CAA Operational Assessment

Title of airspace change proposal	Virgin Orbit Flight from Spaceport Cornwall (Southern TDA)
Change sponsor	Virgin Orbit
Project reference	ACP-2021-031
Account Manager	[redacted]
Case study commencement date	13 May 2022
Case study report as at	18 October 2022

Instructions

In providing a response for each question, please ensure that the 'status' column is completed using the following options:

- YES
- NO
- PARTIALLY
- N/A

To aid the SARG Lead it may be useful that each question is also highlighted using a Red / Amber/ Green (RAG) status to illustrate what is:

resolved YES not resolved PARTIALLY not compliant NO

Executive Summary

Virgin Orbit (VO) is a launch operator, which is seeking to achieve the first rocket launch to space from the UK this year, departing from Spaceport Cornwall. The system comprises of a carrier aircraft (a modified B747 known as Cosmic Girl) and a rocket (known as Launcher 1 (L1)) carried on the fifth pylon of Cosmic Girl.

This temporary airspace change proposal (ACP) is the associated airspace arrangements referred to in the various space licences required to be approved before the launch can take place. The proposal seeks to establish and/or ensure are in place five Temporary Danger Areas (TDAs) around the launch site (off the southern coast of Ireland) and the recovery site (off the West coast of Portugal), to enable L1 to deliver satellites into orbit.

Establishment of the five TDAs would allow L1 to be launched from Cosmic Girl from a known safe environment of pre-defined dimensions with airspace management procedures in place.

The TDAs have been designed to meet the specific requirements of the different phases of the launch activity. TDAs 1, 2 and 4 were originally proposed by the sponsor and TDAs 3 and 5 were further proposed by the sponsor after receiving the UK CAA's initial safety analysis.

1. **TDA 1** – The Race-Track DA (Surface (**SFC**) to Flight Level (**FL**) 400): This TDA is established to provide protection for Cosmic Girl (with L1 attached) to fly a race-track profile with the launch being conducted on the second pass. The structure is big enough to contain the race-track manoeuvre and has an 11 nautical mile (**nm**) buffer added.
2. **TDA 2** – Rocket Ignition (SFC to Unlimited): This TDA is established to provide protection from the launch and is aimed at containing both nominal and non-nominal events. The dimensions of this TDA have been assessed by the CAA Commercial Space Team and been deemed appropriate to contain the hazard.
3. **TDA 3** – Transit TDA (SFC to Unlimited): This TDA is established to join TDAs 2 and 4 to provide additional protection from the launch and aimed at containing debris in the event of a non-nominal event. The dimensions of this TDA have been assessed by the CAA Commercial Space Team. In the absence of being able to implement alternative air traffic risk mitigation procedures within this area, this TDA has been deemed necessary by the CAA Airspace Regulation Team and its dimensions have been deemed appropriate to contain the hazard by the CAA Commercial Space Team.
4. **TDA 4** – Stage 1 and Fairing Splashdown (SFC to Unlimited): This TDA is established to provide protection from the debris fall from the Stage 1 and Fairing Splashdown. Its purpose is to contain the debris fall with an additional 10 nm buffer applied. The dimensions of this TDA have been assessed by the CAA Commercial Space Team and been deemed appropriate to contain the hazard.
5. **TDA 5** – Stage 1 and Fairing Splashdown Continuation (SFC to Unlimited): This TDA is established to provide additional protection from the launch and its purpose is to contain debris in the event of a non-nominal event. In the absence of being able to implement alternative air traffic risk mitigation procedures within this area, this TDA has been deemed necessary by the CAA Airspace Regulation Team and its dimensions have been deemed appropriate to contain the hazard by the CAA Commercial Space Team.

It is proposed that the five TDAs would be notified through Aeronautical Information Circulars (AICs) for a period of 90-days. This temporary ACP is for the take-off of Cosmic Girl (with L1 attached) for the purpose of a single launch. The sponsor will be required to identify a three-day launch window, which will consist of the planned launch date with the subsequent two days available as back updates should the launch be 'scrubbed' due to weather or technical issue.

The launch window will be notified for activation by NOTAM issued 15 days in advance. Should the launch window be missed entirely, a renewed NOTAM will be required, with a minimum of 15 days' notice. The sponsor's proposal includes an undertaking to activate the TDAs for the shortest possible time (approximately one to two hours) and to minimise the impact on other airspace users by conducting the launch late at night.

The target launch date is not before 11 November 2022 with backup dates of 12 and 13 November 2022 (these dates have been updated after the submission was received). However, VO acknowledge that these dates have operational risks so are looking for three-day launch window between the date of this decision (and/or the space licences, whichever is the later) and 6 January 2023.

Based on the information available, the UK CAA Technical Regulator is satisfied that the proposal maintains a high standard of safety for the launch by implementing the five TDAs. However, to be able to implement, manage and notify the TDAs, there are several conditions that need to be placed upon any decision to approve the activation. These conditions are set out below.

Scope of Assessment

The proposed operation requires decisions on temporary changes to the notified airspace structure to be made by the UK CAA, as well as the Irish, Portuguese and Spanish National Aviation Authorities (NAAs) within their respective jurisdictions. The UK CAA has assessed the proposed airspace design in accordance with its functions, duties and published process for considering a temporary airspace change of this nature in airspace managed by the UK.

- For the portion of TDA 3 that is situated within airspace managed by the UK, the UK CAA has the function of deciding whether to approve the proposed airspace design in accordance with its published strategy, procedures and policy.
- For the remaining portion of TDA 3, as well as TDAs 1,2, 3 and 4, the UK CAA's assessment includes a recommendation to the Irish, Portuguese and Spanish NAAs that they will need to consider in deciding whether to approve the airspace structure proposed by the sponsor within their managed areas. The UK CAA's assessment has been able to consider the impacts in these areas given that the proposed airspace structures are situated over the Atlantic Ocean and entirely outside any inhabited areas.
- For TDA 5, the UK CAA has provided information as part of this assessment to enable the Portuguese and Spanish NAAs to consider the impacts of the proposed structure and decide whether TDA 5 is required (because of the absence of alternative air traffic risk mitigation procedures) and should be approved, or to enable the Portuguese and Spanish NAAs to conclude that TDA 5 is not needed (due to the availability of alternative air traffic risk mitigation procedures). We also note that unlike TDAs 1 to 4, we are unable to consider the impact of the proposed TDA 5 airspace structure on other airspace users and on communities in the area of TDA 5: although some of the potential local impacts have been highlighted in the UK CAA's assessment, most are not fully known to or understood by the UK CAA and therefore not capable of assessment by the UK CAA. Such impacts will need to be considered by the Portuguese and Spanish NAAs together with our recommendation as part of their decision on whether to approve TDA 5. No RAG status has been provided in this assessment for information falling within this category (which has been marked as "Observation" only).

