



**Aeronautical Services
Advisory Memorandum
(ASAM)
Focal Point: GEN**

**ASAM
No: 46
Issue 1.0
Date 24.06.2022**

Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure
--------------	---

1. Introduction

- 1.1. This Document the application process for commercial space transport activities within Irish airspace and is based on the content of relevant ICAO Annexes, PANS/ATM (Doc.4444), Regional Supplementary Procedures (Doc.7030), AIP Ireland and current NOTAMs.
- 1.2. Prior to conducting a launch, re-entry, or equivalent activity the operator/sponsor is required to demonstrate commitment and engage with the Irish Aviation Authority (IAA) in pre-application consultation. The Operator/Sponsor must also complete a letter of agreement (LOA) with the Air Traffic Service Unit(s) having responsibility for the airspace affected by a launch or re-entry activity.
- 1.3. With the increased activity of commercial space transport operations, whose vehicles generally do not operate in the same manner as conventional aircraft, additional provisions such as segregation of airspace may be required to accommodate these activities, and therefore it is essential that integration of these operations is managed in a consistent and efficient way that maintains aviation safety and environmental sustainability, and does not disproportionality affect the regularity, environmental protection and efficiency of civil and military operations.
- 1.4. This document contains the regulatory application process and a Letter of Agreement (LoA) template (See Appendices 1, 2 & 3). The template is intended to reduce the potential for confusion by giving commercial space transport sponsors / operators a common baseline to start their discussions.

2. Table Of Contents

1. Introduction.....	1
2. Table Of Contents	1
3. Right to access airspace	3
4. Managed Airspace Access	3
5. Access to Irish ATS Airspace (Sovereign and High Seas)	4
6. Application Procedure Objective	4
7. Application Responsibilities.....	4
7.1. Operator/Sponsor	4
7.2. IAA / Lead Coordinator	5
7.3. ANS Providers/Units.....	6
8. Launch, Transit and Re-entry Operations - Application Process	6
8.1. Introduction.....	6




**Aeronautical Services
Advisory Memorandum
(ASAM)
Focal Point: GEN**

**ASAM
No: 46
Issue 1.0
Date 24.06.2022**

Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure
--------------	---

8.2.	Generic Application Process	7
8.3.	Assessment.....	7
9.	Application Contents	8
9.1.	Details Required to Support Application	8
9.2.	Information about launch.....	9
9.3.	Information about flight path	9
9.4.	Information about launch vehicle	10
9.5.	Flight history or testing of kind of launch vehicle	11
9.6.	Information about payload.....	11
9.7.	Launch management plan	12
9.8.	Launch confirmation and notification of changes.....	13
9.9.	Launch Management Plan Amendment.....	14
9.10.	Risk hazard analysis.....	14
9.11.	Flight safety plan.....	15
9.12.	Debris mitigation strategy.....	16
9.13.	Environment.....	16
9.14.	Information Security / Cyber Security	16
9.15.	Insurance/financial requirements	17
9.16.	Contracts	17
9.17.	Outstanding items & matters to be verified	17
9.18.	Return flight safety case.....	17
9.19.	Emergency plan.....	18
10.	IAA Decision Criteria Considerations	19
11.	Activity Promulgation - NOTICE TO AVIATORS (NOTAM).....	19
12.	Post Activity Monitoring	20
13.	Investigation of Accidents & Incidents	20
14.	Fees.....	20
	Appendix 1 - COMMERCIAL SPACE LOA SAMPLE TEMPLATE	21
	Appendix 2 - Points of Contact Table.....	26
	Appendix 3: Actions Timetable.....	27


	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

3. Right to access airspace

- 3.1. The United Nations Convention on the Law of the Sea (UNCLOS) is an international agreement that defines the rights and responsibilities of States with respect to the use of seas and certain airspaces. Part II of the UNCLOS III, states that the sovereignty of a coastal State extends beyond its land territory and internal waters to an adjacent belt of sea, described as the territorial sea, and that this sovereignty extends to the air space over the territorial sea. It elaborates that every State has the right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles.
- 3.2. The 1944 Chicago Convention on International Civil Aviation, Article 2 reaffirms that the territory of a State comprises of the land area and territorial waters under the sovereignty, suzerainty, protection or mandate of such State.
- 3.3. Therefore, no State has sovereignty with regard to airspace over seas outside of territorial waters.

4. Managed Airspace Access

- 4.1. One of the key ICAO Annexes, that relates to air traffic services, is Annex 11. This Annex pertains to the establishment of airspace, and the units and services necessary to promote a safe, orderly and expeditious flow of air traffic. Its purpose is to ensure that flying on international air routes is carried out under uniform conditions designed to improve the safety and efficiency of air operations.
- 4.2. The Standards and Recommended Practices in Annex 11 apply in those parts of the airspace over the sovereign territory of an ICAO Contracting State wherein air traffic services are provided, and also, where a Contracting State accepts the responsibility of providing air traffic services over the high seas, they may apply these Standards and Recommended Practices in a manner consistent with that adopted for airspace over its sovereign territory.
- 4.3. ICAO Annex 11 requires that Contracting States determine, for the territories over which they have jurisdiction, those portions of the airspace where air traffic services will be provided and that they arrange for such services to be established and provided. For portions of the airspace over the high seas, the provision of air traffic services is determined on the basis of ICAO regional air navigation agreements. Where a Contracting State accepts the responsibility to provide these air traffic services, they must arrange for these services to be established and provided in accordance with the provisions of Annex 1.
- 4.4. Chapter 2, paragraph 2.19 of ICAO Annex 11 requires that arrangements for activities potentially hazardous to civil aircraft, whether over the territory of a State or over the high seas, are coordinated with the appropriate air traffic services authorities. The objective of the coordination is to achieve the best arrangements which will avoid hazards to civil aircraft and minimize interference with the normal operations of such aircraft.
- 4.5. The responsibility for initial coordination rests with the appropriate ATS authority of the State where the organising planning the activities is located, or the appropriate ATS authority that has responsibility for the airspace over the State where the organisation is located.

	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

- 4.6. Paragraph 2.19 also requires that the appropriate ATS authority ensures that a safety risk assessment is conducted, as soon as practicable, for activities potentially hazardous to civil aircraft and that appropriate risk mitigation measures are implemented.
- 4.7. To this end, States are required to establish procedures to enable the organization or unit conducting or identifying activities potentially hazardous to civil aircraft to contribute to the safety risk assessment in order to facilitate consideration of all relevant safety significant factors.
- 4.8. In general, to protect all users of airspace, airspace segregation is used to accommodate these types of activity. This can entail large volumes of airspace becoming unavailable to the majority of airspace users for large periods of time. This can lead to airspace users experiencing inefficiencies with associated increases in operating costs, including substantial re-routes, longer flight times and increased fuel burn.

