logo on payload fairing
- Standard 1,575 mm mechanical payload interface
- Provision of a standard electrical payload interface or integration of a customer provided electrical payload interface
- Launch operations and 3-axis or spin-stabilized spacecraft separation
- Live launch webcast
- Payload separation command and monitoring
- Payload separation verification and orbit injection report (incl. state vectors) within max. two hours after mission end
- Post-Flight report within eight weeks after successful launch

2.5. Further Requirements and Constrains

Potential payload providers shall submit a preliminary compliance matrix versus the technical and operational requirements outlined in the *Spectrum* PUG. The *Spectrum* PUG will be distributed to all interested institutional customers on request by e-mail (launch@isaraerospace.com).

In order to properly perform the feasibility analysis and consequently support the definition of possible aggregates of several light satellites, potential payload providers are required to provide - to the best of their knowledge - their response to the [questionnaire](#) in annex A.

Potential payload providers shall identify their planned readiness for flight in their response to this Announcement of Opportunity (incl. earliest and latest flight opportunity).

3. Selection Process

Based upon the responses to this Announcement of Opportunity, the potential payloads will be pre-selected by a jury of experts. Following criteria will be considered:

Compatibility with the formal criteria of this announcement

- Provision of full set of application documents until 31.10.2021

Compatibility with the technical constraints, in particular

- Aggregated mass of max. 150 kg, incl. required adapters and/or dispensers
- Compatibility with available payload volume
- Spacecraft orbital parameters flexibility/mission compatibility with a low altitude polar orbit (< 400 km)

Compatibility with the programmatic constraints

- Planning (earliest and last possible launch date)
- Current spacecraft's development status and remaining development risk
- Operability (launch campaign operations, safety aspects...)
- Alignment with national/European space strategies
- Geographical origin of payload provider

Final selection by DLR will be performed after an exchange on technical and programmatic compatibility between the launch service provider Isar Aerospace Technologies GmbH and the respective European institutional satellite customer and formalized through written launch service agreements between Isar Aerospace Technologies GmbH and these selected customers. There will not be any contract between either the German Space Agency at DLR or the European Space Agency and the payload supplier(s). DLR will propose, as outcome of this selection process, payloads to be launched on *Spectrum*. A dummy payload may be requested for flight by Isar

Aerospace in case that the satellite is not ready in time. Furthermore, DLR reserves in that case the right to change its selection.

4. Disclaimer of Liability

A legal entitlement to conclude a contract or to get any right against DLR, ESA, or Isar Aerospace Technologies GmbH is not granted by this Announcement of Opportunity. No claim against DLR shall arise at any time during the course of the abovementioned process.

This Announcement of Opportunity is limited to the pre-selection of potential candidates of suppliers of European institutional payloads for the planned demonstration flights. It can result in above described launch service agreements providing free-of-charge standard launch services to these selected payloads. Any other cost, including non-standard launch services, payload adapters or dispensers, and payload customers own cost will remain at the charge of the respective institutional payload suppliers.

DLR must not be held liable for any services within the framework of a potential subsequent contract. This includes, but is not limited to, the flight schedule, the flight operation, and the flight success.

Furthermore, the flight opportunities are currently pending placement of the ESA C-STX Boost! program contract between ESA and *Isar Aerospace Technologies GmbH*, currently expected to happen in Q3 2021.

5. Privacy Policy

The German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt e.V.) will comply with data protection regulations when processing personal data and when passing on this data and will ensure this compliance by means of technical and organisational measures in accordance with the latest state of the art.

Information requirements according to Art. 13 General Data Protection Regulation (GDPR).

The following information provides you with an overview of the processing of your personal data (hereinafter referred to as "data") concerning the procedure surrounding the launch of satellites on a *Spectrum* demonstration flight and informs you of your rights.

The data processing entity and thus the responsible entity within the meaning of the General Data Protection Regulation is:

Deutsche Raumfahrtagentur im Deutschen Zentrum für Luft- und Raumfahrt e.V. (DLR)
Königswinterer Straße 522-524
53227 Bonn
datenschutz@dlr.de

Where reference is made below to "we" or "us", this always refers to DLR. We process data in accordance with the provisions of the European Data Protection Regulation (hereinafter "GDPR") and the German Federal Data Protection Law (hereinafter "BDSG"). You can reach our data protection officer at the above address, with the addition "To the data protection officer" or at the above e-mail address.

Your data will be collected and processed to enable you to participate in the procedure concerning the launch of satellites on a *Spectrum* demonstration flight in accordance with the conditions of participation. For this purpose, we use your participation documents, the communication data contained therein as well as data of your employees on the basis of Article 6 para. 1 lit. b) GDPR. In order to participate in the procedure, we require all data from you that is necessary for the participation in the procedure concerning the launch of satellites on a *Spectrum* demonstration flight and the implementation of the launch and the fulfilment of the associated obligations or

which we are obliged to collect. Your data will be shared on a strict need-to-know basis with ESA and Isar Aerospace experts involved in this process as well as the external expert jury. All external partners will commit to follow the procedures laid out in this section. We will not transmit the data to any third parties beyond.

The above data will be stored for a period of three years.

You have the right to request information about the data stored by us at any time.

If data is incorrect or no longer up to date, you have the right to request its correction in accordance with Art. 16 GDPR. You also have the right to request the deletion of data pursuant to Art. 17 GDPR or the restriction of processing, Art. 18 GDPR. If you have provided data and the processing by means of automated procedures is based on your consent or on a contract, you have the right of data portability.

You may object to the processing of data pursuant to Article 21 GDPR if you do not wish to participate (for the future). Without the provision of the data, participation in an abovementioned launch event is not possible. Furthermore, you have the possibility to contact the responsible data protection authority, the Federal Commissioner for Data Protection, and to lodge a complaint if necessary.

6. Responses to the Announcement of Opportunity

In response to this Announcement of Opportunity, the potential payload providers are invited to submit a Notice of Intent (NoI) identifying the contact point and including the preliminary statement of compliance to the technical requirements (PUG) and the filled [questionnaire](#) (annex A).

The applications of all potential payload providers are to be delivered to the German Space Agency at DLR by October 31st, 2021. Any written communication shall be addressed to:

German Space Agency at DLR
AR-OR
Mr. Andres Luedeke
Königswinterer Str. 522-524
53227 Bonn
Germany

E-Mail: mikrolauncher.payload@dlr.de

In case of uncertainty, the German version of the announcement shall prevail over the English version.

Bonn, August 31st, 2021