Launch Operator Safety Case Licensing Statement

Safety Case Preparation Guidance and Checklist

The following pages have been developed as a tool to ensure minimum requirements are met when producing a Safety Case which, in accordance with the provisions of Space Industry Regulations 2021 Part 4, Chapter 2, Section 2, Regulation 29 and Schedule 1, must be submitted to the UK Civil Aviation Authority (CAA) as part of the licence application or whenever a change is made.

This licensing statement will guide you through the applicable Space Industry Act, Space Industry Regulations and Guidance Material (GM) that should be considered when writing the Safety Case.

Completion of these licensing statements will also aid a more efficient assessment process, as you can clearly demonstrate to the regulator where (noted in the 'Your Reference' column) you have provided the minimum information. (Please see *Column Explanations* for further clarification.)

The completed statement should be uploaded along with your proposed Safety Case to the CAA Space Regulation Portal.

This document can be iterated throughout the period of the licence and may evolve from the version(s) submitted at application stage. Should this be the case, you will be required to complete and submit further licensing statements whenever a revision is made to your Safety Case.

Applicant/Company Name:		The licensing statement should be completed for each individual part of the Safety Case. The completed statement should be uploaded to the CAA Space Regulation Portal.
Safety Case Date:		
Safety Case Revision No:		
Safety Case Version No:		

Before preparing your safety case, we strongly recommend you thoroughly read the detailed guidance on what is required in a safety case submitted by launch operator.

This can be found in **Section 5 of CAP 2213: Guidance for launch operator and return operator licence applicants and licensees** and sets out:

- The purpose of a safety case
- Scope of the safety case
- Information required in the safety case
- General and technical information
- Hazard Identification & accident scenarios: the link between safety analysis and the safety case
- Measures to prevent of limit the consequences of a major accident
- Demonstrating that the risk is ALARP
- Additional matters to take into account when preparing a safety case

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Column Explanations

Safety Case Content: This column describes the minimum information required in the Safety Case.

SIA, SIR or GM Reference: This column provides the references to the relevant and applicable sections of the Space Industry Act, Space Industry Regulations or Guidance Material.

Your Reference: This column is for you to populate. It is important that you clearly identify where you meet the requirements.

Licensee Comment: This column is for you to provide any brief notes of further information, details of the status of your documents etc that you believe will be useful. You do not need to repeat information you have provided a reference for.

CAA Comment: This column is for CAA use only.

The following are general requirements that must be achieved to comply with the Space Industry Regulations 2021:

Part 4, Chapter 2, Section 2; 29

(1) On making an application for a launch operator licence or a return operator licence, an applicant must give the regulator a safety case that includes—

(a) the information about the applicant and the applicant's proposed spaceflight activities listed in paragraphs 1 to 10 of Schedule 1;

(b) the technical particulars listed in paragraphs 11 to 17 of Schedule 1;

(c) the outcomes of each of the steps taken as part of the flight safety analysis required by regulation 26(1);

(d) the outcomes of each of the steps taken as part of the ground safety analysis required by regulation 27;

(e) any measures that the applicant considered but does not intend to implement to prevent, or to control or mitigate the consequences of, an identified hazard, and an explanation of why it was not reasonably practicable to implement those measures;

(f) a description of any consultation with, or involvement in the preparation of the safety case of—

(i) representatives of the applicant's workforce;

(ii) a proposed spaceport licensee;

(iii) proposed range control service providers.

(2) If the applicant revises the safety case after giving it to the regulator, the applicant must give the regulator the revised safety case without delay.