5. Access to Irish ATS Airspace (Sovereign and High Seas)

- 5.1. The IAA, pursuant to Section 14 of the IAA Act (No. 29 of 1993), has the responsibility to ensure that Irish airspace is used in a safe and efficient manner.
- 5.2. The uncoordinated operation of rockets, or modified aircraft, in Irish airspace (both sovereign and high seas) is considered to be a hazard.
- 5.3. Therefore, in order to ensure that any the hazards to civil aircraft associated with rocket activities are sufficiently mitigated, and to ensure that the normal operations of civil aircraft are not disproportionately impacted by the activity, an application which demonstrates that the activity is tolerably safe, meets environmental requirements and does not disproportionality impact on other airspaces, must be made to the IAA.
- 5.4. In accordance with ICAO Annex 11 provisions and the IAA Act, the IAA’s permission must be given for the launch, transit and re-entry activity to take place in Irish airspace.
- 5.5. This ASAM details how this application can be made.


6. Application Procedure Objective

- 6.1. The purpose of this procedure is to support the detailed technical planning necessary approving commercial space transport operations in Irish airspace.
- 6.2. Any airspace segregation for the purposes of commercial space transport activity must take into account safety, the environment and capacity
- 6.3. It should be noted, the commercial space industry continues to evolve and not all operational concepts detailed in the guidance material will apply universally to all the vehicle types, or to all phases of flights.

7. Application Responsibilities

7.1. Operator/Sponsor.


- 7.1.1. Engagement with the Air Navigation Services Division of the IAA, in the pre-application consultation prior to conducting a launch, transit or re-entry or activity,
- 7.1.2. Ensuring that a letter of agreement (LOA) is completed with the Air Traffic Services Unit having responsibility for the airspace where the launch, Transit or re-entry will take place. The LoA must be completed and signed prior to the end of the application process Each commercial space applicant must have a signed LOA prior to operation.

	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

- 7.1.3. Submitting a complete application, including the draft Letter of Agreement must be acceptable to all signatories and be completed prior to the end of the application process.
- 7.1.4. The operator or sponsor submits a request to conduct a launch, transit or reentry operation to the State Regulator, ATS Units and other organizations in accordance with the LOA.
- 7.1.5. The operator or sponsor must develop a Safety Plan/Safety Case to the affected parties, per LOA.
- 7.1.6. Unless otherwise specified in the LOA, the operator coordinates use of airspace in adjacent FIRs.
- 7.1.7. Unless otherwise specified in a LOA, the operator coordinates use of any special use airspace.
- 7.1.8. All affected ANS facilities, IAA, and the operator/range or their designee participate on a real-time communications hotline during the launch or re-entry operation in accordance with an LOA.
- 7.1.9. Coordination for airspace delegation and control procedures will be conducted in accordance with the LOA.

7.2. IAA / Lead Coordinator

- 7.2.1. Ensuring that launch, transit, and re-entry operations are safely and efficiently integrated into the airspace.
- 7.2.2. Working with ANS Units to develop a memorandum of assessment of potential impacts from the proposed site/operation and the identification of any issues or constraints.
- 7.2.3. Coordinating with the operator/sponsor, and the affected ANS facilities as necessary;
- 7.2.4. Analysing and evaluating data to produce and distribute an airspace management plan;
- 7.2.5. Serving as the focal point for the coordination and distribution of any hazard mitigation requirements, and information relevant to launch or re-entry vehicle operations to affected ANS facilities;
- 7.2.6. Monitoring, evaluating, and disseminating information in real-time regarding the status of launch, transit, and re-entry vehicle operations and providing operational support as required;
- 7.2.7. Hosting a mission real-time hotline when required in accordance with an LOA;
- 7.2.8. Performing post launch or re-entry analysis of each operation to improve future operations;
- 7.2.9. Archiving captured launch, transit, and re-entry data and analysis;
- 7.2.10. The IAA will share the Safety Plan and Safety Case with affected ANS units.
- 7.2.11. The IAA will notify the affected facilities of any additional safety hazard mitigation requirements depending on the unique characteristics of the launch or re-entry operation if needed.
- 7.2.12. Prior to each launch or re-entry operation, the IAA coordinates with the ANS facility(ies) to develop and implement an airspace management plan.
- 7.2.13. The responsible authority cancels all applicable NOTAMs
- 7.2.14. The IAA will coordinate with affected ANS units in the conduct an airspace impact analysis of the proposed operation.

	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

- 7.2.15. IAA and ANS units will coordinate a proposed plan of operation based on the airspace impact analysis and/or any other constraints.
- 7.2.16. The IAA will verify the accuracy of the Safety Plan, Safety Case and coordinates with relevant stakeholders.
- 7.2.17. IAA will complete a post-operator analysis of actual space operation impact
- 7.2.18. All affected ANS facilities, IAA, and the operator/range or their designee participate on a real-time communications hotline during the launch or re-entry operation in accordance with an LOA.
- 7.2.19. Coordination for airspace delegation and control procedures will be conducted in accordance with the LOA.


7.3. ANS Providers/Units

- 7.3.1. Working with the IAA to develop a memorandum of assessment of potential impacts on the airspace structure from the proposed site/operation and the identification of any issues or constraints;
- 7.3.2. Determining and notifying IAA of potential effects the launch or re-entry operation may have on traffic flows and sector loading;
- 7.3.3. Determining the type and level of assistance needed to support the launch or re-entry operation;
- 7.3.4. Coordinate with the Operator of required R/T transactions with ATC (when required)
- 7.3.5. Develop and execute an airspace management plan in collaboration with the IAA, including blocking airspace (if required)
- 7.3.6. Determine if ATCO licences are appropriate for the required activity
- 7.3.7. Working with State Regulator and other affected facilities during the execution of the launch or re-entry.
- 7.3.8. This includes the following duties:
 - 7.3.8.1. Participating on a real-time communications hotline during the launch or re-entry operation when required in accordance with an LOA;
 - 7.3.8.2. Execution of any safety hazard mitigation efforts.
- 7.3.9. ANSP will complete a post-operator analysis of actual space operation impact
- 7.3.10. All affected ANS facilities, IAA, and the operator/range or their designee participate on a real-time communications hotline during the launch or re-entry operation in accordance with an LOA.
- 7.3.11. Coordination for airspace delegation and control procedures will be conducted in accordance with the LOA.

8. Launch, Transit and Re-entry Operations - Application Process

8.1. Introduction

- 8.1.1. There are three stages in the Permit process,
 - Engagement (pre-application)
 - Application

	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

- Monitor.

8.1.2. There are steps within each stage and each stage must be completed before moving to the next, though the amount of work required and the timescales within which it should be completed will depend upon the nature and the scope of the Permit application.