1.	Justification for change and options analysis (operational/technical)	Status
1.1	Is the explanation of the proposed change clear and understood?	**Yes**
	The sponsor provided a number of revised submission documents, titled 'Virgin Orbit Operations from Spaceport Cornwall (Southern Trajectory) SMA-131, with the latest being Revision 4 dated 28 September 2022. This document provides a clear explanation of the change proposal that can be easily understood by the stakeholder community. There have been a number of changes to various elements of the proposal which have been as a result of ongoing stakeholder engagement, UK CAA assessment and international engagement activity by the UK Government. These include changes to the dimensions of the original DAs, the addition of new TDAs, notification processes and management of the airspace. The changes are described in this assessment. • **Requirement for Condition 1:** In order to conduct commercial space launch activity, the sponsor, and/or its launch operator partners, must apply for and obtain the appropriate Spaceport, Range and Launch Operator Licences from the CAA's Commercial Space Team. It is accepted that, due to the nature of launch activity and the associated licencing timelines, the granting of these licences may occur very close to the actual launch date. • **Recommended draft Condition 1:** It is a condition precedent to the implementation of the UK CAA October 2022 ACP decision (including recommendation to other NAAs) that all necessary licences under the Space Industry Act 2018 to enable the first performance of a licensed activity to take place have been granted by the UK CAA and all conditions precedent to those licences have been met.	
1.2	Are the reasons for the change stated and acceptable?	**Yes**
	The Introduction contained in the resubmission document clearly states the temporary airspace change is required to enable the launch of L1 to be conducted within a series of TDAs in the SHANNON, SHANWICK, MADRID, LISBOA, SANTA MARIA, CANARIAS Flight Information Regions (FIRs) and the Shannon Oceanic Transition Area (SOTA) following departure from Spaceport Cornwall. This reasoning is considered acceptable as this is a one-off event which provides a suitable airspace construct that covers the site of the VO launch and recovery.	
1.3	Have all appropriate alternative options been considered, including the 'do nothing' option?	**Yes**
	As this is an application for a temporary airspace change the sponsor was not required to complete Stage 2 of the CAP1616 permanent ACP process.	

	Options that would move the trajectory west to avoid Portuguese and Spanish territories has been considered but are not technically feasible due to the limitations of L1 and the tracking facilities required to ensure the launch is safe.	
1.4	Is the justification for the selection of the proposed option sound and acceptable?	**Yes**
	The proposed structure, a series of connected TDAs which will need to be activated together to facilitate the launch, was not chosen in the manner required by a permanent airspace change. However, the sponsor developed the proposal in a logical and rational way and the final proposed option is considered sound and acceptable. The airspace design has had several redesigns in response to stakeholder feedback and operational feedback from successful launches in the US. The design has also been adapted following safety assessment work completed by the UK CAA's Commercial Space Team. The changes are as a result of additional mitigations being put in place to address risk identified outside of the original TDAs. Additionally, there has been ongoing discussion with Portugal and Spain to understand the maritime and ground risk posed by the launch. **Note: See paras 2.3 and 2.4 and Condition 3**	

2.	**Airspace description and operational arrangements**	**Status**
2.1	Is the type of proposed airspace design clearly stated and understood?	**Yes**
	The use of TDAs is stated clearly in the engagement material and subsequent formal submission documentation. In parts of the material, it is incorrectly stated that the structure will provide segregation of the launch activity from other airspace users. A TDA is established when it is considered that aerial activity could be hazardous to flight. While a TDA does not provide formal segregation, the specific use of a TDA is subject to the safety management processes to ensure the containment of hazardous activity within the defined area. The sponsor's description of the effect of the TDAs is not considered to unacceptably obscure the proposed design and its purpose.	
2.2	Are the hours of operation of the airspace and any seasonal variations stated and acceptable?	**Yes**
	Due to the nature of the activity proposed within the TDA, hours of operation and seasonal variation are not applicable. However, the sponsor has clearly stated: the proposed number of activations of the structure (1 launch within the 90-day notification period); the launch will occur post 2200 UTC to minimise its impact on Commercial Air Transport (CAT) in the North Atlantic (NAT); the activation is expected to last for approximately 1-2 hours.	

	The target launch date is not before 11 November 2022 with backup dates of 12 and 13 November 2022. However, VO acknowledge that these dates have operational risks so are looking for 3-day launch window between 6 October 2022 and 6 January 2023. The sponsor had contacted the CAA to propose an 'practice' activation of the TDAs to be conducted with the key stakeholders involved. This would include notification, activation and management. The aim would be to test the processes involved without conducting a launch. This requirement is also stated in a response from the sponsor to the MoD as the sponsor wanted to conduct 2 flights; one into D064 for pilot training and then a full mission rehearsal utilising the TDA. Following a series of coordination meetings and the development of the Letter of Agreement (LoA) between all the key stakeholders, the requirement to utilise the airspace for a practice is no longer a requirement. However, coordination among the sponsor and key stakeholders continues. • **Requirement for Condition 2:** In order for all key stakeholders (NATS, MoD, ECTL, Irish, Portuguese and Spanish NAAs) to fully understand their role and the mechanics of the launch activity and the associated activation/coordination of the airspace, there is a requirement to conduct a series of desktop planning/coordination exercises. This would be aimed at running through various scenarios and building the understanding of how issues within the launch would be handled by the appropriate organisations. • **Recommended draft Condition 2:** It is a condition precedent to the implementation of the UK CAA October 2022 ACP decision (including recommendation to other NAAs) that NATS (in its role as Airspace Management Cell (AMC)) confirms in writing to the UK CAA that the necessary desktop exercises have been successfully completed by NATS, MoD, Eurocontrol and the Irish, Portuguese and Spanish NAAs. **Note:** These planning meetings have been ongoing on a weekly basis since 14 June 2022 and will be continued until the launch. The UK CAA Case Officer has been attendance for the majority of those meetings and provided regulatory guidance as required. Issues that have been identified within those meetings have been dealt with in a timely and appropriate manner.	
2.3	Is any interaction with adjacent domestic and international airspace structures stated and acceptable including an explanation of how connectivity is to be achieved? Has the agreement of adjacent States been secured in respect of High Seas airspace changes?	**Yes**
	The sponsor has clearly described the international airspace structures proposed for the launch and recovery. The proposed operation is entirely dependent upon accessing and utilising the SHANNON, SHANWICK, MADRID, LISBOA, SANTA MARIA, CANARIAS FIRs and the SOTA. This requires decisions on temporary changes to the notified airspace structure to be made by the UK CAA, as well as the Irish, Portuguese and Spanish National NAAs within their respective jurisdictions (see "Scope of Assessment" section above). The requirements of the Irish, Portuguese and Spanish NAAs are not yet fully known due to ongoing Government to Government discussions being led by the UK Department for Transport (DfT).	