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Safety Case Content	SIA, SIR or GM Reference	Your Reference	Licensee Comment	CAA Comment
0 ADMININSTRATION AND CONTROL OF SAFETY CASE				
0.1 System of amendment and revision **(a)** Details of the person(s) responsible for the issuance and insertion of amendments and revisions. **(b)** A record of amendments and revisions with insertion dates and effective dates. **(c)** A statement that handwritten amendments and revisions are not permitted, except in situations requiring immediate amendment or revision in the interest of safety. **(d)** A description of the system for the annotation of pages or paragraphs and their effective dates. **(e)** A list of effective pages or paragraphs. **(f)** Annotation of changes (in the text and, as far as practicable, on charts and diagrams). **(g)** Temporary revisions. **(h)** A description of the distribution system for the manuals, amendments, and revisions.	Part 4, Chapter 2, Section 2; 29(2)			

Safety Case Content	SIA, SIR or GM Reference	Your Reference	Licensee Comment	CAA Comment
1 ORGANISATION AND MANAGEMENT SYSTEM				
1.1 Organisation and Management Structure A description of the organisational structure, including the general organogram and operations departments' organograms. The organogram should depict the relationship between the operations departments and the other departments of the operator. In particular, the subordination	Part 8, Chapter 4, Section 2; 84 Schedule 1; 2(a) **SOM Licensing Statement 1.1**			

Safety Case Content	SIA, SIR or GM Reference	Your Reference	Licensee Comment	CAA Comment
and reporting lines of all divisions, departments, etc, which pertain to the safety of flight operations, should be shown.				
1.2 Identification of Safety Critical Roles The requirement of each safety critical role is described in Part 8, Chapter 4, Section 3; 86, 87, 88 and 89.	Part 8, Chapter 4, Section 3; 86, 87, 88 and 89 Schedule 1; 6			
1.3 Safety Management System (SMS) Details of the applicant's safety management system for the proposed spaceflight activities. The requirement for SMS is set out in Part 8, Chapter 4, Section 2; 85 and Schedule 4.	Part 8, Chapter 4, Section 2; 85 Schedule 1; 7 Schedule 4 **SOM Licensing Statement 2** Guidance 5.30, 5.31			
1.4 Safety Operations Manual (SOM) **(a)** An applicant must produce a safety operations manual that fulfils the requirements of regulation 90 and Schedule 5. **(b)** When producing the safety operations manual, the applicant must— **(i)** take into account the outcomes of the steps taken under 28(1). **(ii)** consult any proposed spaceport licensee. **(iii)** consult any proposed range control service provider.	Part 4, Chapter 2, Section 1; 28(3) and (4) Part 8, Chapter 4, Section 4; 90 Schedule 1; 6 **SOM Licensing Statement** Guidance 4.42 to 4.45			

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Safety Case Content	SIA, SIR or GM Reference	Your Reference	Licensee Comment	CAA Comment
2 SPACEFLIGHT OPERATIONS (LAUNCH VEHICLE OR CARRIER AIRCRAFT)				
2.1 Launch Activities A description of the proposed spaceflight activities including the proposed flight trajectory, any planned orbital parameters for the launch vehicle, any planned orbital parameters for any payload and details of any planned re-entry from orbit by the launch vehicle.	Schedule 1; 1 Guidance 5.20			
2.2 Launch Preparatory Event/Schedule **(a)** A schedule of the preparatory events mentioned in the ground safety analysis required by regulation 27(2) setting out how long before the launch each preparatory event is intended to take place; **(b)** The review processes the applicant will use to check— **(i)** That launch preparations are progressing safely, and **(ii)** Whether the applicant and any other licensees involved in the launch are ready to commence the launch; **(c)** A schedule of any safety-critical actions the proposed range control service provider and the proposed spaceport licensee will carry out in preparation for the launch from the time when the launch vehicle or its components arrive at the spaceport or other place from which the launch is to take place.	Schedule 1; 5 Part 8, Chapter 4, Section 6 Guidance 5.21			
2.3 Launch Vehicle or Carrier Aircraft Description Including: **(a)** Its concept of operations, **(b)** Any payload or class of payload, and **(c)** The layout of systems that are part of it.	Schedule 1; 2(b), (c)			
2.4 Launch Location(s) and Key Infrastructure For launch operator licence applicants, identification of the spaceport or other place from which the launch is to take place and the proposed spaceport licensee.	Part 8, Chapter 4, Section 4; 95 Schedule 1; 3			