8.2. Generic Application Process

8.2.1. Pre-application meeting

Potential applicants should engage with IAA ANSD before an application is submitted. These meetings will establish a shared understanding of the project ambitions including the potential scope of the Permit and potential timescales. It is also an opportunity ensure clarity regarding the Permit process.

and, if appropriate, to advise them of what modifications would be required to bring the proposed mission in line with the requirements.

These meetings may also, where possible, provide a smoother, more tailored application process that is more proportionate to the scale of airspace required and risks of a particular mission

Note: it is important to note that a pre-application meeting does not pre-empt any Permit decision.

8.2.2. Application

Once IAA ANSD has received an application, a completeness check will be conducted. If the application is not complete, the application will not proceed until the missing information is supplied.

When the application is complete, the Assessment phase will commence.


8.3. Assessment

8.3.1. IAA ANSD will carry out a thorough assessment of the submitted material. The nature of the assessment will depend on the type of Permit applied for.

8.3.2. Additional checks will be carried out to verify the accuracy of declarations made in the application and a review of supporting documentation (safety case, security programme, assessment of environmental effects) against specified assessment criteria will also be completed. In addition, inspections may be carried out as part of the assessment.

8.3.3. IAA ANSD may request the production of documents and records and interview employees and other officers as well as carrying out inspections of sites, the launch vehicle or equipment as is deemed necessary.

8.3.4. Assessment Conclusion

	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

If there are serious deficiencies in the application that have not been addressed, then the application will be refused. If the application meets the assessment criteria, a recommendation will be made that a Permit is granted.

8.3.5. Recognition of another State Regulators Approval/Assessment

8.3.5.1. An assessment of documented evidence of a Permit from a regulator that has an agreement in place with the IAA for mutual recognition of Permits and assessments related to commercial space transportation, can be used to support an application.

8.3.5.2. The scope of the recognition will be in line with the overall agreement and specifics of each individual application

9. Application Contents

9.1. Details Required to Support Application

- 9.1.1. Project schedule
- 9.1.2. The launch vehicle to be used in the launch or series of launches should be as effective and safe as is reasonably practicable having regard to the purpose of the launch.
- 9.1.3. The flight path for each launch should be as effective and safe as is reasonably practicable, having regard to the purpose of the launch, the design of the launch vehicle and the required launch safety standards.
- 9.1.4. The risk hazard analysis for each launch and any connected return.
- 9.1.5. There should be adequate planning to address the environmental impacts of the launch or launches and any connected return.
- 9.1.6. Application should be in writing and include the following information
 - 9.1.6.1. the name of the applicant.
 - 9.1.6.2. the name, position and contact details of an individual who will act as contact for the purposes of dealing with the application;
 - 9.1.6.3. the applicant's passport number
 - 9.1.6.4. if the applicant is a registered company provide details.
 - 9.1.6.5. information about which persons or entities have ownership, control or direction of the applicant, including the nationality of those persons or entities.
- 9.1.7. Organisational structure and personnel, including
 - 9.1.7.1. a description of the organisational structure of the applicant, including the chain of command within the structure and the duties and responsibilities of each position in the chain of command; and
 - 9.1.7.2. the following information about each individual described in subsection (9.1.7) (whether or not the individual is part of the applicant's organisational structure):
 - 9.1.7.2.1. the individual's name, date of birth and place of birth;
 - 9.1.7.2.2. the address of the individual's usual place of residence;
 - 9.1.7.2.3. the individual's relevant qualifications and experience;
 - 9.1.7.2.4. how long the individual has occupied the individual's current position.
 - 9.1.7.3. Paragraph 9.1.7 applies to the following
 - 9.1.7.3.1. the applicant's chief executive officer or equivalent.



**Aeronautical Services
Advisory Memorandum
(ASAM)
Focal Point: GEN**

**ASAM
No: 46
Issue 1.0
Date 24.06.2022**

Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure
--------------	---

- 9.1.7.3.2. each individual in a position that would have authority to direct: the conduct of a launch and any connected return; or the operation of the launch vehicle;
- 9.1.7.3.3. each individual in a position that has or would have any duties or functions directly connected with operating the launch vehicle proposed to be used in a launch;
- 9.1.7.3.4. each individual in a position within the organisational structure of the applicant that has or would have authority or oversight in relation to manufacture or maintenance of the launch vehicle;
- 9.1.7.3.5. each individual in a position that would have authority or oversight in relation to tracking or communicating with the launch vehicle;
- 9.1.7.3.6. each individual in a position that would have authority or oversight in relation to integration of a payload with the launch vehicle;
- 9.1.7.3.7. each individual in a position that has or would have authority or oversight in relation to:
 - 9.1.7.3.7.1. installation of software in the launch vehicle; or
 - 9.1.7.3.7.2. verification that the software functions correctly;
- 9.1.7.3.8. each individual in a position that has or would have authority or oversight in relation to verification that the structural system, propulsion system, fuel system, electrical system or electronic system of the launch vehicle functions correctly;
- 9.1.7.3.9. each individual who had authority or oversight in relation to preparing the technology security plan included in the application.
- 9.1.7.3.10. each individual in a position that would have a role in implementing or monitoring the technology security plan.

9.2. Information about launch


The application should include the following information for each launch:

- 9.2.1. description of the purpose of the launch;
- 9.2.2. if the launch is proposed to be from a launch facility—the launch facility;
- 9.2.3. if the launch is proposed to be from a mobile launch facility—the latitude and longitude of the launch;
- 9.2.4. if the launch is proposed to be from an aircraft—the latitude, longitude and elevation of the launch;
- 9.2.5. the launch period and the launch windows within that period;
- 9.2.6. the period for any connected return and the return windows within that period.

For the purposes of paragraph 9.2.5 if the launch period extends over more than 1 day, the application should also include an estimated launch day.

9.3. Information about flight path

The application should include the following information for each launch:

	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

- 9.3.1.a description of the flight path and Flight Information Regions affected.
- 9.3.2. the name and location of any critical asset that is directly under the flight path; or within an area of reasonable probability in which any debris may land (both scheduled debris and unscheduled debris);
- 9.3.3. for critical assets referred to in paragraph 9.3.2 an explanation of why the applicant considers the flight path is appropriate and safe given the location of the assets.
- 9.3.4. The application should include, for each launch that has a connected return, information about the following in relation to each space object to be returned:
 - 9.3.4.1. a description of the path of the space object;
 - 9.3.4.2. the ground track for re-entry;
 - 9.3.4.3. staging events for the return;
 - 9.3.4.4. predicted errors in accuracy for the re-entry and landing of the space object.