	An ICAO High Seas Coordination Notice has been issued detailing the VO launch activity location and planned dates. • **Requirement for Condition 3:** In order to conduct this space launch activity, and for the UK CAA to agree to the proposed temporary TDA in UK airspace, the sponsor must obtain, and the UK CAA must be satisfied that, the Irish, Portuguese and Spanish NAAs have accepted the UK CAA's recommendation to implement the proposed airspace structures within the areas managed by those NAAs. It is accepted that, due to the nature of launch activity and the associated ongoing engagement between DfT and these countries, these agreements may occur very close to the actual launch date. It is noted that the various space licences applications and proposed licences are predicated on 'associated airspace arrangements. The UK airspace structures and other NAA Airspace structures including the means by which they are managed are those associated airspace arrangements. • **Recommended draft Condition 3:** It is a condition precedent to the implementation of the UK CAA October 2022 ACP decision (including recommendation to other NAAs) that the sponsor has obtained the appropriate approvals from the Irish, Portuguese and Spanish NAAs to accept and implement the UK CAA's recommendation regarding TDAs 1 and 4 and regarding TDA 5 (unless the Portuguese and Spanish NAAs advise the UK CAA that TDA 5 need not be recommended by the UK CAA because alternative air traffic risk management procedures can be put in place) before any activation of the temporary ACP within UK airspace can occur.	
2.4	Is the supporting statistical evidence relevant and acceptable?	**Yes**
	Supporting statistical evidence has been provided by the sponsor. There are two areas where this supports the submission: <u>Launch timing:</u> For a similar, isolated structure, traffic data analysis has been provided to inform the impact of the launch activity on other airspace users, and particularly in this case, its impact on CAT using the NAT. The proposed temporary structure has potentially complex impacts, so the sponsor has used analysis provided by ECTL to inform the decision not to launch until post-2200 UTC in order to minimise the impact of the VO launch activity on the NAT. The analysis used references traffic data from July 2019 at peak air traffic levels to offer an idea of the traffic numbers that may be impacted. However, the data could have been presented in a better way and with accompanying text to explain what the tables show and how this impacted the launch window. Following this initial traffic analysis, the sponsor worked with the key stakeholders to further refine the traffic analysis. The request was developed with input from the CAA Commercial Space Team so that we were assured it would be acceptable. The resulting data had direct input from NATS, ECTL, Ireland, Portugal and Spain and has allowed the sponsor to demonstrate the level of traffic impacted by the proposed TDAs. The resulting traffic analysis shows that the impact is relatively low for the bulk of the structure. However, the analysis does not provide any detail on the second and third order impacts to traffic flows in the vicinity of the Madeira Archipelago and the Canary Islands. Such impacts will need to be considered by the Portuguese and Spanish NAAs as part of their decision on whether TDA 5 is necessary and if so	

	approved. Dimensions of the proposed TDA: The sponsor is required to present statistical data demonstrating that the proposed dimensions of the structure are suitable to contain the launch activity, under both nominal and non-nominal conditions. The required expertise to evaluate that evidence is held by the CAA's Commercial Space Team and, as such, it was agreed that this evidence would be provided directly to them for analysis. The UK CAA's Airspace Regulation Team has considered the assessment of the UK CAA's Commercial Space Team to reach a view on whether the proposed ACP will maintain a high standard of safety. The data provided to the CAA Commercial Space Team has been assessed and has led to a number of discussions with the sponsor, the CAA and the Federal Aviation Administration (FAA) to fully understand the safety risks associated with the launch activity. The airspace structure has undergone several redesigns in response to those discussions to ensure suitable risk mitigation. Additionally, there has been ongoing discussion with Portugal and Spain to understand the maritime and ground risk posed by the launch. The sponsor demonstrated that the dimensions of TDAs 2 and 4 are sufficient to satisfy FAA licencing requirements to contain any risk presented by a launch, for both nominal and non-nominal events, to $1x10^{-6}$ or greater. The Flight Safety Analysis (FSA) methodology applied by the sponsor corresponds with the temporary DAs requested, is consistent with good practice and therefore is considered by the UK CAA to represent an appropriate approach to generating hazard areas. However, the UK CAA Airspace Regulation Team identified a residual risk between the TDAs 2 and 4 and beyond TDA 4 (i.e. TDAs 3 and 5) that was not addressed with these hazard areas. It is noted that further operational measures can in some circumstances be implemented in areas with residual risks to mitigate such risks including limiting flight trajectories through the area, reducing the overall volume of traffic transiting those areas, not permitting aircraft to loiter within those areas and not permitting airports to be actively handling departures and arrivals. These measures are typically applied where possible in the US within the $1x10^{-7}$ risk contours. However, such measures have not been proposed for the airspace design for the space flight activity which is the subject of this assessment. Further long-term and international work could result in these measures being developed and so available for use in European airspace in future space flight activity. In the absence of these mitigating measures and to further reduce these residual risks so as to maintain a high standard of safety for the sponsor's upcoming launch, the UK CAA's view is that TDAs 3 and 5 are necessary to contain the $1x10^{-7}$ risk contours. The UK CAA also considers that the Portuguese and Spanish NAAs may decide they can mitigate the need for TDA 5 by means of alternative air traffic risk management procedures. If they are so satisfied, then the UK CAA's recommendation is that TDA 5 is not required to maintain a high standard of safety. TDA 1 was proposed by the sponsor to provide protection for Cosmic Girl (with L1 attached) to fly a race-track profile, based on the proposed flight path and race-track manoeuvre with an 11 nm buffer added. The dimensions of TDA 1 are deemed suitable from a safety