Safety Case Content	SIA, SIR or GM Reference	Your Reference	Licensee Comment	CAA Comment
	Guidance 5.11			
2.4.1 The Facilities and major equipment **(a)** The facilities and major items of equipment that the applicant will need to carry out the proposed spaceflight activities, and which, if any, of these will be provided by a proposed spaceport licensee or by a proposed range control service provider. **(b)** Any site or facility other than a spaceport that has been or is to be used by the applicant in the design, manufacture, testing or operation of the applicant's launch vehicle or any carrier aircraft.	Schedule 1; 2(d) Schedule 1; 4(c) Guidance 5.12, 5.13, 5.14			
2.5 Range Control Services Identification of— **(a)** Any range control services needed. **(b)** Any proposed range control service providers.	Part 8, Chapter 4, Section 4; 95 Schedule 1; 4(a)(b)			
2.6 Environment around the site and along the proposed trajectory The areas which could be affected by a major accident during the proposed spaceflight activities, including— **(a)** Their geography. **(b)** Any structures in them built by humans or built for human use or benefit. **(c)** The existing and expected locations of humans and areas of habitation within those areas.	Schedule 1; 2(e) Guidance 5.15, 5.16			

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Safety Case Content	SIA, SIR or GM Reference	Your Reference	Licensee Comment	CAA Comment
3 OUTCOMES OF FLIGHT SAFETY AND GROUND SAFETY ANALYSIS				
3.1 Hazard Identification and Accident Scenarios				
3.1.1 Flight Safety Analysis An applicant must carry out a flight safety analysis in which the applicant— **(a)** Identifies the major accident hazards that could, whether or not the launch vehicle malfunctions— **(i)** Arise from, or cause a major accident during, the proposed spaceflight activities, or **(ii)** Arise from the launch vehicle, or any part of it, during the proposed spaceflight activities, **(b)** When identifying hazards under paragraph (a), the applicant must consider the hazards referred to in paragraph 18(1) of Schedule 1.	Part 4, Chapter 2, Section 1; 26(1)(a), 26(2) Schedule 1; 18(1) Guidance 4.8 to 4.21 & 5.32 to 5.35			
3.1.2 Ground Safety Analysis An applicant for a launch operator licence must carry out a ground safety analysis in which the applicant – **(a)** Identifies the major accident hazards that could arise— **(i)** During, or cause a major accident during, preparations for the launch from the time when the launch vehicle or its components arrive at the spaceport or other place from which the launch is to take place, or **(ii)** From the launch vehicle, or any part of it, or from a payload, upon or after landing, whether or not the launch vehicle malfunctions. **(b)** An applicant for a return operator licence must carry out a ground safety analysis that identifies the major accident hazards that could arise from the launch vehicle, or any part of it, upon or after landing, whether or not the launch vehicle malfunctions.	Part 4, Chapter 2, Section 1; 27(1)(2)(3)(5) Schedule 1; 19 Guidance 4.22 to 4.35 & 5.32 to 5.35			

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(c) When identifying hazards under paragraph (1) or (3), the applicant must consider the hazards referred to in paragraph 19 of Schedule 1.				
3.2 Measures to prevent or limit the consequences of a major accident				
3.2.1 Flight Safety Analysis The outcomes of each of the steps taken as part of the flight safety analysis required by regulation 26(1); An applicant must carry out a flight safety analysis in which the applicant— **(a)** Completes the steps listed in regulation 28(1) for each hazard identified (section 3.1.1) and **(b)** Estimates numerically the risk of death or serious injury arising from the hazards mentioned in sub-paragraph (a) to persons who are not human occupants. **(c)** Must take into account the matters listed in paragraph 18(2) of Schedule 1.	Part 4, Chapter 2, Section 2; 29(1)(c) Part 4, Chapter 2, Section 1; 26(1)(b)(c), 26(3), 28(1)(2) Schedule 1, 18(2) Guidance 4.8 to 4.21 & 4.36 to 4.39 & 5.36 to 5.40			
3.2.2 Ground Safety Analysis The outcomes of each of the steps taken as part of the ground safety analysis required by regulation 27. An applicant for a launch operator licence must carry out a ground safety analysis in which the applicant – **(a)** Must complete the steps listed in regulation 28(1) for each hazard identified under 27(1) or 27(3) (See Section 3.1.2). **(b)** Must take into account any existing legal requirements relevant to safety.	Part 4, Chapter 2, Section 2; 29(1)(d) Part 4, Chapter 2, Section 1; 27(4)(6), 28 Guidance 4.22 to 4.39 & 5.36 to 5.40			
3.2.3 Consultation Description of any consultation with, or involvement in the preparation of the safety case of—	Part 4, Chapter 2, Section 2; 29(1)(f)			