9.4. Information about launch vehicle

- 9.4.1. The application should include the following information relating to the launch vehicle proposed to be used in each launch:
 - 9.4.1.1. the name and address of the manufacturer.
 - 9.4.1.2.a copy of the manufacturer’s quality assurance system, or a description of the system if a copy is not available to the applicant;
 - 9.4.1.3.information showing whether the manufacturer has quality assurance certification that is in accordance with a recognised standard;
 - 9.4.1.4.information showing whether the launch vehicle has been manufactured in accordance with the designer’s specifications and tested and inspected having regard to the designer’s specifications.
 - 9.4.1.5.information showing whether the launch vehicle has been manufactured, tested and inspected in accordance with a recognised standard in the country of manufacture.
 - 9.4.1.6.information showing whether the launch vehicle has received appropriate import Permits;
 - 9.4.1.7.the name and address of the manufacturer of each of the systems of the launch vehicle;
 - 9.4.1.8. technical specifications of each of the systems
 - 9.4.1.9.a description of the development, qualification and acceptance programs for the hardware and software of the systems, including:
 - 9.4.1.9.1. information about any functional testing, modelling and analyses that have been carried out in relation to those systems; and
 - 9.4.1.9.2. a description of the results of the qualification verification and acceptance verification programs.
- 9.4.2. For the purposes of paragraphs 9.4.1.4 to 9.4.1.9 information is required for the following systems of the launch vehicle:
 - 9.4.2.1. the structural system;



**Aeronautical Services
Advisory Memorandum
(ASAM)
Focal Point: GEN**

**ASAM
No: 46
Issue 1.0
Date 24.06.2022**


Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure
--------------	---

- 9.4.2.2. the propulsion system;
 - 9.4.2.3. the fuel system;
 - 9.4.2.4. the electrical system, including the power supply and power distribution;
 - 9.4.2.5. each of the electronic systems, including the guidance system, communications system, flight control system, computer system and data management system;
 - 9.4.2.6. the flight safety system.
- 9.4.3. However, if a technical recognition instrument exists in relation to a kind of information required under subsection 9.4.1, the application may instead include a statement that identifies the technical recognition instrument.
- 9.4.4. The application should include a description of:
- 9.4.4.1. any previous flights that the launch vehicle, or a part of the launch vehicle, has undertaken; and
- 9.4.5. any assessment or testing of the vehicle following such a flight.
- 9.4.6. The application should include a declaration by the applicant that the launch vehicle is not, and does not contain, a nuclear weapon or weapon of mass destruction of any other kind.
- 9.4.7. If the launch vehicle contains a nuclear power source and the State Regulator’s written Permit has been obtained for it to do so, the application should include a copy of the Permit.

9.5. Flight history or testing of kind of launch vehicle

- 9.5.1. The application should include an outline of the publicly available information on the flight history of the kind of launch vehicle for the previous 5 years.
- 9.5.2. If the kind of launch vehicle has not been flight tested or the launch vehicle has had a major modification, the application should include:
- 9.5.2.1. a safety record for the vehicle, including testing history; and
 - 9.5.2.2. if the safety record includes anomalies or failures—the measures taken to reduce the risk of future anomalies or failures; and
 - 9.5.2.3. other information relevant to demonstrating the safety of the vehicle.
- 9.5.3. For the purposes of subsection 9.5.2, a launch vehicle has had a major modification if:
- 9.5.3.1. a change to the design of the vehicle involves a change to the type of engine, navigation system, flight control system or flight termination system; or
 - 9.5.3.2. a change to the design concerns the use of strap-in boosters; or
 - 9.5.3.3. the vehicle has been modified in any way that might affect to a significant extent any characteristic of its operation or performance.


9.6. Information about payload

	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

- 9.6.1. For any launch that is proposed to include one or more payloads, the application should include the following information for each payload:
- 9.6.1.1. a description of the payload.
 - 9.6.1.2. the purpose for which the payload is intended to be used.
 - 9.6.1.3. the owner of the payload.
 - 9.6.1.4. if the owner of the payload is a corporation—information about significant shareholders in the corporation.
 - 9.6.1.5. if the owner of the payload is an individual—the address, date of birth and place of birth of the owner;
 - 9.6.1.6. the manufacturer of each subsystem of the payload and the country of manufacture.
 - 9.6.1.7. the proposed trajectory and (if applicable) orbit of the payload;
 - 9.6.1.8. the sensors and other information-gathering devices that are attached to the payload or powered by it;
 - 9.6.1.9. if the payload is intended to be returned (other than in a connected return described under section 9.2.6 and, if so:
 - 9.6.1.9.1. the approximate timing of the return; and
 - 9.6.1.9.2. the intended location of the return; and
 - 9.6.1.9.3. a description of the intended return process;
- 9.6.2. The application should include a declaration by the owner of the payload that the payload is not, and does not contain, a nuclear weapon or weapon of mass destruction of any other kind.
- 9.6.3. If the payload contains a nuclear power source and the State Regulator’s written Permit has been obtained for it do so, the application should include a copy of the Permit.

9.7. Launch management plan

- 9.7.1. The application should include a launch management plan for managing the launch or series of launches and any connected return.
- 9.7.2. The plan should include the applicant’s arrangements and procedures for conducting each launch and any connected return, including the following:
- 9.7.2.1. arrangements to ensure the safety of associated ground operations;
 - 9.7.2.2. procedures for making any changes to the conduct of the flight;
 - 9.7.2.3. procedures to confirm that the launch vehicle is ready for assembly;
 - 9.7.2.4. procedures for assembly of the launch vehicle;
 - 9.7.2.5. procedures for the integration of payloads;
 - 9.7.2.6. procedures for identifying and responding to adverse weather conditions for launch;
 - 9.7.2.7. procedures for launch countdown;
 - 9.7.2.8. procedures to recover from any anomalies or failures during the launch;
 - 9.7.2.9. for a connected return—the procedures for recovery of each returned space object

	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

and for its removal from the place that it lands.


9.7.3. The plan should include the following:

- 9.7.3.1. arrangements for reporting to the IAA on a launch and any connected return;
- 9.7.3.2. arrangements to ensure that personnel who have duties or functions in connection with a launch or launches and any connected return are properly prepared;
- 9.7.3.3. arrangements for responding to any problem encountered in conducting a launch or connected return and for taking action to resolve it;
- 9.7.3.4. a statement identifying all hazardous ground operations associated with a launch or connected return, and a description of the procedures to manage those operations;
- 9.7.3.5. communications arrangements for a launch and any connected return, including the following:
 - 9.7.3.5.1. launch area communications;
 - 9.7.3.5.2. communications from drop zones to the launch area;
 - 9.7.3.5.3. telemetry communications (including the radio frequencies to be used);
 - 9.7.3.5.4. emergency communications;
- 9.7.3.6. procedures for managing any change to a payload, including addressing the effect of the change on the performance and stability of the launch vehicle;
- 9.7.3.7. the system to be used for:
 - 9.7.3.7.1. making and keeping records in relation to the operation of the launch vehicle; and
 - 9.7.3.7.2. maintaining documentation (such as manuals and procedures) relating to the operation of the launch vehicle;
- 9.7.3.8. arrangements for maintaining the launch vehicle, including the system for recording scheduled and unscheduled maintenance.

9.7.4. The plan should include a timeline for the launch and flight that identifies all safety-critical events.

9.8. Launch confirmation and notification of changes

- 9.8.1. The holder of the Permit should, at least 56 days before a launch.
 - 9.8.1.1. confirmation of the day the launch is scheduled to take place and the launch window on that day; and
 - 9.8.1.2. information about any subsequent days, and the launch window on each of those days, that the launch may be attempted if it does not occur on the scheduled day; and
 - 9.8.1.3. confirmation of the planned trajectory of the space object.
- 9.8.2. If the launch does not occur on the scheduled day notified and the holder of the Permit intends to attempt the launch on a day mentioned in paragraph 9.8.1.2 the holder should notify the appropriate ANSP/IAA as soon as practicable.
- 9.8.3. The holder of the Permit should notify the IAA of any change to the payloads that will be launched.

	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

9.8.4. The holder of the Permit should give the IAA any changes to the assumptions and data used in the risk hazard analysis for a launch and any connected returns, along with a statement from a suitably qualified expert who is approved by the Regulator as to whether the risk hazard analysis continues to fall within the launch safety standards.

9.8.5. The holder of the Permit should notify the IAA of any changes to the information mentioned in 9.3 (information about flight path) for a launch or connected return.

9.8.6. The holder of the Permit should, as far as is practicable, conduct each launch and any connected return consistently.

9.9. Launch Management Plan Amendment

9.9.1. If the holder of the Permit amends any of the following, the holder should give a copy of the amendment to the State Regulator:

- 9.9.1.1. the launch management plan for the launch or series of launches and any connected return;
- 9.9.1.2. the flight safety plan for the launch or series of launches and any connected return;
- 9.9.1.3. the technology security plan relating to the launch or series of launches and any connected return.

9.9.2. The holder of the Permit should ensure that each launch and any connected return is conducted in accordance with the current version of each of the plans.

9.10. Risk hazard analysis

9.10.1. The application should include a risk hazard analysis for each launch and any connected return. The analysis should:


- 9.10.1.1. be performed by a suitably qualified expert who is accepted by the IAA; and
- 9.10.1.2. fall within the launch safety standards.

9.10.2. The application should describe the methodology, assumptions and data used in the analysis.

9.10.3. The methodology should apply the launch vehicle probability of failure set out in the risk hazard analysis methodology in the Flight Safety Code.

9.10.4. If the methodology used differs from the risk hazard analysis methodology, the application should:

- 9.10.4.1. describe the methodology used in a form that can conveniently be assessed against the methodology in the Flight Safety Case; and
- 9.10.4.2. set out each difference between the methodology used and the methodology in the Flight Safety Case; and
- 9.10.4.3. demonstrate, having regard to those differences, that the methodology is technically sound.

	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

9.10.5. The application should describe any software used to carry out the analysis, including:

9.10.5.1. a description of the system for:

- 9.10.5.1.1. making and keeping records and data relating to the operation of the software; and
- 9.10.5.1.2. maintaining documentation (such as manuals) relating to the operation of the software; and
- 9.10.5.1.3. for software that is not a generally available commercial product:
 - 9.10.5.1.3.1. who developed the software; and
 - 9.10.5.1.3.2. how the software operates to implement the methodology used; and
 - 9.10.5.1.3.3. how the software was tested and the results of testing; and
 - 9.10.5.1.3.4. who validated the software and how it was validated.

9.11. Flight safety plan

9.11.1. The application should include a flight safety plan for the launch or series of launches and any connected return.


9.11.2. The plan should include the following:

- 9.11.2.1. the strategies and arrangements to be used by the applicant to ensure that the launch or launches, the operation of the launch vehicle on the flight path and any connected return will be conducted:
 - 9.11.2.1.1. in a way that reduces the level of risk to third parties to as low as is reasonably practicable; and
 - 9.11.2.1.2. within the launch safety standards set out in the Flight Safety Case;
 - 9.11.2.1.3. arrangements for reporting to the State Regulator any changes in:
 - 9.11.2.1.3.1. the arrangements for conducting the launch or launches and any connected return; or
 - 9.11.2.1.3.2. the assumptions and data used in the risk hazard analysis for each launch and connected return;

9.11.3. arrangements for subsequent reporting to the State Regulator on the compliance of the launch or launches, the operation of the launch vehicle on the flight path and any connected return with:

- 9.11.3.1. the launch safety standards; and
- 9.11.3.2. the assumptions and data used in the risk hazard analysis for each launch and connected return.

9.11.4. The application should include written confirmation by a suitably qualified expert, who is approved by the State Regulator and is not a related party of the applicant, that the launch or launches, the operation of the launch vehicle on the flight path and any connected return will fall within the launch safety standards if carried out in accordance with the flight safety plan.

	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

9.12. Debris mitigation strategy


- 9.12.1. The strategy for debris mitigation in the application should be based on an internationally recognised guideline or standard for debris mitigation, and identify the guideline or standard being used.
- 9.12.2. The strategy should describe any mitigation measures planned for orbital debris arising from the proposed launch or launches (including from payloads).
 - Note: Examples of appropriate measures include measures to address the following:
 - 9.12.3. how debris may be limited during normal operations;
 - 9.12.4. how the potential for break-ups during operational phases will be minimised;
 - 9.12.5. how the probability of accidental collision in orbit will be limited;
 - 9.12.6. how the potential for post-mission break-ups as a result of stored energy will be minimised;
 - 9.12.7. how the long-term presence of payloads and launch vehicle orbital stages in the low-earth orbit region or in geosynchronous earth orbit will be limited after the end of the mission.
- 9.12.8. The strategy should include an orbital debris assessment based on an internationally recognised model.

9.13. Environment

- 9.13.1. For each launch, the application should include one of the following (whichever is applicable to the launch):
 - 9.13.1.1. evidence that the environmental impact of the launch and any connected return is addressed by the environmental plan of the licensed launch facility from which the launch is proposed;
 - 9.13.1.2. information about environmental Permits required for the launch
 - 9.13.1.3. an assessment of the likely impact of the launch and any connected return on the environment, and information on how any adverse effects on the environment are to be monitored and mitigated.

9.14. Information Security / Cyber Security

- 9.14.1. The application should include a technology security plan relating to the launch or series of launches and any connected return.
- 9.14.2. The plan should include the following:
 - 9.14.2.1. arrangements and procedures for safeguarding the technology to be used in conducting the launch or launches and any connected return and in operating the launch vehicle, including:
 - 9.14.2.1.1. procedures to prevent unauthorised people from having access to the technology; and

	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

9.14.2.1.2. the cybersecurity strategy to be used;

9.14.3. The application should include a written assessment of the adequacy of the cybersecurity strategy in the plan by a person with suitable qualifications and experience who is not a related party of the applicant.

9.15. Insurance/financial requirements

9.15.1. The application should include, for each launch or connected return:

- 9.15.1.1. evidence of the capacity of the applicant to satisfy the insurance/financial requirements for the launch or return; and
- 9.15.1.2. the calculations used in the determination of the amount for the launch or return; and
- 9.15.1.3. the name of the person who made the calculations.

9.16. Contracts

9.16.1. The application should include copies of the contracts that the applicant has entered into, and information on contracts that the applicant proposes to enter into, for the purpose of the launch or launches and any connected return, including the following:

- 9.16.1.1. any contracts for use or lease of facilities or vessels;
- 9.16.1.2. any contracts for others to undertake activities connected with a launch or return;
- 9.16.1.3. any contracts for carrying payloads.

9.17. Outstanding items & matters to be verified

9.17.1. The application should include the following:

- 9.17.1.1. a list of matters mentioned in the launch management plan or technology security plan that are yet to be verified or validated;
- 9.17.1.2. for each such matter, arrangements (including the time frame) for obtaining the verification or validation.

9.18. Return flight safety case

9.18.1. The application should include a return flight safety case for the return or series of returns.

9.18.2. The safety case should include the following:

- 9.18.2.1. the strategies and arrangements to be used by the applicant to ensure that the return or returns will be conducted in a way that reduces the level of risk to third parties to as low as is reasonably practicable
- 9.18.2.2. arrangements for reporting to the IAA any changes in the arrangements for conducting the return or returns; or



**Aeronautical Services
Advisory Memorandum
(ASAM)
Focal Point: GEN**

**ASAM
No: 46
Issue 1.0
Date 24.06.2022**


Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure
--------------	---

- 9.18.2.3. the data used in the risk hazard analysis for each return;
- 9.18.2.4. arrangements for subsequent reporting to the IAA on the compliance of the return or returns with:
 - 9.18.2.4.1. the Flight Safety case; and
 - 9.18.2.4.2. the assumptions and data used in the risk hazard analysis for each return.

9.18.3. The application should include written confirmation by a suitably qualified expert, who is accepted by the IAA and is not a related party of the applicant, that the return will be in accordance with the Flight Safety Case if carried out in accordance with the return flight safety case.

9.19. Emergency plan

- 9.19.1. The application should include an emergency plan for responding to:
 - 9.19.1.1. accidents and incidents involving a returning space object; and
 - 9.19.1.2. any other kind of emergency at or near the facility or premises from which a return is proposed be conducted.
- 9.19.2. The plan should include the following:
 - 9.19.2.1. a description of actions to be taken by the persons responsible for responding to an accident, incident or other emergency;
 - 9.19.2.2. a list of the authorities or persons to be notified by the applicant in relation to an accident, incident or other emergency;
 - 9.19.2.3. a description of the arrangements for coordinating any action to be taken in relation to the accident, incident or other emergency with those authorities or persons;
 - 9.19.2.4. evacuation procedures for an accident, incident or other emergency;
 - 9.19.2.5. details of exercises to test the plan before the return, and arrangements to report the results of those exercises to the Agency;
 - 9.19.2.6. arrangements for reviewing the effectiveness of responses in emergencies and exercises, and arrangements to report the results of any review to the Agency;
 - 9.19.2.7. procedures to be followed, in the case of accident, for:
 - 9.19.2.7.1. locating the space vehicle or its wreckage; and
 - 9.19.2.7.2. in accordance with any necessary permission of the IAA or Investigator—recovering and removing the space object or its wreckage;
 - 9.19.2.8. the equipment and facilities necessary for responding to an accident, incident or other emergency;
 - 9.19.2.9. arrangements to ensure the applicant would meet the applicant’s obligations under applicable law in the event of an accident, incident, or other emergency or when conducting exercises to test the plan.


	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

10. IAA Decision Criteria Considerations

- 10.1. The following are matters to which the IAA will consider when deciding whether to issue a Permit
- 10.1.1. whether the person applying for the authorisation certificate is competent to carry out the activity
 - 10.1.2. Whether there is a risk that the activity might expose the State to liability for damage caused by the activity;
 - 10.1.3. whether the activity would represent an unsatisfactory risk of liability to the State if insurance is not held to cover the applicant;
 - 10.1.4. whether the probability of the activity causing substantial harm to public health or public safety or causing substantial damage to property is as low as reasonably practicable;
 - 10.1.5. whether the activity involves a nuclear weapon or a weapon of mass destruction of any other kind;
 - 10.1.6. whether, for reasons relevant to the security, defence or international relations, the authorisation certificate should not be issued;
- 10.2. The IAA will also consult with relevant Government Departments, such as the Department of Transport, Department of Foreign Affairs, Department of Defence, Department of Environment, Climate and Communication, etc., and will take into account any comments or observations received from these Departments (or their appropriate agencies) when deciding whether to issue a Permit.

11. Activity Promulgation - NOTICE TO AVIATORS (NOTAM)

- 11.1. NOTAMs issued for space launch, transit, and re-entry operations will be processed in accordance with current ICAO Provisions.
- 11.2. The coordination shall be effected a minimum of two AIRAC cycles to permit timely promulgation of information regarding the activities in accordance with Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066).
- 11.3. The NOTAM must include the key words “airspace,” “space launch,” or “space re-entry;” the launch or re-entry site description, effective dates and times, and a chart depicting the area boundaries. It should also include a brief narrative describing the launch or re-entry scenario, activities, types of launch or re-entry vehicle involved, and the availability of inflight activity status information for nonparticipating pilots.
- 11.4. ICAO Doc 8400: NOTAM FORMATS
 - 11.4.1. QRDCA/IV/BO/W – RD stands for Danger area -- RDCA: Danger area (specify area) Activated
 - 11.4.2. QRTCA/IV/BO/W– RT stands for Temporary restricted area (specify area) – RTCA: Temporary restricted area (specify area) Activated
 - 11.4.3. QWMLW/IV/BO/E –WM stands for Missile, gun or rocket firing – WMLW: Missile, gun or rocket firing Will take place

	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

11.4.4. **QRALW/IV/NBO/W – RA stands for Airspace reservation (specify) – RALW:**
Airspace reservation (specify) Will take place

11.5. Information regarding the methods of airspace management may also be addressed.

12. Post Activity Monitoring


- 12.1. the holder of the Permit should give the IAA the following as soon as practicable after the launch of a space object authorised by the Permit:
- 12.1.1. the information about the orbital parameters of the space object.
 - 12.1.2. confirmation on who will register the space object
 - 12.1.3. a report on the compliance of the launch with the launch safety standards and with the assumptions and data used in the risk hazard analysis for the launch.