	perspective for this purpose. The safety case assessment is currently being finalised. While this is not expected to alter the UK CAA's assessment of safety as part of this application, confirmation from the UK CAA's Commercial Space Team that the proposed dimensions of the TDAs are sufficient to contain any hazards, following completion of the full safety case, will be needed before any activation of the temporary ACP within UK airspace can occur. • **Requirement for Condition 4:** In order to conduct this space launch activity, AR must obtain the appropriate agreement from the UK CAA's Commercial Space Team that the proposed dimensions of the TDAs are sufficient to contain any hazards, for both nominal and non-nominal events. This initial analysis and assessment of the proposed TDAs has been completed but may be subject to change once the full assessment of the safety case has been completed. • **Recommended draft Condition 4:** It is a condition precedent to the implementation of the UK CAA October 2022 ACP decision (including recommendation to other NAAs) that the CAA's Commercial Space Team has decided the proposed dimensions of the TDAs are sufficient to contain any hazards, following completion of the CAA's Commercial Space Team's assessment and agreement to the sponsor's full safety case.	
2.5	Is the analysis of the impact of the traffic mix on complexity and workload of operations complete and satisfactory?	**Yes**
	The sponsor correctly states that the activation of areas within the airspace will impact the operation of other airspace users. The impact caused by activation of the proposed TDAs is considered low as the activity is being conducted at a time when general aviation activity in the departure area is low and also because the launch activity will be conducted over the High Seas and deconflicted from NAT aircraft by the establishment of the TDAs. Following alterations to the TDAs as a result of flight safety analysis conducted by the UK CAA Commercial Space Team, the sponsor requested further analysis of the traffic flow within the larger airspace construct. The resulting traffic analysis shows that the impact is relatively low for the bulk of the structure. **Safety Clear Zone (SCZ)** It is proposed as part of the commercial space licensing application that an SCZ area will be introduced for approximately four to six hours before departure. The SCZ is for the horizontal profile of the spaceport only. No assessment has been carried out by the sponsor in relation to the airspace vertically above the SCZ at Spaceport Cornwall. The time of departure should mitigate most interaction with other aviation activity in the local area. However, the launch mission is likely to attract a significant level of interest including potentially other aircraft wishing to see what is happening on the ground at Spaceport	

	Cornwall. There are likely to be several media outlets in the area and GA aircraft operating in the local area. Therefore, in the interests of public safety, the UK CAA has considered the implementation of protection and notification of hazardous activity above the SCZ for other airspace users while the launch mission takes place. On this occasion, if the airspace is activated, the UK CAA has decided that a TDA above Spaceport Cornwall's SCZ is needed to maintain a high level of safety. In addition, a similar restriction is needed at Boscombe Down to maintain a high standard of safety in the event of a diversion without launch. Noting this is the first UK-based space launch, we acknowledge that the sponsor was not asked to assess this risk which is why a TDA above Spaceport Cornwall and Boscombe Down was not part of the associated airspace arrangements proposed by the sponsor along with its space licences applications. We note that future proposals for TDAs in similar circumstances will require this risk to be assessed and an appropriate airspace structure to mitigate that risk be proposed by the sponsor as part of the associated airspace arrangements for the requisite space licence applications. • **Requirement for Condition 5:** The UK CAA considers the implementation of protection and segregation for other airspace users while the launch mission takes place above Spaceport Cornwall's SCZ and MoD Boscombe Down is needed to maintain a high standard of safety (including in the event of a diversion without launch). • **Recommended draft Condition 5:** It is a condition precedent to the implementation of the UK CAA October 2022 ACP decision (including recommendation to other NAAs) that the UK CAA has taken the necessary steps to implement a TDA over the SCZ of Spaceport Cornwall (to a height to be determined by the UK CAA) and over MoD Boscombe down (to dimensions to be determined by the UK CAA), both for a period to be determined by the UK CAA.	
	Observation: TDA 5 The sponsor's analysis does not provide any detail on the second and third order impacts to traffic flows in the vicinity of the Madeira Archipelago and the Canary Islands. Such impacts will need to be considered by the Portuguese and Spanish NAAs as part of their decision on whether TDA 5 is necessary and if so approved.	
2.6	Are any draft Letters of Agreement (LoAs) and/or Memoranda of Understanding (MoU) included and, if so, do they contain the commitments to resolve ATS procedures (ATSD) and airspace management requirements?	**Yes**
	Within the original version of the ACP, the sponsor makes reference to the development of LoAs with some of the key stakeholders including NATS, ECTL and MoD. In the final version, the sponsor has described how they think the launch activity will be coordinated and managed, and some of the finer details that were previously missing have been added. The details are fully articulated from either the sponsor or the key stakeholders but may be subject to some minor changes following the outcome of ongoing discussions. This is partly because some of the requirements from some of those key stakeholders (Ireland, Portugal and Spain for example) were not yet fully	

	understood. A final draft of the Operational LoA is being circulated for approval and signature from all the key stakeholders. This will need to be completed before and activation NOTAMs are issued (15 days in advance of any launch as agreed in the LoA). • **Requirement for Condition 6:** During the planning exercise undertaken by the sponsor and key stakeholders (see Recommended Condition 2), the coordination and management of the launch must be agreed and reflected in an LoA(s). Although the LoA(s) will not be signed until launch, it is necessary for the CAA to be satisfied with the content of the LoA(s) and that the content is agreed by all parties. • **Recommended draft Condition 6:** It is a condition precedent to the implementation of the UK CAA October 2022 ACP decision (including recommendation to other NAAs) that all required LoAs have been completed and signed copies have been provided to the UK CAA Airspace Regulation Team. **Note:** Weekly planning and LoA development meetings have been held on a weekly basis since 14 June 2022. The UK CAA Case Officer has been in attendance for the majority of those meetings and provided regulatory guidance as required. Issues that have been identified within those meetings have been dealt with in a timely and appropriate manner.	
2.7	Should there be any other aviation activity (low flying, gliding, parachuting, microlight site etc) in the vicinity of the new airspace structure and no suitable operating agreements or ATC Procedures can be devised, what action has the change sponsor carried out to resolve any conflicting interests?	**Yes**
	The location of TDAs 1, 2, 3 and 4 means that the airspace doesn't impact on other aviation activity. The impact on NAT is articulated and suitable mitigations have been put in place.	
	Observation: TDA 5 Formal agreement from the Irish, Portuguese and Spanish NAAs remains outstanding and may require additional work. The impacts on other aviation activity that result from the activation of TDA 5 are still being investigated and any impacts identified will need to be considered by the Portuguese and Spanish NAAs as part of their decision on whether TDA 5 is necessary and if so approved. There have been discussions about what other mitigations could be employed other than a TDA (such as suitable mitigating air traffic procedures) but due to the time limitations it is thought that such measures would not be in place to facilitate this particular launch. **See Condition 3 in question 2.3.**	

2.8	Is the evidence that the airspace design is compliant with ICAO SARPs, airspace design & FUA regulations, and Eurocontrol guidance satisfactory?	**Yes**
	The sponsor will manage the operations that take place within the TDAs and have experience of doing so in previous launches in the US. They have engaged with the appropriate stakeholders to understand the applicable regulations and requirements of operating this airspace. They have also worked with NATS, the AMC and the ECTL Network Manager to consider the proposed launch operations covered by this temporary APC. As such, compliance with relevant regulatory and guidance material is considered acceptable.	
2.9	Is the proposed airspace classification stated and justification for that classification acceptable?	**N/A**
	The temporary airspace change proposal does not seek to alter the airspace classification. The submission does state that the existing airspace classification in the area is Class C and that the proposal is for the notification of TDAs.	
2.10	Within the constraints of safety and efficiency, does the airspace classification permit access to as many classes of user as practicable?	**N/A**
	The background airspace classification will remain unchanged Class C and Class G and as such, outside of the periods when the TDAs are activated, access to the airspace remains unrestricted to all airspace users.	
2.11	Is there assurance, as far as practicable, against unauthorised incursions? (This is usually done through the classification and promulgation.)	**Yes**
	Over and above notification of the TDA and its subsequent activation through NOTAM, access to other users will be facilitated via communication between the Cosmic Girl crew and the ATS provider. A Danger Area Crossing Service (DACS) or Danger Area Activity Information Service (DAAIS) will not be provided due to the limited activation window and the short duration of the activation of the structures. The TDAs do not result in segregated airspace, but the chances of incursion are regarded as minimal due to the location, activation time and the service being provided by the ATS provider. The TDAs will also have several Flight Plan Buffers Zones applied which will prevent aircraft operators from being able to file a flight plan that passes through the impacted airspace. The sponsor intends to provide real-time DA coordination through their Mission Control Centre which will have the following agencies on a communication channel with Cosmic Girl: CAA, NATS, Irish ANSP, UK Coastguard, ECTL, French ANSP, Portuguese ANSP, Spanish ANSP and the FAA. This is aimed at facilitating a delay and/or abort in the event of any unauthorised incursion.	

	The sponsor is not planning to provide active clear range or surveillance, and this has been accepted with the Safety Case assessment conducted by the CAA Commercial Space Team.	
2.12	Is there a commitment to allow access to all airspace users seeking a transit through controlled airspace as per the classification, or in the event of such a request being denied, a service around the affected area?	**Yes**
	The sponsor has stated that access to the TDAs for national security, emergency services and aircraft in an emergency will be facilitated through the communications with Cosmic Girl, VO Mission Control and ATS providers.	
2.13	Are appropriate arrangements for transiting aircraft in place in accordance with stated commitments?	**Yes**
	No DACS or DAAIS will be provided to allow aircraft to transit the TDAs. However, Cosmic Girl has 4 communication systems (2 voice and 2 data) that will be used to provide real time situational awareness and to facilitate access via direct communication with the Cosmic Girl crew and ATS providers.	
2.14	Are any airspace user group's requirements not met?	**No**
	The remote location of the site means that there is very little aviation activity that takes place other than aircraft using the NAT. The sponsor engaged with all suggested representative groups, as well as the known local airspace user groups. There is no intelligence to suggest that any airspace user groups remain unrepresented.	
	Observation: TDA 5 The requirements of airspace user groups in TDA 5 are unknown and not presented in the ACP. These requirements will need to be considered by the Portuguese and Spanish NAAs as part of their decision on whether TDA 5 is necessary and if so approved.	
2.15	Is any delegation of ATS justified and acceptable? (If yes, refer to Delegated ATS Procedure).	**Yes**
	The launch activity straddles the SHANNON FIR and the SOTA and is therefore taking part in airspace that is subject to a delegation of ATS procedure. There is no intention to alter these arrangements, but the detail of the operational requirements is yet to be fully understood.	
2.16	Is the airspace design of sufficient dimensions with regard to expected aircraft navigation performance and manoeuvrability to contain horizontal and vertical flight activity (including holding patterns) and associated protected areas in both radar and non-radar environments?	**Partial**

	The proposal includes the establishment of 5 separate TDAs to meet the specific requirements of the different stages of the launch activity. TDAs 1, 2 and 4 were originally proposed by the sponsor and TDAs 3 and 5 were further proposed by the sponsor after receiving the UK CAA's initial safety analysis. • **TDA 1** – The Race-Track DA (SFC to FL 400): This TDA is established to provide protection for Cosmic Girl (with L1 attached) to fly a race-track profile with the launch being conducted on the second pass. The structure is big enough to contain the race-track manoeuvre and has an 11 nm buffer added. • **TDA 2** – Rocket Ignition (SFC to Unlimited): This TDA is established to provide protection from the launch and is aimed at containing both nominal and non-nominal events. The dimensions of this TDA have been assessed by the CAA Commercial Space Team and been deemed appropriate to contain the hazard. • **TDA 3** – Transit TDA (SFC to Unlimited): This TDA is established to join TDAs 2 and 4 to provide additional protection from the launch and aimed at containing debris in the event of a non-nominal event. The dimensions of this TDA have been assessed by the CAA Commercial Space Team. In the absence of being able to implement alternative air traffic risk mitigation procedures within this area, this TDA has been deemed necessary by the CAA Airspace Regulation Team and its dimensions have been deemed appropriate to contain the hazard by the CAA Commercial Space Team. • **TDA 4** – Stage 1 and Fairing Splashdown (SFC to Unlimited): This TDA is established to provide protection from the debris fall from the Stage 1 and Fairing Splashdown. Its purpose is to contain the debris fall (to encompass a 6 σ statistical analysis for debris fall) with an additional 10 nm buffer applied. The dimensions of this TDA have been assessed by the CAA Commercial Space Team and been deemed appropriate to contain the hazard. • **TDA 5** – Stage 1 and Fairing Splashdown Continuation (SFC to Unlimited): This TDA is established to provide additional protection from the launch and its purpose is to contain debris in the event of a non-nominal event. In the absence of being able to implement alternative air traffic risk mitigation procedures within this area, this TDA has been deemed necessary by the CAA Airspace Regulation Team and its dimensions have been deemed appropriate to contain the hazard by the CAA Commercial Space Team. **See Condition 4 in question 2.4.**	
2.17	Have all safety buffer requirements (or mitigation of these) been identified and described satisfactorily (to be in accordance with the agreed parameters or show acceptable mitigation)? (Refer to buffer policy letter.)	**Yes**
	Through engagement feedback, NATS stated a requirement for the sponsor to design an appropriate Buffer Zone for the proposed temporary structure. This has not been completed by the sponsor and the proposal does not include any additional buffer applied to the proposed TDAs. However, it should be noted that NATS messaging on this is not consistent, with a different department stating that it is their	

	responsibility to design and apply buffers as they do not consider it likely that sponsors will have the expertise to understand the myriad requirements and limitations that inform Buffer Zone design, particularly where such structures interact with the NAT. This is an ongoing discussion with NATS. In the engagement response from NATS, they state: *To minimise the impact of segregated airspace in oceanic operations the launch area and recovery protection zones must be subject to a sponsor guarantee of the containment of the activity within the defined zones which reduce the buffers that ANSPs are required to add around the segregated airspace. With the sponsors guarantee, the buffer sizes can be minimised within Shanwick to 30nm MNPS and 60 nm Non-MNPS reducing the impact of the airspace closure to other users. The closure will have additional time buffers added to ensure that flight planned traffic is clear of the airspace at the start of the launch procedure. The time buffers are typically -30/+15 minutes to enable transit of the flights ahead of start time. NATS would welcome any sureties in discussion which can minimize the time and geographic buffers necessary and hence reduce the impact on the network.* Therefore, the sponsor has assumed that NATS will apply the required buffer zones following confirmation from the sponsor that the TDAs have been approved by the relevant NAAs. The appropriate buffers zones for the TDAs within all FIRs are being applied by the authorities responsible for that airspace. This forms part of the LoA drafted by all key stakeholders. Those buffers will be applied internally and do not form part of the submission or published AIC.	
2.18	Do ATC procedures ensure the maintenance of prescribed separation between traffic inside a new airspace structure and traffic within existing adjacent or other new airspace structures?	**Yes**
	Robust management and notification procedures have been agreed within the LoA. Notification will be via normal internationally agreed processes and appropriate flight planning restrictions have been agreed.	
2.19	Is the airspace structure designed to ensure that adequate and appropriate terrain clearance can be readily applied within and adjacent to the proposed airspace?	**N/A**
2.20	If the new structure lies close to another airspace structure or overlaps an associated airspace structure, have appropriate operating arrangements been agreed?	**Yes**

	Appropriate operating arrangements for the TDAs have been agreed within the Operational LoA which has been developed with inputs from all the key stakeholders.	
	Observation: TDA 5 The Portuguese and Spanish NAAs are assessing the requirement for TDA 5 and any potential impacts and procedures in that airspace are yet to be finalised. Whether appropriate operating arrangements have been agreed will need to be considered by the Portuguese and Spanish NAAs as part of their decision on whether TDA 5 is necessary and if so approved.	
2.21	Where terminal and en-route structures adjoin, is the effective integration of departure and arrival routes achieved?	**N/A**
	Observation: TDA 5 TDA 5 does potentially impact routes around the Madeira Archipelago and the Canary Islands. Such impacts will need to be considered by the Portuguese and Spanish NAAs as part of their decision on whether TDA 5 is necessary and if so approved.	

	Supporting resources and communications, navigation and surveillance (CNS) infrastructure	**Status**
3.1	Is the evidence of supporting CNS infrastructure together with availability and contingency procedures complete and acceptable? The following are to be satisfied:	
	Communication: Is the evidence of communications infrastructure including RT coverage together with availability and contingency procedures complete and acceptable? Has this frequency been agreed with AAA Infrastructure?	**Yes**
	This detail has not been provided; however, the existing infrastructure that will be used to support the activity to take place in the SHANNON, SHANWICK, MADRID, LISBOA, SANTA MARIA, CANARIAS FIRs and SOTA is considered appropriate and acceptable to include the required coverage and contingency requirements of the proposed TDAs. VO have applied to the UK CAA for an operational control frequency so that they can provide mission control and real-time information to	

	all aviation stakeholders.	
	Navigation: Is there sufficient accurate navigational guidance based on in-line VOR or NDB or by approved RNAV-derived sources, to contain the aircraft within the route to the published RNP value in accordance with ICAO/ Eurocontrol standards? For example, for navaids, has coverage assessment been made, such as a DEMETER report, and if so, is it satisfactory?	**N/A**
	Surveillance: Radar provision – have radar diagrams been provided, and do they show that the ATS route/airspace structure can be supported?	**Yes**
	This detail has not been provided; however, the SHANNON, SHANWICK, MADRID, LISBOA, SANTA MARIA, CANARIAS FIRs and SOTA infrastructure that will be used to support the activity to take place in the TDAs is considered appropriate and acceptable to include coverage of the proposed TDAs. There is limited primary radar coverage across all of the TDA structures and the sponsor is not intending to provide active surveillance of the TDAs. The sponsor will rely on notification of the airspace and the fact that Irish, Portuguese and Spanish ATC will be actively routing traffic away from the airspace and flight plan buffers will be in place to prevent aircraft operators from planning to fly in that area.	
3.2	Where appropriate, are there any indications of the resources to be applied, or a commitment to provide them, in line with current forecast traffic growth acceptable?	**N/A**

4.	Maps/charts/diagrams	Status
4.1	Is a diagram of the proposed airspace included in the proposal, clearly showing the dimensions and WGS84 co-ordinates? (We would expect sponsors to include clear maps and diagrams of the proposed airspace structure(s) – they do not have to accord with aeronautical cartographical standards (see airspace change guidance), rather they should be clear and unambiguous and reflect precisely the narrative descriptions of the proposals.)	**Yes**

	The sponsor has provided clear diagrams that show the proposed TDAs.	
4.2	Do the charts clearly indicate the proposed airspace change?	**Yes**
	The diagrams provided by the sponsor clearly indicate the proposed TDAs.	
4.3	Has the change sponsor identified AIP pages affected by the change proposal and provided a draft amendment?	**Yes**
	This is a temporary airspace change application and, as such, no AIP pages will be affected by its implementation. However, the sponsor has provided a copy of the AIC that will be used to notify the structure using the AIC/SUP publication process. The AIC was subsequently published on 22 Sep 2022 allowing the launch to be completed on the target launch date.	
4.4	Has the change sponsor completed the WGS84 spreadsheet and submitted to the CAA for approval?	**Yes**
	The sponsor has completed the requirements of the ADQ compliance process in accordance with the CAA's policy statement. The final coordinates have been checked and verified.	

5.	**Operational impact**	**Status**
5.1	Is the change sponsor's analysis of the impact of the change on all airspace users, airfields and traffic levels, and evidence of mitigation of the effects of the change on any of these, complete and satisfactory? Consideration should be given to:	
	a) Impact on IFR General Aviation traffic, on Operational air traffic or on VFR General Aviation traffic flow in or through the area.	**Yes**
	The sponsor asserts that the impact to aviation of the proposed TDAs is negligible due to the timing of the launch and the once only nature of the activation. The sponsor has responded to stakeholder feedback and moved the airspace structure to the west to deconflict with traffic operating on the 'Tango' routes to the west of mainland Europe. They have also used some initial analysis provided by ECTL to	

	refine the launch time to coincide with the lowest amount of traffic in the NAT and committed to only activating the TDAs for 1-2 hours. The LoA contains an indication of the exact timings for launch and the activation window of 2200-2359 UTC is contained with the published AIC.	
	Observation: TDA 5 The sponsor conducted further traffic analysis with input from all the key stakeholders to further understand the impacts of the launch. The analysis suggests that the impact to aircraft transiting the airspace is low. However, the analysis doesn't take into consideration the second and third order impacts to operators or airports. For example, it is not clear if any aircraft will either cancel or be delayed and what impacts that might have on operators. This is particularly true for TDA 5 which potentially directly impacts the flow of aircraft to and from the Madeira Archipelago and the Canary Islands. Such impacts will need to be considered by the Portuguese and Spanish NAAs as part of their decision on whether TDA 5 is necessary and if so approved. The launch window will continue to be refined as the launch approaches to help minimise the impacts on other aviation users. **See Condition 3 in question 2.3**	
	b) Impact on VFR Routes.	**Yes**
	The sponsor contends that the impact of the proposed use of the TDAs (one activation of one hour duration during the 90-day notification period) on VFR traffic will be negligible when set against the extremely limited activity in the area. This is accepted as a reasonable assertion for TDAs 1, 2, 3 and 4.	
	Observation: TDA 5 TDA 5 has the potential to impact VFR routes in the vicinity of the Madeira Archipelago and the Canary Islands. Such impacts will need to be considered by the Portuguese and Spanish NAAs as part of their decision on whether TDA 5 is necessary and if so approved.	
	c) Consequential effects on procedures and capacity, i.e. on SIDs, STARs, holds. Details of existing or planned routes and holds.	**Yes**
	Due to the location of TDAs 1, 2, 3 and 4, there is no impact on procedures and capacity other than users of the NAT and the sponsor has listened to feedback from stakeholders and actively updated the location, duration and dimensions of the TDAs to deconflict with any routes and procedures, such as the Tango Routes and existing Danger Areas.	

	Observation: TDA 5 TDA 5 has potential impacts on the operations at airports in the Madeira Archipelago and the Canary Islands. Such impacts will need to be considered by the Portuguese and Spanish NAAs as part of their decision on whether TDA 5 is necessary and if so approved.	
	d) Impact on airfields and other specific activities within or adjacent to the proposed airspace.	**Yes**
	Due to the location of TDAs 1, 2, 3 and 4, there is no impact on airfields or activities other than users of the NAT.	
	Observation: TDA 5 TDA 5 has potential impacts on the operations at airports in the Madeira Archipelago and the Canary Islands. Such impacts will need to be considered by the Portuguese and Spanish NAAs as part of their decision on whether TDA 5 is necessary and if so approved.	
	e) Any flight planning restrictions and/ or route requirements.	**Yes**
	The impact on NAT that results from activation of TDAs 1, 2, 3 and 4 is understood and has been systemised to implement the required flight planning restrictions; these restrictions are articulated within the operational LoA.	
	Observation: TDA 5 TDA 5 has potential impacts on the operations at airports in the Madeira Archipelago and the Canary Islands. Such impacts will need to be considered by the Portuguese and Spanish NAAs as part of their decision on whether TDA 5 is necessary and if so approved.	
5.2	Does the change sponsor consultation material reflect the likely operational impact of the change?	**N/A**
	As this is a temporary ACP, the sponsor was not required to conduct a consultation. The sponsor carried out targeted engagement with aviation stakeholders which comprehensively discussed the operational impacts of the proposed temporary structures.	

Case study conclusions – to be completed by Airspace Regulator (Technical)	**Yes/No**

Has the change sponsor met the SARG airspace change proposal requirements and airspace regulatory requirements above?	**Yes**
From an operational assessment perspective, the sponsor has met the requirements of the CAP1616 temporary airspace change process and airspace regulatory requirements associated with this application.	

RECOMMENDATIONS/CONDITIONS/PIR DATA REQUIREMENTS	**Yes/No**
Are there any Recommendations which the change sponsor **should try** to address either before or after implementation (if approved)? If yes, please list them below.	**No**
GUIDANCE NOTE: *Recommendations are something that the change sponsor* ***should try*** *to address either before or after implementation, if indeed the airspace change proposal is approved. They may relate to an area in which the change sponsor is reliant upon a third party to actually come to an agreement and consequently they do not carry the same 'weight' as a Condition.* N/A	
Are there any Condition(s) which the change sponsor **must fulfil** either before or after implementation (if approved)? If yes, please list them below.	**Yes**
GUIDANCE NOTE: *Conditions are something that the change sponsor* ***must fulfil*** *either before or after implementation, if indeed the airspace change proposal is approved. If their proposal is approved, change sponsors* ***must observe*** *any condition(s) contained within the regulatory decision; failure to do so* ***will usually*** *result in the approval being revoked. Conditions should specify the consequence of failing to meet that condition, whether that be revoking the ACP or some alternative.* 1. **Recommended draft Condition 1:** It is a condition precedent to the implementation of the UK CAA October 2022 ACP decision (including recommendation to other NAAs) that all necessary licences under the Space Industry Act 2018 to enable launch activity to take place have been granted by the UK CAA and all conditions precedent to those licences have been met. **2.** **Recommended draft Condition 2:** It is a condition precedent to the implementation of the UK CAA October 2022 ACP decision (including recommendation to other NAAs) that NATS (in its role as Airspace Management Cell (AMC)) confirms in writing to the UK CAA that the necessary desktop exercises have been successfully completed by NATS, MoD, Eurocontrol and the Irish, Portuguese and Spanish NAAs. 3. **Recommended draft Condition 3:** It is a condition precedent to the implementation of the UK CAA October 2022 ACP decision (including	

recommendation to other NAAs) that the sponsor has obtained the appropriate approvals from the Irish, Portuguese and Spanish NAAs to accept and implement the UK CAA's recommendation regarding TDAs 1 and 4 and regarding TDA 5 (unless the Portuguese and Spanish NAAs advise the UK CAA that TDA 5 need not be recommended by the UK CAA because alternative air traffic risk management procedures can be put in place) before any activation of the temporary ACP within UK airspace can occur.