Safety Case Content	SIA, SIR or GM Reference	Your Reference	Licensee Comment	CAA Comment
(a) Representatives of the applicant's workforce. **(b)** A proposed spaceport licensee. **(c)** Proposed range control service providers.	Guidance 5.45			
3.3 ALARP Demonstration The applicant's safety case to include a suitable and sufficient consideration of the effectiveness of the mitigation measures that have been identified for each major accident hazard scenario and document what more could be done. Consideration should be given to: **(a)** The Scope for hazard elimination. **(b)** The adoption of inherently safe designs. **(c)** Whether good practice has been adopted. **(d)** The application of risk-reducing measures, where relevant good practice is not yet established. **(e)** The functionality, availability, reliability, independence, survivability, compatibility and maintainability of mitigation measures. Any measures that the applicant considered but does not intend to implement to prevent, or to control or mitigate the consequences of, an identified hazard, and an explanation of why it was not reasonably practicable to implement those measures.	SIA 2018, Section 9(1) Part 4, Chapter 2, Section 2; 29(1) **Guidance 5.41 to 5.44**			

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4 PREVENTION OR MITIGATION OF SPACE DEBRIS				
A description of the engineering practices and design and operational measures that will be used to prevent or mitigate the creation of space debris during the proposed spaceflight activities, including identification of methods for verifying and validating those practices and measures.	Schedule 1; 14			

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5 TECHNICAL INFORMATION				
5.1 Launch Vehicle Technical Requirements Descriptions of the technical requirements which apply to the launch vehicle, which must be either— **(a)** The requirements described under the headings of technical requirements types contained in Chapter 6 of the Space Engineering Technical Requirements Specification produced by the European Cooperation for Space Standardisation and dated 6th March 2009, or **(b)** requirements of substantially like effect to the requirements referred to in sub-paragraph (a).	Schedule 1; 11			
5.2 Launch Vehicle Evidence that the launch vehicle is fit for the operator's spaceflight activities under the regulations 91: **(a)** Technical requirements as described in Schedule 1, 11 (see 5.1). **(b)** LV has been designed to a specification that meets the technical requirements of the vehicle. **(c)** has been built consistently with that specification. **(d)** has been through the verification and validation processes set out in regulation 94.	Part 8, Chapter 4, Section 5; 91 and 94 Schedule 1; 6 and 11 **SOM Licensing Statement 6.2** Guidance 7.55 to 7.59			

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5.3 A reusable launch vehicle For reusable launch vehicle, Evidence that the applicant will, if granted licence, will be able to meet the requirements in the regulation 93.	Part 8, Chapter 4, Section 5; 93			
5.4 Ground Support Equipment Evidence that launch vehicle's ground support equipment is fit for supporting the operator's spaceflight activity. The conditions are set in the Regulation 92 and 94.	Part 8, Chapter 4, Section 5; 92 and 94 Schedule 1; 6 **SOM Licensing Statement 6.2 & 9.1**			
5.5 Carrier Aircraft Technical particulars of and performance data for any carrier aircraft intended to be used, including any existing aircraft certification or permit.	Schedule 1; 17			
5.6 Hazardous Materials Descriptions of any hazardous material that is part of the launch vehicle or payload or is to be carried on board the launch vehicle during the proposed spaceflight activities.	Schedule 1; 15 Guidance 5.23			
5.7 Safety Critical Systems For each safety-critical system used in the proposed spaceflight activities— **(a)** A description, drawing and schematic diagram of the system. **(b)** A statement of the system's purpose. **(c)** Documentation justifying the choice of design for that system. **(d)** A description of each way that system could fail.	Schedule 1; 12			