13. Investigation of Accidents & Incidents

- 13.1. Any incident or accident involving an aircraft shall be investigate pursuant to the requirements of ICAO Annexes 13 and 19
- 13.2. If no aircraft is involved, then the investigation should be conducted in accordance extant space treaties

14. Fees

- 14.1. In accordance with Statutory Instrument S.I. No. 523 of 2015 IRISH AVIATION AUTHORITY (FEES) ORDER, 2015,) the fee payable for the grant of permission pursuant to this ASAM shall be an amount equivalent to the cost of such investigations and work as may be required by the IAA, subject to a minimum fee of €123.
- 14.2. The cost of investigative work as may be required shall be levied at a rate of €1,421 per day, together with any other associated expenses

	<p style="text-align: center;"> Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN </p>	<p style="text-align: center;"> ASAM No: 46 Issue 1.0 Date 24.06.2022 </p>
<p>Title</p>	<p>Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure</p>	

Appendix 1 - COMMERCIAL SPACE LOA SAMPLE TEMPLATE

Letter of Agreement Template: Space Vehicle Launch-Re-entry

[Name(s) of affected Air Traffic Control Facilities (lead facility listed first)], State Regulator, [Operator]

Letter of Agreement

Effective:

Subject: Coordination of [Operator] Launch/Reentry Operations from [name and location of Launch and (if applicable) Reentry site]


1. Purpose:

State the purpose of the Letters of Agreement (LOA), type of operation (launch, launch with reentry), and location of operation (name and location of launch and (if applicable) Reentry site). If LOA is for a one-time operation, state that.

Sample

This Letters of Agreement (LOA) provides procedures for the integration and appropriate coordination of [licensed/permitted] [*Vehicle Type*: horizontal/vertical] [launch/launch with reentry/hover-test] operations into the XXX FIR/OCA from [name and location of launch and (if applicable) Reentry site].

text:

	<p style="text-align: center;"> Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN </p>	<p style="text-align: center;"> ASAM No: 46 Issue 1.0 Date 24.06.2022 </p>
<p>Title</p>	<p>Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure</p>	

2. Cancellation:
 Include any previous LOA cancelled by this one [Subject and Effective Date of LOA being cancelled]. State agreement to review LOA annually.

Sample text:
 This LOA will remain in effect until cancelled by any signatory entity and will be reviewed annually throughout the life of the [license/permit] or when modifications are made to the [license/permit].

3. Scope:
 List the pertinent ATC facilities, Operator, and any additional stakeholders, including military facilities as applicable. State distribution of the LOA. The distribution should include, at a minimum, all signatories and the State Regulator.

Sample Text:
 This LOA is pertinent to [ATC facilities], [additional stakeholders], and [Operator]. It is to be distributed to all signatories and stakeholders].

4. Responsibilities:
 State the responsibilities of the Operator, lead ATC facility, and as needed, any other stakeholders and/or affected facilities.

a. Operator must fulfill requirements provided in the Sample Text for this section. b.
 Lead ATC facility must fulfill requirements provided in the Sample Text for this section and

1. Fill out the Points of Contact Table (Attachment B).
2. Fill out the Actions Timetable (Attachment C)


c. *(As needed)* Other stakeholders and affected facilities must:

1. Ensure appropriate personnel are aware of the provisions of this agreement.

Sample text:

a. [Operator] must:

1. Ensure all Operator [and their designees] personnel operating within the scope of this agreement are knowledgeable of, understand, and comply with the provisions of this agreement.
2. Establish, make available, and be prepared to execute approved contingency plan(s).
 - a) Unless an established contingency plan has been approved by all necessary parties, [Operator] must coordinate requirements and get Permit from [lead ATC facility] for contingency plan(s) at least [XX] calendar days prior to each operation.

	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

3. Follow the procedures in Section 5 and the Action Timetable (Attachment C) with regards to communications and notifications.
4. Notify the parties in the Points of Contact Table (Attachment B) immediately if scheduled operations are cancelled.
5. *(As needed)* Develop separate agreements with foreign Air Navigation Service Providers when airspace coordination outside of the [FIR Flight Information Region is needed for the operation.

b. [Lead ATC facility] must:

1. Ensure all personnel responsible for providing air traffic service within the scope of this agreement are knowledgeable of, understand, and comply with the provisions of this agreement. This includes notification to other affected facilities.
2. Ensure appropriate [lead ATC facility] personnel are aware of and prepared to execute approved contingency plan(s).
3. Communicate with necessary facilities and ascertain their readiness to execute approved contingency plan(s).
4. Except when real time notifications of actual start of activity and end of activity times are provided to the facility take appropriate actions to restrict airspace use during the effective times of the aircraft hazard area(s).
5. Take additional measures for public safety deemed necessary.

c. *(As needed)* [Other stakeholders and affected facilities] must:

1. Ensure appropriate personnel are aware of the provisions of this agreement.
2. Ensure appropriate personnel are aware of and prepared to execute approved contingency plan(s).


d. Deviations from responsibilities and/or procedures established in this LOA must be coordinated prior to each operation, and responsibilities must be clearly defined in each case.

5. Procedures:

Specify timeline and details for activities to take place prior to, during, and upon completion of operation.

Specify frequency of proposed operations and any limitations when considering dates and times of operations. Include any restrictions on days of week and/or times of day operations that may or may not occur. Restrictions may include times when military operations require use of certain airspace.

Specify procedure(s) for handling anomalies and emergencies. Information conveyed should


	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

include the location of event (latitude and longitude, represented as degree-minute-second), vehicle state, projected time the hazard will no longer be present, and any other pertinent details.

Sample text:

a. [Operator] must:

1. Provide a Launch/Reentry Forecast Package to the parties specified in the Points of Contact Table (Attachment B), at least once every [XX] months. These forecasts will include a best estimate of all anticipated launches for the upcoming [XX] months.
2. Provide [lead ATC facility] a pre-planning package a minimum of [XX] calendar days prior to the planned operation. At a minimum, the package should include:
 - a) The launch/reentry window.
 - b) The best estimate of the geographic definition of the hazard area(s) (latitude and longitude, represented as degree-minute-second) for the primary date and any back-up date(s).
 - c) *(As needed)* Any support aircraft's type and call sign.
3. *(As needed)* Submit Altitude Reservation (ALTRV) or Danger Area request(s) to the State Regulator (and email a copy of the request to the [lead ATC facility]) a minimum of [XX] days prior to the planned operation.
4. Verify the issuance of the appropriate NOTAMs.
5. No less than [XX] minutes in advance of a planned operation, notification will be given by [Operator] to [lead ATC facility] of intent for the [launch/hover-test] to take place.
6. During the operation, a [Operator] representative must participate on an ANSP Hotline teleconference with [lead ATC facility] and State Regulator (see Actions Timetable, Attachment C, for phone number). Communication on the ANSP Hotline teleconference must be established no less than [XX] minutes prior to planned operation.
 - a) The [Operator] representative must be able to provide real-time verbal indications of the status of the operation, its progress along the launch/reentry trajectory, and occurrence of significant events.
 - b) Participation by representative(s) from [other stakeholders and affected facilities] is advised.
7. Notify [lead ATC facility] upon completion of the operation.
8. *(As needed)* Contact State Regulator/ANSP and request that the appropriate ALTRVs / Danger Areas be cancelled.

	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

9. In the event of an anomaly, a [Operator] representative must immediately notify [lead ATC facility], via ANSP Hotline teleconference, of the occurrence of the anomaly. Information communicated should include, at a minimum:
 - a) The last known state of the vehicle.
 - b) The location of the off-nominal event (latitude and longitude, represented as degree-minute-second).
 - c) The predicted location(s) impacted (latitude and longitude, represented as degree-minute-second) (when known).
 - d) Projected time the hazard(s) will no longer be present (when known).
 - e) Other information that will provide estimated positions of hazards.

10. In the event of an emergency, [Operator] must immediately contact [lead ATC facility], via ANSP Hotline teleconference and email all the parties listed in the Points of Contact Table (Attachment B). Information conveyed should include, at a minimum:
 - a) The last known state of the vehicle.
 - b) The location of the event (latitude and longitude, represented as degree-minute-second).
 - c) The predicted location(s) impacted (latitude and longitude, represented as degree-minute-second) (when known).
 - d) Projected time the hazard(s) will no longer be present (when known).
 - e) Other information that will provide estimated positions of hazards.
 - b. [Lead ATC facility]:**
 1. Upon notification of a completed operation, [lead ATC facility] must cancel appropriate airspace restrictions and/or NOTAMs.
 2. In the event when [lead ATC facility] becomes aware of a condition that would make the launch/reentry unsafe, [lead ATC facility] must immediately contact, via ANSP Hotline, [Operator] and all other parties listed in the Points of Contact Table (Attachment B).

6. Attachments

- A. Signatures
- B. Points of Contact Table
- C. Actions Timetable
- D. Graphics/Maps



**Aeronautical Services
Advisory Memorandum
(ASAM)
Focal Point: GEN**

**ASAM
No: 46
Issue 1.0
Date 24.06.2022**

Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure
--------------	---

- Launch/Reentry Site Description/Map
- Aircraft Hazard Area Description/Map
- Temporary Flight Restriction Description/Map
- Air Traffic Control Assigned Airspace Description/Map

E. Commercial Launch/Reentry Site LOA

Attachment A: Signatures

Lead ATC Facility Operator


State Regulator

External Stakeholders.

Appendix 2 - Points of Contact Table

The following table should be completed by the [lead ATC facility] and the information should be verified prior to every operation

Office	Phone #	Email	Responsibility
[Operator]			
[Lead ATC Facility] Supervisor in Charge			
[Lead ATC Facility] FMP/ Traffic Management Unit			
State Regulator			

	Aeronautical Services Advisory Memorandum (ASAM) Focal Point: GEN	ASAM No: 46 Issue 1.0 Date 24.06.2022
Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure	

Appendix 3: Actions Timetable

The following table should be completed by [lead ATC facility]. In coordination with the [lead ATC facility], [Operator] must ensure that the following actions are completed at the defined intervals.

Time	Event	Remarks	Date Completed
T – [XX] months Suggestion: T – X months	Submit Launch/reentry Forecast Package	Operator should provide best estimate of all known launch/reentry dates for upcoming six months.	
T – [XX] calendar days Suggestion: T – XX – XX calendar days	Coordinate launch/reentry corridor/hazard area(s)	Operator should coordinate with State Regulator & ANSP and as appropriate, other affected facilities.	
T – [XX] calendar days Suggestion: T – XX calendar days	Submit Pre-Planning Package	Operator should provide a description of the Aircraft Hazard Area(s), along with date(s) and time(s) for launch/reentry.	



**Aeronautical Services
Advisory Memorandum
(ASAM)
Focal Point: GEN**

**ASAM
No: 46
Issue 1.0
Date 24.06.2022**

Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure
--------------	---

Time	Event	Remarks	Date Completed
T – [XX] calendar days Suggestion: T – X - XX calendar days	File an Altitude Reservation (ALTRV) Danger Area request	Operator is responsible for coordinating all necessary ALTRV /Danger Area requests. Requests should be submitted via email to (see State AIP) A copy of the request should also be emailed to [lead ATC facility]. Contact:	
T – [XX] hours	Verify issuance of appropriate airspace notices (NOTAMs and TFRs)	Operator should contact [lead ATC facility] for issuance of TFR(s) and NOTAM(s) (as needed).	
T – [XX] hours and repeat again at T – [XX] hours Suggestion: T – 24 hours and 3 hours	Provide operational status report	Operator contacts [lead ATC facility] via [telephone/email] and provides operational status report, which includes confirmation of intent and specifics of operation.	
T – [XX] minutes Suggestion: T – XX - XX minutes	Establish Hotline connection	[ANSP Hotline telephone #] The operation will be delayed or terminated if the Operator does not establish communications via ANSP Hotline teleconference. Operator must have a representative on the ANSP Hotline teleconference until the operation is complete.	
T – [XX] minutes Suggestion: T – XX minutes	Provide operational status report	Operator provides operational status report. This report includes confirmation that the operation will take place as scheduled. As necessary, Operator should continue to communicate any significant operational changes.	



**Aeronautical Services
Advisory Memorandum
(ASAM)
Focal Point: GEN**

**ASAM
No: 46
Issue 1.0
Date 24.06.2022**

Title	Permit to Operate Civil Space Transportation Vehicles in Irish Airspace – Application Procedure
--------------	---

Time	Event	Remarks	Date Completed
T – [XX] minutes and repeat at T – [XX] minutes Suggestion: T – XX minutes and T – X minutes	Receive final clearance or confirmation of continued approved mission status	Operator must receive clearance or confirmation of continued approved status from [lead ATC facility] to proceed with operation.	
During operation	Maintain real-time communication via ANSP Hotline teleconference	Operator must provide real-time verbal indications on the status of the vehicle.	
Post-operation or mission cancellation	Notify ATC (if applicable) completion or cancellation of operation	ATC must be notified when operation is complete. TFR(s), ALTRV(s), and any other necessary notices should be cancelled as soon as practicable.	
	Schedule post-operation debrief	A debrief should occur ideally within hours, but no later than hours of the completion of the operation. A debrief should be conducted even if no off-nominal activity occurred.	