4. **Recommended draft Condition 4:** It is a condition precedent to the implementation of the UK CAA October 2022 ACP decision (including recommendation to other NAAs) that the CAA's Commercial Space Team has decided the proposed dimensions of the TDAs are sufficient to contain any hazards, following completion of the CAA's Commercial Space Team's assessment and agreement to the sponsor's full safety case.

5. **Recommended draft Condition 5:** It is a condition precedent to the implementation of the UK CAA October 2022 ACP decision (including recommendation to other NAAs) that the UK CAA has taken the necessary steps to implement a TDA over the SCZ of Spaceport Cornwall (to a height to be determined by the UK CAA) and over MoD Boscombe down (to dimensions to be determined by the UK CAA), both for a period to be determined by the UK CAA.

6. **Recommended draft Condition 6:** It is a condition precedent to the implementation of the UK CAA October 2022 ACP decision (including recommendation to other NAAs) that all required LoAs have been completed and signed copies have been provided to the UK CAA Airspace Regulation Team.

Are there any specific requirements in terms of the data to be collected by the change sponsor for the Post Implementation Review (if approved)? If yes, please list them below.	**Yes**

GUIDANCE NOTE: *PIR data requirements concerns any specific data which the change sponsor* ***must*** *collate post-implementation, if indeed the airspace change proposal is approved. Please use this section to list any such requirements so that they can be captured in the regulatory decision accordingly.*

As this proposal relates to a temporary airspace change it will not be the subject of a formal Post-Implementation Review. However, sponsors of temporary airspace change proposals are required to undertake regular engagement with stakeholders and to monitor, collate and report on the level and content of complaints or feedback associated with the proposal throughout its period of operation. It is suggested that, should this temporary airspace change proposal be approved, that approval includes a requirement for the sponsor to formally present all information of this nature that it receives during the notification period of the structure. This information could prove valuable to inform proposals for any permanent ACP that the sponsor wishes to initiate in the future.

General summary

From an operational assessment perspective, subject to the conditions above, it is recommended that the UK CAA's decision is:

- To implement a TDA above the SCZ at Spaceport Cornwall and above Boscombe Down at a time and with the dimensions to be determined by the CAA.
- To approve the sponsor's proposal for TDA 3 to the extent it sits in UK managed airspace.
- To recommend to the Irish, Portuguese and Spanish NAAs to approve the sponsor's proposal for the remainder of TDA 3, as well as TDAs 1, 2 and 4.
- To recommend to the Portuguese and Spanish NAAs to approve TDA 5, unless they decide they can mitigate the need for TDA 5 by means of alternative air traffic risk management procedures.

Comments and observations

The sponsor has worked hard to understand the requirements for this activity. A number of areas with regards to international agreements with numerous agencies which were not in place have presented significant challenges to the sponsor. However, they have tried to remain flexible and continued to refine their operations to ensure that stakeholders needs are met where possible.

The dimensions of the proposed structures within this ACP bound the areas with the calculated risk contours of $1x10^{-6}$ and $1x10^{-7}$. It is noted that the FAA routinely utilise different assured processes to mitigate risks within the $1x10^{-7}$ risk areas. However, at the current time, those assured processes are not developed within the UK and may be impractical to implement within the timeframe for this launch when considering the complexity of cross-border operations. This proposal therefore represents a safe alternative and is reflective of a necessary and logical approach to the introduction of a 'new type of airspace user' within UK airspace.

Ongoing engagement across a range of agencies has meant that this document may not articulate the finished or complete plan, but it is accepted that the sponsor has done a good job to date. Conditions have been recommended where further detail or work is needed to finalise the airspace arrangements.

In order to maintain a high standard of safety, the UK CAA will implement a TDA over the Spaceport Cornwall SCZ area and over Boscombe Down. This is discussed in more detail in section 2.5 above.

Temporary Space ACP

Operational assessment sign-off	Name	Signature	Date
Operational assessment completed by Airspace Regulator (Technical)	[redacted]	[redacted]	18 October 2022
Operational assessment approved by Manager Airspace Regulation	[redacted]	[redacted]	21 October 2022

Manager Airspace Regulation Comments:

This ACP reflects a complex proposition which has required significant coordination and support across NAAs to both understand the effects of the proposal and work to agreeing procedures and processes to mitigate impacts. Some of this work is still in progress and is thus reflected in the conditions proposed above.

This ACP is fundamentally based upon the establishment of a series of TDAs, to create a 'segregated corridor' to provide a safe airspace environment and enable a horizontal space launch. The proposed dimensions of this corridor have been informed by calculations submitted by the Sponsor and corroborated by the CAA Commercial Space Team. These calculations have described a bounded area which contain various levels of risk to other airspace users. Through the ACP process, it has been determined these areas require some form of mitigation to account for other airspace users in the event of an 'off nominal event'. The size of this structure combined with the cross-border nature of this activity has necessarily driven a degree of complexity into this ACP and thus informed the proposed design. An understandable fact given this would be the first space launch of its type in European airspace. The proposed ACP is therefore reflective of a safe and logical approach to the introduction of a 'new airspace user'.

It is important to note however that each State retains responsibility for approving any subsequent activation of a structure within their managed airspace. It is understood that Portugal or Spain may wish to adopt Air Traffic Management (ATM) procedures to address residual risk areas bound within the proposed TDA 5 dimensions; this may therefore not require the activation of TDA 5. These proposed ATM processes potentially mirror those used by the United States Federal Aviation Authority and likely reflect the ATM availability in that area. Cognisant of this ongoing work and subject to the acceptance of the conditions outlined above, which includes addressing for resolution the TDA-5 activation requirement prior to launch, I would recommend approving this ACP.

Head AAA	Name	Signature	Date
Operational assessment conclusions approved by Head AAA	[redacted]	[redacted]	12 November 2022
Head AAA Comments: This Temporary ACP represents the culmination of an enormous effort in collaboration across the UK aviation Industry and across Western European Authorities. Subject to the conditions laid out in this document I recommend GDSAR approves the recommended decisions in respect of this Airspace Change.			
Group Director Safety and Airspace Regulation Group (GD SARG) comment / Decision	**Name**	**Signature**	**Date**
Operational assessment conclusions approved by GD SARG	[redacted]	[redacted]	14 November 2022
GD SARG Comments and Decision: GD SAR endorses the recommendations set out in this document and adopts the recommended decision and recommended reasons set out above as the CAA's decision in respect of this airspace change and the reasons for it. GD SAR endorses the conditions as set out above.			