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(e) Predicted probabilities of failure and, where known, failure frequencies. **(f)** Predicted consequences of failure. **(g)** A description of any method used to check that the applicant has correctly identified the environment within which the system is expected to operate. **(h)** A description of the methods used to— **(i)** Design, test and qualify the system **(ii)** Accept the system hardware and any software for use. **(iii)** Determine the service life of the system and the major phases of its lifecycle. **(i)** The criteria and procedures for disposal or refurbishment of the system or its major components. **(j)** A description of any standards used in paragraphs (a) to (i). In this paragraph, “safety-critical system” means any system, including hardware and software, the performance of which is essential to preventing a major accident as a result of the proposed spaceflight activities.				
5.8 Launch Vehicle Payload For any payload that the launch vehicle will carry, technical particulars relevant to the risk of a major accident, including— **(a)** Descriptions of any systems on board the payload that are required for the basic operation of the payload or necessary to carry out its intended mission. **(b)** Information about any hazardous material or any equipment or device carried on board the payload that could give rise to a major accident hazard.	Schedule 1; 16			

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(c) A description of any ground support equipment needed for the payload or its integration with the launch vehicle. **(d)** Information about any essential interface between the payload and specific equipment at the place of launch.				
5.9 Description of Engineering Practices The spaceflight operator must provide the following— **(a)** A description of the engineering practices used in the design, manufacture, assembly and operation of the launch vehicle. **(i)** The design and analysis tools used. **(ii)** Any national or international design, engineering or safety standards followed. **(iii)** Test, validation and verification procedures undertaken or to be undertaken as required by regulation 94. **(b)** Information about the applicant's experience, if any, in the design, development or operation of launch vehicles, payloads or any other space-related hardware or software.	Schedule 1; 13 Schedule 1; 10			
5.10 Evidence that the applicant will, if granted licence, will be able to meet the requirements in – **(a)** Regulation 96, communication during the operator's spaceflight activities. **(b)** Regulation 97, monitoring the environmental and meteorological conditions. **(c)** Regulation 98, Dangerous Goods.	Part 8, Chapter 4, Section 5; 96, 97 and 98 **SOM Licensing Statement 6**			
5.11 Evidence that the applicant will, if granted licence, will be able to meet the requirements in –	Part 8, Chapter 4, Section 6; 99, 100 and 101			

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(a) Regulation 99, Conditions for commencing the operator's spaceflight activities. **(b)** Regulation 100, During the flight: monitoring and termination. **(c)** Regulation 101, additional requirements relating to the launch vehicle during operator's spaceflight activities.	**SOM Licensing Statement 7**			
5.12 Evidence that the applicant will, if granted licence, will be able to meet the requirements in – **(a)** Regulation 104, Emergency response plan requirements.	Part 8, Chapter 4, Section 8, 104 **SOM Licensing Statement 4**			

Safety Case Content	SIA, SIR or GM Reference	Your Reference	Licensee Comment	CAA Comment
6 SPACEFLIGHT OPERATOR HERITAGE				
6.1 The Spaceflight operator must provide following information: **(a)** Particulars of any licence, permit or approval that any country other than the United Kingdom has granted to the applicant in relation to the proposed spaceflight activities or a launch vehicle that the applicant plans to use for those activities. **(b)** Information about what applications, if any, the applicant has previously made for a licence or approval to carry out spaceflight activities similar to the proposed spaceflight activities, and what the outcome was of each of those applications.	Schedule 1; 8 and 9 Guidance 5.19, 5.22			

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Compliance Statement of the Operator

We confirm to be compliant with the terms and conditions of:

- Space Industry Act 2018
- Space Industry Regulations 2021

Name of Accountable Manager: _____ Date: _____

Accountable Manager Signature: